

Final Report

Project WFD100

Further Development of River Invertebrate Classification Tool

September/2010

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Research contractor

This document was produced by the Centre for Ecology & Hydrology (main contractor) and the Freshwater Biological Association (sub-contractor):

John Davy-Bowker*, Sean Arnott[†], Rebecca Close[†], Mike Dobson[†], Michael Dunbar[†], Gabriela Jofre*, Diana Morton*, John Murphy[^], William Wareham[‡], Stephanie Smith* & Vanya Gordon*

*The Freshwater Biological Association, River Laboratory, East Stoke, Wareham, Dorset, BH20 6BB, United Kingdom

[†]The Freshwater Biological Association, The Ferry Landing, Far Sawrey, Ambleside, Cumbria, LA22 0LP, United Kingdom

[‡]Centre for Ecology & Hydrology, Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB, United Kingdom

[^]Queen Mary University of London, c/o Freshwater Biological Association, River Laboratory, East Stoke, Wareham, Dorset, BH20 6BB, United Kingdom

SNIFFER's project manager

SNIFFER's project manager for this contract is:
David Colvill, Scottish Environment Protection Agency

SNIFFER's project steering group members are:

David Colvill, Scottish Environment Protection Agency
Peter Hale, Northern Ireland Environment Agency
Imelda O'Neill, Northern Ireland Environment Agency
Ben McFarland, Environment Agency

SNIFFER

**First Floor, Greenside House
25 Greenside Place
EDINBURGH EH1 3AA
Scotland
UK**

www.sniffer.org.uk

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EXECUTIVE SUMMARY

WFD100: Further Development of River Invertebrate Classification Tool (March, 2010)

Project funders/partners:

Environment Agency, Northern Ireland Environment Agency, Scotland & Northern Ireland Forum for Environmental Research, Scottish Environment Protection Agency

Background to research

The Regulatory Agencies in the UK (the Environment Agency; Scottish Environment Protection Agency; and the Northern Ireland Environment Agency) have recently begun to use the River Invertebrate Classification Tool (RICT) to classify the ecological quality of rivers. RICT incorporates RIVPACS IV predictive models and is a highly capable tool written in a modern software programming language.

While RICT classifies waters for general degradation and organic pollution stress, producing assessments of status class and uncertainty, WFD compliance monitoring also requires the UK Agencies to assess the impacts of hydromorphological and acidification stresses.

This project seeks to broaden the scope of RICT by adding numerical abundance estimates to the underlying RIVPACS database, thereby allowing the calculation of additional abundance-weighted biotic indices to classify sites affected by hydromorphological and acidification stress. This project also seeks to identify a list of potential new predictive variables to enable subsequent development of a RIVPACS model that does not use predictor variables that are affected by these stressors.

Objectives of research

- To consult and then propose various new predicted species output options from RICT that more closely conform to the level of species identification routinely achievable in Agency laboratories.
- To produce the necessary data and files to implement these new species-level taxonomic output option(s) in RICT.
- To allocate numerical abundance values to all of the existing species and family level records in the RIVPACS reference site database.
- To calculate a new range of species-level biotic indices in the RIVPACS database and to supply the files necessary to enable RICT to predict reference values for these indices at test sites.
- To propose a list of new predictive variables that will both enhance the predictive capabilities of RICT and also offset the loss of predictive power associated with the future removal of variables known to be affected by hydromorphological and acidification stress.

This work has fine-tuned the species level index predictions of RICT to better match the needs of the Agencies, improved the usefulness of the RIVPACS dataset to predict abundance weighted indices and paved the way for RICT to make predictions using predictor variables that are more convincingly independent of the stresses being assessed.

Key findings and recommendations

This project has produced several enhancements to the RIVPACS database and the RIVPACS IV model within RICT:

- Data files to support a new predicted species output option from RICT (WFD species level) that more closely conforms to the level of species identification routinely achievable in Agency laboratories.
- Allocation of numerical abundance values to all of the existing species and family level records in the RIVPACS reference site database to support the calculation of a wide range of family and species-level indices including those with abundance weighting.
- Calculation of a new range of species-level biotic indices in the RIVPACS database and the supply of files necessary for RICT to be able to predict reference values for these indices at test sites.
- Production of a list of new predictive variables that could both enhance the predictive capabilities of RICT and also offset the loss of predictive power associated with the future removal of variables known to be affected by hydromorphological and acidification stress.

While this project has made reference values of a wide range of new indices available it is recommended that further work should be undertaken to enable RICT to calculate indices that require direct comparison of observed and expected faunal lists (e.g. the Environment Agency Pesticide and the Index of Compositional Dissimilarity).

Key words: RIVPACS IV, River Invertebrate Classification Tool, Water Framework Directive

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1. INTRODUCTION

1.1 Previous Projects

Several recent SNIFFER projects have recently provided important work that paves the way for project WFD100. These are briefly summarised below:

Project WFD46 – Davy-Bowker *et al.*, (2007a, 2007b)

- Investigated the ownership of the RIVPACS reference site dataset.
- Established unhindered access to the RIVPACS reference site dataset for the UK agencies (in perpetuity).
- Made the RIVPACS reference site dataset available to the UK Agencies and to the public domain in a readily accessible database together with its accompanying physicochemical variables (both existing and newly collated as part of project WFD46), historical and current anthropogenic stress data, and a range of calculated biotic indices.
- Identified sites that fail to satisfy the WFD definition of reference condition (based on historical pressure data).
- Summarised the levels of anthropogenic pressure acting at the level of RIVPACS classification groups and WFD System-A stream types.

Project WFD72A – Paisley *et al.*, (2007)

- Revised the BMWP scoring system to more accurately represent the impacts of pollution on the invertebrate fauna and to better inform the direction of resources for remediation.

Project WFD72B – Clarke & Davy-Bowker (2006)

- Developed a robust defensible mechanism for adjusting the RIVPACS expected values of biotic indices for any specific test site according to the perceived ecological condition (at the time of sampling for RIVPACS) of the RIVPACS reference sites actively involved in the prediction for that test site. The resulting adjusted O/E values more evenly reflect the WFD concept of ecological status across all UK river types.
- Provided the necessary formulae for implementing this adjustment mechanism for the environmental regulatory agencies' classification sites.

Project WFD72C – Davy-Bowker *et al.*, (2008)

WFD72C was a landmark project that facilitated the progression of the DOS based RIVPACS III+ (written and programmed by CEH) to a Windows based 'River Invertebrate Classification Tool' incorporating RIVPACS IV predictive models developed by CEH and a totally new state-of-the-art software interface programmed by Mark Caulfield (TekSystems/Bruce Ltd.). WFD72C addressed the following needs:

- Predictions that fully satisfy the WFD definition of 'reference condition' by adjusting predictions for certain stream types and by removal of sites that were not in reference condition when sampled.
- Allocation of actual abundance values to family level records and species level records in the RIVPACS reference data set. Lack of actual abundance data, especially at family level, has affected all versions of RIVPACS and has constrained the types of biotic indices that RIVPACS can predict.
- Extension to the suite of biotic indices so that the new system can predict a wider range of reference state "expected" index values. This will enable full WFD quality reporting capabilities as well as providing the system with the general functionality to predict a much wider range of indices e.g. intercalibration indices (e.g. ICMi), stress-specific indices, and ecological and functional trait indices.

- Review and testing of methods for optimising predictive ability. While this has been reviewed previously, newly emerging methods need to be reviewed to see if they can lead to lower uncertainty in model predictions.
- Extension of the uncertainty/errors module to estimate and assess uncertainty in (i) assignment to status class and (ii) comparison of samples for temporal change in quality and status. This needs to be done for a wider range of biotic indices (including those incorporating abundance data).
- Free of charge dissemination to all interested users.
- Resolution of the dual coverage of upland Scottish sites in the RIVPACS III+ GB and Highlands models. This leads to confusion about which model should be used for sites within this ill-defined bio-geographical area. The geographical configuration of the current RIVPACS models therefore needs to be re-examined for the new Tool.
- Updating the software to a modern state-of-the-art computing language whilst also increasing user friendliness (e.g. windows interface, modern file formats for data input and export, reducing user effort involved in running software, better integration with Agency IT systems, and reduction in specialist knowledge required to run the software).

The new River Invertebrate Classification Tool (incorporating RIVPACS IV predictive models) has now superseded RIVPACS III+ as the official tool for macroinvertebrate classification for the WFD by the UK Agencies.

1.2 Project WFD100

While the new River Invertebrate Classification Tool has delivered additional functionality above and beyond that in previous versions of RIVPACS, there is now a pressing need to develop and test new or existing indices that broaden the assessment of stress types beyond organic pollution. Bioassessment of the impacts of a wider range of stresses is now an essential biomonitoring requirement under the WFD.

In the longer term, as the suite of stress specific indices broadens, there will also be a requirement to develop a new 'General Disturbance' index that can quantify the overall extent to which a test site deviates from its expected reference condition without over emphasis of this assessment on any one particular stressor.

Project WFD100 has started the process of broadening stress coverage by reviewing the species-level indices in use across the UK and Europe and by determining the required level of taxonomic resolution to calculate these indices. This will also be compared with the current practicable level of species taxonomic resolution in use within the UK Agencies. The RIVPACS database will then be updated with taxonomic data at this level of resolution so that reference condition values can be calculated for these indices.

Because many of the indices of potential usefulness in describing new stress types are both species level indices and abundance weighted, there is therefore a pressing requirement to address the long running problem of the absence of species-level abundance data in the RIVPACS dataset. This will be tackled within project WFD100 by data entry of abundance data from archived laboratory sheets to populate the RIVPACS database with species-level abundance data. Appropriate methods will also be used to provide estimates of the numerical abundances for records where no data are available on the original laboratory data sheets.

As the range of stress types that RICT can assess broadens, there will also be a need to improve the independence of the predictor variables used by the underlying RIVPACS IV models from this widening range of stressors. Project WFD100 will therefore start a process of compilation of data for improved predictor variables that subsequently will be used to develop model(s) with improved independence from the stresses being assessed.

1.3 Project Objectives

The overall objectives of Phase 1 are as follows:

- To consult and then propose various new predicted species output options from RICT that more closely conform to the level of species identification routinely achievable in Agency laboratories.
- To produce the necessary data and files to implement these new species-level taxonomic output option(s) in RICT.
- To allocate numerical abundance values to all of the existing species and families level records in the RIVPACS reference site database.
- To calculate a new range of species-level biotic indices in the RIVPACS database and to supply the files necessary to enable RICT to predict reference values for these indices at test sites.
- To propose a list of new predictive variables that will both enhance the predictive capabilities of RICT and also offset the loss of predictive power associated with the future removal of variables known to be affected by hydromorphological and acidification stress.

This work will fine-tune the species level index predictions of RICT to better match the needs of the Agencies, improve the usefulness of the RIVPACS dataset to predict abundance weighted indices and pave the way for RICT to make predictions using predictor variables that are more convincingly independent of the stresses being assessed.

This project is organised into six work elements (hereafter abbreviated as WE):

- WE1: Project management and coordination.
- WE2: Determination of the required level of taxonomic resolution.
- WE3: Rationalisation of taxonomy and allocation of species level abundances.
- WE4: Allocation of index values, functional values and trait data.
- WE5: Compilation of a 'wish-list' of enhanced predictive variables.
- WE6: Technical report (a compilation of WE reports and covering summary).

These are described in detail below:

WORK ELEMENT 1: Project management and coordination including three project meetings and project progress reports.

WORK ELEMENT 2: Review of species-level biotic indices in use in the UK and across Europe including consultation within the UK Agencies. Consultation within the UK Agencies to determine the level of taxonomic resolution practically attainable when processing macroinvertebrate samples to species-level. Recommendations for a new level/levels of taxonomic resolution output for RICT.

WORK ELEMENT 3: Data entry of species-level numerical abundances to the RIVPACS database. Estimation and addition of numerical abundances to records without data. Calculation of numerical abundances for rationalised taxonomy/taxonomies and update of the RIVPACS reference database.

WORK ELEMENT 4: Allocation of functional trait data to support the calculation of new biotic indices. Calculation of reference values and end group means for new species-level abundance weighted biotic indices.

WORK ELEMENT 5: Compilation of a wish list of potential new predictive variables that have better independence from stressors for use in a future predictive model development.

WORK ELEMENT 6: Technical report (a compilation of WE reports and covering summary).

There are three main target audiences for this work.

- Operational staff in environmental protection agencies of the United Kingdom. The products are of particular relevance for biologists, water quality and water resources staff responsible for implementing the WFD. It is also aimed at those interpreting the results of biological surveys and planning programmes of measures to maintain or restore good ecological quality. Some of these people may not have specialist computing or other skills, so the system will require a simple, clear and intuitively simple user interface and supporting documents. The products will also be used by third parties wanting to undertake the same tasks, including other water users, non-governmental organisations, conservation organisations and universities.
- Computer and data systems staff of environmental protection agencies responsible for maintaining computer network systems and staff developing integrated software systems for WFD and other environmental management purposes.
- Those developing other ecological prediction, classification and modelling tools for the sponsoring organisations, in particular those developing other WFD classification and modelling tools for algae, macrophytes and fish.

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2.1 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 2.1 Review and consultation on species-level biotic indices

2.1 Background

While the newly developed River Invertebrate Classification Tool has delivered additional functionality above and beyond that in previous versions of RIVPACS, there is now a pressing need to develop and test new or existing indices that broaden the assessment of stress types beyond organic pollution. Bioassessment of the impacts of a wider range of stresses is now an essential biomonitoring requirement under the WFD. In the longer term, as the suite of stress specific indices broadens, there will also be a requirement to develop a new 'General Disturbance' index that can quantify the overall extent to which a test site deviates from its expected reference condition without over emphasis of this assessment on any one particular stressor.

Project WFD100 has started the process of broadening stress coverage by reviewing the species-level indices in use across the UK and Europe and by determining the required level of taxonomic resolution to calculate these indices. This has also been compared with the current practicable level of species taxonomic resolution in use within the UK Agencies. In WE3 the RIVPACS database will then be updated with taxonomic data at this level of resolution so that reference condition biotic index values can be calculated for these indices.

2.2 Review of Species Level Indices

A review of the species level indices currently in use across the UK and Europe has been carried out:

- To list the species-level indices in use.
- To identify which stress or stresses these indices report.
- To determine the required level of taxonomic resolution for each index.

This review has drawn on a number of sources:

- The *Waterview* Database, a deliverable from the EU funded STAR project: (<http://starwp3.eu-star.at/>)
- Information on indices from the EU AQEM/STAR projects
- WFD Inter-calibration report(s)
- Published literature sources and reports (extending beyond Europe where particular indices merit investigation)
- Consultation within the UK Agencies to draw up a list of species-level indices currently in use, under consideration and under development

NB – at the project start-up meeting it was agreed that superseded indices (e.g. the Raddum acidity index) will be excluded from the next version of RICT.

2.2.1 The *Waterview* Database

The *Waterview* database is a deliverable from the EU funded STAR project and is available from <http://starwp3.eu-star.at/>. The *Waterview* database integrates all of the indices used, documented, and calculated within the STAR project and within the ASTERICS software program and as such provides a very good overview of indices across Europe. This database has been queried to obtain data on the bioassessment tools currently in use across Europe and the biotic indices they contain. These data are presented in Appendix I and then summarised across Europe in Appendix II. It should be noted that the data extracted from the *Waterview* database may not be completely up-to-date with the very latest indices and this report will present more recent scoring systems in later sections.

The biotic indices used by most European countries in their biomonitoring schemes are designed to

respond primarily to organic pollution. Of these, the *WaterView* database shows that BMWP, NTAXA, ASPT and the Saprobic indices are by far the most popular; the BMWP indices being used in 13 states and the Saprobic in 16 (including regional variants of both types of index). Between them, these two types of index are used by 25 EU Countries. An important point to note here is that while the BMWP indices use family level data, the Saprobic indices often require identification to genus level. The EPT index and the Danish Stream Fauna Index are the next most commonly used (4 and 5 countries respectively) while the other indices are generally only used by one or two EU states.

Diversity indices are used less widely than the organic pollution indices. Shannon Weiner diversity is used by 4 EU countries while Simpson diversity, Margalef diversity and Pielou evenness are only used in Bulgaria, Austria and Greece.

Acidity indices are unsurprisingly only used in those countries with significant acidification issues. The Henrikson and Medin Acid Index is used in both Sweden and Estonia while national indices developed in both Germany and the United Kingdom are in use in these countries respectively.

2.2.2 EU AQEM/STAR Projects

2.2.2.1 ASTERICS

The EU, AQEM and STAR projects have between them brought together a wide range of biotic indices in use across Europe and reported these in various different forms. The AQEM project enabled the development of the AQEM European Stream Assessment Program that includes a means of entering biological sample data into a standardised Europe-wide data entry system and a tool for the calculation of biotic index values, originally called AQEMrap but now known as ASTERICS. In its most recent form, the ASTERICS software automatically calculates a wide range of biotic indices and the associated manual provides descriptions of how each index should be calculated (although the individual taxon-specific scores e.g. trait scores, are only to be found electronically in the software and supporting databases). It should however be stressed that the biotic indices within ASTERICS are broadly the same as those described in the *WaterView* database so a full and separate review of the ASTERICS indices would yield the same indices as have been described in Appendix I and II of this report.

2.2.2.2 Species Traits Analysis (STAR Deliverable N2)

Within the EU STAR project, work was undertaken to test the applicability of species traits analysis both as a means of defining functional reference conditions (a reference condition target for the functional quality of streams) and also as a method of assessing functional status class (for defining the quality of test sites in terms of their function).

The analysis of functional traits across reference sites revealed consistent differences in the trait characteristics of freshwater communities from the river types present in different geographical regions of Europe. For example, at altitudes above 1400m, organisms with small body size and rheophilous forms (crawlers) were consistently found to be dominant. These rivers also tended to support invertebrates with traits associated with living in high energy, fast-flowing waters with coarse mineral substrata.

The analysis of traits as correlates of functional disturbance also revealed some encouraging patterns in response to organic and morphological stress, although further analysis on larger UK datasets is probably needed before any concrete conclusions can be drawn about the value of any particular suites of traits as strong correlates of particular stress gradients.

However, it is important to stress that some of the traits used in this work were numerical scorings of habitat or stream-type preferences (e.g. substratum preference, water body type preference, distance from source preference). These types of trait are themselves responses to the environment and are less desirable than traits that are innate physiological or morphological characteristics of the species concerned (e.g. number of life cycles per year, mode of respiration, mode of dispersal). In broad terms it is better to use biological traits rather than ecological ones or else there is a danger that any inferences drawn may be circular and therefore uninformative.

2.2.3 WFD Inter-calibration reports

A key action identified by the WFD has been to carry out a Europe-wide intercalibration to ensure that ecological quality bands are both consistent with the Directive's generic description and are also comparable across all Member States. The intercalibration process has been managed by the Common Implementation Strategy Working Group A - Ecological Status (ECOSTAT) and all 27 Member States have been involved (plus Norway on a voluntary basis).

Expert groups were established for lakes, rivers and coastal/transitional waters, each subdivided into 14 Geographical Intercalibration Groups that notionally had similar water body types.

For rivers, five Geographical Intercalibration Groups (GIGs) were established, each sub-divided further into stream types. In general terms, class boundaries were initially set separately by each Member State using their own bioassessment system and metrics. This was then followed by calibration against a common metric and then by harmonisation of class boundaries to fine-tune the EU-wide definition of the quality classes (with particular attention being paid to the High/Good to Moderate/Poor/Bad boundary).

Although the United Kingdom only featured in two of these GIGs (Northern and Central/Baltic) this review of indices includes all the macroinvertebrate methods used across all Member States.

The Intercalibration Common Metric index (ICMi) as used by the Central/Baltic GIG is a multimetric index comprising a weighted average of six Intercalibration Common Metrics (ICMs):

- Average Score Per Taxon (ASPT)
- $\text{Log}_{10}(\text{sel_EPTD}+1)$
- 1-GOLD
- total number of taxa (families)
- number of EPT (Ephemeroptera, Plecoptera and Trichoptera) taxa (families)
- Shannon-Wiener diversity index

Full details of the weightings of the individual ICM metrics and their weightings can be found in Table 1 (from Table 2.1.3 on pg 18 of van de Bund, 2009).

Within each GIG the relevant intercalibration metrics were intercalibrated against the various national bioassessment methods. These are listed in Table 2.

van de Bund W. (2009) Water Framework Directive intercalibration technical report. Part 1: Rivers. 2009. Luxembourg: Office for Official Publications of the European Communities.
http://circa.europa.eu/Members/irc/jrc/jrc_eewai/library?l=/intercalibration_2&vm=detailed&sb=Title&cookie=1_IC_TR_JRC51339-volumeriver.

Table 1. Intercalibration Common Metrics (ICMs) used in the Intercalibration Common Metric Index (ICMI) as described in van de Bund, 2009 (pg 18).

Information Type	Metric Type	Metric name	Taxa considered in the metric	Literature reference	Weight
Tolerance	Index	ASPT	Whole community (family level)	e.g. Armitage <i>et al.</i> , 1983	0.333
	Abundance	Log ₁₀ (Sel_EPTD+1)	Log (sum of Heptageniidae, Ephemeridae, Leptophlebiidae, Brachycentridae, Goeridae, Polycentropodidae, Limnephilidae, Odontoceridae, Dolichopodidae, Stratiomyidae, Dixidae, Empididae, Athericidae, Nemouridae)	Buffagni <i>et al.</i> , 2004; Buffagni & Erba, 2004	0.266
Richness and Diversity	Abundance	1-GOLD	1-(relative abundance of Gastropoda, Oligochaeta and Diptera)	Pinto <i>et al.</i> , 2004	0.067
	Taxa Number	Total number of families	Sum of all families present at the site	e.g. Ofenboch <i>et al.</i> , 2004	0.167
	Taxa Number	Number of EPT families	Sum of Ephemeroptera, Plecoptera, Trichoptera	e.g. Ofenboch <i>et al.</i> , 2004; Böhmer <i>et al.</i> , 2004	0.083
Diversity Index	Shannon-Wiener diversity index	$D_{s-w} = -\sum_{i=1}^s \left[\frac{q_i}{A} \right] \ln \left[\frac{q_i}{A} \right]$	e.g. Hering <i>et al.</i> , 2004; Böhmer <i>et al.</i> , 2004	0.083	

Table 2. National methods used in intercalibration (all GIGs combined) as at 28th August 2009.

EU Member State	National classification method
Austria	Austrian System for Ecological River Status Assessment (Worst case between Multimetric Indices for General Degradation and Saprobic Index)
Austria	Slovak System for Ecological River Status Assessment
Austria	Multimetric Indices for General Degradation (Structural Diversity, nutrients,...), Saprobic Index
Belgium (Flanders)	Multimetric Macroinvertebrate Index Flanders (MMIF)
Belgium (Wallonia)	Indice Biologique Global Normalisé (IBGN)
Bulgaria	Bulgarian Biotic Index for River Quality Assessment (QScheme)
Cyprus	STAR Intercalibration Common Metric Index (STAR_ICMI) (Buffagni <i>et al.</i> , 2005 and Water Development Department, 2008)
Czech Republic	Multimetric index
Czech Republic	Czech Saprobic Index following Zelinka & Marvan (1961)
Denmark	Danish Stream Fauna Index (DSFI)
Estonia	British Average Score Per Taxon (ASPT)
Finland	Multimetric system, first version established (Hämäläinen, H. <i>et al.</i> 2006). Metrics in the system include ASPT, number of type-specific taxa (Hämäläinen <i>et al.</i> 2002), number of EPT families and PMA-index (Percent Model Affinity, Novak & Bode 1992).
France	French WFD classification Indice Biologique Global Normalisé (IBGN) - norm AFNOR NF T 90 350 (1992) and circular MEDD/DE 05 n°14 (July 05)
Germany	PERLODES –Bewertungsverfahren von Fließgewässern auf Basis des Makrozoobenthos
Germany	Handbuch zur Untersuchung und Bewertung von Fließgewässern auf der Basis des Makrozoobenthos vor dem Hintergrund der EG-WRRL, April 2005, www.fliessgewaesserbewertung.de
Greece	STAR Intercalibration Common Metric Index (STAR_ICMI) (Buffagni <i>et al.</i> , 2007)
Hungary	Hungarian Average Score Per Taxon
Ireland	Quality Rating System (Q-value)
Italy	STAR Intercalibration Common Metric index
Italy	STAR Intercalibration Common Metric Index (STAR_ICMI), type adapted
Italy	STAR Intercalibration Common Metric Index (STAR_ICMI), type specific (Buffagni <i>et al.</i> , 2007 and IRSA-CNR, <i>Notiziario dei Metodi Analitici</i> , Marzo 2007)
Latvia	Saprobic Index
Lithuania	Biotic index (BI), Danish stream fauna index (DSFI). Also possible calculation of ASPT, BMWP
Luxembourg	Indice Biologique Global Normalisé (IBGN)
Netherlands	KRW-maatlat
Norway	Classification system under development; ASPT was used in the intercalibration exercise
Poland	BMWP (BMWP-PL) verified by modified Margalef diversity index
Portugal	IPtI Invertebrate Portuguese Index: IPtIN and IPtIS
Romania	Romanian Saprobic Index following Pantle & Buck (1955)
Slovak Republic	Austrian System for Ecological River Status Assessment
Slovenia	Multimetric index (Hydromorphology), Saprobic Index
Spain	North Spain Multimetric Indices
Spain	IBMWP-Iberian BMWP, IASPT (Alba-Tercedor & Sánchez-Ortega, 1988, Alba-Tercedor <i>et al.</i> , 2004)
Sweden	Multimetric index; DJ-index (Dahl & Johnson 2004)
United Kingdom	General Quality Assessment with RIVPACS using NTAXA & ASPT

2.2.4 Published Literature Sources and Reports

2.2.4.1 Macroinvertebrate Biological Traits for Bioassessment

Developed, primarily in France, over the past 10 years, the use of macroinvertebrate biological traits for bioassessment was an applied extension of basic ecological research investigating the degree to which the physical habitat determines the structural and functional composition of streambed macroinvertebrate communities (Townsend & Hildrew, 1994; Statzner, Hildrew & Resh, 2001). The premise is that differences between test and reference sites in the relative abundance of over 60 categories of 11-14 biological traits (such as size, reproductive and dispersal potential, food and feeding habits, indicating various ecological functions) could reflect the degree and nature of impairment to the river stretch.

To describe the functional composition of a community, the presence/densities of all taxa per site/sample are multiplied with the trait affinities (as a %) of the taxa, thus giving the weighted proportion of each category per trait. It could be that all 60+ trait category values are amalgamated to produce a mean trait score to general degradation (Dolédéc & Statzner, 2008) or perhaps only those that are predicted/known to respond to particular stressors are reported in a diagnostic capacity e.g. heavy metal pollution could cause a decrease in the prevalence of gill respiration. Another way to present the trait data is as the functional diversity of the community derived from a global dissimilarity matrix of traits across all recorded taxa (Bady *et al.*, 2005).

It has been shown that working at genus/family resolution is sufficient to detect a significant functional response (Gayraud *et al.* 2003), though because of poor knowledge of the biological traits of many Diptera and Oligochaeta, these groups are often excluded from analyses. To estimate the functional diversity of a large river site, Bady *et al.* (2005) estimated that five to ten grab samples are adequate, which is less sampling effort than that required to estimate taxon richness to a similar level of confidence. It has also been demonstrated that the same method can be applied to rivers across Europe without the need for regional modification of the approach (Statzner *et al.* 2001), though the underlying biological trait data would need to be of sufficient standard in all areas.

Notwithstanding these positive attributes of the approach, there has not yet been a rigorous screening of all the traits/categories used, to identify those that are diagnostic of particular stressors, though intuitively this could be a potential avenue for functional index development. Recently, Dolédéc & Statzner (2008) assessed the ability of a small range of individual trait categories, as well as an overall mean trait score, to detect heavy metal and ship traffic impacts in large river reaches, with mixed results. Furthermore, while the approach seems viable, additional research is needed to produce a robust and proven biomonitoring tool that could be applied to a range of river types; most of the University of Lyon's development work so far has focussed on large rivers.

As yet there is no working WFD tool, or proven biological traits with diagnostic capability, that could easily be applied to a British context. Indeed the 'Achilles' heel' of applying the approach in the UK may well be the quality and extent of biological trait information for macroinvertebrates in the UK. This is exemplified by the weak variation in relative abundance of the relatively crude functional feeding groups observed in an earlier analysis across a wide range of high quality UK sites (Clarke *et al.*, 2002). While there is no comprehensive database of trait assignments to all macroinvertebrate taxa in the UK, the assignments used in France (Tachet *et al.* 2000) could potentially be used, with caveats. Furthermore, recent developments such as the web-based database on the distribution and ecological preferences of European freshwater organisms (www.freshwaterecology.info) and the associated book series (Graf *et al.*, 2008) mean that more and more trait information is being gathered and made available.

Over the past 5 years there has been growing interest within the United States in the use of biological traits for assessing the condition of freshwaters. The expectation being that different suites of traits will correspond with specific hydrological, physical, and chemical gradients in the lotic environment (Poff *et al.*, 2006). As a first step, a database of trait information has been compiled and made available to researchers (Viera *et al.*, 2006) and initial development work is in progress e.g. Hawkins & Carlisle (2008) and Tullos *et al.* (2009).

Overall the use of macroinvertebrate biological traits for bioassessment of rivers and streams is still in its development phase, but the potential for a genuinely useful WFD tool(s) is clear.

- Bady, P., Dolédec, S., Fesl, C., Gayraud, S., Bacchi, M. & Schöll, F. (2005) Use of invertebrate traits for the biomonitoring of European large rivers: the effects of sampling effort on genus richness and functional diversity. *Freshwater Biology* 50, 159-173.
- Clarke, R.T., Wright J.F. & Davy-Bowker, J. (2002). An appraisal of RIVPACS for evaluating trophic structure. In: Wright, J.F., Winder, J.M., Clarke R.T. & Davy-Bowker J. *Testing and further development of RIVPACS, Stage 3 Report. R&D Technical Report E1-007TR*. Bristol, Environment Agency.
- Dolédec, S. & Statzner, B. (2008) Invertebrate traits for the biomonitoring of European rivers: an assessment of specific types of human impact. *Freshwater Biology* 53, 617-634.
- Gayraud, S., Statzner, B., Bady, P., Haybach, A., Schöll, F., Usseglio-Polatera, P. & Bacchi, M. (2003) Invertebrate traits for the biomonitoring of large European rivers: an initial assessment of alternative metrics. *Freshwater Biology* 48, 2045-2064.
- Graf, W., Murphy, J.F., Dahl, J., Zamora-Munoz, C. & Lopez-Rodriguez, M.J. (2008) *Distribution and ecological preferences of European freshwater organisms. Volume 1. Trichoptera*. Pensoft Publishing, Sofia, Bulgaria.
- Hawkins, C.P. & Carlisle, D.M. (2008) Coupling predictive models with ecological traits to predict the response of benthic invertebrate taxa to landscape and waterway alteration. Paper presented at the NABS Annual Meeting, Salt Lake City, Utah.
- Poff, N.L., Olden, J.D., Vieira, N.K.M., Finn, D.S., Simmons, M.P., and Kondratieff, B.C. (2006) Functional trait niches of North American lotic insects—Trait-based ecological applications in light of phylogenetic relationships: *Journal of the North American Benthological Society*, 25: 730-755..
- Statzner, B., Bis, B., Dolédec, S. & Usseglio-Polatera, P. (2001) Perspectives for biomonitoring at large spatial scales: a unified measure for the functional composition of invertebrate communities in European running waters. *Basic and Applied Ecology* 2, 73-85.
- Statzner, B., Hildrew, A.G. & Resh, V.H. (2001) Species traits and environmental constraints: entomological research and the history of ecological theory. *Annual Review of Entomology* 46, 291-316.
- Tachet, H., Bournaud, M., Richoux, P. & Usseglio-Polatera, P. (2000) *Invertébrés d'eau douce : systématique, biologie, écologie*. CNRS Editions, Paris, 588p.
- Townsend C.R. & Hildrew, A.G. (1994) Species traits in relation to a habitat templet for rivers. *Freshwater Biology*, 31, 265-275.
- Tullos, D.D., Penrose, D.L., Jennings, G.D. & Cope, W.G. (2009) Analysis of functional traits in reconfigured channels: implications for the bioassessment and disturbance of river restoration. *Journal of the North American Benthological Society*, 28: 80-92.
- Vieira, N.K.M., Poff, N.L., Carlisle, D.M., Moulton, S.R., II, Koski, M.L. & Kondratieff, B.C. (2006) *A database of lotic invertebrate traits for North America*. U.S. Geological Survey Data Series 187, <http://pubs.water.usgs.gov/ds187>.

2.2.4.2 MISA

Developed in Sweden, MISA is a multi-metric index composed of:

- (i) Family richness
- (ii) Gastropod species richness
- (iii) Ephemeroptera species richness
- (iv) Ephemeroptera:Plecoptera abundance ratio
- (v) AWICfam (Davy-Bowker *et al.*, 2005)
- (vi) % shredders

Values for 5 of these 6 single metrics (AWIC excluded) are normalised so that all attain a value between 1 and 10. Then MISA is then calculated by summing and rescaling the normalised values.

MISA requires taxonomic resolution to Family/Genus/Species and reports on acidification stress.

Johnson, R.K. & Goedkoop, W. (2007) *Bedömningsgrunder för bottenfauna i sjöar och vattendrag – Användarmanual och bakgrundsdocument* Report: 4. Department of Environmental Assessment, Swedish University of Agricultural Sciences, Uppsala, Sweden.

2.2.4.3 DJ Index

Developed in Sweden, the DJ Index (Dahl & Johnson, 2004) is a multi-metric index comprising:

- (i) EPT richness (Richness measure)
- (ii) % Crustacea (Composition measure)
- (iii) % EPT (Composition measure)
- (iv) ASPT (Armitage *et al.*, 1983) (Tolerance measure)
- (v) Saprobic index (Zalinka & Marvin, 1961) (Tolerance measure)

Each metric is divided into 3 classes with scores of 1, 2, or 3. The sum of the 5 metric scores is the overall DJ index value. The DJ index requires Genus/Species taxonomic resolution and reports on the stressors Total Phosphorus and Organic Pollution.

Dahl J. & Johnson R.K. (2004). A multimetric index for detecting organic pollution of streams in southern Sweden. *Archiv für Hydrobiologie* 160: 487-513.

2.2.4.4 Taxonomic Distinctness Indices

Originally developed by Warwick & Clarke (1995) and used extensively in marine environments, taxonomic distinctness was made more widely available through the PRIMER statistical analysis package (Clarke & Warwick, 1998, 2001). Taxonomic distinctness indices quantify the average degree to which individuals in an assemblage are taxonomically related to one another. It effectively measures the average distance through the phylogenetic tree between all individuals in an assemblage.

A number of studies in marine habitats have demonstrated its ability to detect change in communities between degraded and un-impacted locations (see Abellán *et al.*, 2006). However, the method has only more recently been applied to freshwater systems, in Spain (Abellán *et al.*, 2006) and Finland (Heino *et al.*, 2007). In both of these studies taxonomic distinctness did not perform well in the assessment of environmental quality. The former study in particular cautioned against its use as its performance and ability to detect impacts may depend on the current phylogenetic structure of the sampled taxa within a region and their evolutionary and ecological history.

Abellán, P., Bilton, D.T., Millán, A., Sánchez-Fernández, D. & P.M. Ramsay (2006) Can taxonomic distinctness assess anthropogenic impacts in inland waters? A case study from a Mediterranean river basin. *Freshwater Biology* 51, 1744-1756.

Clarke, K.R. & Warwick, R.M. (1998) A taxonomic distinctness index and its statistical properties. *Journal of Applied Ecology* 35, 523-531.

Clarke, K.R. & Warwick, R.M. (2001) A further biodiversity index applicable to species lists: variation in taxonomic distinctness. *Marine Ecology Progress Series* 216, 265-278.

Heino, J., Mykrä, H., Hämäläinen, H., Aroviita, J. & Muotka, T. (2007) Responses of taxonomic distinctness and species diversity indices to anthropogenic impacts and natural environmental gradients in stream macroinvertebrates. *Freshwater Biology* 52, 1846-1861.

Warwick R.M. & Clarke, K.R. (1995) New 'biodiversity' measures reveal a decrease in taxonomic distinctness with increasing stress. *Marine Ecology Progress Series* 129, 301-305.

2.2.4.5 German Fauna Index D01, D02, D03, D04, D05

Developed in Germany specifically to assess the impact of hydromorphological stress, the German Fauna Indices D01 – D05 (Lorenz *et al.*, 2004) are stream-type specific, each metric having species-specific scores that differ depending on the stream type that the metric is designed to be applied to. The metrics use species-level data and are abundance based, using raw abundance data grouped into the following eight categories: 0 individuals, 1-3, 4-10, 11-30, 31-100, 101-300, 301-1000 and >1000 individuals. Total scores range between -2 (primarily indicative of degraded morphology) to +2 (taxa representative of near natural morphology). A quoted example of a taxon indicative of natural morphology is a xylophagous insect (one that feeds on wood), the presence of wood being taken to indicate a natural channel and bank structure. These indices are therefore species level, require raw abundance data and are calculated as a ratio of sensitive to insensitive taxa.

One concern with these indices is the specificity of the taxon scores to particular German stream types and therefore the transferability of these indices to British rivers. They do however represent perhaps the best examples of a biotic index thought to be capable of quantifying the impact of hydromorphological pressure.

The latest stream-type specific versions of these indices have been obtained from Daniel Hering (pers. comm., March 2009).

Lorenz A., Rolaufts P. & Hering D. (2004). A new method for assessing the impact of hydromorphological degradation on the macroinvertebrate fauna of five German stream types. *Hydrobiologia*. 516: 107–127.

2.2.4.6 Comparison of Observed and Expected Fauna

Various quality indices based on comparisons of observed and expected fauna were proposed by Clarke *et al.*, (1996). These indices used presence absence data rather than comparisons of abundance. The most promising of these (Q_4) was a χ^2 goodness of fit (GOF) statistic. Taxa were grouped into classes based on expected probability of occurrence (p_i) and χ^2 GOF between the observed (O_c) and expected (E_c) number of taxa in each class (c) was calculated as:

$$Q_4 = \sum (O_c - E_c)^2 / E_c$$

Testing on 340 independent sites showed that significant values of Q_4 usually indicated a loss of taxa compared to those expected, although a few very taxon-rich sites were also highlighted.

Clarke R.T., Furse M.T., Wright J.F & Moss D. (1996) Derivation of a biological quality index for river sites: comparison of the observed with the expected fauna. *Journal of Applied Statistics*, 23:311-332.

2.2.4.7 Index of Compositional Dissimilarity

Proposed in 2008 for use with RIVPACS-type models in the US EPA, the index of compositional dissimilarity addresses a problem inherent in the Number of Taxa (NTAXA) index, namely that changes in O/E NTAXA can be insensitive to stress-induced shifts in community composition that leave assemblage richness unchanged. O/E NTAXA is based only on the numbers of observed and expected taxa and so does not capture taxon-specific disagreements between the two. Van Sickle (2008) proposed a measure of compositional dissimilarity that summarises the taxon-specific disparities between the observed assemblages and the expected probability of capture. The following theoretical example (taken from Van Sickle, 2008) shows a case in which O/E fails to represent strong taxon-specific disparities in a small sample:

Taxon	O	E	O-E	(denotes sign correction)
1	1	0.1	0.9	
2	1	0.3	0.7	
3	1	0.8	0.2	
4	0	0.9	0.9	
5	0	0.9	0.9	

$$\begin{aligned} \sum \text{OBS} &= 3 & \sum \text{EXP} &= 3 & \sum |O-E| &= 3.6 \\ \text{Classic O/E NTAXA} &= 1 & & & \bar{x} |O-E| &= 0.72 \end{aligned}$$

In the case above, the classic O/E NTAXA is 1.0 indicating that the sample is in reference condition despite considerable disparities between the observed taxa and the expected probabilities of occurrence. However, by taking the mean of the absolute differences between each observed taxon and their expected probabilities, this simple metric correctly indicates that the observed assemblage deviated from the expected $\bar{x} = 0.72$ (on a scale of 0 to 1, where 0 indicates complete agreement and 1 indicates complete disagreement). It should be noted that in the simple example above the contributions to O/E from low probability and high probability taxa partially cancel each other out, however the example does illustrate the point.

Initial trials in the US indicated that the mean and sum of absolute differences did not perform any better than the classical NTAXA. However, standardising the sums of absolute differences relative to the full set of observed and predicted values gave an index with markedly better performance:

$$BC = \frac{\sum |O-E|}{\sum |O+E|}$$

This index was called 'BC' because it is the same formula as Bray-Curtis dissimilarity (but adapted by Van Sickle for taxonomic composition comparisons). The BC index also ranges from 0-1, with 0 indicating complete agreement and 1 indicates complete disagreement. If considered for use in the UK we might want to use 1-BC to reflect our usage of 0 to indicate most impaired and 1 to indicate reference state. This index clearly has potential as a general disturbance index. A further note of interest is that the BC index may have potential for further improvement by incorporation of abundances.

Van Sickle, J. (2008) An index of compositional dissimilarity between observed and expected assemblages. *J. N. Am. Benthol. Soc.* 27(2): 227-235.

2.2.5 Consultation within the UK Agencies

Consultation has been sought from within the UK Agencies to draw up a list of species-level indices currently in use, under consideration and under development (see consultation document in Appendix III). The objective of this consultation was to arrive at a list of indices that are of operational usefulness to the Agencies and to then (in WE 4.2) calculate reference values for these indices in RIVPACS IV so that RICT can calculate expected values for test sites.

The consultation has involved Ben McFarland, Richard Chadd and Alice Hiley (EA) Ian Milne (SEPA) and Imelda O'Neill (NIEA). The results of this consultation are presented in Table 3. Further to the consultation, at the mid project meeting the consultation feedback was reviewed by the project steering group and a final list of biotic indices for the calculation of reference values (in WE 4.2) was drawn up (Table 4). Each index is listed with the abbreviation TL1, TL2, TL3, TL4 or TL5 indicating the taxonomic level of the data used to calculate the index (see Work Element 4.1/4.2 – pg. 35 for further information). For completeness, Table 4 also shows the indices already in RIVPACS IV. All references (where available) are given in Work Element 4.1/4.2.

Table 3. Feedback on consultation within the UK Agencies (EA, SEPA, NIEA) on current and likely future requirements for biotic indices

Name of biotic index	Role/Stressor	Taxonomic resolution	Abundance weighted?	Required by EA	Required by SEPA	Required by NIEA
BMWP	Organic pollution	BMWP family level	No	Y	Y	Y
NTAXA	Measures diversity	BMWP family level	No	Y	Y	Y
ASPT	Organic pollution	BMWP family level	No	Y	Y	Y
WHPT/Revised BMWP	Organic pollution	Family level	Yes	Y	Y	Y
WHPT/Revised NTAXA	Measures diversity	Family level	Yes	Y	Y	Y
WHPT/Revised ASPT	Organic pollution	Family level	Yes	Y	Y	Y
ICMi	General degradation/organic pollution	Mixed	Yes	N	Y	Only if needed for intercalibration
Irish Q-index	Organic pollution			N		
LIFE(fam)	Flow	Family	Yes	Y	Y	Y
LIFE(sp)	Hydrology/flow	Species	Yes	Y	Y	Y
AWIC(fam)	Acidification	BMWP family level	No	Y	Y	Y – rarely needed
AWIC(sp)	Acidification	BMWP family level	No	Y	Y	Y – V. rarely needed
WFD AWICsp (abundance weighted)	Acidification	Species	Yes	Y	Y	N
Raddum	Acidification	Species		N	N	N
Hendrickson & Medin	Acidification	Species		N	N	N
Clyde River Purification Board Acid Index (now updated to SEPA % Acid Sensitive Taxa)	Acidification	Species	No	N	Y	N
Community Conservation Index (CCI)	Rarity	Species		Y	Y if applicable to Scotland	N
PSI Sediment (family)	Sedimentation	Family		Y – if robust	Y – if robust	Y – if robust
PSI Sediment (species)	Sedimentation	Species		Y – if robust	Y – if robust	N
SPEAR (Tim Johns)	Pesticides	?	?	Y – if robust	Y – if robust	Y – if robust
Pesticide metric (Ian Humphries)	Pesticides	?	?	possibly	Y – if robust	possibly

Table 4. List of biotic indices for which reference values have now been calculated and added to the RIVPACS database (and supplied as end group means for RICT).

Note - With the exception of the ICM Intercalibration Metrics (which remain unchanged since their original inclusion in the RIVPACS database as part of SNIFFER project WFD72C in June 2008) all of the indices have been recalculated from first principles using the newly derived species level abundance data derived in Work Element 3 of project WFD100. All publication references for indices (where available) are given in Work Elements 4.1 / 4.2.

Index (and variants)	Season combination(s) calculated*
TL1 BMWP	1-7
TL1 NTAXA	1-7
TL1 ASPT	1-7
TL2 WHPT Score (Non Abundance Weighted, Distinct Families)	1-7
TL2 WHPT NTAXA (Non Abundance Weighted, Distinct Families)	1-7
TL2 WHPT ASPT (Non Abundance Weighted, Distinct Families)	1-7
TL2 WHPT Score (Non Abundance Weighted, Composite Families)	1-7
TL2 WHPT NTAXA (Non Abundance Weighted, Composite Families)	1-7
TL2 WHPT ASPT (Non Abundance Weighted, Composite Families)	1-7
TL2 WHPT Score (Abundance Weighted, Distinct Families)	1-7
TL2 WHPT NTAXA (Abundance Weighted, Distinct Families)	1-7
TL2 WHPT ASPT (Abundance Weighted, Distinct Families)	1-7
TL2 WHPT Score (Abundance Weighted, Composite Families)	1-7
TL2 WHPT NTAXA (Abundance Weighted, Composite Families)	1-7
TL2 WHPT ASPT (Abundance Weighted, Composite Families)	1-7
TL1 AWIC (Fam)	1-7
TL4 AWIC (Sp) Murphy	1-7
TL5 AWIC (Sp) Murphy	1-7
TL4 WFD AWIC (Sp) McFarland	1-7
TL5 WFD AWIC (Sp) McFarland	1-7
TL4 Raddum	1-7
TL5 Raddum	1-7
TL4 SEPA % Acid Sensitive Taxa	1-7
TL5 SEPA % Acid Sensitive Taxa	1-7
TL2 LIFE (Fam) (Distinct Families)	1-7
TL1/2 LIFE (Fam) (Composite Families)	1-7
TL4 LIFE (Sp)	1-7
TL5 LIFE (Sp)	1-7
TL3 PSI (Fam)	1-7
TL4 PSI (Sp)	1-7
TL5 PSI (Sp)	1-7
TL4 German Stream Fauna Index GSFI FI05	1-7
TL5 German Stream Fauna Index GSFI FI05	1-7

TL4 German Stream Fauna Index GSF1 FI09	1-7
TL5 German Stream Fauna Index GSF1 FI09	1-7
TL4 German Stream Fauna Index GSF1 FI091	1-7
TL5 German Stream Fauna Index GSF1 FI091	1-7
TL4 German Stream Fauna Index GSF1 FI091_K	1-7
TL5 German Stream Fauna Index GSF1 FI091_K	1-7
TL4 German Stream Fauna Index GSF1 FI092	1-7
TL5 German Stream Fauna Index GSF1 FI092	1-7
TL4 German Stream Fauna Index GSF1 FI11_12	1-7
TL5 German Stream Fauna Index GSF1 FI11_12	1-7
TL4 German Stream Fauna Index GSF1 FI14_16	1-7
TL5 German Stream Fauna Index GSF1 FI14_16	1-7
TL4 German Stream Fauna Index GSF1 FI15_17	1-7
TL5 German Stream Fauna Index GSF1 FI15_17	1-7
TL4 German Stream Fauna Index GSF1 FI152	1-7
TL5 German Stream Fauna Index GSF1 FI152	1-7
TL2 SPEAR (Fam) %	1-7
TL4 SPEAR (Sp) %	1-7
TL5 SPEAR (Sp) %	1-7
TL4 Community Conservation Index	1-7
TL5 Community Conservation Index	1-7
TL3/TL1 ICM ASPT-2	5
TL3/TL1 ICM EPT	5
TL3/TL1 ICM N Fam	5
TL3/TL1 ICM Portuguese Gold	5
TL3/TL1 ICM Sel EPTD	5
TL3/TL1 Shannon-Weiner	5
TL1 ICM ASPT-2	5
TL1 ICM EPT	5
TL1 ICM N Fam	5
TL1 ICM Portuguese Gold	5
TL1 ICM Sel EPTD	5
TL1 ICM Shannon-Weiner	5

*1 = spring
 2 = summer
 3 = autumn
 4 = spring + summer combined
 5 = spring + autumn combined
 6 = summer + autumn combined
 7 = spring + summer + autumn combined

Notes:

Pesticide Metric. The Pesticide Metric developed by Ian Humphreyes (Environment Agency) was requested by the UK Agencies (see Table 3). However, this index requires comparison of observed and expected faunal lists. Indices of this type cannot be calculated without upgrading the RICT software to enable upload of observed taxon lists from test sites. Alternatively RICT could be used to obtain a predicted list of taxa that could be interfaced with a spreadsheet to calculate the index. NB - the same issue would also prevent calculation of the Van Sickle (2008) Index of Compositional Dissimilarity. **It is recommended that further work should be undertaken to enable indices of this type to be calculated.**

Irish Q-Index. Reference values for the Irish Q-index were requested by the NIEA for use in Northern Ireland. Calculating values of this index required a significant element of expert judgement that was not feasible for all 5,845 reference samples. RIVPACS data for the Northern Ireland reference sites has recently been sent to the NIEA. If it proves possible for NIEA staff to calculate reference values for the Irish Q-index using these data then reference Q values can be incorporated into the RIVPACS database and RICT.

2.2 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 2.2 Consultation on practicable levels of species analysis

2.2.1 Background

The objective of this work element was to identify the typical level of species identification of macro-invertebrate samples that is routinely achieved by biologists working in the EA, SEPA and NIEA. From this, the aim was then to create data files that would support a new taxonomic level of predicted species output for the RIVPACS IV model within the RICT software. The new species output, while being less detailed than the existing RIVPACS species level predictions, would still need to be detailed enough to enable calculation of most species-level biotic indices without undue wasted laboratory effort identifying species that are not used in these indices.

For many years, previous versions of RIVPACS have produced predicted taxon lists (with probabilities of occurrence) at only family or species taxonomic levels (TL). More recently RIVPACS IV has developed these output options further to produce four predicted taxonomic output levels: TL1 - BMWP families; TL2 - Revised BMWP (WHPT) families; TL3 - All families; and TL4 - RIVPACS species (see Davy-Bowker *et al.*, 2008, Appendices V, VI, VII and VIII respectively).

The RIVPACS species level output option (TL4) produces predicted taxon lists that include a maximum of 652 possible species that occurred within the dataset used to develop RIVPACS IV. While this output level is comprehensive and generally provides the best possible level of resolution for all macroinvertebrate groups, it does not necessarily correspond closely with the routine species-level sample processing results obtained by Agency biologists. The end-points of identification for the RIVPACS reference samples and current routine Agency species-level work sometimes differ. For example, while RIVPACS species-level outputs include Sphaerium and Pisidium species, these Bivalves are typically not determined to species-level in Agency laboratories (as this is time-consuming and highly specialised work).

The RIVPACS species-level samples were typically identified as far as was reliably possible (using artificial taxon groups beyond this point to aggregate taxa that cannot be split with existing keys). In contrast, Agency biologists often do not need to identify samples to such a detailed level of resolution to obtain their operational goals (e.g. producing data to derive species-level biotic indices). This Work Element therefore seeks to gather information to produce a fifth level of output (TL5) that more closely meets Agency operational needs with respect to species-level comparisons of observed and predicted faunal lists. This new level of output is called 'WFD species' level. The full compliment of taxonomic output levels therefore becomes:

- TL1 – BMWP families
- TL2 – Revised BMWP (WHPT) families
- TL3 – All families
- TL4 – RIVPACS species
- TL5 – WFD species

2.2.2 Consultation On Current Levels of Analysis

Consultation has been sought on the current practicable level of analysis being undertaken by expert biologists within the UK Agencies. A list of a 652 TL4 – RIVPACS IV species was circulated together with an additional column showing the frequency of occurrence of each taxon across the whole RIVPACS dataset (to place the rarity of each species in context).

Starting at the beginning of the list of 652 taxa, respondents were asked to work their way down the list providing one of the four possible answers for each taxon:

- If their labs exclude these taxa in their laboratory analyses
- If they identify them to the same level as RIVPACS IV species-level (TL4)
- If they split these taxa further than TL4

- If they downgrade these taxa (and if so, to which taxon they are downgraded)

We asked for answers to represent the usual practically attainable level of identification achieved rather than a best-case scenario. We were interested in how these taxa were identified currently, rather than historically, and in the case of taxa with aquatic adult and larval life stages, we were interested in the adults (e.g. the level to which adult Coleoptera are identified – it is assumed that the larvae would tend to be identified more coarsely). An example of the consultation form is shown in Appendix III.

Expert representatives from each of the three UK Agencies subsequently provided feedback – Ben McFarland, Richard Chadd and Alice Hiley (EA), Ian Milne (SEPA) and Imelda O'Neill (NIEA).

The EA and SEPA provided detailed feedback for all 652 TL4 taxa (Appendix IV).

The NIEA responded indicating that they do not do any appreciable species-level analysis so a detailed response was not required.

2.2.3 References

Davy-Bowker J., Clarke R., Corbin T., Vincent H., Pretty J., Hawczak A., Blackburn J., Murphy J. & Jones I. (2008). *River Invertebrate Classification Tool*. A report to the Scotland and Northern Ireland Forum for Environmental Research. [SNIFFER project WFD72C].

2.3 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 2.3 Recommendations for a new level/levels of taxonomic resolution

This Work Element seeks to integrate the responses from Agency staff (WE 2.1) to recommend a new (fifth) level of taxonomic output from RIVPACS IV (called TL5 – WFD species). This new taxonomic output should more closely match Agency operational needs with respect to species-level comparisons of observed and predicted faunal lists.

2.3.1 TL5 – WFD Species

To construct the new TL5 WFD taxonomic level of analysis, the questionnaire responses from the EA and SEPA (Appendix IV) were combined.

Firstly those taxa where the EA and SEPA were in agreement were identified and a chosen end point of identification (one of the four bullet points above) was adopted.

Secondly those taxa where the EA and SEPA did not agree were identified. These were then examined in detail and decisions were made about the most appropriate level of analysis to select. In most cases the coarser of the two suggested degrees of identification was chosen. This was done to make the new taxonomic level accessible to as many freshwater biologists working across the UK Agencies as possible, and also to avoid producing a new level of output too similar to the existing TL4 – RIVPACS species output.

Thirdly a group of cases were examined where Agency feedback had requested that certain taxa should be identified to a more detailed level than is produced in TL4. For example, *Unio* sp., is the end point of identification in TL4 RIVPACS species outputs but the EA had requested that this genus should be split into species in the new TL5 WFD species level output. Cases such as this presented problems for a variety of reasons. One of the commonest is that for some taxa, published keys may exist that purport to split a pair or group of species, but the RIVPACS laboratory team have not placed great confidence in the reliability of the characters used and have therefore reverted to a slightly more coarse yet reliable level of identification (e.g. the genera *Rhithrogena* and *Heptagenia*). In some cases, a group had not been split in the TL4 RIVPACS species outputs because while keys may currently exist enabling these species to be split, they did not in the earlier phases of RIVPACS development and the RIVPACS reference sample raw data does not therefore distinguish these species. Another problem arises when previously unknown species were detected in the UK species-pool thereby destabilising earlier species level identifications and causing downgrades (e.g. *Astacidae*, where several invasive species have cast doubt on older records). Issues such as these mean that while in some cases it might now seem perfectly reasonable, based on currently available keys, to split a group into its component species, it may not be possible to produce corresponding outputs using the RIVPACS reference database. These problems were relatively few in number.

Fourthly we examined a set of problems where Agency feedback had requested a downgrade of TL4 – RIVPACS species level groups, typically to genus level. For example, in the case of *Polycelis nigra* group a downgrade to *Polycelis* sp. was requested. However, since *Polycelis felina* was also requested as a distinct taxon, a downgrade of *Polycelis nigra* group to *Polycelis* sp. would produce overlap, as the group is also part of the genus. In these cases, there are only two logical outcomes, either to downgrade both *P. nigra* group and *P. felina* to *Polycelis* sp., or to retain two taxa - *Polycelis nigra* group and *Polycelis felina* (as in the TL4 – RIVPACS species level output). Generally the later was chosen, since the difficulty of identification lies within the group, not between the group and the other species in the genus. Downgrading all the taxa in the genus to genus-level was therefore considered to be an unnecessary loss of useful information.

The fifth issue to resolve involved 10 Dipteran taxa (in the family *Tipulidae*) where both the EA and SEPA had requested to have these given as species in the new TL5 output. However, for the vast majority of Dipteran taxa (175), one or both organisations requested that the analysis should only be to family level. These 10 *Tipulidae* therefore presented a considerable discontinuity in the treatment of the

Diptera, which were otherwise uniformly to be treated as families. The decision was therefore taken to similarly downgrade these Tipulidae to Family level so that a simple and consistent rule on how to treat Dipteran taxa when analysing samples to WFD species-level could be established.

The new TL5 – WFD species output is shown in full in Appendix X. This is given in the same format as the other four taxonomic output levels [TL1-4] which are also reproduced for completeness here (with some minor taxonomic updates) from Davy-Bowker *et al.* (2007).

A simplified summary of the TL5 – WFD species output is also given in Table 5 where the end points of identification for each family are summarised. The most striking difference between the WFD species level and the RIVPACS species level is the difference in the treatment of Oligochaeta and Diptera which are not determined beyond Class or Family in TL5.

Should further detail on specific groups be required in predicted species outputs these can be obtained by using the existing TL4 RIVPACS species level.

A further important point to note is that if the new TL5 – WFD species level of sample identification becomes used within Agency laboratories or is adopted for WFD classification work, the AQC and external audit procedures may need to be updated. This is important because the level of identification employed in Agency laboratories and in the internal and external checking of quality control samples needs to be compatible. This would also be essential if biases derived from analytical processing errors are calculated for species-level indices.

Table 5. Level of identification required for TL5 – WFD species level analysis (shown by family). See appendix X for a full list of species.

Code	Family	Level of Identification	Code	Family	Level of Identification
05110000	Planariidae	Species Group/Species	43410000	Naucoridae	Species
05120000	Dugesliidae	Species Group/Species	43420000	Aphelocheiridae	Species
05130000	Dendrocoelidae	Species	43510000	Notonectidae	Species
10000000	Nematoda	Phylum	43610000	Corixidae	Genus/Sub-Genus/Species
16110000	Neritidae	Species	45110000	Haliplidae	Species
16120000	Viviparidae	Species	45130000	Noteridae	Species
16130000	Valvatidae	Species	45140000	Dytiscidae	Genus/Species
16140000	Hydrobiidae	Species	45150000	Gyrinidae	Species Group/Species
16160000	Bithyniidae	Species	45330000	Helophoridae	Species
16210000	Physidae	Species	45350000	Hydrophilidae	Species
16220000	Lymnaeidae	Species	45360000	Hydrochidae	Species
16230000	Planorbidae	Species	45410000	Hydraenidae	Species
16250000	Acroloxidae	Species	45510000	Scirtidae	Genus/Species
17110000	Margaritiferidae	Species	45620000	Dryopidae	Genus/Species
17120000	Unionidae	Genus/Species Group	45630000	Elmidae	Species
17130000	Sphaeriidae	Genus	46110000	Sialidae	Species
17140000	Dreissenidae	Species	48110000	Rhyacophilidae	Species
20000000	Oligochaeta	Higher Level	48120000	Glossosomatidae	Genus
22110000	Pisicolidae	Species	48130000	Hydroptilidae	Genus/Species
22120000	Glossiphoniidae	Species	48210000	Philopotamidae	Genus/Species
22210000	Hirudinidae	Species	48220000	Psychomyiidae	Genus/Species
22310000	Erpobdellidae	Species	48230000	Ecnomidae	Species
24000000	Hydracarina	Higher Level	48240000	Polycentropodidae	Species
34310000	Astacidae	Family	48250000	Hydropsychidae	Species
36110000	Asellidae	Species	48310000	Phryganeidae	Genus/Species Group
37110000	Corophiidae	Genus	48320000	Brachycentridae	Species
37130000	Crangonyctidae	Species	48330000	Lepidostomatidae	Species
37140000	Gammaridae	Species	48340000	Limnephilidae	Genus/Species Group/Species
37150000	Niphargidae	Species	48350000	Goeridae	Species
40110000	Siphonuridae	Species	48360000	Beraeidae	Species
40120000	Baetidae	Species Group/Species	48370000	Sericostomatidae	Species
40130000	Heptageniidae	Genus/Species	48380000	Odontoceridae	Species
40140000	Ameletidae	Species	48390000	Molannidae	Species
40210000	Leptophlebiidae	Species	483A0000	Leptoceridae	Species
40310000	Potamanthidae	Species	483B0000	Apataniidae	Species
40320000	Ephemeridae	Species	49110000	Pyrallidae	Family
40410000	Ephemerellidae	Species	50110000	Tipulidae	Family
40510000	Caenidae	Species Group/Species	50130000	Limoniidae	Family
41110000	Taeniopterygidae	Species	50140000	Pediciidae	Family
41120000	Nemouridae	Species Group/Species	50210000	Psychodidae	Family
41130000	Leuctridae	Species	50220000	Ptychopteridae	Family
41140000	Capniidae	Species	50310000	Dixidae	Family
41210000	Perlodidae	Species	50320000	Chaoboridae	Family
41220000	Perlidae	Species	50330000	Culicidae	Family
41230000	Chloropertidae	Species	50340000	Thaumaleidae	Family
42110000	Platycnemiidae	Species	50350000	Ceratopogonidae	Family
42120000	Coenagrionidae	Species Group/Species	50360000	Simuliidae	Family
42140000	Calopterygidae	Species	50400000	Chironomidae	Family
42210000	Gomphidae	Species	50610000	Stratiomyidae	Family
42220000	Cordulegastridae	Species	50630000	Tabanidae	Family
42230000	Aeshnidae	Genus/Species	50640000	Athericidae	Family
42250000	Libellulidae	Genus	50710000	Empididae	Family
43110000	Mesoveliidae	Species	50720000	Dolichopodidae	Family
43210000	Hydrometridae	Species	50810000	Syrphidae	Family
43220000	Veliidae	Genus	50820000	Sciomyzidae	Family
43230000	Gerridae	Species	50830000	Ephydriidae	Family
43310000	Nepidae	Species			

**2.4 WFD100 Further Development of River Invertebrate Classification Tool
Work Element WE 3.1
Data entry of species-level numerical abundances to the RIVPACS
database**

2.4.1 Background

The full RIVPACS dataset comprises 2505 samples from 835 reference sites across the UK. These samples have been collected over an extended period of time, the oldest dating from 1978. In the early phases of sample collection, a simple approach was adopted for recording the abundances of the respective taxa on the laboratory sample sheets. This involved simply recording the presence of species and estimating the abundance of families in log₁₀ categories (1-9 individuals = log₁₀ category 1; 10-99 individuals = log category 2; 100-999 individuals = log category 3; 1,000-9,999 individuals = log category 4; >9,999 individuals = log category 5). This approach has remained the same up to and including the latest phase of RIVPACS sample collection (the Highlands and Islands samples collected in 2002). An example excerpt of RIVPACS taxon data is shown in Fig. 1 below.

Fig. 1. An example of existing RIVPACS taxon data showing family level data (IFELG) with log₁₀ abundances and species-level data (PA) recorded as presence absence.

Site ID	Season	Taxon Code	Record Type	Taxon Name	Log Abundance
0107	Spring	05110201	PA	Polycelis feina (Dalyell)	
0107	Spring	05120000	IFELG	Planariidae (incl. Dugesidae)	1
0107	Spring	16140301	PA	Potamopyrgus jenkinsi (Smith)	
0107	Spring	16120000	IFELG	Hydrobiidae (incl. Bithyniidae)	3
0107	Spring	16240101	PA	Ancylus fluviatilis Muller	
0107	Spring	16220000	IFELG	Ancylidae (incl. Acroloxidae)	1
0107	Spring	20110000	IFELG	Lumbriculidae	3
0107	Spring	20110200	PA	Lumbriculus group	
0107	Spring	20310000	IFELG	Enchytraeidae	3
0107	Spring	20310200	PA	Enchytraeus group	
0107	Spring	20330000	IFELG	Naididae	3
0107	Spring	20330601	PA	Ophidonais serpentina (Muller)	
0107	Spring	20330701	PA	Nais alpina Sperber	
0107	Spring	20330705	PA	Nais elinguis Muller	
0107	Spring	2033070Y	PA	Nais communis group	
0107	Spring	20340000	IFELG	Tubificidae	3
0107	Spring	20340102	PA	Tubifex ignotus (Stolic)	
0107	Spring	20340203	PA	Limnodrilus hoffmeisteri Claparede	
0107	Spring	20341101	PA	Rhyacodrilus coctineus (Vejdovsky)	
0107	Spring	22120000	IFELG	Glossiphoniidae	1
0107	Spring	22120401	PA	Glossiphonia complanata (L.)	
0107	Spring	22310000	IFELG	Ergobdellidae	2
0107	Spring	22310101	PA	Ergobdella octoculata (L.)	
0107	Spring	24000000	IFELG	Hydracarina	1
0107	Spring	24540149	PA	Lebertia (Pilolebertia) porosa Thor	
0107	Spring	37140206	PA	Gammarus pulex (L.)	
0107	Spring	37120000	IFELG	Gammaridae (incl. Crangonyctidae & Niphargidae)	2
0107	Spring	40120000	IFELG	Baetidae	3
0107	Spring	40120105	PA	Baetis muticus (L.)	
0107	Spring	40120107	PA	Baetis rhodani (Pictet)	
0107	Spring	40120111	PA	Baetis venus Curtis	
0107	Spring	4012011Z	PA	Baetis scambus group	
0107	Spring	40130000	IFELG	Hemiptera	2

While perfectly adequate for calculating the well-established BMWP, NTAXA and ASPT indices, family level log₁₀ categories and species-level presence/absence data has become a limiting barrier to the calculation of species level indices that are abundance-weighted. In these cases reference values cannot be properly calculated using the RIVPACS dataset in its current form.

This problem was investigated to some extent in SNIFFER project WFD72C (Davy-Bowker *et al.*, 2008) where estimates of numerical abundances were derived for family-level log₁₀ category records. While this work broadened the scope of indices that could be calculated, it did not achieve the ideal of obtaining abundance data at species-level across the whole dataset. However, further investigation after this project had been completed revealed that while the stated laboratory procedure was to record families with log₁₀ abundances and species as simply present, in a substantial proportion of cases the

analysts had also noted down estimates of the numerical abundances of both families and species on the original laboratory sample sheets. An initial data entry trial for 17 randomly selected reference sites (51 samples) showed that for approximately 85% of the taxon records numerical estimates could be obtained from the sample sheets.

Despite the fact that some of the early RIVPACS samples were processed as long ago as the late 1970s, all of the laboratory sample data sheets were still held within the archives of the CEH River Communities group. There was therefore a very real prospect of obtaining high quality estimates of both family and species level numerical abundances across the whole RIVPACS dataset with an estimated return of approximately 85%. Despite the fact that the remaining 15% of records lacking numerical abundance data would still require estimates to be made by other methods, the potential improvement in the scope and quality of the dataset that might be achieved through the inclusion of these abundance data was clearly substantial. The potential to calculate reference values for a much broader range of abundance-weighted biotic indices at family and species levels would constitute a considerable enhancement to the RIVPACS dataset with real operational benefit to the UK Agencies by broadening the range of indices available in RIVPACS IV/RICT.

In this work element (the most substantial of project WFD100) the task of matching the 2505 samples in the RIVPACS reference database with their original sample sheets and then entering the numerical abundances against each taxonomic record was undertaken.

2.4.2 Abundance Data Entry Process

The entry of abundance data was a very substantial task. There were 2505 RIVPACS samples with a total of 178,627 taxonomic records. It was therefore necessary to distribute this work across several staff members (8 in all) and to provide additional training and quality control checking to ensure that this did not lead to deterioration in the quality of the RIVPACS dataset. A strong emphasis was placed on maintaining a high degree of care and attention to detail in assigning the numerical abundances.

The first task involved finding the correct sheets to match the samples in the RIVPACS database. This was not a minor task in that some rivers had several names and many rivers in the paper archives had been sampled on several occasions. Care and attention was therefore needed in correctly assigning the right laboratory sheet to any given RIVPACS reference sample in the database.

The process of abundance data entry itself involved working through the taxa list in the database, looking for the corresponding taxa on the laboratory sheet and adding the appropriate numerical abundance value in a newly created column in the database.

The numerical abundances available on the laboratory sheets were not all strict counts. In many cases estimates had to be derived from the product of counts and multiplication factors. The use of multiplication factors requires some explanation of how samples were dealt with in the laboratory (a full description can be found at http://www.eu-star.at/mains/text_protocols.htm). Each sample that was processed was distributed across a number of trays for picking so as to avoid having too much material in a single tray. For every tray of sample sorted the numbers of individual species and families were counted in a given fraction of the tray. This fraction varied depending on the amount of material in the sample as a whole – for a small sample the numbers of taxa might have been counted across the whole sample, while for a large sample, the numbers may only have been counted in a 1/2, 1/4, 1/8th or 1/16th of all the trays sorted. In many cases these fraction counts had been multiplied up (by a multiplication factor) to give a total sample estimate of numerical abundance on the sample sheet by the original analyst. In cases where the multiplication had not been performed on the original lab sheet, simple arithmetic could provide an estimate for the whole sample.

In some cases, the sum of the abundances of the species counted within a given family did not equal the abundance recorded for the family. These cases typically arose because the analyst, faced with an abundant family comprising several species, chose to identify and count only a proportion of the individuals within the family. For example, if there were 130 Baetidae, the original analyst might have only identified 25 individuals to species. In these cases, during abundance data entry the abundances of the species were then multiplied up proportionally so that the total abundances of the species became equal to the abundance of the family that had been originally recorded by the analyst. In the example

above, the number of each species of Baetidae would be multiplied by 130/25 (5.2) to give a whole sample estimate that correctly matched the known abundance of the whole family but also reflected the numerical balance between the various species in that family.

In a few cases, minor disparities were found between the taxa recorded on the RIVPACS laboratory sheets and the RIVPACS database. In these cases, a conservative approach was taken, only altering the identity of a taxon record if there was complete confidence that it would be the correction of what was originally an error.

As a further quality control measure, each staff member involved in abundance data entry also worked in a separate copy of the RIVPACS database. These were then recombined into a single database at the end of the data entry task.

2.4.3 Separating the Composite Families in the Raw Data

Previous versions of the RIVPACS dataset have not distinguished the component families that make up the BMWP composite families in the RIVPACS raw data. There are 8 BMWP composite families as shown below.

Table 6. BMWP composite families.

Taxon Code	Taxon Name
051Z0000	Planariidae (incl. Dugesliidae)
161Z0000	Hydrobiidae (incl. Bithyniidae)
162Z0000	Ancylidae (incl. Acroloxidae)
371Z0000	Gammaridae (incl. Crangonyctidae & Niphargidae)
451Z0000	Dytiscidae (incl. Noteridae)
453Z0000	Hydrophilidae (incl. Hydraenidae)
481Z0000	Rhyacophilidae (incl. Glossosomatidae)
482Z0000	Psychomyiidae (incl. Ecnomidae)

Given that numerical abundances had now been entered at both family and species levels, it now became possible to use the species data to accurately derive new family level raw data with these families as separate records.

For example, in the raw data below the BMWP composite family Rhyacophilidae (incl. Glossosomatidae) is used.

Table 7. Example of a BMWP composite family in the RIVPACS sample raw data.

Site ID	Season	Taxon Code	Record Type	Taxon Name	Num Ab (LS)
0101	Autumn	48110101	PA	Rhyacophila dorsalis (Curtis)	2
0101	Autumn	48120100	PA	Glossosoma sp.	16
0101	Autumn	481Z0000	IFELG	Rhyacophilidae (incl. Glossosomatidae)	18

Using the numerical abundances entered at species level, it was then possible to re-derive separate family data for the families Rhyacophilidae and Glossosomatidae, as shown in the example below:

Table 8. Example of re-derived separate family level data for a BMWP composite family.

Site ID	Season	Taxon Code	Record Type	Taxon Name	Num Ab (LS)
0101	Autumn	48110000	IFELG	Rhyacophilidae	2
0101	Autumn	48110101	PA	Rhyacophila dorsalis (Curtis)	2
0101	Autumn	48120000	IFELG	Glossosomatidae	16
0101	Autumn	48120100	PA	Glossosoma sp.	16

This process was carried out for all 8 composite families across the whole RIVPACS dataset using an automated database routine. This led to an increase in the total number of RIVPACS taxa records from 178,627 to 180,881.

2.5 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 3.2 Estimation and addition of numerical abundances to records without data

2.5.1 Estimating Missing Values

As mentioned at the beginning of WE3.1, our initial data entry trial for 17 randomly selected reference sites (51 samples) showed that for approximately 85% of the taxon records numerical estimates could be obtained from the sample sheets. We therefore similarly expected some 15% of the full dataset following data entry (835 sites with 2505 samples) to also have missing numerical abundances. To be able to fully utilise numerical abundance data across the whole dataset it was therefore necessary to estimate abundance values for these missing records.

Two approaches were used for estimating missing numerical abundance values.

- Estimation from other records

For families where we had no numerical abundances but we did have \log_{10} abundance category data, numerical abundances were estimated by obtaining the mean numerical abundances of that family across all samples where we did have numerical data at that \log_{10} abundance category. This numerical mean was then applied to all records of that family where we had no numerical abundances.

For a small number of cases (66 records) there were no numerical abundance data available at all for a given taxon at a given \log_{10} abundance category. In these cases manual estimates were made based on the numerical abundances of other similar families.

- Assignment by Equal Weight

Where no data at all were available to make an estimate of the distribution of numerical abundances between the various species recorded within a given family we simply split the numerical abundance of the parent family across the species it contained with equal weight. Rounding errors associated with this process then had to be corrected by a small adjustment to numerical abundances of 1 or more of the taxa within each family.

2.5.2 Logic checks

Following completion of the data entry of abundance values and the splitting of composite taxa, an automated database routine was constructed to perform various checks for logical inconsistency in the RIVPACS database. The primary goal of this task was to identify illogical combinations of abundances between the family and species level records so that these could then be manually reconciled. This routine also tested the dataset for species records that lacked parent family records and for family records lacking any species. These tests also identified any wild numerical abundance values, numerical abundances that did not nest correctly within the previously entered \log_{10} abundance categories and also identified any duplicate family or species records within any given reference sample.

2.5.3 The completed RIVPACS database with numerical abundance data

An example of the final RIVPACS database with numerical and \log_{10} abundances assigned to all taxa is shown in Fig. 2 below. The method of derivation of the numerical abundance data is shown in the column [Num Ab Origin]. A summary of the number of numerical abundance records derived by each of the methods described above is given below:

Entered directly from estimates on the Laboratory Sheet (code LS):	139,396	(77.0%)
Assigned with Equal Weight (code EW):	31,249	(17.3%)
Estimated from other records in the RIVPACS database (code EST):	10,236	(5.7 %)
Total number of taxon records:	180,881	(100%)

Fig. 2. An example of RIVPACS taxon data after the process of abundance data entry, splitting of BMWP composite taxa, estimating missing values and final checking for logical inconsistencies.

Site ID	Season	Original Taxon Code	Original Taxon Name	Record Type	Log Abundance	Num Ab (Full)	Num Ab Origin
0107	Spring	05110000	Planariidae	IFELG	1	3	EST
0107	Spring	05110201	Polycelis felina (Dalyell)	PA	1	3	EST
0107	Spring	16140000	Hydrobiidae	IFELG	3	512	LS
0107	Spring	16140301	Potamopyrgus jenkinsi (Smith)	PA	3	512	LS
0107	Spring	16240000	Ancylidae	IFELG	1	8	LS
0107	Spring	16240101	Ancylus fluviatilis Muller	PA	1	8	LS
0107	Spring	20110000	Lumbriculidae	IFELG	3	144	LS
0107	Spring	20110200	Lumbriculus group	PA	3	144	LS
0107	Spring	20310000	Enchytraeidae	IFELG	3	140	LS
0107	Spring	20310200	Enchytraeus group	PA	3	140	LS
0107	Spring	20330000	Naididae	IFELG	3	128	EW
0107	Spring	20330601	Ophidonais serpentina (Muller)	PA	2	32	EW
0107	Spring	20330701	Nais alpina Sperber	PA	2	32	EW
0107	Spring	20330705	Nais elinguis Muller	PA	2	32	EW
0107	Spring	2033070Y	Nais communis group	PA	2	32	EW
0107	Spring	20340000	Tubificidae	IFELG	3	304	LS
0107	Spring	20340102	Tubifex ignotus (Stolic)	PA	1	5	LS
0107	Spring	20340203	Lirnodrilus hoffmeisteri Claparede	PA	2	26	LS
0107	Spring	20341101	Rhyacodrilus coccineus (Vejdovsky)	PA	3	273	LS
0107	Spring	22120000	Glossiphoniidae	IFELG	1	4	LS
0107	Spring	22120401	Glossiphonia complanata (L.)	PA	1	4	LS
0107	Spring	22310000	Erpobdellidae	IFELG	2	12	LS
0107	Spring	22310101	Erpobdella octoculata (L.)	PA	2	12	LS
0107	Spring	24000000	Hydracarina	IFELG	1	4	LS
0107	Spring	24540149	Lebertia (Ptilolebertia) porosa Thor	PA	1	4	LS
0107	Spring	37140000	Gammaridae	IFELG	2	16	LS
0107	Spring	37140206	Gammarus pulex (L.)	PA	2	16	LS
0107	Spring	40120000	Baetidae	IFELG	3	152	LS
0107	Spring	40120105	Baetis muticus (L.)	PA	2	12	LS
0107	Spring	40120107	Baetis rhodani (Pictet)	PA	3	116	LS
0107	Spring	40120111	Baetis vernus Curtis	PA	2	16	LS
0107	Spring	4012011Z	Baetis scambus group	PA	1	8	LS
0107	Spring	40130000	Heptageniidae	IFELG	2	16	LS
0107	Spring	40130100	Rhithrogena sp.	PA	2	16	LS

Record: 114 of 180091

The RIVPACS database with numerical abundance values is the final deliverable from Work Element 3.1. These data are subsequently used in WE4.2 (pg. 35) for the calculation of reference values for a range of biotic indices.

2.6 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 3.3 Calculation of numerical abundances for rationalised taxonomy / taxonomies and update of the RIVPACS reference database

2.6.1 Background

At the end of SNIFFER project WFD72C the newly created RIVPACS IV GB and NI models within RICT incorporated taxonomic prediction files enabling predictions to be made of the fauna likely to occur at a test site at reference condition. These predictions could be made at four taxonomic levels (TL1-4) as shown in Table 6 below.

Table 9. Taxonomic prediction levels in RIVPACS IV.

Taxonomic Level	Name	Abundance Predictions
TL1	BMWP families	log ₁₀ abundance categories
TL2	Revised BMWP families	log ₁₀ abundance categories
TL3	All families	log ₁₀ abundance categories
TL4	RIVPACS species	none

Each taxonomic output level had its own type of abundance output. These either took the form of predicted log₁₀ abundance categories for the three family output levels, or simply probabilities of occurrence for RIVPACS species level output. These output options were restricted from being developed further by the lack of numerical abundance data at species level in the RIVPACS database.

Within WE3.1 and WE3.2 of the current project we have now added family and species level numerical abundance data to the RIVPACS database. This now enables enhancements to be made to the four existing abundance data options described above. In addition, WE2.3 of the current project recommends a new level of taxonomic output from RIVPACS IV (TL5 – WFD species) to provide a more practicable target of the UK Agencies to use when performing species level identification work in their laboratories. Taken together, these developments within the current project enable the taxonomic output levels to be expanded from four to five, and for all of the taxonomic output levels to incorporate predictions of both log₁₀ abundance categories and numerical abundances as shown in Table 7 below.

Table 10. Taxonomic prediction options arising from project WFD100 (new outputs in italics).

Taxonomic Level	Name	Abundance Predictions
TL1	BMWP families	log ₁₀ abundance categories <i>and numerical abundances</i>
TL2	Revised BMWP families	log ₁₀ abundance categories <i>and numerical abundances</i>
TL3	All families	log ₁₀ abundance categories <i>and numerical abundances</i>
TL4	RIVPACS species	log ₁₀ abundance categories <i>and numerical abundances</i>
TL5	<i>WFD species</i>	log ₁₀ abundance categories <i>and numerical abundances</i>

2.6.2 Production of New Files for Taxonomic Prediction

Given that all four existing taxonomic output levels (TL1 – TL4) are being enhanced to support predictions of numerical abundances, and that there is an additional level of output (TL5), the taxonomic output files used within RIVPACS IV and described below (TAXAAPR, TAXAAB and TAXAPRAB) have been re-built from first principles in the current project and supersede those made for RICT in project WFD72C.

The following two pages show the structure of these three files firstly as provided in project WFD72C, and secondly how they have now been updated in project WFD100.

Tables 11, 12 and 13 below show the output file types constructed for RIVPACS IV in project WFD72C.

Table 11. TAXAAPR output file made for RIVPACS IV in project WFD72C.

TAXAAPR (Frequency of occurrence prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Freq Occurrence
1	1	TL1	4	45110000	Haliplidae	0.111
1	1	TL1	4	451Z0000	Dytiscidae (including Noteridae)	0.222
1	1	TL1	4	453Z0000	Hydrophilidae (including Hydraenidae, Helophoridae, Georissidae and Hydrochidae)	0.667
1	1	TL1	4	45510000	Scirtidae	0.111

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3, TL4
 Seasons: 1-7
 Taxa: 1-n
 Freq. Occurrence: 1-n

Table 12. TAXAAB output file made for RIVPACS IV in project WFD72C.

TAXAAB (Abundance prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Avg. Log ₁₀ Abundance
1	1	TL1	1	16220000	Lymnaeidae	0.444
1	1	TL1	1	162X0000	Planorbidae (excluding Ancylus group)	0.222
1	1	TL1	1	17130000	Sphaeriidae	0.556
1	1	TL1	1	20000000	Oligochaeta	1.889

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3
 Seasons: 1-7
 Taxa: 1-n
 Average Log₁₀ Abundance Category: 1-n

Table 13. TAXAPRAB output file made for RIVPACS IV in project WFD72C.

TAXAPRAB (Log₁₀ abundance category prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Log ₁₀ Cat.	Probability of Log ₁₀ Abundance Category
1	1	TL1	2	48250000	Hydropsychidae	1	0.111
1	1	TL1	2	48250000	Hydropsychidae	2	0.111
1	1	TL1	2	483Z0000	Limnephilidae (including Apataniidae)	1	0.444
1	1	TL1	2	483A0000	Leptoceridae	1	0.222

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3
 Seasons: 1-7
 Taxa: 1-n
 Average Log₁₀ Abundance Category: 1-n

For all 5 taxonomic levels (TL1–5) we can now make the same predictions:

- Frequency occurrence (0-1) – TAXAAPR
- Average numerical abundance (0-n) – TAXAAB
- Average \log_{10} abundance category (0-5) – TAXAAB
- Probability of \log_{10} abundance category (0-1) – TAXAPRAB

As in the previous (WFD72C) version, all files have been produced with 3 taxonomic coding systems (Furse code and name, Maitland code and name and NBN code and name).

Tables 14, 15 and 16 below show the replacement output file types constructed for RIVPACS IV in project WFD100 (new items in green).

Table 14. Replacement TAXAAPR output file made for RIVPACS IV in project WFD100.

TAXAAPR (Frequency of occurrence prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Freq Occurrence
1	1	TL1	4	45110000	Haliplidae	0.111
1	1	TL1	4	451Z0000	Dytiscidae (including Noteridae)	0.222
1	1	TL1	4	453Z0000	Hydrophilidae (including Hydraenidae, Helophoridae, Georissidae and Hydrochidae)	0.667
1	1	TL1	4	45510000	Scirtidae	0.111

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3, TL4, ■
 Seasons: 1-7
 Taxa: 1-n
 Freq. Occurrence: 1-n

Table 15. Replacement TAXAAB output file made for RIVPACS IV in project WFD100.

TAXAAB (Abundance prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Avg. Log ₁₀ Abundance	Avg. Numerical Abundance
1	1	TL1	1	16220000	Lymnaeidae	0.444	■
1	1	TL1	1	162X0000	Planorbidae (excluding Ancylus group)	0.222	■
1	1	TL1	1	17130000	Sphaeriidae	0.556	■
1	1	TL1	1	20000000	Oligochaeta	1.889	■

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3, ■
 Seasons: 1-7
 Taxa: 1-n
 Average Log10 Abundance Category: 1-n

Table 16. Replacement TAXAPRAB output file made for RIVPACS IV in project WFD100.

TAXAPRAB (Log₁₀ abundance category prediction file)

Model	End Group	Taxonomic Level	Season Code	Furse Code	Furse Name	Log ₁₀ Cat.	Probability of Log ₁₀ Abundance Category
1	1	TL1	2	48250000	Hydropsychidae	1	0.111
1	1	TL1	2	48250000	Hydropsychidae	2	0.111
1	1	TL1	2	483Z0000	Limnephilidae (including Apataniidae)	1	0.444
1	1	TL1	2	483A0000	Leptoceridae	1	0.222

Model: 1(GB), 2(NI)
 End Group: 1-43(GB), 1-11 (NI)
 Taxonomic Level: TL1, TL2, TL3, ■
 Seasons: 1-7
 Taxa: 1-n
 Average Log10 Abundance Category: 1-n

2.7 WFD100 Further Development of River Invertebrate Classification Tool Work Elements WE 4.1 and 4.2
Allocation of trait data for new biotic indices and calculation of reference biotic index values and end group means

2.7.1 Background

Project WFD100 has sought to broaden the assessment of stress types to encompass a wider range of stresses than has been possible with previous RIVPACS models. This has been achieved by the calculation of reference biotic index values for the RIVPACS samples using the species level abundance data derived in Work Element 3.1. Because the data entry process has resulted in an upgrade to some of the taxon level data, all of the biotic indices in the RIVPACS database have now been re-derived from first principles. TWINSPAN classification end group means have also been derived which can now be incorporated into RICT. The final list of indices (see Table 4 pg. 16-17) arose from the review of species-level biotic indices in use in the UK and Europe (WE 2.1) and the consultation with the UK Agencies on their needs (WE 2.2).

2.7.2 Index Calculation

2.7.2.1 Taxonomic Levels

A mixture of family and species level biotic indices was required (Table 4). Rather than calculating reference biotic index values directly on the RIVPACS raw taxa data, each index was first linked to its most appropriate taxonomic output level (see WE 2.2). For example, reference values of the BMWP index have been calculated using taxon data at TL1 – BMWP family level. In contrast, 2 versions^{*see below} of the LIFE (sp) index have been calculated, one based on taxon data at TL4 – RIVPACS species level and one based on data at TL5 – WFD species level. Expected (predicted) biotic index values for all indices are therefore now closely linked to the taxonomic level of the data used to calculate them.

This approach has a major advantage in that predicted biotic indices are now based on a data at a defined taxonomic level. The UK Agencies (or other RICT users) should now transform their data to the same taxonomic level prior to the calculation of observed biotic indices to ensure that the observed and expected biotic indices are calculated on taxon data at the same level of taxonomic resolution. This issue has not been a problem in the past because RIVPACS and RICT have only calculated relatively simple family level biotic indices such as the BMWP indices. However the new reference biotic index values that have been calculated in this Work Element are in some cases significantly more complex and there would be a high risk of obtaining differences between observed and expected values solely due to differences in the level of taxonomic resolution (rather than real differences between the quality of test verses references sites).

**All of the species-level biotic indices have been calculated based on both TL4 and TL5 transformed data. This enables end users working at TL4 – RIVPACS species level and those working at TL5 – WFD species level, to obtain directly comparable predictions of biotic index values.*

2.7.2.2 Seasons

As with previous RIVPACS reference biotic index values, all indices have been calculated on all 7-season combinations of reference samples:

<u>Season code</u>	<u>Season combination(s)</u>
1	Spring
2	Summer
3	Autumn
4	Spring & Summer
5	Spring & Autumn
6	Summer & Autumn
7	Spring, Summer & Autumn

2.7.2.3 Excluded Sites

While the biotic indices were calculated for all RIVPACS reference sites (n=835) and sample combinations (n=5845), those sites that have previously been identified as being of insufficient quality to include in the calculation of RIVPACS IV TWINSPAN end group means were excluded from these calculations (and as such will not contribute to predicted indices in RICT). Details of the excluded sites (40 sites in Great Britain and 2 sites in Northern Ireland) are given in the SNIFFER project WFD72C (see SNIFFER project WFD72C final report Work Element 2.1 and Table 4).

2.7.2.4 Indices Calculated

The following list of indices was calculated/re-calculated using the newly derived species level abundance data derived within this project. Taxon scores are given in Appendix XI.

BMWP, NTAXA, ASPT

Full name: Biological Monitoring Working Party
Reference: For current version in use by the UK Agencies see Appendix II of Davy-Bowker *et al.*, (2008). River Invertebrate Classification Tool. Project WFD72C Final Report, SNIFFER, Edinburgh.
Calculated on data at: TL1 – BMWP families

WHPT NTAXA ASPT

Full name: Walley, Hawkes, Paisley, Trigg
Reference: John Murray-Bligh, Environment Agency, pers. comm. 4th July 2007.
Calculated on data at: TL2 – Revised BMWP (WHPT) families

AWIC (fam)

Full name: Acid Water Indicator Community (family level)
Reference: Davy-Bowker *et al.*, (2005) *Archiv für Hydrobiologie* 163: 383-403.
Calculated on data at: TL1 – BMWP families

AWIC (sp) Murphy

Full name: Acid Water Indicator Community (species level)
Reference: submitted for publication
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

WFD AWIC (sp) McFarland

Full name: WFD Abundance-weighted Acid Water Indicator Community (species level)
Reference: McFarland, B. (2010) Environment Agency Internal Report.
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

Raddum

Full name: Raddum
Reference: Fjellheim A. & Raddum G.G. (1990) *Science of the Total Environment* 96: 57-66
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

SEPA % Acid Sensitive Taxa

Full name: SEPA % Acid Sensitive Taxa
Reference: David Rendall, Scottish Environment Protection Agency, pers. comm. 20th January 2010
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

LIFE (fam)

Full name: Lotic-invertebrate Index for Flow Evaluation (family level)
Reference: Extence *et al.*, (1999). *Regulated Rivers: Research & Management* 15: 543-574.
Calculated on data at: TL1 – BMWP families (supplemented with TL2 taxa)

LIFE (sp)

Full name: Lotic-invertebrate Index for Flow Evaluation (species level)
Reference: Extence *et al.*, (1999). *Regulated Rivers: Research & Management* 15: 543-574.
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

PSI (fam)

Full name: Proportion of Sediment-sensitive Invertebrates (family level)
Reference: submitted for publication
Calculated on data at: TL3 – All families

PSI (sp)

Full name: Proportion of Sediment-sensitive Invertebrates (species level)
Reference: submitted for publication
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

GSFI

Full name: German Stream Fauna Index
Reference: Lorenz *et al.*, (2004). *Hydrobiologia* 516: 107-127. Latest versions updated by Daniel Hering, University of Essen, pers. comm. 17th March 2009.
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

SPEAR (fam)

Full name: SPEAR % (family level)
Reference: Environment Agency, Science Report: SC030189/SR4 and SPEAR calculator spreadsheet: Spear_231008.xls from Tim Johns, Environment Agency, pers. comm. 17th December 2009.
Calculated on data at: TL2 – Revised BMWP (WHPT) families

SPEAR (sp)

Full name: SPEAR % (species level)
Reference: Environment Agency, Science Report: SC030189/SR4 and SPEAR calculator spreadsheet: Spear_231008.xls from Tim Johns, Environment Agency, pers. comm. 17th December 2009.
Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

CCI

Full name: Community Conservation Index

Reference: Chadd & Extence (2004) *Aquatic Conservation: Marine and Freshwater Ecosystems* 14: 597-624.

Calculated on data at: TL4 – RIVPACS species
TL5 – WFD species

ICM

Full name: Intercalibration Common Metrics

Reference: These indices were calculated by John Murray-Bligh (Environment Agency) using ASTERICS software and remain unchanged since their original addition to the RIVPACS database as part of SNIFFER project WFD72C, June 2008.

Calculated on data at: TL1 log₁₀ family level data summed across spring and autumn

2.8 WFD100 Further Development of River Invertebrate Classification Tool Work Element WE 5.0 Wish list of potential new predictive variables for future model development

2.8.1 Background

As part of the continued drive to further develop and widen the scope of the River Invertebrate Classification Tool (RICT), in this work element we have investigated potential ways for RICT to incorporate new pressure metrics for hydromorphological and acidification stress. The classification of streams and rivers for WFD compliance monitoring requires that rivers can be classified for these stressors. To achieve this RICT needs to be able to calculate reference values for biotic indices that are thought to respond well to these stressors.

While RICT can calculate reference values for indices known to respond to hydromorphological and acidification stress (e.g. LIFE and AWIC) there has always been an underlying problem in RIVPACS models that some of the variables that are strong predictors of macroinvertebrate communities are also affected by these stressors. This has not been a problem in the past when RIVPACS models were primarily used to assess organic pollution because the predictor variables were not affected by this type of pressure. However, the predictor variables substrate composition, stream width and stream depth are affected by hydromorphological pressure and acidification pressure may also affect the alkalinity measured at test sites. This creates a problem because if stressor modified values of predictor variables are used to predict reference values of biotic indices for test sites, these targets will consequently be adjusted away from the biotic index values expected under true reference conditions. For example, if we used a predictive model that includes substrate as a predictor variable and we visit a test site where hydromorphology has been modified making the substrate finer, our predictions will be for a stream type with a fine substrate rather than for the actual test site with an unmodified substrate composition.

In this work element we have therefore attempted to identify a wish list of new predictive variables that would give greater independence from the stressors we are trying to measure. We have also investigated ways to improve the predictive capability of RICT in general by attempting to find new variables that increase overall predictive power whilst similarly not being affected by any stressors that we are likely to want to monitor.

By reference to previous RICT/RIVPACS development projects and an expert understanding of the development of predictive systems, we have proposed a 'wish-list' of potential new predictive variables. We have examined the complexity of derivation of these variables, both for a one-off variable collection exercise for the RIVPACS reference sites and with respect to ongoing use of these variables for Agency monitoring sites. We have also considered IPR issues associated with new variables to ensure that end-users within the UK Agencies (and beyond) can derive these variables without dependence on external GIS layers or datasets.

2.8.2 Predictor variables in RIVPACS/RICT

RIVPACS/RICT uses a set of environmental variables to predict reference values for biotic indices and predicted faunal lists at test sites. In previous RIVPACS development work these predictor variables have been split into time-invariant variables (relatively unchanging though time) and time variant variables (different on each sampling occasion).

<u>Time Invariant</u>	<u>Time variant</u>
Alkalinity	Substrate composition
Altitude	Width
Slope	Depth
Discharge category	
Distance from source	
Latitude	
Longitude	
Air Temperature	

Unfortunately some of the variables used (the time variant variables) are themselves influenced by stressors. In our example above, sedimentation will result in an altered substrate composition. Therefore when a hydromorphologically impacted test site is assessed, its substrate composition may be assessed in the field as being finer than it should otherwise have been. The RICT prediction may therefore be based on a reference site that had fine sediment and the expected community and biotic index values will therefore be those of a fine substrate river. Ideally, RICT should produce predicted taxa and biotic indices for the test site that are based on a non-impacted substrate. The predictions should thereby set a target for a non-impacted test site.

To get round this problem we need to find alternative variables to those affected by the stresses we are trying to assess. For the RIVPACS variables this means removing the time variant variables: substrate composition, width and depth, all of which are affected by physical modifications to test sites. It may also be necessary to remove alkalinity as a predictor variable because its measured values at test sites may be modified by acidification stress. The other variables are regarded as being robust with respect to stressors.

2.8.3 Relative Explanatory Power

In order to assess the effect on overall model performance of removal of the variables affected by stressors we reviewed the relative explanatory power of the variables used in UK RIVPACS models.

We first reviewed an analysis of the explanatory power of predictor variables carried out in Davy-Bowker *et al.*, (2006). This analysis used canonical correspondence analysis (CCA) to compare the predictive power of variables in the now superseded (although still relevant) GB RIVPACS III+ model with WFD System-A variables. Table 8 below, reproduced from Davy-Bowker *et al.*, (2006), shows the results of this analysis.

Table 17. Percentage variation explained by RIVPACS III+ and WFD System-A variables when each variable is the only explanatory variable in an analysis of 614 RIVPACS III+ sites across Great Britain (reproduced from Davy-Bowker *et al.*, 2006).

Variable	% Variation explained
Alkalinity	7.0
Mean substrate composition	6.4
Log ₁₀ alkalinity	5.9
Log ₁₀ slope	5.9
Longitude	5.4
Log ₁₀ distance from source	4.3
Log ₁₀ altitude	3.7
Log ₁₀ water depth	3.7
Latitude	3.7
Log ₁₀ water width	3.2
River discharge (flow) category	3.2
Mean air temperature	3.2
WFD catchment size category	2.7
WFD geology – calcareous category	2.7
WFD geology – siliceous category	2.1
WFD altitude category	1.6
WFD geology – organic category	0.5

Alkalinity ranked first as the most powerful single descriptor of variation across the GB RIVPACS dataset. Substrate composition was the second most powerful variable and water depth and width ranked 8th and 10th. Alkalinity and substrate were therefore very strong predictors of macroinvertebrate community composition.

The second large-scale analysis of the relative explanatory power of predictor variables we reviewed was a combined analysis of clean and polluted streams and rivers from the 1995 General Quality Assessment survey of England and Wales (Murphy & Davy-Bowker, 2005). In this analysis we explored the relative explanatory power (marginal effects in a CCA) of predictor variables together with variables representing stressors and a range of new spatial variables. The results are reproduced in table 9 below.

Table 18. Individual explanatory power of a range of variables in an analysis of 5752 clean and polluted streams and rivers from the 1995 GQA survey of England and Wales.

Variable	Marginal effects
Substrate	0.12
Alkalinity	0.11
X (Easting)	0.10
Depth	0.06
Altitude	0.05
Slope	0.05
XY ²	0.05
Organic inputs	0.04
Distance from source	0.03
Urban run-off	0.03
Discharge category	0.02
Y (northing)	0.02
Width	0.02
XY	0.02
Y ²	0.02
Acidification	0.02
Canalisation	0.02
X ²	0.01
X ² Y	0.01
Agri-chemical inputs	0.01
Industrial discharge and run off	0.01
Excessive plant growth	0.01
Reduced discharge	<0.01

This analysis again shows that substrate and alkalinity are the two strongest predictors of macroinvertebrate community composition. In this analysis the predictor variables depth and width rank 4th and 13th respectively.

These two analyses, while based on different datasets (one using RIVPACS reference sites, the other using GQA monitoring sites) both show that alkalinity and substrate are very strong predictors of macroinvertebrate community composition and are therefore going to be hard to replace in any attempt to build RIVPACS models that are truly stressor independent.

2.8.4 Candidate Variables

In discussing candidate predictor variables that might enable RIVPACS models to be built that are not affected by stressors, it is worth summarising the criteria that any new variables should ideally satisfy:

- Stressor independent (not affected by any stressors routinely encountered)
- Easily derivable (both for reference sites and test sites by Agency staff and others)
- Not dependent on external GIS layers or datasets (which might both prove impractical for some users and have IPR restrictions)

Although identifying a wish list of potential new predictor variables that meet these criteria has been challenging, a potential list of candidate variables and associated notes is given below.

Group 1 – Further Map Based Variables (or from GIS)

Variable	Notes
<i>Catchment area</i>	Hard to calculate manually Another measure of river size - may not explain much more than distance from source. Already have this variable for all RIVPACS sites.
<i>Stream order</i>	Must define method and map/GIS resolution e.g Strahler from 1 to 50:000 OS Land Ranger. Lots of tribs usually indicates hard geology. Very few tributaries indicate a groundwater fed river.
<i>Altitude of source</i>	Relatively easy to derive. Provides more information on the river leading into the site in question. Should help distinguish if the river has an upland fauna upstream.
<i>Slope - source to site</i>	Relatively easy to derive. Provides information on the river leading into the site in question. Should correlate strongly with the number of riffles and therefore typical undisturbed substrate composition of the river upstream.
<i>Stream power</i>	A measure of the energy within a river system. Calculation requires slope at site and discharge (see below)

Group 2 – Spatial Variables

Following work done in Murphy & Davy-Bowker, 2005 (described below), we have listed below a set of alternative spatial variables that appear to have some degree of explanatory power. We propose the same set of spatial variables as used in Murphy & Davy-Bowker (2005) and perhaps some additional variants:

X (Easting, East-West spatial patterns)

Y (Northing, North-South spatial patterns)

XY

X²

Y²

X²Y

XY²

X³

Y³

An important consideration with these spatial variables is that while there is evidence that they may have explanatory power, it is not clear why these variables work. It does however appear that they correlate with some unmeasured gradient(s) of change through the biological data. Indeed, the multivariate analysis in Murphy & Davy-Bowker (2005) suggests that this may be the case (reproduced with additional annotation in Figure 3 below).

In Figure 3 the current RIVPACS variables are shown in blue boxes while the potential new spatial variables are shown in pink. Examination of the relative directions of influence of the existing variables in multivariate space reveals some clear patterns with four gradients clearly visible (marked around the border of Fig. 3).

(2003) solid and drift geology were reduced to six and four classes respectively (following River Habitat Survey methodology).

Investigation of the discriminatory power of these variables indicated that altitude of source and slope (source to site) had discriminatory power that was comparable to the existing predictor variables. Stream power also exhibited potential explanatory usefulness.

In summary, to widen the scope of the River Invertebrate Classification Tool to incorporate new pressure metrics for hydromorphological and acidification stress, RICT needs to be able to calculate reference values for biotic indices that are thought to respond well to these stressors. Furthermore, any new RIVPACS model(s) built to assess these stressors should exclude variables known to be affected by them, and ideally use alternative ones to regain potentially lost predictive power.

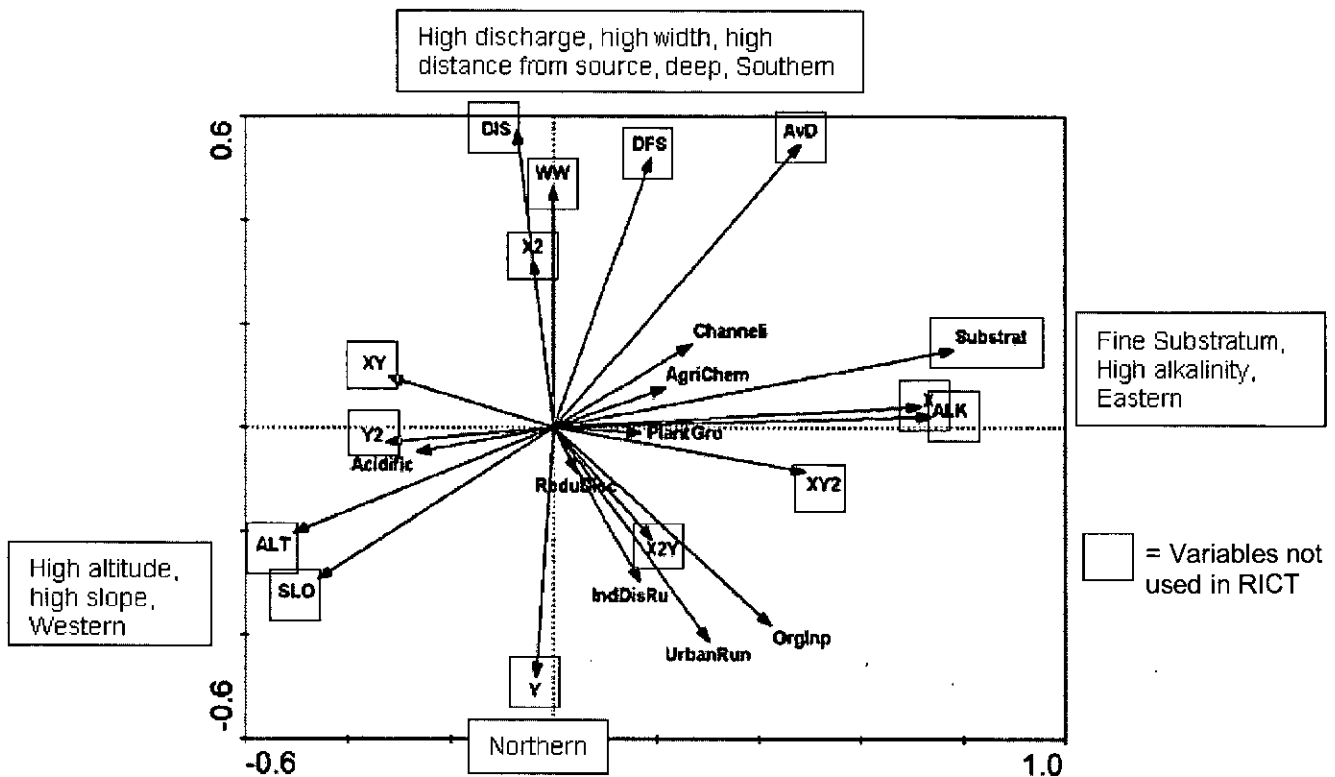
We have reviewed two analyses of the relative predictive power of RIVPACS predictor variables and a previous R&D project that sought to derive and test new GIS variables for RIVPACS. We have found that alkalinity and substrate are very strong predictors of macroinvertebrate community composition. These are therefore going to be hard to replace in any attempt to build RIVPACS models that are truly stressor independent.

From the studies we have reviewed we have identified a wish list of potential new predictor variables and three criteria that these variables need to satisfy. These include a group of new map/GIS based variables and a group of new spatial variables, both of which are wholly independent of hydromorphological and acidification stress. These variables may give additional information on the river type that could help to offset the removal of alkalinity, substrate, width and depth and there is some evidence that at least some of these may work as predictor variables in any new RIVPACS models that we build for incorporation into RICT. Any decision on whether new stressor independent model(s) will replace or be used to assess specific stressors alongside the existing GB and NI RIVPACS IV models currently within RICT will depend on a subsequent comparative analysis of model performance.

2.8.5 References

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Figure 3. Relative importance and direction of influence of 23 variables in a CCA analysis of 5752 clean and polluted streams and rivers from the 1995 GQA survey of England and Wales.



It is interesting to note how four of the five new spatial variables in Fig. 3 do not follow the same gradients as the existing RIVPACS variables. This could indicate that they correlate with previously unmeasured gradients of change and hence could have potential as predictor variables.

In addition to these analyses of variable performance above, we have also reviewed work done in a previous RIVPACS R&D project in which the procedures for acquiring environmental variables from GIS were investigated (Hornby *et al.*, 2003). In particular, we reviewed work done to investigate the explanatory power of new variables derived from GIS. Several variables were assessed:

- Altitude of source
- Slope (source to site)
- Stream power = $g.p.Q.S/W$ (Ferguson, 1981)
- Upstream catchment area
- Site and upstream catchment geology (both solid and drift geology)
- Stream order

Where g = gravitational acceleration (9.81 m s^{-2}), p = density of water (1000 kg m^{-3}), Q = discharge* ($\text{m}^3 \text{ s}^{-1}$), S = stream slope at site (m km^{-1}), W = stream width (m)

*Hornby *et al.*, (2003) suggests using mid points of RIVPACS discharge categories.

Stream power is a measure of the energy within a river system. Low stream power indicates that a site is likely to be depositing in nature while high stream power indicates that a site is likely to be erosional (Hornby *et al.*, 2003).

Solid and drift geology are typically described in terms of many classes (115 and 13 classes respectively in the analysis by Hornby *et al.*, (2003). This number of variables is too large to be used directly within RIVPACS discrimination and some degree of amalgamation is needed. For example, in Hornby *et al.*,

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4. APPENDICES

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- Appendix II Review of species indices in the WaterView database (summarised across Europe)
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- Appendix VI Taxonomic Level 1 – The 78 “BMWP family” level taxa in RIVPACS IV
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Appendix I Review of species indices – WaterView database

Appendix I Review of species indices – WaterView database (by country)

Austria		
Method	Indices Incorporated	Stressor
Assessment of saprobiological quality of rivers (Bestimmung der saprobiologischen Gewässergüte von Fließgewässern)	Saprobic Index (MARVAN, P.; ROTHSCHHEIN, J.; ZELINKA, M. (1980): Der diagnostische Wert saprobiologischer Methoden. Limnologica 12(2): 299-312.	Organic Pollution
Ecological Integrity Assessment - ÖNORM M6232	No Index Associated	General Degradation
AQEM Austria	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions abundance of all taxa abundance of Oligochaeta abundance of Plecoptera abundance of Trichoptera number of sensitive taxa number of EPT-taxa total number of families total number of taxa (%) EPT individuals / total individuals (%) EPT taxa / total taxa (sp) (%) EPT-taxa / total taxa (%) gatherers/collectors (%) littoral + Profundal preferences (%) littoral preferences (%) of Oligochaeta and Dipteran taxa (%) shredder RETI Index of Biocoenotic Region Diversity (Margalef)	Organic Pollution, Morphological Degradation

Belgium		
Method	Indices Incorporated	Stressor
Belgian Biotic Index (BBI)	Belgian Biotic Index (NBN (1984). Biological quality of watercourses. Determination of the biotic index based on aquatic macroinvertebrates. Belgian standard T92-402. Belgian institute for normalization. Brussels). Family/genus level	General Degradation
Biotic Sediment Index (BSI)	Biotic Sediment Index (BSI) - DE PAUW, N.; HEYLEN, S. (2001): Biotic index for sediment quality assessment of watercourses in Flanders, Belgium. Aquatic Ecology 35: 121-133.	Toxic Substances

Bosnia & Herzegovina		
Method	Indices Incorporated	Stressor
Revised Saprobic System combined with Species Deficit	Saprobic system revised by LIEBMANN (1962), together with 'species deficit' method (KOTHÉ 1961)	Organic Pollution, General Degradation

Bulgaria		
Method	Indices Incorporated	Stressor
Determination of Saprobic Index (ROTHSCHEIN 1962)	Saprobic Index (ROTHSCHEIN 1962). Supplemented by determination of diversity (SHANNON & WEAVER (1949); SIMPSON 1949) and evenness (PIELOU 1966).	Organic Pollution
Biotic Index based on the Quality Rating System	Quality Rating System - Adapted from the Irish 'Quality Rating System'	Organic Pollution, General Degradation

Croatia		
Method	Indices Incorporated	Stressor
Extended Biotic Index (EBI)	Extended Biotic Index' according to WOODIWISS (1978). For determination of the IBE value two factors are considered: taxa richness (diversity) and presence of sensitive taxa (indicator groups).	Organic Pollution
Saprobic Index	To determine the quality of surface waters in Croatia, the saprobic index by PANTLE and BUCK (1955) is utilised. PANTLE, R. & H. BUCK (1955): Die biologische Überwachung der Gewässer und die Darstellung der Ergebnisse. Gas- und Wasserfach 96: 604.	Organic Pollution

Czech Republic		
Method	Indices Incorporated	Stressor
Saprobiological Monitoring	PANTLE and BUCK (1955) modified by MARVAN (1969). PANTLE, R. & BUCK, H. (1955): Die biologische Überwachung der Gewässer und die Darstellung der Ergebnisse. Gas- und Wasserfach 96: 604. MARVAN, P. (1969): Notes to the application of statistical methods in evaluation of saprobiology. Symposium SMEA on Questions of Saprobity: 19-43.	Organic Pollution
PERLA	The PERLA prediction system is based on the RIVPACS approach. Index is obs/Exp NTAXA	General Degradation
AQEM Czech	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions ASPT (Average Score Per Taxon) Czech saprobic index number of Ephemeroptera taxa number of EPT taxa number of Plecoptera taxa RETI (Rhithron Feeding Type Index)	Organic Pollution, Morphological Degradation, General Degradation

Denmark		
Method	Indices Incorporated	Stressor
Danish Stream Fauna Index DSFI (Dansk Vandløbs Fauna Indeks DVFI)	The Danish Stream Fauna Index is determined on the basis of indicator taxa and the number of diversity groups in the total fauna sample. SKRIVER, J.; FRIBERG, N.; KIRKEGAARD, J. (2000): Biological assessment of running waters in Denmark: Introduction of the Danish Stream fauna Index (DSFI). Verh. Internat. Verein. Limnol. 27: 1822-1830.	Organic Pollution, General Degradation
County-specific deviations of the Saprobic System	Depending on water authority, the method has been modified and is in general a field assessment method mainly based on saprobic values.	Organic Pollution

Estonia		
Method	Indices Incorporated	Stressor
Quality Assessment of Estonian Watercourses using Benthic Macroinvertebrates	Based on the Swedish 'Benthic Fauna in Lake Littorals and Running Water - Time Series' method. It uses four selected indicator metrics of macroinvertebrate diversity and distribution: SHANNON's Diversity Index, ASPT Index, Danish Stream Fauna Index and Acidity Index according to HENDIKSON and MEDIN	Organic Pollution, Morphological Degradation, Acidification, Toxic Substances, Eutrophication, General Degradation

France		
Method	Indices Incorporated	Stressor
Global Biological Index Adapted to Large Watercourses - I.G.B.A. ('Indice Biologique Global Adapté aux grandes cours d'eau et aux rivières profondes')	Standardised Global Biological Index I.B.G.N.' to large and deep watercourses in France the 'Global Biological Index Adapted to Large Watercourses' was published in 1997 (AGENCE DE L'EAU R-M-C 1997),	Organic Pollution, Morphological Degradation, General Degradation
Oligochaeta Index for Sediment Bioindication – IOBS ('Indice Oligochètes de Bioindication des Sédiments')	The 'Oligochaeta Index for Sediment Bioindication' (IOBS) assesses the general quality of stable and permanent fine sediments of natural and artificial watercourses and indicates their susceptibility to gross organic stress and micropollutants such as metals and PCBs. To calculate the index 100 individuals have to be identified. The total number of taxa (only Oligochaeta) and the dominant percentage of Tubificidae with or without hair-setae are determined. The latter group indicates the effect of micropollutants.	Organic Pollution, Toxic Substances
Standardised Global Biological Index - I.B.G.N. ('Indice Biologique Global Normalisé')	The 'Standardised Global Biological Index (I.B.G.N.)' has been widely used in monitoring programs in France since 1992. Benthic invertebrates are usually identified to family-level, some groups to higher taxonomical level. The method embraces 138 different taxa to determine the 'total variety of the sample (Σt)' split up into 14 variety classes. 38 taxa constitute 9 'faunal indicator groups (GI)' which are selected if three (or ten, respectively) individuals belonging to an indicator taxon are found in the sample. The IBGN is then categorised into quality classes.	Organic Pollution, Morphological Degradation, General Degradation

Biological S.E.Q. (‘Système d’Evaluation de la Qualité’) - Version 0	Combination of the IGBN, IBGA, IOBS	General Degradation
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Germany		
Method	Indices Incorporated	Stressor
Investigation and Assessment of Water Quality - Saprobity	Saprobic Index of Macro- and Microbenthos according to the PANTLE & BUCK (1955)	Organic Pollution
Physiological Tolerance Index (t)	The Physiological Tolerance Index (t) assesses the degree of pollution by organic toxins in running waters. The index is based on a rank ordering system on the varying physiological tolerance of macroinvertebrate taxa (WOGRAM & LIESS 2001). WOGRAM, J. (2001): Auswirkungen der Pflanzenschutzmittel-Belastung auf Lebensgemeinschaften in Fließgewässern des landwirtschaftlich geprägten Raumes. Dissertation, TU Braunschweig. - http://www.biblio.tu-bs.de/ediss/data/20011107a/=20011107a.html (in German with English abstracts).	Toxic Substances
Ecological classification of benthic fauna in rivers	Multimetric assessment system of modular structure designed for stream type-specific application. For each stream type an individual set of metrics is used. Module 1 - Saprobity: stream ROLAUFFS <i>et al.</i> (2003). Module 2 – Acidification: (BRAUKMANN & BISS 2004). Module 3 – General Degradation: Different stressors like morphological degradation, land use in catchment area, pesticides, hormone equivalent substances etc. are jointly detected based on a multimetric index.	Organic Pollution, Acidification, General Degradation
Potamon-Type-Index (PTI)	Assesses by considering species traits as stated by MOOG (1995) and BAYERISCHES LANDESAMT FÜR WASSERWIRTSCHAFT (1996). According to the taxon's affinity to the biotope 'river', five ECO-values ('ECO-Wert') are allocated to 299 macroinvertebrate taxa. Species exclusively occurring in large watercourses and showing stenoecious character are provided with high values. On the basis of taxa-presence and abundance data the PTI is calculated and classified using 5 classes	General Degradation
Bio-Ecological Investigation of Watercourses	The Bio-ecological Investigations of Watercourses assess the biological quality of running waters based on the old version of the German DIN 38 410. To validate the resulting classification either the Saprobic Index based on an extended taxa list (BLfW 1990), the Assemblage Analysis ('Kopplungsanalyse') according to BUCK (1986) or the 'Karlsruher Methode' according to SCHMITZ has to be applied.	Organic Pollution
AQEM Germany	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions. (%) akal + (%) lithal + (%) psammal (%) akal preferences (%) gatherers/collectors (ind.) (%) hyporhital preferences (%) littoral preferences (%) pelal preferences	Organic Pollution, Morphological Degradation

	(%) phytal preferences (%) Plecoptera (%) rheophilous preferences (%) Trichoptera (%) xylophagous taxa + (%) shredder + (%) active filter feeders + (%) passive filter feeders BMWP German Faunaindex German saprobic index (new version) number of EPTCBO taxa organic pollution Shannon-Wiener Diversity	
Bioindication of acid condition	Four classes of actual acidity of Bavarian highland streams are distinguished by the occurrence of Benthic Invertebrates indicating the type of acid condition ('Säurezustandstyp'). Each indicator species has an index value ranging from 1 (sensitive to acidification) to 4 (resistant to acidification). Following the principle of maximum sensitivity, organisms belonging to the same indicator group are summed up to determine the acidity-class by exceeding a specific frequency-threshold.	Acidification

Greece		
Method	Indices Incorporated	Stressor
AQEM Greece	The European AQEM project generated a multimetric classification scheme for three Greek stream types based on macroinvertebrate sampling. (%) EPT taxa (%) hypopotamal preferences (%) littoral preferences (%) metapotamal preferences (%) parasites (%) passive filter feeders (%) predators (%) profundal ASPT BMWP Diversity Groups DSFI* German Saprobic Index (old version) IBE number of EPT taxa Simpson Diversity type LR type RP	Organic Pollution
Hellenic Assessment System	Two biotic indices: HBMWP and HASPT. The indices represent modifications of the Spanish BMWP' score system (ALBA-TERCEDOR & SÁNCHEZ-ORTEGA 1988). In addition, different indicator scores are assigned to each taxon dependent on its relative abundance in the sample. Separate classification of "poor" and "rich" habitats accounts for the habitat diversity of the sampling site. Both the scores of HBMWP and HASPT determine the overall ecological stream quality	General Degradation

Hungary		
Method	Indices Incorporated	Stressor
Macrozoobenthos Sampling Project of the Hungarian National Biodiversity Program	The main aim of the method is to detect the general status of aquatic macroinvertebrate communities, not to determine the influence certain stressors directly. Pristine and degraded water bodies are monitored. Populations of threatened species are surveyed. Not all taxa are identified, but Odonata, Ephemeroptera, Plecoptera, Hirudinea are determined to species level and some others – aquatic beetles and bugs, molluscs, Gammarids etc. – are determined to higher taxonomical level. No formal biotic indices used to date.	General Degradation
BMWP – HU (adapted to Hungarian conditions)	Modification of the British BMWP/ASPT score system is applied featuring newly included taxa and modified scores.	Organic Pollution

Iceland		
Method	Indices Incorporated	Stressor
Biological Monitoring of Watercourses in Iceland	Sampling of benthic invertebrates (mainly Dipteran taxa) is done by utilisation of window traps to catch flying adults after emergence.	General Degradation

Italy		
Method	Indices Incorporated	Stressor
Mayfly Average Score (MAS)	To avoid on the one hand costly determination to species level, on the other hand loss of biological information when family level is sufficient, species of similar sensitivity are aggregated at a 'lower than genus'-level (morpho-taxonomic groups). Together with other mayfly genera they form so-called Operational Units (OU) to be identified in the field. A score (1 - exploiter taxa; 3 - ancillary taxa; 5 - indicator taxa) is assigned to each OU, which are summed up to the Mayfly Total Score (MTS) which is then divided by the number of OU to obtain the Mayfly Average Score (MAS).	General Degradation
Report Index (IR - 'Indice a Rapporto')	The 'Report Index' distinguishes between four groups of taxa showing different tolerance to organic pollution. The proportion of sensitivity groups is used to determine the water quality. STOCH, F. (1986): Nota preliminare su una nuova metodologia biologica per il mappaggio di qualità delle acque correnti. <i>Acqua & Aria</i> 2: 137-142.	Organic Pollution
AQEM Italy	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions. (% Argillal preferences (% Borrowing locomotion types (% Filter feeders + Odontoceridae abundance of <i>A. muticus</i> + <i>N. digitatus</i> abundance of all taxa / abundance of Diptera taxa abundance of <i>Amphinemura</i> and <i>Protonemura</i> abundance of <i>Cordulegaster</i> and <i>Dinocras</i> abundance of <i>Dugesia</i> and <i>Lymnaea</i> abundance of Elmidae abundance of Leptophlebiidae	Morphological Degradation, General Degradation

	<p>abundance of <i>Leuctra</i> and <i>Calopteryx</i> abundance of Lumbricidae abundance of Tubificidae ASPT BMWP diversity groups (DSFI)** MTS (Mayfly Total Score)* number of MAS Operational Units* number of Plecoptera and Trichoptera taxa number of Plecoptera taxa number of Trichoptera taxa <i>Rhithrogena</i> sum of abundance of <i>Amphinemura</i> + <i>Protonemura</i> + <i>Nemoura</i> + <i>Leuctra</i> + <i>Perla</i> sum of abundance of <i>Ancylus</i> + Lumbriculidae + <i>Micronecta</i> + Gyrinidae (Ad) + Limnephilidae sum of abundance of <i>Baetis rhodani</i> + <i>Ecdyonurus</i> + <i>Habrophlebia</i> + <i>Torleya</i> + <i>Caenis beskidensis belfiorei</i> + <i>Caenis beskidensis</i> + <i>Caenis belfiorei</i> sum of abundance of Brachycentridae + Goeridae + Sericostomatidae + Odontoceridae sum of abundance of Dixidae + Empididae + Stratiomyidae + Dolichopodidae + Athericidae sum of abundance of Odontoceridae + Limnephilidae + Polycentropodidae sum of abundance of <i>Procloeon</i> + <i>Centroptilum</i> + <i>Ecdyonurus</i> + <i>Paraleptophlebia</i> + <i>Ephemera</i> + sum of abundance of <i>Rhithrogena</i> + <i>Ecdyonurus</i> gr. <i>venosus</i> + <i>Ephemera</i> sum of abundance of <i>Rhithrogena</i> + <i>Epeorus</i> + <i>Centroptilum</i> + Goeridae + Hydraenidae + Elmidae + <i>Ancylus</i> sum of abundance of Syrphidae + Culicidae + Ceratopogonidae + <i>Siphonurus</i></p>	
Extended Biotic Index - IBE (Indice Biotico Estesio) modified according to GHETTI	<p>The IBE is based on the 'Extended Biotic Index' according to WOODIWISS (1978) modified according to GHETTI and is a standard method for assessing Italian watercourses. For determination of the IBE value, according to biotic index methods, two factors are considered: taxa richness (diversity) and presence of sensitive taxa (indicator groups). Calculation is performed with a cross-table.</p>	General Degradation

Latvia		
Method	Indices Incorporated	Stressor
Operative Evaluation of the Biological Quality of Small Streams by Saprobic Index of Macrozoobenthos Communities	The Saprobic Index is calculated according to PANTLE & BUCK (1955) and the results are assigned to one of five quality classes.	Organic Pollution

Liechtenstein		
Method	Indices Incorporated	Stressor
Water Quality Assessment	The Saprobic Index (MARVAN <i>et al.</i> 1980) is calculated according to the relative frequency of habitats sampled.	Organic Pollution

Luxembourg		
Method	Indices Incorporated	Stressor
Testing of various indices to assess watercourses	Several indices (among them IBGN, BMWP and ASPT and DIN 38 410). Within the next three years it is intended to generate a predictive system (similar to RIVPACS or PERLA) out of which a system for ecological water quality assessment will be developed.	Organic Pollution, Morphological Degradation, Toxic Substances, General Degradation

Moldova		
Method	Indices Incorporated	Stressor
Saprobiological assessment based on various metrics	Saprobic index according to PANTLE & BUCK (1955), (2) ratio of oligochaets	Organic Pollution

Northern Ireland		
Method	Indices Incorporated	Stressor
Biological GQA (General Quality Assessment) classification	BMWP, NTAXA and ASPT used with RIVPACS	General Degradation

Poland		
Method	Indices Incorporated	Stressor
BMWP – PL (Biological Monitoring Working Party score adapted to Polish conditions)	BMWP modified for Poland together with a diversity index (ratio of number of families to macrofauna abundance).	Organic Pollution

Portugal		
Method	Indices Incorporated	Stressor
AQEM Portugal	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions. Uses the Portuguese Index, which combines stress tolerance (scores) and community composition (relative abundance). A list of indicator taxa (family level) was established to this purpose, based on autecology and distribution along the impact gradient.	Organic Pollution
BMWP' (Biological Monitoring Working Party score adopted to Spanish conditions)	The Spanish BMWP is an adaptation of the British Biological Monitoring Working Party (BMWP) score system. The modifications include the addition of new families, changes in some scores (see score table) and division of scores into five classes, representing various degrees of organic pollution.	Organic Pollution

Republic of Ireland		
Method	Indices Incorporated	Stressor
Quality Rating System	The Quality Rating System relates the relative abundance of five key groups of macroinvertebrates (sensitive forms to most tolerant forms) to water quality.	Organic Pollution, General Degradation

Romania		
Method	Indices Incorporated	Stressor
Determination of Saprobic Index according to PANTLE & BUCK (1955)	Saprobic Index according to PANTLE & BUCK (1955)	Organic Pollution

Russia		
Method	Indices Incorporated	Stressor
Method of Biotic Analysis (MBA)	The method is based on identification of animals to the taxonomic level mentioned in the definition table. Each taxonomic group has a score and the sum of all scores indicates the quality class of the water body. The MBA method was developed for simple assessment of aquatic ecosystem status and is applied to streams as well as to stagnant waters (lakes, reservoirs).	Organic Pollution, Morphological Degradation, Toxic Substances, General Degradation
Index of Trophic Completeness (ITC)	A large number of macroinvertebrate species (about 920) is characterised according to the trophic criteria plant, animal ratio in the diet, feeding mechanism, food size, food acquisition behaviour, energy and substance transfers. On this basis the species are divided into 12 trophic groups.	General Degradation

Serbia & Montenegro		
Method	Indices Incorporated	Stressor
Saprobiological Investigations using PANTLE & BUCK index	Water quality is expressed in four classes obtained by calculating the Saprobic Index according to PANTLE & BUCK (1955).	Organic Pollution, Eutrophication
National Water Monitoring Strategy	New system under development. May include: Saprobic Index according to PANTLE & BUCK (1955) and ZELINKA & MARVAN (1961), Species Richness, Diversity Index according to SHANNON & WEAVER (1949), Trophic Relations, ASPT, Index of Biotic Integrity(KARR 1981)	Organic Pollution, Eutrophication, General Degradation

Slovakia		
Method	Indices Incorporated	Stressor
National Surface Water Quality Monitoring System	The degree of Organic Pollution is separately assessed by determination of the Saprobic Index (SLOVAK NATIONAL STANDARD 757221 1989)	Organic Pollution, Eutrophication
Saprobiological Analysis	Saprobiological analysis is based on the calculation of the saprobic index of a biocoenosis by PANTLE and BUCK (1955) modified by ZELINKA and MARVAN (1961).	Organic Pollution

Spain		
Method	Indices Incorporated	Stressor
ECOSTRIMED – ECOlogical Status Rivers MEDiterranean	FBILL (total number of families found in the sample and indicator families) and IBMWP (Spanish version of BMWP)	Organic Pollution, Morphological Degradation, General Degradation

Sweden		
Method	Indices Incorporated	Stressor
Benthic Fauna in Lake Littorals and Running Water - Time Series ('Bottenfauna i sjöars littoral och vattendrag - tidsserier')	SHANNON's Diverity Index, ASPT Index, Danish Stream Fauna Index and Acidity Index according to HENDIKSON and MEDIN	Organic Pollution, Acidification, Eutrophication
AQEM Sweden	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions. (%) grazers/scrapers (%) swimming/diving taxa Acid index (Henrikson & Medin) ASPT DSFI* number of EPT taxa	Organic Pollution, Acidification
Benthic Fauna in Lake Littorals and Running Water - Inventory ('Bottenfauna i sjöars littoral och vattendrag - inventering')	Different freshwater-species have been assigned to one of five sensitivity classes (chemical stress: acidification and organic pollution). The most sensitive taxon found at a site decides the quality class.	Organic Pollution, Acidification, Eutrophication

Switzerland		
Method	Indices Incorporated	Stressor
Benthic Invertebrates (Level R) in the Modular Stepwise Procedure	Makroindex according to PERRET (1977) and I.B.G.N. index	General Degradation

The Netherlands		
Method	Indices Incorporated	Stressor
AQEM Netherlands	AQEM uses an approach that is specifically designed for each stream type: Different calculation methods ('metrics') are applied based on the comparison with type-specific reference conditions. (%) (grazers+scrapers) / (%) (gatherers/collectors+filter feeders) (%) EPT / (%) Oligochaeta (%) EPT / (%) Oligochaeta – (%) Gastropoda (%) EPT / (%) Oligochaeta – (%) type PEL (%) EPT / (%) Oligochaeta – (%) type RP (%) Gastropoda (%) Gastropoda – (%) EPT / (%) Oligochaeta (%) hypopotamal preferences (%) of passive filter feeders	General Degradation

	(%) of Trichoptera (%) type hypopotamal – (%) EPT / (%) Oligochaeta (%) type PEL (%) type RP number of EPT taxa / number of Oligochaeta taxa Saprobic Index ZELINKA & MARVAN total number of taxa	
AMOEBE – general method for ecosystem description and assessment ('Algemene Methode voor Oecosysteem-beschrijving en Beoordeling')	Number of individuals and biomass. Multimetric = ((value target variable under present conditions) / (value target variable under present conditions)) * 100.	General Degradation
EKO – Ecological characterisation of surface waters ('Ecologische karakterisering van oppervlaktewateren')	Typological approach based on multivariate analysis of abiotic and macroinvertebrate data. The position of the site in the web makes it possible to determine the desired developmental direction from the community in the field towards the reference community. Multivariate: a combination of passive ordination, calculation of the Euclidian distance, Mahalanobis distance and similarity, weighting and discriminant analysis.	Organic Pollution, Morphological Degradation, Acidification, Eutrophication, General Degradation
Ecological Examination and Management of Surface Waters – EBESWA ('Ecologische Beoordeling en Beheer van Oppervlaktewater')	Relative abundance of specific indicator groups (value between 0 and 100).	Organic Pollution, Morphological Degradation, Eutrophication, General Degradation

United Kingdom		
Method	Indices Incorporated	Stressor
Biological GQA (General Quality Assessment) classification	BMWP, NTAXA & ASPT with RIVPACS	Organic Pollution, General Degradation
Chironomid Pupal Exuviae Technique (CPET) for assessing canal water quality	Uses cast skins (exuviae) from chironomid pupae. A scoring system and a dichotomous key. Both classify water quality into 5 quality grades and are based on the identification and enumeration of a small number of widely distributed, frequently occurring and easily recognisable indicator genera	General Degradation
AWIC (Acid Water Indicator Community)	The AWIC(fam) method is a scoring system on family level to assess acidity. The AWIC(fam) enables to predict the mean pH from the AWIC(fam)-ASPT at a site. The level of invertebrate identification is the same as used in British monitoring programmes ("BMWP families").	Acidification
Scottish River Classification Scheme (biological component)	BMWP, NTAXA & ASPT with RIVPACS	Organic Pollution, General Degradation
Rapid Biological Appraisal Keys (RBAKs)	RBAKs are based on sewage fungus and four macro-invertebrate indicators (Baetis, Heptageniidae, Gammarus, Oligochaeta).	General Degradation

Community Conservation Index (CCI)	Community Conservation Scores of between 1 and 10 have been assigned to each species of macroinvertebrate based on their rarity. The Community Score is based on the BMWP-score (see Biological GQA classification) or the species in the sample with the highest conservation score, whichever indicates the highest score	General Degradation
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**Appendix II Review of species indices in the WaterView database
(summarised across Europe)**

Appendix II Review of species indices in the WaterView database (summarised across Europe)

Index	Organic	Morphology	Eutrophication	Acidification	Toxic	General degradation	Approximate level of taxonomic resolution required	Austria	Belgium	Bosnia & Herzegovina	Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Hungary	Iceland	Italy	Latvia	Liechtenstein	Luxembourg	Moldova	Northern Ireland	Norway	Poland	Portugal	Republic of Ireland	Romania	Russia	Serbia & Montenegro	Slovakia	Spain	Sweden	Switzerland	The Netherlands	United Kingdom												
Organic Pollution/General Degradation																																																			
BMWP, NTAXA, ASPT (including national variants)	Y					Y	Family						Y				Y	Y	Y		Y	Y	Y	Y										Y	Y																
Saprobic index (including national variants)	Y	Y				Y	Family/Genus	Y					Y				Y	Y	Y		Y	Y	Y	Y												Y	Y														
Danish Stream Fauna Index (DSFI)	Y	Y		Y		Y	Species	Y					Y				Y	Y	Y		Y	Y	Y	Y																											
IBE	Y					Y	Family/Genus											Y			Y																														
IBGA / IBGN	Y	Y				Y	Family/Genus																	Y																											
Belgian Biotic Index (BBI)	Y					Y	Family/Genus	Y																																											
Quality Rating System (including national variants)	Y					Y	Family/Genus																																												
Chironomid Pupal Exuviae Technique (CPET)						Y	Genus																																												
Rapid Biological Appraisal Keys (RBAKs)						Y	Family/Genus/Species																																												
Species Deficit (Kotze, 1962)						Y	Family/Genus/Species	Y																																											
Portuguese Index	Y					Y	Family																																												
Report Index (R - Indice a Rapporto)	Y					Y	Family/Genus																																												
Extended Biotic Index (EBI)	Y						Family/Genus																																												
Makroindex (Perret, 1977)						Y	Family/Genus/Species																																												
Method of Biotic Analysis (MBA)	Y	Y					Family/Genus/Species																																												
Diversity & Related																																																			
Diversity - Shannon-Wiener	Y	Y				Y	Species																																												
Diversity - Simpson	Y					Y	Species																																												
Diversity - Margalef	Y	Y					Species	Y																																											
Evenness (Pielou, 1966)						Y	Species																																												
Acidity																																																			
Acid index (Henrikson & Medin)				Y			Species																																												
AWIC/fam			Y				Family																																												
AWIC/sp			Y				Species																																												
Bioindication of acid condition		Y					Species																																												
Braukmann & Biss 2004		Y					Species																																												
Wade <i>et al.</i> (1989)		Y					Species																																												
Fjellheim & Raddum (1990)		Y					Genus/Species																																												
Toxicity																																																			
Physiological Tolerance Index (t)				Y			Species																																												
Biotic Sediment Index (BSI)			Y				Family/Genus																																												
Oligochaeta Index for Sediment Bioindication (OBS)	Y		Y		Y		Family/Species																																												

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Index	Organic	Morphology	Eutrophication	Acidification	Toxic	General degradation	Approximate level of taxonomic resolution required	Austria	Belgium	Bosnia & Herzegovina	Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Hungary	Iceland	Italy	Latvia	Liechtenstein	Luxembourg	Moldova	Northern Ireland	Norway	Poland	Portugal	Republic of Ireland	Romania	Russia	Serbia & Montenegro	Slovakia	Spain	Sweden	Switzerland	The Netherlands	United Kingdom			
	Richness Indices																																									
number of Ephemeroptera taxa	Y	Y				Y	Species						Y																													
number of EPT taxa / number of Oligochaeta taxa						Y	Genus/Species																																		Y	
number of Plecoptera and Trichoptera taxa	Y	Y				Y	Species															Y																				
number of Plecoptera taxa	Y	Y				Y	Species						Y									Y																				
number of Trichoptera taxa	Y	Y				Y	Species															Y																				
Rhithrogena		Y				Y	Species															Y																				
total number of taxa	Y	Y				Y	Species	Y																																		
total number of families	Y	Y				Y	Family	Y																																		
Mayfly Average Score		Y				Y	Genus/Species Groups															Y																				
Abundance Metrics																																										
abundance of <i>A. muticus</i> + <i>N. digitalis</i>	Y	Y				Y	Species																																			
abundance of all taxa	Y	Y				Y	Species																																			
abundance of all taxa / abundance of Diptera taxa	Y	Y				Y	Species																																			
abundance of <i>Amphinemura</i> and <i>Protonemura</i>	Y	Y				Y	Genus																																			
abundance of <i>Cordulegaster</i> and <i>Dinocras</i>	Y	Y				Y	Genus																																			
abundance of <i>Dugesia</i> and <i>Lymnaea</i>	Y	Y				Y	Genus																																			
abundance of Elmidae	Y	Y				Y	Family																																			
abundance of Leptophlebiidae	Y	Y				Y	Family																																			
abundance of <i>Leuctra</i> and <i>Calopteryx</i>	Y	Y				Y	Genus																																			
abundance of Lumbricidae	Y	Y				Y	Family																																			
abundance of Oligochaeta	Y	Y				Y	Order																																			
abundance of Plecoptera	Y	Y				Y	Order																																			
abundance of Trichoptera	Y	Y				Y	Order																																			
abundance of Tubificidae	Y	Y				Y	Family																																			
sum of abundance of <i>Amphinemura</i> + <i>Protonemura</i> + <i>Nemoura</i> + <i>Leuctra</i> + <i>Perla</i>	Y	Y				Y	Genus																																			
sum of abundance of Ancyli + Lumbricidae + Micronecta + Gyrinidae (Ag) + Limnephilidae + Odontoceridae	Y	Y				Y	Family/Genus																																			
sum of abundance of <i>Baetis rhodani</i> + <i>Ecdyonurus</i> + <i>Gyrinidae (Ag)</i> + <i>Toreya</i> + <i>Caenis beskidensis belliflori</i> + <i>Caenis beskidensis</i> + <i>Caenis belliflori</i>	Y	Y				Y	Genus/Species																																			
sum of abundance of Brachycentridae + Goenidae + Seticostrimatidae + Odontoceridae	Y	Y				Y	Family																																			
sum of abundance of Dixidae + Stratiomyidae + Dolichopodidae + Athericidae	Y	Y				Y	Family																																			
sum of abundance of Odontoceridae + Limnephilidae + Polycentropodidae	Y	Y				Y	Family																																			
sum of abundance of <i>Procladius</i> + <i>Centropilum</i> + <i>Ecdyonurus</i> + <i>Paraleptophlebia</i> + <i>Ephemera</i> +	Y	Y				Y	Genus																																			

SNIFFER WFD100: Further Development of River Invertebrate Classification Tool September, 2010

Index	Organic	Morphology	Eutrophication	Acidification	Toxic	General degradation	Approximate level of taxonomic resolution required	Austria	Belgium	Bosnia & Herzegovina	Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Hungary	Iceland	Italy	Latvia	Leichtenstein	Luxembourg	Moldova	Northern Ireland	Norway	Poland	Portugal	Republic of Ireland	Romania	Russia	Serbia & Montenegro	Slovakia	Spain	Sweden	Switzerland	The Netherlands	United Kingdom								
(%) peat preferences	Y	Y					Genus/Species										Y																														
(%) phytal preferences	Y	Y					Genus/Species										Y																														
(%) Plecoptera	Y	Y					Genus/Species										Y																														
(%) predators	Y	Y					Genus/Species										Y																														
(%) profundal	Y	Y					Genus/Species										Y																														
(%) rheophilous preferences	Y	Y					Genus/Species										Y																														
(%) shredder	Y	Y					Genus/Species	Y																																							
(%) swimming/diving taxa	Y	Y		Y			Genus/Species										Y																														
(%) Trichoptera	Y	Y					Genus/Species										Y																														
(%) type hypoplamal - (%) EPT / (%) Oligochaeta							Genus/Species										Y																														
(%) type PEL							Genus/Species										Y																														
(%) type RP							Genus/Species										Y																														
(%) xylophagous taxa + (%) shredder + (%) active filter feeders + (%) passive filter feeders	Y	Y					Genus/Species										Y																														
(%) littoral preferences	Y	Y					Genus/Species										Y																														
Potamon-Type-Index (PTI) – uses species traits as stated by MOOG (1995) and BAYERISCHES LANDESAMT FÜR WASSERWIRTSCHAFT (1996).							Genus/Species	Y									Y																														
type LR	Y	Y					Genus/Species										Y																														
type RP	Y	Y					Genus/Species										Y																														
RETI (Rhitron Feeding Type Index)	Y	Y					Genus/Species										Y																														
Index of Trophic Completeness (ITC)							Genus/Species										Y																														
Biodiversity/Conservation																																															
Community Conservation Index (CCI)																																															
							Species																																								

**Appendix III Consultation on the current practicable level of analysis
and indices being used in the UK Agencies.**

**Appendix III Consultation on the current practicable level of analysis
and indices being used in the UK Agencies.**

To whom it may concern



Centre for Ecology & Hydrology
c/o The Freshwater Biological Association
River Laboratory
East Stoke, Wareham
Dorset, BH20 6BB
Telephone (01929) 401891

www.ceh.ac.uk

Tuesday, 20th January 2009

Consultation for Project WFD100

Dear Sir/Madam,

As part of the Scotland and Northern Ireland Forum for Environmental Research (SNIFFER) project WFD100 to further develop the River Invertebrate Classification Tool, I am seeking feedback from the EA, SEPA and NIEA to ascertain:

- 1) The current practicable level of species-level analyses at which Agency biologists currently work
- 2) A list of the biotic indices (including any that you are aware of that are under development) that are currently in use, or are likely to be used in your work.

On the pages that follow, and on the supporting Excel spreadsheet, you will be asked a series of questions. Your help in this consultation will contribute greatly to the further development and refinement of RICT for the operational needs of the Agencies and your input is greatly appreciated. If you wish to include your name with your response this will be included in the acknowledgements of the final project report.

With very many thanks for your kind help,

John Davy-Bowker
jobo@ceh.ac.uk

Current practicable level of species-level analyses

We are seeking to establish the current level of identification you achieve when you process samples at species level. The purpose of this consultation is to enable us to make RICT produce predicted taxon lists at a level that more closely matches the needs of the Agencies.

You have received a spreadsheet called '652 TL4 - RIVPACS species level taxa.xls':

Line	Maitland Code	Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name	Frequency of occurrence across 795 sites, in 3 seasons, GB & NI combined
1	02110000	Spongillidae	02110000	Spongillidae	NBNYS00000181044	Spongillidae	1.34
2	03110000	Hydridae	03110000	Hydridae	NBNYS00000181044	Hydridae	3.02
3	05110101	Planorbis torva (Müller)	05110101	Planorbis torva (Müller, 1774)	NBNYS00000181044	Planorbis torva	0.88
4	05110201	Polycelis teina (Dalyell, 1814)	05110201	Polycelis teina (Dalyell, 1814)	NBNYS00000181044	Polycelis teina	16.90
5	05110202	Polycelis nigra group	05110202	Polycelis nigra group	NBNYS00000181044	Polycelis nigra group	13.92
6	05110301	Phragocata vitta (Duges, 1830)	05110301	Phragocata vitta (Duges, 1830)	NBNYS00000181044	Phragocata vitta	1.93
7	05110401	Crenobia alpina (Dana)	05110401	Crenobia alpina (Dana, 1766)	NBNYS00000181044	Crenobia alpina	4.44
8	05120103	Dugesia tigrina (Girard)	05120103	Dugesia tigrina (Girard, 1850)	NBNYS00000181044	Dugesia tigrina	2.35
9	05120102	Dugesia polychroa group	05120102	Dugesia polychroa group	NBNYS00000181044	Dugesia polychroa group	3.61
10	05130101	Balaclocephala punctata (Pallas)	05130101	Balaclocephala punctata (Pallas, 1774)	NBNYS00000181044	Balaclocephala punctata	0.04
11	05130201	Dendrocoelum lacteum (Müller)	05130201	Dendrocoelum lacteum (O.F. Müller, 1774)	NBNYS00000181044	Dendrocoelum lacteum	6.68
12	09120000	Chordodidae	09120000	Chordodidae	NBNYS00000181044	Chordodidae	0.67
13	10000000	Nematoda	10000000	Nematoda	NBNYS00000181044	Nematoda	2.69
14	14000000	Ectoprocta	14000000	Ectoprocta	NBNYS00000181044	Ectoprocta	0.13
15	16110101	Theodoxus fluviatilis (L.)	16110101	Theodoxus fluviatilis (Linnaeus, 1758)	NBNYS00000181044	Theodoxus fluviatilis	6.67
16	16120102	Viviparus viviparus (L.)	16120102	Viviparus viviparus (Linnaeus, 1758)	NBNYS00000181044	Viviparus viviparus	1.59
17	16130101	Valvata cristata Müller	16130101	Valvata (Valvata) cristata O.F. Müller, 1774	NBNYS00000181044	Valvata cristata	2.69
18	16130102	Valvata macrostoma Mörch	16130102	Valvata (Tropidina) macrostoma Mörch, 1864	NBNYS00000181044	Valvata macrostoma	0.17
19	16130131	Valvata piscalis (Müller)	16130131	Valvata (Cincinna) piscalis (O.F. Müller, 1774)	NBNYS00000181044	Valvata piscalis	11.07
20	16140301	Potamopyrgus jenkinsi (Smith)	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)	NBNYS00000181044	Potamopyrgus jenkinsi	52.08
21	16160101	Bithynia leachi (Sheppard)	16160101	Bithynia (Codiella) leachi (Sheppard, 1823)	NBNYS00000181044	Bithynia leachi	2.47
22	16160111	Bithynia tentaculata (L.)	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	NBNYS00000181044	Bithynia tentaculata	11.45
23	16210101	Aplexa hypnorum (L.)	16210101	Aplexa hypnorum (Linnaeus, 1758)	NBNYS00000181044	Aplexa hypnorum	0.04
24	16210202	Physa fontinalis (L.)	16210202	Physa fontinalis (Linnaeus, 1758)	NBNYS00000181044	Physa fontinalis	12.49
25	16210321	Physella acuta group	16210321	Physella (Costabella) acuta (Draparnaud, 1805)	NBNYS00000181044	Physella acuta	0.67
26	16220601	Lymnaea auricularis (L.)	16220601	Radix auricularis (Linnaeus, 1758)	NBNYS00000181044	Lymnaea auricularis	0.67
27	16220401	Lymnaea palustris (Müller)	16220401	Stagnicola palustris (O.F. Müller, 1774)	NBNYS00000181044	Lymnaea palustris	2.31

Step 1) Choose your preferred taxon coding and naming system:

- Maitland (columns B & C)
- Furse (columns D & E)
- NBN (columns F & G)

Retain either columns B & C; D & E or F & G, delete the others. In the example below, Furse Names and codes have been retained. Expand the Name column to show the scientific name of each taxon in full.

NB – Column D – Frequency of occurrence is provided as a measure of taxon rarity.

Line	Maitland Code	Maitland Name	Frequency of occurrence across 795 sites, in 3 seasons, GB & NI combined	Furse Code	Furse Name	NBN Code	NBN Name	Frequency of occurrence across 795 sites, in 3 seasons, GB & NI combined	Furse Code	Furse Name
1	02110000	Spongillidae	1.34	02110000	Spongillidae	NBNYS00000181044	Spongillidae	1.34	02110000	Spongillidae
2	03110000	Hydridae	3.02	03110000	Hydridae	NBNYS00000181044	Hydridae	3.02	03110000	Hydridae
3	05110101	Planorbis torva (Müller)	0.88	05110101	Planorbis torva (Müller, 1774)	NBNYS00000181044	Planorbis torva	0.88	05110101	Planorbis torva (Müller, 1774)
4	05110201	Polycelis teina (Dalyell, 1814)	16.90	05110201	Polycelis teina (Dalyell, 1814)	NBNYS00000181044	Polycelis teina	16.90	05110201	Polycelis teina (Dalyell, 1814)
5	05110202	Polycelis nigra group	13.92	05110202	Polycelis nigra group	NBNYS00000181044	Polycelis nigra group	13.92	05110202	Polycelis nigra group
6	05110301	Phragocata vitta (Duges, 1830)	1.93	05110301	Phragocata vitta (Duges, 1830)	NBNYS00000181044	Phragocata vitta	1.93	05110301	Phragocata vitta (Duges, 1830)
7	05110401	Crenobia alpina (Dana)	4.44	05110401	Crenobia alpina (Dana, 1766)	NBNYS00000181044	Crenobia alpina	4.44	05110401	Crenobia alpina (Dana, 1766)
8	05120103	Dugesia tigrina (Girard)	2.35	05120103	Dugesia tigrina (Girard, 1850)	NBNYS00000181044	Dugesia tigrina	2.35	05120103	Dugesia tigrina (Girard, 1850)
9	05120102	Dugesia polychroa group	3.61	05120102	Dugesia polychroa group	NBNYS00000181044	Dugesia polychroa group	3.61	05120102	Dugesia polychroa group
10	05130101	Balaclocephala punctata (Pallas)	0.04	05130101	Balaclocephala punctata (Pallas, 1774)	NBNYS00000181044	Balaclocephala punctata	0.04	05130101	Balaclocephala punctata (Pallas, 1774)
11	05130201	Dendrocoelum lacteum (Müller)	6.68	05130201	Dendrocoelum lacteum (O.F. Müller, 1774)	NBNYS00000181044	Dendrocoelum lacteum	6.68	05130201	Dendrocoelum lacteum (O.F. Müller, 1774)
12	09120000	Chordodidae	0.67	09120000	Chordodidae	NBNYS00000181044	Chordodidae	0.67	09120000	Chordodidae
13	10000000	Nematoda	2.69	10000000	Nematoda	NBNYS00000181044	Nematoda	2.69	10000000	Nematoda
14	14000000	Ectoprocta	0.13	14000000	Ectoprocta	NBNYS00000181044	Ectoprocta	0.13	14000000	Ectoprocta
15	16110101	Theodoxus fluviatilis (L.)	6.67	16110101	Theodoxus fluviatilis (Linnaeus, 1758)	NBNYS00000181044	Theodoxus fluviatilis	6.67	16110101	Theodoxus fluviatilis (Linnaeus, 1758)
16	16120102	Viviparus viviparus (L.)	1.59	16120102	Viviparus viviparus (Linnaeus, 1758)	NBNYS00000181044	Viviparus viviparus	1.59	16120102	Viviparus viviparus (Linnaeus, 1758)
17	16130101	Valvata cristata Müller	2.69	16130101	Valvata (Valvata) cristata O.F. Müller, 1774	NBNYS00000181044	Valvata cristata	2.69	16130101	Valvata (Valvata) cristata O.F. Müller, 1774
18	16130102	Valvata macrostoma Mörch	0.17	16130102	Valvata (Tropidina) macrostoma Mörch, 1864	NBNYS00000181044	Valvata macrostoma	0.17	16130102	Valvata (Tropidina) macrostoma Mörch, 1864
19	16130131	Valvata piscalis (Müller)	11.07	16130131	Valvata (Cincinna) piscalis (O.F. Müller, 1774)	NBNYS00000181044	Valvata piscalis	11.07	16130131	Valvata (Cincinna) piscalis (O.F. Müller, 1774)
20	16140301	Potamopyrgus jenkinsi (Smith)	52.08	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)	NBNYS00000181044	Potamopyrgus jenkinsi	52.08	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)
21	16160101	Bithynia leachi (Sheppard)	2.47	16160101	Bithynia (Codiella) leachi (Sheppard, 1823)	NBNYS00000181044	Bithynia leachi	2.47	16160101	Bithynia (Codiella) leachi (Sheppard, 1823)
22	16160111	Bithynia tentaculata (L.)	11.45	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	NBNYS00000181044	Bithynia tentaculata	11.45	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)
23	16210101	Aplexa hypnorum (L.)	0.04	16210101	Aplexa hypnorum (Linnaeus, 1758)	NBNYS00000181044	Aplexa hypnorum	0.04	16210101	Aplexa hypnorum (Linnaeus, 1758)
24	16210202	Physa fontinalis (L.)	12.49	16210202	Physa fontinalis (Linnaeus, 1758)	NBNYS00000181044	Physa fontinalis	12.49	16210202	Physa fontinalis (Linnaeus, 1758)
25	16210321	Physella acuta group	0.67	16210321	Physella (Costabella) acuta (Draparnaud, 1805)	NBNYS00000181044	Physella acuta	0.67	16210321	Physella (Costabella) acuta (Draparnaud, 1805)
26	16220601	Lymnaea auricularis (L.)	0.67	16220601	Radix auricularis (Linnaeus, 1758)	NBNYS00000181044	Lymnaea auricularis	0.67	16220601	Radix auricularis (Linnaeus, 1758)
27	16220401	Lymnaea palustris (Müller)	2.31	16220401	Stagnicola palustris (O.F. Müller, 1774)	NBNYS00000181044	Lymnaea palustris	2.31	16220401	Stagnicola palustris (O.F. Müller, 1774)

Step 2) Using column E, make entries as shown in the example below to indicate how you deal with each taxon in your routine species level laboratory identification. We are looking for the usual practically attainable level of identification that you can achieve rather than a best case scenario. We are interested in how you deal with these taxa currently, rather than historically. In the case of taxa with aquatic adults and larvae, we are interested in the adults (e.g. to what level do you routinely identify water beetle adults – it is assumed that the larvae will tend to be identified more coarsely). We ask that you try to only make the 4 types of entry below for all 652 listed taxa:

Don't include in species lists	- meaning that you don't record these taxa in your lab
Identify to level shown	- meaning that you routinely identify these taxa to the level shown
Split into species	- meaning that you routinely split these taxa – please indicate end point – e.g. genus, species
Downgrade to ADD NAME	- meaning that you only identify to a coarser level – please indicate level e.g. genus, family

Example of finished product

Line	Alpha Code	Taxon Name	Frequency of occurrence across 795 sites, in 3 seasons; GB & NI combined	Identification Level
1	0210000	Spongillidae	134	Don't include in species lists
2	0310000	Hydridae	3.02	Don't include in species lists
3	0510101	Planaria torva (Müller, 1774)	0.88	Identify to level shown
4	0510201	Polycelis felina (Dalyell, 1814)	16.30	Identify to level shown
5	0510202	Polycelis nigra group	13.92	Identify to level shown
6	0510301	Phagocata vitra (Duges, 1830)	1.93	Identify to level shown
7	0510401	Crenobia alpina (Dana, 1766)	4.44	Identify to level shown
8	0512003	Dugesia tigrina (Girard, 1850)	2.35	Identify to level shown
9	0512002	Dugesia polychroa group	3.61	Identify to level shown
10	0513001	Bdellocephala punctata (Pallas, 1774)	0.04	Identify to level shown
11	0513020	Dendrocoelum lacteum (O.F. Müller, 1774)	6.88	Identify to level shown
12	0912000	Chordodidae	0.67	Don't include in species lists
13	1000000	Nematoda	2.68	Don't include in species lists
14	1400000	Ectoprocta	0.13	Don't include in species lists
15	1610101	Theodorus fluviatilis (Linnaeus, 1758)	6.67	Identify to level shown
16	16120102	Viviparus viviparus (Linnaeus, 1758)	1.59	Identify to level shown
17	1613011	Valvata (Valvata) cristata O.F. Müller, 1774	2.89	Identify to level shown
18	1613012	Valvata (Tropidina) macrostoma Morch, 1864	0.17	Identify to level shown
19	1613013	Valvata (Cicinna) piscinalis (O.F. Müller, 1774)	11.07	Identify to level shown
20	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)	52.08	Identify to level shown
21	16160121	Bithynia (Codiella) leachi (Sheppard, 1823)	2.47	Identify to level shown
22	1616011	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	11.45	Identify to level shown
23	16210101	Apleta hypnorum (Linnaeus, 1758)	0.04	Identify to level shown
24	16210202	Physa fontinalis (Linnaeus, 1758)	12.49	Identify to level shown
25	16210321	Physella (Costatella) acuta (Draparnaud, 1805)	0.67	Identify to level shown
26	16220601	Radix auricularia (Linnaeus, 1758)	0.67	Identify to level shown
27	16220401	Stagnicola palustris (O.F. Müller, 1774)	2.31	Identify to level shown
28	16220602	Radix balthica (Linnaeus, 1758)	41.38	Identify to level shown
29	16220105	Lymnaea stagnalis (Linnaeus, 1758)	2.47	Identify to level shown
30	16220301	Galba truncatula (O.F. Müller, 1774)	0.29	Identify to level shown
31	1623011	Planorbis (Planorbis) carinatus (O.F. Müller, 1774)	4.95	Identify to level shown
32	1623012	Planorbis (Planorbis) planorbis (Linnaeus, 1758)	0.17	Identify to level shown
33	16230211	Anisus (Anisus) leucostoma (Millet, 1813)	0.34	Identify to level shown
34	16230221	Anisus (Disculifer) vortez (Linnaeus, 1758)	7.21	Identify to level shown
35	16230301	Bathymphalus contortus (Linnaeus, 1758)	7.84	Identify to level shown
36	16230412	Gyraulus (Gyraulus) albus (O.F. Müller, 1774)	12.45	Identify to level shown
37	16230421	Gyraulus (Torquis) laevis (Alder, 1838)	0.08	Identify to level shown
38	16230431	Gyraulus (Armiger) orista (Linnaeus, 1758)	4.07	Identify to level shown
39	16230601	Hippeutis complanatus (Linnaeus, 1758)	1.05	Identify to level shown
40	16230701	Segmentina nitida (O.F. Müller, 1774)	0.04	Identify to level shown
41	16230801	Planorbarius corneus (Linnaeus, 1758)	0.38	Identify to level shown
42	16231101	Ancylus fluviatilis O.F. Müller, 1774	56.48	Identify to level shown
43	16250101	Acrolopus lacustris (Linnaeus, 1758)	2.81	Identify to level shown
44	1710101	Margaritifera margaritifera (Linnaeus, 1758)	0.04	Identify to level shown
45	17120100	Unio sp.	1.30	Identify to level shown
46	17120200	Anodonta group	2.14	Split into species
47	17130101	Sphaerium corneum (Linnaeus, 1758)	20.88	Downgrade to Sphaerium
48	17130301	Muscullium lacustre (Müller, 1774)	0.80	Downgrade to Sphaerium
49	17130103	Sphaerium rivicola (Lamarck, 1818)	0.55	Downgrade to Sphaerium
50	17130302	Muscullium transversum (Say, 1829)	0.13	Downgrade to Sphaerium
51	17130201	Pisidium amnicum (Müller, 1774)	4.40	Downgrade to Pisidium
52	17130202	Pisidium oasetanum (Poli, 1791)	11.57	Downgrade to Pisidium
53	17130204	Pisidium henlowianum (Sheppard, 1823)	5.58	Downgrade to Pisidium
54	17130205	Pisidium hibernicum (Westerlund, 1894)	2.85	Downgrade to Pisidium
55	17130206	Pisidium liljeborgii (Clessin, 1886)	0.13	Downgrade to Pisidium
56	17130207	Pisidium milium (Held, 1836)	4.49	Downgrade to Pisidium
57	17130208	Pisidium molesseianum (Paladine, 1866)	0.46	Downgrade to Pisidium

List of the biotic indices (including any that you are aware of that are under development) that are currently in use, or are likely to be used

In the second part of this consultation we are seeking to establish a list of the biotic indices that you currently use, are likely to use or are aware of being under development. The purpose of this work is to enable RICT to produce predicted reference state predictions for these indices to better support the needs of the Agencies.

We simply ask that you attempt to fill in the table below. A few example rows are provided which you may delete if required. If you make an entry for an index we are not aware of we may need to refer back to you for further details.

Name of biotic index	Role/Stressor	Taxonomic resolution	Abundance weighted?
BMWP	Organic pollution	BMWP family level	No
NTAXA	Measures diversity	BMWP family level	No
ASPT	Organic pollution	BMWP family level	No

A few example indices are given here as food for thought:

- LIFE(fam)
- LIFE(sp)
- AWIC(fam)
- AWIC (sp)
- new Acid Water index under development by Ben McFarland (EA)
- WHPT/Revised BMWP
- WHPT/Revised NTAXA
- WHPT/Revised ASPT
- Raddum
- Henrickson & Medin
- Irish Q-index

Appendix IV – Feedback on the current practicable level of analysis being undertaken by biologists within the UK Agencies

Appendix IV – Feedback on the current practicable level of analysis being undertaken by biologists within the UK Agencies.

Feedback from the UK Agencies supplied by expert representatives from each Agency

- Ben McFarland, Richard Chadd and Alice Hiley (EA)
- Ian Miine (SEPA)
- Imelda O'Neill (NIEA)*

* NIEA do not do any appreciable species level work so feedback was not requested

Responses are colour coded to aid interpretation as follows:

- Don't include in species lists
Identify to level shown
- Split into species
- Downgrade to [ADD NAME]

Key to abbreviations:

- ^Freq - Frequency of taxon occurrence across the 795 sites in RIVPACS IV; GB & NI combined; 3 seasons combined
- Ideally to species*1 - Ideally to species in the EA but don't expect people to do so
- To species if found*2 - No SEPA records but would endeavour to identify to species if found

Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq [^]	EA Response	Notes from EA	SEPA Response	Notes from SEPA
1	02110000	Spongillidae	02110000	Spongillidae	1.34	Don't include in species lists	to species	Don't include in species lists	
2	03110000	Hydridae	03110000	Hydridae	3.02	Don't include in species lists		Don't include in species lists	
3	05110101	Planaria torva (Müller, 1774)	05110101	Planaria torva (Müller)	0.88	Identify to level shown		Identify to level shown	
4	05110201	Polycelis felina (Dalyell, 1814)	05110201	Polycelis felina (Dalyell)	16.90	Identify to level shown		Identify to level shown	
5	0511020Z	Polycelis nigra group	0511020Z	Polycelis nigra group	13.92	Identify to level shown		Downgrade to Polycelis	
6	05110301	Phagocata vitta (Duges, 1830)	05110301	Phagocata vitta (Duges)	1.93	Identify to level shown		Identify to level shown	
7	05110401	Crenobia alpina (Dana, 1766)	05110401	Crenobia alpina (Dana)	4.44	Identify to level shown		Identify to level shown	
8	05120103	Dugesia tigrina (Girard, 1850)	05120103	Dugesia tigrina (Girard)	2.35	Identify to level shown		Identify to level shown	
9	0512010Z	Dugesia polychroa group	0512010Z	Dugesia polychroa group	3.61	Identify to level shown		Downgrade to Dugesia	
10	05130101	Bdellocephala punctata (Pallas, 1774)	05130101	Bdellocephala punctata (Pallas)	0.04	Identify to level shown		Identify to level shown	
11	05130201	Dendrocoelum lacteum (O.F.Müller, 1774)	05130201	Dendrocoelum lacteum (Müller)	6.88	Identify to level shown		Identify to level shown	
12	09120000	Chorodidae	09120000	Chorodidae	0.67	Don't include in species lists		Don't include in species lists	
13	10000000	Nematoda	10000000	Nematoda	2.68	Identify to level shown		Identify to level shown	
14	14000000	Ectoprocta	14000000	Ectoprocta	0.13	Don't include in species lists		Don't include in species lists	
15	16110101	Theodoxus fluviatilis (Linnaeus, 1758)	16110101	Theodoxus fluviatilis (L.)	6.67	Identify to level shown		Identify to level shown	To species if found*2
16	16120102	Viviparus viviparus (Linnaeus, 1758)	16120102	Viviparus viviparus (L.)	1.59	Identify to level shown		Identify to level shown	To species if found*2
17	16130111	Valvata (Valvata) cristata O.F. Müller, 1774	16130101	Valvata cristata Müller	2.89	Identify to level shown		Identify to level shown	
18	16130121	Valvata (Tropidina) macrostoma Morch, 1864	16130102	Valvata macrostoma Morch	0.17	Identify to level shown		Identify to level shown	
19	16130131	Valvata (Cincinna) piscinalis (O.F. Müller, 1774)	16130103	Valvata piscinalis (Müller)	11.07	Identify to level shown		Identify to level shown	
20	16140301	Potamopygus antipodarum (J.E. Gray, 1843)	16140301	Potamopygus jenkinsi (Smith)	52.08	Identify to level shown		Identify to level shown	
21	16160121	Bithynia (Codiella) leachii (Sheppard, 1823)	16160101	Bithynia leachii (Sheppard)	2.47	Identify to level shown		Identify to level shown	
22	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	16160102	Bithynia tentaculata (L.)	11.45	Identify to level shown		Identify to level shown	
23	16210101	Aplexa hypnorum (Linnaeus, 1758)	16210101	Aplexa hypnorum (L.)	0.04	Identify to level shown		Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^q	EA Response	Notes from EA	SEPA Response	Notes from SEPA
24	16210202	<i>Physa fontinalis</i> (Linnaeus, 1758)	16210202	<i>Physa fontinalis</i> (L.)	12.49	Identify to level shown		Identify to level shown	
25	16210321	<i>Physella</i> (<i>Costatella</i>) <i>acuta</i> (Draparnaud, 1805)	16210202	<i>Physa acuta</i> group	0.67	Identify to level shown		Downgrade to Physa	
26	16220601	<i>Radix auricularia</i> (Linnaeus, 1758)	16220101	<i>Lymnaea auricularia</i> (L.)	0.67	Identify to level shown		Identify to level shown	
27	16220401	<i>Stagnicola palustris</i> (O.F. Müller, 1774)	16220103	<i>Lymnaea palustris</i> (Müller)	2.31	Identify to level shown		Identify to level shown	
28	16220602	<i>Radix balthica</i> (Linnaeus, 1758)	16220104	<i>Lymnaea peregra</i> (Müller)	41.38	Identify to level shown		Identify to level shown	
29	16220105	<i>Lymnaea stagnalis</i> (Linnaeus, 1758)	16220105	<i>Lymnaea stagnalis</i> (L.)	2.47	Identify to level shown		Identify to level shown	
30	16220301	<i>Galba truncatula</i> (O.F. Müller, 1774)	16220106	<i>Lymnaea truncatula</i> (Müller)	0.29	Identify to level shown		Identify to level shown	
31	16230111	<i>Planorbis</i> (<i>Planorbis</i>) <i>carinatus</i> (O.F. Müller, 1774)	16230101	<i>Planorbis carinatus</i> Müller	4.95	Identify to level shown		Identify to level shown	
32	16230112	<i>Planorbis</i> (<i>Planorbis</i>) <i>planorbis</i> (Linnaeus, 1758)	16230102	<i>Planorbis planorbis</i> (L.)	0.17	Identify to level shown		Identify to level shown	
33	16230211	<i>Anisus</i> (<i>Anisus</i>) <i>leucostoma</i> (Millet, 1813)	16230201	<i>Anisus leucostoma</i> (Millet)	0.34	Identify to level shown		Identify to level shown	
34	16230221	<i>Anisus</i> (<i>Disculifer</i>) <i>vortex</i> (Linnaeus, 1758)	16230202	<i>Anisus vortex</i> (L.)	7.21	Identify to level shown		Identify to level shown	
35	16230301	<i>Bathymphalus contortus</i> (Linnaeus, 1758)	16230301	<i>Bathymphalus contortus</i> (L.)	7.84	Identify to level shown		Identify to level shown	
36	16230412	<i>Gyraulus</i> (<i>Gyraulus</i>) <i>albus</i> (O.F. Müller, 1774)	16230402	<i>Gyraulus albus</i> (Müller)	12.45	Identify to level shown		Identify to level shown	
37	16230421	<i>Gyraulus</i> (<i>Torquus</i>) <i>laevis</i> (Alder, 1838)	16230403	<i>Gyraulus laevis</i> (Alder)	0.08	Identify to level shown		Identify to level shown	
38	16230431	<i>Gyraulus</i> (<i>Armigen</i>) <i>crista</i> (Linnaeus, 1758)	16230501	<i>Armiger crista</i> (L.)	4.07	Identify to level shown		Identify to level shown	
39	16230601	<i>Hippelitis complanatus</i> (Linnaeus, 1758)	16230601	<i>Hippelitis complanatus</i> (L.)	1.05	Identify to level shown		Identify to level shown	
40	16230701	<i>Segmentina nitida</i> (O.F. Müller, 1774)	16230701	<i>Segmentina nitida</i> Müller	0.04	Identify to level shown		Identify to level shown	
41	16230801	<i>Planorbis cornuus</i> (Linnaeus, 1758)	16230801	<i>Planorbis cornuus</i> (L.)	0.38	Identify to level shown		Identify to level shown	
42	16231101	<i>Ancylus fluviatilis</i> O.F. Müller, 1774	16240101	<i>Ancylus fluviatilis</i> Müller	56.48	Identify to level shown		Identify to level shown	
43	16250101	<i>Acroloxus lacustris</i> (Linnaeus, 1758)	16250101	<i>Acroloxus lacustris</i> (L.)	2.81	Identify to level shown		Identify to level shown	
44	17110101	<i>Margaritifera margaritifera</i> (Linnaeus, 1758)	17110101	<i>Margaritifera margaritifera</i> (L.)	0.04	Identify to level shown		Identify to level shown	
45	17120100	<i>Unio</i> sp.	17120100	<i>Unio</i> sp.	1.30	Split into species	species	Downgrade to Unionidae	
46	17120200	<i>Anodonta</i> group	17120200	<i>Anodonta</i> group	2.14	Split into species	species	Downgrade to Unionidae	
47	17130101	<i>Sphaerium cornuum</i> (Linnaeus, 1758)	17130101	<i>Sphaerium cornuum</i> (L.)	20.88	Identify to level shown		Downgrade to Sphaerium	
48	17130301	<i>Musculium lacustre</i> (Müller, 1774)	17130302	<i>Sphaerium lacustre</i> (Müller)	0.80	Identify to level shown		Downgrade to Sphaerium	
49	17130103	<i>Sphaerium nivala</i> (Lamarck, 1818)	17130103	<i>Sphaerium nivala</i> (Lamarck)	0.55	Identify to level shown		Downgrade to Sphaerium	
50	17130302	<i>Musculium transversum</i> (Sav. 1829)	17130105	<i>Sphaerium transversum</i> (Sav)	0.13	Identify to level shown		Downgrade to Sphaerium	
51	17130201	<i>Pisidium annicum</i> (Müller, 1774)	17130201	<i>Pisidium annicum</i> (Müller)	4.40	Identify to level shown		Downgrade to Pisidium	
52	17130202	<i>Pisidium casertanum</i> (Poli, 1791)	17130202	<i>Pisidium casertanum</i> (Poli)	11.57	Identify to level shown		Downgrade to Pisidium	
53	17130204	<i>Pisidium henslowianum</i> (Sheppard, 1823)	17130204	<i>Pisidium henslowianum</i> (Sheppard)	5.58	Identify to level shown		Downgrade to Pisidium	
54	17130205	<i>Pisidium hibernicum</i> Westerlund, 1894	17130205	<i>Pisidium hibernicum</i> Westerlund	2.85	Identify to level shown		Downgrade to Pisidium	
55	17130206	<i>Pisidium liljeborgii</i> Clessin, 1886	17130206	<i>Pisidium liljeborgii</i> Clessin	0.13	Identify to level shown		Downgrade to Pisidium	
56	17130207	<i>Pisidium milium</i> Held, 1836	17130207	<i>Pisidium milium</i> Held	4.49	Identify to level shown		Downgrade to Pisidium	
57	17130208	<i>Pisidium moltesienianum</i> Paladilhe, 1866	17130208	<i>Pisidium moltesienianum</i> Paladilhe	0.46	Identify to level shown		Downgrade to Pisidium	
58	17130209	<i>Pisidium nitidum</i> Jenyns, 1832	17130209	<i>Pisidium nitidum</i> Jenyns	22.47	Identify to level shown		Downgrade to Pisidium	
59	17130211	<i>Pisidium obtusale</i> (Lamarck, 1818)	17130211	<i>Pisidium obtusale</i> (Lamarck)	0.17	Identify to level shown		Downgrade to Pisidium	
60	17130212	<i>Pisidium personatum</i> Malm, 1855	17130212	<i>Pisidium personatum</i> Malm	7.25	Identify to level shown		Downgrade to Pisidium	
61	17130214	<i>Pisidium puchellum</i> Jenyns, 1832	17130214	<i>Pisidium puchellum</i> Jenyns	0.34	Identify to level shown		Downgrade to Pisidium	
62	17130215	<i>Pisidium subtruncatum</i> Malm, 1855	17130215	<i>Pisidium subtruncatum</i> Malm	23.31	Identify to level shown		Downgrade to Pisidium	
63	17130216	<i>Pisidium supinum</i> Schmidt, 1851	17130216	<i>Pisidium supinum</i> Schmidt	1.01	Identify to level shown		Downgrade to Pisidium	
64	17130217	<i>Pisidium tenuilineatum</i> Stiefox, 1918	17130217	<i>Pisidium tenuilineatum</i> Stiefox	0.08	Identify to level shown		Downgrade to Pisidium	
65	17140101	<i>Dreissena polymorpha</i> (Pallas, 1771)	17140101	<i>Dreissena polymorpha</i> (Pallas)	0.08	Identify to level shown		Identify to level shown	To species if found*2
66	19110100	<i>Aeolosoma</i> sp.	19110100	<i>Aeolosoma</i> sp.	0.08	Downgrade to Oligochaeta	Family	Don't include in species lists	
67	20110301	<i>Styodrilus brachystylus</i> Hrabe, 1928	20110301	<i>Styodrilus brachystylus</i> Hrabe	2.26	Downgrade to Oligochaeta	Family	Downgrade to Lumbriculidae	
68	20110302	<i>Styodrilus herringanus</i> Claparède, 1862	20110302	<i>Styodrilus herringanus</i> Claparède	35.89	Downgrade to Oligochaeta	Family	Downgrade to Lumbriculidae	
69	20110601	<i>Bythonomus lemami</i> Grube, 1880	20110303	<i>Styodrilus lemami</i> (Grube)	0.84	Downgrade to Oligochaeta	Family	Downgrade to Lumbriculidae	
70	20110401	<i>Eclidrilus lacustris</i> (Vernil, 1871)	20110401	<i>Eclidrilus lacustris</i> (Vernil)	0.04	Downgrade to Oligochaeta	Family	Downgrade to Lumbriculidae	
71	20110200	<i>Lumbriculus</i> group	20110200	<i>Lumbriculus</i> group	39.75	Downgrade to Oligochaeta	Family	Downgrade to Lumbriculidae	
72	20210101	<i>Haplotaxis gordioides</i> (Hartmann, 1821)	20210101	<i>Haplotaxis gordioides</i> (Hartmann)	0.75	Downgrade to Oligochaeta	Family	Downgrade to Haplotaxidae	
73	20330100	<i>Chaetogaster</i> sp.	20330100	<i>Chaetogaster</i> sp.	1.93	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
74	20330401	<i>Specaria josinae</i> (Vejvodsky, 1883)	20330401	<i>Specaria josinae</i> (Vejvodsky)	0.42	Downgrade to Oligochaeta	Family	Downgrade to Naididae	

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq*	EA Response	Notes from EA	SEPA Response	Notes from SEPA
75	20330501	Uncinails uncinata (Orsted, 1842)	20330501	Uncinails uncinata (Orsted)	1.17	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
76	20330601	Ophidonais serpentina (Müller, 1774)	20330601	Ophidonais serpentina (Müller)	4.23	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
77	20330701	Nais alpina Sperber, 1948	20330701	Nais alpina Sperber	22.60	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
78	20330703	Nais breitscheri Michaelsen, 1899	20330703	Nais breitscheri Michaelsen	4.15	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
79	20330705	Nais elinguis Müller, 1773	20330705	Nais elinguis Müller	14.72	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
80	20330706	Nais pardalis Pignet, 1906	20330706	Nais pardalis Pignet	6.16	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
81	2033070Y	Nais communis group	2033070Y	Nais communis group	11.91	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
82	2033070Z	Nais simplex group	2033070Z	Nais simplex group	6.54	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
83	20330801	Slavina appendiculata (d'Udekem, 1855)	20330801	Slavina appendiculata (d'Udekem)	1.97	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
84	20330901	Vejdovskya comata (Vejdovsky, 1883)	20330901	Vejdovskya comata (Vejdovsky)	0.29	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
85	20330902	Vejdovskya intermedia (Breitscher, 1896)	20330902	Vejdovskya intermedia (Breitscher)	0.08	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
86	20331101	Ripistes parasita (Schmidt, 1847)	20331101	Ripistes parasita (Schmidt)	0.04	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
87	20331201	Stylaria lacustris (Linnaeus, 1767)	20331201	Stylaria lacustris (L.)	14.42	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
88	20331301	Piguetella blanchi (Piguet, 1906)	20331301	Piguetella blanchi (Piguet)	0.04	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
89	20331411	Dero (Dero) digitata (Müller, 1774)	20331411	Dero digitata (Müller)	0.25	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
90	20331511	Pristina (Pristina) aequiseta Bourne, 1891	20331501	Pristina aequiseta Bourne	0.67	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
91	20331520	Pristina (Pristinella) sp.	2033150Z	Pristina idrensia group	0.96	Downgrade to Oligochaeta	Family	Downgrade to Naididae	
92	20340102	Tubifex ignotus (Stoic, 1886)	20340102	Tubifex ignotus (Stoic)	6.16	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
93	20340106	Tubifex tubifex (Müller, 1774)	20340106	Tubifex tubifex (Müller)	7.13	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
94	20340201	Limnodrilus cervix Brinkhurst, 1963	20340201	Limnodrilus cervix Brinkhurst	0.80	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
95	20340202	Limnodrilus clapparedianus Ratzel, 1869	20340202	Limnodrilus clapparedianus Ratzel	1.59	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
96	20340203	Limnodrilus hoffmeisteri Clapparedé, 1862	20340203	Limnodrilus hoffmeisteri Clapparedé	25.28	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
97	20340204	Limnodrilus profundicola (Verrill, 1871)	20340204	Limnodrilus profundicola (Verrill)	0.08	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
98	20340205	Limnodrilus udekemianus Clapparedé, 1862	20340205	Limnodrilus udekemianus Clapparedé	3.27	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
99	20340301	Psammoryctides albicola (Michaelsen, 1901)	20340301	Psammoryctides albicola (Michaelsen)	0.13	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
100	20340302	Psammoryctides barbatus (Grube, 1891)	20340302	Psammoryctides barbatus (Grube)	21.84	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
101	20340401	Potamothenix bavarius (Oschmann, 1913)	20340401	Potamothenix bavarius (Oschmann)	0.29	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
102	20340402	Potamothenix hammoniensis (Michaelsen, 1901)	20340402	Potamothenix hammoniensis (Michaelsen)	6.75	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
103	20340403	Potamothenix heuschneri (Breitscher, 1900)	20340403	Potamothenix heuschneri (Breitscher)	0.13	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
104	20340404	Potamothenix moldaviensis (Vejdovsky & Mrazek, 1903)	20340404	Potamothenix moldaviensis (Vejdovsky & Mrazek)	1.51	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
105	20340405	Potamothenix vejdoskyi (Hrabe, 1941)	20340405	Potamothenix vejdoskyi (Hrabe)	0.08	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
106	20340501	Ilyodrilus templetoni (Southern, 1909)	20340501	Ilyodrilus templetoni (Southern)	0.04	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
107	20340601	Spirosperma ferox Eisen, 1879	20340601	Spirosperma ferox (Eisen)	11.61	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
108	20341701	Embocephalus velutinus (Grube, 1879)	20340602	Spirosperma velutinus (Grube)	0.84	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
109	20340801	Haber speciosus (Hrabe, 1931)	20340801	Haber simsi (Brinkhurst)	0.29	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
110	20340901	Aulodrilus limnobius Breitscher, 1899	20340901	Aulodrilus limnobius Breitscher	0.13	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
111	20340903	Aulodrilus plurisetia (Piguet, 1906)	20340903	Aulodrilus plurisetia (Piguet)	21.34	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
112	20341101	Rhyacodrilus coccineus (Vejdovsky, 1876)	20341101	Rhyacodrilus coccineus (Vejdovsky)	28.51	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
113	20341102	Rhyacodrilus falciiformis Breitscher, 1901	20341102	Rhyacodrilus falciiformis Breitscher	0.25	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
114	20341301	Branchiura sowerbyi Beddard, 1892	20341301	Branchiura sowerbyi Beddard	0.55	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
115	20341601	Thalassodrilus prostatus (Knöllner, 1935)	20341601	Thalassodrilus prostatus (Knöllner)	0.21	Downgrade to Oligochaeta	Family	Downgrade to Tubificidae	
116	203Z0000	Enchytraeidae (including Propappidae)	203Z0000	Enchytraeidae (incl. Propappidae)	46.33	Downgrade to Oligochaeta	Family	Downgrade to Enchytraeidae	
117	204Z0000	Lumbricidae (including Glossoscolecidae)	204Z0000	Lumbricidae (incl. Glossoscolecidae)	44.91	Downgrade to Oligochaeta	Family	Downgrade to Lumbricidae	
118	22110101	Piscicola geometra (Linnaeus, 1761)	22110101	Piscicola geometra (L.)	11.95	Identify to level shown		Identify to level shown	
119	22120201	Theromyzon tessulatum (O.F. Müller, 1774)	22120201	Theromyzon tessulatum (Müller)	3.61	Identify to level shown		Identify to level shown	
120	22120301	Hemicleipsis marginata (O.F. Müller, 1774)	22120301	Hemicleipsis marginata (Müller)	1.76	Identify to level shown		Identify to level shown	
121	22120401	Glossiphonia complanata (Linnaeus, 1758)	22120401	Glossiphonia complanata (L.)	37.44	Identify to level shown		Identify to level shown	
122	22120801	Alboglossiphonia heteroclitia (Linnaeus, 1761)	22120402	Glossiphonia heteroclitia (L.)	1.26	Identify to level shown		Identify to level shown	
123	22120404	Glossiphonia paludosa (Carena, 1824)	22120501	Batrachobdella paludosa (Carena)	0.34	Identify to level shown		Identify to level shown	
124	22120403	Glossiphonia vernucata (Fr. Müller, 1844)	22120601	Boreobdella vernucata (Müller)	0.08	Identify to level shown		Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name (Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^c	EA Response	Notes from EA	SEPA Response	Notes from SEPA
125	22120701	Heibdella stagnalis (Linnaeus, 1758)	22120701	Heibdella stagnalis (L.)	26.12	Identify to level shown		Identify to level shown	
126	22210101	Haemaphys sanguisuga (Linnaeus, 1758)	22210101	Haemaphys sanguisuga (L.)	0.17	Identify to level shown		Identify to level shown	
127	22310101	Erbobdella octoculata (Linnaeus, 1758)	22310101	Erbobdella octoculata (L.)	32.49	Identify to level shown		Identify to level shown	
128	22310102	Erbobdella testacea (Savigny, 1812)	22310102	Erbobdella testacea (Savigny)	0.25	Identify to level shown		Identify to level shown	
129	22310201	Dina lineata (O.F. Müller, 1774)	22310201	Dina lineata (Müller)	1.59	Identify to level shown		Identify to level shown	
130	22310301	Trocheta bykowskii Gedroyc, 1913	22310301	Trocheta bykowskii Gedroyc	1.17	Identify to level shown		Identify to level shown	
131	22310302	Trocheta subviridis Dutrochet, 1817	22310302	Trocheta subviridis Dutrochet	1.17	Identify to level shown		Identify to level shown	To species if found*2
132	24000000	Hydracarina	24000000	Hydracarina	60.96	Don't include in species lists		Identify to level shown	
133	34330000	Astacidae	34330000	Astacidae	2.31	Split into species	species	Identify to level shown	To species if found*2
134	36110101	Asellus aquaticus (Linnaeus, 1758)	36110101	Asellus aquaticus (L.)	26.71	Identify to level shown		Identify to level shown	
135	36110202	Proasellus meridianus (Racovizza, 1919)	36110104	Asellus meridianus Racovizza	8.51	Identify to level shown		Identify to level shown	
136	37110100	Corophium sp.	37110100	Corophium sp.	0.88	Split into species	species + plus new genera	Identify to level shown	To species if found*2
137	37130101	Cranonyx pseudocracilis Bousfield, 1958	37130101	Cranonyx pseudocracilis Bousfield	9.56	Identify to level shown		Identify to level shown	
138	37140202	Gammarus duebeni Ljueborg, 1852	37140202	Gammarus duebeni Ljueborg	11.66	Identify to level shown		Identify to level shown	
139	37140203	Gammarus lacustris Sars, 1863	37140203	Gammarus lacustris Sars	0.46	Identify to level shown		Identify to level shown	
140	37140206	Gammarus pulex (Linnaeus, 1758)	37140206	Gammarus pulex (L.)	55.26	Identify to level shown		Identify to level shown	
141	37140208	Gammarus tigrinus Sexton, 1939	37140208	Gammarus tigrinus Sexton	0.08	Identify to level shown		Identify to level shown	
142	37140209	Gammarus zaddachi Sexton, 1912	37140209	Gammarus zaddachi Sexton	0.67	Identify to level shown		Identify to level shown	
143	37150201	Niphargus aquilex Schiodte, 1855	37150201	Niphargus aquilex Schiodte	0.21	Identify to level shown		Identify to level shown	To species if found*2
144	40110103	Siphonurus lacustris (Eaton, 1870)	40110103	Siphonurus lacustris Eaton	1.43	Identify to level shown		Identify to level shown	
145	40140101	Amelietus inopinatus Eaton, 1887	40110201	Amelietus inopinatus Eaton	0.80	Identify to level shown		Identify to level shown	
146	40120601	Labioabaetis atrebatinus (Eaton, 1870)	40120101	Baetis atrebatinus Eaton	1.01	Identify to level shown		Identify to level shown	To species if found*2
147	40120102	Baetis buceratus Eaton, 1870	40120102	Baetis buceratus Eaton	3.10	Identify to level shown		Identify to level shown	
148	40120701	Nigrobaetis digitatus (Bengtsson, 1912)	40120103	Baetis digitatus Bengtsson	0.75	Identify to level shown		Identify to level shown	
149	40120501	Alainites muticus (Linnaeus, 1758)	40120105	Baetis muticus (L.)	30.73	Identify to level shown		Identify to level shown	
150	40120702	Nigrobaetis niger (Linnaeus, 1761)	40120106	Baetis niger (L.)	7.17	Identify to level shown		Identify to level shown	
151	40120107	Baetis rhodani (Pictet, 1843-1845)	40120107	Baetis rhodani (Pictet)	81.40	Identify to level shown		Identify to level shown	
152	40120111	Baetis vernus Curtis, 1834	40120111	Baetis vernus Curtis	16.52	Identify to level shown		Identify to level shown	
153	40120112	Baetis scambus group	40120112	Baetis scambus group	32.37	Split into species	group	Downgrade to Baetis	
154	40120201	Centropilum luteolum (Müller, 1776)	40120201	Centropilum luteolum (Müller)	15.77	Identify to level shown		Identify to level shown	
155	40120402	Procloeon pennulatum (Eaton, 1870)	40120202	Centropilum pennulatum Eaton	1.76	Identify to level shown		Identify to level shown	
156	40120301	Cloeon dipterum (Linnaeus, 1761)	40120301	Cloeon dipterum (L.)	3.65	Identify to level shown		Identify to level shown	
157	40120302	Cloeon simile Eaton, 1870	40120302	Cloeon simile Eaton	0.67	Identify to level shown		Identify to level shown	To species if found*2
158	40120401	Procloeon bifidum (Bengtsson, 1912)	40120401	Procloeon bifidum Bengtsson	3.86	Identify to level shown		Identify to level shown	
159	40130100	Rhitrogena sp.	40130100	Rhitrogena sp.	45.45	Split into species	species	Identify to level shown	
160	40130601	Kageronia fuscogrisea (Retzius, 1783)	40130201	Heptagenia fuscogrisea (Retzius)	0.46	Identify to level shown		Identify to level shown	
161	40130502	Electrogena lateralis (Curtis, 1834)	40130202	Heptagenia lateralis (Curtis)	7.59	Identify to level shown		Identify to level shown	
162	40130204	Heptagenia sulphurea (Müller, 1776)	40130204	Heptagenia sulphurea (Müller)	16.14	Identify to level shown		Identify to level shown	
163	40130400	Ecdyonurus sp.	40130400	Ecdyonurus sp.	53.29	Split into species	Can do insignis and vinosus gp	Identify to level shown	
164	40210101	Leptophlebia marginata (Linnaeus, 1767)	40210101	Leptophlebia marginata (L.)	3.19	Identify to level shown		Identify to level shown	
165	40210102	Leptophlebia vespertina (Linnaeus, 1758)	40210102	Leptophlebia vespertina (L.)	0.59	Identify to level shown		Identify to level shown	
166	40210201	Paraleptophlebia cincta (Retzius, 1835)	40210201	Paraleptophlebia cincta (Retzius)	3.06	Identify to level shown		Identify to level shown	
167	40210202	Paraleptophlebia submarginata (Stephens, 1835)	40210202	Paraleptophlebia submarginata (Stephens)	10.52	Identify to level shown		Identify to level shown	
168	40210203	Paraleptophlebia wernerii Ulmer, 1919	40210203	Paraleptophlebia wernerii Ulmer	0.08	Identify to level shown		Identify to level shown	
169	40210301	Habrophlebia fusca (Curtis, 1834)	40210301	Habrophlebia fusca (Curtis)	6.58	Identify to level shown		Identify to level shown	To species if found*2
170	40320101	Potamanthus luteus (Linnaeus, 1767)	40310101	Potamanthus luteus (L.)	0.17	Identify to level shown		Identify to level shown	
171	40320101	Ephemera danica Müller, 1764	40320101	Ephemera danica Müller	21.30	Identify to level shown		Identify to level shown	
172	40320102	Ephemera lineata Eaton, 1870	40320102	Ephemera lineata Eaton	0.04	Identify to level shown		Identify to level shown	
173	40320103	Ephemera vulgata Linnaeus, 1758	40320103	Ephemera vulgata L.	0.55	Identify to level shown		Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^a	EA Response	Notes from EA	SEPA Response	Notes from SEPA
174	40410201	Serratella ignita (Poda, 1761)	40410101	Ephemerella ignita (Poda)	47.51	Identify to level shown		Identify to level shown	
175	40410102	Ephemerella notata Eaton, 1887	40410102	Ephemerella notata Eaton	0.96	Identify to level shown		Identify to level shown	
176	40510101	Brachycercus hamisella Curtis, 1834	40510101	Brachycercus hamisella Curtis	0.80	Identify to level shown		Identify to level shown	To species if found*2
177	40510201	Caenis horaria (Linnaeus, 1758)	40510201	Caenis horaria (L.)	2.73	Identify to level shown		Identify to level shown	
178	40510204	Caenis rivulorum Eaton, 1884	40510204	Caenis rivulorum Eaton	33.21	Identify to level shown		Identify to level shown	
179	40510205	Caenis robusta Eaton, 1884	40510205	Caenis robusta Eaton	0.29	Identify to level shown		Identify to level shown	
180	40510208	Caenis pusilla Navás, 1913	40510208	Caenis pusilla Navás	0.21	Identify to level shown		Identify to level shown	To species if found*2
181	4051020X	Caenis pseudorivulorum group	4051020X	Caenis pseudorivulorum group	0.08	Split into species	species (Gunn and Blackburn 1997)	Downgrade to Caenis	
182	4051020Z	Caenis luctuosa group	4051020Z	Caenis luctuosa group	20.25	Split into species	group	Downgrade to Caenis	
183	41110101	Taeniopteryx nebulosa (Linnaeus, 1758)	41110101	Taeniopteryx nebulosa (L.)	5.32	Identify to level shown		Identify to level shown	
184	41110301	Brachyptera putata (Newman, 1838)	41110301	Brachyptera putata (Newman)	0.84	Identify to level shown		Identify to level shown	
185	41110302	Brachyptera risi (Morton, 1896)	41110302	Brachyptera risi (Morton)	9.31	Identify to level shown		Identify to level shown	
186	41120101	Protonemura meyeri (Pictet, 1841)	41120101	Protonemura meyeri (Pictet)	16.52	Identify to level shown		Identify to level shown	
187	41120102	Protonemura montana Kimmins, 1941	41120102	Protonemura montana Kimmins	0.25	Identify to level shown		Identify to level shown	
188	41120103	Protonemura praecox (Morton, 1894)	41120103	Protonemura praecox (Morton)	3.14	Identify to level shown		Identify to level shown	
189	41120201	Amphinemura standfussi Ris, 1902	41120201	Amphinemura standfussi Ris	2.26	Identify to level shown		Identify to level shown	
190	41120202	Amphinemura suicollis (Stephens, 1836)	41120202	Amphinemura suicollis (Stephens)	27.21	Identify to level shown		Identify to level shown	
191	41120301	Nemurella picteti Klápálek, 1900	41120301	Nemurella picteti Klápálek	1.13	Identify to level shown		Identify to level shown	
192	41120401	Nemoura avicularis Morton, 1894	41120401	Nemoura avicularis Morton	6.67	Identify to level shown		Identify to level shown	
193	41120403	Nemoura cinerea (Reizius, 1783)	41120403	Nemoura cinerea (Reizius)	1.89	Identify to level shown		Identify to level shown	
194	4112040Z	Nemoura cambrica group	4112040Z	Nemoura cambrica group	4.53	Split into species	species	Downgrade to Nemoura	
195	41130101	Leuctra fusca (Linnaeus, 1758)	41130101	Leuctra fusca (L.)	34.59	Identify to level shown		Identify to level shown	
196	41130102	Leuctra geniculata (Stephens, 1836)	41130102	Leuctra geniculata (Stephens)	10.57	Identify to level shown		Identify to level shown	
197	41130103	Leuctra hippopus Kempny, 1899	41130103	Leuctra hippopus (Kempny)	13.88	Identify to level shown		Identify to level shown	
198	41130104	Leuctra inemis Kempny, 1899	41130104	Leuctra inemis Kempny	17.78	Identify to level shown		Identify to level shown	
199	41130105	Leuctra moselyi Morton, 1929	41130105	Leuctra moselyi Morton	1.05	Identify to level shown		Identify to level shown	
200	41130106	Leuctra nigra (Olivier, 1811)	41130106	Leuctra nigra (Olivier)	2.81	Identify to level shown		Identify to level shown	
201	41140101	Capnia atra Morton, 1896	41140101	Capnia atra Morton	0.08	Identify to level shown		Identify to level shown	
202	41140102	Capnia bifrons (Newman, 1839)	41140102	Capnia bifrons (Newman)	1.76	Identify to level shown		Identify to level shown	
203	41210201	Perlotodes microcephalus (Pictet, 1833)	41210201	Perlotodes microcephala (Pictet)	10.61	Identify to level shown		Identify to level shown	
204	41210301	Diura bicaudata (Linnaeus, 1758)	41210301	Diura bicaudata (L.)	0.38	Identify to level shown		Identify to level shown	
205	41210401	Isoperla grammatica (Poda, 1761)	41210401	Isoperla grammatica (Poda)	35.72	Identify to level shown		Identify to level shown	
206	41220101	Dinocras cephalotes (Curtis, 1827)	41220101	Dinocras cephalotes (Curtis)	10.73	Identify to level shown		Identify to level shown	
207	41220201	Perla bipunctata Pictet, 1833	41220201	Perla bipunctata Pictet	12.91	Identify to level shown		Identify to level shown	
208	41230301	Siphonoperla torrentium (Pictet, 1841)	41230102	Chloroperla torrentium (Pictet)	23.19	Identify to level shown		Identify to level shown	
209	41230103	Chloroperla tripunctata (Scopoli, 1763)	41230103	Chloroperla tripunctata (Scopoli)	6.46	Identify to level shown		Identify to level shown	
210	42110101	Platynemis pennipes (Pallas, 1771)	42110101	Platynemis pennipes (Pallas)	0.13	Identify to level shown		Identify to level shown	
211	42120101	Pyrrhosoma nymphula (Suizer, 1776)	42120101	Pyrrhosoma nymphula (Suizer)	1.26	Identify to level shown		Identify to level shown	
212	42120201	Ischnura elegans (Vander Linden, 1820)	42120201	Ischnura elegans (Van der Linden)	2.68	Identify to level shown		Identify to level shown	
213	42120301	Enallagma cyathigerum (Charpentier, 1840)	42120301	Enallagma cyathigerum (Charpentier)	0.21	Identify to level shown		Identify to level shown	
214	4212040Z	Coenagrion puella group	4212040Z	Coenagrion puella group	0.67	Split into species	group	Split into species	
215	42120601	Erythronma najas (Hansemann, 1823)	42120601	Erythronma najas (Hansemann)	0.29	Identify to level shown		Identify to level shown	To species if found*2
216	42140101	Calopteryx splendens (Harris, 1782)	42140101	Calopteryx splendens (Harris)	5.49	Identify to level shown		Identify to level shown	
217	42140102	Calopteryx virgo (Linnaeus, 1758)	42140102	Calopteryx virgo (L.)	2.47	Identify to level shown		Identify to level shown	To species if found*2
218	42210101	Gomphus vulgatissimus (Linnaeus, 1758)	42210101	Gomphus vulgatissimus (L.)	0.42	Identify to level shown		Identify to level shown	To species if found*2
219	42220101	Cordulegaster boltonii (Donovan, 1807)	42220101	Cordulegaster boltonii (Donovan)	3.44	Identify to level shown		Identify to level shown	To species if found*2
220	42230101	Brachytron pratense (Müller, 1764)	42230101	Brachytron pratense (Müller)	0.34	Identify to level shown		Identify to level shown	To species if found*2
221	42230200	Aeshna sp.	42230200	Aeshna sp.	0.04	Split into species	species	Identify to level shown	To species if found*2
222	42250100	Orithrum sp.	42250100	Orithrum sp.	0.08	Split into species	species	Identify to level shown	To species if found*2
223	42250300	Sympetrum sp.	42250300	Sympetrum sp.	0.04	Split into species	species	Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Frecr	EA Response	Notes from EA	SEPA Response	Notes from SEPA
224	43110101	Mesovelia furcata Mulsant & Rey, 1852	43110101	Mesovelia furcata Mulsant & Rey	0.04	Identify to level shown		Identify to level shown	
225	43210102	Hydrometra stagnorum (Linnaeus, 1758)	43210102	Hydrometra stagnorum (L.)	0.29	Identify to level shown		Identify to level shown	To species if found*2
226	43220100	Velia sp.	43220100	Velia sp.	9.99	Split into species	species	Identify to level shown	To species if found*2
227	43230111	Gerris argentatus Schummel, 1832	43230111	Gerris argentatus Schummel	0.04	Identify to level shown		Identify to level shown	To species if found*2
228	43230114	Gerris lacustris (Linnaeus, 1758)	43230114	Gerris lacustris (L.)	1.34	Identify to level shown		Identify to level shown	To species if found*2
229	43230116	Gerris odontogaster (Zetterstedt, 1828)	43230116	Gerris odontogaster (Zetterstedt)	0.08	Identify to level shown		Identify to level shown	To species if found*2
230	43230117	Gerris thoracicus Schummel, 1832	43230117	Gerris thoracicus Schummel	0.08	Identify to level shown		Identify to level shown	To species if found*2
231	43230301	Aquarius najas (DeGeer, 1773)	43230301	Aquarius najas (Degeer)	0.34	Identify to level shown		Identify to level shown	To species if found*2
232	43310101	Nepa cinerea Linnaeus, 1758	43310101	Nepa cinerea L.	0.46	Identify to level shown		Identify to level shown	To species if found*2
233	43410101	Ilyocoris cimicoides (Linnaeus, 1758)	43410101	Ilyocoris cimicoides (L.)	0.13	Identify to level shown		Identify to level shown	To species if found*2
234	43420101	Aphelocheirus aestivalis (Fabricius, 1794)	43420101	Aphelocheirus aestivalis (Fabricius)	5.07	Identify to level shown		Identify to level shown	To species if found*2
235	43510101	Notonecta glauca Linnaeus, 1758	43510101	Notonecta glauca L.	0.92	Identify to level shown		Identify to level shown	To species if found*2
236	43510102	Notonecta maculata Fabricius, 1794	43510102	Notonecta maculata Fabricius	0.13	Identify to level shown		Identify to level shown	To species if found*2
237	43510103	Notonecta obliqua Gallén in Thunberg, 1787	43510103	Notonecta obliqua Gallén	0.13	Identify to level shown		Identify to level shown	To species if found*2
238	43610100	Micronecta sp.	43610100	Micronecta sp.	2.05	Split into species	species	Identify to level shown	To species if found*2
239	43610302	Cymatia coleoptrata (Fabricius, 1777)	43610302	Cymatia coleoptrata (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
240	43610501	Callicorixa praeusta (Fieber, 1848)	43610501	Callicorixa praeusta (Fieber)	0.59	Identify to level shown		Identify to level shown	To species if found*2
241	43610502	Callicorixa wollastoni (Douglas & Scott, 1865)	43610502	Callicorixa wollastoni (Douglas & Scott)	0.04	Identify to level shown		Identify to level shown	To species if found*2
242	43610601	Corixa affinis Leach, 1817	43610601	Corixa affinis Leach	0.04	Identify to level shown		Identify to level shown	To species if found*2
243	43610602	Corixa dentipes (Thomson, 1869)	43610602	Corixa dentipes (Thomson)	0.29	Identify to level shown		Identify to level shown	To species if found*2
244	43610603	Corixa panzeri (Fieber, 1848)	43610603	Corixa panzeri (Fieber)	0.13	Identify to level shown		Identify to level shown	To species if found*2
245	43610604	Corixa punctata (Illiger, 1807)	43610604	Corixa punctata (Illiger)	0.21	Identify to level shown		Identify to level shown	To species if found*2
246	43610702	Hesperoconcha limnaea (Fieber, 1848)	43610702	Hesperoconcha limnaea (Fieber)	0.05	Identify to level shown		Identify to level shown	To species if found*2
247	43610704	Hesperoconcha sahbergi (Fieber, 1848)	43610704	Hesperoconcha sahbergi (Fieber)	1.04	Identify to level shown		Identify to level shown	To species if found*2
248	43610910	Sigara (Sigara) sp.	43610910	Sigara (Sigara) sp.	8.85	Split into species	S. dorsalis sp	Identify to level shown	To species if found*2
249	43610921	Sigara (Subsigara) distincta (Fieber, 1848)	43610921	Sigara distincta (Fieber)	0.13	Identify to level shown		Identify to level shown	To species if found*2
250	43610922	Sigara (Subsigara) falleni (Fieber, 1848)	43610922	Sigara falleni (Fieber)	4.70	Identify to level shown		Identify to level shown	To species if found*2
251	43610924	Sigara (Subsigara) fossanum (Leach, 1817)	43610924	Sigara fossanum (Leach)	0.63	Identify to level shown		Identify to level shown	To species if found*2
252	43610925	Sigara (Subsigara) scotti (Douglas & Scott, 1868)	43610925	Sigara scotti (Fieber)	0.04	Identify to level shown		Identify to level shown	To species if found*2
253	43610941	Sigara (Vermicorixa) lateralis (Leach, 1817)	43610941	Sigara lateralis (Leach)	0.13	Identify to level shown		Identify to level shown	To species if found*2
254	43610951	Sigara (Pseudovermicorixa) nigrolineata (Fieber, 1848)	43610951	Sigara nigrolineata (Fieber)	0.13	Identify to level shown		Identify to level shown	To species if found*2
255	43610972	Sigara (Retroconcha) semismata (Fieber, 1848)	43610972	Sigara semismata (Fieber)	0.08	Identify to level shown		Identify to level shown	To species if found*2
256	43610973	Sigara (Retroconcha) venusta (Douglas & Scott, 1869)	43610973	Sigara venusta (Douglas & Scott)	0.92	Identify to level shown		Identify to level shown	To species if found*2
257	45110101	Brychius elevatus (Panzer, 1793)	45110101	Brychius elevatus (Panzer)	11.66	Identify to level shown		Identify to level shown	To species if found*2
258	45110302	Halipilus confinis Stephens, 1828	45110302	Halipilus confinis Stephens	0.13	Identify to level shown		Identify to level shown	To species if found*2
259	45110303	Halipilus flavicollis Sturm, 1834	45110303	Halipilus flavicollis Sturm	0.25	Identify to level shown		Identify to level shown	To species if found*2
260	45110304	Halipilus fluvialis Aubé, 1836	45110304	Halipilus fluvialis Aubé	4.74	Identify to level shown		Identify to level shown	To species if found*2
261	45110307	Halipilus heydeni Wehncke, 1875	45110307	Halipilus heydeni Wehncke	0.04	Identify to level shown		Identify to level shown	To species if found*2
262	45110308	Halipilus immaculatus Gerhardt, 1877	45110308	Halipilus immaculatus Gerhardt	0.88	Identify to level shown		Identify to level shown	To species if found*2
263	45110309	Halipilus laminatus (Schaller, 1783)	45110309	Halipilus laminatus Schaller	0.21	Identify to level shown		Identify to level shown	To species if found*2
264	45110311	Halipilus lineatocollis (Marshall, 1802)	45110311	Halipilus lineatocollis (Marshall)	4.36	Identify to level shown		Identify to level shown	To species if found*2
265	45110312	Halipilus linedatus Mannerheim, 1844	45110312	Halipilus linedatus Mannerheim	0.21	Identify to level shown		Identify to level shown	To species if found*2
266	45110315	Halipilus ruficollis (DeGeer, 1774)	45110315	Halipilus ruficollis (Degeer)	0.13	Identify to level shown		Identify to level shown	To species if found*2
267	45110318	Halipilus sibericus Motschulsky, 1860	45110318	Halipilus wehnckei (Gerhardt)	1.55	Identify to level shown		Identify to level shown	To species if found*2
268	45130101	Noterus clavicornis (DeGeer, 1774)	45130101	Noterus clavicornis (Degeer)	0.34	Identify to level shown		Identify to level shown	To species if found*2
269	45140101	Laccophilus hyalinus (Linnaeus, 1758)	45140101	Laccophilus hyalinus (Degeer)	1.38	Identify to level shown		Identify to level shown	To species if found*2
270	45140102	Laccophilus minutus (Linnaeus, 1758)	45140102	Laccophilus minutus (L.)	0.08	Identify to level shown		Identify to level shown	To species if found*2
271	45140301	Hyphidrus ovatus (Linnaeus, 1761)	45140301	Hyphidrus ovatus (L.)	0.42	Identify to level shown		Identify to level shown	To species if found*2
272	45140612	Hygrobus (Hygrobus) inaequalis (Fabricius, 1777)	45140612	Hygrobus inaequalis (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
273	45140614	Hygrobus (Hygrobus) versicolor (Schaller, 1783)	45140614	Hygrobus versicolor (Schaller)	0.59	Identify to level shown		Identify to level shown	To species if found*2
274	45140801	Hydroporus angustatus Sturm, 1835	45140801	Hydroporus angustatus Sturm	0.04	Identify to level shown		Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^a	EA Response	Notes from EA	SEPA Response	Notes from SEPA
275	45140807	Hydroponus ferrugineus Stephens, 1829	45140807	Hydroponus ferrugineus Stephens	0.04	Identify to level shown		Identify to level shown	To species if found*2
276	45140817	Hydroponus memnonius Nicolai, 1822	45140817	Hydroponus memnonius Nicolai	0.17	Identify to level shown		Identify to level shown	To species if found*2
277	45140821	Hydroponus nigrita (Fabricius, 1792)	45140821	Hydroponus nigrita (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
278	45140822	Hydroponus obscurus Sturm, 1835	45140822	Hydroponus obscurus Sturm	0.04	Identify to level shown		Identify to level shown	To species if found*2
279	45140824	Hydroponus palustris (Linnaeus, 1761)	45140824	Hydroponus palustris (L.)	0.71	Identify to level shown		Identify to level shown	To species if found*2
280	45140825	Hydroponus planus (Fabricius, 1782)	45140825	Hydroponus planus (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
281	45140826	Hydroponus pubescens (Gyllenhal, 1808)	45140826	Hydroponus pubescens (Gyllenhal)	0.29	Identify to level shown		Identify to level shown	To species if found*2
282	45140831	Hydroponus tessellatus (Drapiez, 1819)	45140831	Hydroponus tessellatus Drapiez	0.29	Identify to level shown		Identify to level shown	To species if found*2
283	45140901	Stictonectes lepidus (Olivier, 1795)	45140901	Stictonectes lepidus (Olivier)	0.04	Identify to level shown		Identify to level shown	To species if found*2
284	45141004	Graptodytes pictus (Fabricius, 1787)	45141004	Graptodytes pictus (Fabricius)	0.34	Identify to level shown		Identify to level shown	To species if found*2
285	45141101	Poryhydus lineatus (Fabricius, 1775)	45141101	Poryhydus lineatus (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
286	45141201	Deronectes latus (Stephens, 1829)	45141201	Deronectes latus (Stephens)	1.01	Identify to level shown		Identify to level shown	To species if found*2
287	45141301	Nebroponus assimilis (Paykull, 1798)	45141301	Polamonectes assimilis (Paykull)	0.04	Identify to level shown		Identify to level shown	To species if found*2
288	45141303	Nebroponus depressus (Fabricius, 1775)	45141303	Polamonectes depressus (Fabricius)	13.29	Identify to level shown		Identify to level shown	To species if found*2
289	45141401	Stictotarsus duodecimpustulatus (Fabricius, 1792)	45141401	Stictotarsus duodecimpustulatus (Fabricius)	4.28	Identify to level shown		Identify to level shown	To species if found*2
290	45141501	Oreodytes davisi (Curtis, 1831)	45141501	Oreodytes davisi (Curtis)	0.29	Identify to level shown		Identify to level shown	To species if found*2
291	45141502	Oreodytes sanmarkii (C.R. Sahlberg, 1826)	45141502	Oreodytes sanmarkii (Sahlberg)	20.59	Identify to level shown		Identify to level shown	To species if found*2
292	45141503	Oreodytes septentrionalis (Gyllenhal, 1826)	45141503	Oreodytes septentrionalis (Sahlberg)	4.53	Identify to level shown		Identify to level shown	To species if found*2
293	45141601	Scarodytes halensis (Fabricius, 1787)	45141601	Scarodytes halensis (Fabricius)	0.04	Identify to level shown		Identify to level shown	To species if found*2
294	45141901	Platambus maculatus (Linnaeus, 1758)	45141901	Platambus maculatus (L.)	10.10	Identify to level shown		Identify to level shown	To species if found*2
295	45142004	Agabus bipustulatus (Linnaeus, 1767)	45142004	Agabus bipustulatus (L.)	0.13	Identify to level shown		Identify to level shown	To species if found*2
296	45142108	lybius chalconotus (Panzer, 1796)	45142006	Agabus chalconotus (Panzer)	0.08	Identify to level shown		Identify to level shown	To species if found*2
297	45142009	Agabus didymus (Olivier, 1795)	45142009	Agabus didymus (Olivier)	0.38	Identify to level shown		Identify to level shown	To species if found*2
298	45142011	Agabus guttatus (Paykull, 1798)	45142011	Agabus guttatus (Paykull)	0.13	Identify to level shown		Identify to level shown	To species if found*2
299	45142016	Agabus pallidus (Fabricius, 1801)	45142016	Agabus pallidus (Fabricius)	0.55	Identify to level shown		Identify to level shown	To species if found*2
300	45142018	Agabus sturmi (Gyllenhal, 1808)	45142018	Agabus sturmi (Gyllenhal)	0.13	Identify to level shown		Identify to level shown	To species if found*2
301	45142100	lybius sp.	45142100	lybius sp.	3.56	Split into species	species	Identify to level shown	To species if found*2
302	45142301	Colymbetes fuscus (Linnaeus, 1758)	45142301	Colymbetes fuscus (L.)	0.04	Identify to level shown		Identify to level shown	To species if found*2
303	45142705	Dytiscus marginalis Linnaeus, 1758	45142705	Dytiscus marginalis L.	0.04	Identify to level shown		Identify to level shown	To species if found*2
304	45142706	Dytiscus semisulcatus O.F. Müller, 1776	45142706	Dytiscus semisulcatus Muller	0.04	Identify to level shown		Identify to level shown	To species if found*2
305	45150201	Gyrinus aeratus Stephens, 1835	45150201	Gyrinus aeratus Stephens	0.42	Identify to level shown		Identify to level shown	To species if found*2
306	45150204	Gyrinus distinctus Aubé, 1837	45150204	Gyrinus distinctus Aube	0.04	Identify to level shown		Identify to level shown	To species if found*2
307	45150205	Gyrinus marinus Gyllenhal, 1808	45150205	Gyrinus marinus Gyllenhal	0.25	Identify to level shown		Identify to level shown	To species if found*2
308	45150202	Gyrinus natator group	45150202	Gyrinus natator group	0.67	Split into species	species	Identify to level shown	To species if found*2
309	45150212	Gyrinus unimaculatus (Müller, 1807)	45150212	Gyrinus unimaculatus (Müller)	0.21	Identify to level shown		Identify to level shown	To species if found*2
310	45150401	Orectochilus villosus (O.F. Müller, 1776)	45150401	Orectochilus villosus (Müller)	21.09	Identify to level shown		Identify to level shown	To species if found*2
311	45360101	Hydrochus angustatus Germar, 1824	45310201	Hydrochus angustatus Germar	0.04	Identify to level shown		Identify to level shown	To species if found*2
312	45330141	Helophorus (Meghelophorus) aequalis Thomson, 1868	45310341	Helophorus aequalis Thomson	0.29	Identify to level shown		Identify to level shown	To species if found*2
313	45330142	Helophorus (Meghelophorus) grandis Illiger, 1798	45310342	Helophorus grandis Illiger	0.75	Identify to level shown		Identify to level shown	To species if found*2
314	45330151	Helophorus (Rhopalophorus) arvensis Mulsant, 1846	45310351	Helophorus arvensis Mulsant	0.17	Identify to level shown		Identify to level shown	To species if found*2
315	45330152	Helophorus (Rhopalophorus) brevipalpis Bedel, 1881	45310352	Helophorus brevipalpis Bedel	7.42	Identify to level shown		Identify to level shown	To species if found*2
316	45330162	Helophorus (Helophorus) flavipes Fabricius, 1792	45310362	Helophorus flavipes Fabricius	0.75	Identify to level shown		Identify to level shown	To species if found*2
317	45330168	Helophorus (Helophorus) minutus Fabricius, 1775	45310368	Helophorus minutus Fabricius	0.17	Identify to level shown		Identify to level shown	To species if found*2
318	4533016A	Helophorus (Helophorus) obscurus Mulsant, 1844	45310371	Helophorus obscurus Mulsant	0.29	Identify to level shown		Identify to level shown	To species if found*2
319	4533016B	Helophorus (Helophorus) strigifrons Thomson, 1868	45310372	Helophorus strigifrons Thomson	0.04	Identify to level shown		Identify to level shown	To species if found*2
320	45351002	Paracymus scutellaris (Rosenhauer, 1856)	45311002	Paracymus scutellaris (Rosenhauer)	0.04	Identify to level shown		Identify to level shown	To species if found*2
321	45351101	Hydrobius fuscipes (Linnaeus, 1758)	45311101	Hydrobius fuscipes (L.)	0.50	Identify to level shown		Identify to level shown	To species if found*2
322	45351301	Anacaena bipustulata (Marsham, 1802)	45311301	Anacaena bipustulata (Marsham)	0.08	Identify to level shown		Identify to level shown	To species if found*2
323	45351302	Anacaena globulus (Paykull, 1829)	45311302	Anacaena globulus (Paykull)	1.47	Identify to level shown		Identify to level shown	To species if found*2
324	45351303	Anacaena limbata (Fabricius, 1792)	45311303	Anacaena limbata (Fabricius)	0.13	Identify to level shown		Identify to level shown	To species if found*2
325	45351304	Anacaena lutescens (Stephens, 1829)	45311304	Anacaena lutescens (Stephens)	0.21	Identify to level shown		Identify to level shown	To species if found*2

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^c	EA Response	Notes from EA	SEPA Response	Notes from SEPA
326	45351411	Laccobius (Laccobius) colon (Stephens, 1829)	45311411	Laccobius biguttatus Gernard	0.08	Identify to level shown		Identify to level shown	
327	45351412	Laccobius (Laccobius) minutus (Linnaeus, 1758)	45311412	Laccobius minutus (L.)	0.17	Identify to level shown		Identify to level shown	
328	45351421	Laccobius (Macrolaccobius) atratus Rottenburg, 1874	45311421	Laccobius atratus Rottenburg	0.04	Identify to level shown		Identify to level shown	To species if found*2
329	45351422	Laccobius (Macrolaccobius) ylenensis Sharp, 1910	45311422	Laccobius atrocephalus Reiter	0.08	Identify to level shown		Identify to level shown	To species if found*2
330	45351426	Laccobius (Macrolaccobius) sinuatus Motschulsky, 1849	45311426	Laccobius sinuatus Motschulsky	0.04	Identify to level shown		Identify to level shown	To species if found*2
331	45351427	Laccobius (Macrolaccobius) striatulus (Fabricius, 1801)	45311427	Laccobius striatulus (Fabricius)	0.17	Identify to level shown		Identify to level shown	To species if found*2
332	45351708	Enochrus testaceus (Fabricius, 1801)	45311708	Enochrus testaceus (Fabricius)	0.13	Identify to level shown		Identify to level shown	To species if found*2
333	45410103	Ochthebius bicolor Gernar, 1824	45410103	Ochthebius bicolor Gernar	0.08	Identify to level shown		Identify to level shown	To species if found*2
334	45410104	Ochthebius dilatatus Stephans, 1829	45410104	Ochthebius dilatatus Stephans	0.08	Identify to level shown		Identify to level shown	To species if found*2
335	45410106	Ochthebius exsculptus (Gernar, 1824)	45410106	Ochthebius exsculptus Gernar	0.13	Identify to level shown		Identify to level shown	To species if found*2
336	45410109	Ochthebius minimus (Fabricius, 1792)	45410109	Ochthebius minimus (Fabricius)	0.08	Identify to level shown		Identify to level shown	To species if found*2
337	45410202	Hydraena gracilis Gernar, 1824	45410202	Hydraena gracilis Gernar	26.54	Identify to level shown		Identify to level shown	
338	45410204	Hydraena nigra Gernar, 1824	45410204	Hydraena nigra Gernar	0.04	Identify to level shown		Identify to level shown	
339	45410206	Hydraena pulchella Gernar, 1824	45410206	Hydraena pulchella Gernar	0.04	Identify to level shown		Identify to level shown	To species if found*2
340	45410208	Hydraena riparia Kugelann, 1794	45410208	Hydraena riparia Kugelann	1.30	Identify to level shown		Identify to level shown	To species if found*2
341	45410209	Hydraena rufipes Curtis, 1830	45410209	Hydraena rufipes Curtis	0.21	Identify to level shown		Identify to level shown	
342	45410211	Hydraena testacea Curtis, 1831	45410211	Hydraena testacea Curtis	0.04	Identify to level shown		Identify to level shown	To species if found*2
343	45410303	Limnebius nitidus (Marsham, 1802)	45410303	Limnebius nitidus (Marsham)	0.04	Identify to level shown		Identify to level shown	To species if found*2
344	45410305	Limnebius truncatellus (Thunberg, 1794)	45410305	Limnebius truncatellus (Thunberg)	1.30	Identify to level shown		Identify to level shown	To species if found*2
345	45510100	Elodes sp.	45510100	Elodes sp.	8.68	Split into species	genus	Identify to level shown	
346	45510300	Cyphon sp.	45510300	Cyphon sp.	0.34	Split into species	genus	Identify to level shown	
347	45510401	Prionocyphon serricornis (Müller, 1821)	45510401	Prionocyphon serricornis (Müller)	0.04	Identify to level shown		Identify to level shown	To species if found*2
348	45510501	Hydrocyphon deflexicollis (Müller, 1821)	45510501	Hydrocyphon deflexicollis (Müller)	2.05	Identify to level shown		Identify to level shown	
349	45620101	Pomatium substriatus (Müller, 1806)	45620101	Helichus substriatus (Müller)	0.13	Identify to level shown		Identify to level shown	To species if found*2
350	45620200	Dryops sp.	45620200	Dryops sp.	1.05	Split into species	genus	Identify to level shown	
351	45630101	Elmis aenea (Müller, 1806)	45630101	Elmis aenea (Müller)	78.28	Identify to level shown		Identify to level shown	
352	45630201	Esolus paralielepedus (Müller, 1806)	45630201	Esolus paralielepedus (Müller)	35.51	Identify to level shown		Identify to level shown	
353	45630301	Limnius volckmari (Panzer, 1793)	45630301	Limnius volckmari (Panzer)	72.49	Identify to level shown		Identify to level shown	
354	45630401	Macronychus quadrifurcatus Müller, 1806	45630401	Macronychus quadrifurcatus Müller	0.08	Identify to level shown		Identify to level shown	To species if found*2
355	45630501	Normandia nitens (Müller, 1817)	45630501	Normandia nitens (Müller)	0.29	Identify to level shown		Identify to level shown	To species if found*2
356	45630601	Oulimnius major (Rey, 1888)	45630601	Oulimnius major (Rey)	0.21	Identify to level shown		Identify to level shown	To species if found*2
357	45630602	Oulimnius nvlarian (Rosenhauer, 1856)	45630602	Oulimnius nvlarian (Rosenhauer)	0.21	Identify to level shown		Identify to level shown	
358	45630603	Oulimnius troglodytes (Gyllenhal, 1827)	45630603	Oulimnius troglodytes (Gyllenhal)	0.71	Identify to level shown		Identify to level shown	
359	45630604	Oulimnius tuberculatus (Müller, 1806)	45630604	Oulimnius tuberculatus (Müller)	39.92	Identify to level shown		Identify to level shown	To species if found*2
360	45630701	Riolus cupreus (Müller, 1806)	45630701	Riolus cupreus (Müller)	1.13	Identify to level shown		Identify to level shown	
361	45630702	Riolus subvulvatus (Müller, 1817)	45630702	Riolus subvulvatus (Müller)	4.61	Identify to level shown		Identify to level shown	
362	46110101	Sialis fuliginosa Pictet, 1836	46110101	Sialis fuliginosa Pictet	3.19	Identify to level shown		Identify to level shown	
363	46110102	Sialis lutaria (Linnaeus, 1758)	46110102	Sialis lutaria (L.)	12.91	Identify to level shown		Identify to level shown	
364	46110103	Sialis nigripes Pictet, 1865	46110103	Sialis nigripes Pictet	1.55	Identify to level shown		Identify to level shown	To species if found*2
365	47110101	Osmylus fulvicephalus (Scopoli, 1763)	47110101	Osmylus fulvicephalus (Scopoli)	0.38	Don't include in species lists	include	Identify to level shown	To species if found*2
366	47120100	Sisyra sp.	47120100	Sisyra sp.	1.01	Don't include in species lists	as species	Identify to level shown	To species if found*2
367	48110101	Rhyacophila dorsalis (Curtis, 1834)	48110101	Rhyacophila dorsalis (Curtis)	58.28	Identify to level shown		Identify to level shown	
368	48110102	Rhyacophila munda McLachlan, 1862	48110102	Rhyacophila munda McLachlan	3.86	Identify to level shown		Identify to level shown	
369	48110103	Rhyacophila obliterata McLachlan, 1863	48110103	Rhyacophila obliterata McLachlan	0.84	Identify to level shown		Identify to level shown	
370	48110104	Rhyacophila fasciata Hagen, 1859	48110104	Rhyacophila septentrionis McLachlan	0.21	Identify to level shown		Identify to level shown	
371	48120100	Glossosoma sp.	48120100	Glossosoma sp.	19.62	Split into species	species	Identify to level shown	
372	48120200	Agapetus sp.	48120200	Agapetus sp.	29.18	Split into species	species	Identify to level shown	
373	48130101	Agraylea multipunctata Curtis, 1834	48130101	Agraylea multipunctata Curtis	0.75	Identify to level shown		Identify to level shown	
374	48130102	Agraylea sexmaculata Curtis, 1834	48130102	Agraylea sexmaculata Curtis	0.08	Identify to level shown		Identify to level shown	
375	48130201	Allotrichia pallicornis (Eaton, 1873)	48130201	Allotrichia pallicornis (Eaton)	1.93	Identify to level shown		Identify to level shown	
376	48130300	Hydroptilia sp.	48130300	Hydroptilia sp.	29.39	Split into species	genus	Identify to level shown	

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq*	EA Response	Notes from EA	SEPA Response	Notes from SEPA
377	48130400	Oxyethira sp.	48130400	Oxyethira sp.	4.95	Split into species	genus	Identify to level shown	
378	48130600	Ithytrichia sp.	48130600	Ithytrichia sp.	5.32	Split into species	genus	Identify to level shown	
379	48210101	Philopotamus montanus (Donovan, 1813)	48210101	Philopotamus montanus (Donovan)	3.77	Identify to level shown	species	Identify to level shown	
380	48210200	Wormadia sp.	48210200	Wormadia sp.	2.02	Split into species	species	Identify to level shown	
381	48210301	Chimarra marginata (Linnaeus, 1761)	48210301	Chimarra marginata (L.)	0.25	Identify to level shown	species at last instar	Identify to level shown	
382	48220100	Lype sp.	48220100	Lype sp.	3.56	Split into species	species	Split into species	
383	48220201	Metatype fragilis (Pictet, 1834)	48220201	Metatype fragilis (Pictet)	0.13	Identify to level shown		Identify to level shown	
384	48220301	Psychomyia pusilla (Fabricius, 1781)	48220301	Psychomyia pusilla (Fabricius)	6.08	Identify to level shown		Identify to level shown	
385	48220402	Tinodes dives (Pictet, 1834)	48220402	Tinodes dives (Pictet)	0.21	Identify to level shown		Identify to level shown	
386	48220407	Tinodes unicolor (Pictet, 1834)	48220407	Tinodes unicolor (Pictet)	0.08	Identify to level shown		Identify to level shown	To species if found*2
387	48220408	Tinodes waeneri (Linnaeus, 1758)	48220408	Tinodes waeneri (L.)	4.40	Identify to level shown		Identify to level shown	
388	48230101	Ecnomus tenellus (Rambur, 1842)	48230101	Ecnomus tenellus (Rambur)	0.34	Identify to level shown		Identify to level shown	To species if found*2
389	48240101	Cymus flavus McLachlan, 1864	48240101	Cymus flavus McLachlan	0.75	Identify to level shown		Identify to level shown	
390	48240103	Cymus trimaculatus (Curtis, 1834)	48240103	Cymus trimaculatus (Curtis)	2.94	Identify to level shown		Identify to level shown	
391	48240202	Holocentropus picomis (Stephens, 1836)	48240202	Holocentropus picomis (Stephens)	0.17	Identify to level shown		Identify to level shown	To species if found*2
392	48240301	Neureclipsis bimaculata (Linnaeus, 1758)	48240301	Neureclipsis bimaculata (L.)	1.64	Identify to level shown		Identify to level shown	
393	48240402	Plectrocnemia conspersa (Curtis, 1834)	48240402	Plectrocnemia conspersa (Curtis)	6.67	Identify to level shown		Identify to level shown	
394	48240403	Plectrocnemia geniculata McLachlan, 1871	48240403	Plectrocnemia geniculata McLachlan	1.05	Identify to level shown		Identify to level shown	
395	48240501	Polycentropus flavomaculatus (Pictet, 1834)	48240501	Polycentropus flavomaculatus (Pictet)	44.36	Identify to level shown		Identify to level shown	
396	48240502	Polycentropus irroratus (Curtis, 1835)	48240502	Polycentropus irroratus (Curtis)	2.94	Identify to level shown		Identify to level shown	
397	48240503	Polycentropus kingi McLachlan, 1881	48240503	Polycentropus kingi McLachlan	1.59	Identify to level shown		Identify to level shown	
398	48250101	Cheumatopsyche lepida (Pictet, 1834)	48250101	Cheumatopsyche lepida (Pictet)	3.94	Identify to level shown		Identify to level shown	
399	48250201	Hydropsyche angustipennis (Curtis, 1834)	48250201	Hydropsyche angustipennis (Curtis)	5.32	Identify to level shown		Identify to level shown	
400	48250203	Hydropsyche contubermalis McLachlan, 1865	48250203	Hydropsyche contubermalis McLachlan	5.16	Identify to level shown		Identify to level shown	
401	48250205	Hydropsyche fulvipes (Curtis, 1834)	48250205	Hydropsyche fulvipes (Curtis)	0.08	Identify to level shown		Identify to level shown	
402	48250206	Hydropsyche instabilis (Curtis, 1834)	48250206	Hydropsyche instabilis (Curtis)	7.46	Identify to level shown		Identify to level shown	
403	48250207	Hydropsyche pelliculida (Curtis, 1834)	48250207	Hydropsyche pelliculida (Curtis)	43.19	Identify to level shown		Identify to level shown	
404	48250208	Hydropsyche saxonica McLachlan, 1884	48250208	Hydropsyche saxonica McLachlan	0.46	Identify to level shown		Identify to level shown	
405	48250209	Hydropsyche siltalai Döhler, 1963	48250209	Hydropsyche siltalai Dohler	54.17	Identify to level shown		Identify to level shown	
406	48250301	Diplectrona felix McLachlan, 1878	48250301	Diplectrona felix McLachlan	0.80	Identify to level shown		Identify to level shown	
407	48310102	Agrypnia obsoleta group	48310102	Agrypnia sp.	0.04	Split into species	species	Split into species	
408	48310500	Phyganea sp.	48310500	Phyganea sp.	1.72	Split into species	species	Split into species	
409	48320101	Brachycentrus subnubilus Curtis, 1834	48320101	Brachycentrus subnubilus Curtis	11.87	Identify to level shown		Identify to level shown	
410	48330101	Crunoecia irrorata (Curtis, 1834)	48330101	Crunoecia irrorata (Curtis)	0.84	Identify to level shown		Identify to level shown	
411	48330201	Lasiocephala basalis (Kolenati, 1848)	48330201	Lasiocephala basalis (Kolenati)	1.34	Identify to level shown		Identify to level shown	
412	48330301	Lepidostoma hirtum (Fabricius, 1775)	48330301	Lepidostoma hirtum (Fabricius)	29.94	Identify to level shown		Identify to level shown	
413	483B0102	Apatania muliebris McLachlan, 1866	48340202	Apatania muliebris McLachlan	0.08	Identify to level shown		Identify to level shown	To species if found*2
414	48340301	Drusus annulatus (Stephens, 1837)	48340301	Drusus annulatus (Stephens)	10.48	Identify to level shown		Identify to level shown	
415	48340401	Ecclisopteryx gutturalis (Pictet, 1834)	48340401	Ecclisopteryx gutturalis (Pictet)	6.25	Identify to level shown		Identify to level shown	
416	48340600	Halesus sp.	48340600	Halesus sp.	18.66	Split into species	species	Identify to level shown	
417	48340701	Hydatophylax infumatus (McLachlan, 1865)	48340701	Hydatophylax infumatus (McLachlan)	0.21	Identify to level shown		Identify to level shown	
418	48340801	Melampophylax mucoreus (Hagen, 1861)	48340801	Melampophylax mucoreus (Hagen)	2.18	Identify to level shown		Identify to level shown	
419	48341401	Anabolia nervosa (Curtis, 1834)	48341401	Anabolia nervosa (Curtis)	8.39	Identify to level shown		Identify to level shown	To species if found*2
420	48341501	Glyptotaleus pellicudis (Reitzius, 1783)	48341501	Glyptotaleus pellicudis (Reitzius)	0.25	Identify to level shown		Identify to level shown	
421	48341703	Limnephilus binotatus Curtis, 1834	48341703	Limnephilus binotatus Curtis	0.04	Identify to level shown		Identify to level shown	
422	48341704	Limnephilus bipunctatus Curtis, 1834	48341704	Limnephilus bipunctatus Curtis	0.04	Identify to level shown		Identify to level shown	
423	48341708	Limnephilus decipiens (Kolenati, 1848)	48341708	Limnephilus decipiens (Kolenati)	0.30	Identify to level shown		Identify to level shown	
424	48341711	Limnephilus extricatus McLachlan, 1865	48341711	Limnephilus extricatus McLachlan	1.30	Identify to level shown		Identify to level shown	
425	48341712	Limnephilus flavicomis (Fabricius, 1787)	48341712	Limnephilus flavicomis (Fabricius)	0.08	Identify to level shown		Identify to level shown	To species if found*2
426	48341713	Limnephilus fuscicornis (Rambur, 1842)	48341713	Limnephilus fuscicornis (Rambur)	0.13	Identify to level shown		Identify to level shown	

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Line	Furse Cd.	Furse Name(used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^q	EA Response	Notes from EA	SEPA Response	Notes from SEPA
427	48341719	Limnephilus lunatus Curtis, 1834	48341719	Limnephilus lunatus Curtis	8.72	Identify to level shown		Identify to level shown	
428	48341722	Limnephilus mamoratus Curtis, 1834	48341722	Limnephilus mamoratus Curtis	0.46	Identify to level shown		Identify to level shown	
429	48341725	Limnephilus politus McLachlan, 1865	48341725	Limnephilus politus McLachlan	0.04	Identify to level shown		Identify to level shown	
430	48341726	Limnephilus rhombicus (Linnaeus, 1758)	48341726	Limnephilus rhombicus (L.)	1.55	Identify to level shown		Identify to level shown	
431	48341732	Limnephilus vittatus (Fabricius, 1798)	48341732	Limnephilus vittatus (Fabricius)	0.04	Identify to level shown		Identify to level shown	
432	48340W00	Micropterna group	48341W00	Micropterna group	2.14	Split into species	species	Split into species	
433	48340X00	Potamophylax group	48341X00	Potamophylax group	28.93	Split into species	species	Split into species	
434	48350101	Goera pilosa (Fabricius, 1775)	48350101	Goera pilosa (Fabricius)	5.70	Identify to level shown		Identify to level shown	
435	48350201	Silo nigricornis (Pictet, 1834)	48350201	Silo nigricornis (Pictet)	3.35	Identify to level shown		Identify to level shown	
436	48350202	Silo pallipes (Fabricius, 1781)	48350202	Silo pallipes (Fabricius)	10.61	Identify to level shown		Identify to level shown	
437	48360101	Beraea maurus (Curtis, 1834)	48360101	Beraea maurus (Curtis)	0.67	Identify to level shown		Identify to level shown	
438	48360102	Beraea pullata (Curtis, 1834)	48360102	Beraea pullata (Curtis)	0.42	Identify to level shown		Identify to level shown	
439	48360201	Beraeodes minutus (Linnaeus, 1761)	48360201	Beraeodes minutus (L.)	1.05	Identify to level shown		Identify to level shown	
440	48370101	Notidobia ciliatis (Linnaeus, 1761)	48370101	Notidobia ciliatis (L.)	0.13	Identify to level shown		Identify to level shown	To species if found*2
441	48370201	Sericostoma personatum (Spence, 1826)	48370201	Sericostoma personatum (Spence)	37.36	Identify to level shown		Identify to level shown	
442	48380101	Odontocerum albicorne (Scopoli, 1763)	48380101	Odontocerum albicorne (Scopoli)	7.09	Identify to level shown		Identify to level shown	
443	48390101	Molanna angustata Curtis, 1834	48390101	Molanna angustata Curtis	2.81	Identify to level shown		Identify to level shown	To species if found*2
444	483A0101	Athripsodes albifrons (Linnaeus, 1758)	48410101	Athripsodes albifrons (L.)	7.88	Identify to level shown		Identify to level shown	
445	483A0102	Athripsodes aterrimus (Stephens, 1836)	48410102	Athripsodes aterrimus (Stephens)	3.40	Identify to level shown		Identify to level shown	
446	483A0103	Athripsodes bilineatus (Linnaeus, 1758)	48410103	Athripsodes bilineatus (L.)	4.86	Identify to level shown		Identify to level shown	
447	483A0104	Athripsodes cinereus (Curtis, 1834)	48410104	Athripsodes cinereus (Curtis)	12.54	Identify to level shown		Identify to level shown	
448	483A0105	Athripsodes commutatus (Rostock, 1874)	48410105	Athripsodes commutatus (Rostock)	0.59	Identify to level shown		Identify to level shown	To species if found*2
449	483A0201	Ceraclea albimaculata (Rambur, 1842)	48410201	Ceraclea albimaculata (Rambur)	0.34	Identify to level shown		Identify to level shown	
450	483A0202	Ceraclea annulicornis (Stephens, 1836)	48410202	Ceraclea annulicornis (Stephens)	2.35	Identify to level shown		Identify to level shown	
451	483A0203	Ceraclea dissimilis (Stephens, 1836)	48410203	Ceraclea dissimilis (Stephens)	1.89	Identify to level shown		Identify to level shown	
452	483A0204	Ceraclea fulva (Rambur, 1842)	48410204	Ceraclea fulva (Rambur)	0.13	Identify to level shown		Identify to level shown	
453	483A0205	Ceraclea nigronervosa (Retzius, 1783)	48410205	Ceraclea nigronervosa (Retzius)	1.22	Identify to level shown		Identify to level shown	
454	483A0206	Ceraclea senilis (Burmeister, 1839)	48410206	Ceraclea senilis (Burmeister)	0.13	Identify to level shown		Identify to level shown	
455	483A0302	Leptocerum lusitanicum (McLachlan, 1884)	48410302	Leptocerum lusitanicum (McLachlan)	0.08	Identify to level shown		Identify to level shown	To species if found*2
456	483A0401	Mystacides azurea (Linnaeus, 1761)	48410401	Mystacides azurea (L.)	7.30	Identify to level shown		Identify to level shown	
457	483A0402	Mystacides longicornis (Linnaeus, 1758)	48410402	Mystacides longicornis (L.)	0.71	Identify to level shown		Identify to level shown	To species if found*2
458	483A0403	Mystacides nigra (Linnaeus, 1758)	48410403	Mystacides nigra (L.)	1.89	Identify to level shown		Identify to level shown	
459	483A0502	Adicella reducta (McLachlan, 1865)	48410502	Adicella reducta (McLachlan)	0.46	Identify to level shown		Identify to level shown	To species if found*2
460	483A0701	Trienodes bicolor (Curtis, 1834)	48410701	Trienodes bicolor (Curtis)	0.08	Identify to level shown		Identify to level shown	
461	483A0801	Ylodes conspersus (Rambur, 1842)	48410801	Ylodes conspersus (Rambur)	0.08	Identify to level shown		Identify to level shown	
462	483A0803	Ylodes simulans (Teder, 1929)	48410803	Ylodes simulans (Teder)	0.08	Identify to level shown		Identify to level shown	To species if found*2
463	483A0902	Oecetis lacustris (Pictet, 1834)	48410902	Oecetis lacustris (Pictet)	0.50	Identify to level shown		Identify to level shown	
464	483A0903	Oecetis notata (Rambur, 1842)	48410903	Oecetis notata (Rambur)	0.17	Identify to level shown		Identify to level shown	To species if found*2
465	483A0904	Oecetis ochracea (Curtis, 1825)	48410904	Oecetis ochracea (Curtis)	0.17	Identify to level shown		Identify to level shown	To species if found*2
466	483A0905	Oecetis testacea (Curtis, 1834)	48410905	Oecetis testacea (Curtis)	0.75	Identify to level shown		Identify to level shown	
467	49110300	Paraponyx sp.	49110300	Paraponyx sp.	0.29	Downgrade to Pyralidae sp.	species	Downgrade to Pyralidae sp.	
468	50110339	Tipula (Savshenka) rufina Meigen, 1818	50110339	Tipula rufina Meigen	0.38	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
469	50110332	Tipula (Savshenka) signata group	50110332	Tipula signata group	0.08	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
470	50110361	Tipula (Beirngotipula) unca Wiedemann, 1817	50110361	Tipula unca Wiedemann	0.08	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
471	501103A7	Tipula (Yamatotipula) pierrei Tomoir, 1921	50110417	Tipula solstitialis Westhoff	0.04	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
472	501103AZ	Tipula (Yamatotipula) montium group	5011041Z	Tipula montium group	20.96	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
473	501103B2	Tipula (Tipula) oleracea Linnaeus, 1758	50110422	Tipula oleracea L.	0.25	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
474	501103B3	Tipula (Tipula) paludosa Meigen, 1830	50110423	Tipula paludosa Meigen	0.21	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
475	501103C3	Tipula (Acutipula) maxima Poda, 1761	50110433	Tipula maxima Poda	0.67	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
476	501103C4	Tipula (Acutipula) vittata Meigen, 1804	50110434	Tipula vittata Meigen	0.46	Downgrade to Tipula sp.	species	Downgrade to Tipula sp.	
477	50110500	Nephrotoma sp.	50110500	Nephrotoma sp.	0.13	Downgrade to Tipulidae sp.	genus	Downgrade to Tipula	To species if found*2

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Line	Fuse Cd.	Fuse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ⁴	EA Response	Notes from EA	SEPA Response	Notes from SEPA
478	50130100	Limonia sp.	50130100	Limonia sp.	0.29	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
479	50130511	Antocha (Antocha) vitripennis (Meigen, 1830)	50130501	Antocha vitripennis (Meigen)	8.43	Downgrade to Limoniidae sp.	species	Identify to level shown	
480	50130601	Thaumastoptera calceata Mlk, 1866	50130601	Thaumastoptera calceata Mlk	0.08	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
481	50130900	Helius sp.	50130900	Helius sp.	0.21	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
482	50140610	Trichophna (Trichophna) sp.	50131040	Pedicia (Trichophna) sp.	0.29	Downgrade to Pediciidae sp.	genus	Downgrade to Pedicia	
483	50140120	Pedicia (Pedicia) group	50131020	Pedicia (Pedicia) group	2.18	Downgrade to Pediciidae sp.	genus	Downgrade to Pedicia	
484	50140500	Dicranota sp.	50131500	Dicranota sp.	55.26	Identify to level shown	genus	Identify to level shown	
485	50131711	Austrolimnophila (Austrolimnophila) ochracea (Meigen, 1804)	50131701	Austrolimnophila ochracea (Meigen)	0.17	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
486	50131900	Pseudolimnophila sp.	50131900	Pseudolimnophila sp.	0.06	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
487	50132100	Eioephila sp.	50132010	Limnophila (Eioephila) sp.	11.66	Identify to level shown	genus	Identify to level shown	
488	50132400	Phylidorea sp.	50132030	Limnophila (Phylidorea) sp.	0.17	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
489	50132200	Euphyidorea sp.	50132040	Limnophila (Euphyidorea) sp.	0.04	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
490	50132050	Limnophila (Limnophila) sp.	50132050	Limnophila (Limnophila) sp.	0.25	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
491	50132520	Neolimnomyia (Neolimnomyia) sp.	50132610	Pilaria (Neolimnomyia) sp.	0.46	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
492	50132600	Pilaria sp.	50132620	Pilaria (Pilaria) sp.	1.30	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
493	50132800	Hexatoma sp.	50132800	Hexatoma sp.	7.38	Identify to level shown	genus	Identify to level shown	
494	50133700	Lipsothrix sp.	50133700	Lipsothrix sp.	0.04	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
495	50134100	Erioptera sp.	50134100	Erioptera sp.	0.08	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
496	50134810	Ormosia (Ormosia) sp.	50134800	Ormosia sp.	0.17	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
497	50135000	Scleroprocta sp.	50135000	Scleroprocta sp.	0.13	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
498	50135300	Molophilus sp.	50135300	Molophilus sp.	0.71	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
499	50134900	Rhypholophus sp.	50135500	Rhypholophus sp.	0.04	Downgrade to Limoniidae sp.	genus	Downgrade to Limoniidae	
500	50210231	Pericoma (Pericoma) blandula Eaton, 1893	50210202	Pericoma blandula Eaton	1.47	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
501	50210232	Pericoma (Pericoma) calcilega Feuerborn, 1923	50210203	Pericoma calcilega Feuerborn	0.04	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
502	50210251	Pericoma (Pneumia) canescens (Meigen, 1804)	50210204	Pericoma canescens (Meigen)	0.25	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
503	50210271	Pericoma (Ulomyia) cognata Eaton, 1893	50210205	Pericoma cognata Eaton	0.42	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
504	50210233	Pericoma (Pericoma) diversa Tonnoir, 1920	50210208	Pericoma diversa Tonnoir	0.29	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
505	50210234	Pericoma (Pericoma) exquisita Eaton, 1893	50210209	Pericoma exquisita Eaton	1.43	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
506	50210235	Pericoma (Pericoma) fallax Eaton, 1893	50210212	Pericoma fallax Eaton	2.31	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
507	50210272	Pericoma (Ulomyia) fuliginosa (Meigen, 1804)	50210213	Pericoma fuliginosa (Meigen)	0.21	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
508	50211101	Bazarella neglecta (Eaton, 1893)	50210217	Pericoma neglecta Eaton	2.39	Downgrade to Psychodidae sp.	species	Downgrade to Psychodidae	
509	50210237	Pericoma (Pericoma) pseudoexquisita Tonnoir, 1940	50210223	Pericoma pseudoexquisita Tonnoir	1.09	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
510	50211303	Tonnoirella pulchra (Eaton, 1893)	50210224	Pericoma pulchra Eaton	0.34	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
511	5021023A	Pericoma (Pericoma) trifasciata (Meigen, 1804)	50210225	Pericoma trifasciata (Meigen)	0.04	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
512	50210252	Pericoma trivialis group	50210222	Pericoma trivialis group	5.41	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
513	50210402	Peripsychoda fusca (Macquart, 1826)	50210402	Peripsychoda fusca (Macquart)	0.25	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
514	50211800	Tinearia sp.	50210901	Psychoda alternata Sey	0.34	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
515	50210904	Psychoda gemina (Eaton, 1904)	50210904	Psychoda gemina Eaton	0.04	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
516	50210907	Psychoda phalaenoides (Linnaeus, 1758)	50210907	Psychoda phalaenoides (L.)	0.13	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
517	50210908	Psychoda albipennis Zetterstedt, 1850	50210908	Psychoda severini Tonnoir	0.67	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
518	50210909	Psychoda surcoufi Tonnoir, 1922	50210909	Psychoda surcoufi Tonnoir	0.21	Downgrade to Psychodidae sp.	genus	Downgrade to Psychodidae	
519	50220100	Ptychoptera sp.	50220100	Ptychoptera sp.	2.94	Downgrade to Ptychopteridae sp.	species	Downgrade to Ptychopteridae	
520	50310101	Dixa dilatata Strobl, 1900	50310101	Dixa dilatata Strobl	0.08	Identify to level shown	ok	Downgrade to Dixidae	
521	50310103	Dixa nebulosa Meigen, 1830	50310103	Dixa nebulosa Meigen	2.89	Identify to level shown	ok	Downgrade to Dixidae	
522	50310105	Dixa puberula Loew, 1849	50310105	Dixa puberula Loew	1.34	Identify to level shown	ok	Downgrade to Dixidae	
523	50310102	Dixa maculata complex	50310102	Dixa maculata complex	1.59	Identify to level shown	ok	Downgrade to Dixidae	
524	50310205	Dixella filicomis (Edwards, 1926)	50310205	Dixella filicomis Edwards	0.04	Identify to level shown	ok	Downgrade to Dixidae	
525	50320112	Chaoborus (Chaoborus) flavicans (Meigen, 1830)	50320112	Chaoborus flavicans (Meigen)	0.08	Downgrade to Chaoboridae sp.	genus	Downgrade to Chaoborus	
526	50330100	Anopheles sp.	50330100	Anopheles sp.	0.21	Downgrade to Culicidae sp.	species?	Identify to level shown	To species if found*2
527	50340100	Thaumalea sp.	50340100	Thaumalea sp.	0.71	Split into species	species	Downgrade to Thaumalidae	

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Line	Fuse Cd.	Fuse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^a	EA Response	Notes from EA	SEPA Response	Notes from SEPA
528	50350000	Ceratopogonidae	50350000	Ceratopogonidae	33.38	Identify to level shown	ok	Identify to level shown	
529	50360101	Prosimulium hirtipes (Fries, 1824)	50360101	Prosimulium hirtipes (Fries)	0.88	Identify to level shown	ok	Downgrade to Simuliidae	
530	50360102	Prosimulium latimucro (Enderlein, 1925)	50360102	Prosimulium latimucro (Enderlein)	0.17	Identify to level shown	ok	Downgrade to Simuliidae	
531	50360103	Prosimulium tomosvaryi (Enderlein, 1921)	50360103	Prosimulium tomosvaryi (Enderlein)	0.21	Identify to level shown	ok	Downgrade to Simuliidae	
532	50360311	Simulium (Helichthella) latipes (Meigen, 1804)	50360311	Simulium latipes (Meigen)	0.08	Identify to level shown	ok	Downgrade to Simuliidae	
533	50360323	Simulium (Nevermannia) costatum Friederichs, 1920	50360323	Simulium costatum Friederichs	0.75	Identify to level shown	ok	Downgrade to Simuliidae	
534	5036032Y	Simulium (Nevermannia) angustitarse group	5036032Y	Simulium angustitarse group	6.29	Split into species	ok	Downgrade to Simuliidae	
535	5036032Z	Simulium (Nevermannia) cryophilum group	5036032Z	Simulium cryophilum group	12.08	Split into species	ok	Downgrade to Simuliidae	
536	5036032X	Simulium (Nevermannia) vernum group	5036032X	Simulium vernum group	6.04	Split into species	group	Downgrade to Simuliidae	
537	5036034Z	Simulium (Eusimulium) aureum group	5036034Z	Simulium aureum group	14.68	Split into species	ok	Downgrade to Simuliidae	
538	50360350	Simulium (Wilhelmia) sp.	50360350	Simulium (Wilhelmia) sp.	20.42	Split into species	ok	Downgrade to Simuliidae	
539	50360361	Simulium (Boophthora) erythrocephalum (DeGeer, 1776)	50360361	Simulium erythrocephalum (de Geer)	4.19	Identify to level shown	ok	Downgrade to Simuliidae	
540	50360382	Simulium (Simulium) rostratum (Lundström, 1911)	50360382	Simulium rostratum Lundström	1.13	Identify to level shown	ok	Downgrade to Simuliidae	
541	50360384	Simulium (Simulium) morsitans Edwards, 1915	50360384	Simulium morsitans Edwards	0.29	Identify to level shown	ok	Downgrade to Simuliidae	
542	50360385	Simulium (Simulium) noelleri Friederichs, 1920	50360385	Simulium noelleri Friederichs	0.88	Identify to level shown	ok	Downgrade to Simuliidae	
543	50360387	Simulium (Simulium) posticatum Meigen, 1838	50360387	Simulium posticatum Meigen	0.92	Identify to level shown	ok	Downgrade to Simuliidae	
544	50360388	Simulium (Simulium) reptans (Linnaeus, 1758)	50360388	Simulium reptans (L.)	15.64	Identify to level shown	ok	Downgrade to Simuliidae	
545	5036038Y	Simulium (Simulium) argyreatum group	5036038Y	Simulium argyreatum group	20.38	Split into species	group	Downgrade to Simuliidae	
546	5036038Z	Simulium (Simulium) ornatum group	5036038Z	Simulium ornatum group	46.59	Split into species	group	Downgrade to Simuliidae	
547	5036038A	Simulium (Simulium) tuberosum (Lundström, 1911)	5036038A	Simulium tuberosum (Lundström)	1.01	Identify to level shown	ok	Downgrade to Simuliidae	
548	50420101	Clintanypus nervosus (Meigen, 1818)	50420101	Clintanypus nervosus (Meigen)	1.26	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
549	50420201	Aspectrotanypus trifasciennsis (Zetterstedt, 1838)	50420201	Aspectrotanypus trifasciennsis (Zetterstedt)	7.42	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
550	50420400	Macropelopia sp.	50420400	Macropelopia sp.	17.78	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
551	50420500	Procladius sp.	50420500	Procladius sp.	9.27	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
552	50420601	Psectrotanypus varius (Fabricius, 1787)	50420601	Psectrotanypus varius (Fabricius)	0.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
553	50420800	Abiabesmyia sp.	50420800	Abiabesmyia sp.	7.34	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
554	50420Y00	Thienemamiya group	50420Y00	Thienemamiya group	50.27	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
555	50420Z00	Zavrelimyia group	50420Z00	Zavrelimyia group	5.74	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
556	50421200	Krenopelopia sp.	50421200	Krenopelopia sp.	0.13	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
557	50421402	Larsia curticalcar (Kieffer, 1918)	50421400	Larsia sp.	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
558	50421501	Monopelopia tenuicalcar (Kieffer, 1918)	50421501	Monopelopia tenuicalcar (Kieffer)	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
559	50421600	Natarsia sp.	50421600	Natarsia sp.	1.43	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
560	50421701	Nilotanypus dubius (Meigen, 1804)	50421701	Nilotanypus dubius (Meigen)	1.72	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
561	50422201	Trissopelopia longimana (Staege, 1839)	50422201	Trissopelopia longimana (Staege)	4.11	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
562	50422300	Xenopelopia sp.	50422300	Xenopelopia sp.	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
563	50422500	Tanypus sp.	50422500	Tanypus sp.	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
564	50440200	Diamesa sp.	50440200	Diamesa sp.	10.52	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
565	5044030Y	Pothisia gaeddi group	5044030Y	Pothisia gaeddi group	11.28	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
566	5044030Z	Pothisia longimanus group	5044030Z	Pothisia longimana group	26.21	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
567	50440400	Pseudodiamesa sp.	50440400	Pseudodiamesa sp.	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
568	50440600	Symphothastia sp.	50440600	Symphothastia sp.	0.34	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
569	50450201	Odontomesa fulva (Kieffer, 1919)	50450201	Odontomesa fulva (Kieffer)	0.55	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
570	50450301	Prodamesa olivacea (Meigen, 1818)	50450301	Prodamesa olivacea (Meigen)	17.02	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
571	50460101	Acricotopus lucens (Zetterstedt, 1850)	50460101	Acricotopus lucens (Zetterstedt)	0.29	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
572	50460301	Brillia flavifrons (Johannsen, 1905)	50460301	Brillia longifurca Kieffer	7.42	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
573	50460302	Brillia bifida (Kieffer, 1909)	50460302	Brillia modesta (Meigen)	32.16	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
574	50460400	Cardiocladius sp.	50460400	Cardiocladius sp.	1.01	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
575	50460601	Diplocladius cullinger Kieffer, 1908	50460601	Diplocladius cullinger Kieffer	0.46	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
576	50460Y00	Eukiefferiella group	50460Y00	Eukiefferiella group	71.53	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
577	50460Z00	Cricotopus group	50460Z00	Cricotopus group	63.23	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
578	50461001	Eurynemus crassipes (Meigen, 1810)	50461001	Eurynemus crassipes (Panzer)	0.13	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^a	EA Response	Notes from EA	SEPA Response	Notes from SEPA
579	50461201	Heterotanytarsus apicalis (Kieffer, 1921)	50461201	Heterotanytarsus apicalis (Kieffer)	1.51	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
580	50461300	Heterotrissociadus sp.	50461300	Heterotrissociadus sp.	4.53	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
581	50461400	Hydrobaenus group	50461400	Hydrobaenus sp.?	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
582	50461800	Nanociadus sp.	50461800	Nanociadus sp.	3.82	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
583	50462051	Orthocladus (Symposiocladus) lignicola (Kieffer)	50462051	Orthocladus lignicola (Kieffer)	1.72	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
584	50462101	Paracladus conversus (Walker, 1856)	50462101	Paracladus conversus (Walker)	0.80	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
585	50462700	Psectrocladus sp.	50462700	Psectrocladus sp.	2.52	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
586	50462800	Rheocricotopus sp.	50462800	Rheocricotopus sp.	19.83	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
587	50462901	Synorthocladus semivirens (Kieffer, 1909)	50462901	Synorthocladus semivirens (Kieffer)	7.30	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
588	50463500	Bryophaenocladus sp.	50463500	Bryophaenocladus sp.	0.38	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
589	50463700	Chaetocladus sp.	50463700	Chaetocladus sp.	2.81	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
590	50463800	Corynoneura sp.	50463800	Corynoneura sp.	5.45	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
591	50463901	Epoicocladus ephemeræ (Kieffer, 1924)	50463901	Epoicocladus flavens (Malloch)	2.60	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
592	50464000	Gymnometrocnemus sp.	50464000	Gymnometrocnemus sp.	0.21	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
593	50464101	Heleniella omatcolis (Edwards, 1929)	50464101	Heleniella omatcolis (Edwards)	0.59	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
594	50464200	Krenosmittia sp.	50464200	Krenosmittia sp.	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
595	50464300	Limnophyes sp.	50464300	Limnophyes sp.	2.14	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
596	50464500	Metrocnemus sp.	50464500	Metrocnemus sp.	5.41	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
597	50464700	Parakiefferiella sp.	50464700	Parakiefferiella sp.	0.46	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
598	50464901	Parametrocnemus borealpinus Gouin, 1942	50464901	Parametrocnemus borealpinus Gouin	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
599	50464902	Parametrocnemus stylatus (Späček, 1923)	50464902	Parametrocnemus stylatus (Kieffer)	7.38	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
600	50465000	Paraphaenocladus sp.	50465000	Paraphaenocladus sp.	0.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
601	50465101	Parasmittia carinata Strenzke, 1950	50465101	Parasmittia carinata Strenzke	0.13	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
602	50465201	Paratrissociadus excerptus (Walker, 1856)	50465201	Paratrissociadus excerptus (Walker)	4.19	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
603	50465300	Pseudorthocladus sp.	50465300	Pseudorthocladus sp.	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
604	50465400	Pseudosmittia sp.	50465400	Pseudosmittia sp.	1.22	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
605	50465600	Smittia sp.	50465600	Smittia sp.	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
606	50465801	Thienemannia gracilis Kieffer, 1909	50465801	Thienemannia gracilis Kieffer	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
607	50465900	Thienemannella sp.	50465900	Thienemannella sp.	12.75	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
608	50470300	Chironomus sp.	50470300	Chironomus sp.	5.41	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
609	50470400	Cladopelma sp.	50470400	Cladopelma sp.	0.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
610	50470500	Cryptochironomus sp.	50470500	Cryptochironomus sp.	4.70	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
611	50470600	Cryptotendipes sp.	50470600	Cryptotendipes sp.	0.34	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
612	50470811	Demicyptochironomus (Demicyptochironomus) vulneratus (Zetterstedt, [1838])	50470801	Demicyptochironomus vulneratus (Zetterstedt)	4.28	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
613	50470900	Dicrotendipes sp.	50470900	Dicrotendipes sp.	3.48	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
614	50471200	Glyptotendipes sp.	50471200	Glyptotendipes sp.	3.40	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
615	50471400	Harmischia sp.	50471400	Harmischia sp.	0.59	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
616	50471501	Kiefferulus tendipediformis (Goetghebuer, 1921)	50471501	Kiefferulus tendipediformis (Goetghebuer)	0.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
617	50471900	Microtendipes sp.	50471900	Microtendipes sp.	27.38	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
618	50471Y00	Endochironomus group	50471Y00	Endochironomus group	1.84	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
619	50471Z00	Einfeldia group	50471Z00	Einfeldia group	0.08	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
620	50472001	Nilothauma brayi (Goetghebuer, 1921)	50472001	Nilothauma brayi (Goetghebuer)	0.04	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
621	50472300	Parachironomus sp.	50472300	Parachironomus sp.	1.97	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
622	50472400	Paracladopelma sp.	50472400	Paracladopelma sp.	1.97	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
623	50472501	Paralautorbomiella nigrohalteralis (Malloch, 1915)	50472501	Paralautorbomiella nigrohalteralis (Malloch)	0.13	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
624	50472600	Paratendipes sp.	50472600	Paratendipes sp.	4.70	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
625	50472800	Phaenopspectra sp.	50472800	Phaenopspectra sp.	3.86	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
626	50472900	Polypedium sp.	50472900	Polypedium sp.	45.83	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
627	50473100	Stenochironomus sp.	50473100	Stenochironomus sp.	0.38	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
628	50473200	Stictochironomus sp.	50473200	Stictochironomus sp.	5.37	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	

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Line	Furse Cd.	Furse Name(Used by EA)	Maitland Cd.	Maitland Name (used by SEPA)	Freq ^a	EA Response	Notes from EA	SEPA Response	Notes from SEPA
629	50473301	Xenochironomus xenolabis (Kieffer, 1916)	50473301	Xenochironomus xenolabis (Kieffer)	0.88	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
630	50490100	Cladotanytarsus sp.	50490100	Cladotanytarsus sp.	7.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
631	50490300	Neozavrelia sp.	50490300	Neozavrelia sp.	0.17	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
632	50490500	Paratanytarsus sp.	50490500	Paratanytarsus sp.	9.98	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
633	50490600	Rheotanytarsus sp.	50490600	Rheotanytarsus sp.	16.52	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
634	50490701	Stempellina bausei (Kieffer, 1911)	50490701	Stempellina bausei (Kieffer)	1.09	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
635	50490W00	Microspectra group	50490W00	Microspectra group	64.07	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
636	50490Y00	Stempellina group	50490Y00	Stempellina group	4.49	Downgrade to Chironomidae sp.	sub-family/tribe	Downgrade to Chironomidae	
637	50610200	Nemotelus sp.	50610200	Nemotelus sp.	0.13	Spill into species	species	Downgrade to Stratiomyidae	
638	50610300	Oxycera sp.	50610300	Oxycera sp.	1.72	Spill into species	species	Downgrade to Stratiomyidae	
639	50610500	Odontomyia sp.	50610500	Odontomyia sp.	0.04	Spill into species	species	Downgrade to Stratiomyidae	
640	50640101	Atherix ibis (Fabricius, 1798)	50620101	Atherix ibis (Fabricius)	15.47	Identify to level shown	ok	Identify to level shown	
641	50640301	Ibisia marginala (Fabricius, 1781)	50620102	Atherix marginala (Fabricius)	3.14	Identify to level shown	ok	Identify to level shown	
642	50640201	Atrichops crassipes (Meigen, 1820)	50620201	Atrichops crassipes (Meigen)	0.38	Identify to level shown	ok	Downgrade to Athericidae	
643	50630100	Chrysops sp.	50630100	Chrysops sp.	3.35	Downgrade to Tabanidae sp.	species	Identify to level shown	
644	50630Z00	Tabanus group	50630Z00	Tabanus group	2.94	Downgrade to Tabanidae sp.	species	Downgrade to Tabanidae	
645	5071YW00	Chelifera group	50710W00	Chelifera group	15.81	Downgrade to Empididae sp.	leave at group	Identify to level shown	recorded as Chelifera, 50711200
646	5071YX00	Hemerodromia group	50710X00	Hemerodromia group	13.04	Downgrade to Empididae sp.	leave at group	Identify to level shown	recorded as Hemerodromia, 50711300
647	50720000	Dolichopodidae	50720000	Dolichopodidae	1.64	Identify to level shown	ok	Identify to level shown	
648	5071X000	Clinocerinae	507X0000	Clinocerinae	27.63	Downgrade to Empididae sp.	leave at group	Downgrade to Empididae	
649	50810000	Syrphidae	50810000	Syrphidae	0.34	Identify to level shown	ok	Identify to level shown	To species if found*2
650	50820000	Sciomyzidae	50820000	Sciomyzidae	0.13	Identify to level shown	ok	Identify to level shown	
651	50830000	Ephydriidae	50830000	Ephydriidae	1.51	Identify to level shown	ok	Identify to level shown	To species if found*2
652	50850200	Limnophora sp.	50850200	Limnophora sp.	12.66	Identify to level shown	ok	Identify to level shown	

Appendix V – The 89 NBN codes newly created for taxon prediction

Appendix V – The 89 NBN codes newly created for taxon prediction

NBN Code	NBN Name
<NEW-CODE>100001	Polycelis nigra group
<NEW-CODE>100002	Dugesia polychroa group
<NEW-CODE>100004	Anodonta group
<NEW-CODE>100005	Lumbriculus group
<NEW-CODE>100006	Nais communis group
<NEW-CODE>100007	Nais simplex group
<NEW-CODE>100008	Thalassodrilus prostatus
<NEW-CODE>100011	Baetis scambus group
<NEW-CODE>100012	Heptagenia lateralis
<NEW-CODE>100013	Caenis pseudorivulorum group
<NEW-CODE>100014	Caenis luctuosa group
<NEW-CODE>100015	Nemoura cambrica group
<NEW-CODE>100016	Coenagrion puella group
<NEW-CODE>100019	Gyrinus natator group
<NEW-CODE>100020	Anacaena lutescens
<NEW-CODE>100022	Agrypnia obsoleta group
<NEW-CODE>100025	Micropterna group
<NEW-CODE>100026	Potamophylax group
<NEW-CODE>100029	Tipula (Savtshenka) signata group
<NEW-CODE>100030	Tipula (Yamatotipula) montium group
<NEW-CODE>100032	Gonempeda group
<NEW-CODE>100033	Pedicia (Pedicia) group
<NEW-CODE>100034	Pericoma trivialis group
<NEW-CODE>100036	Dixa maculata complex
<NEW-CODE>100038	Simulium angustitarse group
<NEW-CODE>100039	Simulium cryophilum group
<NEW-CODE>100040	Simulium vernum group
<NEW-CODE>100041	Simulium aureum group
<NEW-CODE>100042	Simulium argyreatum group
<NEW-CODE>100043	Simulium ornatum group
<NEW-CODE>100046	Thienemannimyia group
<NEW-CODE>100047	Zavrelimyia group
<NEW-CODE>100048	Potthastia gaedii group
<NEW-CODE>100049	Potthastia longimana group
<NEW-CODE>100050	Eukiefferiella group
<NEW-CODE>100051	Cricotopus group
<NEW-CODE>100052	Hydrobaenus group
<NEW-CODE>100055	Micropsectra group
<NEW-CODE>100057	Stempellinella group
<NEW-CODE>100059	Tabanus group
<NEW-CODE>100060	Chelifera group
<NEW-CODE>100061	Hemerodromia group
<NEW-CODE>100064	Clinocerinae
<NEW-CODE>100067	Planariidae (incl. Dugesidae)
<NEW-CODE>100068	Hydrobiidae (incl. Bithyniidae)
<NEW-CODE>100069	Ancylidae (incl. Acroloxidae)
<NEW-CODE>100070	Gammaridae (incl. Crangonyctidae & Niphargidae)
<NEW-CODE>100071	Dytiscidae (incl. Noteridae)
<NEW-CODE>100072	Hydrophilidae (incl. Hydraenidae, Helophoridae, Georissidae & Hydrochidae)
<NEW-CODE>100073	Rhyacophilidae (incl. Glossosomatidae)
<NEW-CODE>100074	Psychomyiidae (incl. Ecnomidae)
<NEW-CODE>100075	Enchytraeidae (incl. Propappidae)
<NEW-CODE>100076	Pristina (Pristinella) sp.
<NEW-CODE>100081	Lumbricidae (incl. Glossoscolecidae)
<NEW-CODE>100082	Einfeldia group
<NEW-CODE>100083	Endochironomus group
<NEW-CODE>100101	Ameletidae
<NEW-CODE>100103	Helophoridae
<NEW-CODE>100105	Hydrochidae
<NEW-CODE>100106	Apataniidae
<NEW-CODE>100110	Siphonuridae (incl. Ameletidae)
<NEW-CODE>100111	Limnephilidae (incl. Apataniidae)
<NEW-CODE>100112	Tipulidae (incl. Limoniidae, Cylindrotomidae & Pediciidae)
<NEW-CODE>100114	Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)
<NEW-CODE>100200	Planorbis group
<NEW-CODE>100201	Enchytraeus group
<NEW-CODE>100202	Achaeta sp.
<NEW-CODE>100203	Sperchon hibernicus group
<NEW-CODE>100204	Aeshna mixta group
<NEW-CODE>100205	Donacia group
<NEW-CODE>100207	Phryganea grandis group
<NEW-CODE>100208	Phryganea group
<NEW-CODE>100209	Potamophylax cingulatus group
<NEW-CODE>100210	Trienodes group
<NEW-CODE>100211	Nymphula group
<NEW-CODE>100212	Tipula (Acutipula) maxima group

NBN Code	NBN Name
<NEW-CODE>100213	Tipula (Lunatipula) lunata L.
<NEW-CODE>100216	Anopheles (Anopheles) atroparvus group
<NEW-CODE>100217	Simulium (Eusimulium) group
<NEW-CODE>100218	Simulium (Simulium) group
<NEW-CODE>100219	Tvetenia discoloripes group
<NEW-CODE>100220	Tokunagayausurika sp.
<NEW-CODE>100221	Microtendipes rydalensis group
<NEW-CODE>100222	Paratanytarsus group
<NEW-CODE>100223	Tanytarsus group
<NEW-CODE>100224	Clinocera group
<NEW-CODE>100225	Wiedemannia group
<NEW-CODE>100226	Hemerodrominae
<NEW-CODE>100227	Phaenicia group

**Appendix VI Taxonomic Level 1 –
The 78 “BMWP family” level taxa in RIVPACS IV**

Appendix VI Taxonomic Level 1 – The 78 “BMWP family” level taxa in RIVPACS IV

Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
05130000	Dendrocoelidae	05130000	Dendrocoelidae	NBNSYS00000042255	Dendrocoelidae
051Z20000	Planariidae (incl. Dugesidae)	051Z20000	Planariidae (including Dugesidae)	<NEW-CODE>100067	Planariidae (incl. Dugesidae)
16110000	Neritidae	16110000	Neritidae	NBNSYS00000160519	Neritidae
16120000	Viviparidae	16120000	Viviparidae	NBNSYS00000161255	Viviparidae
16130000	Valvatidae	16130000	Valvatidae	NBNSYS00000042348	Valvatidae
161Z0000	Hydrobiidae (incl. Bithyniidae)	161Z0000	Hydrobiidae (including Bithyniidae)	<NEW-CODE>100068	Hydrobiidae (incl. Bithyniidae)
16210000	Physidae	16210000	Physidae	NBNSYS00000160706	Physidae
16220000	Lymnaeidae	16220000	Lymnaeidae	NBNSYS01000003744	Lymnaeidae
16230000	Planorbidae	16230000	Planorbidae (excluding Ancyclus group)	NBNSYS0000050415	Planorbidae
162Z0000	Ancyidae (incl. Acroloxidae)	162Z0000	Ancyclus group (incl. Acroloxidae)	<NEW-CODE>100069	Ancyidae (incl. Acroloxidae)
17120000	Unionidae	17120000	Unionidae	NBNSYS00000161229	Unionidae
17130000	Sphaeriidae	17130000	Sphaeriidae	NBNSYS0100015301	Sphaeriidae (Pea mussels)
20000000	Oligochaeta	20000000	Oligochaeta	NBNSYS00000022328	Oligochaeta
22110000	Pisicollidae	22110000	Pisicollidae	NBNSYS00000160725	Pisicollidae
22120000	Glossiphoniidae	22120000	Glossiphoniidae	NHMSYS00000068846	Glossiphoniidae
22210000	Hirudiniidae	22210000	Hirudiniidae	NBNSYS00000160169	Hirudiniidae
22310000	Erpobdellidae	22310000	Erpobdellidae	NBNSYS00000042263	Erpobdellidae
34310000	Astaciidae	34310000	Astaciidae	NBNSYS00000159453	Astaciidae
36110000	Asellidae	36110000	Asellidae	NBNSYS00000040168	Asellidae
37110000	Corophiidae	37110000	Corophiidae	NBNSYS00000159759	Corophiidae
371Z0000	Gammaridae (incl. Crangonyctidae & Niphargidae)	371Z0000	Gammaridae (including Crangonyctidae and Niphargidae)	<NEW-CODE>100070	Gammaridae (incl. Crangonyctidae & Niphargidae)
40120000	Baetidae	40120000	Baetidae	NHMSYS00000066929	Baetidae
40130000	Heptageniidae	40130000	Heptageniidae	NHMSYS00000066933	Heptageniidae
401Z0000	Siphonuridae (incl. Ameletidae)	401Z0000	Siphonuridae (including Ameletidae)	<NEW-CODE>100110	Siphonuridae (incl. Ameletidae)
40210000	Leptophlebiidae	40210000	Leptophlebiidae	NHMSYS00000066934	Leptophlebiidae
40310000	Potamanthidae	40310000	Potamanthidae	NHMSYS00000066935	Potamanthidae
40320000	Ephemeridae	40320000	Ephemeridae	NHMSYS00000066932	Ephemeridae
40410000	Ephemerellidae	40410000	Ephemerellidae	NHMSYS00000066931	Ephemerellidae
40510000	Caenidae	40510000	Caenidae	NHMSYS00000066930	Caenidae
41110000	Taeniopterygidae	41110000	Taeniopterygidae	NBNSYS00000161088	Taeniopterygidae
41120000	Nemouridae	41120000	Nemouridae	NBNSYS00000042302	Nemouridae
41130000	Leuctridae	41130000	Leuctridae	NBNSYS00000160305	Leuctridae
41140000	Capniidae	41140000	Capniidae	NBNSYS00000159582	Capniidae
41210000	Perlidae	41210000	Perlidae	NBNSYS00000042311	Perlidae
41220000	Perlidae	41220000	Perlidae	NBNSYS00000160662	Perlidae
41230000	Chloroperlidae	41230000	Chloroperlidae	NBNSYS00000159672	Chloroperlidae
42110000	Platycnemididae	42110000	Platycnemididae	NBNSYS00000160735	Platycnemididae
42120000	Coenagrionidae	42120000	Coenagrionidae	NBNSYS00000159733	Coenagrionidae
42140000	Calopterygidae	42140000	Calopterygidae	NBNSYS0100009819	Calopterygidae
42210000	Gomphidae	42210000	Gomphidae	NBNSYS00000189701	Gomphidae
42220000	Corulegasteridae	42220000	Corulegasteridae	NBNSYS00000159754	Corulegasteridae
42230000	Aeshnidae	42230000	Aeshnidae	NBNSYS00000159316	Aeshnidae
42250000	Libellulidae	42250000	Libellulidae	NBNSYS00000160307	Libellulidae
43110000	Mesovellidae	43110000	Mesovellidae	NBNSYS0100013065	Mesovellidae
43210000	Hydrometridae	43210000	Hydrometridae	NBNSYS00000160190	Hydrometridae
43230000	Gerridae	43230000	Gerridae	NBNSYS00000040170	Gerridae
43310000	Nepidae	43310000	Nepidae	NBNSYS00000160516	Nepidae

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Rev. Maitland Code	Rev. Maitland Name	EUrose Code	EUrose Name	NBN Code	NBN Name
43410000	Naucoridae	43410000	Naucoridae	NBNSYS00000160500	Naucoridae
43420000	Aphelocheiridae	43420000	Aphelocheiridae	NBNSYS00000159394	Aphelocheiridae
43510000	Notonectidae	43510000	Notonectidae	NBNSYS0000039904	Notonectidae
43610000	Corixidae	43610000	Corixidae	NBNSYS0000040176	Corixidae
45110000	Haliplidae	45110000	Haliplidae	NBNSYS0000007492	Haliplidae
45150000	Gyrinidae	45150000	Gyrinidae	NBNSYS0000040169	Gyrinidae
451Z0000	Dytiscidae (incl. Noteridae)	451Z0000	Dytiscidae (including Noteridae)	<NEW-CODE>100071	Dytiscidae (incl. Noteridae)
453Z0000	Hydrophilidae (incl. Hydraenidae, Helophoridae, Georissidae & Hydrochidae)	453Z0000	Hydrophilidae (including Hydraenidae, Helophoridae, Georissidae and Hydrochidae)	<NEW-CODE>100072	Hydrophilidae (incl. Hydraenidae, Helophoridae, Georissidae & Hydrochidae)
45510000	Scirtidae	45510000	Scirtidae	NBNSYS00000160955	Scirtidae
456Z0000	Dryopidae	456Z0000	Dryopidae	NBNSYS00000159891	Dryopidae
45630000	Elmidae	45630000	Elmidae	NBNSYS0000007782	Elmidae
46110000	Sialidae	46110000	Sialidae	NBNSYS00000160993	Sialidae
48130000	Hydroptilidae	48130000	Hydroptilidae	NBNSYS0000042282	Hydroptilidae
481Z0000	Rhyacophilidae (incl. Glossosomatidae)	481Z0000	Rhyacophilidae (including Glossosomatidae)	<NEW-CODE>100073	Rhyacophilidae (incl. Glossosomatidae)
48210000	Phlopotamidae	48210000	Phlopotamidae	NBNSYS00000160680	Phlopotamidae
48240000	Polycentropodidae	48240000	Polycentropodidae	NBNSYS0100014707	Polycentropodidae
48250000	Hydropsychidae	48250000	Hydropsychidae	NBNSYS0000042280	Hydropsychidae
482Z0000	Psychomyiidae (incl. Ecnomidae)	482Z0000	Psychomyiidae (including Ecnomidae)	<NEW-CODE>100074	Psychomyiidae (incl. Ecnomidae)
48310000	Phryganeidae	48310000	Phryganeidae	NBNSYS00000160695	Phryganeidae
48320000	Brachycentridae	48320000	Brachycentridae	NBNSYS00000159525	Brachycentridae
48330000	Lepidostomatidae	48330000	Lepidostomatidae	NBNSYS0000042287	Lepidostomatidae
48350000	Goeridae	48350000	Goeridae	NBNSYS0000042269	Goeridae
48360000	Beraeidae	48360000	Beraeidae	NBNSYS00000159496	Beraeidae
48370000	Sericostomatidae	48370000	Sericostomatidae	NBNSYS0000042336	Sericostomatidae
48380000	Odontoceridae	48380000	Odontoceridae	NBNSYS00000160553	Odontoceridae
48390000	Molannidae	48390000	Molannidae	NBNSYS00000160441	Molannidae
483Z0000	Limnephilidae (incl. Apatanilidae)	483Z0000	Limnephilidae (incl. Apatanilidae)	<NEW-CODE>100111	Limnephilidae (incl. Apatanilidae)
48410000	Leptoceridae	48410000	Leptoceridae	NBNSYS0000042288	Leptoceridae
501Z0000	Tipulidae (incl. Limoniidae, Cylindrotomidae & Pedicidae)	501Z0000	Tipulidae (including Limoniidae, Cylindrotomidae and Pedicidae)	<NEW-CODE>100112	Tipulidae (incl. Limoniidae, Cylindrotomidae & Pedicidae)
50360000	Simuliidae	50360000	Simuliidae	NBNSYS0000040183	Simuliidae
50400000	Chironomidae	50400000	Chironomidae	NBNSYS0000027300	Chironomidae

**Appendix VII Taxonomic Level 2 –
The 103 “Revised BMWP” (WHPT) taxa in RIVPACS IV**

Appendix VII Taxonomic Level 2 – The 103 “Revised BMWP” (WHPT) taxa in RIVPACS IV

Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
05110000	Planariidae	05110000	Planariidae	NBNSYS0000042315	Planariidae
05120000	Dugesidae	05120000	Dugesidae	NBNSYS0000159893	Dugesidae
05130000	Dendrocoelidae	05130000	Dendrocoelidae	NBNSYS0000042255	Dendrocoelidae
16110000	Neritidae	16110000	Neritidae	NBNSYS0000160519	Neritidae
16120000	Viviparidae	16120000	Viviparidae	NBNSYS0000161255	Viviparidae
16130000	Valvatidae	16130000	Valvatidae	NBNSYS0000042348	Valvatidae
16140000	Hydrobiidae	16140000	Hydrobiidae	NBNSYS0000042277	Hydrobiidae
16160000	Bithyniidae	16160000	Bithyniidae	NBNSYS0100001902	Bithyniidae
16210000	Physidae	16210000	Physidae	NBNSYS0000160706	Physidae
16220000	Lymnaeidae	16220000	Lymnaeidae	NBNSYS0100003744	Lymnaeidae
16230000	Planorbidae	16230000	Planorbidae (excluding Ancyli group)	NBNSYS0000050415	Planorbidae
16240000	Ancyliidae	16240000	Ancyli group	NBNSYS0000040187	Ancyliidae
16250000	Acroloxidae	16250000	Acroloxidae	NBNSYS0100009207	Acroloxidae
17120000	Unionidae	17120000	Unionidae	NBNSYS0000161229	Unionidae
17130000	Sphaeriidae	17130000	Sphaeriidae	NBNSYS0100015301	Sphaeriidae (Pea mussels)
17140000	Dreissenidae	17140000	Dreissenidae	NBNSYS0100002783	Dreissenidae
20000000	Oligochaeta	20000000	Oligochaeta	NBNSYS0000022328	Oligochaeta
22110000	Pisicollidae	22110000	Pisicollidae	NBNSYS0000160725	Pisicollidae
22120000	Glossiphoniidae	22120000	Glossiphoniidae	NHMSYS0000068846	Glossiphoniidae
22210000	Hirudiniidae	22210000	Hirudiniidae	NBNSYS0000160169	Hirudiniidae
22310000	Erpobdellidae	22310000	Erpobdellidae	NBNSYS0000042263	Erpobdellidae
34310000	Asascidae	34310000	Asascidae	NBNSYS0000159453	Asascidae
36110000	Asellidae	36110000	Asellidae	NBNSYS0000040168	Asellidae
37110000	Corophiidae	37110000	Corophiidae	NBNSYS0000159759	Corophiidae
37130000	Crangonyctidae	37130000	Crangonyctidae	NBNSYS0000159766	Crangonyctidae
37140000	Gammaridae	37140000	Gammaridae	NBNSYS0000160038	Gammaridae
37150000	Niphargidae	37150000	Niphargidae	NBNSYS0000160523	Niphargidae
40120000	Baetidae	40120000	Baetidae	NHMSYS0000066929	Baetidae
40130000	Heptageniidae	40130000	Heptageniidae	NHMSYS0000066933	Heptageniidae
40120000	Siphonuridae (incl. Ameletidae)	40120000	Siphonuridae (including Ameletidae)	<NEW-CODE>100110	Siphonuridae (incl. Ameletidae)
40210000	Leptophlebiidae	40210000	Leptophlebiidae	NHMSYS0000066934	Leptophlebiidae
40310000	Potamanthidae	40310000	Potamanthidae	NHMSYS0000066935	Potamanthidae
40320000	Ephemeridae	40320000	Ephemeridae	NHMSYS0000066932	Ephemeridae
40410000	Ephemereleidae	40410000	Ephemereleidae	NHMSYS0000066931	Ephemereleidae
40510000	Caenidae	40510000	Caenidae	NHMSYS0000066930	Caenidae
41110000	Taeniopterygidae	41110000	Taeniopterygidae	NBNSYS00000161088	Taeniopterygidae
41120000	Nemouridae	41120000	Nemouridae	NBNSYS0000042302	Nemouridae
41130000	Leuctridae	41130000	Leuctridae	NBNSYS0000160305	Leuctridae
41140000	Capniidae	41140000	Capniidae	NBNSYS0000159982	Capniidae
41210000	Perlodidae	41210000	Perlodidae	NBNSYS0000042311	Perlodidae
41220000	Perlidae	41220000	Perlidae	NBNSYS0000160662	Perlidae
41230000	Chloroperlidae	41230000	Chloroperlidae	NBNSYS0000159672	Chloroperlidae
42110000	Platycnemididae	42110000	Platycnemididae	NBNSYS0000160735	Platycnemididae
42120000	Coenagrionidae	42120000	Coenagrionidae	NBNSYS0000159733	Coenagrionidae
42140000	Calopterygidae	42140000	Calopterygidae	NBNSYS0100009819	Calopterygidae
42220000	Cordulegasteridae	42220000	Cordulegasteridae	NBNSYS0000159754	Cordulegasteridae
42230000	Aeshnidae	42230000	Aeshnidae	NBNSYS0000159316	Aeshnidae

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Rev. Maitland Code	Rev. Maitland Name	Eursc.Code	Eursc.Name	NBN Code	NBN Name
42250000	Libellulidae	42250000	Libellulidae	NBNYS00000160307	Libellulidae
43110000	Mesoveliidae	43110000	Mesoveliidae	NBNYS0100013065	Mesoveliidae
43210000	Hydrometridae	43210000	Hydrometridae	NBNYS0000160190	Hydrometridae
43220000	Veliidae	43220000	Veliidae	NBNYS00000940171	Veliidae
43230000	Gerridae	43230000	Gerridae	NBNYS00000040170	Gerridae
43310000	Nepidae	43310000	Nepidae	NBNYS00000160516	Nepidae
43410000	Naucoridae	43410000	Naucoridae	NBNYS00000160500	Naucoridae
43420000	Aphelocheiridae	43420000	Aphelocheiridae	NBNYS0000159394	Aphelocheiridae
43510000	Notonectidae	43510000	Notonectidae	NBNYS0000039904	Notonectidae
43610000	Corixidae	43610000	Corixidae	NBNYS0000040176	Corixidae
45110000	Halipidae	45110000	Halipidae	NBNYS00000907492	Halipidae
45130000	Noteridae	45130000	Noteridae	NBNYS00000160531	Noteridae
45140000	Dytiscidae	45140000	Dytiscidae	NBNYS0000007515	Dytiscidae
45150000	Gyrinidae	45150000	Gyrinidae	NBNYS00000040169	Gyrinidae
45370000	Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)	45370000	Hydrophilidae (including Helophoridae, Georissidae and Hydrochidae)	<NEW-CODE>100114	Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)
45410000	Hydraenidae	45410000	Hydraenidae	NBNYS00000160184	Hydraenidae
45510000	Scirtidae	45510000	Scirtidae	NBNYS00000160955	Scirtidae
45620000	Dryopidae	45620000	Dryopidae	NBNYS00000159891	Dryopidae
45630000	Elmidae	45630000	Elmidae	NBNYS0000007782	Elmidae
46110000	Sialidae	46110000	Sialidae	NBNYS00000160993	Sialidae
47120000	Sisyridae	47120000	Sisyridae	NBNYS00000161008	Sisyridae
48110000	Rhyacophilidae	48110000	Rhyacophilidae	NBNYS0000042331	Rhyacophilidae
48120000	Glossosomatidae	48120000	Glossosomatidae	NBNYS00000160068	Glossosomatidae
48130000	Hydrophilidae	48130000	Hydrophilidae	NBNYS0000042282	Hydrophilidae
48210000	Philopotamidae	48210000	Philopotamidae	NBNYS00000160680	Philopotamidae
48220000	Psychomyiidae	48220000	Psychomyiidae	NBNYS0000042326	Psychomyiidae
48240000	Polycentropodidae	48240000	Polycentropodidae	NBNYS00100014707	Polycentropodidae
48250000	Hydropsychidae	48250000	Hydropsychidae	NBNYS0000042280	Hydropsychidae
48310000	Phryganeidae	48310000	Phryganeidae	NBNYS00000160695	Phryganeidae
48320000	Brachycentridae	48320000	Brachycentridae	NBNYS00000159525	Brachycentridae
48330000	Lepidostomatidae	48330000	Lepidostomatidae	NBNYS0000042287	Lepidostomatidae
48350000	Goeridae	48350000	Goeridae	NBNYS0000042269	Goeridae
48360000	Beraeidae	48360000	Beraeidae	NBNYS00000159496	Beraeidae
48370000	Sericostomatidae	48370000	Sericostomatidae	NBNYS0000042336	Sericostomatidae
48380000	Odontoceridae	48380000	Odontoceridae	NBNYS00000160553	Odontoceridae
48390000	Molannidae	48390000	Molannidae	NBNYS00000160441	Molannidae
483Z0000	Limnephilidae (incl. Apatanidae)	483Z0000	Limnephilidae (incl. Apatanidae)	<NEW-CODE>100111	Limnephilidae (incl. Apatanidae)
48410000	Leptoceridae	48410000	Leptoceridae	NBNYS0000042288	Leptoceridae
501Z0000	Tipulidae (incl. Limoniidae, Cylindrotomidae & Pedicidae)	501Z0000	Tipulidae (including Limoniidae, Cylindrotomidae and Pedicidae)	<NEW-CODE>100112	Tipulidae (incl. Limoniidae, Cylindrotomidae & Pedicidae)
50210000	Psychodidae	50210000	Psychodidae	NBNYS0000042324	Psychodidae
50220000	Psychopteriidae	50220000	Psychopteriidae	NBNYS00000160948	Psychopteriidae
50310000	Dixidae	50310000	Dixidae	NBNYS00000037200	Dixidae
50320000	Chaoboridae	50320000	Chaoboridae	NBNYS0000040186	Chaoboridae
50330000	Culicidae	50330000	Culicidae	NBNYS0000040182	Culicidae
50350000	Ceratopogonidae	50350000	Ceratopogonidae	NBNYS0000037064	Ceratopogonidae
50360000	Simuliidae	50360000	Simuliidae	NBNYS0000040183	Simuliidae
50400000	Chironomidae	50400000	Chironomidae	NBNYS0000027300	Chironomidae
50610000	Stratiomyidae	50610000	Stratiomyidae	NBNYS00000161064	Stratiomyidae
50630000	Tabanidae	50630000	Tabanidae	NBNYS0000050594	Tabanidae
50640000	Athericidae	50640000	Athericidae	NBNYS01000001562	Athericidae

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Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
50710000	Empididae	50710000	Empididae	NBNSYS0000042259	Empididae
50720000	Dolichopodidae	50720000	Dolichopodidae	NBNSYS0000159881	Dolichopodidae
50810000	Syrphidae	50810000	Syrphidae	NBNSYS0000040188	Syrphidae
50820000	Sciomyzidae	50820000	Sciomyzidae	NBNSYS0000160954	Sciomyzidae
50830000	Ephydriidae	50830000	Ephydriidae	NBNSYS0000159951	Ephydriidae
50850000	Muscidae	50850000	Muscidae	NBNSYS0000160470	Muscidae

**Appendix VIII Taxonomic Level 3 –
The 132 “All Families” taxa in RIVPACS IV**

Appendix VIII Taxonomic Level 3 – The 132 “All Families” taxa in RIVPACS IV

Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
02110000	Spongillidae	02110000	Spongillidae	NBNSYS00000161044	Spongillidae
03110000	Hydridae	03110000	Hydridae	NBNSYS00000160186	Hydridae
05110000	Planariidae	05110000	Planariidae	NBNSYS00000042315	Planariidae
05120000	Dugesidae	05120000	Dugesidae	NBNSYS00000159893	Dugesidae
05130000	Dendrocoelidae	05130000	Dendrocoelidae	NBNSYS00000042255	Dendrocoelidae
09120000	Chordodidae	09120000	Chordodidae	NBNSYS00000159680	Chordodidae
10000000	Nematoda	10000000	Nematoda	NBNSYS00000160506	Nematoda
14000000	Ectoprocta	14000000	Ectoprocta	NBNSYS0100011478	Ectoprocta
16110000	Neritidae	16110000	Neritidae	NBNSYS00000160519	Neritidae
16120000	Viviparidae	16120000	Viviparidae	NBNSYS00000161255	Viviparidae
16130000	Valvatidae	16130000	Valvatidae	NBNSYS00000042348	Valvatidae
16140000	Hydrobiidae	16140000	Hydrobiidae	NBNSYS00000042277	Hydrobiidae
16160000	Bithyniidae	16160000	Bithyniidae	NBNSYS0100001902	Bithyniidae
16210000	Physidae	16210000	Physidae	NBNSYS00000160706	Physidae
16220000	Lymnaeidae	16220000	Lymnaeidae	NBNSYS0100003744	Lymnaeidae
16230000	Planorbidae	16230000	Planorbidae (excluding Ancylus group)	NBNSYS00000050415	Planorbidae
16240000	Ancylidae	16240000	Ancylus group	NBNSYS00000040187	Ancylidae
16250000	Acroloxidae	16250000	Acroloxidae	NBNSYS0100009207	Acroloxidae
17110000	Margaritiferidae	17110000	Margaritiferidae	NBNSYS00000160380	Margaritiferidae
17120000	Unionidae	17120000	Unionidae	NBNSYS00000161229	Unionidae
17130000	Sphaeriidae	17130000	Sphaeriidae	NBNSYS0100015301	Sphaeriidae (Pea mussels)
17140000	Dreissenidae	17140000	Dreissenidae	NBNSYS0100002783	Dreissenidae
19110000	Aeolosomatidae	19110000	Aeolosomatidae	NBNSYS0100009282	Aeolosomatidae
20110000	Lumbriculidae	20110000	Lumbriculidae	NBNSYS0000037208	Lumbriculidae
20210000	Haploaxidae	20210000	Haploaxidae	NBNSYS0100012393	Haploaxidae
20330000	Naididae	20330000	Naididae	NBNSYS00000042298	Naididae
20340000	Tubificidae	20340000	Tubificidae	NBNSYS00000042565	Tubificidae
203Z0000	Enchytraeidae (incl. Propappidae)	203Z0000	Enchytraeidae (including Propappidae)	<NEW-CODE> 100075	Enchytraeidae (incl. Propappidae)
204Z0000	Lumbricidae (incl. Glossoscolecidae)	204Z0000	Lumbricidae (incl. Glossoscolecidae)	<NEW-CODE> 100081	Lumbricidae (incl. Glossoscolecidae)
22110000	Pisicollidae	22110000	Pisicollidae	NBNSYS00000160725	Pisicollidae
22210000	Glossiphoniidae	22120000	Glossiphoniidae	NHMSYS00000068846	Glossiphoniidae
22210000	Hirudiniidae	22210000	Hirudiniidae	NBNSYS00000160169	Hirudiniidae
22310000	Eropobdellidae	22310000	Eropobdellidae	NBNSYS00000042263	Eropobdellidae
24000000	Hydracarina	24000000	Hydracarina	NBNSYS0100012468	Hydracarina
34310000	Astacidae	34310000	Astacidae	NBNSYS00000159453	Astacidae
36110000	Asellidae	36110000	Asellidae	NBNSYS00000040168	Asellidae
37110000	Corophiidae	37110000	Corophiidae	NBNSYS00000159759	Corophiidae
37130000	Craugonycitidae	37130000	Craugonycitidae	NBNSYS00000159766	Craugonycitidae
37140000	Gammaridae	37140000	Gammaridae	NBNSYS00000160038	Gammaridae
37150000	Niphargidae	37150000	Niphargidae	NBNSYS00000160523	Niphargidae
40110000	Siphonuridae	40110000	Siphonuridae	NHMSYS00000066936	Siphonuridae
40120000	Baetidae	40120000	Baetidae	NHMSYS00000066929	Baetidae
40130000	Heptageniidae	40130000	Heptageniidae	NHMSYS00000066933	Heptageniidae
40140000	Ameletidae	40140000	Ameletidae	<NEW-CODE> 100101	Ameletidae
40210000	Leptophlebiidae	40210000	Leptophlebiidae	NHMSYS00000066934	Leptophlebiidae
40310000	Potamanthidae	40310000	Potamanthidae	NHMSYS00000066935	Potamanthidae
40320000	Ephemeriidae	40320000	Ephemeriidae	NHMSYS00000066932	Ephemeriidae

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Rev. Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
40410000	Ephemeroptera	40410000	Ephemeroptera	NHMSYS00000166931	Ephemeroptera
40510000	Caenidae	40510000	Caenidae	NHMSYS00000166930	Caenidae
41110000	Taeniopterygidae	41110000	Taeniopterygidae	NBMSYS00000161088	Taeniopterygidae
41120000	Nemouridae	41120000	Nemouridae	NBMSYS0000042302	Nemouridae
41130000	Leuctridae	41130000	Leuctridae	NBMSYS00000160305	Leuctridae
41140000	Capniidae	41140000	Capniidae	NBMSYS00000159582	Capniidae
41210000	Periodidae	41210000	Periodidae	NBMSYS0000042311	Periodidae
41220000	Perlidae	41220000	Perlidae	NBMSYS00000160662	Perlidae
41230000	Chloroperlidae	41230000	Chloroperlidae	NBMSYS00000159672	Chloroperlidae
42110000	Platycentridae	42110000	Platycentridae	NBMSYS00000160735	Platycentridae
42120000	Coenagrionidae	42120000	Coenagrionidae	NBMSYS00000159733	Coenagrionidae
42140000	Calopterygidae	42140000	Calopterygidae	NBMSYS0100009819	Calopterygidae
42210000	Gomphidae	42210000	Gomphidae	NBMSYS00000189701	Gomphidae
42220000	Cordulegasteridae	42220000	Cordulegasteridae	NBMSYS00000159754	Cordulegasteridae
42230000	Aeshnidae	42230000	Aeshnidae	NBMSYS00000159316	Aeshnidae
43110000	Libellulidae	43110000	Libellulidae	NBMSYS00000160307	Libellulidae
43210000	Mesoveliidae	43210000	Mesoveliidae	NBMSYS00000160190	Mesoveliidae
43220000	Veliidae	43220000	Veliidae	NBMSYS0000040171	Veliidae
43230000	Gerridae	43230000	Gerridae	NBMSYS0000040170	Gerridae
43310000	Nepidae	43310000	Nepidae	NBMSYS00000160516	Nepidae
43410000	Naucoridae	43410000	Naucoridae	NBMSYS00000160500	Naucoridae
43420000	Aphelocheiridae	43420000	Aphelocheiridae	NBMSYS00000159394	Aphelocheiridae
43510000	Notonectidae	43510000	Notonectidae	NBMSYS0000039904	Notonectidae
43610000	Corixidae	43610000	Corixidae	NBMSYS0000040176	Corixidae
45110000	Halipidae	45110000	Halipidae	NBMSYS0000007492	Halipidae
45130000	Noteridae	45130000	Noteridae	NBMSYS00000160531	Noteridae
45140000	Dytiscidae	45140000	Dytiscidae	NBMSYS0000007515	Dytiscidae
45150000	Gyrinidae	45150000	Gyrinidae	NBMSYS0000040169	Gyrinidae
45330000	Helophoridae	45330000	Helophoridae	<NEW-CODE>100103	Helophoridae
45350000	Hydrophilidae	45350000	Hydrophilidae	NBMSYS0000037258	Hydrophilidae
45360000	Hydrochidae	45360000	Hydrochidae	<NEW-CODE>100105	Hydrochidae
45410000	Hydraenidae	45410000	Hydraenidae	NBMSYS00000160184	Hydraenidae
45510000	Scirtidae	45510000	Scirtidae	NBMSYS00000160955	Scirtidae
45620000	Dryopidae	45620000	Dryopidae	NBMSYS00000159891	Dryopidae
45630000	Elmidae	45630000	Elmidae	NBMSYS0000007782	Elmidae
46110000	Sialidae	46110000	Sialidae	NBMSYS00000160993	Sialidae
47110000	Osmylidae	47110000	Osmylidae	NBMSYS00000160595	Osmylidae
47120000	Sisyridae	47120000	Sisyridae	NBMSYS00000161008	Sisyridae
48110000	Rhyacophilidae	48110000	Rhyacophilidae	NBMSYS0000042331	Rhyacophilidae
48120000	Glossosomatidae	48120000	Glossosomatidae	NBMSYS00000160068	Glossosomatidae
48130000	Hydroptilidae	48130000	Hydroptilidae	NBMSYS0000042282	Hydroptilidae
48210000	Philoptamidae	48210000	Philoptamidae	NBMSYS00000150680	Philoptamidae
48220000	Psychomyiidae	48220000	Psychomyiidae	NBMSYS0000042326	Psychomyiidae
48230000	Ecnomidae	48230000	Ecnomidae	NBMSYS00000159907	Ecnomidae
48240000	Polycentropodidae	48240000	Polycentropodidae	NBMSYS0100014707	Polycentropodidae
48250000	Hydropsychidae	48250000	Hydropsychidae	NBMSYS0000042280	Hydropsychidae
48310000	Phygadeuonidae	48310000	Phygadeuonidae	NBMSYS00000160695	Phygadeuonidae
48320000	Brachycentridae	48320000	Brachycentridae	NBMSYS00000159525	Brachycentridae
48330000	Lepidostomatidae	48330000	Lepidostomatidae	NBMSYS0000042287	Lepidostomatidae

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Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
483-40000	Limnephilidae	48340000	Limnephilidae	NBNSYS00000042292	Limnephilidae
48350000	Goeridae	48350000	Goeridae	NBNSYS0000042269	Goeridae
48360000	Beraeidae	48360000	Beraeidae	NBNSYS0000159496	Beraeidae
48370000	Sericostomatidae	48370000	Sericostomatidae	NBNSYS0000042336	Sericostomatidae
48380000	Odontoceridae	48380000	Odontoceridae	NBNSYS0000160553	Odontoceridae
48390000	Molaniidae	48390000	Molaniidae	NBNSYS0000160441	Molaniidae
483B0000	Apantaniidae	483B0000	Apantaniidae	<NEW-CODE> 100106	Apantaniidae
48410000	Leptoceridae	483A0000	Leptoceridae	NBNSYS0000042288	Leptoceridae
49110000	Pyralidae	49110000	Pyralidae	NBNSYS00000160856	Pyralidae
50110000	Tipulidae	50110000	Tipulidae	NBNSYS0000037145	Tipulidae
50130000	Limoniidae	50130000	Limoniidae	NBNSYS0100003656	Limoniidae
50140000	Pediciidae	50140000	Pediciidae	NHMSYS00000524741	Pediciidae
50210000	Psychodidae	50210000	Psychodidae	NBNSYS0000042324	Psychodidae
50220000	Ptychopteridae	50220000	Ptychopteridae	NBNSYS0000160848	Ptychopteridae
50310000	Dixidae	50310000	Dixidae	NBNSYS0000037200	Dixidae
50320000	Chaoboridae	50320000	Chaoboridae	NBNSYS0000040186	Chaoboridae
50330000	Culicidae	50330000	Culicidae	NBNSYS0000040182	Culicidae
50340000	Thaumaleidae	50340000	Thaumaleidae	NBNSYS0000161135	Thaumaleidae
50350000	Ceratopogonidae	50350000	Ceratopogonidae	NBNSYS0000037064	Ceratopogonidae
50360000	Simuliidae	50360000	Simuliidae	NBNSYS0000040183	Simuliidae
50420000	Tanypodinae	50420000	Tanypodinae	NBNSYS0100016092	Tanypodinae
50440000	Diametinae	50440000	Diametinae	NBNSYS0100011289	Diametinae
50450000	Prodiamesinae	50450000	Prodiamesinae	NBNSYS0100014790	Prodiamesinae
50460000	Orthocladiinae	50460000	Orthocladiinae	NBNSYS0100014066	Orthocladiinae
50470000	Chironomini	50470000	Chironomini	NBNSYS0100010010	Chironomini
50490000	Tanytarsini	50490000	Tanytarsini	NBNSYS0100016093	Tanytarsini
50610000	Stratiomyidae	50610000	Stratiomyidae	NBNSYS0000161064	Stratiomyidae
50630000	Tabanidae	50630000	Tabanidae	NBNSYS0000050594	Tabanidae
50640000	Athericidae	50640000	Athericidae	NBNSYS0100001562	Athericidae
50710000	Empididae	50710000	Empididae	NBNSYS0000042259	Empididae
50720000	Dolichopodidae	50720000	Dolichopodidae	NBNSYS0000159881	Dolichopodidae
50810000	Syrphidae	50810000	Syrphidae	NBNSYS0000040188	Syrphidae
50820000	Sciomyzidae	50820000	Sciomyzidae	NBNSYS0000160954	Sciomyzidae
50830000	Ephydriidae	50830000	Ephydriidae	NBNSYS0000159951	Ephydriidae
50850000	Muscidae	50850000	Muscidae	NBNSYS0000160470	Muscidae

**Appendix IX Taxonomic Level 4 –
The 656 “RIVPACS Species” level taxa in RIVPACS IV
(including component members of species groups)**

**Appendix IX Taxonomic Level 4 – The 656 “RIVPACS Species” level taxa in RIVPACS IV
(including component members of species groups)**

Rev. Mainland Code	Rev. Mainland Name	Furze Code	Furze Name	NBN Code	NBN Name
02110000	Spongillidae	02110000	Spongillidae	NBNYS00000161044	Spongillidae
03110000	Hydridae	03110000	Hydridae	NBNYS00000160186	Hydridae
05110101	Planaria torva (Muller)	05110101	Planaria torva (Müller, 1774)	NBNYS00000013180	Planaria torva
05110201	Polycelis felina (Dayell)	05110201	Polycelis felina (Dayell, 1814)	<NEW-CODE>100001	Polycelis felina
05110202	Polycelis nigra group	05110202	Polycelis nigra group	<NEW-CODE>100001	Polycelis nigra group
05110301	Phagocata vitta (Duges)	05110301	Phagocata vitta (Duges, 1830)	NBNYS00000013186	Phagocata vitta
05110401	Crenobia alpina (Dana)	05110401	Crenobia alpina (Dana, 1766)	NBNYS00000013188	Crenobia alpina
05120103	Dugesia tigrina (Girard)	05120103	Dugesia tigrina (Girard, 1850)	<NEW-CODE>100002	Dugesia tigrina
05120102	Dugesia polychroa group	05120102	Dugesia polychroa group	<NEW-CODE>100002	Dugesia polychroa group
05130101	Bdellocephala punctata (Pallas)	05130101	Bdellocephala punctata (Pallas, 1774)	NBNYS00000013191	Bdellocephala punctata
05130201	Dendrocoelum lacteum (Muller)	05130201	Dendrocoelum lacteum (O.F. Müller, 1774)	NBNYS00000013190	Dendrocoelum lacteum
09120000	Chordodidae	09120000	Chordodidae	NBNYS00000159680	Chordodidae
10000000	Nematoda	10000000	Nematoda	NBNYS00000160506	Nematoda
14000000	Ectoprocta	14000000	Ectoprocta	NBNYS0100011478	Ectoprocta
16110101	Theodoxus fluviatilis (L.)	16110101	Theodoxus fluviatilis (Linnaeus, 1758)	NBNYS00000006601	Theodoxus fluviatilis
16120102	Viviparus viviparus (L.)	16120102	Viviparus viviparus (Linnaeus, 1758)	NBNYS00000006602	Viviparus viviparus
16130101	Valvata cristata Muller	16130111	Valvata (Valvata) cristata O.F. Müller, 1774	NBNYS00000006604	Valvata cristata
16130102	Valvata macrostoma Morch	16130121	Valvata (Tropidina) macrostoma Morch, 1864	NBNYS00000006605	Valvata macrostoma
16130103	Valvata piscinalis (Muller)	16130131	Valvata (Cincima) piscinalis (O.F. Müller, 1774)	NBNYS00000006606	Valvata piscinalis
16140301	Potamopyrgus jenkinsi (Smith)	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)	NBNYS00000006613	Potamopyrgus jenkinsi
16160101	Bithynia leachii (Sheppard)	16160121	Bithynia (Codiella) leachii (Sheppard, 1823)	NBNYS00000006616	Bithynia leachii
16160102	Bithynia tentaculata (L.)	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	NBNYS00000006615	Bithynia tentaculata
16210102	Aplexa hypnorum (L.)	16210101	Aplexa hypnorum (Linnaeus, 1758)	NBNYS00000006624	Aplexa hypnorum
16210202	Physa fontinalis (L.)	16210202	Physa fontinalis (Linnaeus, 1758)	NBNYS00000006625	Physa fontinalis
16210202	Physa acuta group	16210321	Physella (Costantella) acuta (Draparnaud, 1805)	NBNYS00000006626	Physa acuta
16220101	Lymnaea auricularia (L.)	16220601	Radix auricularia (Linnaeus, 1758)	NBNYS00000006634	Lymnaea auricularia
16220103	Lymnaea palustris (Muller)	16220401	Stagnicola palustris (O.F. Müller, 1774)	NBNYS00000006632	Lymnaea palustris
16220104	Lymnaea peregra (Muller)	16220602	Radix balthica (Linnaeus, 1758)	NBNYS00000006635	Lymnaea peregra
16220105	Lymnaea stagnalis (L.)	16220105	Lymnaea stagnalis (Linnaeus, 1758)	NBNYS00000006633	Lymnaea stagnalis
16220106	Lymnaea truncatula (Muller)	16220301	Galba truncatula (O.F. Müller, 1774)	NBNYS00000006630	Lymnaea truncatula
16230101	Planorbis carinatus Muller	16230111	Planorbis (Planorbis) carinatus (O.F. Müller, 1774)	NBNYS00000006638	Planorbis carinatus
16230102	Planorbis planorbis (L.)	16230112	Planorbis (Planorbis) planorbis (Linnaeus, 1758)	NBNYS00000006637	Planorbis planorbis
16230201	Anisus leucostoma (Millet)	16230211	Anisus (Anisus) leucostoma (Millet, 1813)	NBNYS00000006639	Anisus leucostoma
16230202	Anisus vortex (L.)	16230221	Anisus (Disculifer) vortex (Linnaeus, 1758)	NBNYS00000006640	Anisus vortex
16230301	Bathymphalus contortus (L.)	16230301	Bathymphalus contortus (Linnaeus, 1758)	NBNYS00000006642	Bathymphalus contortus
16230402	Gyraulus albus (Muller)	16230412	Gyraulus (Gyraulus) albus (O.F. Müller, 1774)	NBNYS00000006645	Gyraulus albus
16230403	Gyraulus laevis (Alder)	16230421	Gyraulus (Torquils) laevis (Alder, 1838)	NBNYS00000006643	Gyraulus laevis
16230501	Armiger crista (L.)	16230431	Gyraulus (Armiger) crista (Linnaeus, 1758)	NBNYS00000006646	Armiger crista
16230601	Hippeutis complanatus (L.)	16230601	Hippeutis complanatus (Linnaeus, 1758)	NBNYS00000006647	Hippeutis complanatus
16230701	Segmentina nitida Muller	16230701	Segmentina nitida (O.F. Müller, 1774)	NBNYS00000006648	Segmentina nitida
16230801	Planorbium cornue (L.)	16230801	Planorbium cornue (Linnaeus, 1758)	NBNYS00000006649	Planorbium cornue
16240101	Ancylus fluviatilis Muller	16231101	Ancylus fluviatilis O.F. Müller, 1774	NBNYS00000006651	Ancylus fluviatilis
16250101	Acroloxus lacustris (L.)	17110101	Acroloxus lacustris (Linnaeus, 1758)	NBNYS00000006652	Acroloxus lacustris
17110101	Margaritifera margaritifera (L.)	17110101	Margaritifera margaritifera (Linnaeus, 1758)	NBNYS00000006679	Margaritifera margaritifera
17120100	Unio sp.	17120100	Unio sp.	NBNYS00000138782	Unio

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Rev. Maitland Code	Rev. Maitland Name	Eursc. Code	Eursc. Name	NBN Code	NBN Name
17120Z00	Anodonta group	17120Z00	Anodonta group	<NEW-CODE>100004	Anodonta group
17130101	Sphaerium comeum (L.)	17130101	Sphaerium comeum (Linnaeus, 1758)	NBNSYS0000006786	Sphaerium comeum
17130102	Sphaerium lacustre (Müller)	17130301	Musciculum lacustre (Müller, 1774)	NBNSYS0000006790	Sphaerium lacustre
17130103	Sphaerium rivicola (Lamarck)	17130103	Sphaerium rivicola (Lamarck, 1818)	NBNSYS0000006787	Sphaerium rivicola
17130105	Sphaerium transversum (Say)	17130302	Musciculum transversum (Say, 1829)	NBNSYS0000006789	Sphaerium transversum
17130201	Pisidium amnicum (Müller)	17130201	Pisidium amnicum (Müller, 1774)	NBNSYS0000006793	Pisidium amnicum
17130202	Pisidium casertanum (Poli)	17130202	Pisidium casertanum (Poli, 1791)	NBNSYS0000006794	Pisidium casertanum
17130204	Pisidium henslowianum (Sheppard)	17130204	Pisidium henslowianum (Sheppard, 1823)	NBNSYS0000006802	Pisidium henslowianum
17130205	Pisidium hibernicum (Westerlund)	17130205	Pisidium hibernicum (Westerlund, 1894)	NBNSYS0000006804	Pisidium hibernicum
17130206	Pisidium liljeborgii (Clessin)	17130206	Pisidium liljeborgii Clessin, 1886	NBNSYS0000006803	Pisidium liljeborgii
17130207	Pisidium milium (Held)	17130207	Pisidium milium Held, 1836	NBNSYS0000006799	Pisidium milium
17130208	Pisidium moitessierianum (Paladilhe)	17130208	Pisidium moitessierianum Paladilhe, 1866	NBNSYS0000006805	Pisidium moitessierianum
17130209	Pisidium nitidum (Jenyns)	17130209	Pisidium nitidum Jenyns, 1832	NBNSYS0000006805	Pisidium nitidum
17130211	Pisidium obtusale (Lamarck)	17130211	Pisidium obtusale (Lamarck, 1818)	NBNSYS0000006797	Pisidium obtusale
17130212	Pisidium personatum (Malm)	17130212	Pisidium personatum Malm, 1855	NBNSYS0000006796	Pisidium personatum
17130214	Pisidium pulchellum (Jenyns)	17130214	Pisidium pulchellum Jenyns, 1832	NBNSYS0000006806	Pisidium pulchellum
17130215	Pisidium subtruncatum (Malm)	17130215	Pisidium subtruncatum Malm, 1855	NBNSYS0000006800	Pisidium subtruncatum
17130216	Pisidium supinum (Schmidt)	17130216	Pisidium supinum Schmidt, 1851	NBNSYS0000006801	Pisidium supinum
17130217	Pisidium tenuilineatum (Stefox)	17130217	Pisidium tenuilineatum Stefox, 1918	NBNSYS0000006792	Pisidium tenuilineatum
17140101	Dreissena polymorpha (Pallas)	17140101	Dreissena polymorpha (Pallas, 1771)	NBNSYS0000006809	Dreissena polymorpha
19110100	Aeolosoma sp.	19110100	Aeolosoma sp.	NBNSYS0100009274	Aeolosoma
20110301	Styodrilus brachystylus (Hirabe)	20110301	Styodrilus brachystylus Hirabe, 1928	NBNSYS0100015937	Styodrilus brachystylus
20110302	Styodrilus heringianus (Claparède)	20110302	Styodrilus heringianus Claparède, 1862	NBNSYS0000037072	Styodrilus heringianus
20110303	Styodrilus lemari (Grube)	20110601	Bythonomus lemari Grube, 1880	NBNSYS0100015938	Styodrilus lemari
20110401	Eclipterilus lacustris (Verrill)	20110401	Eclipterilus lacustris (Verrill, 1871)	NBNSYS0100011475	Eclipterilus lacustris
20110Z00	Lumbriculus group	20110Z00	Lumbriculus group	<NEW-CODE>100005	Lumbriculus group
20210101	Haplotaixis gordioides (Hartmann)	20210101	Haplotaixis gordioides (Hartmann, 1821)	NBNSYS0100012396	Haplotaixis gordioides
20330100	Chaetogaster sp.	20330100	Chaetogaster sp.	NBNSYS00000180312	Chaetogaster
20330401	Specaria josinae (Vejdovsky)	20330401	Specaria josinae (Vejdovsky, 1883)	NBNSYS0100015273	Specaria josinae
20330501	Uncinails uncinata (Orsted)	20330501	Uncinails uncinata (Orsted, 1842)	NBNSYS00000188175	Uncinails uncinata
20330601	Ophidonaix serpentina (Müller)	20330601	Ophidonaix serpentina (Müller, 1774)	NBNSYS0000022329	Ophidonaix serpentina
20330701	Nais alpina Sperber	20330701	Nais alpina Sperber, 1948	NBNSYS0100013282	Nais alpina
20330703	Nais bretscheri Michaelson	20330703	Nais bretscheri Michaelson, 1899	NBNSYS0100013284	Nais bretscheri
20330705	Nais elinguis Müller	20330705	Nais elinguis Müller, 1773	NBNSYS00000188457	Nais elinguis
20330706	Nais pardalis Piquet	20330706	Nais pardalis Piquet, 1906	NBNSYS0100013285	Nais pardalis
2033070Y	Nais communis group	2033070Y	Nais communis group	<NEW-CODE>100006	Nais communis group
2033070Z	Nais simplex group	2033070Z	Nais simplex group	<NEW-CODE>100007	Nais simplex group
20330801	Slavina appendiculata (d'Udekem)	20330801	Slavina appendiculata (d'Udekem, 1855)	NBNSYS0000022331	Slavina appendiculata
20330901	Vejdovskya comata (Vejdovsky)	20330901	Vejdovskya comata (Vejdovsky, 1883)	NBNSYS0100016460	Vejdovskya comata
20330902	Vejdovskya intermedia (Bretscher)	20330902	Vejdovskya intermedia (Bretscher, 1896)	NBNSYS0100016461	Vejdovskya intermedia
20331101	Ripistes parasita (Schmidt)	20331101	Ripistes parasita (Schmidt, 1847)	NBNSYS0100015033	Ripistes parasita
20331201	Styaria lacustris (L.)	20331201	Styaria lacustris (Linnaeus, 1767)	NBNSYS0000022333	Styaria lacustris
20331301	Piquetella bianci (Piquet)	20331301	Piquetella bianci (Piquet, 1906)	NBNSYS0100014353	Piquetella bianci
20331411	Dero digitata (Müller)	20331411	Dero (Dero) digitata (Müller, 1774)	NBNSYS0100011250	Dero digitata
20331501	Pristina aquiseta Bourne	20331511	Pristina (Pristina) aquiseta Bourne, 1891	NBNSYS0100014761	Pristina aquiseta
20331504	Pristina longiseta Ehrenberg	20331512	Pristina (Pristina) longiseta Ehrenberg, 1828	NBNSYS0100014764	Pristina longiseta
2033150Z	Pristina idrensis group	20331520	Pristina (Pristina) sp.	<NEW-CODE>100076	Pristina (Pristina) sp.
20340102	Tubifex ignotus (Stoik)	20340102	Tubifex ignotus (Stoik, 1886)	NBNSYS0000022334	Tubifex ignotus
20340106	Tubifex tubifex (Müller)	20340106	Tubifex tubifex (Müller, 1774)	NBNSYS0000037053	Tubifex tubifex
20340201	Limnodrilus cervix Brinkhurst	20340201	Limnodrilus cervix Brinkhurst, 1963	NBNSYS0100012809	Limnodrilus cervix

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Rev. Mainband Code	Rev. Mainband Name	Furse Code	Furse Name	NBN Code	NBN Name
20340202	Limnodrilus claparedianus Ratzel	20340202	Limnodrilus claparedianus Ratzel, 1869	NBNYS0100012810	Limnodrilus claparedianus
20340203	Limnodrilus hoffmeisteri Claparede	20340203	Limnodrilus hoffmeisteri Claparede, 1862	NBNYS00000188460	Limnodrilus hoffmeisteri
20340204	Limnodrilus profundicola (Verrill)	20340204	Limnodrilus profundicola (Verrill, 1871)	NBNYS00000037175	Limnodrilus profundicola
20340205	Limnodrilus udekemianus Claparede	20340205	Limnodrilus udekemianus Claparede, 1862	NBNYS00000051118	Limnodrilus udekemianus
20340301	Psammoryctides albicola (Michaelson)	20340301	Psammoryctides albicola (Michaelson, 1901)	NBNYS0100014824	Psammoryctides albicola
20340302	Psammoryctides barbatus (Grube)	20340302	Psammoryctides barbatus (Grube, 1891)	NBNYS00000037079	Psammoryctides barbatus
20340401	Polamothrix bavaricus (Oschmann)	20340401	Polamothrix bavaricus (Oschmann, 1913)	NBNYS0100014744	Polamothrix bavaricus
20340402	Polamothrix hammoniensis (Michaelson)	20340402	Polamothrix hammoniensis (Michaelson, 1901)	NBNYS0100014745	Polamothrix hammoniensis
20340403	Polamothrix heuschneri Bretscher	20340403	Polamothrix heuschneri (Bretscher, 1900)	NBNYS0100014746	Polamothrix heuschneri
20340404	Polamothrix moldaviensis (Vejdovsky & Mrazek)	20340404	Polamothrix moldaviensis (Vejdovsky & Mrazek, 1903)	NBNYS00000037220	Polamothrix moldaviensis
20340405	Polamothrix vejvodskyi (Hirabe)	20340405	Polamothrix vejvodskyi (Hirabe, 1941)	NBNYS0100014747	Polamothrix vejvodskyi
20340501	Ilyodrilus templetoni (Southern)	20340501	Ilyodrilus templetoni (Southern, 1908)	NBNYS0100012579	Ilyodrilus templetoni
20340601	Spirosperma ferox (Eisen)	20340601	Spirosperma ferox Eisen, 1879	NBNYS0100015372	Spirosperma ferox
20340602	Spirosperma velutinus (Grube)	20341701	Emboloccephalus velutinus (Grube, 1879)	NBNYS0100015373	Spirosperma velutinus
20340801	Haber simsi (Brinkhurst)	20340801	Haber speciosus (Hirabe, 1931)	NBNYS0100012313	Haber simsi
20340901	Aulodrilus limnobius Bretscher	20340901	Aulodrilus limnobius Bretscher, 1899	NBNYS0100009627	Aulodrilus limnobius
20340903	Aulodrilus pluriseta (Piguet)	20340903	Aulodrilus pluriseta (Piguet, 1906)	NBNYS00000037336	Aulodrilus pluriseta
20341101	Rhyacodrilus coccineus (Vejdovsky)	20341101	Rhyacodrilus coccineus (Vejdovsky, 1876)	NBNYS00000042329	Rhyacodrilus coccineus
20341102	Rhyacodrilus falcoformis Bretscher	20341102	Rhyacodrilus falcoformis Bretscher, 1901	NBNYS0100015018	Rhyacodrilus falcoformis
20341301	Branchiura sowerbyi Beddard	20341301	Branchiura sowerbyi Beddard, 1892	NBNYS0100009733	Branchiura sowerbyi
20341601	Thalassodrilus prostabus (Knöllner)	20341601	Thalassodrilus prostabus (Knöllner, 1935)	<NEW-CODE>100008	Thalassodrilus prostabus
20320000	Enchytraeidae (incl. Propappidae)	20320000	Enchytraeidae (including Propappidae)	<NEW-CODE>100075	Enchytraeidae (incl. Propappidae)
20420000	Lumbricidae (incl. Glossoscolecidae)	20420000	Lumbricidae (incl. Glossoscolecidae)	<NEW-CODE>100081	Lumbricidae (incl. Glossoscolecidae)
22110101	Piscicola geometra (L.)	22110101	Piscicola geometra (Linnaeus, 1761)	NHMSY00000068867	Piscicola geometra
22120201	Theromyzon tessulatum (Müller)	22120201	Theromyzon tessulatum (O. F. Müller, 1774)	NHMSY00000068877	Theromyzon tessulatum
22120301	Hemiclepsis marginata (Müller)	22120301	Hemiclepsis marginata (O. F. Müller, 1774)	NHMSY00000068875	Hemiclepsis marginata
22120401	Glossiphonia complanata (L.)	22120401	Glossiphonia complanata (Linnaeus, 1758)	NBNYS00000013205	Glossiphonia complanata
22120402	Glossiphonia heteroclita (L.)	22120402	Alboglossiphonia heteroclita (Linnaeus, 1761)	NBNYS00000013204	Glossiphonia heteroclita
22120501	Batrachobdella paludosa (Carena)	22120404	Glossiphonia paludosa (Carena, 1824)	NBNYS00000013206	Batrachobdella paludosa
22120601	Boreobdella verrucata (Müller)	22120403	Glossiphonia verrucata (Fr. Müller, 1844)	NBNYS00000013207	Boreobdella verrucata
22210101	Haemopsis sanguisuga (L.)	22210701	Helobdella stagnalis (Linnaeus, 1758)	NBNYS00000013208	Helobdella stagnalis
22310101	Eprobodella octoculata (L.)	22310101	Haemopsis sanguisuga (Linnaeus, 1758)	NBNYS00000022371	Haemopsis sanguisuga
22310102	Eprobodella testacea (Savigny)	22310101	Eprobodella octoculata (Linnaeus, 1758)	NBNYS00000022374	Eprobodella octoculata
22310201	Dina lineata (Müller)	22310102	Eprobodella testacea (Savigny, 1812)	NHMSY00000068879	Eprobodella testacea
22310301	Trocheta bykowskii Geotroyc	22310201	Dina lineata (O. F. Müller, 1774)	NHMSY00000068878	Dina lineata
22310302	Trocheta subviridis Dutrochet	22310301	Trocheta bykowskii Geotroyc, 1913	NBNYS00000022377	Trocheta bykowskii
24000000	Hydracarina	22310302	Trocheta subviridis Dutrochet, 1817	NBNYS00000022376	Trocheta subviridis
34310000	Astacidae	24000000	Hydracarina	NBNYS0100012468	Hydracarina
36110101	Asellus aquaticus (L.)	34310000	Astacidae	NBNYS00000159453	Astacidae
36110104	Asellus meridianus Racovitzza	36110101	Asellus aquaticus (Linnaeus, 1758)	NBNYS00000008589	Asellus aquaticus
37110100	Corophium sp.	36110202	Proasellus meridianus (Racovitzza, 1919)	NBNYS00000008591	Asellus meridianus
37130101	Crangonyx pseudogracilis Bousfield	37110100	Corophium sp.	NBNYS00000188483	Corophium
37140202	Gammarus duebeni Lilljeborg	37130101	Crangonyx pseudogracilis Bousfield, 1958	NBNYS00000013808	Crangonyx pseudogracilis
37140203	Gammarus lacustris Sars	37140202	Gammarus duebeni Lilljeborg, 1852	NBNYS00000013798	Gammarus duebeni
37140206	Gammarus pulex (L.)	37140206	Gammarus lacustris Sars, 1863	NBNYS00000013799	Gammarus lacustris
37140208	Gammarus tigrinus Sexton	37140208	Gammarus tigrinus Sexton, 1939	NBNYS00000013800	Gammarus pulex
37140209	Gammarus zaddachi Sexton	37140209	Gammarus zaddachi Sexton, 1912	NBNYS00000033149	Gammarus tigrinus
37150201	Niphargus aquilex Schiodte	37150201	Niphargus aquilex Schiodte, 1855	NBNYS00000013801	Gammarus zaddachi
40110103	Siphonurus lacustris Eaton	40110103	Siphonurus lacustris (Eaton, 1870)	NBNYS00000013811	Niphargus aquilex
				NBNYS00000010862	Siphonurus lacustris

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Rev. Code	Maitland Code	Rev. Maitland Name	Eurse Code	Eurse Name	NBN Code	NBN Name
40110201		Ameletus inopinatus Eaton	40140101	Ameletus inopinatus Eaton, 1887	NBNYS00000010859	Ameletus inopinatus
40120101		Baetis atrebatinus Eaton	40120601	Baetis atrebatinus (Eaton, 1870)	NBNYS01000003541	Baetis atrebatinus
40120102		Baetis buceratus Eaton	40120102	Baetis buceratus Eaton, 1870	NBNYS00000010864	Baetis buceratus
40120103		Baetis digitatus Bengtsson	40120701	Nigrobaetis digitatus (Bengtsson, 1912)	NBNYS01000004152	Nigrobaetis digitatus
40120105		Baetis muticus (L.)	40120501	Alarinites muticus (Linnaeus, 1758)	NBNYS01000001341	Alarinites muticus
40120106		Baetis niger (L.)	40120702	Nigrobaetis niger (Linnaeus, 1761)	NBNYS01000004153	Nigrobaetis niger
40120107		Baetis rhodani (Pictet)	40120107	Baetis rhodani (Pictet, 1843-1845)	NHMSYS00000066962	Baetis rhodani
40120111		Baetis vernus Curtis	40120111	Baetis vernus Curtis, 1834	NBNYS00000010871	Baetis vernus
40120112		Baetis scambus group	40120112	Baetis scambus group	<NEW-CODE>100011	Baetis scambus group
40120201		Centropilum luteolum (Müller)	40120201	Centropilum luteolum (Müller, 1776)	NHMSYS00000066963	Centropilum luteolum
40120202		Centropilum pennulatum Eaton	40120402	Proclibon pennulatum (Eaton, 1870)	NHMSYS00000066965	Proclibon pennulatum
40120301		Cloeon dipterum (L.)	40120301	Cloeon dipterum (Linnaeus, 1761)	NHMSYS00000066964	Cloeon dipterum
40120302		Cloeon simile Eaton	40120302	Cloeon simile Eaton, 1870	NBNYS00000010875	Cloeon simile
40120401		Proclibon bifidum Bengtsson	40120401	Proclibon bifidum (Bengtsson, 1912)	NBNYS00000010876	Proclibon bifidum
40130100		Rhithrogena sp.	40130100	Rhithrogena sp.	NHMSYS00000066955	Rhithrogena
40130201		Heptagenia fuscognisea (Retzius)	40130601	Kageronia fuscognisea (Retzius, 1783)	NBNYS0100003524	Kageronia fuscognisea
40130202		Heptagenia lateralis (Curtis)	40130502	Electrogena lateralis (Curtis, 1834)	<NEW-CODE>100012	Heptagenia lateralis
40130204		Heptagenia sulphurea (Müller)	40130204	Heptagenia sulphurea (Müller, 1776)	NHMSYS00000066973	Heptagenia sulphurea
40130400		Ecdyonurus sp.	40130400	Ecdyonurus sp.	NHMSYS00000066951	Ecdyonurus
40210101		Leptophlebia marginata (L.)	40210101	Leptophlebia marginata (Linnaeus, 1767)	NHMSYS00000066974	Leptophlebia marginata
40210102		Leptophlebia vespertina (L.)	40210102	Leptophlebia vespertina (Linnaeus, 1758)	NHMSYS00000066974	Leptophlebia vespertina
40210201		Paraleptophlebia cincta (Retzius)	40210201	Paraleptophlebia cincta (Retzius, 1835)	NBNYS00000010891	Paraleptophlebia cincta
40210202		Paraleptophlebia submarginata (Stephens)	40210202	Paraleptophlebia submarginata (Stephens, 1835)	NBNYS00000010892	Paraleptophlebia submarginata
40210203		Paraleptophlebia werneri Ulmer	40210203	Paraleptophlebia werneri Ulmer, 1919	NBNYS00000010893	Paraleptophlebia werneri
40210301		Habroptlebia fusca (Curtis)	40210301	Habroptlebia fusca (Curtis, 1834)	NBNYS00000010888	Habroptlebia fusca
40310101		Potamanthus luteus (L.)	40310101	Potamanthus luteus (Linnaeus, 1767)	NHMSYS00000066975	Potamanthus luteus
40320101		Ephemera danica Müller	40320101	Ephemera danica Müller, 1764	NHMSYS00000066970	Ephemera danica
40320102		Ephemera lineata Eaton	40320102	Ephemera lineata Eaton, 1870	NBNYS00000010898	Ephemera lineata
40320103		Ephemera vulgata L.	40320103	Ephemera vulgata Linnaeus, 1758	NBNYS00000010899	Ephemera vulgata
40410101		Ephemerella ignita (Poda)	40410201	Serratella ignita (Poda, 1761)	NBNYS01000005389	Serratella ignita
40410102		Ephemerella notata Eaton	40410102	Ephemerella notata Eaton, 1887	NBNYS00000010895	Ephemerella notata
40510201		Brachycercus harrisella Curtis	40510101	Brachycercus harrisella Curtis, 1834	NBNYS00000010900	Brachycercus harrisella
40510204		Caenis horaria (L.)	40510204	Caenis horaria (Linnaeus, 1758)	NHMSYS00000066966	Caenis horaria
40510205		Caenis robusta Eaton	40510205	Caenis robusta Eaton, 1884	NBNYS00000010904	Caenis robusta
40510208		Caenis pusilla Navas	40510208	Caenis pusilla Navás, 1913	NBNYS00000010905	Caenis pusilla
4051020X		Caenis pseudovulvorum group	4051020X	Caenis pseudovulvorum group	<NEW-CODE>100013	Caenis pseudovulvorum group
4051020Z		Caenis luctuosa group	4051020Z	Caenis luctuosa group	<NEW-CODE>100014	Caenis luctuosa group
41110101		Taeniopteryx nebulosa (L.)	41110101	Taeniopteryx nebulosa (Linnaeus, 1758)	NBNYS00000022416	Taeniopteryx nebulosa
41110301		Brachyptera putata (Newman)	41110301	Brachyptera putata (Newman, 1838)	NBNYS00000022413	Brachyptera putata
41110302		Brachyptera risi (Morton)	41110302	Brachyptera risi (Morton, 1895)	NBNYS00000022414	Brachyptera risi
41120101		Protonemura meyeri (Pictet)	41120101	Protonemura meyeri (Pictet, 1841)	NBNYS00000022425	Protonemura meyeri
41120102		Protonemura montana Kimmins	41120102	Protonemura montana Kimmins, 1941	NBNYS00000022426	Protonemura montana
41120103		Protonemura praecox (Morton)	41120103	Protonemura praecox (Morton, 1894)	NBNYS00000022427	Protonemura praecox
41120201		Amphinemura standfussi Ris	41120201	Amphinemura standfussi Ris, 1902	NBNYS00000022417	Amphinemura standfussi
41120202		Amphinemura sulciollis (Stephens)	41120202	Amphinemura sulciollis (Stephens, 1836)	NBNYS00000022418	Amphinemura sulciollis
41120301		Nemurella picteti Klápálek	41120301	Nemurella picteti Klápálek, 1900	NBNYS0100013706	Nemurella picteti
41120401		Nemoura avicularis Morton	41120401	Nemoura avicularis Morton, 1894	NBNYS00000022419	Nemoura avicularis
41120403		Nemoura cinerea (Retzius)	41120403	Nemoura cinerea (Retzius, 1783)	NBNYS00000022421	Nemoura cinerea
4112040Z		Nemoura cambrica group	4112040Z	Nemoura cambrica group	<NEW-CODE>100015	Nemoura cambrica group

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41130101	Leuctra fusca (L.)	41130101	Leuctra fusca (Linnaeus, 1758)	NBNYS00000022428	Leuctra fusca
41130102	Leuctra geniculata (Stephens)	41130102	Leuctra geniculata (Stephens, 1836)	NBNYS00000022429	Leuctra geniculata
41130103	Leuctra hippopus (Kempny)	41130103	Leuctra hippopus Kempny, 1899	NBNYS00000022430	Leuctra hippopus
41130104	Leuctra inermis Kempny	41130104	Leuctra inermis Kempny, 1899	NBNYS00000022431	Leuctra inermis
41130105	Leuctra moselyi Morton	41130105	Leuctra moselyi Morton, 1929	NBNYS00000022432	Leuctra moselyi
41130106	Leuctra nigra (Olivier)	41130106	Leuctra nigra (Olivier, 1811)	NBNYS00000022433	Leuctra nigra
41140101	Capnia atra Morton	41140101	Capnia atra Morton, 1896	NBNYS00000022434	Capnia atra
41140102	Capnia bifrons (Newman)	41140102	Capnia bifrons (Newman, 1839)	NBNYS00000022435	Capnia bifrons
41210201	Periodes microcephala (Pictet)	41210201	Periodes microcephalus (Pictet, 1833)	NBNYS00000022441	Periodes microcephala
41210301	Diura bicaudata (L.)	41210301	Diura bicaudata (Linnaeus, 1758)	NBNYS00000022437	Diura bicaudata
41210401	Isoperla grammatica (Podá)	41210401	Isoperla grammatica (Podá, 1761)	NBNYS00000022439	Isoperla grammatica
41220101	Dinocras cephalotes (Curtis)	41220101	Dinocras cephalotes (Curtis, 1827)	NBNYS00000022442	Dinocras cephalotes
41220201	Pera bipunctata Pictet	41220201	Pera bipunctata Pictet, 1833	NBNYS00000022443	Pera bipunctata
41230102	Chloroperla torrentium (Pictet)	41230101	Siphonoperla torrentium (Pictet, 1841)	NBNYS00000022445	Chloroperla torrentium
41230103	Chloroperla tripunctata (Scopoli)	41230103	Chloroperla tripunctata (Scopoli, 1763)	NBNYS00000022446	Chloroperla tripunctata
42110101	Platycnemis pennipes (Pallas)	42110101	Platycnemis pennipes (Pallas, 1771)	NBNYS0000005598	Platycnemis pennipes
42120101	Pyrrhosoma nymphula (Sulzer)	42120101	Pyrrhosoma nymphula (Sulzer, 1776)	NBNYS0000005599	Pyrrhosoma nymphula
42120201	Ischnura elegans (Van der Linden)	42120201	Ischnura elegans (Vander Linden, 1820)	NBNYS0000005600	Ischnura elegans
42120301	Enallagma cyathigerum (Charpentier)	42120301	Enallagma cyathigerum (Charpentier, 1840)	NBNYS0000005602	Enallagma cyathigerum
42120402	Coenagrion puella group	42120402	Coenagrion puella group	<NEW-CODE> 100016	Coenagrion puella group
42120601	Erythromma najas (Hansemann)	42120601	Erythromma najas (Hansemann, 1823)	NBNYS0000005610	Erythromma najas
42140101	Calopteryx splendens (Harris)	42140101	Calopteryx splendens (Harris, 1782)	NBNYS0000005617	Calopteryx splendens
42140102	Calopteryx virgo (L.)	42140102	Calopteryx virgo (Linnaeus, 1758)	NBNYS0000005616	Calopteryx virgo
42210101	Gomphus vulgatissimus (L.)	42210101	Gomphus vulgatissimus (Linnaeus, 1758)	NBNYS0000005620	Gomphus vulgatissimus
42220101	Cordulegaster boltonii (Donovan)	42220101	Cordulegaster boltonii (Donovan, 1807)	NBNYS0000005621	Cordulegaster boltonii
42230101	Brachytron pratense (Müller)	42230101	Brachytron pratense (Müller, 1764)	NBNYS0000005622	Brachytron pratense
42230200	Aeshna sp.	42230200	Aeshna sp.	NBNYS00000039880	Aeshna
42250100	Orthetrum sp.	42250100	Orthetrum sp.	NBNYS00000135890	Orthetrum
42250300	Sympetrum sp.	42250300	Sympetrum sp.	NBNYS00000039911	Sympetrum
43110101	Mesovelia furcata Mulsant & Rey	43110101	Mesovelia furcata Mulsant & Rey, 1852	NBNYS00000010354	Mesovelia furcata
43210102	Hydrometra stagnorum (L.)	43210102	Hydrometra stagnorum (Linnaeus, 1758)	NBNYS00000010358	Hydrometra stagnorum
43220100	Velia sp.	43220100	Velia sp.	NBNYS00000138826	Velia
43230111	Gerris argentatus Schummel	43230111	Gerris argentatus Schummel, 1832	NBNYS00000010368	Gerris argentatus
43230114	Gerris lacustris (L.)	43230114	Gerris lacustris (Linnaeus, 1758)	NBNYS00000010369	Gerris lacustris
43230116	Gerris odontogaster (Zetterstedt)	43230116	Gerris odontogaster (Zetterstedt, 1828)	NBNYS00000010370	Gerris odontogaster
43230117	Gerris thoracicus Schummel	43230117	Gerris thoracicus Schummel, 1832	NBNYS00000010366	Gerris thoracicus
43230121	Gerris najas (DeGeer)	43230121	Aquarius najas (DeGeer, 1773)	NBNYS00000010374	Gerris najas
43310101	Nepa cinerea L.	43310101	Nepa cinerea Linnaeus, 1758	NBNYS00000010376	Nepa cinerea
43410101	Ilyocoris cimicoides (L.)	43410101	Ilyocoris cimicoides (Linnaeus, 1758)	NBNYS00000010376	Ilyocoris cimicoides
43420101	Aphelocheirus aestivalis (Fabricius)	43420101	Aphelocheirus aestivalis (Fabricius, 1794)	NBNYS00000010377	Aphelocheirus aestivalis
43510101	Notonecta glauca L.	43510101	Notonecta glauca Linnaeus, 1758	NBNYS00000010378	Notonecta glauca
43510102	Notonecta maculata Fabricius	43510102	Notonecta maculata Fabricius, 1794	NBNYS00000010381	Notonecta maculata
43510103	Notonecta obliqua Gallen	43510103	Notonecta obliqua Gallen in Thunberg, 1787	NBNYS00000010380	Notonecta obliqua
43610100	Micronecta sp.	43610100	Micronecta sp.	NBNYS00000051126	Micronecta
43610302	Cymatia coleoptrata (Fabricius)	43610302	Cymatia coleoptrata (Fabricius, 1777)	NBNYS00000010387	Cymatia coleoptrata
43610501	Callicorixa praeusta (Fieber)	43610501	Callicorixa praeusta (Fieber, 1848)	NBNYS00000010389	Callicorixa praeusta
43610502	Callicorixa wollastoni (Douglas & Scott)	43610502	Callicorixa wollastoni (Douglas & Scott, 1865)	NBNYS00000010390	Callicorixa wollastoni
43610601	Corixa affinis Leach	43610601	Corixa affinis Leach, 1817	NBNYS00000010394	Corixa affinis
43610602	Corixa dentipes (Thomson)	43610602	Corixa dentipes (Thomson, 1869)	NBNYS00000010391	Corixa dentipes
43610603	Corixa panzeri (Fieber)	43610603	Corixa panzeri (Fieber, 1848)	NBNYS00000010395	Corixa panzeri

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43610604	Corixa punctata (Illiger)	43610604	Corixa punctata (Illiger, 1807)	NBNYS00000010393	Corixa punctata
43610702	Hesperocorixa linnei (Fieber)	43610702	Hesperocorixa linnei (Fieber, 1848)	NBNYS00000010396	Hesperocorixa linnei
43610704	Hesperocorixa sahlbergi (Fieber)	43610704	Hesperocorixa sahlbergi (Fieber, 1848)	NBNYS00000010397	Hesperocorixa sahlbergi
43610910	Sigara (Sigara) sp.	43610910	Sigara (Sigara) sp.	NBNYS01000015230	Sigara (Sigara)
43610921	Sigara (Subsigara) distincta (Fieber, 1848)	43610921	Sigara (Subsigara) distincta (Fieber, 1848)	NBNYS00000010404	Sigara distincta
43610922	Sigara falleni (Fieber)	43610922	Sigara (Subsigara) falleni (Fieber, 1848)	NBNYS00000010405	Sigara falleni
43610924	Sigara fossarum (Leach)	43610924	Sigara (Subsigara) fossarum (Leach, 1817)	NBNYS00000010407	Sigara fossarum
43610925	Sigara scotti (Fieber)	43610925	Sigara (Subsigara) scotti (Douglas & Scott, 1868)	NBNYS00000010408	Sigara scotti
43610941	Sigara lateralis (Leach)	43610941	Sigara (Vermicorixa) lateralis (Leach, 1817)	NBNYS00000010409	Sigara lateralis
43610951	Sigara nigrolineata (Fieber)	43610951	Sigara (Pseudovermicorixa) nigrolineata (Fieber, 1848)	NBNYS00000010410	Sigara nigrolineata
43610972	Sigara semistriata (Fieber)	43610972	Sigara (Retrocorixa) semistriata (Fieber, 1848)	NBNYS00000010413	Sigara semistriata
43610973	Sigara venusta (Douglas & Scott)	43610973	Sigara (Retrocorixa) venusta (Douglas & Scott, 1869)	NBNYS00000010414	Sigara venusta
45110101	Brychius elevatus (Panzer)	45110101	Brychius elevatus (Panzer, 1793)	NBNYS00000007493	Brychius elevatus
45110302	Haliplus confinis Stephens	45110302	Haliplus confinis Stephens, 1828	NBNYS00000007496	Haliplus confinis
45110303	Haliplus flavicollis Sturm	45110303	Haliplus flavicollis Sturm, 1834	NBNYS00000007497	Haliplus flavicollis
45110304	Haliplus fluviatilis Aube	45110304	Haliplus fluviatilis Aube, 1836	NBNYS00000007498	Haliplus fluviatilis
45110307	Haliplus heydeni Wehncke	45110307	Haliplus heydeni Wehncke, 1875	NBNYS00000007501	Haliplus heydeni
45110308	Haliplus immaculatus Gerhardt	45110308	Haliplus immaculatus Gerhardt, 1877	NBNYS00000007502	Haliplus immaculatus
45110309	Haliplus laminatus Schaller	45110309	Haliplus laminatus Schaller, 1783	NBNYS00000007503	Haliplus laminatus
45110311	Haliplus lineatocollis (Marshall)	45110311	Haliplus lineatocollis (Marshall, 1802)	NBNYS00000007504	Haliplus lineatocollis
45110312	Haliplus lineolatus Mannerheim	45110312	Haliplus lineolatus Mannerheim, 1844	NBNYS00000007505	Haliplus lineolatus
45110315	Haliplus ruficollis (Degeer)	45110315	Haliplus ruficollis (DeGeer, 1774)	NBNYS00000007508	Haliplus ruficollis
45110318	Haliplus wehnckei (Gerhardt)	45110318	Haliplus sibiricus Motschulsky, 1860	NBNYS00000007511	Haliplus wehnckei
45130101	Noterus clavicornis (Degeer)	45130101	Noterus clavicornis (DeGeer, 1774)	NBNYS00000007513	Noterus clavicornis
45140101	Laccophilus hyalinus (Degeer)	45140101	Laccophilus hyalinus (DeGeer, 1774)	NBNYS00000007516	Laccophilus hyalinus
45140102	Laccophilus minutus (L.)	45140102	Laccophilus minutus (Linnaeus, 1758)	NBNYS00000007517	Laccophilus minutus
45140301	Hyphidrus ovalis (L.)	45140301	Hyphidrus ovalis (Linnaeus, 1761)	NBNYS00000007521	Hyphidrus ovalis
45140602	Hygrotus inaequalis (Fabricius)	45140602	Hygrotus (Hygrotus) inaequalis (Fabricius, 1777)	NBNYS00000007526	Hygrotus inaequalis
45140604	Hygrotus versicolor (Schaller)	45140614	Hygrotus (Hygrotus) versicolor (Schaller, 1783)	NBNYS00000007528	Hygrotus versicolor
45140801	Hydroporus angustatus Sturm	45140801	Hydroporus angustatus Sturm, 1835	NBNYS00000007534	Hydroporus angustatus
45140803	Hydroporus discretus Fairmaire & Brisout	45140803	Hydroporus discretus Fairmaire & Brisout, 1859	NBNYS00000007536	Hydroporus discretus
45140807	Hydroporus ferrugineus Stephens	45140807	Hydroporus ferrugineus Stephens, 1829	NBNYS00000007539	Hydroporus ferrugineus
45140817	Hydroporus memnonius Nicolai	45140817	Hydroporus memnonius Nicolai, 1822	NBNYS00000007548	Hydroporus memnonius
45140821	Hydroporus nigrita (Fabricius)	45140821	Hydroporus nigrita (Fabricius, 1792)	NBNYS00000007551	Hydroporus nigrita
45140822	Hydroporus obscurus Sturm	45140822	Hydroporus obscurus Sturm, 1835	NBNYS00000007552	Hydroporus obscurus
45140824	Hydroporus palustris (L.)	45140824	Hydroporus palustris (Linnaeus, 1761)	NBNYS00000007554	Hydroporus palustris
45140825	Hydroporus planus (Fabricius)	45140825	Hydroporus planus (Fabricius, 1782)	NBNYS00000007555	Hydroporus planus
45140826	Hydroporus pubescens (Gyllenhal)	45140826	Hydroporus pubescens (Gyllenhal, 1808)	NBNYS00000007556	Hydroporus pubescens
45140831	Hydroporus tessellatus Drapiez	45140831	Hydroporus tessellatus (Drapiez, 1819)	NBNYS00000007560	Hydroporus tessellatus
45140901	Suctonectes lepidus (Olivier)	45140901	Suctonectes lepidus (Olivier, 1795)	NBNYS00000007564	Suctonectes lepidus
45141004	Graptodytes pictus (Fabricius)	45141004	Graptodytes pictus (Fabricius, 1787)	NBNYS00000007568	Graptodytes pictus
45141101	Porhydrus lineatus (Fabricius)	45141101	Porhydrus lineatus (Fabricius, 1775)	NBNYS00000007569	Porhydrus lineatus
45141201	Deronectes latus (Stephens)	45141201	Deronectes latus (Stephens, 1829)	NBNYS00000007570	Deronectes latus
45141301	Potamonectes assimilis (Paykull)	45141301	Nebrioporus assimilis (Paykull, 1798)	NBNYS01000004083	Nebrioporus assimilis
45141303	Potamonectes depressus (Fabricius)	45141303	Nebrioporus depressus (Fabricius, 1775)	NBNYS00000007572	Nebrioporus depressus
45141401	Stictotarsus duodecimpustulatus (Fabricius)	45141401	Stictotarsus duodecimpustulatus (Fabricius, 1792)	NBNYS00000007576	Stictotarsus duodecimpustulatus
45141501	Oreodytes davisi (Curtis)	45141501	Oreodytes davisi (Curtis, 1831)	NBNYS000000152835	Oreodytes davisi
45141502	Oreodytes sanmarkii (Sahlberg)	45141502	Oreodytes sanmarkii (C.R. Sahlberg, 1826)	NBNYS000000152838	Oreodytes sanmarkii
45141503	Oreodytes septentrionalis (Sahlberg)	45141503	Oreodytes septentrionalis (Gyllenhal, 1826)	NBNYS00000007580	Oreodytes septentrionalis
45141601	Scarodytes halensis (Fabricius)	45141601	Scarodytes halensis (Fabricius, 1787)	NBNYS00000007581	Scarodytes halensis

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45141901	Platambus maculatus (L.)	45141901	Platambus maculatus (Linnaeus, 1758)	NBNYS00000007584	Platambus maculatus
45142004	Agabus bipustulatus (L.)	45142004	Agabus bipustulatus (Linnaeus, 1767)	NBNYS00000007588	Agabus bipustulatus
45142006	Agabus chalconatus (Panzer)	45142108	Ilybius chalconatus (Panzer, 1796)	NBNYS00000007590	Agabus chalconatus
45142009	Agabus didymus (Olivier)	45142009	Agabus didymus (Olivier, 1795)	NBNYS00000007593	Agabus didymus
45142011	Agabus guttatus (Paykull)	45142011	Agabus guttatus (Paykull, 1798)	NBNYS00000007594	Agabus guttatus
45142016	Agabus peludosus (Fabricius)	45142016	Agabus peludosus (Fabricius, 1801)	NBNYS00000007599	Agabus peludosus
45142018	Agabus sturmi (Gyllenhal)	45142018	Agabus sturmi (Gyllenhal, 1808)	NBNYS00000007601	Agabus sturmi
45142100	Ilybius sp.	45142100	Ilybius sp.	NBNYS00000134103	Ilybius
45142301	Colymbetes fuscus (L.)	45142301	Colymbetes fuscus (Linnaeus, 1758)	NBNYS00000007618	Colymbetes fuscus
45142602	Acilius sulcatus (L.)	45142602	Acilius sulcatus (Linnaeus, 1758)	NBNYS00000007626	Acilius sulcatus
45142705	Dytiscus marginalis L.	45142705	Dytiscus marginalis Linnaeus, 1758	NBNYS00000007632	Dytiscus marginalis
45142706	Dytiscus semisulcatus Muller	45142706	Dytiscus semisulcatus O.F. Müller, 1776	NBNYS00000007633	Dytiscus semisulcatus
45150201	Gyrinus aeratus Stephens	45150201	Gyrinus aeratus Stephens, 1835	NBNYS00000007635	Gyrinus aeratus
45150204	Gyrinus distinctus Aube	45150204	Gyrinus distinctus Aubé, 1837	NBNYS00000007638	Gyrinus distinctus
45150205	Gyrinus marinus Gyllenhal	45150205	Gyrinus marinus Gyllenhal, 1808	NBNYS00000007639	Gyrinus marinus
4515020Z	Gyrinus nator group	4515020Z	Gyrinus nator group	<NEW-CODE> 100019	Gyrinus nator group
45150212	Gyrinus urinator Illiger	45150212	Gyrinus urinator Illiger, 1807	NBNYS00000007645	Gyrinus urinator
45150401	Oreochilus villosus (Muller)	45150401	Oreochilus villosus (O.F. Müller, 1776)	NBNYS00000007646	Oreochilus villosus
45310201	Hydrochus angustatus Germar	45360101	Hydrochus angustatus Germar, 1824	NBNYS00000007649	Hydrochus angustatus
45310341	Helophorus aequalis Thomson	45330141	Helophorus (Meghelophorus) aequalis Thomson, 1868	NBNYS00000007655	Helophorus aequalis
45310342	Helophorus grandis Illiger	45330142	Helophorus (Meghelophorus) grandis Illiger, 1798	NBNYS00000007662	Helophorus grandis
45310351	Helophorus arvensis Mulsant	45330151	Helophorus (Rhopalohelophorus) arvensis Mulsant, 1846	NBNYS00000007657	Helophorus arvensis
45310352	Helophorus brevipalpis Bedel	45330152	Helophorus (Rhopalohelophorus) brevipalpis Bedel, 1881	NBNYS00000007658	Helophorus brevipalpis
45310362	Helophorus flavipes Fabricius	45330162	Helophorus (Helophorus) flavipes Fabricius, 1792	NBNYS00000007660	Helophorus flavipes
45310368	Helophorus minutus Fabricius	45330168	Helophorus (Helophorus) minutus Fabricius, 1775	NBNYS00000007667	Helophorus minutus
45310371	Helophorus obscurus Mulsant	4533016A	Helophorus (Helophorus) obscurus Mulsant, 1844	NBNYS00000007670	Helophorus obscurus
45310372	Helophorus strigifrons Thomson	4533016B	Helophorus (Helophorus) strigifrons Thomson, 1868	NBNYS00000007673	Helophorus strigifrons
45311002	Paracymus scutellaris (Rosenhauer)	45351002	Paracymus scutellaris (Rosenhauer, 1856)	NBNYS00000007705	Paracymus scutellaris
45311101	Hydrobius fuscipes (L.)	45351101	Hydrobius fuscipes (Linnaeus, 1758)	NBNYS0000010907	Hydrobius fuscipes
45311301	Anacaena bipustulata (Marsham)	45351301	Anacaena bipustulata (Marsham, 1802)	NBNYS00000007707	Anacaena bipustulata
45311302	Anacaena globulus (Paykull)	45351302	Anacaena globulus (Paykull, 1829)	NBNYS00000007708	Anacaena globulus
45311303	Anacaena limbata (Fabricius)	45351303	Anacaena limbata (Fabricius, 1792)	NBNYS0000033265	Anacaena limbata
45311304	Anacaena lutescens (Stephens)	45351304	Anacaena lutescens (Stephens, 1829)	<NEW-CODE> 100020	Anacaena lutescens
45311411	Laccobius biguttatus Gerhardt	45351411	Laccobius (Laccobius) colon (Stephens, 1829)	NBNYS00000007713	Laccobius biguttatus
45311412	Laccobius minutus (L.)	45351412	Laccobius (Laccobius) minutus (Linnaeus, 1758)	NBNYS00000007715	Laccobius minutus
45311421	Laccobius atratus Rottemberg	45351421	Laccobius (Macrolaccobius) atratus Rottemberg, 1874	NBNYS00000007711	Laccobius atratus
45311422	Laccobius atrocephalus Reitter	45351422	Laccobius (Macrolaccobius) yenenensis Sharp, 1910	NBNYS00000007712	Laccobius atrocephalus
45311426	Laccobius sinuatus Motschulsky	45351426	Laccobius (Macrolaccobius) sinuatus Motschulsky, 1849	NBNYS00000007718	Laccobius sinuatus
45311427	Laccobius striatulus (Fabricius)	45351427	Laccobius (Macrolaccobius) striatulus (Fabricius, 1801)	NBNYS00000007719	Laccobius striatulus
45311708	Enochrus testaceus (Fabricius)	45351708	Enochrus testaceus (Fabricius, 1801)	NBNYS00000007733	Enochrus testaceus
45410103	Ochthebius bicolor Germar	45410103	Ochthebius bicolor Germar, 1824	NBNYS00000007744	Ochthebius bicolor
45410104	Ochthebius dilatatus Stephens	45410104	Ochthebius dilatatus Stephens, 1829	NBNYS00000007746	Ochthebius dilatatus
45410106	Ochthebius exsculptus Germar	45410106	Ochthebius exsculptus (Germar, 1824)	NBNYS00000007748	Ochthebius exsculptus
45410109	Ochthebius mirimus (Fabricius)	45410109	Ochthebius mirimus (Fabricius, 1792)	NBNYS00000007751	Ochthebius mirimus
45410202	Hydraena gracilis Germar	45410202	Hydraena gracilis Germar, 1824	NBNYS00000007759	Hydraena gracilis
45410204	Hydraena nigrita Germar	45410204	Hydraena nigrita Germar, 1824	NBNYS00000007761	Hydraena nigrita
45410206	Hydraena pulchella Germar	45410206	Hydraena pulchella Germar, 1824	NBNYS00000007763	Hydraena pulchella
45410208	Hydraena riparia Kugelann	45410208	Hydraena riparia Kugelann, 1794	NBNYS00000007765	Hydraena riparia
45410209	Hydraena rufipes Curtis	45410209	Hydraena rufipes Curtis, 1830	NBNYS00000007766	Hydraena rufipes
45410211	Hydraena testacea Curtis	45410211	Hydraena testacea Curtis, 1831	NBNYS00000007767	Hydraena testacea

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Rev. Code	Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
45410303		Limnebius nitidus (Marsham)	45410303	Limnebius nitidus (Marsham, 1802)	NBNYS00000007770	Limnebius nitidus
45410305		Limnebius truncatellus (Thunberg)	45410305	Limnebius truncatellus (Thunberg, 1794)	NBNYS00000007772	Limnebius truncatellus
45510100		Elodes sp.	45510100	Elodes sp.	NBNYS00000132774	Elodes
45510300		Cyphon sp.	45510300	Cyphon sp.	NBNYS00000132190	Cyphon
45510401		Prionocyphon serricornis (Müller)	45510401	Prionocyphon serricornis (Müller, 1821)	NBNYS00000024184	Prionocyphon serricornis
45510501		Hydrocyphon deflexicollis (Müller)	45510501	Hydrocyphon deflexicollis (Müller, 1821)	NBNYS00000024185	Hydrocyphon deflexicollis
45620101		Helichus substriatus (Müller)	45620101	Pomatrus substriatus (Müller, 1806)	NBNYS00000148219	Helichus substriatus
45620200		Dryops sp.	45620200	Dryops sp.	NBNYS00000132652	Dryops
45630101		Elmis aenea (Müller)	45630101	Elmis aenea (Müller, 1806)	NBNYS00000007783	Elmis aenea
45630201		Esolus parraleleppodus (Müller)	45630201	Esolus parraleleppodus (Müller, 1806)	NBNYS00000007784	Esolus parraleleppodus
45630301		Limnius volckmani (Panzer)	45630301	Limnius volckmani (Panzer, 1793)	NBNYS00000007785	Limnius volckmani
45630401		Macronychus quadrituberculatus Müller	45630401	Macronychus quadrituberculatus Müller, 1806	NBNYS00000007786	Macronychus quadrituberculatus
45630501		Normandia nitens (Müller)	45630501	Normandia nitens (Müller, 1817)	NBNYS00000007787	Normandia nitens
45630601		Oulimnius major (Rey)	45630601	Oulimnius major (Rey, 1889)	NBNYS00000007788	Oulimnius major
45630602		Oulimnius rivularis (Rosenhauer)	45630602	Oulimnius rivularis (Rosenhauer, 1856)	NBNYS00000007789	Oulimnius rivularis
45630603		Oulimnius troglodytes (Gyllenhal)	45630603	Oulimnius troglodytes (Gyllenhal, 1827)	NBNYS00000007790	Oulimnius troglodytes
45630604		Oulimnius tuberculatus (Müller)	45630604	Oulimnius tuberculatus (Müller, 1806)	NBNYS00000007791	Oulimnius tuberculatus
45630701		Riolus cupreus (Müller)	45630701	Riolus cupreus (Müller, 1806)	NBNYS00000007792	Riolus cupreus
45630702		Riolus subviolaceus (Müller)	45630702	Riolus subviolaceus (Müller, 1817)	NBNYS00000007793	Riolus subviolaceus
46110101		Stalis fuliginosa Pictet	46110101	Stalis fuliginosa Pictet, 1836	NBNYS00000010794	Stalis fuliginosa
46110102		Stalis lutaria (L.)	46110102	Stalis lutaria (Linnaeus, 1758)	NBNYS00000010795	Stalis lutaria
46110103		Stalis nigripes Pictet	46110103	Stalis nigripes Pictet, 1865	NBNYS00000010796	Stalis nigripes
47110101		Osmylus fulvicephalus (Scopoli)	47110101	Osmylus fulvicephalus (Scopoli, 1763)	NBNYS00000010808	Osmylus fulvicephalus
47120100		Sisyra sp.	47120100	Sisyra sp.	NBNYS00000137797	Sisyra
48110101		Rhyacophila dorsalis (Curtis)	48110101	Rhyacophila dorsalis (Curtis, 1834)	NBNYS00000008339	Rhyacophila dorsalis
48110102		Rhyacophila munda McLachlan	48110102	Rhyacophila munda McLachlan, 1862	NBNYS00000008340	Rhyacophila munda
48110103		Rhyacophila obliterata McLachlan	48110103	Rhyacophila obliterata McLachlan, 1863	NBNYS00000008341	Rhyacophila obliterata
48110104		Rhyacophila septentrionis McLachlan	48110104	Rhyacophila fasciata Hagen, 1859	NBNYS00000008342	Rhyacophila septentrionis
48120100		Glossosoma sp.	48120100	Glossosoma sp.	NBNYS00000042268	Glossosoma
48120200		Agapetus sp.	48120200	Agapetus sp.	NBNYS00000037044	Agapetus
48130101		Agraylea multipunctata Curtis	48130101	Agraylea multipunctata Curtis, 1834	NBNYS00000008349	Agraylea multipunctata
48130102		Agraylea sexmaculata Curtis	48130102	Agraylea sexmaculata Curtis, 1834	NBNYS00000008350	Agraylea sexmaculata
48130201		Allothrichia pallicornis (Eaton)	48130201	Allothrichia pallicornis (Eaton, 1873)	NBNYS00000008351	Allothrichia pallicornis
48130300		Hydroptila sp.	48130300	Hydroptila sp.	NBNYS00000042281	Hydroptila
48130400		Oxyethira sp.	48130400	Oxyethira sp.	NBNYS00000042308	Oxyethira
48130600		Ithytrichia sp.	48130600	Ithytrichia sp.	NBNYS00000134173	Ithytrichia
48210101		Philopotamus montanus (Donovan)	48210101	Philopotamus montanus (Donovan, 1813)	NBNYS00000008380	Philopotamus montanus
48210200		Wormaldia sp.	48210200	Wormaldia sp.	NBNYS00000138908	Wormaldia
48210301		Chimarra marginata (L.)	48210301	Chimarra marginata (Linnaeus, 1761)	NBNYS00000008384	Chimarra marginata
48220100		Lype sp.	48220100	Lype sp.	NBNYS00000042295	Lype
48220201		Metatype fragilis (Pictet)	48220201	Metatype fragilis (Pictet, 1834)	NBNYS00000008367	Metatype fragilis
48220301		Psychomyia pusilla (Fabricius)	48220301	Psychomyia pusilla (Fabricius, 1781)	NBNYS00000008388	Psychomyia pusilla
48220402		Tinodes dives (Pictet)	48220402	Tinodes dives (Pictet, 1834)	NBNYS00000008390	Tinodes dives
48220407		Tinodes unicolor (Pictet)	48220407	Tinodes unicolor (Pictet, 1834)	NBNYS00000008395	Tinodes unicolor
48220408		Tinodes waeneri (L.)	48220408	Tinodes waeneri (Linnaeus, 1758)	NBNYS00000008396	Tinodes waeneri
48230101		Ecnomus tenellus (Rambur)	48230101	Ecnomus tenellus (Rambur, 1842)	NBNYS00000008399	Ecnomus tenellus
48240101		Cynus flavidus McLachlan	48240101	Cynus flavidus McLachlan, 1864	NBNYS00000008399	Cynus flavidus
48240103		Cynus trimaculatus (Curtis)	48240103	Cynus trimaculatus (Curtis, 1834)	NBNYS00000008401	Cynus trimaculatus
48240202		Holocentropus picicornis (Stephens)	48240202	Holocentropus picicornis (Stephens, 1836)	NBNYS00000008403	Holocentropus picicornis
48240301		Neureclipsis bimaculata (L.)	48240301	Neureclipsis bimaculata (Linnaeus, 1758)	NBNYS00000008405	Neureclipsis bimaculata

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48240402	Plectrocnemia conspersa (Curtis)	48240402	Plectrocnemia conspersa (Curtis, 1834)	NBNYS50000008407	Plectrocnemia conspersa
48240403	Plectrocnemia geniculata McLachlan	48240403	Plectrocnemia geniculata McLachlan, 1871	NBNYS50000008408	Plectrocnemia geniculata
48240501	Polycentropus flavomaculatus (Pictet)	48240501	Polycentropus flavomaculatus (Pictet, 1834)	NBNYS50000008409	Polycentropus flavomaculatus
48240502	Polycentropus irroratus (Curtis)	48240502	Polycentropus irroratus (Curtis, 1835)	NBNYS50000008410	Polycentropus irroratus
48240503	Polycentropus kingi McLachlan	48240503	Polycentropus kingi McLachlan, 1881	NBNYS50000008411	Polycentropus kingi
48250101	Cheumatopsyche lepida (Pictet)	48250101	Cheumatopsyche lepida (Pictet, 1834)	NBNYS50000008412	Cheumatopsyche lepida
48250201	Hydropsyche angustipennis (Curtis)	48250201	Hydropsyche angustipennis (Curtis, 1834)	NBNYS50000008413	Hydropsyche angustipennis
48250203	Hydropsyche contubernalis McLachlan	48250203	Hydropsyche contubernalis McLachlan, 1865	NBNYS50000008415	Hydropsyche contubernalis
48250205	Hydropsyche fulvipes (Curtis)	48250205	Hydropsyche fulvipes (Curtis, 1834)	NBNYS50000008417	Hydropsyche fulvipes
48250206	Hydropsyche instabilis (Curtis)	48250206	Hydropsyche instabilis (Curtis, 1834)	NBNYS50000008418	Hydropsyche instabilis
48250207	Hydropsyche pelliculula (Curtis)	48250207	Hydropsyche pelliculula (Curtis, 1834)	NBNYS50000008419	Hydropsyche pelliculula
48250208	Hydropsyche saxonica McLachlan	48250208	Hydropsyche saxonica McLachlan, 1884	NBNYS50000008420	Hydropsyche saxonica
48250209	Hydropsyche siltalai Döhler	48250209	Hydropsyche siltalai Döhler, 1963	NBNYS50000008421	Hydropsyche siltalai
48250301	Diplectrona felix McLachlan	48250301	Diplectrona felix McLachlan, 1878	NBNYS50000008422	Diplectrona felix
48310102	Agrypnia obsoleta group	48310102	Agrypnia obsoleta group	<NEW-CODE>100022	Agrypnia obsoleta group
48310500	Phryganea sp.	48310500	Phryganea sp.	NBNYS50000039909	Phryganea
48320101	Brachycentrus subnubilus Curtis	48320101	Brachycentrus subnubilus Curtis, 1834	NBNYS50000008433	Brachycentrus subnubilus
48330101	Crunoecia irrorata (Curtis)	48330101	Crunoecia irrorata (Curtis, 1834)	NBNYS50000008434	Crunoecia irrorata
48330201	Lasiocephala basalis (Kolenati)	48330201	Lasiocephala basalis (Kolenati, 1848)	NBNYS50000008435	Lasiocephala basalis
48330301	Lepidostoma hirtum (Fabricius)	48330301	Lepidostoma hirtum (Fabricius, 1775)	NBNYS50000008436	Lepidostoma hirtum
48340202	Apantia muellebrisi McLachlan	48340202	Apantia muellebrisi McLachlan, 1866	NBNYS50000008439	Apantia muellebrisi
48340301	Drusus annulatus (Stephens)	48340301	Drusus annulatus (Stephens, 1837)	NBNYS50000008442	Drusus annulatus
48340401	Ecdisopteryx guttulata (Pictet)	48340401	Ecdisopteryx guttulata (Pictet, 1834)	NBNYS50000008443	Ecdisopteryx guttulata
48340600	Halesus sp.	48340600	Halesus sp.	NBNYS50000042270	Halesus
48340701	Hydatophylax infumatus (McLachlan)	48340701	Hydatophylax infumatus (McLachlan, 1865)	NBNYS50000008448	Hydatophylax infumatus
48340801	Melampophylax mucoreus (Hagen)	48340801	Melampophylax mucoreus (Hagen, 1861)	NBNYS50000008449	Melampophylax mucoreus
48341401	Anabolia nervosa (Curtis)	48341401	Anabolia nervosa (Curtis, 1834)	NBNYS50000008462	Anabolia nervosa
48341501	Glyptotaelius pellicidus (Retzius)	48341501	Glyptotaelius pellicidus (Retzius, 1783)	NBNYS50000008463	Glyptotaelius pellicidus
48341703	Limnephilus binotatus Curtis	48341703	Limnephilus binotatus Curtis, 1834	NBNYS50000008468	Limnephilus binotatus
48341704	Limnephilus bipunctatus Curtis	48341704	Limnephilus bipunctatus Curtis, 1834	NBNYS50000008469	Limnephilus bipunctatus
48341708	Limnephilus decipiens (Kolenati)	48341708	Limnephilus decipiens (Kolenati, 1848)	NBNYS50000008473	Limnephilus decipiens
48341711	Limnephilus extricatus McLachlan	48341711	Limnephilus extricatus McLachlan, 1865	NBNYS50000008475	Limnephilus extricatus
48341712	Limnephilus flavicornis (Fabricius)	48341712	Limnephilus flavicornis (Fabricius, 1787)	NBNYS50000008476	Limnephilus flavicornis
48341713	Limnephilus fuscicornis (Rambur)	48341713	Limnephilus fuscicornis (Rambur, 1842)	NBNYS50000008477	Limnephilus fuscicornis
48341719	Limnephilus lunatus Curtis	48341719	Limnephilus lunatus Curtis, 1834	NBNYS50000008483	Limnephilus lunatus
48341722	Limnephilus marmoratus Curtis	48341722	Limnephilus marmoratus Curtis, 1834	NBNYS50000008485	Limnephilus marmoratus
48341725	Limnephilus politus McLachlan	48341725	Limnephilus politus McLachlan, 1865	NBNYS50000008488	Limnephilus politus
48341726	Limnephilus rhombicus (L.)	48341726	Limnephilus rhombicus (Linnaeus, 1758)	NBNYS50000008489	Limnephilus rhombicus
48341732	Limnephilus vittatus (Fabricius)	48341732	Limnephilus vittatus (Fabricius, 1798)	NBNYS50000008494	Limnephilus vittatus
48341W00	Micropterna group	4834W00	Micropterna group	<NEW-CODE>100025	Micropterna group
48341X00	Potamophylax group	4834X00	Potamophylax group	<NEW-CODE>100026	Potamophylax group
48350101	Goera pilosa (Fabricius)	48350101	Goera pilosa (Fabricius, 1775)	NBNYS50000008498	Goera pilosa
48350201	Silo nigricornis (Pictet)	48350201	Silo nigricornis (Pictet, 1834)	NBNYS50000008499	Silo nigricornis
48350202	Silo pallipes (Fabricius)	48350202	Silo pallipes (Fabricius, 1781)	NBNYS50000008500	Silo pallipes
48360101	Beraea maurus (Curtis)	48360101	Beraea maurus (Curtis, 1834)	NBNYS50000008501	Beraea maurus
48360102	Beraea pullata (Curtis)	48360102	Beraea pullata (Curtis, 1834)	NBNYS50000008502	Beraea pullata
48360201	Beraeodes minutus (Linnaeus)	48360201	Beraeodes minutus (Linnaeus, 1761)	NBNYS50000008503	Beraeodes minutus
48370101	Notidobia ciliaris (L.)	48370101	Notidobia ciliaris (Linnaeus, 1761)	NBNYS50000008505	Notidobia ciliaris
48370201	Sericostoma personatum (Spence)	48370201	Sericostoma personatum (Spence in Kirby & Spence, 1826)	NBNYS50000008506	Sericostoma personatum
48380101	Odonibacter albicorne (Scopoli)	48380101	Odonibacter albicorne (Scopoli, 1763)	NBNYS50000008507	Odonibacter albicorne

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48390101	Molanna angustata (Curtis, 1834)	48390101	Molanna angustata Curtis, 1834	NBNYS50000008509	Molanna angustata
48410101	Athripsodes albifrons (Linnaeus, 1758)	483A0101	Athripsodes albifrons (Linnaeus, 1758)	NBNYS50000008510	Athripsodes albifrons
48410102	Athripsodes aterrimus (Stephens, 1836)	483A0102	Athripsodes aterrimus (Stephens, 1836)	NBNYS50000008512	Athripsodes aterrimus
48410103	Athripsodes bilineatus (Linnaeus, 1758)	483A0103	Athripsodes bilineatus (Linnaeus, 1758)	NBNYS50000008513	Athripsodes bilineatus
48410104	Athripsodes cinereus (Curtis, 1834)	483A0104	Athripsodes cinereus (Curtis, 1834)	NBNYS50000008514	Athripsodes cinereus
48410105	Athripsodes commutatus (Rostock, 1874)	483A0105	Athripsodes commutatus (Rostock, 1874)	NBNYS50000008515	Athripsodes commutatus
48410201	Ceraclea albimacula (Rambur, 1842)	483A0201	Ceraclea albimacula (Rambur, 1842)	NBNYS50000008516	Ceraclea albimacula
48410202	Ceraclea annulicornis (Stephens, 1836)	483A0202	Ceraclea annulicornis (Stephens, 1836)	NBNYS50000008517	Ceraclea annulicornis
48410204	Ceraclea dissimilis (Stephens, 1836)	483A0204	Ceraclea fulva (Rambur, 1842)	NBNYS50000008518	Ceraclea dissimilis
48410205	Ceraclea nigronervosa (Retzius, 1783)	483A0205	Ceraclea nigronervosa (Retzius, 1783)	NBNYS50000008519	Ceraclea fulva
48410206	Ceraclea senilis (Burmeister, 1839)	483A0206	Ceraclea senilis (Burmeister, 1839)	NBNYS50000008520	Ceraclea nigronervosa
48410302	Leptocerus lusitanicus (Mclachlan, 1864)	483A0302	Leptocerus lusitanicus (Mclachlan, 1864)	NBNYS50000008521	Ceraclea senilis
48410401	Mystacides azurea (L.)	483A0401	Mystacides azurea (Linnaeus, 1761)	NBNYS50000008522	Leptocerus lusitanicus
48410402	Mystacides longicornis (L.)	483A0402	Mystacides longicornis (Linnaeus, 1758)	NBNYS50000008523	Mystacides azurea
48410403	Mystacides nigra (L.)	483A0403	Mystacides nigra (Linnaeus, 1758)	NBNYS50000008524	Mystacides longicornis
48410502	Adicella reducta (Mclachlan)	483A0502	Adicella reducta (Mclachlan, 1865)	NBNYS50000008525	Mystacides nigra
48410701	Trienodes bicolor (Curtis, 1834)	483A0701	Trienodes bicolor (Curtis, 1834)	NBNYS50000008526	Adicella reducta
48410801	Yoddes conspersus (Rambur)	483A0801	Yoddes conspersus (Rambur, 1842)	NBNYS50000008527	Trienodes bicolor
48410803	Yoddes simulans (Tjeder)	483A0803	Yoddes simulans (Tjeder, 1929)	NBNYS50000008528	Yoddes conspersus
48410902	Oecetis lacustris (Pictet)	483A0902	Oecetis lacustris (Pictet, 1834)	NBNYS50000008529	Yoddes simulans
48410903	Oecetis notata (Rambur)	483A0903	Oecetis notata (Rambur, 1842)	NBNYS50000008530	Oecetis lacustris
48410904	Oecetis ochracea (Curtis)	483A0904	Oecetis ochracea (Curtis, 1825)	NBNYS50000008531	Oecetis notata
48410905	Oecetis testacea (Curtis)	483A0905	Oecetis testacea (Curtis, 1834)	NBNYS50000008532	Oecetis ochracea
49110300	Paraponyx sp.	49110300	Paraponyx sp.	NBNYS50000008533	Oecetis testacea
50110201	Dolichocheza albipes (Stroem)	50110201	Dolichocheza albipes (Strom, 1768)	NBNYS50000008534	Paraponyx
50110339	Tipula rufina Meigen	50110339	Tipula (Savtshenka) rufina Meigen, 1818	NBNYS50000008535	Dolichocheza albipes
50110342	Tipula signata group	50110332	Tipula (Savtshenka) signata group	NBNYS50000008536	Tipula rufina
50110361	Tipula unca Wiedemann	50110361	Tipula (Beringotipula) unca Wiedemann, 1817	NBNYS50000008537	Tipula signata group
50110417	Tipula solstitialis Westhoff	501103A7	Tipula (Yamatotipula) pierrei Tonnoir, 1921	NBNYS50000008538	Tipula unca
5011041Z	Tipula montium group	501103A2	Tipula (Yamatotipula) montium group	NBNYS50000008539	Tipula solstitialis
50110422	Tipula oleracea L.	501103B2	Tipula (Tipula) oleracea Linnaeus, 1758	NBNYS50000008540	Tipula oleracea
50110423	Tipula paludosa Meigen	501103B3	Tipula (Tipula) paludosa Meigen, 1830	NBNYS50000008541	Tipula paludosa
50110433	Tipula maxima Poda	501103C3	Tipula (Acutipula) maxima Poda, 1761	NBNYS50000008542	Tipula maxima
50110434	Tipula vittata Meigen	501103C4	Tipula (Acutipula) vittata Meigen, 1804	NBNYS50000008543	Tipula vittata
50110500	Nephrotoma sp.	50110500	Nephrotoma sp.	NBNYS50000008544	Nephrotoma
50130100	Limonia sp.	50130100	Limonia sp.	NBNYS50000008545	Limonia
50130501	Antocha vitripennis (Meigen)	50130511	Antocha (Antocha) vitripennis (Meigen, 1830)	NBNYS50000008546	Antocha vitripennis
50130601	Thaumastoptera calceata Mik	50130601	Thaumastoptera calceata Mik, 1866	NBNYS50000008547	Thaumastoptera calceata
50130900	Hellus sp.	50130900	Hellus sp.	NBNYS50000008548	Hellus
50130200	Gonempeda group	50133200	Gonempeda group	NBNYS50000008549	Gonempeda group
50131040	Pedicia (Tricyphona) sp.	50140610	Tricyphona (Tricyphona) sp.	NBNYS50000008550	Pedicia (Tricyphona)
50131020	Pedicia (Pedicia) group	501401Z0	Pedicia (Pedicia) group	NBNYS50000008551	Pedicia (Pedicia) group
50131500	Dicranota sp.	50140500	Dicranota sp.	NBNYS50000008552	Dicranota
50131701	Austrolimnophila ochracea (Meigen)	50131711	Austrolimnophila (Austrolimnophila) ochracea (Meigen, 1804)	NBNYS50000008553	Austrolimnophila ochracea
50131900	Pseudolimnophila sp.	50131900	Pseudolimnophila sp.	NBNYS50000008554	Pseudolimnophila
50132010	Limnophila (Eloeophila) sp.	50132100	Eloeophila sp.	NBNYS50000008555	Limnophila (Eloeophila)
50132030	Limnophila (Phylidorea) sp.	50132400	Phylidorea sp.	NBNYS50000008556	Limnophila (Phylidorea)
50132040	Limnophila (Euphyllidorea) sp.	50132200	Euphyllidorea sp.	NBNYS50000008557	Limnophila (Euphyllidorea)
50132050	Limnophila (Limnophila) sp.	50132050	Limnophila (Limnophila) sp.	NBNYS501000012813	Limnophila (Limnophila)

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Rev. Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
50132610	Pilania (Neolimnomyia) sp.	50132520	Neolimnomyia (Neolimnomyia) sp.	NBNYS50100014354	Pilania (Neolimnomyia)
50132620	Pilania (Pilania) sp.	50132600	Pilania sp.	NBNYS50100014355	Pilania (Pilania)
50132800	Hexatoma sp.	50132800	Hexatoma sp.	NBNYS50000133824	Hexatoma
50133700	Lipsothrix sp.	50133700	Lipsothrix sp.	NBNYS50000134657	Lipsothrix
50134100	Erioptera sp.	50134100	Erioptera sp.	NBNYS50000132967	Erioptera
50134800	Ormosia sp.	50134810	Ormosia (Ormosia) sp.	NBNYS50100014065	Ormosia (Ormosia)
50135000	Scleroprocta sp.	50135000	Scleroprocta sp.	NBNYS50000137625	Scleroprocta
50135300	Molophilus sp.	50135300	Molophilus sp.	NBNYS50000135269	Molophilus
50135500	Rhypholophus sp.	50134900	Rhypholophus sp.	NBNYS50000139103	Ormosia (Rhypholophus)
50210202	Pericoma blandula Eaton	50210231	Pericoma (Pericoma) blandula Eaton, 1893	NBNYS50000027064	Pericoma blandula
50210204	Pericoma calcilega Feuerborn	50210232	Pericoma (Pericoma) calcilega Feuerborn, 1923	NBNYS50000027065	Pericoma calcilega
50210205	Pericoma canescens (Meigen)	50210251	Pericoma (Pneumia) canescens (Meigen, 1804)	NBNYS50000027066	Pericoma canescens
50210208	Pericoma diversa Tonnoir	50210233	Pericoma (Pericoma) diversa Tonnoir, 1920	NBNYS50000027067	Pericoma cognata
50210209	Pericoma exquisita Eaton	50210234	Pericoma (Pericoma) exquisita Eaton, 1893	NBNYS50000027071	Pericoma exquisita
50210212	Pericoma fallax Eaton	50210235	Pericoma (Pericoma) fallax Eaton, 1893	NBNYS50000027073	Pericoma fallax
50210213	Pericoma fuliginosa (Meigen)	50210272	Pericoma (Ulomyia) fuliginosa (Meigen, 1804)	NBNYS50000027074	Pericoma fuliginosa
50210217	Pericoma neglecta Eaton	50211101	Bazarilla neglecta (Eaton, 1893)	NBNYS50000027078	Pericoma neglecta
50210223	Pericoma pseudoequisita Tonnoir	50210237	Pericoma (Pericoma) pseudoequisita Tonnoir, 1940	NBNYS50000027083	Pericoma pseudoequisita
50210224	Pericoma pulchra Eaton	50211203	Tonnoirella pulchra (Eaton, 1893)	NBNYS50000027084	Pericoma pulchra
50210225	Pericoma trifasciata (Meigen)	5021023A	Pericoma (Pericoma) trifasciata (Meigen, 1804)	NBNYS50000027085	Pericoma trifasciata
50210252	Pericoma trivialis group	50210252	Pericoma trivialis group	<NEW-CODE> 100034	Pericoma trivialis group
50210402	Peripsychoda fusca (Macquart)	50210402	Peripsychoda fusca (Macquart, 1826)	NBNYS50000027105	Peripsychoda fusca
50210901	Psychoda alternata Say	50211801	Tineana alternata (Say, 1824)	NBNYS50000027122	Psychoda alternata
50210904	Psychoda gemina Eaton	50210904	Psychoda gemina (Eaton, 1904)	NBNYS50000027127	Psychoda gemina
50210907	Psychoda phalaenoides (L.)	50210907	Psychoda phalaenoides (Linnaeus, 1758)	NBNYS50000027133	Psychoda phalaenoides
50210908	Psychoda severini Tonnoir	50210908	Psychoda albipennis Zeitersiedt, 1850	NBNYS50000027136	Psychoda severini
50210909	Psychoda surcoufi Tonnoir	50210909	Psychoda surcoufi Tonnoir, 1922	NBNYS50000027137	Psychoda surcoufi
50220100	Psychoptera sp.	50220100	Psychoptera sp.	NBNYS50000137159	Psychoptera
50310101	Dixa dilatata Strobl	50310101	Dixa dilatata Strobl, 1900	NBNYS50000011553	Dixa dilatata
50310103	Dixa nebulosa Meigen	50310103	Dixa nebulosa Meigen, 1830	NBNYS50000011555	Dixa nebulosa
50310105	Dixa puberula Loew	50310105	Dixa puberula Loew, 1849	NBNYS50000011557	Dixa puberula
50310102	Dixa maculata complex	50310102	Dixa maculata complex	<NEW-CODE> 100036	Dixa maculata complex
50310205	Dixella filicornis Edwards	50310205	Dixella filicornis (Edwards, 1926)	NBNYS50000011563	Dixella filicornis
50320112	Chaoborus flavicans (Meigen)	50320112	Chaoborus (Chaoborus) flavicans (Meigen, 1830)	NBNYS50000027140	Chaoborus flavicans
50330100	Anopheles sp.	50330100	Anopheles sp.	NBNYS50000039883	Anopheles
50340100	Thaumalea sp.	50340100	Thaumalea sp.	NBNYS50000138362	Thaumalea
50350000	Ceratopogonidae	50350000	Ceratopogonidae	NBNYS50000037064	Ceratopogonidae
50360101	Prosimulium hirtipes (Fries, 1824)	50360101	Prosimulium hirtipes (Fries, 1824)	NBNYS50000027744	Prosimulium hirtipes
50360102	Prosimulium latimicro (Enderlein, 1925)	50360102	Prosimulium latimicro (Enderlein, 1925)	NBNYS50000027745	Prosimulium latimicro
50360103	Prosimulium tomosvaryi (Enderlein, 1921)	50360103	Prosimulium tomosvaryi (Enderlein, 1921)	NBNYS50000027746	Prosimulium tomosvaryi
50360311	Simulium laticipes (Meigen)	50360311	Simulium (Hellichiella) laticipes (Meigen, 1804)	NBNYS50000027756	Simulium laticipes
50360323	Simulium costatum Friederichs	50360323	Simulium (Nevermannia) costatum Friederichs, 1920	NBNYS50000005334	Simulium costatum
5036032Y	Simulium angustitarsae group	5036032Y	Simulium (Nevermannia) angustitarsae group	<NEW-CODE> 100038	Simulium angustitarsae group
5036032Z	Simulium cryophilum group	5036032Z	Simulium (Nevermannia) cryophilum group	<NEW-CODE> 100039	Simulium cryophilum group
5036033Z	Simulium vernum group	5036033Z	Simulium (Nevermannia) vernum group	<NEW-CODE> 100040	Simulium vernum group
5036034Z	Simulium aureum group	5036034Z	Simulium (Eusimulium) aureum group	<NEW-CODE> 100041	Simulium aureum group
50360350	Simulium (Wilhelmia) sp.	50360350	Simulium (Wilhelmia) sp.	NBNYS50100015240	Simulium (Wilhelmia)
50360361	Simulium erythrocephalum (de Geer)	50360361	Simulium (Boophthora) erythrocephalum (deGeer, 1776)	NBNYS50000027766	Simulium erythrocephalum
50360382	Simulium rostratum Lundström	50360382	Simulium (Simulium) rostratum (Lundström, 1911)	NBNYS50100005420	Simulium rostratum

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Rev. Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
50360384	Simulium morsitans Edwards	50360384	Simulium (Simulium) morsitans Edwards, 1915	NBNYS00000027772	Simulium morsitans
50360385	Simulium noellieri Friederichs	50360385	Simulium (Simulium) noellieri Friederichs, 1920	NBNYS0100005418	Simulium noellieri
50360387	Simulium posticatum Meigen	50360387	Simulium (Simulium) posticatum Meigen, 1838	NBNYS0100005419	Simulium posticatum
50360388	Simulium reptans (L.)	50360388	Simulium (Simulium) reptans (Linnaeus, 1758)	NBNYS0000027773	Simulium reptans
5036038Y	Simulium argyreatum group	5036038Y	Simulium (Simulium) argyreatum group	<NEW-CODE>100042	Simulium argyreatum group
5036038Z	Simulium ornatum group	5036038Z	Simulium (Simulium) ornatum group	<NEW-CODE>100043	Simulium ornatum group
50360391	Simulium tuberosum (Lundstrom)	5036038A	Simulium (Simulium) tuberosum (Lundström, 1911)	NBNYS0000027776	Simulium tuberosum
50420101	Clinotanyptus nervosus (Meigen)	50420101	Clinotanyptus nervosus (Meigen, 1818)	NBNYS0000027303	Clinotanyptus nervosus
50420201	Aspectrotanyptus trifasciipennis (Zetterstedt)	50420201	Aspectrotanyptus trifasciipennis (Zetterstedt, [1838])	NBNYS00000134835	Macropelopia
50420400	Macropelopia sp.	50420400	Macropelopia sp.	NBNYS0000037316	Procladius
50420500	Procladius sp.	50420500	Procladius sp.	NBNYS0000037316	Procladius
50420601	Psectrotanyptus varius (Fabricius)	50420601	Psectrotanyptus varius (Fabricius, 1787)	NBNYS0100004795	Psectrotanyptus varius
50420800	Abiabesmyia sp.	50420800	Abiabesmyia sp.	NBNYS00000139225	Abiabesmyia
50420Y00	Thienemannimyia group	50420Y00	Thienemannimyia group	<NEW-CODE>100046	Thienemannimyia group
50420Z00	Zavelimyia group	50420Z00	Zavelimyia group	<NEW-CODE>100047	Zavelimyia group
50421200	Krenopelopia sp.	50421200	Krenopelopia sp.	NHMSYS0000079029	Krenopelopia
50421402	Larsia curticalcar (Kieffer)	50421402	Larsia curticalcar (Kieffer, 1918)	NBNYS010003555	Larsia curticalcar
50421501	Monopelopia tenuicalcar (Kieffer)	50421501	Monopelopia tenuicalcar (Kieffer, 1918)	NBNYS0000027330	Monopelopia tenuicalcar
50421600	Natarsia sp.	50421600	Natarsia sp.	NBNYS00000135473	Natarsia
50421701	Nilotanyptus dubius (Meigen)	50421701	Nilotanyptus dubius (Meigen, 1804)	NBNYS0000027333	Nilotanyptus dubius
50422201	Trissopelopia longimana (Staeger)	50422201	Trissopelopia longimana (Staeger, 1839)	NBNYS0000027346	Trissopelopia longimana
50422300	Xenopelopia sp.	50422300	Xenopelopia sp.	NBNYS00000138930	Xenopelopia
50422500	Tanyptus sp.	50422500	Tanyptus sp.	NBNYS00000138230	Tanyptus
50440200	Diamesa sp.	50440200	Diamesa sp.	NBNYS00000132366	Diamesa
5044030Y	Pothastia gaedii group	5044030Y	Pothastia gaedii group	<NEW-CODE>100048	Pothastia gaedii group
5044030Z	Pothastia longimana group	5044030Z	Pothastia longimana group	<NEW-CODE>100049	Pothastia longimana group
50440400	Pseudodiamesa sp.	50440400	Pseudodiamesa sp.	NBNYS00000137006	Pseudodiamesa
50440600	Symphothastia sp.	50440600	Symphothastia sp.	NBNYS00000138152	Symphothastia
50450201	Odontomesa fulva (Kieffer)	50450201	Odontomesa fulva (Kieffer, 1919)	NBNYS0000027429	Odontomesa fulva
50450301	Prodiamesa olivacea (Meigen)	50450301	Prodiamesa olivacea (Meigen, 1818)	NBNYS0000027444	Prodiamesa olivacea
50460101	Acricotopus lucens (Zetterstedt)	50460101	Acricotopus lucens (Zetterstedt, 1850)	NBNYS0000027374	Acricotopus lucens
50460301	Brillia longifurca Kieffer	50460301	Brillia longifurca (Johannsen, 1905)	NBNYS0100002008	Brillia longifurca
50460302	Brillia modesta (Meigen)	50460302	Brillia bifida (Kieffer, 1909)	NBNYS0000027376	Brillia modesta
50460400	Cardiocladius sp.	50460400	Cardiocladius sp.	NBNYS0000027406	Cardiocladius
50460601	Diplocladius cultriger Kieffer	50460601	Diplocladius cultriger Kieffer, 1908	NBNYS0000027406	Diplocladius cultriger
50460Y00	Eukiefferiella group	50460Y00	Eukiefferiella group	<NEW-CODE>100050	Eukiefferiella group
50460Z00	Cricotopus group	50460Z00	Cricotopus group	<NEW-CODE>100051	Cricotopus group
50461001	Eurycnemus crassipes (Panzer)	50461001	Eurycnemus crassipes (Meigen, 1810)	NBNYS0000027418	Eurycnemus crassipes
50461201	Heterotanyptus apicalis (Kieffer)	50461201	Heterotanyptus apicalis (Kieffer, 1921)	NBNYS0000027423	Heterotanyptus apicalis
50461300	Heterotrissocladius sp.	50461300	Heterotrissocladius sp.	NBNYS00000133821	Heterotrissocladius
50461400	Hydrobaenus sp.?	50461400	Hydrobaenus sp.	<NEW-CODE>100052	Hydrobaenus group
50461800	Nanocladius sp.	50461800	Nanocladius sp.	NHMSYS0000079156	Nanocladius
50462051	Orthocladius lignicola (Kieffer)	50462051	Orthocladius (Symposokladius) lignicola Kieffer, 1915	NBNYS0100004234	Orthocladius lignicola
50462101	Paracadius convexus (Walker)	50462101	Paracadius convexus (Walker, 1856)	NBNYS0000027441	Paracadius convexus
50462700	Psectrocladius sp.	50462700	Psectrocladius sp.	NBNYS00000136966	Psectrocladius
50462800	Rheocricotopus sp.	50462800	Rheocricotopus sp.	NBNYS0000050291	Rheocricotopus
50462901	Synorthocladius semivirens (Kieffer)	50462901	Synorthocladius semivirens (Kieffer, 1909)	NBNYS0000027461	Synorthocladius semivirens
50463500	Bryophaenocladus sp.	50463500	Bryophaenocladus sp.	NBNYS00000131043	Bryophaenocladus
50463700	Chaetocladus sp.	50463700	Chaetocladus sp.	NBNYS00000131468	Chaetocladus
50463800	Corynoneura sp.	50463800	Corynoneura sp.	NBNYS00000131959	Corynoneura

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Rev. Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
50463901	Epicoeladus flavens (Malloch)	50463901	Epicoeladus ephemeræ (Kieffer, 1924)	NBNYS00000027493	Epicoeladus flavens
50464000	Gymnometrocnemus sp.	50464000	Gymnometrocnemus sp.	NBNYS00000133538	Gymnometrocnemus
50464101	Heleniella ornaticollis (Edwards)	50464101	Heleniella ornaticollis (Edwards, 1929)	NBNYS0000027497	Heleniella ornaticollis
50464200	Krenosmittia sp.	50464200	Krenosmittia sp.	NBNYS00000134259	Krenosmittia
50464300	Limnophyes sp.	50464300	Limnophyes sp.	NBNYS00000135110	Limnophyes
50464500	Metriccnemus sp.	50464500	Metriccnemus sp.	NBNYS00000136086	Metriccnemus
50464700	Parakiefferiella sp.	50464700	Parakiefferiella sp.	NBNYS00000136086	Parakiefferiella
50464901	Parametrocnemus borealpinus Gowin	50464901	Parametrocnemus borealpinus Gowin, 1942	NBNYS00100004338	Parametrocnemus borealpinus
50464902	Parametrocnemus stylatus (Kieffer)	50464902	Parametrocnemus stylatus (Spärck, 1923)	NBNYS0000027523	Parametrocnemus stylatus
50465000	Paraphaenocladus sp.	50465000	Paraphaenocladus sp.	NBNYS00000136113	Paraphaenocladus
50465101	Parasmittia carinata Strenzke	50465101	Parasmittia carinata Strenzke, 1950	NBNYS00100014173	Parasmittia carinata
50465201	Paratrissocladius excerptus (Walker)	50465201	Paratrissocladius excerptus (Walker, 1856)	NBNYS00100004365	Paratrissocladius excerptus
50465300	Pseudorthocladus sp.	50465300	Pseudorthocladus sp.	NBNYS00000137052	Pseudorthocladus
50465400	Pseudosmittia sp.	50465400	Pseudosmittia sp.	NBNYS00000137059	Pseudosmittia
50465600	Smittia sp.	50465600	Smittia sp.	NBNYS00000137817	Smittia
50465801	Thienemannia gracilis Kieffer	50465801	Thienemannia gracilis Kieffer, 1909	NBNYS00000138410	Thienemannia gracilis
50465900	Thienemannella sp.	50465900	Thienemannella sp.	NBNYS00000138410	Thienemannella
50470300	Chironomus sp.	50470300	Chironomus sp.	NBNYS0000037247	Chironomus
50470400	Cladopelma sp.	50470400	Cladopelma sp.	NBNYS00000078787	Cladopelma
50470500	Cryptochironomus sp.	50470500	Cryptochironomus sp.	NBNYS00000132064	Cryptochironomus
50470600	Cryptotendipes sp.	50470600	Cryptotendipes sp.	NBNYS00000132090	Cryptotendipes
50470801	Demicyptochironomus vulneratus (Zeitzarstedt)	50470811	Demicyptochironomus (Demicyptochironomus) vulneratus (Zeitzarstedt, [1838])	NBNYS0000027591	Demicyptochironomus vulneratus
50470900	Dicrotendipes sp.	50470900	Dicrotendipes sp.	NBNYS00000078853	Dicrotendipes
50471200	Glyptotendipes sp.	50471200	Glyptotendipes sp.	NBNYS00000133427	Glyptotendipes
50471400	Harnischia sp.	50471400	Harnischia sp.	NBNYS00000133649	Harnischia
50471501	Kiefferulus tendipediformis (Goetghebue)	50471501	Kiefferulus tendipediformis (Goetghebue, 1921)	NBNYS0000027614	Kiefferulus tendipediformis
50471900	Microtendipes sp.	50471900	Microtendipes sp.	NBNYS00000135188	Microtendipes
50471Y00	Endochironomus group	50471Y00	Endochironomus group	<NEW-CODE>100083	Endochironomus group
50471Z00	Einfeldia group	50471Z00	Einfeldia group	<NEW-CODE>100082	Einfeldia group
50472001	Nilothauma brayi (Goetghebue)	50472001	Nilothauma brayi (Goetghebue, 1921)	NBNYS0000027632	Nilothauma brayi
50472300	Parachironomus sp.	50472300	Parachironomus sp.	NBNYS00000079553	Parachironomus
50472400	Paracladopelma sp.	50472400	Paracladopelma sp.	NBNYS00000136068	Paracladopelma
50472501	Paralauterborniella nigrohalteralis (Malloch)	50472501	Paralauterborniella nigrohalteralis (Malloch, 1915)	NBNYS0000027646	Paralauterborniella nigrohalteralis
50472600	Paratendipes sp.	50472600	Paratendipes sp.	NBNYS00000136135	Paratendipes
50472800	Phaenopspectra sp.	50472800	Phaenopspectra sp.	NBNYS00000136335	Phaenopspectra
50472900	Polypedium sp.	50472900	Polypedium sp.	NBNYS00000037187	Polypedium
50473100	Stenochironomus sp.	50473100	Stenochironomus sp.	NBNYS00000137999	Stenochironomus
50473200	Sitochironomus sp.	50473200	Sitochironomus sp.	NBNYS00000138041	Sitochironomus
50473301	Xenochironomus xenolabis (Kieffer)	50473301	Xenochironomus xenolabis (Kieffer, 1916)	NBNYS00100005907	Xenochironomus xenolabis
50490100	Cladotanytarsus sp.	50490100	Cladotanytarsus sp.	NBNYS00000131693	Cladotanytarsus
50490300	Neozavrella sp.	50490300	Neozavrella sp.	NBNYS00000079182	Neozavrella
50490X00	Paratanytarsus group	50490X00	Paratanytarsus group	<NEW-CODE>100222	Paratanytarsus group
50490701	Stempellina bausei (Kieffer)	50490701	Stempellina bausei (Kieffer, 1911)	NBNYS0000027738	Stempellina bausei
50490W00	Micropspectra group	50490W00	Micropspectra group	<NEW-CODE>100055	Micropspectra group
50490Y00	Stempellinella group	50490Y00	Stempellinella group	<NEW-CODE>100057	Stempellinella group
50610200	Nemotelus sp.	50610200	Nemotelus sp.	NBNYS00000135522	Nemotelus
50610300	Oxycera sp.	50610300	Oxycera sp.	NBNYS00000135962	Oxycera
50610500	Odontomyia sp.	50610500	Odontomyia sp.	NBNYS00000135728	Odontomyia
50620101	Atherix ibis (Fabricius)	50640101	Atherix ibis (Fabricius, 1798)	NBNYS00000007858	Atherix ibis
50620102	Atherix marginata (Fabricius)	50640301	Ibsia marginata (Fabricius, 1781)	NBNYS00000007859	Atherix marginata

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50620201	Atrichops crassipes (Meigen)	50640201	Atrichops crassipes (Meigen, 1820)	NBNSYS00000007860	Atrichops crassipes
50630100	Chrysops sp.	50630100	Chrysops sp.	NBNSYS00000041854	Chrysops
50630200	Tabanus group	50630200	Tabanus group	<NEW-CODE>100059	Tabanus group
50710W00	Chelifera group	5071YW00	Chelifera group	<NEW-CODE>100060	Chelifera group
50710X00	Hemerodromia group	5071YX00	Hemerodromia group	<NEW-CODE>100061	Hemerodromia group
50720000	Dolichopodidae	50720000	Dolichopodidae	NBNSYS00000159881	Dolichopodidae
507X0000	Clinocerinae	5071X000	Clinocerinae	<NEW-CODE>100064	Clinocerinae
50810000	Syrphidae	50810000	Syrphidae	NBNSYS00000040188	Syrphidae
50820000	Sciomyzidae	50820000	Sciomyzidae	NBNSYS00000160954	Sciomyzidae
50830000	Ephydriidae	50830000	Ephydriidae	NBNSYS00000159951	Ephydriidae
50850200	Limnophora sp.	50850200	Limnophora sp.	NBNSYS00000037023	Limnophora

Component members of species groups used in RIVPACS IV at taxonomic level 4 (RIVPACS species)

Furze Code	Furze Group Name	Constituent taxa
0511020Z	Polycelis nigra group	Polycelis nigra & Polycelis tenuis
0512010Z	Dugesia polychroa group	Dugesia polychroa & Dugesia lugubris
17120200	Anodonta group	Anodonta sp. & Pseudanodonta complanata
20110200	Lumbriculus group	Lumbriculus variegatus, Rhyndhelmis limroseiella (& other Lumbriculidae?)
2033070Y	Nais communis group	Nais communis & Nais variabilis
2033070Z	Nais simplex group	Nais simplex, Nais barbata & Nais pseudobiusa
4012011Z	Baetis scambus group	Baetis scambus & Baetis fuscalus
4051020X	Caenis pseudonivulorum group	Caenis pseudonivulorum, Caenis beskidensis & possibly other species
4051020Z	Caenis luctuosa group	Caenis luctuosa & Caenis macrura
4112040Z	Nemoura cambrica group	Nemoura cambrica & Nemoura erratica
4212040Z	Coenagrion puella group	Coenagrion puella & Coenagrion pulchellum
4515020Z	Gyrinus natator group	Gyrinus natator & Gyrinus substriatus
4831010Z	Agrypnia obsoleta group	Agrypnia obsoleta & Agrypnia varia
48340W00	Micropterna group	Micropterna sp. & Stenophylax sp.
48340X00	Potamophylax group	Potamophylax sp., Allogamus auricollis & Chaetophylax villosa
5011033Z	Tipula (Saxshenkia) signata group	Tipula (Saxshenkia) signata & Tipula (Saxshenkia) staegeri
501103AZ	Tipula (Yamatotipula) monilum group	Tipula (Yamatotipula) monilum, Tipula (Yamatotipula) couckeri & Tipula (Yamatotipula) lateralis
50133Z00	Gonempeda group	Gonempeda flava (Schummei), Chelotrichia (Chelotrichia) imbuta (Meigen) and Chelotrichia (Platytoma) cineracens (Meigen)
50140120	Pedicia (Pedicia) group	Pedicia (Pedicia) rivosia, Pedicia (Chironia) sp. & Pedicia (Amalopsis) occidata
5021025Z	Pericoma trivialis group	Pericoma trivialis, Pericoma nubila (Meigen) + additional species ?
5031010Z	Dixa maculata complex	Dixa maculata, Dixa nubilipennis & Dixa submaculata
5036032Y	Simulium (Nevermannia) angustitarse group	Simulium (Nevermannia) angustitarse, Simulium (Nevermannia) lundstromi & Simulium (Nevermannia) latigonium
5036032Z	Simulium (Nevermannia) cryophilum group	Simulium (Nevermannia) cryophilum, Simulium (Nevermannia) armoicanum, Simulium (Nevermannia) dunfellense & Simulium (Nevermannia) urbanum
5036032X	Simulium (Nevermannia) vernum group	Simulium (Nevermannia) vernum, Simulium (Nevermannia) juktacrenobium & Simulium (Nevermannia) naturale
5036034Z	Simulium (Eusimulium) aureum group	Simulium (Eusimulium) aureum, Simulium (Eusimulium) argustipes & Simulium (Eusimulium) velutinum
5036038Y	Simulium (Simulium) argyreatum group	Simulium (Simulium) argyreatum & Simulium (Simulium) variegatum
5036038Z	Simulium (Simulium) ornatum group	Simulium (Simulium) ornatum, Simulium (Simulium) infasciatum & Simulium (Simulium) intermedium
50420Y00	Thienemannimyia group	Thienemannimyia sp., Arctopelopia sp., Rheopelopia sp. & Conchapelopia sp.
50420Z00	Zavelimyia group	Zavelimyia sp. & Paramerina sp.
5044030Y	Pothisia gaedii group	Pothisia gaedii + additional species ?
5044030Z	Pothisia longimanus group	Pothisia longimanus + additional species ?
50460Y00	Eukiefferiella group	Eukiefferiella sp. & Tvetenia sp.
50461Z00	Hydrobaenus group	Cricotopus sp., Paratrichocladius sp. & all species of Orthocladius except Orthocladius (Symptostociadius) lignicola
50471Y00	Endochironomus group	Indet Orthocladinae resembling Hydrobaenus sp.
50471Z00	Einfeldia group	Endochironomus sp., Syntendoidipides sp. & Tribelos sp.
50490W00	Micropectra group	Einfeldia sp. & Chironomus (Lobochironomus) dissiders
50490X00	Paratanytarsus group	Micropectra sp., Tanytarsus sp., Virgatanytarsus sp., Tanytarsini gen. nov.? & Subletitia sp.?
50490Y00	Stempellinella group	Paratanytarsus sp. & Rhectanytarsus sp.
50630Z00	Tabanus group	Stempellinella sp. & Zavelia sp.
5071YW00	Cheilifera group	Tabanus sp. & Haematopota sp.
5071YX00	Hemerodromia group	Cheilifera sp. + additional genera ? Hemerodromia sp. + additional genera ?

Notes

The Revised Maitland coded group 1621020Z *Physa acuta* group comprised *Physa acuta* Draparnaud & *Physa heterostropha* Say – both of which are now regarded as being synonymous with *Physella (Costatella) acuta* Draparnaud, 1805).

The Revised Maitland coded group 2033150Z *Pristina idrensis* group comprised *Pristina amphibia* Lastockin, *Pristina idrensis* Sperber & *Pristina memoni* (Aiyer) – all of which are downgraded to the genus *Pristina* (*Pristinella*) sp. in RIVPACS IV.

**Appendix X Taxonomic Level 5 –
The 417 “WFD Species” level taxa in RIVPACS IV
(including component members of species groups)**

Appendix X Taxonomic Level 5 – The 417 “WFD Species” level taxa in RIVPACS IV (including component members of species groups)

REV. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
05110101	Planaria torva (Müller)	05110101	Planaria torva (Müller, 1774)	NBNSYS0000013180	Planaria torva
05110201	Polycelis felina (Dalyell)	05110201	Polycelis felina (Dalyell, 1814)	NBNSYS0000013183	Polycelis felina
05110202	Polycelis nigra group	05110202	Polycelis nigra group	<NEW-CODE>100001	Polycelis nigra group
05110301	Phagocata vitta (Duges)	05110301	Phagocata vitta (Duges, 1830)	NBNSYS0000013186	Phagocata vitta
05110401	Crenobia alpina (Dana)	05110401	Crenobia alpina (Dana, 1766)	NBNSYS0000013188	Crenobia alpina
05120103	Dugesia tigrina (Girard)	05120103	Dugesia tigrina (Girard, 1850)	NBNSYS0000188431	Dugesia tigrina
05120102	Dugesia polychroa group	05120102	Dugesia polychroa group	<NEW-CODE>100002	Dugesia polychroa group
05130101	Bdelocephala punctata (Pallas)	05130101	Bdelocephala punctata (Pallas, 1774)	NBNSYS0000013191	Bdelocephala punctata
05130201	Dendrocoelum lacteum (Müller)	05130201	Dendrocoelum lacteum (O.F. Müller, 1774)	NBNSYS0000013190	Dendrocoelum lacteum
10000000	Nematoda	10000000	Nematoda	NBNSYS0000160506	Nematoda
16110101	Theodoxus fluviatilis (L.)	16110101	Theodoxus fluviatilis (Linnaeus, 1758)	NBNSYS0000006601	Theodoxus fluviatilis
16120102	Viviparus viviparus (L.)	16120102	Viviparus viviparus (Linnaeus, 1758)	NBNSYS0000006602	Viviparus viviparus
16130101	Valvata cristata Müller	16130111	Valvata (Valvata) cristata O.F. Müller, 1774	NBNSYS0000006604	Valvata cristata
16130102	Valvata macrostoma Mörch	16130121	Valvata (Tropidina) macrostoma Mörch, 1864	NBNSYS0000006605	Valvata macrostoma
16130103	Valvata piscinalis (Müller)	16130131	Valvata (Circinna) piscinalis (O.F. Müller, 1774)	NBNSYS0000006606	Valvata piscinalis
16140301	Potamopyrgus jenkinsi (Smith)	16140301	Potamopyrgus antipodarum (J.E. Gray, 1843)	NBNSYS0000006613	Potamopyrgus jenkinsi
16160101	Bithynia leachii (Sheppard)	16160121	Bithynia (Codiella) leachii (Sheppard, 1823)	NBNSYS0000006616	Bithynia leachii
16160102	Bithynia tentaculata (L.)	16160111	Bithynia (Bithynia) tentaculata (Linnaeus, 1758)	NBNSYS0000006615	Bithynia tentaculata
16210101	Aplexa hypnorum (L.)	16210101	Aplexa hypnorum (Linnaeus, 1758)	NBNSYS0000006624	Aplexa hypnorum
16210202	Physa fontinalis (L.)	16210202	Physa fontinalis (Linnaeus, 1758)	NBNSYS0000006625	Physa fontinalis
16210202	Physa acuta group	16210321	Physella (Costatella) acuta (Draparnaud, 1805)	NBNSYS0000006626	Physa acuta
16220101	Lymnaea auricularia (L.)	16220601	Radix auricularia (Linnaeus, 1758)	NBNSYS0000006634	Lymnaea auricularia
16220103	Lymnaea palustris (Müller)	16220401	Stagnicola palustris (O.F. Müller, 1774)	NBNSYS0000006632	Lymnaea palustris
16220104	Lymnaea peregra (Müller)	16220602	Radix bathica (Linnaeus, 1758)	NBNSYS0000006635	Lymnaea peregra
16220105	Lymnaea stagnalis (L.)	16220105	Lymnaea stagnalis (Linnaeus, 1758)	NBNSYS0000006633	Lymnaea stagnalis
16220106	Lymnaea truncatula (Müller)	16220301	Galba truncatula (O.F. Müller, 1774)	NBNSYS0000006630	Lymnaea truncatula
16230101	Planorbis carinatus Müller	16230111	Planorbis (Planorbis) carinatus (O.F. Müller, 1774)	NBNSYS0000006638	Planorbis carinatus
16230102	Planorbis planorbis (L.)	16230112	Planorbis (Planorbis) planorbis (Linnaeus, 1758)	NBNSYS0000006637	Planorbis planorbis
16230201	Anisus leucostoma (Millet)	16230211	Anisus (Anisus) leucostoma (Millet, 1813)	NBNSYS0000006639	Anisus leucostoma
16230202	Anisus vortex (L.)	16230221	Anisus (Disculifer) vortex (Linnaeus, 1758)	NBNSYS0000006640	Anisus vortex
16230301	Bathymphalus contortus (L.)	16230301	Bathymphalus contortus (Linnaeus, 1758)	NBNSYS0000006642	Bathymphalus contortus
16230402	Gyraulus albus (Müller)	16230412	Gyraulus (Gyraulus) albus (O.F. Müller, 1774)	NBNSYS0000006645	Gyraulus albus
16230403	Gyraulus laevis (Alder)	16230421	Gyraulus (Torquus) laevis (Alder, 1838)	NBNSYS0000006643	Gyraulus laevis
16230501	Armiger crista (L.)	16230431	Gyraulus (Armiger) crista (Linnaeus, 1758)	NBNSYS0000006646	Armiger crista
16230601	Hippeutis complanatus (L.)	16230601	Hippeutis complanatus (Linnaeus, 1758)	NBNSYS0000006647	Hippeutis complanatus
16230701	Segmentina nitida Müller	16230701	Segmentina nitida (O.F. Müller, 1774)	NBNSYS0000006648	Segmentina nitida
16230801	Planorbantus cornuus (L.)	16230801	Planorbantus cornuus (Linnaeus, 1758)	NBNSYS0000006649	Planorbantus cornuus
16240101	Ancylus fluviatilis Müller	16231101	Ancylus fluviatilis O.F. Müller, 1774	NBNSYS0000006651	Ancylus fluviatilis
16250101	Acroloxus lacustris (L.)	16250101	Acroloxus lacustris (Linnaeus, 1758)	NBNSYS0000006652	Acroloxus lacustris
17110101	Margaritifera margaritifera (L.)	17110101	Margaritifera margaritifera (Linnaeus, 1758)	NBNSYS0000006779	Margaritifera margaritifera
17120100	Unio sp.	17120100	Unio sp.	NBNSYS0000138782	Unio
17120200	Anodonta group	17120200	Anodonta group	<NEW-CODE>100004	Anodonta group
17130100	Sphaerium sp.	17130100	Sphaerium sp.	NBNSYS0000042342	Sphaerium
17130200	Pisidium sp.	17130200	Pisidium sp.	NBNSYS0000041651	Pisidium
17140101	Dreissena polymorpha (Pallas)	17140101	Dreissena polymorpha (Pallas, 1771)	NBNSYS0000006809	Dreissena polymorpha

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Rev. Maitland Code	Rev. Maitland Name	Eurse.Code	Eurse.Name	NBN Code	NBN Name
20000000	Oligochaeta	20000000	Oligochaeta	NBNYS00000022328	Oligochaeta
22110101	Pisiccola geometra (L.)	22110101	Pisiccola geometra (Linnaeus, 1761)	NHMSYS0000068867	Pisiccola geometra
22120201	Theromyzon tessulatum (Muller)	22120201	Theromyzon tessulatum (O.F.Müller, 1774)	NHMSYS0000068877	Theromyzon tessulatum
22120301	Hemicleipsis marginata (Muller)	22120301	Hemicleipsis marginata (O.F.Müller, 1774)	NHMSYS0000068875	Hemicleipsis marginata
22120401	Glossiphonia complanata (L.)	22120401	Glossiphonia complanata (Linnaeus, 1758)	NBNYS00000013205	Glossiphonia complanata
22120402	Glossiphonia heterodita (L.)	22120402	Alboglossiphonia heterodita (Linnaeus, 1761)	NBNYS00000013204	Glossiphonia heterodita
22120501	Batrachobdella paludosa (Carena)	22120404	Glossiphonia paludosa (Carena, 1824)	NBNYS00000013206	Batrachobdella paludosa
22120601	Boreobdella verrucata (Muller)	22120403	Glossiphonia verrucata (Fr. Müller, 1844)	NBNYS00000013207	Boreobdella verrucata
22120701	Helobdella stagnalis (L.)	22120701	Helobdella stagnalis (Linnaeus, 1758)	NBNYS00000013208	Helobdella stagnalis
22210101	Haemopis sanguisuga (L.)	22210101	Haemopis sanguisuga (Linnaeus, 1758)	NBNYS00000022371	Haemopis sanguisuga
22310101	Eprobodella octoculata (L.)	22310101	Eprobodella octoculata (Linnaeus, 1758)	NBNYS00000022374	Eprobodella octoculata
22310102	Eprobodella testacea (Savigny)	22310102	Eprobodella testacea (Savigny, 1812)	NHMSYS0000068879	Eprobodella testacea
22310201	Dina lineata (Muller)	22310201	Dina lineata (O.F.Müller, 1774)	NHMSYS0000068878	Dina lineata
22310301	Trocheta bykowskii Gedroyc	22310301	Trocheta bykowskii Gedroyc, 1913	NBNYS00000022377	Trocheta bykowskii
22310302	Trocheta subviridis Dutochet	22310302	Trocheta subviridis Dutochet, 1817	NBNYS00000022376	Trocheta subviridis
24000000	Hydracarina	24000000	Hydracarina	NBNYS0100012468	Hydracarina
34310000	Astacidae	34310000	Astacidae	NBNYS00000159453	Astacidae
36110101	Aesellus aquaticus (L.)	36110101	Aesellus aquaticus (Linnaeus, 1758)	NBNYS0000008589	Aesellus aquaticus
36110104	Aesellus meridianus Racovitza	36110202	Proasellus meridianus (Racovitza, 1919)	NBNYS0000008591	Aesellus meridianus
37110100	Corophium sp.	37110100	Corophium sp.	NBNYS00000188483	Corophium
37130101	Crangonyx pseudograclis Bousfield	37130101	Crangonyx pseudograclis Bousfield, 1958	NBNYS00000013808	Crangonyx pseudograclis
37140202	Gammarus duebeni Lijeborg	37140202	Gammarus duebeni Lijeborg, 1852	NBNYS00000013798	Gammarus duebeni
37140203	Gammarus lacustris Sars	37140203	Gammarus lacustris Sars, 1863	NBNYS00000013799	Gammarus lacustris
37140206	Gammarus pulex (L.)	37140206	Gammarus pulex (Linnaeus, 1758)	NBNYS00000013800	Gammarus pulex
37140208	Gammarus tigrinus Sexton	37140208	Gammarus tigrinus Sexton, 1939	NBNYS00000033149	Gammarus tigrinus
37140209	Gammarus zaddachi Sexton	37140209	Gammarus zaddachi Sexton, 1912	NBNYS00000013801	Gammarus zaddachi
37150201	Niphargus aquilex Schiodte	37150201	Niphargus aquilex Schiodte, 1855	NBNYS00000013811	Niphargus aquilex
40110103	Siphonurus lacustris Eaton	40110103	Siphonurus lacustris (Eaton, 1870)	NBNYS00000010862	Siphonurus lacustris
40110201	Ameletus inopinatus Eaton	40110201	Ameletus inopinatus Eaton, 1887	NBNYS00000010859	Ameletus inopinatus
40120101	Baetis atrebatinus Eaton	40120601	Lablobaetis atrebatinus (Eaton, 1870)	NBNYS01000003541	Lablobaetis atrebatinus
40120102	Baetis buceratus Eaton	40120102	Baetis buceratus Eaton, 1870	NBNYS00000010864	Baetis buceratus
40120103	Baetis digitatus Bengtsson	40120701	Nigrobaetis digitatus (Bengtsson, 1912)	NBNYS01000004152	Nigrobaetis digitatus
40120105	Baetis muticus (L.)	40120501	Alainites muticus (Linnaeus, 1758)	NBNYS01000001341	Alainites muticus
40120106	Baetis niger (L.)	40120702	Nigrobaetis niger (Linnaeus, 1761)	NBNYS01000004153	Nigrobaetis niger
40120107	Baetis rhodani (Pictet)	40120107	Baetis rhodani (Pictet, 1843-1845)	NHMSYS0000066962	Baetis rhodani
40120111	Baetis vernus Curtis	40120111	Baetis vernus Curtis, 1834	NBNYS00000010871	Baetis vernus
40120112	Baetis scambus group	40120112	Baetis scambus group	<NEW-CODE>100011	Baetis scambus group
40120201	Centropilum luteolum (Muller)	40120201	Centropilum luteolum (Müller, 1776)	NHMSYS0000066963	Centropilum luteolum
40120202	Centropilum pennulatum Eaton	40120402	Procoenon pennulatum (Eaton, 1870)	NHMSYS0000066965	Procoenon pennulatum
40120301	Cloeon dipterum (L.)	40120301	Cloeon dipterum (Linnaeus, 1761)	NHMSYS0000066966	Cloeon dipterum
40120302	Cloeon simile Eaton	40120302	Cloeon simile Eaton, 1870	NBNYS00000010875	Cloeon simile
40120401	Procoenon bifidum Bengtsson	40120401	Procoenon bifidum (Bengtsson, 1912)	NBNYS00000010876	Procoenon bifidum
40130100	Rhithrogena sp.	40130100	Rhithrogena sp.	NHMSYS0000066955	Rhithrogena
40130201	Heptagenia fuscogrisea (Retzius)	40130601	Kageronia fuscogrisea (Retzius, 1783)	NBNYS01000003524	Kageronia fuscogrisea
40130202	Heptagenia lateralis (Curtis)	40130502	Electrogena lateralis (Curtis, 1834)	<NEW-CODE>100012	Heptagenia lateralis
40130204	Heptagenia sulphurea (Muller)	40130204	Heptagenia sulphurea (Müller, 1776)	NHMSYS0000066973	Heptagenia sulphurea
40130400	Ecdyonurus sp.	40130400	Ecdyonurus sp.	NHMSYS0000066951	Ecdyonurus
40210101	Leptophlebia marginata (L.)	40210101	Leptophlebia marginata (Linnaeus, 1767)	NBNYS00000066974	Leptophlebia marginata
40210102	Leptophlebia vespertina (L.)	40210102	Leptophlebia vespertina (Linnaeus, 1758)	NBNYS00000010890	Leptophlebia vespertina
40210201	Paraleptophlebia cincta (Retzius)	40210201	Paraleptophlebia cincta (Retzius, 1835)	NBNYS00000010891	Paraleptophlebia cincta

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Rev. Maitland Code	Rev. Maitland Name	Furse Code	Furse Name	NBN Code	NBN Name
40210202	Paraleptophlebia submarginata (Stephens)	40210202	Paraleptophlebia submarginata (Stephens, 1835)	NBNYS00000010892	Paraleptophlebia submarginata
40210203	Paraleptophlebia werneri Ulmer	40210203	Paraleptophlebia werneri Ulmer, 1919	NBNYS00000010893	Paraleptophlebia werneri
40210301	Habrophlebia fusca (Curtis)	40210301	Habrophlebia fusca (Curtis, 1834)	NBNYS00000010888	Habrophlebia fusca
40310101	Potamanthus luteus (L.)	40310101	Potamanthus luteus (Linnaeus, 1767)	NHMSY00000066975	Potamanthus luteus
40320101	Ephemera danica Muller	40320101	Ephemera danica Müller, 1764	NHMSY00000066970	Ephemera danica
40320102	Ephemera lineata Eaton	40320102	Ephemera lineata Eaton, 1870	NBNYS00000010898	Ephemera lineata
40320103	Ephemera vulgata L.	40320103	Ephemera vulgata Linnaeus, 1758	NBNYS001000005389	Ephemera vulgata
40410101	Ephemerella ignita (Poda)	40410102	Ephemerella notata Eaton, 1887	NBNYS001000005389	Serratella ignita
40510101	Brachycercus harrisiella Curtis	40510101	Brachycercus harrisiella Curtis, 1834	NBNYS00000010900	Brachycercus harrisiella
40510201	Caenis horaria (L.)	40510201	Caenis horaria (Linnaeus, 1758)	NHMSY00000066966	Caenis horaria
40510204	Caenis rivulorum Eaton	40510204	Caenis rivulorum Eaton, 1884	NBNYS00000010904	Caenis rivulorum
40510205	Caenis robusta Eaton	40510205	Caenis robusta Eaton, 1884	NBNYS00000010905	Caenis robusta
40510208	Caenis pusilla Navas	40510208	Caenis pusilla Navás, 1913	NHMSY00000066969	Caenis pusilla
4051020X	Caenis pseudorivulorum group	4051020X	Caenis pseudorivulorum group	<NEW-CODE> 1000113	Caenis pseudorivulorum group
4051020Z	Caenis luctuosa group	4051020Z	Caenis luctuosa group	<NEW-CODE> 1000114	Caenis luctuosa group
41110101	Taeniopteryx nebulosa (L.)	41110101	Taeniopteryx nebulosa (Linnaeus, 1758)	NBNYS00000022416	Taeniopteryx nebulosa
41110301	Brachyptera putata (Newman)	41110301	Brachyptera putata (Newman, 1838)	NBNYS00000022413	Brachyptera putata
41110302	Brachyptera risi (Morton)	41110302	Brachyptera risi (Morton, 1896)	NBNYS00000022414	Brachyptera risi
41120101	Protonemura meyeri (Pictet)	41120101	Protonemura meyeri (Pictet, 1841)	NBNYS00000022425	Protonemura meyeri
41120102	Protonemura montana Kimmins	41120102	Protonemura montana Kimmins, 1941	NBNYS00000022426	Protonemura montana
41120103	Protonemura praecox (Morton)	41120103	Protonemura praecox (Morton, 1894)	NBNYS00000022427	Protonemura praecox
41120201	Amphinemura standfussi Ris	41120201	Amphinemura standfussi Ris, 1902	NBNYS00000022417	Amphinemura standfussi
41120202	Amphinemura sulcipectus (Stephens)	41120202	Amphinemura sulcipectus (Stephens, 1836)	NBNYS00000022418	Amphinemura sulcipectus
41120301	Nemurella picteti Klappalek	41120301	Nemurella picteti Klappalek, 1900	NBNYS0100013706	Nemurella picteti
41120401	Nemoura avicularis Morton	41120401	Nemoura avicularis Morton, 1894	NBNYS00000022419	Nemoura avicularis
41120403	Nemoura cinerea (Reznus)	41120403	Nemoura cinerea (Reznus, 1783)	NBNYS00000022421	Nemoura cinerea
4112040Z	Nemoura cambrica group	4112040Z	Nemoura cambrica group	<NEW-CODE> 1000115	Nemoura cambrica group
41130101	Leuctra fusca (L.)	41130101	Leuctra fusca (Linnaeus, 1758)	NBNYS00000022428	Leuctra fusca
41130102	Leuctra geniculata (Stephens)	41130102	Leuctra geniculata (Stephens, 1836)	NBNYS00000022429	Leuctra geniculata
41130103	Leuctra hippopus (Kempny)	41130103	Leuctra hippopus Kempny, 1899	NBNYS00000022430	Leuctra hippopus
41130104	Leuctra inermis Kempny	41130104	Leuctra inermis Kempny, 1899	NBNYS00000022431	Leuctra inermis
41130105	Leuctra moseleyi Morton	41130105	Leuctra moseleyi Morton, 1929	NBNYS00000022432	Leuctra moseleyi
41130106	Leuctra nigra (Olivier)	41130106	Leuctra nigra (Olivier, 1811)	NBNYS00000022433	Leuctra nigra
41140101	Capnia atra Morton	41140101	Capnia atra Morton, 1896	NBNYS00000022434	Capnia atra
41140102	Capnia bifrons (Newman)	41140102	Capnia bifrons (Newman, 1839)	NBNYS00000022435	Capnia bifrons
41210201	Periodes microcephala (Pictet)	41210201	Periodes microcephala (Pictet, 1833)	NBNYS00000022441	Periodes microcephala
41210301	Diura bicaudata (L.)	41210301	Diura bicaudata (Linnaeus, 1758)	NBNYS00000022437	Diura bicaudata
41210401	Isoperla grammatica (Poda)	41210401	Isoperla grammatica (Poda, 1761)	NBNYS00000022439	Isoperla grammatica
41220101	Dinocras cephalotes (Curtis)	41220101	Dinocras cephalotes (Curtis, 1827)	NBNYS00000022442	Dinocras cephalotes
41220201	Perla bipunctata Pictet	41220201	Perla bipunctata Pictet, 1833	NBNYS00000022443	Perla bipunctata
41230102	Chloroperla torrentium (Pictet)	41230102	Siphonoperla torrentium (Pictet, 1841)	NBNYS00000022445	Chloroperla torrentium
41230103	Chloroperla tripunctata (Scopoli)	41230103	Chloroperla tripunctata (Scopoli, 1763)	NBNYS00000022446	Chloroperla tripunctata
42110101	Platycnemis pennipes (Pallas)	42110101	Platycnemis pennipes (Pallas, 1771)	NBNYS0000005598	Platycnemis pennipes
42120101	Pyrrhosoma nymphula (Sulzer)	42120101	Pyrrhosoma nymphula (Sulzer, 1776)	NBNYS0000005599	Pyrrhosoma nymphula
42120201	Ischnura elegans (Van der Linden)	42120201	Ischnura elegans (Van der Linden, 1820)	NBNYS0000005600	Ischnura elegans
42120301	Enallagma cyathigerum (Charpentier)	42120301	Enallagma cyathigerum (Charpentier, 1840)	NBNYS0000005602	Enallagma cyathigerum
4212040Z	Coenagrion puella group	4212040Z	Coenagrion puella group	<NEW-CODE> 1000116	Coenagrion puella group
42120601	Erythromma najas (Hansemann)	42120601	Erythromma najas (Hansemann, 1823)	NBNYS0000005610	Erythromma najas
42140101	Calopteryx splendens (Harris)	42140101	Calopteryx splendens (Harris, 1782)	NBNYS0000005617	Calopteryx splendens

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Rev. Maitland Code	Rev. Maitland Name	Furuse Code	Furuse Name	NBN Code	NBN Name
42140102	Calopteryx virgo (L.)	42140102	Calopteryx virgo (Linnaeus, 1758)	NBNYS00000005616	Calopteryx virgo
42210101	Gomphus vulgatissimus (L.)	42210101	Gomphus vulgatissimus (Linnaeus, 1758)	NBNYS00000005620	Gomphus vulgatissimus
42220101	Cordulegaster boltonii (Donovan)	42220101	Cordulegaster boltonii (Donovan, 1807)	NBNYS00000005621	Cordulegaster boltonii
42230101	Brachytron pratense (Muller)	42230101	Brachytron pratense (Muller, 1764)	NBNYS00000005622	Brachytron pratense
42230200	Aeshna sp.	42230200	Aeshna sp.	NBNYS000000039880	Aeshna
42250100	Orthetrum sp.	42250100	Orthetrum sp.	NBNYS00000135890	Orthetrum
42250300	Sympetrum sp.	42250300	Sympetrum sp.	NBNYS000000039911	Sympetrum
43110101	Mesovella furcata Mulsant & Rey	43110101	Mesovella furcata Mulsant & Rey, 1852	NBNYS00000010354	Mesovella furcata
43210102	Hydrometra stagnorum (L.)	43210102	Hydrometra stagnorum (Linnaeus, 1758)	NBNYS0000010358	Hydrometra stagnorum
43220100	Vella sp.	43220100	Vella sp.	NBNYS00000138826	Vella
43230111	Gerris argentatus Schummel	43230111	Gerris argentatus Schummel, 1832	NBNYS00000010368	Gerris argentatus
43230114	Gerris lacustris (L.)	43230114	Gerris lacustris (Linnaeus, 1758)	NBNYS00000010369	Gerris lacustris
43230116	Gerris odontogaster (Zetterstedt)	43230116	Gerris odontogaster (Zetterstedt, 1828)	NBNYS00000010370	Gerris odontogaster
43230117	Gerris thoracicus Schummel	43230117	Gerris thoracicus Schummel, 1832	NBNYS00000010366	Gerris thoracicus
43230121	Gerris najas (DeGeer)	43230301	Aquarius najas (DeGeer, 1773)	NBNYS00100012076	Gerris najas
43310101	Nepa cinerea L.	43310101	Nepa cinerea Linnaeus, 1758	NBNYS00000010374	Nepa cinerea
43410101	Ilyocoris cimicoides (L.)	43410101	Ilyocoris cimicoides (Linnaeus, 1758)	NBNYS00000010376	Ilyocoris cimicoides
43420101	Aphelocheirus aestivalis (Fabricius)	43420101	Aphelocheirus aestivalis (Fabricius, 1794)	NBNYS00000010377	Aphelocheirus aestivalis
43510101	Notonecta glauca L.	43510101	Notonecta glauca Linnaeus, 1758	NBNYS00000010378	Notonecta glauca
43510102	Notonecta maculata Fabricius	43510102	Notonecta maculata Fabricius, 1794	NBNYS00000010381	Notonecta maculata
43510103	Notonecta obliqua Gallen	43510103	Notonecta obliqua Gallen in Thunberg, 1787	NBNYS00000010380	Notonecta obliqua
43610100	Micronecta sp.	43610100	Micronecta sp.	NBNYS00000051126	Micronecta
43610302	Cymatia coleoptrata (Fabricius)	43610302	Cymatia coleoptrata (Fabricius, 1777)	NBNYS00000010387	Cymatia coleoptrata
43610501	Callicorixa praevusta (Fieber)	43610501	Callicorixa praevusta (Fieber, 1848)	NBNYS00000010389	Callicorixa praevusta
43610502	Callicorixa wollastoni (Douglas & Scott)	43610502	Callicorixa wollastoni (Douglas & Scott, 1865)	NBNYS00000010390	Callicorixa wollastoni
43610601	Corixa affinis Leach	43610601	Corixa affinis Leach, 1817	NBNYS00000010394	Corixa affinis
43610602	Corixa dentipes (Thomson)	43610602	Corixa dentipes (Thomson, 1869)	NBNYS00000010391	Corixa dentipes
43610603	Corixa panzeri (Fieber)	43610603	Corixa panzeri (Fieber, 1848)	NBNYS00000010395	Corixa panzeri
43610604	Corixa punctata (Illiger)	43610604	Corixa punctata (Illiger, 1807)	NBNYS00000010393	Corixa punctata
43610702	Hesperocorixa linnei (Fieber)	43610702	Hesperocorixa linnei (Fieber, 1848)	NBNYS00000010396	Hesperocorixa linnei
43610704	Hesperocorixa sahlbergi (Fieber)	43610704	Hesperocorixa sahlbergi (Fieber, 1848)	NBNYS00000010397	Hesperocorixa sahlbergi
43610910	Sigara (Sigara) sp.	43610910	Sigara (Sigara) sp.	NBNYS00100015230	Sigara (Sigara)
43610921	Sigara distincta (Fieber)	43610921	Sigara (Subsigara) distincta (Fieber, 1848)	NBNYS00000010404	Sigara distincta
43610922	Sigara falleni (Fieber)	43610922	Sigara (Subsigara) falleni (Fieber, 1848)	NBNYS00000010405	Sigara falleni
43610924	Sigara fossarum (Leach)	43610924	Sigara (Subsigara) fossarum (Leach, 1817)	NBNYS00000010407	Sigara fossarum
43610925	Sigara scotti (Fieber)	43610925	Sigara (Subsigara) scotti (Douglas & Scott, 1868)	NBNYS00000010408	Sigara scotti
43610941	Sigara lateralis (Leach)	43610941	Sigara (Vermicorixa) lateralis (Leach, 1817)	NBNYS00000010409	Sigara lateralis
43610951	Sigara nigrolineata (Fieber)	43610951	Sigara (Pseudovermicorixa) nigrolineata (Fieber, 1848)	NBNYS00000010410	Sigara nigrolineata
43610972	Sigara semistriata (Fieber)	43610972	Sigara (Retrocorixa) semistriata (Fieber, 1848)	NBNYS00000010413	Sigara semistriata
43610973	Sigara venusta (Douglas & Scott)	43610973	Sigara (Retrocorixa) venusta (Douglas & Scott, 1869)	NBNYS00000010414	Sigara venusta
45110101	Brychius elevatus (Panzer)	45110101	Brychius elevatus (Panzer, 1793)	NBNYS00000007493	Brychius elevatus
45110302	Halipilus confinis Stephens	45110302	Halipilus confinis Stephens, 1828	NBNYS00000007496	Halipilus confinis
45110303	Halipilus flavicollis Sturm	45110303	Halipilus flavicollis Sturm, 1834	NBNYS00000007497	Halipilus flavicollis
45110304	Halipilus fluviatilis Aube	45110304	Halipilus fluviatilis Aubé, 1836	NBNYS00000007498	Halipilus fluviatilis
45110307	Halipilus heydeni Wehncke	45110307	Halipilus heydeni Wehncke, 1875	NBNYS00000007501	Halipilus heydeni
45110308	Halipilus immaculatus Gerhardt	45110308	Halipilus immaculatus Gerhardt, 1877	NBNYS00000007502	Halipilus immaculatus
45110309	Halipilus lamnatus Schaller	45110309	Halipilus lamnatus (Schaller, 1783)	NBNYS00000007503	Halipilus lamnatus
45110311	Halipilus lineatocollis (Marsham)	45110311	Halipilus lineatocollis (Marsham, 1802)	NBNYS00000007504	Halipilus lineatocollis
45110312	Halipilus lineolatus Mannerheim	45110312	Halipilus lineolatus Mannerheim, 1844	NBNYS00000007505	Halipilus lineolatus
45110315	Halipilus ruficollis (DeGeer)	45110315	Halipilus ruficollis (DeGeer, 1774)	NBNYS00000007508	Halipilus ruficollis

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45110318	Haliplus wehnckei (Gerhardt)	45110318	Haliplus sibiricus Motschúsky, 1860	NBNYS00000007511	Haliplus wehnckei
45130101	Noterus clavicornis (DeGeer)	45130101	Noterus clavicornis (DeGeer, 1774)	NBNYS00000007513	Noterus clavicornis
45140101	Laccophilus hyalinus (DeGeer)	45140101	Laccophilus hyalinus (DeGeer, 1774)	NBNYS00000007516	Laccophilus hyalinus
45140102	Laccophilus minutus (L.)	45140102	Laccophilus minutus (Linnaeus, 1758)	NBNYS00000007517	Laccophilus minutus
45140301	Hyphydrus ovatus (L.)	45140301	Hyphydrus ovatus (Linnaeus, 1761)	NBNYS00000007521	Hyphydrus ovatus
45140602	Hygrotus inaequalis (Fabricius)	45140612	Hygrotus (Hygrotus) inaequalis (Fabricius, 1777)	NBNYS00000007526	Hygrotus inaequalis
45140604	Hygrotus versicolor (Schaller)	45140614	Hygrotus (Hygrotus) versicolor (Schaller, 1783)	NBNYS00000007528	Hygrotus versicolor
45140801	Hydroporus angustatus Sturm	45140801	Hydroporus angustatus Sturm, 1835	NBNYS00000007534	Hydroporus angustatus
45140803	Hydroporus discretus Fairmaire & Brisout	45140803	Hydroporus discretus Fairmaire & Brisout, 1859	NBNYS00000007536	Hydroporus discretus
45140807	Hydroporus ferrugineus Stephens	45140807	Hydroporus ferrugineus Stephens, 1829	NBNYS00000007539	Hydroporus ferrugineus
45140817	Hydroporus memnonius Nicolai	45140817	Hydroporus memnonius Nicolai, 1822	NBNYS00000007548	Hydroporus memnonius
45140821	Hydroporus nigrita (Fabricius)	45140821	Hydroporus nigrita (Fabricius, 1792)	NBNYS00000007551	Hydroporus nigrita
45140822	Hydroporus obscurus Sturm	45140822	Hydroporus obscurus Sturm, 1835	NBNYS00000007552	Hydroporus obscurus
45140824	Hydroporus palustris (L.)	45140824	Hydroporus palustris (Linnaeus, 1761)	NBNYS00000007554	Hydroporus palustris
45140825	Hydroporus planus (Fabricius)	45140825	Hydroporus planus (Fabricius, 1782)	NBNYS00000007555	Hydroporus planus
45140826	Hydroporus pubescens (Gyllenhal)	45140826	Hydroporus pubescens (Gyllenhal, 1808)	NBNYS00000007556	Hydroporus pubescens
45140831	Hydroporus tessellatus Drapiez	45140831	Hydroporus tessellatus (Drapiez, 1819)	NBNYS00000007560	Hydroporus tessellatus
45140901	Stictonectes lepidus (Olivier)	45140901	Stictonectes lepidus (Olivier, 1795)	NBNYS00000007564	Stictonectes lepidus
45141004	Graptodytes pictus (Fabricius)	45141004	Graptodytes pictus (Fabricius, 1787)	NBNYS00000007568	Graptodytes pictus
45141101	Porhydrus lineatus (Fabricius)	45141101	Porhydrus lineatus (Fabricius, 1775)	NBNYS00000007569	Porhydrus lineatus
45141201	Deronectes latus (Stephens)	45141201	Deronectes latus (Stephens, 1829)	NBNYS00000007570	Deronectes latus
45141301	Potamonectes assimilis (Paykull)	45141301	Potamonectes assimilis (Paykull, 1798)	NBNYS00000007572	Nebroporus assimilis
45141303	Potamonectes depressus (Fabricius)	45141303	Nebroporus depressus (Fabricius, 1775)	NBNYS00000007572	Nebroporus depressus
45141401	Stictotarsus duodecimpustulatus (Fabricius)	45141401	Stictotarsus duodecimpustulatus (Fabricius, 1792)	NBNYS00000007576	Stictotarsus duodecimpustulatus
45141501	Oreodytes davisii (Curtis)	45141501	Oreodytes davisii (Curtis, 1831)	NBNYS00000152835	Oreodytes davisii
45141502	Oreodytes sanmarkii (Sahlberg)	45141502	Oreodytes sanmarkii (C.R. Sahlberg, 1826)	NBNYS00000152838	Oreodytes sanmarkii
45141503	Oreodytes septentrionalis (Sahlberg)	45141503	Oreodytes septentrionalis (Gyllenhal, 1826)	NBNYS00000152838	Oreodytes septentrionalis
45141601	Scarodytes halensis (Fabricius)	45141601	Scarodytes halensis (Fabricius, 1787)	NBNYS00000007581	Scarodytes halensis
45141901	Platambus maculatus (L.)	45141901	Platambus maculatus (Linnaeus, 1758)	NBNYS00000007584	Platambus maculatus
45142004	Agabus bipustulatus (L.)	45142004	Agabus bipustulatus (Linnaeus, 1767)	NBNYS00000007588	Agabus bipustulatus
45142006	Agabus chalconatus (Panzer)	45142108	Ilybius chalconatus (Panzer, 1796)	NBNYS00000007590	Agabus chalconatus
45142009	Agabus didymus (Olivier)	45142009	Agabus didymus (Olivier, 1795)	NBNYS00000007593	Agabus didymus
45142011	Agabus guttatus (Paykull)	45142011	Agabus guttatus (Paykull, 1798)	NBNYS00000007594	Agabus guttatus
45142016	Agabus peludosus (Fabricius)	45142016	Agabus peludosus (Fabricius, 1801)	NBNYS00000007599	Agabus peludosus
45142018	Agabus sturmi (Gyllenhal)	45142018	Agabus sturmi (Gyllenhal, 1808)	NBNYS00000007601	Agabus sturmi
45142100	Ilybius sp.	45142100	Ilybius sp.	NBNYS00000134103	Ilybius
45142301	Colymbetes fuscus (L.)	45142301	Colymbetes fuscus (Linnaeus, 1758)	NBNYS00000007618	Colymbetes fuscus
45142602	Acilius sulcatus (L.)	45142602	Acilius sulcatus (Linnaeus, 1758)	NBNYS00000007626	Acilius sulcatus
45142705	Dytiscus marginalis L.	45142705	Dytiscus marginalis Linnaeus, 1758	NBNYS00000007632	Dytiscus marginalis
45142706	Dytiscus semisulcatus Muller	45142706	Dytiscus semisulcatus O.F. Müller, 1776	NBNYS00000007633	Dytiscus semisulcatus
45150201	Gyrinus aeratus Stephens	45150201	Gyrinus aeratus Stephens, 1835	NBNYS00000007635	Gyrinus aeratus
45150204	Gyrinus distinctus Aubé	45150204	Gyrinus distinctus Aubé, 1837	NBNYS00000007638	Gyrinus distinctus
45150205	Gyrinus marinus Gyllenhal	45150205	Gyrinus marinus Gyllenhal, 1808	NBNYS00000007639	Gyrinus marinus
45150202	Gyrinus natator group	45150202	Gyrinus natator group	<NEW-CODE>100019	Gyrinus natator group
45150212	Gyrinus urnator Illiger	45150212	Gyrinus urnator Illiger, 1807	NBNYS00000007645	Gyrinus urnator
45150401	Orectochilus villosus (Muller)	45150401	Orectochilus villosus (O.F. Müller, 1776)	NBNYS00000007646	Orectochilus villosus
45310201	Hydrochus angustatus Germar	45360101	Hydrochus angustatus Germar, 1824	NBNYS00000007649	Hydrochus angustatus
45310341	Helophorus aequalis Thomson	45330141	Helophorus (Meghelophorus) aequalis Thomson, 1868	NBNYS00000007655	Helophorus aequalis
45310342	Helophorus grandis Illiger	45330142	Helophorus (Meghelophorus) grandis Illiger, 1798	NBNYS00000007662	Helophorus grandis
45310351	Helophorus arvernicus Mulsant	45330151	Helophorus (Rhopelohophorus) arvernicus Mulsant, 1846	NBNYS00000007657	Helophorus arvernicus

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45310352	Helophorus brevipalpis Bedd	Helophorus (Rhopalohelophorus) brevipalpis Bedd, 1881	45330152	Helophorus (Rhopalohelophorus) brevipalpis Bedd, 1881	NBNYS00000007658	Helophorus brevipalpis
45310362	Helophorus flavipes Fabricius	Helophorus (Helophorus) flavipes Fabricius, 1792	45330162	Helophorus (Helophorus) flavipes Fabricius, 1792	NBNYS00000007660	Helophorus flavipes
45310368	Helophorus minutus Fabricius	Helophorus (Helophorus) minutus Fabricius, 1775	45330168	Helophorus (Helophorus) minutus Fabricius, 1775	NBNYS00000007667	Helophorus minutus
45310371	Helophorus obscurus Mulsant	Helophorus (Helophorus) obscurus Mulsant, 1844	4533016A	Helophorus (Helophorus) obscurus Mulsant, 1844	NBNYS00000007670	Helophorus obscurus
45310372	Helophorus strigifrons Thomson	Helophorus (Helophorus) strigifrons Thomson, 1868	4533016B	Helophorus (Helophorus) strigifrons Thomson, 1868	NBNYS00000007673	Helophorus strigifrons
45311002	Paracymus scutellaris (Rosenhauer)	Paracymus scutellaris (Rosenhauer, 1856)	45351102	Paracymus scutellaris (Rosenhauer, 1856)	NBNYS00000007705	Paracymus scutellaris
45311101	Hydrobius fuscipes (L.)	Hydrobius fuscipes (Linnaeus, 1758)	45351101	Hydrobius fuscipes (Linnaeus, 1758)	NBNYS00000010907	Hydrobius fuscipes
45311301	Anacaena bipustulata (Marsham)	Anacaena bipustulata (Marsham, 1802)	45351301	Anacaena bipustulata (Marsham, 1802)	NBNYS00000007707	Anacaena bipustulata
45311302	Anacaena globulus (Paykull)	Anacaena globulus (Paykull, 1829)	45351302	Anacaena globulus (Paykull, 1829)	NBNYS00000007708	Anacaena globulus
45311303	Anacaena limbata (Fabricius)	Anacaena limbata (Fabricius, 1792)	45351303	Anacaena limbata (Fabricius, 1792)	NBNYS00000033265	Anacaena limbata
45311304	Anacaena lutescens (Stephens)	Anacaena lutescens (Stephens, 1829)	45351304	Anacaena lutescens (Stephens, 1829)	<NEW-CODE> 100020	Anacaena lutescens
45311411	Laccobius biguttatus Gerhardt	Laccobius (Laccobius) colon (Stephens, 1829)	45351411	Laccobius (Laccobius) colon (Stephens, 1829)	NBNYS00000007713	Laccobius biguttatus
45311412	Laccobius minutus (L.)	Laccobius (Laccobius) minutus (Linnaeus, 1758)	45351412	Laccobius (Laccobius) minutus (Linnaeus, 1758)	NBNYS00000007715	Laccobius minutus
45311421	Laccobius atrocephalus Reitter	Laccobius (Macrolaccobius) atratus Rottentburg, 1874	45351421	Laccobius (Macrolaccobius) atratus Rottentburg, 1874	NBNYS00000007711	Laccobius atratus
45311422	Laccobius sinuatus Motschulsky	Laccobius (Macrolaccobius) yemensis Sharp, 1910	45351422	Laccobius (Macrolaccobius) yemensis Sharp, 1910	NBNYS00000007712	Laccobius atrocephalus
45311427	Laccobius striatulus (Fabricius)	Laccobius (Macrolaccobius) sinuatus Motschulsky, 1849	45351426	Laccobius (Macrolaccobius) sinuatus Motschulsky, 1849	NBNYS00000007718	Laccobius sinuatus
45311708	Enochrus testaceus (Fabricius)	Laccobius (Macrolaccobius) striatulus (Fabricius, 1801)	45351427	Laccobius (Macrolaccobius) striatulus (Fabricius, 1801)	NBNYS00000007719	Laccobius striatulus
45410103	Ochthebius bicolor Germar	Enochrus testaceus (Fabricius, 1801)	45351708	Enochrus testaceus (Fabricius, 1801)	NBNYS00000007733	Enochrus testaceus
45410104	Ochthebius dilatatus Stephens	Ochthebius bicolor Germar, 1824	45410103	Ochthebius bicolor Germar, 1824	NBNYS00000007744	Ochthebius bicolor
45410106	Ochthebius exsculptus Germar	Ochthebius dilatatus Stephens, 1829	45410104	Ochthebius dilatatus Stephens, 1829	NBNYS00000007746	Ochthebius dilatatus
45410109	Ochthebius minimus (Fabricius)	Ochthebius exsculptus (Germar, 1824)	45410106	Ochthebius exsculptus (Germar, 1824)	NBNYS00000007751	Ochthebius exsculptus
45410202	Hydraena gracilis Germar	Ochthebius minimus (Fabricius, 1792)	45410109	Ochthebius minimus (Fabricius, 1792)	NBNYS00000007758	Ochthebius minimus
45410204	Hydraena nigrita Germar	Hydraena gracilis Germar, 1824	45410202	Hydraena gracilis Germar, 1824	NBNYS00000007759	Hydraena gracilis
45410206	Hydraena pulchella Germar	Hydraena nigrita Germar, 1824	45410204	Hydraena nigrita Germar, 1824	NBNYS00000007761	Hydraena nigrita
45410208	Hydraena riparia Kugelann	Hydraena pulchella Germar, 1824	45410206	Hydraena pulchella Germar, 1824	NBNYS00000007763	Hydraena pulchella
45410209	Hydraena rufipes Curtis	Hydraena riparia Kugelann, 1794	45410208	Hydraena riparia Kugelann, 1794	NBNYS00000007765	Hydraena riparia
45410211	Hydraena testacea Curtis	Hydraena rufipes Curtis, 1830	45410209	Hydraena rufipes Curtis, 1830	NBNYS00000007766	Hydraena rufipes
45410303	Limnebius nitidus (Marsham)	Hydraena testacea Curtis, 1831	45410211	Hydraena testacea Curtis, 1831	NBNYS00000007767	Hydraena testacea
45410305	Limnebius truncatellus (Thunberg)	Limnebius nitidus (Marsham, 1802)	45410303	Limnebius nitidus (Marsham, 1802)	NBNYS00000007770	Limnebius nitidus
45510100	Elodes sp.	Limnebius truncatellus (Thunberg, 1794)	45410305	Limnebius truncatellus (Thunberg, 1794)	NBNYS00000007772	Limnebius truncatellus
45510300	Cyphon sp.	Elodes sp.	45510100	Elodes sp.	NBNYS00000132774	Elodes
45510401	Prionocyphon serricornis (Müller)	Cyphon sp.	45510300	Cyphon sp.	NBNYS00000132190	Cyphon
45510501	Hydrocyphon deflexicollis (Müller)	Prionocyphon serricornis (Müller, 1821)	45510401	Prionocyphon serricornis (Müller, 1821)	NBNYS00000024184	Prionocyphon serricornis
45620101	Helichus substriatus (Müller)	Hydrocyphon deflexicollis (Müller, 1821)	45510501	Hydrocyphon deflexicollis (Müller, 1821)	NBNYS00000024185	Hydrocyphon deflexicollis
45620200	Dryops sp.	Helichus substriatus (Müller, 1806)	45620101	Helichus substriatus (Müller, 1806)	NBNYS00000132652	Helichus substriatus
45630101	Elmis aenea (Müller)	Dryops sp.	45620200	Dryops sp.	NBNYS00000132652	Dryops
45630201	Esolus parallelepipeds (Müller)	Elmis aenea (Müller, 1806)	45630101	Elmis aenea (Müller, 1806)	NBNYS00000007783	Elmis aenea
45630301	Limnius volckmani (Panzer)	Esolus parallelepipeds (Müller, 1806)	45630201	Esolus parallelepipeds (Müller, 1806)	NBNYS00000007784	Esolus parallelepipeds
45630401	Macronychus quadrituberculatus Müller	Limnius volckmani (Panzer, 1793)	45630301	Limnius volckmani (Panzer, 1793)	NBNYS00000007785	Limnius volckmani
45630501	Normandia nitens (Müller)	Macronychus quadrituberculatus Müller, 1806	45630401	Macronychus quadrituberculatus Müller, 1806	NBNYS00000007786	Macronychus quadrituberculatus
45630601	Oulimnius major (Rey)	Normandia nitens (Müller, 1817)	45630501	Normandia nitens (Müller, 1817)	NBNYS00000007787	Normandia nitens
45630602	Oulimnius rivulans (Rosenhauer)	Oulimnius major (Rey, 1889)	45630601	Oulimnius major (Rey, 1889)	NBNYS00000007788	Oulimnius major
45630603	Oulimnius troglodytes (Gyllenhal)	Oulimnius rivulans (Rosenhauer, 1856)	45630602	Oulimnius rivulans (Rosenhauer, 1856)	NBNYS00000007789	Oulimnius rivulans
45630604	Oulimnius tuberculatus (Müller)	Oulimnius troglodytes (Gyllenhal, 1827)	45630603	Oulimnius troglodytes (Gyllenhal, 1827)	NBNYS00000007790	Oulimnius troglodytes
45630701	Riolus cupreus (Müller)	Oulimnius tuberculatus (Müller, 1806)	45630604	Oulimnius tuberculatus (Müller, 1806)	NBNYS00000007791	Oulimnius tuberculatus
45630702	Riolus subvulvaceus (Müller)	Riolus cupreus (Müller, 1806)	45630701	Riolus cupreus (Müller, 1806)	NBNYS00000007792	Riolus cupreus
46110101	Stalis fuliginosa Pictet	Riolus subvulvaceus (Müller, 1817)	45630702	Riolus subvulvaceus (Müller, 1817)	NBNYS00000007793	Riolus subvulvaceus
46110102	Stalis lutaria (L.)	Stalis fuliginosa Pictet, 1836	46110101	Stalis fuliginosa Pictet, 1836	NBNYS00000010794	Stalis fuliginosa
46110103	Stalis nigripes Pictet	Stalis lutaria (Linnaeus, 1758)	46110102	Stalis lutaria (Linnaeus, 1758)	NBNYS00000010795	Stalis lutaria
		Stalis nigripes Pictet, 1865	46110103	Stalis nigripes Pictet, 1865	NBNYS00000010796	Stalis nigripes

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Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
481.10101	Rhyacophila dorsalis (Curtis)	48110101	Rhyacophila dorsalis (Curtis, 1834)	NBNYS00000008339	Rhyacophila dorsalis
481.10102	Rhyacophila munda McLachlan	48110102	Rhyacophila munda McLachlan, 1862	NBNYS00000008340	Rhyacophila munda
481.10103	Rhyacophila obliterata McLachlan	48110103	Rhyacophila obliterata McLachlan, 1863	NBNYS00000008341	Rhyacophila obliterata
481.10104	Rhyacophila septentrionis McLachlan	48110104	Rhyacophila fasciata Hagen, 1859	NBNYS00000008342	Rhyacophila septentrionis
481.20200	Glossosoma sp.	48120100	Glossosoma sp.	NBNYS00000042268	Glossosoma
481.30400	Agapetus sp.	48120200	Agapetus sp.	NBNYS00000037044	Agapetus
481.30101	Agraylea multipunctata Curtis	48130101	Agraylea multipunctata Curtis, 1834	NBNYS00000008349	Agraylea multipunctata
481.30102	Agraylea sexmaculata Curtis	48130102	Agraylea sexmaculata Curtis, 1834	NBNYS00000008350	Agraylea sexmaculata
481.30201	Allotrichia pallicornis (Eaton)	48130201	Allotrichia pallicornis (Eaton, 1873)	NBNYS00000008351	Allotrichia pallicornis
481.30300	Hydropsyche sp.	48130300	Hydropsyche sp.	NBNYS00000042281	Hydropsyche sp.
481.30400	Oxyethira sp.	48130400	Oxyethira sp.	NBNYS00000042308	Oxyethira
481.30600	Ithytrichia sp.	48130600	Ithytrichia sp.	NBNYS00000134173	Ithytrichia
482.10101	Philopotamus montanus (Donovan)	48210101	Philopotamus montanus (Donovan, 1813)	NBNYS00000008380	Philopotamus montanus
482.10200	Wormaldia sp.	48210200	Wormaldia sp.	NBNYS00000138908	Wormaldia
482.10301	Chimarra marginata (L.)	48210301	Chimarra marginata (Linnaeus, 1761)	NBNYS00000008384	Chimarra marginata
482.20100	Lype sp.	48220100	Lype sp.	NBNYS00000042295	Lype
482.20201	Metatype fragilis (Pictet)	48220201	Metatype fragilis (Pictet, 1834)	NBNYS00000008387	Metatype fragilis
482.20301	Psychomyia pusilla (Fabricius)	48220301	Psychomyia pusilla (Fabricius, 1781)	NBNYS00000008388	Psychomyia pusilla
482.20402	Tinodes dves (Pictet)	48220402	Tinodes dves (Pictet, 1834)	NBNYS00000008390	Tinodes dves
482.20407	Tinodes unicolor (Pictet)	48220407	Tinodes unicolor (Pictet, 1834)	NBNYS00000008395	Tinodes unicolor
482.20408	Tinodes waeneri (L.)	48220408	Tinodes waeneri (Linnaeus, 1758)	NBNYS00000008396	Tinodes waeneri
482.30101	Ecnomus tenellus (Rambur)	48230101	Ecnomus tenellus (Rambur, 1842)	NBNYS00000008397	Ecnomus tenellus
482.40101	Cynurus flavidus McLachlan	48240101	Cynurus flavidus McLachlan, 1864	NBNYS00000008399	Cynurus flavidus
482.40103	Cynurus trimaculatus (Curtis)	48240103	Cynurus trimaculatus (Curtis, 1834)	NBNYS00000008401	Cynurus trimaculatus
482.40202	Holocentropus picicornis (Stephens)	48240202	Holocentropus picicornis (Stephens, 1836)	NBNYS00000008403	Holocentropus picicornis
482.40301	Neureclipsis bimaculata (L.)	48240301	Neureclipsis bimaculata (Linnaeus, 1758)	NBNYS00000008405	Neureclipsis bimaculata
482.40402	Plectrocnemia conspersa (Curtis)	48240402	Plectrocnemia conspersa (Curtis, 1834)	NBNYS00000008407	Plectrocnemia conspersa
482.40403	Plectrocnemia geniculata McLachlan	48240403	Plectrocnemia geniculata McLachlan, 1871	NBNYS00000008408	Plectrocnemia geniculata
482.40501	Polycentropus flavomaculatus (Pictet)	48240501	Polycentropus flavomaculatus (Pictet, 1834)	NBNYS00000008409	Polycentropus flavomaculatus
482.40502	Polycentropus irroratus (Curtis)	48240502	Polycentropus irroratus (Curtis, 1835)	NBNYS00000008410	Polycentropus irroratus
482.40503	Polycentropus kingi McLachlan	48240503	Polycentropus kingi McLachlan, 1881	NBNYS00000008411	Polycentropus kingi
482.50101	Cheumatopsyche lepida (Pictet)	48250101	Cheumatopsyche lepida (Pictet, 1834)	NBNYS00000008412	Cheumatopsyche lepida
482.50201	Hydropsyche angustipennis (Curtis)	48250201	Hydropsyche angustipennis (Curtis, 1834)	NBNYS00000008413	Hydropsyche angustipennis
482.50203	Hydropsyche contubernalis McLachlan	48250203	Hydropsyche contubernalis McLachlan, 1865	NBNYS00000008415	Hydropsyche contubernalis
482.50205	Hydropsyche fulvipes (Curtis)	48250205	Hydropsyche fulvipes (Curtis, 1834)	NBNYS00000008417	Hydropsyche fulvipes
482.50206	Hydropsyche instabilis (Curtis)	48250206	Hydropsyche instabilis (Curtis, 1834)	NBNYS00000008418	Hydropsyche instabilis
482.50207	Hydropsyche pellucidula (Curtis)	48250207	Hydropsyche pellucidula (Curtis, 1834)	NBNYS00000008419	Hydropsyche pellucidula
482.50208	Hydropsyche saxonica McLachlan	48250208	Hydropsyche saxonica McLachlan, 1884	NBNYS00000008420	Hydropsyche saxonica
482.50209	Hydropsyche siltalai Dohler	48250209	Hydropsyche siltalai Dohler, 1963	NBNYS00000008421	Hydropsyche siltalai
482.50301	Diplectrona felix McLachlan	48250301	Diplectrona felix McLachlan, 1878	NBNYS00000008422	Diplectrona felix
483.10102	Agrypnia obsoleta group	48310102	Agrypnia obsoleta group	<NEW-CODE>100022	Agrypnia obsoleta group
483.10500	Phryganea sp.	48310500	Phryganea sp.	NBNYS00000039909	Phryganea
483.20101	Brachycentrus subnubilus Curtis	48320101	Brachycentrus subnubilus Curtis, 1834	NBNYS00000008433	Brachycentrus subnubilus
483.30101	Crunoecia irrorata (Curtis)	48330101	Crunoecia irrorata (Curtis, 1834)	NBNYS00000008434	Crunoecia irrorata
483.30201	Lasiocephala basalis (Kolenati)	48330201	Lasiocephala basalis (Kolenati, 1848)	NBNYS00000008435	Lasiocephala basalis
483.30301	Lepidostoma hirtum (Fabricius)	48330301	Lepidostoma hirtum (Fabricius, 1775)	NBNYS00000008436	Lepidostoma hirtum
483.40202	Apantania muliebris McLachlan	48340202	Apantania muliebris McLachlan, 1866	NBNYS00000008439	Apantania muliebris
483.40301	Drusus annulatus (Stephens)	48340301	Drusus annulatus (Stephens, 1837)	NBNYS00000008442	Drusus annulatus
483.40401	Ecdisopteryx guttulata (Pictet)	48340401	Ecdisopteryx guttulata (Pictet, 1834)	NBNYS00000008443	Ecdisopteryx guttulata
483.40600	Halesus sp.	48340600	Halesus sp.	NBNYS00000042270	Halesus

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Rev. Maitland Code	Rev. Maitland Name	Furze-Code	Furze-Name	NBN Code	NBN Name
48340701	Hydatophylax infirmatus (McLachlan)	48340701	Hydatophylax infirmatus (McLachlan, 1865)	NBNYS00000008448	Hydatophylax infirmatus
48340801	Melampophylax mucoreus (Hagen)	48340801	Melampophylax mucoreus (Hagen, 1861)	NBNYS00000008449	Melampophylax mucoreus
48341401	Anabolia nervosa (Curtis)	48341401	Anabolia nervosa (Curtis, 1834)	NBNYS00000008462	Anabolia nervosa
48341501	Glyptotaelius pellicidus (Retzius)	48341501	Glyptotaelius pellicidus (Retzius, 1783)	NBNYS00000008463	Glyptotaelius pellicidus
48341703	Limnephilus binotatus Curtis	48341703	Limnephilus binotatus Curtis, 1834	NBNYS00000008468	Limnephilus binotatus
48341704	Limnephilus bipunctatus Curtis	48341704	Limnephilus bipunctatus Curtis, 1834	NBNYS00000008469	Limnephilus bipunctatus
48341708	Limnephilus decipiens (Kolenati)	48341708	Limnephilus decipiens (Kolenati, 1848)	NBNYS00000008473	Limnephilus decipiens
48341711	Limnephilus extricatus McLachlan	48341711	Limnephilus extricatus McLachlan, 1865	NBNYS00000008475	Limnephilus extricatus
48341712	Limnephilus flavicornis (Fabricius)	48341712	Limnephilus flavicornis (Fabricius, 1787)	NBNYS00000008476	Limnephilus flavicornis
48341713	Limnephilus fuscicornis (Rambur)	48341713	Limnephilus fuscicornis (Rambur, 1842)	NBNYS00000008477	Limnephilus fuscicornis
48341719	Limnephilus lunatus Curtis	48341719	Limnephilus lunatus Curtis, 1834	NBNYS00000008483	Limnephilus lunatus
48341722	Limnephilus marmoratus Curtis	48341722	Limnephilus marmoratus Curtis, 1834	NBNYS00000008485	Limnephilus marmoratus
48341725	Limnephilus politus McLachlan	48341725	Limnephilus politus McLachlan, 1865	NBNYS00000008488	Limnephilus politus
48341726	Limnephilus rhombicus (L.)	48341726	Limnephilus rhombicus (Linnaeus, 1758)	NBNYS00000008489	Limnephilus rhombicus
48341732	Limnephilus vittatus (Fabricius)	48341732	Limnephilus vittatus (Fabricius, 1798)	NBNYS00000008494	Limnephilus vittatus
48341W00	Micropterna group	48340W00	Micropterna group	<NEW-CODE> 100025	Micropterna group
48341X00	Potamophylax group	48340X00	Potamophylax group	<NEW-CODE> 100026	Potamophylax group
48350101	Goera pilosa (Fabricius)	48350101	Goera pilosa (Fabricius, 1775)	NBNYS00000008498	Goera pilosa
48350201	Silo nigricornis (Pictet)	48350201	Silo nigricornis (Pictet, 1834)	NBNYS00000008499	Silo nigricornis
48350202	Silo pallipes (Fabricius)	48350202	Silo pallipes (Fabricius, 1781)	NBNYS00000008500	Silo pallipes
48360101	Beraea maurus (Curtis)	48360101	Beraea maurus (Curtis, 1834)	NBNYS00000008501	Beraea maurus
48360102	Beraea pullata (Curtis)	48360102	Beraea pullata (Curtis, 1834)	NBNYS00000008502	Beraea pullata
48360201	Beraeodes minutus (L.)	48360201	Beraeodes minutus (Linnaeus, 1761)	NBNYS00000008503	Beraeodes minutus
48370101	Notidobia ciliaris (L.)	48370101	Notidobia ciliaris (Linnaeus, 1761)	NBNYS00000008505	Notidobia ciliaris
48370201	Sericostoma personatum (Spence)	48370201	Sericostoma personatum (Spence in Kirby & Spence, 1826)	NBNYS00000008506	Sericostoma personatum
48380101	Odontocerum albicorne (Scopoli)	48380101	Odontocerum albicorne (Scopoli, 1763)	NBNYS00000008507	Odontocerum albicorne
48390101	Molanna angustata Curtis	48390101	Molanna angustata Curtis, 1834	NBNYS00000008509	Molanna angustata
48410101	Athripsodes albifrons (L.)	483A0101	Athripsodes albifrons (Linnaeus, 1758)	NBNYS00000008510	Athripsodes albifrons
48410102	Athripsodes aterrimus (Stephens)	483A0102	Athripsodes aterrimus (Stephens, 1836)	NBNYS00000008512	Athripsodes aterrimus
48410103	Athripsodes bilineatus (L.)	483A0103	Athripsodes bilineatus (Linnaeus, 1758)	NBNYS00000008513	Athripsodes bilineatus
48410104	Athripsodes cinereus (Curtis)	483A0104	Athripsodes cinereus (Curtis, 1834)	NBNYS00000008514	Athripsodes cinereus
48410105	Athripsodes commutatus (Rostock)	483A0105	Athripsodes commutatus (Rostock, 1874)	NBNYS00000008515	Athripsodes commutatus
48410201	Ceraclea albimacula (Rambur)	483A0201	Ceraclea albimacula (Rambur, 1842)	NBNYS00000008516	Ceraclea albimacula
48410202	Ceraclea annulicornis (Stephens)	483A0202	Ceraclea annulicornis (Stephens, 1836)	NBNYS00000008517	Ceraclea annulicornis
48410203	Ceraclea dissimilis (Stephens)	483A0203	Ceraclea dissimilis (Stephens, 1836)	NBNYS00000008518	Ceraclea dissimilis
48410204	Ceraclea fulva (Rambur)	483A0204	Ceraclea fulva (Rambur, 1842)	NBNYS00000008519	Ceraclea fulva
48410205	Ceraclea nigronervosa (Retzius)	483A0205	Ceraclea nigronervosa (Retzius, 1783)	NBNYS00000008520	Ceraclea nigronervosa
48410206	Ceraclea senilis (Burmeister)	483A0206	Ceraclea senilis (Burmeister, 1839)	NBNYS00000008521	Ceraclea senilis
48410302	Leptocerus lusitanicus (McLachlan)	483A0302	Leptocerus lusitanicus (McLachlan, 1884)	NBNYS00000008523	Leptocerus lusitanicus
48410401	Mystacides azurea (L.)	483A0401	Mystacides azurea (Linnaeus, 1761)	NBNYS00000008525	Mystacides azurea
48410402	Mystacides longicornis (L.)	483A0402	Mystacides longicornis (Linnaeus, 1758)	NBNYS00000008526	Mystacides longicornis
48410403	Mystacides nigra (L.)	483A0403	Mystacides nigra (Linnaeus, 1758)	NBNYS00000008527	Mystacides nigra
48410502	Adicella reducta (McLachlan)	483A0502	Adicella reducta (McLachlan, 1865)	NBNYS00000008529	Adicella reducta
48410701	Trienodes bicolor (Curtis)	483A0701	Trienodes bicolor (Curtis, 1834)	NBNYS00000008531	Trienodes bicolor
48410803	Ylodes conspersus (Rambur)	483A0803	Ylodes conspersus (Rambur, 1842)	NBNYS00000008532	Ylodes conspersus
48410902	Oecetis lacustris (Pictet)	483A0902	Oecetis lacustris (Pictet, 1834)	NBNYS00000008536	Oecetis lacustris
48410903	Oecetis notata (Rambur)	483A0903	Oecetis notata (Rambur, 1842)	NBNYS00000008537	Oecetis notata
48410904	Oecetis ochracea (Curtis)	483A0904	Oecetis ochracea (Curtis, 1825)	NBNYS00000008538	Oecetis ochracea
48410905	Oecetis testacea (Curtis)	483A0905	Oecetis testacea (Curtis, 1834)	NBNYS00000008539	Oecetis testacea

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Rev. Maitland Code	Rev. Maitland Name	Furze Code	Furze Name	NBN Code	NBN Name
49110000	Pyralidae	49110000	Pyralidae	NBNSYS00000160856	Pyralidae
50110000	Tipulidae	50110000	Tipulidae	NBNSYS00000037145	Tipulidae
50130000	Limoniidae	50130000	Limoniidae	NBNSYS01000036556	Limoniidae
50140000	Pediciidae	50140000	Pediciidae	NHMSYS00000524741	Pediciidae
50210000	Psychodidae	50210000	Psychodidae	NBNSYS0000042324	Psychodidae
50220000	Ptychopteridae	50220000	Ptychopteridae	NBNSYS00000160848	Ptychopteridae
50310000	Dixidae	50310000	Dixidae	NBNSYS0000037200	Dixidae
50320000	Chaoboridae	50320000	Chaoboridae	NBNSYS0000040186	Chaoboridae
50330000	Culicidae	50330000	Culicidae	NBNSYS0000040182	Culicidae
50340000	Thaumaleidae	50340000	Thaumaleidae	NBNSYS00000161135	Thaumaleidae
50350000	Ceratopogonidae	50350000	Ceratopogonidae	NBNSYS0000037064	Ceratopogonidae
50360000	Simuliidae	50360000	Simuliidae	NBNSYS0000040183	Simuliidae
50400000	Chironomidae	50400000	Chironomidae	NBNSYS0000027300	Chironomidae
50610000	Stratiomyidae	50610000	Stratiomyidae	NBNSYS00000161064	Stratiomyidae
50630000	Tabanidae	50630000	Tabanidae	NBNSYS0000050594	Tabanidae
50640000	Athericidae	50640000	Athericidae	NBNSYS0100001562	Athericidae
50710000	Empididae	50710000	Empididae	NBNSYS0000042259	Empididae
50720000	Dolichopodidae	50720000	Dolichopodidae	NBNSYS00000159881	Dolichopodidae
50810000	Syrphidae	50810000	Syrphidae	NBNSYS0000040188	Syrphidae
50820000	Sciomyzidae	50820000	Sciomyzidae	NBNSYS00000160954	Sciomyzidae
50830000	Ephydriidae	50830000	Ephydriidae	NBNSYS00000159951	Ephydriidae
50850000	Muscidae	50850000	Muscidae	NBNSYS00000160470	Muscidae

Component members of species groups used in RIVPACS IV at taxonomic level 5 (WFD species)

Eurise Code	Eurise Group Name	Constituent taxa
0511020Z	Polycelis nigra group	Polycelis nigra & Polycelis tenuis
0512010Z	Dugesia polychroa group	Dugesia polychroa & Dugesia lugubris
17120200	Anodonta group	Anodonta sp. & Pseudanodonta complanata
4012011Z	Baetis scambus group	Baetis scambus & Baetis fuscatus
4051020X	Caenis pseudovulvorum group	Caenis pseudovulvorum, Caenis beskidensis & possibly other species
4051020Z	Caenis luctuosa group	Caenis luctuosa & Caenis macrura
4112040Z	Nemoura cambrica group	Nemoura cambrica & Nemoura erratica
4212040Z	Coenagrion puella group	Coenagrion puella & Coenagrion pulchellum
4515020Z	Gyrinus natator group	Gyrinus natator & Gyrinus substriatus
4831010Z	Agrypnia obsoleta group	Agrypnia obsoleta & Agrypnia varia
48340W00	Micropterna group	Micropterna sp. & Sterophylax sp.
48340X00	Potamophylax group	Potamophylax sp., Allogamus auricollis & Chaetopteryx villosa

Notes

The Revised Maitland coded group 1621020Z Physa acuta group comprised *Physa acuta* Draparnaud & *Physa heterostropha* Say – both of which are now regarded as being synonymous with *Physella* (*Costatella*) *acuta* Draparnaud, 1805).

Appendix XI Tables used to calculate biotic indices for the 835 RIVPACS reference sites

Appendix XI – BMWP, NTAXA and ASPT (TL1)

Taxon	Score
Dendrocoelidae	5
Planariidae (incl. Dugesidae)	5
Neritidae	6
Viviparidae	6
Valvatidae	3
Hydrobiidae (incl. Bithyniidae)	3
Physidae	3
Lymnaeidae	3
Planorbidae	3
Ancylidae (incl. Acroloxidae)	6
Unionidae	6
Sphaeriidae	3
Oligochaeta	1
Pisicoidae	4
Glossiphoniidae	3
Hirudinidae	3
Ergobdellidae	3
Astacidae	8
Asellidae	3
Corophiidae	6
Gammaridae (incl. Crangonyctidae & Niphargidae)	6
Baetidae	4
Heptageniidae	10
Siphonuridae (incl. Ameletidae)	10
Leptophlebiidae	10
Potamanthidae	10
Ephemeridae	10
Ephemerellidae	10
Caenidae	7
Taeniopterygidae	10
Nemouridae	7
Leuctridae	10
Capniidae	10
Perlodidae	10
Perlidae	10
Chloroperlidae	10
Platycnemididae	6
Coenagrionidae	6
Lestidae	8
Calopterygidae	8
Gomphidae	8
Cordulegastridae	8

Taxon	Score
Aeshnidae	8
Corduliidae	8
Libellulidae	8
Mesovellidae	5
Hydrometridae	5
Gerridae	5
Nepidae	5
Naucoridae	5
Aphelocheiridae	10
Notonectidae	5
Pleidae	5
Corixidae	5
Halipidae	5
Hygrobiidae	5
Gyrinidae	5
Dytiscidae (incl. Noteridae)	5
Hydrophilidae (incl. Hydraenidae)	5
Scirtidae	5
Dryopidae	5
Elmidae	5
Sialidae	4
Hydroptilidae	6
Rhyacophilidae (incl. Glossosomatidae)	7
Philopotamidae	8
Polycentropodidae	7
Hydropsychidae	5
Psychomyiidae (incl. Ecnomidae)	8
Phryganeidae	10
Brachycentridae	10
Lepidostomatidae	10
Goeridae	10
Beraeidae	10
Sericostomatidae	10
Odontoceridae	10
Molannidae	10
Limnephilidae (incl. Apataniidae)	7
Leptoceridae	10
Tipulidae (incl. Limoniidae, Cyindrotomidae & Pediciidae)	5
Simuliidae	5
Chironomidae	2

Appendix XI (continued) – WHPT, NTAXA and ASPT (TL2)

Taxon	PO	AB1	AB2	AB3	AB4+	Composite families
Planariidae	4.90	4.70	5.40	5.40	5.4	---NO---
Dugesidae	2.90	2.80	3.10	3.10	3.1	---NO---
Dendrocodidae	3.00	3.00	2.60	2.60	2.6	n/a
Planariidae (incl Dugesidae)	5.00	4.80	5.40	5.30	5.3	---YES---
Neritidae	6.40	6.40	6.50	6.90	6.9	n/a
Viviparidae	5.70	5.20	6.70	6.70	6.7	n/a
Valvatidae	3.20	3.30	3.10	2.70	2.7	n/a
Hydrobiidae	4.20	4.10	4.20	4.60	3.7	---NO---
Bithyniidae	3.70	3.60	3.80	3.30	3.3	---NO---
Hydrobiidae (incl Bithyniidae)	4.20	4.10	4.20	4.50	3.7	---YES---
Physidae	2.40	2.70	2.00	0.40	0.4	n/a
Lymnaeidae	3.30	3.60	2.50	1.20	1.2	n/a
Planorbidae	3.10	3.20	3.00	2.40	2.4	n/a
Ancylidae	5.70	5.80	5.50	5.50	5.5	---NO---
Acroloxidae	3.60	3.60	3.80	3.80	3.8	---NO---
Ancylidae (incl Acroloxidae)	5.80	5.90	5.60	5.40	5.4	---YES---
Unionidae	5.30	5.20	6.80	6.80	6.8	n/a
Sphaeriidae_Pea_mussels	3.90	4.40	3.50	3.40	2.3	n/a
Dreissenidae	3.70	3.70	3.70	3.70	3.7	n/a
Oligochaeta	2.70	3.60	2.30	1.40	-0.6	n/a
Piscicolidae	5.20	5.20	4.90	4.90	4.9	n/a
Glossiphoniidae	3.20	3.40	2.50	0.80	0.8	n/a
Hirudinidae	-0.80	-0.80	-0.80	-0.80	-0.8	n/a
Erpobdellidae	3.10	3.60	2.00	-0.80	-0.8	n/a
Astacidae	7.90	7.90	7.90	7.90	7.9	n/a
Asellidae	2.80	4.00	2.30	0.80	-1.6	n/a
Corophiidae	5.80	5.70	5.80	5.80	5.8	n/a
Crangonyctidae	3.90	3.80	4.00	3.60	3.6	---NO---
Gammaridae	4.40	4.20	4.50	4.60	3.9	---NO---
Niphargidae	6.30	6.30	6.30	6.30	6.3	---NO---
Gammaridae (incl Crangonyctidae & Niphargidae)	4.50	4.30	4.70	4.70	3.9	---YES---
Baetidae	5.50	3.60	5.90	7.20	7.5	n/a
Heptageniidae	9.70	8.50	10.30	11.10	11.1	n/a
Siphonuridae (incl. Ameletidae)	11.50	11.30	12.20	12.20	12.2	n/a
Leptophlebiidae	8.80	8.80	9.10	9.20	9.2	n/a
Potamanthidae	10.00	9.80	10.40	10.40	10.4	n/a
Ephemeridae	8.40	8.30	8.80	9.40	9.4	n/a
Ephemerellidae	8.20	7.90	8.50	9.00	9	n/a
Caenidae	6.50	6.50	6.50	6.50	6.5	n/a
Taeniopterygidae	11.30	11.00	11.90	12.10	12.1	n/a
Nemouridae	9.30	8.70	10.70	10.70	10.7	n/a
Leuctridae	10.00	9.30	10.60	10.60	10.6	n/a
Capniidae	9.60	9.70	9.40	9.40	9.4	n/a
Perlodidae	10.80	10.50	11.50	11.50	11.5	n/a
Perlidae	12.70	12.60	13.00	13.00	13	n/a
Chloroperlidae	11.60	11.40	12.20	12.20	12.2	n/a
Platycnemididae	6.00	6.00	6.00	6.00	6	n/a
Coenagrilidae	3.50	3.40	3.80	3.80	3.8	n/a
Calopterygidae	6.00	5.90	6.20	6.20	6.2	n/a
Cordulegasteridae	9.80	9.80	9.80	9.80	9.8	n/a
Aeshnidae	4.70	4.70	4.70	4.70	4.7	n/a
Libellulidae	4.10	4.10	4.10	4.10	4.1	n/a
Mesoveliidae	4.70	4.70	4.70	4.70	4.7	n/a
Hydrometridae	4.30	4.30	4.30	4.30	4.3	n/a
Veliidae	4.50	4.50	3.90	3.90	3.9	n/a
Gerridae	5.20	5.20	5.50	5.50	5.5	n/a
Nepidae	2.90	2.90	2.90	2.90	2.9	n/a
Naucoridae	3.70	3.70	3.70	3.70	3.7	n/a
Aphelocheiridae	8.50	8.60	8.50	8.00	8	n/a
Notonectidae	3.40	3.40	3.90	3.90	3.9	n/a
Pleidae	3.30	3.30	3.30	3.30	3.3	n/a
Corixidae	3.80	3.70	3.90	3.70	3.7	n/a
Halplidae	3.60	3.60	3.40	3.40	3.4	n/a
Hygrobidae	3.80	3.80	3.80	3.80	3.8	n/a
Noteridae	3.20	3.20	3.20	3.20	3.2	---NO---
Dytiscidae	4.50	4.50	4.80	4.80	4.8	---NO---
Gyrinidae	8.20	8.10	9.00	9.00	9	n/a
Dytiscidae (incl Noteridae)	4.70	4.70	5.00	5.00	5	---YES---

Taxon	PO	AB1	AB2	AB3	AB4+	Composite families
Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)	6.20	5.80	8.80	8.80	8.8	---NO---
Hydrophilidae (incl. Hydraenidae)	7.40	7.00	9.50	9.50	9.5	---YES---
Hydraenidae	8.90	8.50	10.50	10.50	10.5	---NO---
Scirtidae	6.90	6.90	6.80	6.80	6.8	n/a
Dryopidae	6.00	6.00	6.00	6.00	6	n/a
Elmidae	6.60	5.30	7.40	8.30	8.3	n/a
Sialidae	4.30	4.20	4.40	4.40	4.4	n/a
Sisyridae	5.70	5.70	5.70	5.70	5.7	n/a
Rhyacophilidae	8.40	8.10	9.20	8.30	8.3	---NO---
Glossosomatidae	7.70	7.80	7.60	7.20	7.2	---NO---
Hydroptilidae	6.20	6.10	6.50	6.80	6.8	n/a
Rhyacophilidae (incl. Glossosomatidae)	8.20	7.90	8.80	7.50	7.5	---YES---
Philopotamidae	11.20	11.20	11.10	11.10	11.1	n/a
Psychomyiidae	5.80	5.80	5.70	5.70	5.7	---NO---
Polycentropodidae	8.10	8.20	8.10	8.10	8.1	n/a
Hydropsychidae	6.60	5.80	7.20	7.40	7.4	n/a
Psychomyiidae (incl. Ecnomidae)	5.90	5.90	5.80	5.80	5.8	---YES---
Phryganeidae	5.50	5.50	5.50	5.50	5.5	n/a
Brachycentridae	9.50	9.60	9.50	8.90	8.9	n/a
Lepidostomatidae	10.10	9.90	10.30	10.20	10.2	n/a
Goeridae	8.80	8.80	8.80	9.40	9.4	n/a
Beraeidae	8.70	8.80	7.30	7.30	7.3	n/a
Sericostomatidae	9.10	8.90	9.40	9.50	9.5	n/a
Odontoceridae	11.00	11.10	10.30	10.30	10.3	n/a
Molannidae	6.60	6.50	7.60	7.60	7.6	n/a
Limnephilidae (incl. Apataniidae)	6.20	5.90	6.90	6.90	6.9	n/a
Leptoceridae	6.70	6.70	6.90	7.10	7.1	n/a
Tipulidae (incl. Limoniidae, Cylindrotomidae & Pediciidae)	5.90	5.40	6.90	6.90	7.1	n/a
Psychodidae	4.40	4.50	3.00	3.00	3	n/a
Ptychopteridae	6.40	6.40	6.40	6.40	6.4	n/a
Dixidae	7.00	7.00	7.00	7.00	7	n/a
Chaoboridae	3.00	3.00	3.00	3.00	3	n/a
Culicidae	2.00	2.00	1.90	1.90	1.9	n/a
Ceratopogonidae	5.50	5.40	5.50	5.50	5.5	n/a
Simuliidae	5.80	5.50	6.10	5.80	3.9	n/a
Chironomidae	1.10	1.20	1.30	-0.90	-0.9	n/a
Stratiomyidae	3.60	3.60	3.60	3.60	3.6	n/a
Rhagionidae	9.60	9.60	9.60	9.60	9.6	n/a
Tabanidae	7.10	7.10	7.30	7.30	7.3	n/a
Athericidae	9.30	9.30	9.50	9.50	9.5	n/a
Empididae	7.10	7.00	7.60	7.60	7.6	n/a
Dolichopodidae	4.90	4.90	4.90	4.90	4.9	n/a
Syrphidae	1.90	1.90	1.90	1.90	1.9	n/a
Sciomyzidae	3.40	3.40	3.40	3.40	3.4	n/a
Ephydriidae	4.40	4.40	4.40	4.40	4.4	n/a
Muscidae	3.90	4.00	2.60	2.60	2.6	n/a

Appendix XI (continued) – AWIC (fam) (TL1)

Taxon	Score
Planariidae (incl. Dugesiidae)	4
Valvatidae	6
Hydrobiidae (incl. Bithyniidae)	6
Physidae	6
Lymnaeidae	6
Planorbidae (excl. Ancyliidae)	6
Ancyliidae (incl. Acroloxidae)	6
Sphaeriidae	6
Oligochaeta	6
Piscicolidae	6
Glossiphoniidae	6
Erpobdellidae	6
Asellidae	6
Gammaridae (incl. Crangonyctidae & Niphargidae)	6
Baetidae	6
Heptageniidae	6
Leptophlebiidae	6
Ephemeridae	6
Ephemerellidae	6
Caenidae	6
Taeniopterygidae	2
Nemouridae	1
Leuctridae	1
Perlidae	2
Perliidae	6
Chloroperiidae	1
Coenagrionidae	6
Calopterygidae	6
Corixidae	6
Halipidae	6
Gyrinidae	3
Dytiscidae (incl. Noteridae)	6
Hydrophilidae (incl. Hydraenidae, Helophoridae, Georissidae & Hydrochidae)	6
Scirtidae	6
Elmidae	6
Sialidae	6
Hydroptilidae	6
Rhyacophilidae (incl. Glossosomatidae)	6
Philopotamidae	3
Polycentropodidae	1
Hydropsychidae	4
Psychomyiidae (incl. Ecnomidae)	6
Lepidostomatidae	2
Goeridae	4
Sericostomatidae	4
Odontoceridae	6
Limnephilidae (incl. Apataniidae)	4
Leptoceridae	6
Tipulidae (incl. Limoniidae, Cylindrotomidae & Pediciidae)	4
Simuliidae	3
Chironomidae	4

Appendix XI (continued) – AWIC (sp) Murphy (TL4)

Taxon	Score
Phagocata vitta (Duges, 1830)	4
Crenobia alpina (Dana, 1766)	6
Potamopyrgus antipodarum (J.E.Gray, 1843)	9
Ancylus fluviatilis O.F. Müller, 1774	9
Gammarus pulex (Linnaeus, 1758)	9
Baetis rhodani (Pictet, 1843-1845)	8
Alainites muticus (Linnaeus, 1758)	9
Nigrobaetis niger (Linnaeus, 1761)	6
Rhithrogena sp.	8
Heptagenia sulphurea (Müller, 1776)	8
Ecdyonurus sp.	8
Electrogena lateralis (Curtis, 1834)	7
Leptophlebia marginata (Linnaeus, 1767)	3
Caenis horaria (Linnaeus, 1758)	9
Caenis rivulorum Eaton, 1884	9
Caenis robusta Eaton, 1884	9
Caenis pusilla Navás, 1913	9
Caenis pseudorivulorum group	9
Caenis luctuosa group	9
Brachyptera risi (Morton, 1896)	5
Protonemura meyeri (Pictet, 1841)	4
Protonemura montana Kimmins, 1941	4
Protonemura praecox (Morton, 1894)	4
Amphinemura sulcipectus (Stephens, 1836)	4
Nemurella picteti Klapálek, 1900	1
Nemoura avicularis Morton, 1894	2
Nemoura cinerea (Retzius, 1783)	2
Nemoura cambrica group	2
Leuctra hippopus Kempny, 1899	3
Leuctra inermis Kempny, 1899	4
Leuctra nigra (Olivier, 1811)	4
Perlodes microcephalus (Pictet, 1833)	7
Diura bicaudata (Linnaeus, 1758)	3
Isoperla grammatica (Poda, 1761)	5
Perla bipunctata Pictet, 1833	9
Chloroperla tripunctata (Scopoli, 1763)	6
Siphonoperla torrentium (Pictet, 1841)	4
Cordulegaster boltonii (Donovan, 1807)	5
Hydraena gracilis Germar, 1824	8
Elmis aenea (Müller, 1806)	6
Esolus parallelepedus (Müller, 1806)	8
Limnius volckmari (Panzer, 1793)	6
Oulimnius major (Rey, 1889)	4
Oulimnius rivularis (Rosenhauer, 1856)	4
Oulimnius troglodytes (Gyllenhal, 1827)	4
Oulimnius tuberculatus (Müller, 1806)	4
Sialis fuliginosa Pictet, 1836	3
Sialis lutaria (Linnaeus, 1758)	3
Sialis nigripes Pictet, 1865	3
Rhyacophila dorsalis (Curtis, 1834)	5
Glossosoma sp.	9
Agapetus sp.	9
Philopotamus montanus (Donovan, 1813)	8
Wormaldia sp.	8
Hydropsyche instabilis (Curtis, 1834)	8
Hydropsyche pellucidula (Curtis, 1834)	6
Hydropsyche siltalai Döhler, 1963	6
Diplectrona felix McLachlan, 1878	7
Lepidostoma hirtum (Fabricius, 1775)	7
Silo pallipes (Fabricius, 1781)	8
Sericostoma personatum (Spence in Kirby & Spence, 1826)	8
Atherix ibis (Fabricius, 1798)	8

Appendix XI (continued) – AWIC (sp) Murphy (TL5)

Taxon	Score
Phagocata vitta (Duges, 1830)	4
Crenobia alpina (Dana, 1766)	6
Potamopyrgus antipodarum (J.E.Gray, 1843)	9
Ancylus fluviabilis O.F. Müller, 1774	9
Gammarus pulex (Linnaeus, 1758)	9
Baetis rhodani (Pictet, 1843-1845)	8
Alainites muticus (Linnaeus, 1758)	9
Nigrobaetis niger (Linnaeus, 1761)	6
Rhithrogena sp.	8
Heptagenia sulphurea (Müller, 1776)	8
Ecdyonurus sp.	8
Electrogena lateralis (Curtis, 1834)	7
Leptophlebia marginata (Linnaeus, 1767)	3
Caenis horaria (Linnaeus, 1758)	9
Caenis rivulorum Eaton, 1884	9
Caenis robusta Eaton, 1884	9
Caenis pusilla Navás, 1913	9
Caenis pseudorivulorum group	9
Caenis luctuosa group	9
Brachyptera nisi (Morton, 1896)	5
Protonemura meyeri (Pictet, 1841)	4
Protonemura montana Kimmins, 1941	4
Protonemura praecox (Morton, 1894)	4
Amphinemura sulcicollis (Stephens, 1836)	4
Nemurella picteti Klapálek, 1900	1
Nemoura avicularis Morton, 1894	2
Nemoura cinerea (Retzius, 1783)	2
Nemoura cambrica group	2
Leuctra hippopus Kempny, 1899	3
Leuctra inermis Kempny, 1899	4
Leuctra nigra (Olivier, 1811)	4
Perlodes microcephalus (Pictet, 1833)	7
Diura bicaudata (Linnaeus, 1758)	3
Isoperla grammatica (Poda, 1761)	5
Perla bipunctata Pictet, 1833	9
Chloroperla tripunctata (Scopoli, 1763)	6
Siphonoperla torrentium (Pictet, 1841)	4
Cordulegaster boltonii (Donovan, 1807)	5
Hydraena gracilis Germar, 1824	8
Elmis aenea (Müller, 1806)	6
Esolus parallelepipedus (Müller, 1806)	8
Limnius volckmani (Panzer, 1793)	6
Oulimnius major (Rey, 1889)	4
Oulimnius rivularis (Rosenhauer, 1856)	4
Oulimnius troglodytes (Gyllenhal, 1827)	4
Oulimnius tuberculatus (Müller, 1806)	4
Sialis fuliginosa Pictet, 1836	3
Sialis lutaria (Linnaeus, 1758)	3
Sialis nigripes Pictet, 1865	3
Rhyacophila dorsalis (Curtis, 1834)	5
Glossosoma sp.	9
Agapetus sp.	9
Philopotamus montanus (Donovan, 1813)	8
Wormaldia sp.	8
Hydropsyche instabilis (Curtis, 1834)	8
Hydropsyche pellucidula (Curtis, 1834)	6
Hydropsyche siltalai Döhler, 1963	6
Diplectrona felix McLachlan, 1878	7
Lepidostoma hirtum (Fabricius, 1775)	7
Silo pallipes (Fabricius, 1781)	8
Sericostoma personatum (Spence in Kirby & Spence, 1826)	8

Appendix XI (continued) – AWIC (sp) McFarland (TL4)

Taxon	Score	Log1	Log2	Log3+
Phagocata vitta (Duges, 1830)	4	5	4	3
Crenobia alpina (Dana, 1766)	6	8	9	10
Potamopyrgus antipodarum (J.E.Gray, 1843)	9	12	13	14
Ancytus fluviatilis O.F. Müller, 1774	9	12	13	14
Gammarus pulex (Linnaeus, 1758)	9	12	13	14
Baetis rhodani (Pictet, 1843-1845)	8	10	11	12
Alainites muticus (Linnaeus, 1758)	9	12	13	14
Nigrobaetis niger (Linnaeus, 1761)	6	8	9	10
Rhithrogena sp.	8	10	11	12
Heptagenia sulphurea (Müller, 1776)	8	10	11	12
Ecdyonurus sp.	8	10	11	12
Electrogena lateralis (Curtis, 1834)	7	8	9	10
Leptophlebia marginata (Linnaeus, 1767)	3	5	4	3
Caenis horaria (Linnaeus, 1758)	9	12	13	14
Caenis rivulorum Eaton, 1884	9	12	13	14
Caenis robusta Eaton, 1884	9	12	13	14
Caenis pusilla Navás, 1913	9	12	13	14
Caenis pseudorivulorum group	9	12	13	14
Caenis luctuosa group	9	12	13	14
Brachyptera risi (Morton, 1896)	5	7	6	5
Protonemura meyeri (Pictet, 1841)	4	5	4	3
Protonemura montana Kimmins, 1941	4	5	4	3
Protonemura praecox (Morton, 1894)	4	5	4	3
Amphinemura sulcicollis (Stephens, 1836)	4	5	4	3
Nemurella picteti Klapálek, 1900	1	3	2	1
Nemoura avicularis Morton, 1894	2	3	2	1
Nemoura cinerea (Retzius, 1783)	2	3	2	1
Nemoura cambrica group	2	3	2	1
Leuctra hippopus Kempny, 1899	3	5	4	3
Leuctra inermis Kempny, 1899	4	5	4	3
Leuctra nigra (Olivier, 1811)	4	5	4	3
Perlodes microcephalus (Pictet, 1833)	7	8	9	10
Diura bicaudata (Linnaeus, 1758)	3	5	4	3
Isoperla grammatica (Poda, 1761)	5	7	6	5
Perla bipunctata Pictet, 1833	9	12	13	14
Chloroperla tripunctata (Scopoli, 1763)	6	8	9	10
Siphonoperla torrentium (Pictet, 1841)	4	5	4	3
Cordulegaster boltonii (Donovan, 1807)	5	7	6	5
Hydraena gracilis Germar, 1824	8	10	11	12
Elmis aenea (Müller, 1806)	6	8	9	10
Esolus parallelepipedus (Müller, 1806)	8	10	11	12
Limnius volckmani (Panzer, 1793)	6	8	9	10
Oulimnius major (Rey, 1889)	4	5	4	3
Oulimnius rivularis (Rosenhauer, 1856)	4	5	4	3
Oulimnius troglodytes (Gyllenhal, 1827)	4	5	4	3
Oulimnius tuberculatus (Müller, 1806)	4	5	4	3
Sialis fuliginosa Pictet, 1836	3	5	4	3
Sialis lutaria (Linnaeus, 1758)	3	5	4	3
Sialis nigripes Pictet, 1865	3	5	4	3
Rhyacophila dorsalis (Curtis, 1834)	5	7	6	5
Glossosoma sp.	9	12	13	14
Agapetus sp.	9	12	13	14
Philopotamus montanus (Donovan, 1813)	8	10	11	12
Wormaldia sp.	8	10	11	12
Hydropsyche instabilis (Curtis, 1834)	8	10	11	12
Hydropsyche pellucidula (Curtis, 1834)	6	8	9	10
Hydropsyche siltalai Döhler, 1963	6	8	9	10
Diplectrona felix McLachlan, 1878	7	8	9	10
Lepidostoma hirtum (Fabricius, 1775)	7	8	9	10
Silo pallipes (Fabricius, 1781)	8	10	11	12
Sericostoma personatum (Spence in Kirby & Spence, 1826)	8	10	11	12
Atherix ibis (Fabricius, 1798)	8	10	11	12

Appendix XI (continued) – AWIC (sp) McFarland (TL5)

Taxon	Score	Log1	Log2	Log3+
Phagocata vitta (Duges, 1830)	4	5	4	3
Crenobia alpina (Dana, 1766)	6	8	9	10
Potamopyrgus antipodarum (J.E.Gray, 1843)	9	12	13	14
Ancylus fluviatilis O.F. Müller, 1774	9	12	13	14
Gammarus pulex (Linnaeus, 1758)	9	12	13	14
Baetis rhodani (Pictet, 1843-1845)	8	10	11	12
Alainites muticus (Linnaeus, 1758)	9	12	13	14
Nigrobaetis niger (Linnaeus, 1761)	6	8	9	10
Rhithrogena sp.	8	10	11	12
Heptagenia sulphurea (Müller, 1776)	8	10	11	12
Ecdyonurus sp.	8	10	11	12
Electrogena lateralis (Curtis, 1834)	7	8	9	10
Leptophlebia marginata (Linnaeus, 1767)	3	5	4	3
Caenis horaria (Linnaeus, 1758)	9	12	13	14
Caenis rivulorum Eaton, 1884	9	12	13	14
Caenis robusta Eaton, 1884	9	12	13	14
Caenis pusilla Navás, 1913	9	12	13	14
Caenis pseudorivulorum group	9	12	13	14
Caenis luctuosa group	9	12	13	14
Brachyptera risi (Morton, 1896)	5	7	6	5
Protonemura meyeri (Pictet, 1841)	4	5	4	3
Protonemura montana Kimmins, 1941	4	5	4	3
Protonemura praecox (Morton, 1894)	4	5	4	3
Amphinemura sulcicollis (Stephens, 1836)	4	5	4	3
Nemurella picteti Klapálek, 1900	1	3	2	1
Nemoura avicularis Morton, 1894	2	3	2	1
Nemoura cinerea (Retzius, 1783)	2	3	2	1
Nemoura cambrica group	2	3	2	1
Leuctra hippopus Kempny, 1899	3	5	4	3
Leuctra inermis Kempny, 1899	4	5	4	3
Leuctra nigra (Olivier, 1811)	4	5	4	3
Pertodes microcephalus (Pictet, 1833)	7	8	9	10
Diura bicaudata (Linnaeus, 1758)	3	5	4	3
Isoperla grammatica (Poda, 1761)	5	7	6	5
Perla bipunctata Pictet, 1833	9	12	13	14
Chloroperla tripunctata (Scopoli, 1763)	6	8	9	10
Siphonoperla torrentium (Pictet, 1841)	4	5	4	3
Cordulegaster boltonii (Donovan, 1807)	5	7	6	5
Hydraena gracilis Germar, 1824	8	10	11	12
Elmis aenea (Müller, 1806)	6	8	9	10
Esolus paralleleptedus (Müller, 1806)	8	10	11	12
Limnius volckmari (Panzer, 1793)	6	8	9	10
Oulimnius major (Rey, 1889)	4	5	4	3
Oulimnius rivularis (Rosenhauer, 1856)	4	5	4	3
Oulimnius troglodytes (Gyllenhal, 1827)	4	5	4	3
Oulimnius tuberculatus (Müller, 1806)	4	5	4	3
Sialis fuliginosa Pictet, 1836	3	5	4	3
Sialis lutaria (Linnaeus, 1758)	3	5	4	3
Sialis nigripes Pictet, 1865	3	5	4	3
Rhyacophila dorsalis (Curtis, 1834)	5	7	6	5
Glossosoma sp.	9	12	13	14
Agapetus sp.	9	12	13	14
Philopotamus montanus (Donovan, 1813)	8	10	11	12
Wormaldia sp.	8	10	11	12
Hydropsyche instabilis (Curtis, 1834)	8	10	11	12
Hydropsyche pellucidula (Curtis, 1834)	6	8	9	10
Hydropsyche siltalai Döhler, 1963	6	8	9	10
Diplectrona felix McLachlan, 1878	7	8	9	10
Lepidostoma hirtum (Fabricius, 1775)	7	8	9	10
Silo pallipes (Fabricius, 1781)	8	10	11	12
Sericostoma personatum (Spence in Kirby & Spence, 1826)	8	10	11	12

Appendix XI (continued) – Raddum (TL4)

Taxon	Score	Category
<i>Crenobia alpina</i> (Dana, 1766)	0.5	b
<i>Radix bathica</i> (Linnaeus, 1758)	1	a
<i>Planorbis (Planorbis) carinatus</i> (O.F. Müller, 1774)	1	a
<i>Planorbis (Planorbis) planorbis</i> (Linnaeus, 1758)	1	a
<i>Margaritifera margaritifera</i> (Linnaeus, 1758)	1	a
<i>Sphaerium comeum</i> (Linnaeus, 1758)	0.5	b
<i>Sphaerium rivicola</i> (Lamarck, 1818)	0.5	b
<i>Pisidium amnicum</i> (Müller, 1774)	0.25	c
<i>Pisidium casertanum</i> (Poli, 1791)	0.25	c
<i>Pisidium henslowianum</i> (Sheppard, 1823)	0.25	c
<i>Pisidium hibernicum</i> Westerlund, 1894	0.25	c
<i>Pisidium lilljeborgii</i> Clessin, 1886	0.25	c
<i>Pisidium mitum</i> Held, 1836	0.25	c
<i>Pisidium moitessierianum</i> Paladilhe, 1866	0.25	c
<i>Pisidium nitidum</i> Jenyns, 1832	0.25	c
<i>Pisidium obtusale</i> (Lamarck, 1818)	0.25	c
<i>Pisidium personatum</i> Malm, 1855	0.25	c
<i>Pisidium pulchellum</i> Jenyns, 1832	0.25	c
<i>Pisidium subbruncatum</i> Malm, 1855	0.25	c
<i>Pisidium supinum</i> Schmidt, 1851	0.25	c
<i>Pisidium tenuilineatum</i> Stelfox, 1918	0.25	c
<i>Musculium lacustre</i> (Müller, 1774)	0.5	b
<i>Musculium transversum</i> (Say, 1829)	0.5	b
<i>Theromyzon tessulatum</i> (O.F. Müller, 1774)	1	a
<i>Glossiphonia complanata</i> (Linnaeus, 1758)	1	a
<i>Helobdella stagnalis</i> (Linnaeus, 1758)	0.5	b
<i>Haemopsis sanguisuga</i> (Linnaeus, 1758)	1	a
<i>Aesellus aquaticus</i> (Linnaeus, 1758)	0.5	b
<i>Gammarus lacustris</i> Sars, 1863	1	a
<i>Siphonurus lacustris</i> (Eaton, 1870)	0.5	b
<i>Baetis rhodani</i> (Pictet, 1843-1845)	1	a
<i>Baetis vernus</i> Curtis, 1834	1	a
<i>Baetis scambus</i> group	1	a
<i>Alainites muticus</i> (Linnaeus, 1758)	1	a
<i>Nigrobaetis niger</i> (Linnaeus, 1761)	1	a
<i>Heptagenia sulphurea</i> (Müller, 1776)	0.5	b
<i>Kageronia fuscoarisea</i> (Retzius, 1783)	0	d
<i>Ameletus inopinatus</i> Eaton, 1887	0.5	b
<i>Leptophlebia marginata</i> (Linnaeus, 1767)	0	d
<i>Leptophlebia vespertina</i> (Linnaeus, 1758)	0	d
<i>Serratella ignita</i> (Poda, 1761)	0	d
<i>Caenis horaria</i> (Linnaeus, 1758)	1	a
<i>Taeniopteryx nebulosa</i> (Linnaeus, 1758)	0	d

Taxon	Score	Category
<i>Brachyptera risi</i> (Morton, 1896)	0	d
<i>Protonemura meyeri</i> (Pictet, 1841)	0	d
<i>Amphinemura standfussi</i> Ris, 1902	0	d
<i>Amphinemura sulcicollis</i> (Stephens, 1836)	0	d
<i>Nemurella picteti</i> Klapálek, 1900	0	d
<i>Nemoura avicularis</i> Morton, 1894	0	d
<i>Nemoura cinerea</i> (Retzius, 1783)	0	d
<i>Leuctra fusca</i> (Linnaeus, 1758)	0	d
<i>Leuctra hippopus</i> Kempny, 1899	0	d
<i>Leuctra nigra</i> (Olivier, 1811)	0	d
<i>Diura bicaudata</i> (Linnaeus, 1758)	0.5	b
<i>Isoperla grammatica</i> (Poda, 1761)	0.5	b
<i>Dinocras cephalotes</i> (Curtis, 1827)	0.5	b
<i>Oxyethira</i> sp.	0	d
<i>Philopotamus montanus</i> (Donovan, 1813)	0.5	b
<i>Tinodes waeneri</i> (Linnaeus, 1758)	0.5	b
<i>Cynurus flavidus</i> McLachlan, 1864	0	d
<i>Cynurus trimaculatus</i> (Curtis, 1834)	0	d
<i>Neureclipsis bimaculata</i> (Linnaeus, 1758)	0	d
<i>Plectrocnemia conspersa</i> (Curtis, 1834)	0	d
<i>Polycentropus flavomaculatus</i> (Pictet, 1834)	0	d
<i>Polycentropus irroratus</i> (Curtis, 1835)	0	d
<i>Hydropsyche angustipennis</i> (Curtis, 1834)	0.5	b
<i>Hydropsyche pellucidula</i> (Curtis, 1834)	0.5	b
<i>Hydropsyche siltalai</i> Döhler, 1963	0.5	b
<i>Lepidostoma hirtum</i> (Fabricius, 1775)	0.5	b
<i>Halesus</i> sp.	0	d
<i>Micropterna</i> group	0	d
<i>Potamophylax</i> group	0	d
<i>Limnephilus extricatus</i> McLachlan, 1865	0	d
<i>Limnephilus flavicornis</i> (Fabricius, 1787)	0	d
<i>Limnephilus lunatus</i> Curtis, 1834	0	d
<i>Limnephilus rhombicus</i> (Linnaeus, 1758)	0	d
<i>Limnephilus vittatus</i> (Fabricius, 1798)	0	d
<i>Notidobia ciliaris</i> (Linnaeus, 1761)	0	d
<i>Sericostoma personatum</i> (Spence in Kirby & Spence, 1826)	0.5	b
<i>Molanna angustata</i> Curtis, 1834	0	d
<i>Athripsodes aterrimus</i> (Stephens, 1836)	0	d
<i>Athripsodes cinereus</i> (Curtis, 1834)	0	d
<i>Mystacides azurea</i> (Linnaeus, 1761)	0	d
<i>Adicella reducta</i> (McLachlan, 1865)	0	d

Appendix XI (continued) – Raddum (TL5)

Taxon	Score	Category
<i>Crenobia alpina</i> (Dana, 1766)	0.5	b
<i>Radix balthica</i> (Linnaeus, 1758)	1	a
<i>Planorbis</i> (<i>Planorbis</i>) <i>carinatus</i> (O.F. Müller, 1774)	1	a
<i>Planorbis</i> (<i>Planorbis</i>) <i>planorbis</i> (Linnaeus, 1758)	1	a
<i>Margaritifera margaritifera</i> (Linnaeus, 1758)	1	a
<i>Sphaerium</i> sp.	0.5	b
<i>Pisidium</i> sp.	0.25	c
<i>Theromyzon tessulatum</i> (O.F. Müller, 1774)	1	a
<i>Glossiphonia complanata</i> (Linnaeus, 1758)	1	a
<i>Helobdella stagnalis</i> (Linnaeus, 1758)	0.5	b
<i>Haemopsis sanguisuga</i> (Linnaeus, 1758)	1	a
<i>Asellus aquaticus</i> (Linnaeus, 1758)	0.5	b
<i>Gammarus lacustris</i> Sars, 1863	1	a
<i>Siphonurus lacustris</i> (Eaton, 1870)	0.5	b
<i>Baetis rhodani</i> (Pictet, 1843-1845)	1	a
<i>Baetis vernus</i> Curtis, 1834	1	a
<i>Baetis scambus</i> group	1	a
<i>Alainites muticus</i> (Linnaeus, 1758)	1	a
<i>Nigrobaetis niger</i> (Linnaeus, 1761)	1	a
<i>Heptagenia sulphurea</i> (Müller, 1776)	0.5	b
<i>Kageronia fuscogrisea</i> (Retzius, 1783)	0	d
<i>Ameletus inopinatus</i> Eaton, 1887	0.5	b
<i>Leptophlebia marginata</i> (Linnaeus, 1767)	0	d
<i>Leptophlebia vespertina</i> (Linnaeus, 1758)	0	d
<i>Serratella ignita</i> (Poda, 1761)	0	d
<i>Caenis horaria</i> (Linnaeus, 1758)	1	a
<i>Taeniopteryx nebulosa</i> (Linnaeus, 1758)	0	d
<i>Brachyptera risi</i> (Morton, 1896)	0	d
<i>Protonemura meyeri</i> (Pictet, 1841)	0	d
<i>Amphinemura standfussi</i> Ris, 1902	0	d
<i>Amphinemura sulcolis</i> (Stephens, 1836)	0	d
<i>Nemurella picteti</i> Klapálek, 1900	0	d
<i>Nemoura avicularis</i> Morton, 1894	0	d
<i>Nemoura cinerea</i> (Retzius, 1783)	0	d
<i>Leuctra fusca</i> (Linnaeus, 1758)	0	d

Taxon	Score	Category
<i>Leuctra hippopus</i> Kempny, 1899	0	d
<i>Leuctra nigra</i> (Olivier, 1811)	0	d
<i>Diura bicaudata</i> (Linnaeus, 1758)	0.5	b
<i>Isoperla grammatica</i> (Poda, 1761)	0.5	b
<i>Dinocras cephalotes</i> (Curtis, 1827)	0.5	b
<i>Oxyethira</i> sp.	0	d
<i>Philopotamus montanus</i> (Donovan, 1813)	0.5	b
<i>Tinodes waeneri</i> (Linnaeus, 1758)	0.5	b
<i>Cynus flavidus</i> McLachlan, 1864	0	d
<i>Cynus trimaculatus</i> (Curtis, 1834)	0	d
<i>Neureclipsis bimaculata</i> (Linnaeus, 1758)	0	d
<i>Plectrocnemia conspersa</i> (Curtis, 1834)	0	d
<i>Polycentropus flavomaculatus</i> (Pictet, 1834)	0	d
<i>Polycentropus imoratus</i> (Curtis, 1835)	0	d
<i>Hydropsyche angustipennis</i> (Curtis, 1834)	0.5	b
<i>Hydropsyche pellucidula</i> (Curtis, 1834)	0.5	b
<i>Hydropsyche siltalai</i> Döhler, 1963	0.5	b
<i>Lepidostoma hirtum</i> (Fabricius, 1775)	0.5	b
<i>Halesus</i> sp.	0	d
<i>Micropterna</i> group	0	d
<i>Potamophylax</i> group	0	d
<i>Limnephilus extricatus</i> McLachlan, 1865	0	d
<i>Limnephilus flavicornis</i> (Fabricius, 1787)	0	d
<i>Limnephilus lunatus</i> Curtis, 1834	0	d
<i>Limnephilus rhombicus</i> (Linnaeus, 1758)	0	d
<i>Limnephilus vittatus</i> (Fabricius, 1798)	0	d
<i>Notidobia ciliaris</i> (Linnaeus, 1761)	0	d
<i>Sericostoma personatum</i> (Spence in Kirby & Spence, 1826)	0.5	b
<i>Molanna angustata</i> Curtis, 1834	0	d
<i>Athripsodes aterrimus</i> (Stephens, 1836)	0	d
<i>Athripsodes cinereus</i> (Curtis, 1834)	0	d
<i>Mystacides azurea</i> (Linnaeus, 1761)	0	d
<i>Adicella reducta</i> (McLachlan, 1865)	0	d

Appendix XI (continued) – SEPA % Acid Sensitive Taxa (TL4)

List	Taxon
LIST A	<i>Gammarus pulex</i>
LIST A	<i>Radix balthica</i>
LIST A	<i>Ancylus fluviatilis</i>
LIST A	<i>Potamopyrgus antipodarum</i>
LIST A	<i>Alainites muticus</i>
LIST A	<i>Caenis rivulorum</i>
LIST A	<i>Perla bipunctata</i>
LIST A	<i>Dinocras cephalotes</i>
LIST A	<i>Esolus parallelepipedus</i>
LIST A	<i>Glossosoma</i> sp.
LIST A	<i>Agapetus</i> sp.
LIST A	<i>Hydropsyche instabilis</i>
LIST A	<i>Silo pallipes</i>
LIST A	<i>Odontocerum albicorne</i>
LIST A	<i>Philopotamus montanus</i>
LIST A	<i>Wormaldia</i> sp.
LIST A	<i>Sericostoma personatum</i>
LIST B	<i>Baetis rhodani</i>
LIST B	<i>Rhithrogena</i> sp.
LIST B	<i>Ecdyonurus</i> sp.
LIST B	<i>Electrogena lateralis</i>
LIST B	<i>Serratella ignita</i>
LIST B	<i>Pertodes microcephalus</i>
LIST B	<i>Chloroperla tripunctata</i>
LIST B	<i>Hydraena gracilis</i> Germar
LIST B	<i>Hydropsyche pellucidula</i>

Appendix XI (continued) – SEPA % Acid Sensitive Taxa (TL5)

List	Taxon
LIST A	<i>Gammarus pulex</i>
LIST A	<i>Radix balthica</i>
LIST A	<i>Ancyclus fluviatilis</i>
LIST A	<i>Potamopyrgus antipodarum</i>
LIST A	<i>Alainites muticus</i>
LIST A	<i>Caenis rivulorum</i>
LIST A	<i>Perla bipunctata</i>
LIST A	<i>Dinocras cephalotes</i>
LIST A	<i>Esolus parallelepipedus</i>
LIST A	<i>Glossosoma</i> sp.
LIST A	<i>Agapetus</i> sp.
LIST A	<i>Hydropsyche instabilis</i>
LIST A	<i>Silo pallipes</i>
LIST A	<i>Odontocerum albicorne</i>
LIST A	<i>Philopotamus montanus</i>
LIST A	<i>Wormaldia</i> sp.
LIST A	<i>Sericostoma personatum</i>
LIST B	<i>Baetis rhodani</i>
LIST B	<i>Rhithrogena</i> sp.
LIST B	<i>Ecdyonurus</i> sp.
LIST B	<i>Electrogena lateralis</i>
LIST B	<i>Serratella ignita</i>
LIST B	<i>Perlodes microcephalus</i>
LIST B	<i>Chloroperla tripunctata</i>
LIST B	<i>Hydraena gracilis</i> Germar
LIST B	<i>Hydropsyche pellucidula</i>

Appendix XI (continued) – LIFE (fam)
(TL2 – distinct families / TL1/2 – composite families)

Taxon	Flow Group	Composite families
Planariidae	4	---NO---
Dugesidae	4	---NO---
Dendrocoelidae	4	n/a
Planariidae (incl. Dugesidae)	4	---YES---
Neritidae	2	n/a
Viviparidae	3	n/a
Valvatidae	4	n/a
Hydrobiidae	4	---NO---
Bithyniidae	4	---NO---
Hydrobiidae (incl. Bithyniidae)	4	---YES---
Physidae	4	n/a
Lymnaeidae	4	n/a
Planorbidae	4	n/a
Ancylidae	2	---NO---
Acroloxidae	4	---NO---
Ancylidae (incl. Acroloxidae)	2	---YES---
Margaritiferidae	2	n/a
Unionidae	4	n/a
Sphaeriidae	4	n/a
Dreissenidae	4	n/a
Piscicolidae	2	n/a
Glossiphoniidae	4	n/a
Hirudinidae	4	n/a
Erpobdellidae	4	n/a
Agellinidae	5	n/a
Chirocephalidae	6	n/a
Triopsidae	6	n/a
Astacidae	2	n/a
Mysidae	5	n/a
Asellidae	4	n/a
Corophiidae	3	n/a
Talitridae	6	n/a
Crangonyctidae	4	---NO---
Gammaridae	2	---NO---
Gammaridae (incl. Crangonyctidae & Niphargidae)	2	---YES---
Baetidae	2	n/a
Heptageniidae	1	n/a
Siphonuridae (incl. Ameletidae)	4	n/a
Leptophlebiidae	2	n/a
Potamanthidae	3	n/a
Ephemeridae	2	n/a
Ephemerellidae	2	n/a
Caenidae	4	n/a
Taeniopterygidae	2	n/a
Nemouridae	4	n/a
Leuctridae	2	n/a
Capniidae	1	n/a
Perlidae	1	n/a
Chloroperlidae	1	n/a
Platycnemididae	4	n/a
Coenagrionidae	4	n/a
Lestidae	4	n/a
Calopterygidae	3	n/a
Gomphidae	2	n/a
Cordulegasteridae	2	n/a
Aeshnidae	4	n/a
Corduliidae	4	n/a
Libellulidae	4	n/a
Mesovelidae	5	n/a
Hebridae	4	n/a
Hydrometridae	4	n/a
Veliidae	4	n/a
Gerridae	4	n/a
Nepidae	5	n/a
Naucoridae	4	n/a

Taxon	Flow Group	Composite families
Aphelocheiridae	2	n/a
Notonectidae	4	n/a
Pleidae	4	n/a
Corixidae	4	n/a
Haliplidae	4	n/a
Hygrobiidae	5	n/a
Noteridae	4	---NO---
Dytiscidae	4	---NO---
Gyrinidae	4	n/a
Dytiscidae (incl. Noteridae)	4	---YES---
Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)	4	---NO---
Hydrophilidae (incl. Hydraenidae)	4	---YES---
Hydraenidae	4	---NO---
Scirtidae	4	n/a
Elmidae	2	n/a
Sialidae	4	n/a
Osmiidae	2	n/a
Sisyridae	4	n/a
Rhyacophilidae	1	---NO---
Glossosomatidae	2	---NO---
Hydroptilidae	4	n/a
Rhyacophilidae (incl. Glossosomatidae)	1	---YES---
Philopotamidae	1	n/a
Psychomyiidae	2	---NO---
Ecnomidae	3	---NO---
Polycentropodidae	4	n/a
Hydropsychidae	2	n/a
Psychomyiidae (incl. Ecnomidae)	2	---YES---
Phryganeidae	4	n/a
Brachycentridae	2	n/a
Lepidostomatidae	2	n/a
Goeridae	1	n/a
Beraeidae	2	n/a
Sericostomatidae	2	n/a
Odontoceridae	1	n/a
Molannidae	4	n/a
Limnephilidae (incl. Apataniidae)	4	n/a
Leptoceridae	4	n/a
Tipulidae (incl. Uroniidae, Cylindrotomidae & Pediciidae)	4	n/a
Ptychopteridae	2	n/a
Chaoboridae	5	n/a
Culicidae	5	n/a
Simuliidae	2	n/a
Syrphidae	5	n/a

Appendix XI (continued) – LIFE (sp) (TL4)

Taxon	LIFE Flow Group
<i>Planaria torva</i> (Muller)	4
<i>Polycelis fetina</i> (Dalyell)	2
<i>Polycelis nigra</i> group	4
<i>Phagocata vitta</i> (Duges)	2
<i>Crenobia alpina</i> (Dana)	2
<i>Dugesia tigrina</i> (Girard)	3
<i>Dugesia polychroa</i> group	4
<i>Bdellocephala punctata</i> (Pallas)	5
<i>Dendrocoelum lacteum</i> (Muller)	4
<i>Theodoxus fluviatilis</i> (L.)	2
<i>Viviparus viviparus</i> (L.)	3
<i>Valvata cristata</i> Muller	4
<i>Valvata macrostoma</i> Morch	5
<i>Valvata piscinalis</i> (Muller)	4
<i>Potamopyrgus jenkinsi</i> (Smith)	3
<i>Bithynia leachii</i> (Sheppard)	4
<i>Bithynia tentaculata</i> (L.)	4
<i>Aplexa hypnorum</i> (L.)	6
<i>Physa fontinalis</i> (L.)	3
<i>Lymnaea auricularia</i> (L.)	4
<i>Lymnaea palustris</i> (Muller)	6
<i>Lymnaea peregra</i> (Muller)	4
<i>Lymnaea stagnalis</i> (L.)	4
<i>Lymnaea truncatula</i> (Muller)	6
<i>Planorbis carinatus</i> Muller	4
<i>Planorbis planorbis</i> (L.)	4
<i>Anisus leucostoma</i> (Millet)	6
<i>Anisus vortex</i> (L.)	4
<i>Bathymphalus contortus</i> (L.)	4
<i>Gyraulus albus</i> (Muller)	4
<i>Gyraulus laevis</i> (Alder)	5
<i>Armiger crista</i> (L.)	4
<i>Hippeutis complanatus</i> (L.)	5
<i>Segmentina nitida</i> Muller	5
<i>Planorbanius corneus</i> (L.)	4
<i>Ancylus fluviatilis</i> Muller	2
<i>Acroloxus lacustris</i> (L.)	4
<i>Margaritifera margaritifera</i> (L.)	2
<i>Sphaerium comeum</i> (L.)	4
<i>Sphaerium lacustre</i> (Muller)	5
<i>Sphaerium rivicola</i> (Lamarck)	3
<i>Sphaerium transversum</i> (Say)	4
<i>Pisidium amnicum</i> (Muller)	3
<i>Pisidium casertanum</i> (Poll)	4
<i>Pisidium henslowanum</i> (Sheppard)	3
<i>Pisidium hibernicum</i> Westerlund	4
<i>Pisidium lilljeborgii</i> Clessin	5
<i>Pisidium millium</i> Held	3
<i>Pisidium moitessierianum</i> Paladilhe	4
<i>Pisidium nitidum</i> Jenyns	4
<i>Pisidium obtusale</i> (Lamarck)	4
<i>Pisidium personatum</i> Malm	5
<i>Pisidium pulchellum</i> Jenyns	4
<i>Pisidium subtruncatum</i> Malm	4
<i>Pisidium supinum</i> Schmidt	3
<i>Pisidium tenuilineatum</i> Steffox	4
<i>Dreissena polymorpha</i> (Pallas)	4
<i>Pisiccola geometra</i> (L.)	2
<i>Theromyzon tessulatum</i> (Muller)	4
<i>Hemictopsis marginata</i> (Muller)	4
<i>Glossiphonia complanata</i> (L.)	4
<i>Glossiphonia heteroclita</i> (L.)	4
<i>Batrachobdella paludosa</i> (Carena)	4
<i>Boreobdella verrucata</i> (Muller)	4
<i>Helobdella stagnalis</i> (L.)	4
<i>Haemopsis sanguisuga</i> (L.)	4
<i>Erpobdella octoculata</i> (L.)	4
<i>Erpobdella testacea</i> (Savigny)	5

Taxon	LIFE Flow Group
<i>Dina lineata</i> (Muller)	4
<i>Trocheta bykowskii</i> Gedroyc	2
<i>Trocheta subviridis</i> Dutrochet	4
<i>Asellus aquaticus</i> (L.)	4
<i>Asellus meridianus</i> Racovitza	4
<i>Crangonyx pseudogracilis</i> Bousfield	4
<i>Gammarus duebeni</i> Lilljeborg	3
<i>Gammarus lacustris</i> Sars	5
<i>Gammarus pulex</i> (L.)	2
<i>Gammarus tigrinus</i> Sexton	3
<i>Siphonurus lacustris</i> Eaton	4
<i>Ameletus inopinatus</i> Eaton	1
<i>Baetis atrebatinus</i> Eaton	2
<i>Baetis buceratus</i> Eaton	2
<i>Baetis digitatus</i> Bengtsson	2
<i>Baetis muticus</i> (L.)	2
<i>Baetis niger</i> (L.)	2
<i>Baetis rhodani</i> (Pictet)	2
<i>Baetis venus</i> Curtis	2
<i>Baetis scambus</i> group	2
<i>Centroptilum luteolum</i> (Muller)	3
<i>Centroptilum pennulatum</i> Eaton	3
<i>Cloeon dipterum</i> (L.)	4
<i>Cloeon simile</i> Eaton	4
<i>Proclleon bifidum</i> Bengtsson	3
<i>Rhithrogena</i> sp.	1
<i>Heptagenia fuscogrisea</i> (Retzius)	4
<i>Heptagenia lateralis</i> (Curtis)	1
<i>Heptagenia sulphurea</i> (Muller)	1
<i>Ecdyonurus</i> sp.	1
<i>Leptophlebia marginata</i> (L.)	4
<i>Leptophlebia vespertina</i> (L.)	4
<i>Paraleptophlebia cincta</i> (Retzius)	2
<i>Paraleptophlebia submarginata</i> (Stephens)	2
<i>Paraleptophlebia wemeri</i> Ulmer	2
<i>Habrophlebia fusca</i> (Curtis)	3
<i>Potamanthus luteus</i> (L.)	3
<i>Ephemera danica</i> Muller	2
<i>Ephemera lineata</i> Eaton	3
<i>Ephemera vulgata</i> L.	3
<i>Ephemerella ignita</i> (Poda)	2
<i>Ephemerella notata</i> Eaton	2
<i>Brachycercus harrisella</i> Curtis	3
<i>Caenis horaria</i> (L.)	4
<i>Caenis rivulorum</i> Eaton	2
<i>Caenis robusta</i> Eaton	4
<i>Caenis pusilla</i> Navas	2
<i>Caenis pseudorivulorum</i> group	2
<i>Taeniopteryx nebulosa</i> (L.)	2
<i>Brachyptera putata</i> (Newman)	3
<i>Brachyptera risi</i> (Morton)	1
<i>Protonemura meyeri</i> (Pictet)	1
<i>Protonemura montana</i> Kimmins	1
<i>Protonemura praecox</i> (Morton)	1
<i>Amphinemura standfussi</i> Ris	2
<i>Amphinemura sulcicollis</i> (Stephens)	2
<i>Nemurella picteti</i> Klapálek	4
<i>Nemoura avicularis</i> Morton	4
<i>Nemoura cinerea</i> (Retzius)	4
<i>Nemoura cambrica</i> group	2
<i>Leuctra fusca</i> (L.)	2
<i>Leuctra geniculata</i> (Stephens)	2
<i>Leuctra hippopus</i> (Kempny)	1
<i>Leuctra inermis</i> Kempny	1
<i>Leuctra moselyi</i> Morton	1
<i>Leuctra nigra</i> (Olivier)	2
<i>Capnia atra</i> Morton	5
<i>Capnia bifrons</i> (Newman)	1

Taxon	LIFE Flow Group
<i>Perlodes microcephala</i> (Pictet)	1
<i>Diura bicaudata</i> (L.)	1
<i>Isoperla grammica</i> (Poda)	1
<i>Dinocras cephalotes</i> (Curtis)	1
<i>Perla bipunctata</i> Pictet	1
<i>Chloroperla torrentium</i> (Pictet)	1
<i>Chloroperla tripunctata</i> (Scopoli)	1
<i>Platynemis pennipes</i> (Pallas)	4
<i>Pyrrhosoma nymphula</i> (Sulzer)	4
<i>Ischnura elegans</i> (Van der Linden)	4
<i>Enallagma cyathigerum</i> (Charpentier)	4
Coenagrion puella group	4
<i>Erythromma najas</i> (Hansemann)	4
<i>Calopteryx splendens</i> (Harris)	3
<i>Calopteryx virgo</i> (L.)	2
<i>Gomphus vulgatissimus</i> (L.)	3
<i>Cordulegaster boltonii</i> (Donovan)	2
<i>Brachytron pratense</i> (Muller)	4
<i>Mesovelia furcata</i> Mulsant & Rey	5
<i>Hydrometra stagnorum</i> (L.)	4
<i>Gerris argentatus</i> Schummel	5
<i>Gerris lacustris</i> (L.)	4
<i>Gerris odontogaster</i> (Zetterstedt)	5
<i>Gerris thoracicus</i> Schummel	4
<i>Gerris najas</i> (Degeer)	4
<i>Nepa cinerea</i> L.	5
<i>Ilyocoris cimicoides</i> (L.)	4
<i>Aphelocheirus aestivalis</i> (Fabricius)	2
<i>Notonecta glauca</i> L.	4
<i>Notonecta maculata</i> Fabricius	4
<i>Notonecta obliqua</i> Gallen	5
<i>Micronecta</i> sp.	4
<i>Cymatia coleoptrata</i> (Fabricius)	4
<i>Callicorixa praeusta</i> (Fieber)	6
<i>Callicorixa wollastoni</i> (Douglas & Scott)	5
<i>Corixa affinis</i> Leach	4
<i>Corixa dentipes</i> (Thomson)	4
<i>Corixa panzeri</i> (Fieber)	4
<i>Corixa punctata</i> (Illiger)	4
<i>Hesperocorixa linnei</i> (Fieber)	5
<i>Hesperocorixa sahlbergi</i> (Fieber)	4
<i>Sigara distincta</i> (Fieber)	4
<i>Sigara falleni</i> (Fieber)	4
<i>Sigara fossarum</i> (Leach)	4
<i>Sigara scotti</i> (Fieber)	5
<i>Sigara lateralis</i> (Leach)	5
<i>Sigara nigrolineata</i> (Fieber)	4
<i>Sigara semistriata</i> (Fieber)	4
<i>Sigara venusta</i> (Douglas & Scott)	4
<i>Brychius elevatus</i> (Panzer)	2
<i>Haliplus confinis</i> Stephens	4
<i>Haliplus flavicollis</i> Sturm	4
<i>Haliplus fluviatilis</i> Aube	4
<i>Haliplus heydeni</i> Wehncke	5
<i>Haliplus immaculatus</i> Gerhardt	5
<i>Haliplus laminatus</i> Schaller	4
<i>Haliplus lineatocollis</i> (Marsham)	3
<i>Haliplus lineolatus</i> Mannerheim	4
<i>Haliplus ruficollis</i> (Degeer)	5
<i>Haliplus wehnckeii</i> (Gerhardt)	4
<i>Noterus clavicornis</i> (Degeer)	4
<i>Laccophilus hyalinus</i> (Degeer)	3
<i>Laccophilus minutus</i> (L.)	4
<i>Hyphydrus ovatus</i> (L.)	4
<i>Hygrotus inaequalis</i> (Fabricius)	4
<i>Hygrotus versicolor</i> (Schaller)	4
<i>Hydroporus angustatus</i> Sturm	5
<i>Hydroporus discretus</i> Fairmaire & Brisout	2
<i>Hydroporus ferrugineus</i> Stephens	4
<i>Hydroporus memnonius</i> Nicolai	5

Taxon	LIFE Flow Group
<i>Hydroporus nigrita</i> (Fabricius)	5
<i>Hydroporus obscurus</i> Sturm	5
<i>Hydroporus palustris</i> (L.)	4
<i>Hydroporus planus</i> (Fabricius)	5
<i>Hydroporus pubescens</i> (Gyllenhal)	4
<i>Hydroporus tessellatus</i> Drapiez	4
<i>Stictonectes lepidus</i> (Olivier)	4
<i>Graptodytes pictus</i> (Fabricius)	4
<i>Porhydrus lineatus</i> (Fabricius)	5
<i>Deronectes latus</i> (Stephens)	2
<i>Potamonectes assimilis</i> (Paykull)	5
<i>Potamonectes depressus</i> (Fabricius)	4
<i>Stictotarsus duodecimpustulatus</i> (Fabricius)	2
<i>Oreodytes davisii</i> (Curtis)	1
<i>Oreodytes sanmarkii</i> (Sahlberg)	2
<i>Oreodytes septentrionalis</i> (Sahlberg)	2
<i>Scarodytes halensis</i> (Fabricius)	4
<i>Platambus maculatus</i> (L.)	2
<i>Agabus bipustulatus</i> (L.)	4
<i>Agabus chalconatus</i> (Panzer)	4
<i>Agabus didymus</i> (Olivier)	3
<i>Agabus guttatus</i> (Paykull)	2
<i>Agabus paludosus</i> (Fabricius)	2
<i>Agabus sturmi</i> (Gyllenhal)	4
<i>Colymbetes fuscus</i> (L.)	5
<i>Acilius sulcatus</i> (L.)	5
<i>Dytiscus marginalis</i> L.	4
<i>Dytiscus semisulcatus</i> Muller	5
<i>Gyrinus aeratus</i> Stephens	4
<i>Gyrinus distinctus</i> Aube	5
<i>Gyrinus marinus</i> Gyllenhal	5
<i>Gyrinus urinator</i> Illiger	3
<i>Orectochilus villosus</i> (Muller)	2
<i>Hydrochus angustatus</i> Germar	5
<i>Helophorus aequalis</i> Thomson	5
<i>Helophorus grandis</i> Illiger	4
<i>Helophorus arvernicus</i> Mulsant	3
<i>Helophorus brevipalpis</i> Bedel	4
<i>Helophorus flavipes</i> Fabricius	5
<i>Helophorus minutus</i> Fabricius	5
<i>Helophorus obscurus</i> Mulsant	5
<i>Helophorus strigifrons</i> Thomson	6
<i>Paracymus scutellaris</i> (Rosenhauer)	4
<i>Hydrobius fuscipes</i> (L.)	5
<i>Anacaena bipustulata</i> (Marsham)	4
<i>Anacaena globulus</i> (Paykull)	4
<i>Anacaena limbata</i> (Fabricius)	4
<i>Anacaena lutescens</i> (Stephens)	4
<i>Laccobius biguttatus</i> Gerhardt	4
<i>Laccobius minutus</i> (L.)	5
<i>Laccobius atratus</i> Rottenburg	5
<i>Laccobius atrocephalus</i> Reitter	6
<i>Laccobius sinuatus</i> Motschulsky	4
<i>Laccobius striatulus</i> (Fabricius)	3
<i>Enochrus testaceus</i> (Fabricius)	4
<i>Ochthebius bicolor</i> Germar	6
<i>Ochthebius dilatatus</i> Stephens	5
<i>Ochthebius exsculptus</i> Germar	2
<i>Ochthebius minimus</i> (Fabricius)	5
<i>Hydraena gracilis</i> Germar	2
<i>Hydraena nigrita</i> Germar	2
<i>Hydraena pulchella</i> Germar	3
<i>Hydraena riparia</i> Kugelann	4
<i>Hydraena rufipes</i> Curtis	2
<i>Hydraena testacea</i> Curtis	4
<i>Limnebius nitidus</i> (Marsham)	4
<i>Limnebius truncatellus</i> (Thunberg)	2
<i>Helichus substriatus</i> (Muller)	4
<i>Elmis aenea</i> (Muller)	2
<i>Esotus parallelepipedus</i> (Muller)	2

Taxon	LIFE Flow Group
<i>Limnius volckmani</i> (Panzer)	2
<i>Macronychus quadrituberculatus</i> Muller	3
<i>Normandia nitens</i> (Muller)	2
<i>Oulimnius major</i> (Rey)	4
<i>Oulimnius rivularis</i> (Rosenhauer)	4
<i>Oulimnius troglodytes</i> (Gyllenhal)	4
<i>Oulimnius tuberculatus</i> (Muller)	4
<i>Riolus cupreus</i> (Muller)	2
<i>Riolus subviolaceus</i> (Muller)	2
<i>Sialis fuliginosa</i> Pictet	2
<i>Sialis lutaria</i> (L.)	4
<i>Sialis nigripes</i> Pictet	4
<i>Osmylus fulvicephalus</i> (Scopoli)	2
<i>Rhyacophila dorsalis</i> (Curtis)	1
<i>Rhyacophila munda</i> Mclachlan	1
<i>Rhyacophila obliterata</i> Mclachlan	1
<i>Rhyacophila septentrionis</i> Mclachlan	1
<i>Glossosoma</i> sp.	2
<i>Agapetus</i> sp.	2
<i>Agraylea multipunctata</i> Curtis	4
<i>Agraylea sexmaculata</i> Curtis	4
<i>Allotrichia pallicornis</i> (Eaton)	1
<i>Ithytrichia</i> sp.	2
<i>Philopotamus montanus</i> (Donovan)	1
<i>Wormaldia</i> sp.	1
<i>Chimarra marginata</i> (L.)	1
<i>Lype</i> sp.	2
<i>Metalyse fragilis</i> (Pictet)	2
<i>Psychomyia pusilla</i> (Fabricius)	2
<i>Tinodes dives</i> (Pictet)	1
<i>Tinodes unicolor</i> (Pictet)	2
<i>Tinodes waeneri</i> (L.)	3
<i>Ecnomus tenellus</i> (Rambur)	3
<i>Cyrnus flavidus</i> Mclachlan	4
<i>Cyrnus trimaculatus</i> (Curtis)	4
<i>Holocentropus picicornis</i> (Stephens)	5
<i>Neureclipsis bimaculata</i> (L.)	3
<i>Plectrocnemia conspersa</i> (Curtis)	2
<i>Plectrocnemia geniculata</i> Mclachlan	1
<i>Polycentropus flavomaculatus</i> (Pictet)	2
<i>Polycentropus irroratus</i> (Curtis)	2
<i>Polycentropus kingi</i> Mclachlan	2
<i>Cheumatopsyche lepida</i> (Pictet)	2
<i>Hydropsyche angustipennis</i> (Curtis)	2
<i>Hydropsyche contubernalis</i> Mclachlan	2
<i>Hydropsyche fulvipes</i> (Curtis)	2
<i>Hydropsyche instabilis</i> (Curtis)	2
<i>Hydropsyche pellucidula</i> (Curtis)	2
<i>Hydropsyche saxonica</i> Mclachlan	1
<i>Hydropsyche siltalai</i> Dohler	2
<i>Diplectrona felix</i> Mclachlan	2
<i>Agrypnia obsoteta</i> group	5
<i>Phryganea</i> sp.	4
<i>Brachycentrus subnubilus</i> Curtis	2
<i>Crunoecia irrorata</i> (Curtis)	2
<i>Lasiocephala basalis</i> (Kolenati)	2
<i>Lepidostoma hirtum</i> (Fabricius)	2
<i>Apatania muliebris</i> Mclachlan	2
<i>Drusus annulatus</i> (Stephens)	2
<i>Ecclisopteryx guttulata</i> (Pictet)	1
<i>Halesus</i> sp.	2
<i>Hydatophylax infumatus</i> (Mclachlan)	2
<i>Melampophylax mucoreus</i> (Hagen)	2
<i>Anabolia nervosa</i> (Curtis)	4
<i>Glyptotaelius pellucidus</i> (Retzius)	4
<i>Limnephilus binotatus</i> Curtis	5
<i>Limnephilus bipunctatus</i> Curtis	6

Taxon	LIFE Flow Group
<i>Limnephilus decipiens</i> (Kolenati)	4
<i>Limnephilus extricatus</i> Mclachlan	3
<i>Limnephilus flavicornis</i> (Fabricius)	5
<i>Limnephilus fuscicornis</i> (Rambur)	2
<i>Limnephilus lunatus</i> Curtis	4
<i>Limnephilus marmoratus</i> Curtis	5
<i>Limnephilus politus</i> Mclachlan	4
<i>Limnephilus rhombicus</i> (L.)	4
<i>Limnephilus vittatus</i> (Fabricius)	5
<i>Goera pilosa</i> (Fabricius)	1
<i>Silo nigricornis</i> (Pictet)	1
<i>Silo pallipes</i> (Fabricius)	1
<i>Beraea maunus</i> (Curtis)	2
<i>Beraea pullata</i> (Curtis)	3
<i>Beraeodes minutus</i> (L.)	2
<i>Noëdobia ciliaris</i> (L.)	3
<i>Sericostoma personatum</i> (Spence)	2
<i>Odontocerum albicorne</i> (Scopoli)	1
<i>Molanna angustata</i> Curtis	4
<i>Athripsodes albifrons</i> (L.)	2
<i>Athripsodes atermimus</i> (Stephens)	4
<i>Athripsodes bilineatus</i> (L.)	2
<i>Athripsodes cinereus</i> (Curtis)	2
<i>Athripsodes commutatus</i> (Rostock)	1
<i>Ceraclea annulicornis</i> (Stephens)	2
<i>Ceraclea dissimilis</i> (Stephens)	4
<i>Ceraclea fulva</i> (Rambur)	4
<i>Ceraclea nigronervosa</i> (Retzius)	4
<i>Ceraclea senilis</i> (Burmeister)	4
<i>Leptocerus lusitanicus</i> (Mclachlan)	3
<i>Mystacides azurea</i> (L.)	4
<i>Mystacides longicornis</i> (L.)	4
<i>Mystacides nigra</i> (L.)	4
<i>Adicella reducta</i> (Mclachlan)	3
<i>Trienodes bicolor</i> (Curtis)	4
<i>Ylodes conspersus</i> (Rambur)	2
<i>Ylodes simulans</i> (Tjeder)	2
<i>Oecetis lacustris</i> (Pictet)	4
<i>Oecetis notata</i> (Rambur)	2
<i>Oecetis ochracea</i> (Curtis)	4
<i>Oecetis testacea</i> (Curtis)	4
<i>Pedicia</i> (<i>Tricyphona</i>) sp.	2
<i>Pedicia</i> (<i>Pedicia</i>) group	2
<i>Dicranota</i> sp.	2
<i>Ptychoptera</i> sp.	2
<i>Chaoborus flavicans</i> (Meigen)	5
<i>Anopheles</i> sp.	5
<i>Prosimulium hirtipes</i> (Fries)	2
<i>Prosimulium latimucro</i> (Enderlein)	2
<i>Prosimulium tomosvaryi</i> (Enderlein)	2
<i>Simulium latipes</i> (Meigen)	2
<i>Simulium costatum</i> Friederichs	2
<i>Simulium angustitarse</i> group	2
<i>Simulium cryophilum</i> group	2
<i>Simulium vernum</i> group	2
<i>Simulium aureum</i> group	2
<i>Simulium</i> (<i>Wilhelmia</i>) sp.	2
<i>Simulium erythrocephalum</i> (de Geer)	2
<i>Simulium rostratum</i> Lundström	2
<i>Simulium morsitans</i> Edwards	2
<i>Simulium noelleri</i> Friederichs	2
<i>Simulium posticatum</i> Meigen	2
<i>Simulium reptans</i> (L.)	2
<i>Simulium argyreatum</i> group	2
<i>Simulium ornatum</i> group	2
<i>Simulium tuberosum</i> (Lundström)	2

Appendix XI (continued) – LIFE (sp) (TL5)

Taxon	LIFE Flow Group
Planaria torva (Muller)	4
Polycelis fedina (Dalyell)	2
Polycelis nigra group	4
Phagocata vitta (Duges)	2
Crenobia alpina (Dana)	2
Dugesia tigrina (Girard)	3
Dugesia polychroa group	4
Bdellocephala punctata (Pallas)	5
Dendrocoelum lacteum (Muller)	4
Theodoxus fluviatilis (L.)	2
Viviparus viviparus (L.)	3
Valvata cristata Muller	4
Valvata macrostoma Morch	5
Valvata piscinalis (Muller)	4
Potamopyrgus jenkinsi (Smith)	3
Bithynia leachii (Sheppard)	4
Bithynia tentaculata (L.)	4
Aplexa hypnorum (L.)	6
Physa fontinalis (L.)	3
Lymnaea auriculana (L.)	4
Lymnaea palustris (Muller)	6
Lymnaea peregra (Muller)	4
Lymnaea stagnalis (L.)	4
Lymnaea truncatula (Muller)	6
Planorbis carinatus Muller	4
Planorbis planorbis (L.)	4
Anisus leucostoma (Millet)	6
Anisus vortex (L.)	4
Bathymorphalus contortus (L.)	4
Gyraulus albus (Muller)	4
Gyraulus laevis (Alder)	5
Armiger crista (L.)	4
Hippeutis complanatus (L.)	5
Segmentina nitida Muller	5
Planorbis cornuus (L.)	4
Ancylus fluviatilis Muller	2
Acroloxus lacustris (L.)	4
Margaritifera margaritifera (L.)	2
Dreissena polymorpha (Pallas)	4
Piscicola geometra (L.)	2
Theromyzon tessulatum (Muller)	4
Hemiclepsis marginata (Muller)	4
Glossiphonia complanata (L.)	4
Glossiphonia heterodita (L.)	4
Batracobdella paludosa (Carena)	4
Boreobdella verrucata (Muller)	4
Helobdella stagnalis (L.)	4
Haemopsis sanguisuga (L.)	4
Erpobdella octoculata (L.)	4
Erpobdella testacea (Savigny)	5
Dina lineata (Muller)	4
Trocheta bykowskii Gedroyc	2
Trocheta subviridis Dutrochet	4
Asellus aquaticus (L.)	4
Asellus meridianus Racovitza	4
Crangonyx pseudogracilis Bousfield	4
Gammarus duebeni Uljeborg	3
Gammarus lacustris Sars	5
Gammarus pulex (L.)	2
Gammarus tigrinus Sexton	3
Siphonurus lacustris Eaton	4
Ameletus inopinatus Eaton	1
Baetis abrebatinus Eaton	2
Baetis buceratus Eaton	2
Baetis digitatus Bengtsson	2
Baetis muticus (L.)	2
Baetis niger (L.)	2
Baetis rhodani (Pictet)	2

Taxon	LIFE Flow Group
Baetis vernus Curtis	2
Baetis scambus group	2
Centroptilum luteolum (Muller)	3
Centroptilum pennulatum Eaton	3
Cloeon dipterum (L.)	4
Cloeon simile Eaton	4
Procloeon bifidum Bengtsson	3
Rhithrogena sp.	1
Heptagenia fuscogrisea (Retzius)	4
Heptagenia lateralis (Curtis)	1
Heptagenia sulphurea (Muller)	1
Ecdyonurus sp.	1
Leptophlebia marginata (L.)	4
Leptophlebia vespertina (L.)	4
Paraleptophlebia cincta (Retzius)	2
Paraleptophlebia submarginata (Stephens)	2
Paraleptophlebia werneri Ulmer	2
Habrophlebia fusca (Curtis)	3
Potamanthus luteus (L.)	3
Ephemera danica Muller	2
Ephemera lineata Eaton	3
Ephemera vulgata L.	3
Ephemerella ignita (Poda)	2
Ephemerella notata Eaton	2
Brachycercus harrisella Curtis	3
Caenis horaria (L.)	4
Caenis rivulorum Eaton	2
Caenis robusta Eaton	4
Caenis pusilla Navas	2
Caenis pseudorivulorum group	2
Taeniopteryx nebulosa (L.)	2
Brachyptera putata (Newman)	3
Brachyptera risi (Morton)	1
Protonemura meyeri (Pictet)	1
Protonemura montana Kimmins	1
Protonemura praecox (Morton)	1
Amphinemura standfussi Ris	2
Amphinemura sulcicollis (Stephens)	2
Nemurella picteti Klapalek	4
Nemoura avicularis Morton	4
Nemoura cinerea (Retzius)	4
Nemoura cambrica group	2
Leuctra fusca (L.)	2
Leuctra geniculata (Stephens)	2
Leuctra hippopus (Kempny)	1
Leuctra inermis Kempny	1
Leuctra moselyi Morton	1
Leuctra nigra (Olivier)	2
Capnia atra Morton	5
Capnia bifrons (Newman)	1
Perlodes microcephala (Pictet)	1
Diura bicaudata (L.)	1
Isoperla grammatica (Poda)	1
Dinocras cephalotes (Curtis)	1
Perla bipunctata Pictet	1
Chloroperla torrentium (Pictet)	1
Chloroperla tripunctata (Scopoli)	1
Platycnemis pennipes (Pallas)	4
Pyrrhosoma nymphula (Sulzer)	4
Ischnura elegans (Van der Linden)	4
Enallagma cyathigerum (Charpentier)	4
Coenagrion puella group	4
Erythromma najas (Hansemann)	4
Calopteryx splendens (Harris)	3
Calopteryx virgo (L.)	2
Gomphus vulgatissimus (L.)	3
Cordulegaster boltonii (Dorovan)	2
Brachytron pratense (Muller)	4

Taxon	LIFE Flow Group
Mesovelia furcata Mulsant & Rey	5
Hydrometra stagnorum (L.)	4
Gerris argentatus Schummel	5
Gerris lacustris (L.)	4
Gerris odontogaster (Zetterstedt)	5
Gerris thoracicus Schummel	4
Gerris najas (Degeer)	4
Nepa cinerea L.	5
Ilyocoris clivicoides (L.)	4
Aphelocheirus aestivalis (Fabricius)	2
Notonecta glauca L.	4
Notonecta maculata Fabricius	4
Notonecta obliqua Gallen	5
Micronecta sp.	4
Cymatia coleoptrata (Fabricius)	4
Callicorixa praeusta (Fieber)	6
Callicorixa wollastoni (Douglas & Scott)	5
Corixa affinis Leach	4
Corixa dentipes (Thomson)	4
Corixa panzeri (Fieber)	4
Corixa punctata (Illiger)	4
Hesperocorixa linnei (Fieber)	5
Hesperocorixa sahlbergi (Fieber)	4
Sigara distincta (Fieber)	4
Sigara falleni (Fieber)	4
Sigara fossarum (Leach)	4
Sigara scotti (Fieber)	5
Sigara lateralis (Leach)	5
Sigara nigrolineata (Fieber)	4
Sigara semistriata (Fieber)	4
Sigara venusta (Douglas & Scott)	4
Brychius elevatus (Panzer)	2
Halipilus confinis Stephens	4
Halipilus flavicollis Sturm	4
Halipilus fluviatilis Aube	4
Halipilus heydeni Wehncke	5
Halipilus immaculatus Gerhardt	5
Halipilus laminatus Schaller	4
Halipilus lineatocollis (Marshall)	3
Halipilus lineolatus Mannerheim	4
Halipilus ruficollis (Degeer)	5
Halipilus wehnckei (Gerhardt)	4
Noterus clavicornis (Degeer)	4
Laccophilus hyalinus (Degeer)	3
Laccophilus minutus (L.)	4
Hyphidrus ovatus (L.)	4
Hygrotus inaequalis (Fabricius)	4
Hygrotus versicolor (Schaller)	4
Hydroporus angustatus Sturm	5
Hydroporus discretus Fairmaire & Brisout	2
Hydroporus ferrugineus Stephens	4
Hydroporus memnonius Nicolai	5
Hydroporus nigrita (Fabricius)	5
Hydroporus obscurus Sturm	5
Hydroporus palustris (L.)	4
Hydroporus planus (Fabricius)	5
Hydroporus pubescens (Gyllenhal)	4
Hydroporus tessellatus Drapiez	4
Stictonectes lepidus (Olivier)	4
Graptodytes pictus (Fabricius)	4
Porhydrus lineatus (Fabricius)	5
Deronectes latus (Stephens)	2
Potamonectes assimilis (Paykull)	5
Potamonectes depressus (Fabricius)	4
Stictotarsus duodecimpustulatus (Fabricius)	2
Oreodytes davisii (Curtis)	1
Oreodytes sanmarkii (Sahlberg)	2
Oreodytes septentrionalis (Sahlberg)	2
Scarodytes halensis (Fabricius)	4
Platambus maculatus (L.)	2

Taxon	LIFE Flow Group
Agabus bipustulatus (L.)	4
Agabus chalconatus (Panzer)	4
Agabus didymus (Olivier)	3
Agabus guttatus (Paykull)	2
Agabus paludosus (Fabricius)	2
Agabus sturmi (Gyllenhal)	4
Colymbetes fuscus (L.)	5
Aclius sulcatus (L.)	5
Dytiscus marginalis L.	4
Dytiscus semisulcatus Muller	5
Gyrinus aeratus Stephens	4
Gyrinus distinctus Aube	5
Gyrinus marinus Gyllenhal	5
Gyrinus urinator Illiger	3
Orectochilus villosus (Muller)	2
Hydrochus angustatus Germar	5
Helophorus aequalis Thomson	5
Helophorus grandis Illiger	4
Helophorus arvensis Mulsant	3
Helophorus brevivalpis Bedel	4
Helophorus flavipes Fabricius	5
Helophorus minutus Fabricius	5
Helophorus obscurus Mulsant	5
Helophorus strigifrons Thomson	6
Paracymus scutellaris (Rosenhauer)	4
Hydrobius fuscipes (L.)	5
Anacaena bipustulata (Marshall)	4
Anacaena globulus (Paykull)	4
Anacaena limbata (Fabricius)	4
Anacaena lutescens (Stephens)	4
Laccobius biguttatus Gerhardt	4
Laccobius minutus (L.)	5
Laccobius abrotus Rottenburg	5
Laccobius atrocephalus Reitter	6
Laccobius sinuatus Motschulsky	4
Laccobius striatulus (Fabricius)	3
Enochrus testaceus (Fabricius)	4
Ochthebius bicolor Germar	6
Ochthebius dilatatus Stephens	5
Ochthebius exsculptus Germar	2
Ochthebius minimus (Fabricius)	5
Hydraena gracilis Germar	2
Hydraena nigrita Germar	2
Hydraena pulchella Germar	3
Hydraena riparia Kugelann	4
Hydraena rufipes Curtis	2
Hydraena testacea Curtis	4
Limnebius nitidus (Marshall)	4
Limnebius truncatellus (Thunberg)	2
Helichus substriatus (Muller)	4
Elmis aenea (Muller)	2
Esolus parallelepipedus (Muller)	2
Limnius volckmari (Panzer)	2
Macronychus quadrituberculatus Muller	3
Normandia nitens (Muller)	2
Oulimnius major (Rey)	4
Oulimnius rivularis (Rosenhauer)	4
Oulimnius troglodytes (Gyllenhal)	4
Oulimnius tuberculatus (Muller)	4
Riolus cupreus (Muller)	2
Riolus subviolaceus (Muller)	2
Sialis fuliginosa Pictet	2
Sialis lutaria (L.)	4
Sialis nigripes Pictet	4
Rhyacophila dorsalis (Curtis)	1
Rhyacophila munda McLachlan	1
Rhyacophila oblitterata McLachlan	1
Rhyacophila septentrionis McLachlan	1
Glossosoma sp.	2
Agapetus sp.	2

Taxon	LIFE Flow Group
Agraylea multipunctata Curtis	4
Agraylea sexmaculata Curtis	4
Allotrichia pallicornis (Eaton)	1
Ithytrichia sp.	2
Philopotamus montanus (Donovan)	1
Wormaldia sp.	1
Chimarra marginata (L.)	1
Lype sp.	2
Metatype fragilis (Pictet)	2
Psychomyia pusilla (Fabricius)	2
Tinodes dives (Pictet)	1
Tinodes unicolor (Pictet)	2
Tinodes waeneri (L.)	3
Ecnomus tenellus (Rambur)	3
Cynurus flavidus Mclachlan	4
Cynurus trimaculatus (Curtis)	4
Holocentropus picicornis (Stephens)	5
Neureclipsis bimaculata (L.)	3
Plectrocnemia conspersa (Curtis)	2
Plectrocnemia geniculata Mclachlan	1
Polycentropus flavomaculatus (Pictet)	2
Polycentropus lroratus (Curtis)	2
Polycentropus kingi Mclachlan	2
Cheumatopsyche lepida (Pictet)	2
Hydropsyche angustipennis (Curtis)	2
Hydropsyche contubernalis Mclachlan	2
Hydropsyche fulvipes (Curtis)	2
Hydropsyche instabilis (Curtis)	2
Hydropsyche pellucidula (Curtis)	2
Hydropsyche saxonica Mclachlan	1
Hydropsyche siltalai Dohler	2
Diplectrona felix Mclachlan	2
Agrypnia obsoleta group	5
Phryganea sp.	4
Brachycentrus subnubilus Curtis	2
Crunoecia lrorata (Curtis)	2
Lasiocephala basalis (Kolenati)	2
Lepidostoma hirtum (Fabricius)	2
Apatania muliebris Mclachlan	2
Drusus annulatus (Stephens)	2
Ecdiopteryx guttulata (Pictet)	1
Halesus sp.	2
Hydatophylax infumatus (Mclachlan)	2
Melampophylax mucoreus (Hagen)	2
Anabolia nervosa (Curtis)	4
Glyptotaelius pellucidus (Retzius)	4
Limnephilus binotatus Curtis	5
Limnephilus bipunctatus Curtis	6
Limnephilus decipiens (Kolenati)	4
Limnephilus extricatus Mclachlan	3
Limnephilus flavicornis (Fabricius)	5
Limnephilus fuscicornis (Rambur)	2
Limnephilus lunatus Curtis	4
Limnephilus marmoratus Curtis	5
Limnephilus politus Mclachlan	4
Limnephilus rhombicus (L.)	4
Limnephilus vittatus (Fabricius)	5
Goera pilosa (Fabricius)	1
Silo nigricornis (Pictet)	1
Silo pallipes (Fabricius)	1
Beraea maurus (Curtis)	2
Beraea pullata (Curtis)	3
Beraeodes minutus (L.)	2
Notidobia ciliaris (L.)	3
Sericostoma personatum (Spence)	2
Odontocerum albicorne (Scopoli)	1
Molanna angustata Curtis	4
Athripsodes albifrons (L.)	2
Athripsodes aterrimus (Stephens)	4
Athripsodes bilineatus (L.)	2

Taxon	LIFE Flow Group
Athripsodes cinereus (Curtis)	2
Athripsodes commutatus (Rostock)	1
Ceraclea annulicornis (Stephens)	2
Ceraclea dissimilis (Stephens)	4
Ceraclea fulva (Rambur)	4
Ceraclea nigronervosa (Retzius)	4
Ceraclea senilis (Burmester)	4
Leptocerus lusitanicus (Mclachlan)	3
Mystacides azurea (L.)	4
Mystacides longicornis (L.)	4
Mystacides nigra (L.)	4
Adicella reducta (Mclachlan)	3
Trienodes bicolor (Curtis)	4
Ylodes conspersus (Rambur)	2
Ylodes simulans (Tjeder)	2
Oecetis lacustris (Pictet)	4
Oecetis notata (Rambur)	2
Oecetis ochracea (Curtis)	4
Oecetis testacea (Curtis)	4
Chaoboridae	5
Culicidae	5
Simuliidae	2

Appendix XI (continued) – LIFE (abundance categories and flow scores)

Flow Group	Flow Group Description	Log10 Abundance Category	Flow Score (fs)
1	Rapid	1	9
2	Moderate/fast	1	8
3	Slow/sluggish	1	7
4	Flowing/standing	1	6
5	Standing	1	5
6	Drought resistant	1	4
1	Rapid	2	10
2	Moderate/fast	2	9
3	Slow/sluggish	2	7
4	Flowing/standing	2	5
5	Standing	2	4
6	Drought resistant	2	3
1	Rapid	3	11
2	Moderate/fast	3	10
3	Slow/sluggish	3	7
4	Flowing/standing	3	4
5	Standing	3	3
6	Drought resistant	3	2
1	Rapid	4	12
2	Moderate/fast	4	11
3	Slow/sluggish	4	7
4	Flowing/standing	4	3
5	Standing	4	2
6	Drought resistant	4	1
1	Rapid	5	12
2	Moderate/fast	5	11
3	Slow/sluggish	5	7
4	Flowing/standing	5	3
5	Standing	5	2
6	Drought resistant	5	1

Appendix XI (continued) – PSI (fam) (TL3)

Taxon	PSI Group
Spongillidae	B
Planariidae	D
Dugesiiidae	D
Dendrocoelidae	C
Neritidae	C
Viviparidae	D
Valvatidae	C
Hydrobiidae	C
Bithyniidae	D
Physidae	D
Lymnaeidae	D
Acrolloxidae	E
Planorbidae	D
Ancylidae	D
Margaritiferidae	A
Unionidae	D
Sphaeniidae	D
Dreisseriidae	E
Lumbriculidae	D
Haplotaxidae	D
Naididae	D
Tubificidae	D
Enchytraeidae (incl. Propappidae)	D
Lumbricidae (incl. Glossoscolecidae)	D
Pisicolidae	B
Glossiphoniidae	C
Hirudinidae	D
Erpobdellidae	C
Astacidae	E
Asellidae	D
Corophiidae	D
Crangonyctidae	D
Gammaridae	B
Niphargidae	B
Siphonuridae	C
Baetidae	A
Heptageniidae	A
Ameletidae	B
Leptophlebiidae	B
Potamanthidae	B
Ephemeridae	C
Ephemerellidae	A
Caenidae	D
Taeniopterygidae	A
Nemouridae	C
Leuctridae	A
Capniidae	A
Perlodidae	A
Perlidae	A
Chloroperlidae	A
Platycnemididae	D
Coenagrionidae	E
Calopterygidae	C
Gomphidae	D
Cordulegasteridae	D
Aeshnidae	D
Libellulidae	D
Mesovellidae	E
Hydrometridae	E
Veliidae	E
Gerridae	E
Nepidae	D
Naucoridae	E
Aphelocheiridae	A
Notonectidae	E
Corixidae	D
Halipidae	D
Noteridae	D

Taxon	PSI Group
Dytiscidae	D
Gyrinidae	E
Helophoridae	D
Hydrophilidae	D
Hydrochidae	D
Hydraenidae	B
Scirtidae	B
Dryopidae	D
Elmidae	B
Sialidae	D
Osmytidae	B
Sisyridae	B
Rhyacophilidae	A
Glossosomatidae	A
Hydroptilidae	E
Philopotamidae	A
Psychomyiidae	B
Ecnomidae	C
Polycentropodidae	B
Hydropsychidae	A
Phryganeidae	D
Brachycentridae	A
Lepidostomatidae	B
Limnephilidae	B
Goeridae	A
Beraeidae	A
Sericostomatidae	B
Odontoceridae	B
Molannidae	C
Leptoceridae	E
Apataniidae	A
Pyralidae	E
Tipulidae	B
Limoniidae	B
Pediciidae	B
Psychodidae	D
Ptychopteridae	D
Dixidae	B
Chaoboridae	E
Culicidae	E
Thaumaleidae	E
Ceratopogonidae	E
Simuliidae	A
Tanypodinae	E
Diamesinae	E
Prodiamesinae	E
Orthocladinae	E
Chironomini	E
Tanytarsini	E
Stratiomyidae	C
Tabanidae	D
Athericidae	E
Syrphidae	D

Appendix XI (continued) – PSI (sp) (TL4)

Taxon	PSI Group
Planaria torva (Muller)	D
Polycelis felina (Dalyell)	C
Polycelis nigra group	D
Phagocata vitta (Duges)	B
Crenobia alpina (Dana)	B
Dugesia tigrina (Girard)	D
Dugesia polychroa group	D
Bdellocephala punctata (Pallas)	D
Dendrocoelum lacteum (Muller)	C
Theodoxus fluviatilis (L.)	C
Viviparus viviparus (L.)	D
Valvata cristata Muller	C
Valvata macrostoma Morch	D
Valvata piscinalis (Muller)	C
Potamopyrgus jenkinsi (Smith)	C
Bithynia leachii (Sheppard)	D
Bithynia tentaculata (L.)	D
Aplexa hypnorum (L.)	D
Physa fontinalis (L.)	D
Physa acuta group	D
Lymnaea auricularia (L.)	D
Lymnaea palustris (Muller)	D
Lymnaea peregra (Muller)	D
Lymnaea stagnalis (L.)	D
Lymnaea truncatula (Muller)	D
Planorbis carinatus Muller	D
Planorbis planorbis (L.)	D
Anisus leucostoma (Millet)	D
Anisus vortex (L.)	D
Bathymphalus contortus (L.)	D
Gyraulus albus (Muller)	C
Gyraulus laevis (Alder)	D
Armiger crista (L.)	C
Hippeutis complanatus (L.)	D
Segmentina nitida Muller	D
Planorbis cornutus (L.)	D
Ancylus fluviatilis Muller	A
Acroloxus lacustris (L.)	E
Margaritifera margaritifera (L.)	A
Unio sp.	D
Sphaerium comeum (L.)	D
Sphaerium lacustre (Muller)	D
Sphaerium rivicola (Lamarck)	D
Sphaerium transversum (Say)	D
Pisidium amnicum (Muller)	D
Pisidium casertanum (Poli)	D
Pisidium henslowianum (Sheppard)	C
Pisidium hibernicum Westerlund	D
Pisidium liljeborgii Clessin	D
Pisidium milium Held	D
Pisidium moitessierianum Paladilhe	D
Pisidium nitidum Jenyns	D
Pisidium obtusale (Lamarck)	D
Pisidium personatum Malm	D
Pisidium pulchellum Jenyns	D
Pisidium subtruncatum Malm	D
Pisidium supinum Schmidt	C
Pisidium tenuilineatum Stelfox	D
Dreissena polymorpha (Pallas)	E
Pisiccola geometra (L.)	B
Theromyzon tessulatum (Muller)	D
Hemiclepsis marginata (Muller)	C
Glossiphonia complanata (L.)	C
Glossiphonia heterocita (L.)	C
Batrachobdella paludosa (Carena)	D
Boreobdella verrucata (Muller)	C
Helobdella stagnalis (L.)	C
Haemopis sanguisuga (L.)	D

Taxon	PSI Group
Erpobdella octoculata (L.)	C
Erpobdella testacea (Savigny)	C
Dina lineata (Muller)	D
Trocheta bykowskii Gedroyc	C
Trocheta subviridis Dutrochet	C
Asellus aquaticus (L.)	D
Asellus meridianus Racovitza	D
Corophium sp.	D
Crangonyx pseudogracilis Bousfield	D
Gammarus duebeni Liljeborg	B
Gammarus lacustris Sars	C
Gammarus pulex (L.)	B
Gammarus tigrinus Sexton	D
Gammarus zaddachi Sexton	D
Niphargus aquilex Schiodte	B
Siphonurus lacustris Eaton	C
Ameletus inopinatus Eaton	B
Baetis atrebatinus Eaton	A
Baetis buceratus Eaton	B
Baetis digitatus Bengtsson	A
Baetis muticus (L.)	A
Baetis niger (L.)	A
Baetis rhodani (Pictet)	A
Baetis vernus Curtis	B
Baetis scambus group	A
Centroptilum luteolum (Muller)	C
Centroptilum pennulatum Eaton	B
Cloeon dipterum (L.)	D
Cloeon simile Eaton	C
Proclon bifidum Bengtsson	C
Rhithrogena sp.	A
Heptagenia fuscogrisea (Retzius)	C
Heptagenia lateralis (Curtis)	A
Heptagenia sulphurea (Muller)	A
Ecdyonurus sp.	A
Leptophlebia marginata (L.)	D
Leptophlebia vespertina (L.)	D
Paraleptophlebia cincta (Retzius)	A
Paraleptophlebia submarginata (Stephens)	B
Paraleptophlebia werneri Ulmer	C
Habrophlebia fusca (Curtis)	C
Potamanthus luteus (L.)	B
Ephemera danica Muller	C
Ephemera lineata Eaton	D
Ephemera vulgata L.	D
Ephemerella ignita (Poda)	A
Ephemerella notata Eaton	B
Brachycercus harrisella Curtis	D
Caenis horaria (L.)	D
Caenis rivulorum Eaton	C
Caenis robusta Eaton	D
Caenis pusilla Navas	D
Caenis luctuosa group	D
Taeniopteryx nebulosa (L.)	C
Brachyptera putata (Newman)	A
Brachyptera risi (Morton)	A
Protonemura meyeri (Pictet)	A
Protonemura montana Kimmins	A
Protonemura praecox (Morton)	A
Amphinemura standfussi Ris	C
Amphinemura sulciollis (Stephens)	B
Nemurella picteti Klapalek	C
Nemoura avicularis Morton	C
Nemoura cinerea (Retzius)	C
Nemoura cambrica group	B
Leuctra fusca (L.)	A
Leuctra geniculata (Stephens)	A
Leuctra hippopus (Kempny)	A

Taxon	PSI Group
<i>Leuctra inermis</i> Kempny	A
<i>Leuctra moselyi</i> Morton	A
<i>Leuctra nigra</i> (Olivier)	B
<i>Capnia atra</i> Morton	A
<i>Capnia bifrons</i> (Newman)	B
<i>Perlodes microcephala</i> (Pictet)	A
<i>Diura bicaudata</i> (L.)	A
<i>Isoperla grammica</i> (Poda)	A
<i>Dinocras cephalotes</i> (Curtis)	A
<i>Pterla bipunctata</i> Pictet	A
<i>Chloroperla torrentium</i> (Pictet)	A
<i>Chloroperla tripunctata</i> (Scolopoli)	A
<i>Platynemis pennipes</i> (Pallas)	D
<i>Pyrrhosoma nymphula</i> (Sulzer)	D
<i>Ischnura elegans</i> (Van der Linden)	E
<i>Enallagma cyathigerum</i> (Charpentier)	E
Coenagrion puella group	E
<i>Erythromma najas</i> (Hansemann)	E
<i>Calopteryx splendens</i> (Harris)	C
<i>Calopteryx virgo</i> (L.)	B
<i>Gomphus vulgarissimus</i> (L.)	D
<i>Cordulegaster boltonii</i> (Donovan)	D
<i>Brachytron pratense</i> (Muller)	D
<i>Aeshna</i> sp.	D
<i>Orthetrum</i> sp.	D
<i>Sympetrum</i> sp.	D
<i>Mesovelia furcata</i> Mulsant & Rey	E
<i>Hydrometra stagnorum</i> (L.)	E
<i>Velia</i> sp.	E
<i>Gerris argentatus</i> Schummel	E
<i>Gerris lacustris</i> (L.)	E
<i>Gerris odontogaster</i> (Zetterstedt)	E
<i>Gerris thoracicus</i> Schummel	E
<i>Gerris najas</i> (Degeer)	E
<i>Nepa cinerea</i> L.	D
<i>Ilyocoris cimicoides</i> (L.)	E
<i>Aphelocheirus aestivalis</i> (Fabricius)	A
<i>Notonecta glauca</i> L.	E
<i>Notonecta maculata</i> Fabricius	E
<i>Notonecta obliqua</i> Gallen	E
<i>Micronecta</i> sp.	B
<i>Cymatia coleoptrata</i> (Fabricius)	E
<i>Callicorixa praeusta</i> (Fieber)	D
<i>Callicorixa wollastoni</i> (Douglas & Scott)	C
<i>Corixa affinis</i> Leach	D
<i>Corixa dentipes</i> (Thomson)	D
<i>Corixa panzeri</i> (Fieber)	D
<i>Corixa punctata</i> (Illiger)	D
<i>Hesperocorixa linnei</i> (Fieber)	D
<i>Hesperocorixa sahlbergi</i> (Fieber)	D
<i>Sigara</i> (<i>Sigara</i>) sp.	D
<i>Sigara distincta</i> (Fieber)	D
<i>Sigara falleni</i> (Fieber)	C
<i>Sigara fossarum</i> (Leach)	D
<i>Sigara scottii</i> (Fieber)	C
<i>Sigara lateralis</i> (Leach)	D
<i>Sigara nigrolineata</i> (Fieber)	D
<i>Sigara semistriata</i> (Fieber)	D
<i>Sigara venusta</i> (Douglas & Scott)	C
<i>Brychius elevatus</i> (Panzer)	C
<i>Haliplus confinis</i> Stephens	D
<i>Haliplus flavicollis</i> Sturm	C
<i>Haliplus fluviatilis</i> Aube	D
<i>Haliplus heydeni</i> Wehncke	D
<i>Haliplus immaculatus</i> Gerhardt	D
<i>Haliplus laminatus</i> Schaller	D
<i>Haliplus lineatocollis</i> (Marsham)	C
<i>Haliplus lineolatus</i> Mannerheim	C
<i>Haliplus ruficollis</i> (Degeer)	D
<i>Haliplus wehncke</i> (Gerhardt)	C

Taxon	PSI Group
<i>Noterus clavicornis</i> (Degeer)	D
<i>Laccophilus hyalinus</i> (Degeer)	D
<i>Laccophilus minutus</i> (L.)	D
<i>Hyphidrus ovatus</i> (L.)	D
<i>Hygrotus Inaequalis</i> (Fabricius)	D
<i>Hygrotus versicolor</i> (Schaller)	D
<i>Hydroporus angustatus</i> Sturm	D
<i>Hydroporus discretus</i> Fairmaire & Brisout	D
<i>Hydroporus ferrugineus</i> Stephens	B
<i>Hydroporus memnonius</i> Nicolai	D
<i>Hydroporus nigrita</i> (Fabricius)	C
<i>Hydroporus obscurus</i> Sturm	D
<i>Hydroporus palustris</i> (L.)	D
<i>Hydroporus planus</i> (Fabricius)	D
<i>Hydroporus pubescens</i> (Gyllenhal)	D
<i>Hydroporus tessellatus</i> Drapiez	D
<i>Stictonectes lepidus</i> (Olivier)	B
<i>Graptodytes pictus</i> (Fabricius)	D
<i>Porhydrus lineatus</i> (Fabricius)	D
<i>Deronectes latus</i> (Stephens)	A
<i>Potamonectes assimilis</i> (Paykull)	C
<i>Potamonectes depressus</i> (Fabricius)	C
<i>Stictotarsus duodecimpustulatus</i> (Fabricius)	C
<i>Oreodytes davlisi</i> (Curtis)	B
<i>Oreodytes sanmarkii</i> (Sahlberg)	B
<i>Oreodytes septentrionalis</i> (Sahlberg)	B
<i>Scarodytes halensis</i> (Fabricius)	D
<i>Platambus maculatus</i> (L.)	B
<i>Agabus bipustulatus</i> (L.)	D
<i>Agabus chalconatus</i> (Panzer)	D
<i>Agabus didymus</i> (Olivier)	C
<i>Agabus guttatus</i> (Paykull)	B
<i>Agabus paludosus</i> (Fabricius)	C
<i>Agabus sturmi</i> (Gyllenhal)	D
<i>Ilybius</i> sp.	D
<i>Colymbetes fuscus</i> (L.)	E
<i>Acilius sulcatus</i> (L.)	E
<i>Dytiscus marginalis</i> L.	D
<i>Dytiscus semisulcatus</i> Muller	D
<i>Gyrinus aeratus</i> Stephens	E
<i>Gyrinus distinctus</i> Aube	E
<i>Gyrinus marinus</i> Gyllenhal	E
<i>Gyrinus natator</i> group	E
<i>Gyrinus urinator</i> Illiger	E
<i>Orectochilus villosus</i> (Muller)	A
<i>Hydrochus angustatus</i> Germar	D
<i>Helophorus aequalis</i> Thomson	D
<i>Helophorus grandis</i> Illiger	D
<i>Helophorus arvernicus</i> Mulsant	D
<i>Helophorus brevipalpis</i> Bedel	D
<i>Helophorus flavipes</i> Fabricius	D
<i>Helophorus minutus</i> Fabricius	D
<i>Helophorus obscurus</i> Mulsant	D
<i>Helophorus strigifrons</i> Thomson	D
<i>Paracymus scutellaris</i> (Rosenhauer)	D
<i>Hydrobius fuscipes</i> (L.)	D
<i>Anacaena bipustulata</i> (Marsham)	D
<i>Anacaena globulus</i> (Paykull)	C
<i>Anacaena limbata</i> (Fabricius)	D
<i>Anacaena lutescens</i> (Stephens)	D
<i>Laccobius biguttatus</i> Gerhardt	D
<i>Laccobius minutus</i> (L.)	D
<i>Laccobius atratus</i> Rottenburg	D
<i>Laccobius atrocephalus</i> Reitter	D
<i>Laccobius sinuatus</i> Motschulsky	D
<i>Laccobius striatulus</i> (Fabricius)	D
<i>Enochrus testaceus</i> (Fabricius)	D
<i>Ochthebius bicolor</i> Germar	D
<i>Ochthebius dilatatus</i> Stephens	D
<i>Ochthebius exsculptus</i> Germar	E

Taxon	PSI Group
Ochthebius minimus (Fabricius)	D
Hydraena gracilis Germar	B
Hydraena nigrita Germar	B
Hydraena pulchella Germar	C
Hydraena riparia Kugelann	B
Hydraena rufipes Curtis	B
Hydraena testacea Curtis	D
Limnebius nitidus (Marsham)	D
Limnebius truncatellus (Thunberg)	C
Elodes sp.	B
Cyphon sp.	D
Prionocyphon serricornis (Muller)	E
Hydrocyphon deflexicollis (Muller)	E
Helichus substriatus (Muller)	E
Dryops sp.	D
Elmis aenea (Muller)	B
Esolus parallelepipedus (Muller)	C
Limnius volckmari (Panzer)	B
Macronychus quadrituberculatus Muller	E
Normandia nitens (Muller)	B
Oulimnius major (Rey)	C
Oulimnius rivularis (Rosenhauer)	C
Oulimnius troglodytes (Gyllenhal)	C
Oulimnius tuberculatus (Muller)	C
Riolus cupreus (Muller)	B
Riolus subviolaceus (Muller)	B
Sialis fuliginosa Pictet	B
Sialis lutaria (L.)	D
Sialis nigripes Pictet	C
Osmylus fulvicephalus (Scopoli)	B
Sisyra sp.	B
Rhyacophila dorsalis (Curtis)	A
Rhyacophila munda Mclachlan	A
Rhyacophila obliterata Mclachlan	A
Rhyacophila septentrionis Mclachlan	A
Glossosoma sp.	A
Agapetus sp.	A
Agraylea multipunctata Curtis	E
Agraylea sexmaculata Curtis	E
Allotrichia pallicornis (Eaton)	B
Hydroptila sp.	E
Oxyethira sp.	E
Ithytrichia sp.	E
Philopotamus montanus (Donovan)	A
Wormaldia sp.	A
Chimarra marginata (L.)	A
Lype sp.	E
Metalype fragilis (Pictet)	A
Psychomyia pusilla (Fabricius)	A
Tinodes dives (Pictet)	A
Tinodes unicolor (Pictet)	A
Tinodes waeneri (L.)	B
Ecnomus tenellus (Rambur)	C
Cynus flavidus Mclachlan	E
Cynus trimaculatus (Curtis)	B
Holocentropus picicornis (Stephens)	E
Neureclipsis bimaculata (L.)	B
Plectrocnemia conspersa (Curtis)	B
Plectrocnemia geniculata Mclachlan	B
Polycentropus flavomaculatus (Pictet)	B
Polycentropus irroratus (Curtis)	B
Polycentropus kingi Mclachlan	B
Cheumatopsyche lepida (Pictet)	B
Hydropsyche angustipennis (Curtis)	B
Hydropsyche contubernalis Mclachlan	B
Hydropsyche fulvipes (Curtis)	A
Hydropsyche instabilis (Curtis)	A
Hydropsyche pellucidula (Curtis)	A
Hydropsyche saxonica Mclachlan	A
Hydropsyche siltalai Dohler	A

Taxon	PSI Group
Diplectrona felix Mclachlan	A
Agrypnia obsoleta group	D
Phryganea sp.	D
Brachycentrus subnubilus Curtis	A
Crunoecia irrorata (Curtis)	B
Lasiocephala basalis (Kolenati)	B
Lepidostoma hirtum (Fabricius)	B
Apatania mullebrisi Mclachlan	A
Drusus annulatus (Stephens)	A
Ecclisopteryx guttulata (Pictet)	A
Halesus sp.	C
Hydatophylax infumatus (Mclachlan)	C
Melampophylax mucoreus (Hagen)	B
Anabolia nervosa (Curtis)	C
Glyphotaenius pellucidus (Retzius)	D
Limnephilus binotatus Curtis	C
Limnephilus bipunctatus Curtis	C
Limnephilus decipiens (Kolenati)	C
Limnephilus extricatus Mclachlan	C
Limnephilus flavicornis (Fabricius)	C
Limnephilus fuscicornis (Rambur)	C
Limnephilus lunatus Curtis	C
Limnephilus marmoratus Curtis	C
Limnephilus poitius Mclachlan	C
Limnephilus rhombicus (L.)	C
Limnephilus vittatus (Fabricius)	C
Micropterna group	B
Potamophylax group	B
Goera pilosa (Fabricius)	B
Silo nigricornis (Pictet)	A
Silo pallipes (Fabricius)	A
Beraea maurus (Curtis)	A
Beraea pullata (Curtis)	A
Beraeodes minutus (L.)	B
Notidobia ciliaris (L.)	D
Sericostoma personatum (Spence)	B
Odontocerum albicorne (Scopoli)	B
Molanna angustata Curtis	C
Athripsodes albifrons (L.)	A
Athripsodes aterrimus (Stephens)	D
Athripsodes bilineatus (L.)	A
Athripsodes cinereus (Curtis)	B
Athripsodes commutatus (Rostock)	A
Ceraclea albimacula (Rambur)	A
Ceraclea annulicornis (Stephens)	A
Ceraclea dissimilis (Stephens)	A
Ceraclea fulva (Rambur)	A
Ceraclea nigrornervosa (Retzius)	A
Ceraclea senilis (Burmeister)	A
Leptocerum lusitanicus (Mclachlan)	E
Mystacides azurea (L.)	D
Mystacides longicornis (L.)	D
Mystacides nigra (L.)	D
Adicella reducta (Mclachlan)	E
Trienodes bicolor (Curtis)	E
Ylodes conspersus (Rambur)	E
Ylodes simulans (Tjeder)	E
Oecetis lacustris (Pictet)	D
Oecetis notata (Rambur)	A
Oecetis ochracea (Curtis)	D
Oecetis testacea (Curtis)	A
Dolichocheza alipes (Stroem)	E
Tipula rufina Meigen	E
Tipula signata group	E
Tipula unca Wiedemann	E
Tipula solstitialis Westhoff	E
Tipula oleracea L.	E
Tipula paludosa Meigen	E
Tipula maxima Poda	B
Tipula vittata Meigen	E

Taxon	PSI Group
Limonia sp.	E
Antocha vitripennis (Meigen)	B
Thaumastoptera calceata Mik	E
Helius sp.	E
Gonempeda group	E
Pedicia (Tricyphona) sp.	B
Pedicia (Pedicia) group	B
Dicranota sp.	B
Austrolimnophila ochracea (Meigen)	E
Pseudolimnophila sp.	E
Limnophila (Eloeophila) sp.	B
Limnophila (Phylidorea) sp.	E
Limnophila (Euphylidorea) sp.	E
Limnophila (Limnophila) sp.	B
Pilaria (Neolimnomyia) sp.	E
Pilaria (Pilaria) sp.	C
Hexatoma sp.	B
Upsothrix sp.	E
Erioptera sp.	E
Ormosia sp.	E
Scleroprocta sp.	B
Molophilus sp.	E
Rhypholophus sp.	E
Pericoma blandula Eaton	D
Pericoma calcilega Feuerborn	D
Pericoma canescens (Meigen)	D
Pericoma cognata Eaton	D
Pericoma diversa Tonnoir	D
Pericoma exquisita Eaton	D
Pericoma fallax Eaton	D
Pericoma fuliginosa (Meigen)	D
Pericoma neglecta Eaton	D
Pericoma pseudoexquisita Tonnoir	D
Pericoma pulchra Eaton	D
Pericoma trifasciata (Meigen)	D
Pericoma trivialis group	D
Peripsychoda fusca (Macquart)	D
Psychoda alternata Say	D
Psychoda gemina Eaton	D
Psychoda phalaenoides (L.)	D
Psychoda severini Tonnoir	D
Psychoda surcoufi Tonnoir	D
Ptychoptera sp.	D
Dixa dilatata Strobl	B
Dixa nebulosa Meigen	E
Dixa puberula Loew	A
Dixella filicornis Edwards	C
Thaumalea sp.	E
Prosimulium hirtipes (Fries)	A
Prosimulium latimicro (Enderlein)	A
Prosimulium tomosvaryi (Enderlein)	A
Simulium latipes (Meigen)	B
Simulium costatum Friederichs	A
Simulium (Wilhelmia) sp.	B
Simulium erythrocephalum (de Geer)	A
Simulium rostratum Lundström	A
Simulium morsitans Edwards	B
Simulium noelleri Friederichs	C
Simulium posticatum Meigen	B
Simulium reptans (L.)	A
Simulium argyreatum group	A
Simulium tuberosum (Lundstrom)	A
Nemotelus sp.	E
Oxycera sp.	E
Odontomyia sp.	E
Atherix ibis (Fabricius)	D
Atherix marginata (Fabricius)	A
Abrichops crassipes (Meigen)	D
Chrysops sp.	D

Appendix XI (continued) – PSI (sp) (TL5)

Taxon	PSI Group
Planaria torva (Muller)	D
Polycelis felina (Dalyell)	C
Polycelis nigra group	D
Phagocata vitta (Duges)	B
Crenobia alpina (Dana)	B
Dugesia tigrina (Girard)	D
Dugesia polychroa group	D
Bdellocephala punctata (Pallas)	D
Dendrocoelum lacteum (Muller)	C
Theodoxus fluviatilis (L.)	C
Viviparus viviparus (L.)	D
Valvata cristata Muller	C
Valvata macrostoma Morch	D
Valvata piscinalis (Muller)	C
Potamopyrgus jenkinsi (Smith)	C
Bithynia leachii (Sheppard)	D
Bithynia tentaculata (L.)	D
Aplexa hypnorum (L.)	D
Physa fontinalis (L.)	D
Physa acuta group	D
Lymnaea auricularia (L.)	D
Lymnaea palustris (Muller)	D
Lymnaea peregra (Muller)	D
Lymnaea stagnalis (L.)	D
Lymnaea truncatula (Muller)	D
Planorbis carinatus Muller	D
Planorbis planorbis (L.)	D
Anisus leucostoma (Millet)	D
Anisus vortex (L.)	D
Bathyomphalus contortus (L.)	D
Gyraulus albus (Muller)	C
Gyraulus laevis (Alder)	D
Armiger crista (L.)	C
Hippeutis complanatus (L.)	D
Segmentina nitida Muller	D
Planorbarius corneus (L.)	D
Ancylus fluviatilis Muller	A
Acroloxus lacustris (L.)	E
Margaritifera margaritifera (L.)	A
Unio sp.	D
Sphaerium sp.	D
Pisidium sp.	D
Dreissena polymorpha (Pallas)	E
Pisiccola geometra (L.)	B
Theromyzon tessulatum (Muller)	D
Hemicleipsis marginata (Muller)	C
Glossiphonia complanata (L.)	C
Glossiphonia heterodita (L.)	C
Batrachobdella paludosa (Carena)	D
Boreobdella verrucata (Muller)	C
Helobdella stagnalis (L.)	C
Haemopsis sanguisuga (L.)	D
Erpobdella octoculata (L.)	C
Erpobdella testacea (Savigny)	C
Dina lineata (Muller)	D
Trocheta bykowskii Gedroyc	C
Trocheta subviridis Dutrochet	C
Asellus aquaticus (L.)	D
Asellus meridianus Racovitza	D
Corophium sp.	D
Crangonyx pseudogracilis Bousfield	D
Gammarus duebeni Liljeborg	B
Gammarus lacustris Sars	C
Gammarus pulex (L.)	B
Gammarus tigrinus Sexton	D
Gammarus zaddachi Sexton	D
Niphargus aquilex Schiodte	B
Siphonurus lacustris Eaton	C

Taxon	PSI Group
Ameletus inopinatus Eaton	B
Baetis atrebatinus Eaton	A
Baetis buceratus Eaton	B
Baetis digitatus Bengtsson	A
Baetis muticus (L.)	A
Baetis niger (L.)	A
Baetis rhodani (Pictet)	A
Baetis vernus Curtis	B
Baetis scambus group	A
Centroptilum luteolum (Muller)	C
Centroptilum pennulatum Eaton	B
Cloeon dipterum (L.)	D
Cloeon simile Eaton	C
Procloeon bifidum Bengtsson	C
Rhithrogena sp.	A
Heptagenia fuscogrisea (Retzius)	C
Heptagenia lateralis (Curtis)	A
Heptagenia sulphurea (Muller)	A
Ecdyonurus sp.	A
Leptophlebia marginata (L.)	D
Leptophlebia vespertina (L.)	D
Paraleptophlebia cincta (Retzius)	A
Paraleptophlebia submarginata (Stephens)	B
Paraleptophlebia werneri Ulmer	C
Habrophlebia fusca (Curtis)	C
Potamanthus luteus (L.)	B
Ephemera danica Muller	C
Ephemera lineata Eaton	D
Ephemera vulgata L.	D
Ephemerella ignita (Poda)	A
Ephemerella notata Eaton	B
Brachycercus harrisella Curtis	D
Caenis horaria (L.)	D
Caenis rivulorum Eaton	C
Caenis robusta Eaton	D
Caenis pusilla Navas	D
Caenis luctuosa group	D
Taeniopteryx nebulosa (L.)	C
Brachyptera putata (Newman)	A
Brachyptera risi (Morton)	A
Protonemura meyeri (Pictet)	A
Protonemura montana Kimmins	A
Protonemura praecox (Morton)	A
Amphinemura standfussi Ris	C
Amphinemura sulciollis (Stephens)	B
Nemurella picteti Klapalek	C
Nemoura avicularis Morton	C
Nemoura cinerea (Retzius)	C
Nemoura cambrica group	B
Leuctra fusca (L.)	A
Leuctra geniculata (Stephens)	A
Leuctra hippopus (Kempny)	A
Leuctra inermis Kempny	A
Leuctra moselyi Morton	A
Leuctra nigra (Olivier)	B
Capnia atra Morton	A
Capnia bifrons (Newman)	B
Periodes microcephala (Pictet)	A
Diura bicaudata (L.)	A
Isoperla grammatica (Poda)	A
Dinocras cephalotes (Curtis)	A
Perla bipunctata Pictet	A
Chloroperla torrentium (Pictet)	A
Chloroperla tripunctata (Scopoli)	A
Platycnemis pennipes (Pallas)	D
Pyrrhosoma nymphula (Sufzer)	D
Ischnura elegans (Van der Linden)	E
Enallagma cyathigerum (Charpentier)	E

Taxon	PSI Group
Coenagrion puella group	E
Erythromma najas (Hansemann)	E
Calopteryx splendens (Harris)	C
Calopteryx virgo (L.)	B
Gomphus vulgatissimus (L.)	D
Cordulegaster boltonii (Donovan)	D
Brachytron pratense (Muller)	D
Aeshna sp.	D
Orthetrum sp.	D
Sympetrum sp.	D
Mesovelia furcata Mulsant & Rey	E
Hydrometra stagnorum (L.)	E
Velia sp.	E
Gerris argentatus Schummel	E
Gerris lacustris (L.)	E
Gerris odontogaster (Zetterstedt)	E
Gerris thoracicus Schummel	E
Gerris najas (Degeer)	E
Nepa cinerea L.	D
Ilyocoris cimicoides (L.)	E
Aphelocheilus aestivalis (Fabricius)	A
Notonecta glauca L.	E
Notonecta maculata Fabricius	E
Notonecta obliqua Gallen	E
Micronecta sp.	B
Cymatia coleoptrata (Fabricius)	E
Callicorixa praevusta (Fieber)	D
Callicorixa wollastoni (Douglas & Scott)	C
Corixa affinis Leach	D
Corixa dentipes (Thomson)	D
Corixa panzeri (Fieber)	D
Corixa punctata (Illiger)	D
Hesperocorixa linnei (Fieber)	D
Hesperocorixa sahlbergi (Fieber)	D
Sigara (Sigara) sp.	D
Sigara distincta (Fieber)	D
Sigara falleni (Fieber)	C
Sigara fossarum (Leach)	D
Sigara scotti (Fieber)	C
Sigara lateralis (Leach)	D
Sigara nigrolineata (Fieber)	D
Sigara semistrata (Fieber)	D
Sigara venusta (Douglas & Scott)	C
Brychius elevatus (Panzer)	C
Haliplus confinis Stephens	D
Haliplus flavicollis Sturm	C
Haliplus fluviatilis Aube	D
Haliplus heydeni Wehncke	D
Haliplus immaculatus Gerhardt	D
Haliplus laminatus Schaller	D
Haliplus lineatocollis (Marsham)	C
Haliplus lineolatus Mannenheim	C
Haliplus ruficollis (Degeer)	D
Haliplus wehnckei (Gerhardt)	C
Noterus clavicornis (Degeer)	D
Laccophilus hyalinus (Degeer)	D
Laccophilus minutus (L.)	D
Hyphydrus ovatus (L.)	D
Hygrotus inaequalis (Fabricius)	D
Hygrotus versicolor (Schaller)	D
Hydroporus angustatus Sturm	D
Hydroporus discretus Fairmaire & Brisout	D
Hydroporus ferrugineus Stephens	B
Hydroporus memnonius Nicolai	D
Hydroporus nigrita (Fabricius)	C
Hydroporus obscurus Sturm	D
Hydroporus palustris (L.)	D
Hydroporus planus (Fabricius)	D
Hydroporus pubescens (Gyllenhal)	D
Hydroporus tessellatus Drapiez	D

Taxon	PSI Group
Stictonectes lepidus (Olivier)	B
Graptodytes pictus (Fabricius)	D
Porhydrus lineatus (Fabricius)	D
Deronectes latus (Stephens)	A
Potamonectes assimilis (Paykull)	C
Potamonectes depressus (Fabricius)	C
Stictotarsus duodecimpustulatus (Fabricius)	C
Oreodytes davisi (Curtis)	B
Oreodytes sanmarki (Sahlberg)	B
Oreodytes septentrionalis (Sahlberg)	B
Scarodytes halensis (Fabricius)	D
Platambus maculatus (L.)	B
Agabus bipustulatus (L.)	D
Agabus chalconotus (Panzer)	D
Agabus didymus (Olivier)	C
Agabus guttatus (Paykull)	B
Agabus paludosus (Fabricius)	C
Agabus sturmi (Gyllenhal)	D
Ilybius sp.	D
Colymbetes fuscus (L.)	E
Aclius sulcatus (L.)	E
Dytiscus marginalis L.	D
Dytiscus semisulcatus Muller	D
Gyrinus aeratus Stephens	E
Gyrinus distinctus Aube	E
Gyrinus marinus Gyllenhal	E
Gyrinus natator group	E
Gyrinus urinator Illiger	E
Orectochilus villosus (Muller)	A
Hydrochus angustatus Germar	D
Helophorus aequalis Thomson	D
Helophorus grandis Illiger	D
Helophorus arvensis Mulsant	D
Helophorus brevipalpis Bedel	D
Helophorus flavipes Fabricius	D
Helophorus minutus Fabricius	D
Helophorus obscurus Mulsant	D
Helophorus strigifrons Thomson	D
Paracymus scutellaris (Rosenhauer)	D
Hydrobius fuscipes (L.)	D
Anacaena bipustulata (Marsham)	D
Anacaena globulus (Paykull)	C
Anacaena limbata (Fabricius)	D
Anacaena lutescens (Stephens)	D
Laccobius biguttatus Gerhardt	D
Laccobius minutus (L.)	D
Laccobius atratus Rottenburg	D
Laccobius atrocephalus Reitter	D
Laccobius sinuatus Motschulsky	D
Laccobius striatulus (Fabricius)	D
Enochrus testaceus (Fabricius)	D
Ochthebius bicolor Germar	D
Ochthebius dilatatus Stephens	D
Ochthebius exsculptus Germar	E
Ochthebius minimus (Fabricius)	D
Hydraena gracilis Germar	B
Hydraena nigrita Germar	B
Hydraena pulchella Germar	C
Hydraena riparia Kugelann	B
Hydraena rufipes Curtis	B
Hydraena testacea Curtis	D
Limnebius nitidus (Marsham)	D
Limnebius truncatellus (Thunberg)	C
Elodes sp.	B
Cyphon sp.	D
Prionocyphon semicornis (Muller)	E
Hydrocyphon deflexicollis (Muller)	E
Helichus substriatus (Muller)	E
Dryops sp.	D
Elmis aenea (Muller)	B

Taxon	PSI Group
<i>Esolus parralepipedus</i> (Muller)	C
<i>Limnius volckmari</i> (Panzer)	B
<i>Macronychus quadrituberculatus</i> Muller	E
<i>Normandia nitens</i> (Muller)	B
<i>Oulimnius major</i> (Rey)	C
<i>Oulimnius rivularis</i> (Rosenhauer)	C
<i>Oulimnius troglodytes</i> (Gyllenhal)	C
<i>Oulimnius tuberculatus</i> (Muller)	C
<i>Riolus cupreus</i> (Muller)	B
<i>Riolus subviolaceus</i> (Muller)	B
<i>Sialis fuliginosa</i> Pictet	B
<i>Sialis lutaria</i> (L.)	D
<i>Sialis nigripes</i> Pictet	C
<i>Rhyacophila dorsalis</i> (Curtis)	A
<i>Rhyacophila munda</i> Mclachlan	A
<i>Rhyacophila obliterata</i> Mclachlan	A
<i>Rhyacophila septentrionis</i> Mclachlan	A
<i>Glossosoma</i> sp.	A
<i>Agapetus</i> sp.	A
<i>Agraylea multipunctata</i> Curtis	E
<i>Agraylea sexmaculata</i> Curtis	E
<i>Allotrichia pallicornis</i> (Eaton)	B
<i>Hydroptila</i> sp.	E
<i>Oxyethira</i> sp.	E
<i>Ithytrichia</i> sp.	E
<i>Philopotamus montanus</i> (Donovan)	A
<i>Wormaldia</i> sp.	A
<i>Chimarra marginata</i> (L.)	A
<i>Lype</i> sp.	E
<i>Metalyse fragilis</i> (Pictet)	A
<i>Psychomyia pusilla</i> (Fabricius)	A
<i>Tinodes dives</i> (Pictet)	A
<i>Tinodes unicolor</i> (Pictet)	A
<i>Tinodes waeneri</i> (L.)	B
<i>Ecnomus tenellus</i> (Rambur)	C
<i>Cymus flavidus</i> Mclachlan	E
<i>Cymus trimaculatus</i> (Curtis)	B
<i>Holocentropus picicornis</i> (Stephens)	E
<i>Neureclipsis bimaculata</i> (L.)	B
<i>Plectrocnemia conspersa</i> (Curtis)	B
<i>Plectrocnemia geniculata</i> Mclachlan	B
<i>Polycentropus flavomaculatus</i> (Pictet)	B
<i>Polycentropus imoratus</i> (Curtis)	B
<i>Polycentropus kingi</i> Mclachlan	B
<i>Cheumatopsyche lepida</i> (Pictet)	B
<i>Hydropsyche angustipennis</i> (Curtis)	B
<i>Hydropsyche contubernalis</i> Mclachlan	B
<i>Hydropsyche fulvipes</i> (Curtis)	A
<i>Hydropsyche instabilis</i> (Curtis)	A
<i>Hydropsyche pellucidula</i> (Curtis)	A
<i>Hydropsyche saxonica</i> Mclachlan	A
<i>Hydropsyche siltalai</i> Dohler	A
<i>Diplectrona felix</i> Mclachlan	A
<i>Agrypnia obsoleta</i> group	D
<i>Phryganea</i> sp.	D
<i>Brachycentrus subnubilus</i> Curtis	A
<i>Crunoecia imorata</i> (Curtis)	B
<i>Lasiocephala basalis</i> (Kolenati)	B
<i>Lepidostoma hirtum</i> (Fabricius)	B
<i>Apatania muliebris</i> Mclachlan	A
<i>Drusus annulatus</i> (Stephens)	A
<i>Ecclisopteryx guttulata</i> (Pictet)	A
<i>Halesus</i> sp.	C
<i>Hydatophylax infumatus</i> (Mclachlan)	C
<i>Melampophylax mucoreus</i> (Hagen)	B
<i>Anabolia nervosa</i> (Curtis)	C
<i>Glyptotaelius pellucidus</i> (Retzius)	D
<i>Limnephilus binotatus</i> Curtis	C
<i>Limnephilus bipunctatus</i> Curtis	C
<i>Limnephilus decipiens</i> (Kolenati)	C

Taxon	PSI Group
<i>Limnephilus extricatus</i> Mclachlan	C
<i>Limnephilus flavicornis</i> (Fabricius)	C
<i>Limnephilus fuscicornis</i> (Rambur)	C
<i>Limnephilus lunatus</i> Curtis	C
<i>Limnephilus marmoratus</i> Curtis	C
<i>Limnephilus politus</i> Mclachlan	C
<i>Limnephilus rhombicus</i> (L.)	C
<i>Limnephilus vittatus</i> (Fabricius)	C
Micropterna group	B
Potamophylax group	B
<i>Goera pilosa</i> (Fabricius)	B
<i>Silo nigricornis</i> (Pictet)	A
<i>Silo pallipes</i> (Fabricius)	A
<i>Beraea maurus</i> (Curtis)	A
<i>Beraea pullata</i> (Curtis)	A
<i>Beraeodes minutus</i> (L.)	B
<i>Notidobia ciliaris</i> (L.)	D
<i>Sericostoma personatum</i> (Spence)	B
<i>Odontocerum albicorne</i> (Scopoli)	B
<i>Molanna angustata</i> Curtis	C
<i>Athripsodes albifrons</i> (L.)	A
<i>Athripsodes aterimus</i> (Stephens)	D
<i>Athripsodes bilineatus</i> (L.)	A
<i>Athripsodes cinereus</i> (Curtis)	B
<i>Athripsodes commutatus</i> (Rostock)	A
<i>Ceraclea albimacula</i> (Rambur)	A
<i>Ceraclea annulicornis</i> (Stephens)	A
<i>Ceraclea dissimilis</i> (Stephens)	A
<i>Ceraclea fulva</i> (Rambur)	A
<i>Ceraclea nigronevosa</i> (Retzius)	A
<i>Ceraclea senilis</i> (Burmeister)	A
<i>Leptocerus lusitanicus</i> (Mclachlan)	E
<i>Mystacides azurea</i> (L.)	D
<i>Mystacides longicornis</i> (L.)	D
<i>Mystacides nigra</i> (L.)	D
<i>Adicella reducta</i> (Mclachlan)	E
<i>Trianaodes bicolor</i> (Curtis)	E
<i>Ylodes conspersus</i> (Rambur)	E
<i>Ylodes simulans</i> (Tjeder)	E
<i>Oecetis lacustris</i> (Pictet)	D
<i>Oecetis notata</i> (Rambur)	A
<i>Oecetis ochracea</i> (Curtis)	D
<i>Oecetis testacea</i> (Curtis)	A

Appendix XI (continued) – PSI (sediment sensitivity scores)

Sensitivity Group	Sensitivity Group Description	Log10 Abundance Category	Sediment Sensitivity Scores (ss)
A	Highly Sensitive	1	2
B	Moderately Sensitive	1	1
C	Moderately Insensitive	1	1
D	Highly Insensitive	1	2
E	Excluded	1	
A	Highly Sensitive	2	3
B	Moderately Sensitive	2	2
C	Moderately Insensitive	2	2
D	Highly Insensitive	2	3
E	Excluded	2	
A	Highly Sensitive	3	4
B	Moderately Sensitive	3	3
C	Moderately Insensitive	3	3
D	Highly Insensitive	3	4
E	Excluded	3	
A	Highly Sensitive	4	5
B	Moderately Sensitive	4	4
C	Moderately Insensitive	4	4
D	Highly Insensitive	4	5
E	Excluded	4	
A	Highly Sensitive	5	5
B	Moderately Sensitive	5	4
C	Moderately Insensitive	5	4
D	Highly Insensitive	5	5
E	Excluded	5	

Appendix XI (continued) – German Stream Fauna Indices (TL4)

Taxon	ID_ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1092	F111	F112	F114	F16	F115	F17	F1152
Hydridae	5502	Coelenterata	HYDRIDAE	Hydra	sp.		0	-2	-2	0	-2	0	0	0	0	0	0
Polycelis felina (Dalyell)	7744	Turbellaria	PLANARIIDAE	Polycelis	sp.		0	-2	-2	0	-1	0	0	0	0	0	0
Polycelis nigra group	13666	Turbellaria	PLANARIIDAE	Polycelis	nigra/tenuis		0	-2	-2	0	-1	0	0	0	0	0	0
Dugesia tigrina (Girard)	5022	Turbellaria	DUGESIIDAE	Dugesia	tigrina	(GIRARD, 1850)	2	-2	-2	0	-2	0	0	0	-2	0	0
Dugesia polychroa group	9745	Turbellaria	DUGESIIDAE	Dugesia	lugubris/polychroa		2	0	0	0	0	0	0	0	0	0	0
Bdellocephalia punctata (Pallas)	11361	Turbellaria	BDELLOCEPHALIDAE	Bdellocephalia	punctata	(PALLAS, 1774)	0	0	0	0	0	0	0	0	0	0	1
Dendrocoelum lacteum (Muller)	4911	Turbellaria	DENDROCOELIDAE	Dendrocoelum	lacteum	(O.F. MÜLLER, 1774)	0	-2	-2	-1	-1	0	0	0	0	1	0
Theodoxus fluviatilis (L.)	7025	Gastropoda	NERITIDAE	Theodoxus	fluviatilis	(LINNAEUS, 1758)	0	0	0	0	2	0	0	0	0	2	1
Viviparus viviparus (L.)	7158	Gastropoda	VIVIPARIDAE	Viviparus	viviparus	(LINNAEUS, 1758)	0	-2	-2	0	-1	-1	0	0	2	1	0
Valvata cristata Muller	7142	Gastropoda	VALVATIDAE	Valvata	cristata	O.F. MÜLLER, 1774	0	-1	-1	0	0	-1	0	0	1	0	0
Valvata macrostoma March	7146	Gastropoda	VALVATIDAE	Valvata	sp.	O.F. MÜLLER, 1774	0	-1	-1	0	0	-1	0	0	0	0	0
Valvata piscinalis (Muller)	7144	Gastropoda	VALVATIDAE	Valvata	piscinalis piscinalis	(O.F. MÜLLER, 1774)	0	0	0	0	0	-1	-1	0	-1	1	0
Potamopyrgus jenkinsi (Smith)	8251	Gastropoda	HYDROBIIDAE	Potamopyrgus	antipodarum	(GRAY, 1843)	-2	-2	-2	0	-2	-2	0	-2	0	-1	-2
Bithynia leachii (Sheppard)	4460	Gastropoda	BITHYNIIDAE	Bithynia	leachii leachii	(SHEPPARD, 1823)	0	0	0	0	0	-1	0	0	1	0	0
Bithynia tenaculata (L.)	4462	Gastropoda	BITHYNIIDAE	Bithynia	tenaculata	(LINNAEUS, 1758)	0	-1	-1	1	-1	-1	-1	-1	-1	0	0
Physa fontinalis (L.)	6395	Gastropoda	PHYSIDAE	Physa	fontinalis	(LINNAEUS, 1758)	0	-2	-2	-1	-1	-1	-1	-1	-1	0	0
Physa acuta group	6396	Gastropoda	PHYSIDAE	Physa	acuta	(DRAPARNAUD, 1805)	-2	-2	-2	0	-2	0	0	0	0	0	0
Lymnaea auricularia (L.)	6669	Gastropoda	LYMNAEIDAE	Lymnaea	auricularia	(LINNAEUS, 1758)	-2	-2	-2	-2	-2	-2	-1	0	0	0	0
Lymnaea peregra (Muller)	16959	Gastropoda	LYMNAEIDAE	Lymnaea	balbica	(LINNAEUS, 1758)	-2	-1	-1	-1	-1	-1	-1	-1	0	0	0
Lymnaea stagnalis (L.)	5916	Gastropoda	LYMNAEIDAE	Lymnaea	stagnalis	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-2	-2	-2	-2	0	0
Planorbis planorbis Muller	6435	Gastropoda	PLANORBIDAE	Planorbis	carinatus	O.F. MÜLLER, 1774	0	-2	-2	-2	-2	-1	-1	-2	1	0	0
Planorbis planorbis (L.)	6436	Gastropoda	PLANORBIDAE	Planorbis	planorbis	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	-2	-1	0	0	0
Anisus leucostoma (Millet)	8874	Gastropoda	PLANORBIDAE	Anisus	sp.	STUDER, 1820	0	-2	-2	-2	-1	-1	0	0	0	0	0
Anisus vortex (L.)	4318	Gastropoda	PLANORBIDAE	Anisus	vortex	(LINNAEUS, 1758)	0	-2	-2	-2	-1	-1	-1	-1	1	-1	-1
Balhyomphalus conortus (L.)	4433	Gastropoda	PLANORBIDAE	Balhyomphalus	conortus	(LINNAEUS, 1758)	0	-2	-2	-1	-1	-1	-1	0	1	0	0
Gyraulus albus (Muller)	5354	Gastropoda	PLANORBIDAE	Gyraulus	albus	(O.F. MÜLLER, 1774)	0	-2	-2	-1	-1	-1	-1	-1	0	-1	0
Gyraulus laevis (Alder)	5359	Gastropoda	PLANORBIDAE	Gyraulus	sp.	CHARPENTIER, 1837	0	-2	-2	-1	-1	-1	-1	-1	0	0	0
Hippelutis complanatus (L.)	5483	Gastropoda	PLANORBIDAE	Hippelutis	complanatus	(LINNAEUS, 1758)	0	-2	-2	-2	-1	-1	-1	0	0	0	0
Segmentina nitida Muller	6812	Gastropoda	PLANORBIDAE	Segmentina	nitida	FLEMING, 1818	0	0	0	0	0	-1	0	-1	0	0	0
Planorbantus cornelus (L.)	6431	Gastropoda	PLANORBIDAE	Planorbantus	cornelus	(LINNAEUS, 1758)	0	0	0	0	0	-1	-2	0	0	0	0
Ancylus fluviatilis Muller	4310	Gastropoda	PLANORBIDAE	Ancylus	fluviatilis	O.F. MÜLLER, 1774	0	0	0	0	0	1	-1	0	0	0	0
Acroloxus lacustris (L.)	4205	Gastropoda	ACROLOXIDAE	Acroloxus	lacustris	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	0	0	0	1	0
Margaritifera margaritifera (L.)	5943	Bivalvia	MARGARITIFERIDAE	Margaritifera	margaritifera	(LINNAEUS, 1758)	0	2	2	0	0	0	0	2	0	0	0
Unio sp.	7138	Bivalvia	UNIONIDAE	Unio	sp.	PHILIPSSON, 1788	0	0	0	1	1	-1	0	1	1	1	1
Sphaerium cornutum (L.)	6882	Bivalvia	SPHAERIIDAE	Sphaerium	cornutum	(LINNAEUS, 1758)	0	0	0	1	0	-1	0	0	0	0	0
Sphaerium lacustre (Muller)	7966	Bivalvia	SPHAERIIDAE	Sphaerium	lacustre	(O.F. MÜLLER, 1774)	0	-2	-2	-2	-1	0	0	-1	0	-1	0
Sphaerium nivala (Lamarck)	6884	Bivalvia	SPHAERIIDAE	Sphaerium	nivala	(LAMARCK, 1818)	0	0	0	0	0	-1	-1	0	0	2	2
Sphaerium transversum (Say)	6886	Bivalvia	SPHAERIIDAE	Sphaerium	sp.	SCOPOLI, 1777	0	1	1	1	1	0	-1	0	0	0	1
Pisidium amnicum (Muller)	6409	Bivalvia	SPHAERIIDAE	Pisidium	amnicum	(O.F. MÜLLER, 1774)	0	0	0	2	0	0	-1	1	2	1	2

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	FI05	FI09	FI091	FI091_K	FI092	FI11	FI12	FI14	FI16	FI15	FI17	FI152
Psidium casertanum (Poli)	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium henslowianum (Sheppard)	6418	Bivalvia	SPHAERIDAE	Psidium	henslowianum		(SHEPPARD, 1823)	0	0	0	1	1	0	0	0	0	0	0	0
Psidium hibemicum Westerlund	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium liljeborgii Clessin	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium mtium Held	6419	Bivalvia	SPHAERIDAE	Psidium	mtium		HELD, 1836	0	0	0	0	0	-1	0	0	0	0	0	0
Psidium montessorianum Paladini	8228	Bivalvia	SPHAERIDAE	Psidium	montessorianum		(PALADINI, 1866)	0	0	0	0	0	0	0	0	0	0	0	0
Psidium nobisium Jenyns	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium obtusale (Lamarck)	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium personatum Malin	6423	Bivalvia	SPHAERIDAE	Psidium	personatum		MALIN, 1855	0	0	0	0	0	0	-1	1	0	0	0	0
Psidium pulchellum Jenyns	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium subuncatum Malin	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Psidium subuncatum Schmidt	6427	Bivalvia	SPHAERIDAE	Psidium	subuncatum		A. SCHMIDT, 1851	0	-1	-1	1	1	-1	0	0	0	-1	0	0
Psidium tenuilineatum Steffox	6425	Bivalvia	SPHAERIDAE	Psidium	sp.		PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0	0
Dreissena polymorpha (Pallas)	4999	Bivalvia	DREISSENIDAE	Dreissena	polymorpha		(PALLAS, 1771)	0	-2	-2	0	0	-2	0	0	-2	-1	0	-1
Stylodrius heringianus Claparede	6935	Oligochaeta	LUMBRICULIDAE	Stylodrius	heringianus		CLAPAREDE, 1862	-1	1	1	0	0	0	0	-1	0	0	0	0
Stylaria lacustris (L)	6934	Oligochaeta	NAIDIDAE	Stylaria	lacustris		(LINNAEUS, 1767)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Branchiura sowerbyi Beddard	4494	Oligochaeta	TUBIFICIDAE	Branchiura	sowerbyi		BEDDARD, 1892	0	-2	-2	-2	-2	0	0	0	0	0	0	0
Theromyzon tessulatum (Muller)	7034	Hirudinea	GLOSSIPHONIDAE	Theromyzon	tessulatum		(O.F. MÜLLER, 1774)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Hemiclepsis marginata (Muller)	5444	Hirudinea	GLOSSIPHONIDAE	Hemiclepsis	marginata		(O.F. MÜLLER, 1774)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Glossiphonia complanata (L)	5304	Hirudinea	GLOSSIPHONIDAE	Glossiphonia	complanata		(LINNAEUS, 1758)	-1	0	0	-1	0	-1	0	-1	0	0	0	0
Glossiphonia heterodonta (L)	4261	Hirudinea	GLOSSIPHONIDAE	Alboglossiphonia	heterodonta		(LINNAEUS, 1758)	0	-2	-2	0	0	0	0	0	0	0	0	0
Helobdella stagnalis (L)	5413	Hirudinea	GLOSSIPHONIDAE	Helobdella	stagnalis		(LINNAEUS, 1758)	-2	-2	-2	0	-2	-2	-2	-2	-1	-1	0	-1
Haemopsis sanguisuga (L)	5373	Hirudinea	HAEMOPIDAE	Haemopsis	sanguisuga		(LINNAEUS, 1758)	0	-2	-2	0	0	0	0	0	0	0	0	0
Erpobdella octoculata (L)	5159	Hirudinea	ERPOBDELIDAE	Erpobdella	octoculata		(LINNAEUS, 1758)	-2	-2	-2	-1	-2	-1	-1	-1	-1	0	0	0
Erpobdella testacea (Savigny)	5161	Hirudinea	ERPOBDELIDAE	Erpobdella	testacea		(SAVIGNY, 1822)	-2	-2	-2	0	0	0	0	-1	-1	0	0	0
Dina lineata (Muller)	4973	Hirudinea	ERPOBDELIDAE	Dina	lineata		(O.F. MÜLLER, 1774)	0	0	0	1	0	0	0	0	0	0	0	0
Trocheta bykowskii Gedyroc	7109	Hirudinea	ERPOBDELIDAE	Trocheta	sp.			0	-1	-1	0	0	0	0	0	0	0	0	0
Trocheta subviridis Dutrochet	7109	Hirudinea	ERPOBDELIDAE	Trocheta	sp.			0	-1	-1	0	0	0	0	0	0	0	0	0
Asellus meridianus Racovitz	8691	Crustacea	ASELLIDAE	Asellus	aquaticus		(LINNAEUS, 1758)	-2	-2	-2	-1	-2	1	-1	-1	0	0	-1	0
Corophium sp.	4750	Crustacea	COROPHIDAE	Corophium	sp.		(RACOVITZA, 1919)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Gammarus duebeni Liljeborg	5293	Crustacea	GAMMARIDAE	Gammarus	sp.		LATREILLE, 1806	0	-2	-2	0	-2	0	0	0	0	0	0	0
Gammarus lacustris Sars	5293	Crustacea	GAMMARIDAE	Gammarus	sp.		FABRICIUS, 1775	0	0	0	0	0	1	0	0	0	0	0	0
Gammarus pulex (L)	5291	Crustacea	GAMMARIDAE	Gammarus	pulex		FABRICIUS, 1775	0	0	0	0	0	1	0	0	0	0	0	0
Gammarus tigrinus Sexton	5294	Crustacea	GAMMARIDAE	Gammarus	tigrinus		(LINNAEUS, 1758)	-2	1	1	1	1	2	0	0	0	0	0	0
Gammarus zaddachi Sexton	5293	Crustacea	GAMMARIDAE	Gammarus	sp.		SEXTON, 1939	0	0	0	0	-2	0	0	0	0	0	-2	0
Siphonurus lacustris Eaton	6663	Ephemeroptera	SIPHONURIDAE	Siphonurus	lacustris		FABRICIUS, 1775	0	0	0	0	0	0	1	0	0	0	0	0
Baetis atrebatinus Eaton	4419	Ephemeroptera	BAETIDAE	Baetis	sp.		(EATON, 1870)	0	1	1	1	1	0	0	0	0	0	0	0
Baetis buceratus Eaton	4388	Ephemeroptera	BAETIDAE	Baetis	buceratus		EATON, 1870	0	0	0	0	1	2	0	0	0	2	2	0
Baetis digitatus Bengtsson	4419	Ephemeroptera	BAETIDAE	Baetis	sp.			0	0	0	0	0	0	-1	0	0	0	0	1
Baetis muticus (L)	4409	Ephemeroptera	BAETIDAE	Apatania	muticus		(LINNAEUS, 1758)	0	2	2	1	0	0	0	0	0	0	0	2

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1092	F111	F112	F114	F16	F115	F17	F1152
Baetis niger (L.)	4410	Ephemeroptera	BAETIDAE	Nigrobaetis	niger	(LINNAEUS, 1761)	2	1	1	1	0	0	0	1	1	1	0	0
Baetis rhodani (Pictet)	4413	Ephemeroptera	BAETIDAE	Baetis	rhodani	(PICTET, 1843-1845)	-2	0	0	0	-1	-1	2	1	1	1	0	1
Baetis vernus Curtis	4427	Ephemeroptera	BAETIDAE	Baetis	vernus	CURTIS, 1834	0	0	0	0	0	-1	0	0	0	0	0	1
Baetis scambus group	4398	Ephemeroptera	BAETIDAE	Baetis	fuscatus/scambus	(MULLER, 1776)	0	-1	-1	0	0	-1	-1	-1	0	0	0	0
Centropilum luteolum (Muller)	8850	Ephemeroptera	BAETIDAE	Centropilum	luteolum	(EATON, 1870)	0	2	2	0	0	0	0	0	0	0	0	0
Centropilum pennulatum Eaton	4574	Ephemeroptera	BAETIDAE	Proclleon	pennulatum	(LINNAEUS, 1761)	0	-2	-2	-2	-2	-1	-1	-1	-2	-2	-2	
Cloeon dipterum (L.)	4705	Ephemeroptera	BAETIDAE	Cloeon	dipterum	EATON, 1870	0	-2	-2	-2	-2	-1	-1	-2	-2	-2	-2	
Cloeon simile Eaton	4708	Ephemeroptera	BAETIDAE	Cloeon	simile	(BENGTSSON, 1912)	0	0	0	0	1	0	0	0	2	2	2	
Proclleon bifidum Bengtsson	6574	Ephemeroptera	BAETIDAE	Proclleon	bifidum	(REIZIUS, 1783)	0	0	0	0	0	0	0	0	0	0	0	
Rithrogena sp.	6747	Ephemeroptera	HEPTAGENIIDAE	Rithrogena	sp.	(MULLER, 1776)	0	0	0	1	1	0	0	0	0	0	0	
Hepthagenia lateralis (Curtis)	5452	Ephemeroptera	HEPTAGENIIDAE	Kageronia	fuscogrisea	(REIZIUS, 1783)	0	0	0	0	0	0	0	-1	2	1	1	
Hepthagenia sulphurea (Muller)	5456	Ephemeroptera	HEPTAGENIIDAE	Hepthagenia	sp.	(MULLER, 1776)	0	-1	-1	0	1	1	0	0	0	0	1	
Hepthagenia sulphurea (Muller)	5457	Ephemeroptera	HEPTAGENIIDAE	Hepthagenia	sulphurea	(MULLER, 1776)	0	0	0	1	1	1	1	1	1	1	2	
Ecdyonurus sp.	5053	Ephemeroptera	HEPTAGENIIDAE	Ecdyonurus	sp.	(LINNAEUS, 1767)	0	0	0	1	1	0	0	0	0	0	0	
Leptophlebia marginata (L.)	5730	Ephemeroptera	LEPTOPHLEBIIDAE	Leptophlebia	marginata	(LINNAEUS, 1758)	0	0	0	0	0	2	1	1	1	0	0	
Leptophlebia vespertina (L.)	5732	Ephemeroptera	LEPTOPHLEBIIDAE	Leptophlebia	vespertina	(LINNAEUS, 1758)	0	0	0	0	0	2	0	0	0	0	0	
Paraleptophlebia cincta (Retzius)	6307	Ephemeroptera	LEPTOPHLEBIIDAE	Paraleptophlebia	cincta	(REIZIUS, 1835)	0	0	0	0	0	2	0	0	0	0	0	
Paraleptophlebia submarginata (Stephens)	6309	Ephemeroptera	LEPTOPHLEBIIDAE	Paraleptophlebia	submarginata	(STEPHENS, 1835)	0	1	1	1	1	1	1	1	1	1	0	
Paraleptophlebia werneri Ulmer	6310	Ephemeroptera	LEPTOPHLEBIIDAE	Paraleptophlebia	werneri	ULMER, 1919	0	0	0	0	0	2	0	0	0	0	0	
Habrophlebia fusca (Curtis)	5369	Ephemeroptera	LEPTOPHLEBIIDAE	Habrophlebia	fusca	(CURTIS, 1834)	0	-2	-2	0	0	2	1	1	0	0	0	
Potamanthus luteus (L.)	6510	Ephemeroptera	POTAMANTHIDAE	Potamanthus	luteus	(LINNAEUS, 1767)	0	0	0	1	1	0	0	0	0	1	0	
Ephemerella danica Muller	5124	Ephemeroptera	EPHEMERIDAE	Ephemerella	danica	MULLER, 1764	2	1	1	1	1	1	1	1	1	1	1	
Ephemerella lineata Eaton	5127	Ephemeroptera	EPHEMERIDAE	Ephemerella	lineata	EATON, 1870	0	0	0	0	2	0	0	0	0	0	0	
Ephemerella vulgata L.	5129	Ephemeroptera	EPHEMERIDAE	Ephemerella	vulgata	(LINNAEUS, 1758)	0	0	0	-1	0	0	-2	-1	-1	-1	-1	
Ephemerella ignita (Poda)	5131	Ephemeroptera	EPHEMERIDAE	Serratella	ignita	(PODA, 1761)	0	0	0	0	0	0	0	0	0	0	1	
Ephemerella notata Eaton	5136	Ephemeroptera	EPHEMERIDAE	Ephemerella	notata	EATON, 1887	0	1	1	1	2	0	0	0	2	2	2	
Brachycercus harrisella Curtis	4482	Ephemeroptera	CAENIDAE	Brachycercus	harrisella	CURTIS, 1834	0	0	0	0	0	0	0	0	0	2	2	
Caenis horaria (L.)	4519	Ephemeroptera	CAENIDAE	Caenis	horaria	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	
Caenis rivulorum Eaton	4526	Ephemeroptera	CAENIDAE	Caenis	rivulorum	EATON, 1884	1	1	1	1	2	-1	1	1	1	0	0	
Caenis robusta Eaton	4527	Ephemeroptera	CAENIDAE	Caenis	robusta	EATON, 1884	0	-2	-2	-2	-2	-1	-1	-1	1	0	0	
Caenis pseudorivulorum group	16896	Ephemeroptera	CAENIDAE	Caenis	beskdensis/pseudorivulorum		0	2	2	0	1	0	0	0	0	0	0	
Caenis luctuosa group	9715	Ephemeroptera	CAENIDAE	Caenis	luctuosa		0	0	0	0	1	0	0	0	0	0	0	
Taeniopteryx nebulosa (L.)	6969	Plecoptera	TAENIOPTERYGIDAE	Taeniopteryx	nebulosa	(LINNAEUS, 1758)	0	0	0	0	2	2	2	2	2	2	2	
Brachyptera risi (Morton)	4487	Plecoptera	TAENIOPTERYGIDAE	Brachyptera	risi	(MORTON, 1896)	1	0	0	1	0	0	2	0	0	0	0	
Protonemura meyeri (Pictet)	6610	Plecoptera	NEMOURIDAE	Protonemura	meyeri	(PICTET, 1841)	0	2	2	2	1	0	2	1	1	1	1	
Protonemura montana Kinnans	6616	Plecoptera	NEMOURIDAE	Protonemura	sp.	KEMPNY, 1898	2	1	1	1	1	2	2	2	1	1	1	
Protonemura praecox (Morton)	6616	Plecoptera	NEMOURIDAE	Protonemura	sp.	KEMPNY, 1898	2	1	1	1	1	1	2	2	2	1	1	
Amphinemura standfussi Ris	13526	Plecoptera	NEMOURIDAE	Amphinemura	standfussi/sulcirois		0	0	0	0	0	2	2	2	0	0	0	
Amphinemura sulcirois (Stephens)	13526	Plecoptera	NEMOURIDAE	Amphinemura	standfussi/sulcirois		0	0	0	0	0	2	2	2	0	0	0	
Nemurella picteti Klapalek	6113	Plecoptera	NEMOURIDAE	Nemurella	picteti	KLAPALEK, 1900	0	0	0	0	0	0	1	1	1	1	0	

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1091_K	F1092	F111	F112	F114	F115	F115_17	F1152
Nemoura adularis Morton	6108	Plecoptera	NEMOURIDAE	Nemoura	sp.		(PICTET, 1841)	1	0	0	0	0	1	1	1	1	1	1
Nemoura cinerea (Rezius)	6108	Plecoptera	NEMOURIDAE	Nemoura	sp.		(PICTET, 1841)	1	0	0	0	0	1	1	1	1	1	1
Nemoura cambica group	6108	Plecoptera	NEMOURIDAE	Nemoura	sp.		(PICTET, 1841)	1	0	0	0	0	1	1	1	1	1	1
Leuctra fusca (L.)	5763	Plecoptera	LEUCTRIDAE	Leuctra	fusca		(LINNAEUS, 1758)	0	1	1	0	1	2	2	2	1	1	1
Leuctra geniculata (Stephens)	5237	Plecoptera	LEUCTRIDAE	Leuctra	geniculata		(STEPHENS, 1836)	0	0	0	0	1	0	0	0	2	2	2
Leuctra hippopus (Kempny)	5768	Plecoptera	LEUCTRIDAE	Leuctra	hippopus		KEMPNY, 1899	0	2	2	0	0	0	0	0	0	0	0
Leuctra inermis Kempny	5769	Plecoptera	LEUCTRIDAE	Leuctra	inermis		KEMPNY, 1899	0	2	2	0	0	0	0	0	0	0	0
Leuctra moselyi Morton	5790	Plecoptera	LEUCTRIDAE	Leuctra	sp.		STEPHENS, 1835	1	0	0	1	1	2	2	2	1	1	1
Leuctra nigra (Olivier)	5779	Plecoptera	LEUCTRIDAE	Leuctra	nigra		(OLIVIER, 1811)	2	0	0	0	0	2	2	2	1	0	0
Capnia atra Morton	4552	Plecoptera	CAPNIIDAE	Capnia	sp.		(PICTET, 1841)	0	2	2	0	0	0	0	2	0	0	0
Capnia bifrons (Newman)	4549	Plecoptera	CAPNIIDAE	Capnia	bifrons		(NEWMAN, 1839)	0	0	0	0	0	0	2	2	0	0	0
Perlotodes microcephala (Pictet)	6376	Plecoptera	PERLODIDAE	Perlotodes	microcephalus		(PICTET, 1833)	0	1	1	0	1	0	1	2	2	0	0
Diura bicaudata (L.)	4988	Plecoptera	PERLODIDAE	Diura	bicaudata		(LINNAEUS, 1758)	2	0	0	0	0	0	0	0	0	0	0
Isoperla grammatica (Poda)	5667	Plecoptera	PERLODIDAE	Isoperla	grammatica		(PODA, 1761)	0	1	1	0	1	0	2	2	1	1	1
Dinocras cephalotes (Curtis)	4978	Plecoptera	PERLIDAE	Dinocras	cephalotes		(CURTIS, 1827)	1	1	1	0	0	0	0	0	0	0	0
Perla bipunctata Pictet	6372	Plecoptera	PERLIDAE	Perla	sp.		GEOFFROY, 1764	0	2	2	0	2	0	0	0	0	0	0
Chloroperla torrentium (Pictet)	6869	Plecoptera	CHLOROPERLIDAE	Siphonoperla	torrentium		(PICTET, 1841)	0	1	1	0	0	0	0	0	0	0	0
Chloroperla tripunctata (Scopoli)	4673	Plecoptera	CHLOROPERLIDAE	Chloroperla	tripunctata		(SCOPOLI, 1763)	1	2	2	0	0	0	0	0	0	0	0
Platycentris pennipes (Pallas)	6438	Odonata	PLATYCENTRIDAE	Platycentris	pennipes		(PALLAS, 1771)	0	-2	-2	0	-2	1	0	1	1	1	1
Pyrrhosoma nymphula (Sulzer)	6667	Odonata	COENAGRIONIDAE	Pyrrhosoma	nymphula		(SULZER, 1776)	0	-1	-1	0	-2	1	0	0	0	0	0
Ischnura elegans (Van der Linden)	5658	Odonata	COENAGRIONIDAE	Ischnura	elegans		(VAN DER LINDEN, 1820)	0	-2	-2	0	-2	0	0	0	0	0	-1
Enallagma cyathigerum (Charpentier)	5100	Odonata	COENAGRIONIDAE	Enallagma	cyathigerum		(CHARPENTIER, 1840)	0	-2	-2	0	-2	0	0	0	0	0	0
Coenagrion puella group	11165	Odonata	COENAGRIONIDAE	Coenagrion	puella/pulchellum			0	0	0	0	-2	0	0	0	0	0	0
Erythroimmia najas (Hansemann)	5164	Odonata	COENAGRIONIDAE	Erythroimmia	najas		(HANSEMANN, 1823)	0	0	0	0	-2	0	0	0	0	0	0
Calopteryx splendens (Harris)	4530	Odonata	CALOPTERYGIDAE	Calopteryx	splendens		(HARRIS, 1782)	0	0	0	0	1	1	1	-1	1	1	1
Calopteryx virgo (L.)	4532	Odonata	CALOPTERYGIDAE	Calopteryx	virgo		(LINNAEUS, 1758)	2	1	1	1	1	2	2	2	0	2	2
Gomphus vulgatissimus (L.)	5332	Odonata	GOMPHIDAE	Gomphus	vulgatissimus		(LINNAEUS, 1758)	0	-1	-1	1	2	0	0	0	1	1	1
Cordulegaster boltonii (Donovan)	4740	Odonata	CORDULEGASTRIDAE	Cordulegaster	boltonii		(DONOVAN, 1807)	0	0	0	0	0	2	2	2	0	0	0
Brachytron pratense (Muller)	4491	Odonata	AESHNIDAE	Brachytron	pratense		(MULLER, 1764)	0	0	0	0	-2	0	0	0	0	0	0
Aeshna sp.	4226	Odonata	AESHNIDAE	Aeshna	sp.			0	0	0	0	-2	2	2	0	0	0	0
Orthetrum sp.	9123	Odonata	LIBELLULIDAE	Orthetrum	sp.			0	0	0	0	0	1	0	0	0	0	0
Gerris argentatus Schummel	5298	Heteroptera	GERRIDAE	Gerris	argentatus		SCHUMMEL, 1832	0	-2	-2	0	-2	0	0	0	0	0	0
Gerris lacustris (L.)	5299	Heteroptera	GERRIDAE	Gerris	lacustris		(LINNAEUS, 1758)	0	-2	-2	0	-1	0	0	0	0	0	0
Gerris najas (Degger)	8184	Heteroptera	GERRIDAE	Aquatius	najas		(DE GEER, 1773)	0	2	2	0	0	1	1	1	0	0	0
Nepa cinerea L.	6118	Heteroptera	NEPIDAE	Nepa	cinerea		(LINNAEUS, 1758)	0	-2	-2	-2	-2	0	0	0	0	0	0
Ilyocypris cinctoides (L.)	5652	Heteroptera	NAUCORIDAE	Ilyocypris	cinctoides cinctoides		(LINNAEUS, 1758)	0	0	0	0	-2	0	0	0	0	0	0
Aphelocheirus aestivus (Fabricius)	4335	Heteroptera	APHELOCHEIRIDAE	Aphelocheirus	aestivus		(FABRICIUS, 1794)	0	-1	-1	1	1	0	0	0	2	2	2
Notonecta glauca L.	6136	Heteroptera	NOTONECTIDAE	Notonecta	glauca glauca		(FABRICIUS, 1758)	0	-2	-2	-2	-2	0	0	0	0	0	0
Notonecta maculata Fabricius	6138	Heteroptera	NOTONECTIDAE	Notonecta	maculata		(FABRICIUS, 1794)	0	-2	-2	-2	-2	0	0	0	0	0	0
Notonecta obliqua Gyllen	6139	Heteroptera	NOTONECTIDAE	Notonecta	sp.		FABRICIUS, 1794	0	-2	-2	-2	-2	0	0	0	0	0	0
Cymatia coleoptrata (Fabricius)	4849	Heteroptera	CORIXIDAE	Cymatia	coleoptrata		(FABRICIUS, 1777)	0	0	0	0	-2	0	0	0	0	0	0

Taxon	ID ART	TaxaGroup	Family	Genus	Species	Author	FI05	FI09	FI091	FI092	FI11	FI12	FI13	FI14	FI16	FI15	FI17	FI152
Callinixia praeusta (Fieber)	8187	Heteroptera	CORIXIDAE	Callinixia	praeusta praeusta	(FIEBER, 1848)	0	0	0	0	0	-2	0	0	0	0	0	0
Corixa affinis Leach	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	-2	0	0	0	0	0	0
Corixa dentipes (Thomson)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	-2	0	0	0	0	0	0
Corixa panzeri (Fieber)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	-2	0	0	0	0	0	0
Corixa punctata (Illiger)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	-2	0	0	0	0	0	0
Hesperocorixa sahlibergi (Fieber)	5463	Heteroptera	CORIXIDAE	Hesperocorixa	sahlibergi	(FIEBER, 1848)	0	-2	-2	0	0	0	0	0	0	0	0	0
Sigara falleni (Fieber)	6829	Heteroptera	CORIXIDAE	Sigara	falleni	(FIEBER, 1848)	0	-2	-2	-2	-2	-2	0	0	0	0	0	0
Sigara fossarum (Leach)	8213	Heteroptera	CORIXIDAE	Sigara	fossarum	(LEACH, 1817)	0	-2	-2	-2	-1	0	0	0	0	0	0	0
Brychius elevatus (Panzer)	17593	Coleoptera	HALIPLIDAE	Brychius	elevatus	(PANZER, 1794)	2	1	1	0	0	0	0	0	0	1	1	1
Halipus confinis Stephens	17901	Coleoptera	HALIPLIDAE	Halipus	sp.		0	-1	-1	0	-1	0	0	-1	0	0	-1	0
Halipus flavicollis Sturm	17883	Coleoptera	HALIPLIDAE	Halipus	flavicollis	STURM, 1834	0	-2	-2	0	-2	0	0	0	0	0	0	0
Halipus fluviatilis Aube	17884	Coleoptera	HALIPLIDAE	Halipus	fluviatilis	AUBÉ, 1836	0	-2	-2	0	-1	0	0	0	0	0	0	0
Halipus heydeni Wehncke	17901	Coleoptera	HALIPLIDAE	Halipus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	-1	0
Halipus immaculatus Gerhardt	17890	Coleoptera	HALIPLIDAE	Halipus	immaculatus	GERHARDT, 1877	0	0	0	0	-2	0	0	0	0	0	0	0
Halipus lamnatus Schaller	17901	Coleoptera	HALIPLIDAE	Halipus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	-1	0
Halipus lineatocollis (Marsham)	17893	Coleoptera	HALIPLIDAE	Halipus	lineatocollis	(MARSHAM, 1802)	0	0	0	0	0	0	0	0	0	0	0	-1
Halipus lineolatus Manneheim	17901	Coleoptera	HALIPLIDAE	Halipus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	-1	0
Halipus ruficollis (Degeer)	17899	Coleoptera	HALIPLIDAE	Halipus	ruficollis	(DE GEER, 1774)	0	-2	-2	0	0	0	0	0	0	0	0	0
Halipus wehnckei (Gerhardt)	17901	Coleoptera	HALIPLIDAE	Halipus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	-1	0
Noterus clavicornis (Degeer)	18488	Coleoptera	NOTERIDAE	Noterus	clavicornis	(DE GEER, 1774)	0	0	0	-2	-2	-2	0	0	0	0	0	0
Laccophilus hyalinus (Degeer)	18356	Coleoptera	DYTISCIDAE	Laccophilus	hyalinus	(DE GEER, 1774)	0	-2	-2	-2	-2	0	0	0	0	0	0	-1
Laccophilus minutus (L.)	18357	Coleoptera	DYTISCIDAE	Laccophilus	minutus	(LINNAEUS, 1758)	0	-2	-2	-2	-2	0	0	0	0	-1	-1	0
Hyphydrus ovatus (L.)	18296	Coleoptera	DYTISCIDAE	Hyphydrus	ovatus	(LINNAEUS, 1761)	0	-2	-2	-2	-2	0	0	0	0	0	0	0
Hygrobus inaequalis (Fabricius)	18285	Coleoptera	DYTISCIDAE	Hygrobus	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0
Hygrobus versicolor (Schaller)	18286	Coleoptera	DYTISCIDAE	Hygrobus	versicolor	(SCHALLER, 1783)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Hydroponus angustatus Sturm																		
Hydroponus discretus Fairmaire & Brisout	18203	Coleoptera	DYTISCIDAE	Hydroponus	discretus	FAIRMAIRE, 1859	0	0	0	0	0	0	1	1	0	0	0	0
Hydroponus palustris (L.)	18240	Coleoptera	DYTISCIDAE	Hydroponus	palustris	(LINNAEUS, 1761)	0	-2	-2	0	-2	0	0	0	0	0	0	0
Deronectes latus (Stephens)	17701	Coleoptera	DYTISCIDAE	Deronectes	latus	(STEPHENS, 1829)	2	2	2	0	0	0	2	1	1	1	0	0
Potamonectes assimilis (Paykull)	18475	Coleoptera	DYTISCIDAE	Potamonectes	sp.		2	-1	-1	-1	-1	0	0	0	0	0	0	0
Potamonectes depressus (Fabricius)	18466	Coleoptera	DYTISCIDAE	Potamonectes	depressus	(FABRICIUS, 1775)	2	-1	-1	-1	-1	0	0	0	0	0	0	0
Sitcotarsus duodecimpustulatus (Fabricius)	18736	Coleoptera	DYTISCIDAE	Sitcotarsus	duodecimpustulatus	(FABRICIUS, 1792)	2	-1	-1	-1	-1	0	0	0	0	0	0	0
Oreodytes davisi (Curtis)	18618	Coleoptera	DYTISCIDAE	Oreodytes	sp.		0	1	1	0	0	0	0	0	0	0	0	0
Oreodytes sanmarkii (Sahlberg)	18616	Coleoptera	DYTISCIDAE	Oreodytes	sanmarkii	(SAHLBERG, 1834)	1	1	1	0	0	0	0	0	0	0	0	0
Oreodytes septentrionalis (Sahlberg)	18618	Coleoptera	DYTISCIDAE	Oreodytes	sp.		0	1	1	0	0	0	0	0	0	0	0	0
Platambus maculatus (L.)	18649	Coleoptera	DYTISCIDAE	Platambus	maculatus	(LINNAEUS, 1758)	2	1	1	1	1	0	1	1	1	1	0	0
Agabus bipustulatus (L.)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	0	2	0	0	0	0	0
Agabus chalconatus (Panzer)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	0	2	0	0	0	0	0
Agabus didymus (Olivier)	17473	Coleoptera	DYTISCIDAE	Agabus	didymus	(OLIVIER, 1795)	0	0	0	0	0	0	1	1	1	1	0	0
Agabus guttatus (Paykull)	17477	Coleoptera	DYTISCIDAE	Agabus	guttatus	(PAYKULL, 1796)	0	0	0	0	0	0	2	2	2	0	0	0

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Agabus pallidus (Fabricius)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.			0	0	0	0	0	2	0	0	0	0	0
Agabus sturmi (Gyllenhal)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.			0	0	0	0	0	2	0	0	0	0	0
Ilybius sp.	18321	Coleoptera	DYTISCIDAE	Ilybius	sp.			0	-2	-2	-2	-2	1	0	0	0	0	0
Acilius sulcatus (L.)	17455	Coleoptera	DYTISCIDAE	Acilius	sp.			0	0	0	0	0	0	1	0	0	0	0
Gyrinus aeratus Stephens	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.			0	0	0	-1	0	0	0	0	0	0	0
Gyrinus distinctus Aube	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.			0	0	0	-1	0	0	0	0	0	0	0
Gyrinus marinus Gyllenhal	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.			0	0	0	-1	0	0	0	0	0	0	0
Gyrinus nator group	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.			0	0	0	-1	0	0	0	0	0	0	0
Gyrinus urinator Jiliger	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		(MÜLLER, 1776)	0	1	1	1	1	1	0	0	0	0	0
Orectochilus villosus (Muller)	18613	Coleoptera	GYRINIDAE	Orectochilus	villosus			0	1	1	1	1	1	0	0	1	1	1
Helophorus arvensis Mulsant	17915	Coleoptera	HELOPHORIDAE	Helophorus	arvensis		(MULSANT, 1846)	0	2	2	0	2	2	2	2	0	0	0
Helophorus brevipalpis Bedel	17919	Coleoptera	HELOPHORIDAE	Helophorus	brevipalpis		BEDEL, 1881	0	-1	-1	0	0	-1	0	0	0	0	0
Hydrobius fuscipes (L.)	18157	Coleoptera	HYDROPHILIDAE	Hydrobius	fuscipes		(LINNAEUS, 1758)	0	-2	-2	-2	0	0	0	0	0	0	0
Anacaena bipustulata (Marsham)	17502	Coleoptera	HYDROPHILIDAE	Anacaena	bipustulata		(MARSHAM, 1802)	0	-1	-1	-1	-1	0	0	0	0	0	0
Anacaena globulus (Paykull)	17503	Coleoptera	HYDROPHILIDAE	Anacaena	globulus		(PAYKULL, 1798)	2	0	0	0	0	0	1	1	1	1	0
Anacaena limbata (Fabricius)	17504	Coleoptera	HYDROPHILIDAE	Anacaena	limbata		(FABRICIUS, 1792)	2	-1	-1	-1	-1	0	0	0	1	0	0
Anacaena lutescens (Stephens)	17505	Coleoptera	HYDROPHILIDAE	Anacaena	lutescens		(STEPHENS, 1929)	0	-1	-1	-1	-1	0	0	0	0	0	0
Laccobius minutus (L.)	18337	Coleoptera	HYDROPHILIDAE	Laccobius	minutus		(LINNAEUS, 1758)	0	0	0	0	-1	0	0	0	0	0	0
Laccobius stratiolus (Fabricius)	18347	Coleoptera	HYDROPHILIDAE	Laccobius	stratiolus		(FABRICIUS, 1801)	0	1	1	0	1	0	0	0	0	0	0
Ochthebius bicolor Germar	18502	Coleoptera	HYDRAENIDAE	Ochthebius	bicolor		GERMAR, 1824	0	2	2	0	0	0	0	0	0	0	0
Ochthebius dilatatus Stephens	18600	Coleoptera	HYDRAENIDAE	Ochthebius	sp.			0	2	2	0	0	2	0	0	0	0	0
Ochthebius exculptus Germar	18522	Coleoptera	HYDRAENIDAE	Ochthebius	exsculptus		GERMAR, 1824	0	0	0	0	2	0	0	0	0	0	0
Ochthebius minutus (Fabricius)	18600	Coleoptera	HYDRAENIDAE	Ochthebius	sp.			0	2	2	0	0	2	0	0	0	0	0
Hydraena gracilis Germar	18064	Coleoptera	HYDRAENIDAE	Hydraena	gracilis		GERMAR, 1824	1	1	1	1	1	2	0	2	1	0	0
Hydraena nigrita Germar	18095	Coleoptera	HYDRAENIDAE	Hydraena	nigrita		GERMAR, 1824	0	0	0	1	0	0	0	2	0	0	0
Hydraena pulchella Germar	18109	Coleoptera	HYDRAENIDAE	Hydraena	pulchella		GERMAR, 1824	0	2	2	0	0	0	0	1	1	2	2
Hydraena rufipes Curts	18114	Coleoptera	HYDRAENIDAE	Hydraena	ripiana		KUGELANIN, 1794	0	1	1	0	1	0	1	0	2	2	2
Hydraena rufipes Curts	18130	Coleoptera	HYDRAENIDAE	Hydraena	sp.			1	1	1	1	1	0	0	0	1	2	2
Limnebius truncatellus (Thunberg)	18409	Coleoptera	HYDRAENIDAE	Limnebius	truncatellus		(THUNBERG, 1794)	2	0	0	0	0	0	0	0	0	0	0
Elodes sp.	5418	Coleoptera	SCIRTIDAE	Elodes	sp. Lv.			0	0	0	0	0	0	0	0	0	0	0
Cyphon sp.	17684	Coleoptera	SCIRTIDAE	Cyphon	sp.			2	0	0	0	0	0	0	0	0	0	0
Hydrocyphon deflexicollis (Muller)	18179	Coleoptera	SCIRTIDAE	Hydrocyphon	deflexicollis		(MÜLLER, 1821)	2	0	0	0	0	0	0	0	0	0	0
Heliciscus substriatus (Muller)	18659	Coleoptera	DRYOPIDAE	Pomatius	substriatus		(MÜLLER, 1806)	0	2	2	0	0	0	2	0	0	0	0
Dryops sp.	17749	Coleoptera	DRYOPIDAE	Dryops	sp.			2	1	1	0	0	0	1	0	0	0	0
Elmis aenea (Muller)	17768	Coleoptera	ELMIDAE	Elmis	aenea		(MÜLLER, 1806)	0	1	1	1	0	0	0	0	0	0	2
Esolus paraflepepedus (Muller)	17820	Coleoptera	ELMIDAE	Esolus	paraflepepedus		(MÜLLER, 1806)	0	2	2	0	0	2	0	0	0	0	0
Limnius volkmanni (Panzer)	18421	Coleoptera	ELMIDAE	Limnius	volkmanni		(PANZER, 1793)	2	1	1	1	1	0	1	0	1	2	2
Macronychus quadrituberculatus Muller	18432	Coleoptera	ELMIDAE	Macronychus	quadrituberculatus		(MÜLLER, 1806)	0	0	0	0	2	2	0	2	0	2	2
Normandia nitens (Muller)	18480	Coleoptera	ELMIDAE	Normandia	nitens		(MÜLLER, 1817)	0	0	2	0	2	0	0	0	0	0	0
Oulimnius major (Rey)	18626	Coleoptera	ELMIDAE	Oulimnius	sp.			0	0	0	1	1	1	0	0	0	0	0

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	FI05	FI09	FI091	FI091_K	FI092	FI11	FI11_12	FI14	FI16	FI15	FI17	FI152
Oulimnius rivularis (Rosenhauer)	18626		Coleoptera	ELMIDAE	Oulimnius	sp.		0	0	0	1	1	0	0	0	0	0	0	0
Oulimnius troglodytes (Gyllenhal)	18626		Coleoptera	ELMIDAE	Oulimnius	sp.		0	0	0	1	1	0	0	0	0	0	0	0
Oulimnius tuberculatus (Muller)	18629		Coleoptera	ELMIDAE	Oulimnius	tuberculatus	(MULLER, 1806)	0	0	0	1	0	0	0	0	0	0	0	1
Riolus cupreus (Muller)	18693		Coleoptera	ELMIDAE	Riolus	cupreus	(MULLER, 1806)	0	0	1	0	2	0	0	0	0	0	0	0
Riolus subvulvaceus (Muller)	18696		Coleoptera	ELMIDAE	Riolus	subvulvaceus	(MULLER, 1817)	0	0	1	0	1	0	0	0	0	0	0	0
Sialis fuliginosa Pictet	6821		Megaloptera	SIALIDAE	Sialis	fuliginosa	PICTET, 1836	2	-2	-2	-1	-1	1	1	1	0	0	0	
Sialis lutaria (L.)	6822		Megaloptera	SIALIDAE	Sialis	lutaria	(LINNAEUS, 1758)	0	-2	-2	-2	-2	0	0	-1	-1	-1	-1	
Sialis nigripes Pictet	9781		Megaloptera	SIALIDAE	Sialis	nigripes	PICTET, 1865	0	-2	-2	-1	1	0	0	0	1	0	0	
Osmynus fulvicephalus (Scopoli)	8739		Panorpina	OSMYLIDAE	Osmynus	fulvicephalus	(SCOPOLI, 1763)	0	0	0	0	0	1	1	0	0	0	0	
Sisyra sp.	6870		Panorpina	SISYRIDAE	Sisyra	sp.		0	-2	-2	-1	-1	0	0	0	1	0	0	
Rhyacophila dorsalis (Curtis)	1910		Trichoptera	RHYACOPHILIDAE	Rhyacophila	dorsalis/nubila		0	0	0	0	0	0	0	0	0	0	1	
Rhyacophila munda McLachlan	6780		Trichoptera	RHYACOPHILIDAE	Rhyacophila	sp.		0	0	0	0	0	0	0	0	0	0	0	
Rhyacophila obliterata McLachlan	6773		Trichoptera	RHYACOPHILIDAE	Rhyacophila	obliterata	MCLACHLAN, 1863	2	0	0	0	0	0	0	0	0	0	0	
Rhyacophila septentrionis McLachlan	6765		Trichoptera	RHYACOPHILIDAE	Rhyacophila	fasciata fasciata	HAGEN, 1859	2	0	0	0	0	0	0	2	0	0	0	
Glossosoma sp.	5316		Trichoptera	GLOSSOSOMATIDAE	Glossosoma	sp.		0	2	2	0	0	0	0	0	0	0	0	
Agapetus sp.	4254		Trichoptera	GLOSSOSOMATIDAE	Agapetus	sp.		0	2	2	2	2	0	0	0	0	0	0	
Agraylea multipunctata Curtis	4255		Trichoptera	HYDROPTILIDAE	Agraylea	multipunctata	CURTIS, 1834	0	0	0	0	-2	0	0	0	0	0	0	
Agraylea sexmaculata Curtis	4256		Trichoptera	HYDROPTILIDAE	Agraylea	sexmaculata	CURTIS, 1834	0	-2	-2	0	-2	0	0	0	0	0	0	
Allotrichia pallicornis (Eaton)	4274		Trichoptera	HYDROPTILIDAE	Allotrichia	pallicornis	(EATON, 1873)	0	2	2	0	0	0	0	0	0	0	0	
Hydrophila sp.	5616		Trichoptera	HYDROPTILIDAE	Hydrophila	sp.		0	0	0	0	0	0	0	0	0	-1	1	
Oxyethira sp.	6268		Trichoptera	HYDROPTILIDAE	Oxyethira	sp.		0	0	0	0	0	0	0	0	0	0	0	
Philopotamus montanus (Donovan)	6387		Trichoptera	PHILOPOTAMIDAE	Philopotamus	montanus montanus	(DONOVAN, 1813)	2	0	0	0	0	0	0	0	0	0	0	
Wormalda sp.	7168		Trichoptera	PHILOPOTAMIDAE	Wormalda	sp.		0	2	2	0	0	0	0	0	0	0	0	
Chimarra marginata (L.)	4641		Trichoptera	PHILOPOTAMIDAE	Chimarra	marginata	(LINNAEUS, 1767)	0	2	2	0	2	0	0	0	0	0	0	
Lype sp.	8847		Trichoptera	PSYCHOMYIIDAE	Lype	sp.		0	2	2	1	2	1	1	1	2	0	0	
Psychomyia pusilla (Fabricius)	6661		Trichoptera	PSYCHOMYIIDAE	Psychomyia	pusilla	(FABRICIUS, 1781)	0	-1	-1	0	1	0	0	0	1	1	1	
Tinodes waeneri (L.)	21224		Trichoptera	PSYCHOMYIIDAE	Tinodes	waeneri waeneri	(LINNAEUS, 1758)	0	0	0	-2	-2	0	0	0	0	0	-2	
Ecnomus tenellus (Rambur)	5064		Trichoptera	ECNOMIDAE	Ecnomus	tenellus	(RAMBUR, 1842)	0	0	0	0	0	-2	0	0	0	0	1	
Cynus flavidus McLachlan	4874		Trichoptera	POLYCENTROPIDIDAE	Cynus	flavidus	MCLACHLAN, 1864	0	-2	-2	-2	-2	0	0	0	0	0	0	
Cynus trimaculatus (Curtis)	4877		Trichoptera	POLYCENTROPIDIDAE	Cynus	trimaculatus	(CURTIS, 1834)	0	-2	-2	-1	-1	-1	-1	-1	-1	-1	1	
Holocentropus picticornis (Stephens)	5488		Trichoptera	POLYCENTROPIDIDAE	Holocentropus	picticornis	(STEPHENS, 1836)	0	0	0	0	0	0	0	0	0	0	-1	
Neureclipsis bimaculata (L.)	6122		Trichoptera	POLYCENTROPIDIDAE	Neureclipsis	bimaculata	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	-1	1	1	0	0	
Plectrocnemia conspersa (Curtis)	6444		Trichoptera	POLYCENTROPIDIDAE	Plectrocnemia	conspersa conspersa	(CURTIS, 1834)	0	0	0	0	0	0	2	2	0	0	0	
Plectrocnemia geniculata McLachlan	6445		Trichoptera	POLYCENTROPIDIDAE	Plectrocnemia	geniculata geniculata	MCLACHLAN, 1871	2	0	0	0	0	0	0	0	0	0	0	
Polycentropus flavomaculatus (Pictet)	6468		Trichoptera	POLYCENTROPIDIDAE	Polycentropus	flavomaculatus	(PICTET, 1834)	-1	0	0	0	0	0	0	0	0	0	1	
Polycentropus imoratus (Curtis)	6469		Trichoptera	POLYCENTROPIDIDAE	Polycentropus	imoratus	(CURTIS, 1835)	0	-1	-1	0	0	0	1	1	1	1	1	
Chreumatopsyche lepida (Pictet)	4639		Trichoptera	HYDROPSYCHIDAE	Chreumatopsyche	lepida	(PICTET, 1834)	0	0	0	0	0	0	0	0	0	2	2	
Hydropsyche angustipennis (Curtis)	5588		Trichoptera	HYDROPSYCHIDAE	Hydropsyche	angustipennis angustipennis	(CURTIS, 1834)	0	-2	-2	-1	-2	-1	-1	-1	-1	1	0	
Hydropsyche contubernalis McLachlan	21231		Trichoptera	HYDROPSYCHIDAE	Hydropsyche	contubernalis contubernalis	MCLACHLAN, 1865	0	0	0	-2	0	0	0	0	0	0	0	
Hydropsyche fulvipes (Curtis)	5605		Trichoptera	HYDROPSYCHIDAE	Hydropsyche	sp.		0	0	0	0	0	0	-1	0	0	0	1	
Hydropsyche instabilis (Curtis)	5598		Trichoptera	HYDROPSYCHIDAE	Hydropsyche	instabilis	(CURTIS, 1834)	1	2	2	2	2	0	-1	0	0	0	0	

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Hydropsyche pellucidula (Curtis)	5601	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	pellucidula	(CURTIS, 1834)	0	0	0	0	0	0	0	0	1	
Hydropsyche saxonica McLachlan	5602	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	saxonica	McLACHLAN, 1864	2	0	0	0	0	-1	2	0	0	
Hydropsyche sitalai Dohler	5604	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	sitalai	DÖHLER, 1963	-1	0	0	0	0	-1	0	1	1	
Agrypnia obsolleta group	8864	Trichoptera	PHRYGANIIDAE	Agrypnia	sp.		0	0	0	0	0	2	0	0	0	
Phryganea sp.	6393	Trichoptera	PHRYGANIIDAE	Phryganea	sp.		0	-2	-2	0	-2	2	0	0	0	
Brachycentrus subnubilus Curtis	4481	Trichoptera	BRACHYCENTRIDAE	Brachycentrus	subnubilus	CURTIS, 1834	0	0	0	1	2	2	2	2	2	
Lepidostoma hirtum (Fabricius)	5723	Trichoptera	LEPIDOSTOMATIDAE	Lepidostoma	hirtum	(FABRICIUS, 1775)	2	0	0	1	1	2	1	1	2	
Drusus annulatus (Stephens)	5001	Trichoptera	LIMNephilidae	Drusus	annulatus	(STEPHENS, 1837)	1	0	0	0	0	0	0	0	0	
Ecdiopsyche guttata (Pictet)	5034	Trichoptera	LIMNephilidae	Ecdiopsyche	guttata	(PICTET, 1834)	2	0	0	0	0	0	0	0	0	
Halesus sp.	5378	Trichoptera	LIMNephilidae	Halesus	sp.		2	0	0	0	0	1	1	1	1	
Hydatophylax infumatus (McLachlan)	5499	Trichoptera	LIMNephilidae	Hydatophylax	infumatus	(McLACHLAN, 1865)	1	0	0	0	0	2	2	0	0	
Melampophylax mucoreus (Hagen)	5956	Trichoptera	LIMNephilidae	Melampophylax	mucoreus	(HAGEN, 1861)	2	0	0	0	0	0	0	0	0	
Anabolia nervosa (Curtis)	4300	Trichoptera	LIMNephilidae	Anabolia	nervosa	(CURTIS, 1834)	0	-1	-1	-1	-1	-1	-1	-1	1	
Glyptotaelius pellucidus (Retzius)	5318	Trichoptera	LIMNephilidae	Glyptotaelius	pellucidus	(RETZIUS, 1783)	2	1	1	0	0	-2	2	0	2	
Limnephilus binotatus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	binotatus		0	0	0	0	0	1	0	0	0	
Limnephilus bipunctatus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	bipunctatus		0	0	0	0	0	1	0	0	0	
Limnephilus decipiens (Kolombat)	5844	Trichoptera	LIMNephilidae	Limnephilus	decipiens		0	0	0	0	0	1	0	0	0	
Limnephilus exricatus McLachlan	5844	Trichoptera	LIMNephilidae	Limnephilus	exricatus		0	0	0	0	0	1	0	0	0	
Limnephilus flavicornis (Fabricius)	5844	Trichoptera	LIMNephilidae	Limnephilus	flavicornis		0	0	0	0	0	1	0	0	0	
Limnephilus fuscicornis (Rambur)	5844	Trichoptera	LIMNephilidae	Limnephilus	fuscicornis		0	0	0	0	0	1	0	0	0	
Limnephilus lunatus Curtis	5837	Trichoptera	LIMNephilidae	Limnephilus	lunatus		0	-2	-2	-1	-2	0	0	0	-1	
Limnephilus marmoratus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	marmoratus		0	0	0	0	0	1	0	0	0	
Limnephilus politus McLachlan	5844	Trichoptera	LIMNephilidae	Limnephilus	politus		0	0	0	0	0	1	0	0	0	
Limnephilus rhombicus (L.)	5841	Trichoptera	LIMNephilidae	Limnephilus	rhombicus	(LINNAEUS, 1758)	0	-2	-2	-1	-2	0	0	0	0	
Limnephilus vittatus (Fabricius)	5844	Trichoptera	LIMNephilidae	Limnephilus	vittatus		0	0	0	0	0	1	0	0	0	
Goera pilosa (Fabricius)	5329	Trichoptera	GOERIDAE	Goera	pilosa	(FABRICIUS, 1775)	-2	0	0	0	1	-2	-2	0	-1	
Silo nigricornis (Pictet)	6833	Trichoptera	GOERIDAE	Silo	nigricornis	(PICTET, 1834)	0	1	1	0	0	0	2	2	0	
Silo pallipes (Fabricius)	6834	Trichoptera	GOERIDAE	Silo	pallipes	(FABRICIUS, 1781)	1	1	1	1	0	0	1	1	0	
Beraea pullata (Curtis)	4441	Trichoptera	BERAIDAE	Beraea	pullata	(CURTIS, 1834)	0	0	0	0	0	1	2	0	0	
Beraeodes minutus (L.)	4444	Trichoptera	BERAIDAE	Beraeodes	minutus		0	0	0	0	0	1	1	1	0	
Notidobia ciliana (L.)	6134	Trichoptera	SERICOSTOMATIDAE	Notidobia	ciliana	(LINNAEUS, 1761)	0	0	0	0	0	0	1	1	-1	
Sericostoma personatum (Spence)	6817	Trichoptera	SERICOSTOMATIDAE	Sericostoma	personatum	(SPENCE, 1795)	0	0	0	0	1	-2	-2	0	0	
Odontocerum albicorne (Scopoli)	6168	Trichoptera	ODONTOCERIDAE	Odontocerum	albicorne	(SCOPOLI, 1763)	2	1	1	0	0	0	0	2	0	
Molanna angustata Curtis	6045	Trichoptera	MOLANNIDAE	Molanna	angustata	(CURTIS, 1834)	0	-2	-2	0	-2	-1	0	-2	-1	
Athripsodes albifrons (L.)	4366	Trichoptera	LEPTOCERIDAE	Athripsodes	albifrons		2	0	0	0	1	0	1	2	2	
Athripsodes aterrimus (Stephens)	4367	Trichoptera	LEPTOCERIDAE	Athripsodes	aterrimus	(STEPHENS, 1836)	0	-2	-2	-2	-2	-1	-1	0	-1	
Athripsodes bilineatus (L.)	4368	Trichoptera	LEPTOCERIDAE	Athripsodes	bilineatus		2	0	0	0	0	0	1	0	1	
Athripsodes cinereus (Curtis)	4369	Trichoptera	LEPTOCERIDAE	Athripsodes	cinereus	(CURTIS, 1834)	0	-1	0	-1	1	-1	-2	0	1	
Athripsodes commutatus (Rostock)	4370	Trichoptera	LEPTOCERIDAE	Athripsodes	commutatus	(ROSTOCK, 1874)	0	2	2	0	0	0	0	0	0	
Ceraclea albimaculata (Rambur)	4577	Trichoptera	LEPTOCERIDAE	Ceraclea	albimaculata	(RAMBUR, 1877)	0	0	0	-1	0	0	0	0	2	
Ceraclea annulicornis (Stephens)	4579	Trichoptera	LEPTOCERIDAE	Ceraclea	annulicornis	(STEPHENS, 1836)	0	0	0	0	1	1	0	0	2	

Taxon	ID ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1092	F111	F112	F114	F115	F1152
Ceraclea dissimilis (Stephens)	4580	Trichoptera	LEPTOCERIDAE	Ceraclea	dissimilis	(STEPHENS, 1836)	0	-2	-2	-1	-1	0	0	0	1
Ceraclea fulva (Rambur)	4581	Trichoptera	LEPTOCERIDAE	Ceraclea	fulva	(RAMBUR, 1842)	0	0	0	0	0	0	0	0	2
Ceraclea nigronervosa (Retzius)	4582	Trichoptera	LEPTOCERIDAE	Ceraclea	nigronervosa	(RETZIUS, 1783)	0	-2	-2	0	-1	0	1	2	2
Ceraclea senilis (Burmeister)	4583	Trichoptera	LEPTOCERIDAE	Ceraclea	senilis	(BURMEISTER, 1839)	0	0	0	0	0	0	0	0	2
Mystacides azurea (L.)	6062	Trichoptera	LEPTOCERIDAE	Mystacides	azurea	(LINNAEUS, 1761)	-2	-2	-2	-2	-2	-1	-1	-2	0
Mystacides longicornis (L.)	6063	Trichoptera	LEPTOCERIDAE	Mystacides	longicornis	(LINNAEUS, 1758)	-2	-2	-2	-1	-2	0	0	0	-2
Mystacides nigra (L.)	6064	Trichoptera	LEPTOCERIDAE	Mystacides	nigra	(LINNAEUS, 1758)	-2	-2	-2	-2	-2	0	0	0	0
Adicella reducta (McLachlan)	4212	Trichoptera	LEPTOCERIDAE	Adicella	reducta	(McLACHLAN, 1865)	0	2	2	0	0	0	0	2	1
Trianoedes bicolor (Curtis)	7088	Trichoptera	LEPTOCERIDAE	Trianoedes	bicolor	(CURTIS, 1834)	0	0	0	0	0	0	0	0	1
Yodes simulans (Tjeder)	8150	Trichoptera	LEPTOCERIDAE	Yodes	simulans	(TJEDER, 1928)	0	0	0	0	0	0	1	1	2
Oecetis lacustris (Pictet)	6171	Trichoptera	LEPTOCERIDAE	Oecetis	lacustris	(PICTET, 1834)	0	-2	-2	-2	-2	1	0	0	0
Oecetis notata (Rambur)	6172	Trichoptera	LEPTOCERIDAE	Oecetis	notata	(RAMBUR, 1842)	0	1	1	0	1	0	0	0	2
Oecetis ochracea (Curtis)	6173	Trichoptera	LEPTOCERIDAE	Oecetis	ochracea	(CURTIS, 1825)	0	-2	-2	0	-2	0	0	0	0
Oecetis testacea (Curtis)	6175	Trichoptera	LEPTOCERIDAE	Oecetis	testacea	(CURTIS, 1834)	0	2	2	0	2	1	1	2	2
Dolichopeza albipes (Stroem)	14281	Diptera	TIPULIDAE	Dolichopeza	albipes	(STROM, 1768)	0	0	0	0	0	0	1	2	0
Tipula rufoa Meigen	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula signata group	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula unca Wiedemann	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula solstitialis Westhoff	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula montium group	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula olivacea L.	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula paludosa Meigen	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Tipula maxima Podda	7075	Diptera	TIPULIDAE	Tipula	maxima	PODA, 1761	-1	0	0	0	0	0	0	0	0
Tipula vittata Meigen	7077	Diptera	TIPULIDAE	Tipula	sp.	(LINNAEUS, 1758)	0	0	0	0	0	1	1	1	0
Antocha vitripennis (Meigen)	4330	Diptera	LIMONIIDAE	Antocha	sp.	(OSTEN-SACKEN, 1860)	0	0	0	0	0	1	1	1	0
Pedicia (Trichophona) sp.	13613	Diptera	PEDICIIDAE	Trichophona	sp.	ZETTERSTEDT, 1837	0	0	0	0	0	1	1	1	0
Pedicia (Pedicia) group	6354	Diptera	PEDICIIDAE	Pedicia	sp.	LATREILLE, 1809	2	0	0	0	0	1	1	-1	0
Dicranota sp.	4955	Diptera	PEDICIIDAE	Dicranota	sp.	ZETTERSTEDT, 1838	0	0	0	0	0	1	1	1	0
Pseudolimnophila sp.	7259	Diptera	LIMONIIDAE	Pseudolimnophila	sp.	ALEXANDER, 1919	2	0	0	0	0	1	1	1	0
Limnophila (Eloephila) sp.	9654	Diptera	LIMONIIDAE	Eloephila	sp.	RONDANI, 1856	0	0	0	0	0	1	1	1	0
Limnophila (Phytocorea) sp.	20075	Diptera	LIMONIIDAE	Euphytobora/Phytocorea	sp.		0	0	0	0	0	1	1	1	0
Limnophila (Euphytobora) sp.	20075	Diptera	LIMONIIDAE	Euphytobora/Phytocorea	sp.		0	0	0	0	0	1	1	1	0
Limnophila (Limnophila) sp.	5870	Diptera	LIMONIIDAE	Limnophila	sp.	MACQUART, 1834	0	0	0	0	0	1	1	1	0
Pliaria (Neolimnomyia) sp.	13325	Diptera	LIMONIIDAE	Neolimnomyia	sp.	SEGUY, 1937	0	0	0	0	0	1	1	1	0
Pliaria (Pliaria) sp.	6403	Diptera	LIMONIIDAE	Pliaria	sp.	SINTENIS, 1889	0	0	0	0	0	1	1	1	0
Hexatoma sp.	5481	Diptera	LIMONIIDAE	Hexatoma	sp.	LATREILLE, 1809	0	0	0	0	0	0	0	2	0
Ormosia sp.	7249	Diptera	LIMONIIDAE	Ormosia	sp.	RONDANI, 1856	0	0	0	0	0	1	1	1	0
Scleroprocta sp.	13280	Diptera	LIMONIIDAE	Scleroprocta	sp.	EDWARDS, 1938	0	0	0	0	0	2	2	0	0
Molophilus sp.	6048	Diptera	LIMONIIDAE	Molophilus	sp.	CURTIS, 1833	0	0	0	0	0	1	1	1	0
Rhypholophus sp.	6795	Diptera	LIMONIIDAE	Rhypholophus	sp.	KOLENATT, 1860	2	0	0	0	0	1	1	1	0
Ptychopteridae sp.	7492	Diptera	PTYCHOPTERIDAE	Ptychoptera	sp.		0	0	0	0	0	2	1	2	0

Taxon	ID	ART	Taxa Group	Family	Genus	Species	Author	FI05	FI09	FI091	FI092	FI11	FI12	FI14	FI15	FI17	FI152
<i>Dixa dilatata</i> Strobl	4989	Diptera	DIXIDAE	Dixa	sp.			2	0	0	0	2	2	0	0	0	0
<i>Dixa nebulosa</i> Meigen	4989	Diptera	DIXIDAE	Dixa	sp.			2	0	0	0	2	2	2	0	0	0
<i>Dixa puberula</i> Loew	4989	Diptera	DIXIDAE	Dixa	sp.			2	0	0	0	2	2	2	0	0	0
<i>Dixa maculata</i> complex	4989	Diptera	DIXIDAE	Dixa	sp.			2	0	0	0	2	2	2	0	0	0
<i>Prosimulium hirtipes</i> (Fries)	6586	Diptera	SIMULIIDAE	Prosimulium	hirtipes		(FRIES, 1824)	2	1	1	0	0	0	0	0	0	0
<i>Prosimulium latimuro</i> (Enderlein)	6591	Diptera	SIMULIIDAE	Prosimulium	sp.		(ENDERLEIN, 1921)	0	1	1	2	0	0	0	0	0	0
<i>Prosimulium tomosvaryi</i> (Enderlein)	6592	Diptera	SIMULIIDAE	Prosimulium	tomosvaryi		(ENDERLEIN, 1921)	0	1	1	2	0	0	0	0	0	0
<i>Simulium latipes</i> (Meigen)	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium costatum</i> Friederichs	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium angustitarse</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium coryphillum</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium vernum</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium aureum</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium (Wilhelma)</i> sp.	9762	Diptera	SIMULIIDAE	Simulium (Wilhelma)	sp.			0	-1	-1	0	0	0	0	0	0	0
<i>Simulium erythrocephalum</i> (de Geer)	8819	Diptera	SIMULIIDAE	Simulium	erythrocephalum		(DE GEER, 1776)	2	-1	-1	0	-1	0	0	0	0	0
<i>Simulium rostratum</i> Lundström	7848	Diptera	SIMULIIDAE	Simulium	rostratum		(LUNDSTRÖM, 1911)	0	-2	-2	0	-2	0	0	0	0	0
<i>Simulium morstans</i> Edwards	6849	Diptera	SIMULIIDAE	Simulium	morstans		EDWARDS, 1915	0	-1	-1	0	1	0	0	0	0	0
<i>Simulium noelleri</i> Friederichs	6850	Diptera	SIMULIIDAE	Simulium	noelleri		FRIEDERICHS, 1920	0	0	0	0	-2	0	0	0	0	0
<i>Simulium posticatum</i> Meigen	6851	Diptera	SIMULIIDAE	Simulium	posticatum		MEIGEN, 1838	0	0	0	0	2	0	0	0	0	0
<i>Simulium repans</i> (L.)	6852	Diptera	SIMULIIDAE	Simulium	repans		(LINNAEUS, 1758)	0	1	1	1	1	0	0	0	0	0
<i>Simulium argyreatum</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium ornatum</i> group	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Simulium tuberosum</i> (Lundström)	6853	Diptera	SIMULIIDAE	Simulium	sp.			0	0	0	0	0	0	0	0	0	1
<i>Clinotanypus nervosus</i> (Meigen)	4702	Diptera	CHIRONOMIDAE	Clinotanypus	nervosus		(MEIGEN, 1818)	0	0	0	0	0	0	-2	1	0	0
<i>Aspsectotanypus trifascipennis</i> (Zetterstedt)	4338	Diptera	CHIRONOMIDAE	Aspsectotanypus	trifascipennis		(ZETTERSTEDT, 1838)	0	0	0	0	0	0	2	0	0	0
<i>Macropelopia</i> sp.	5934	Diptera	CHIRONOMIDAE	Macropelopia	sp.			0	0	0	0	0	0	1	0	0	0
<i>Procladius</i> sp.	6571	Diptera	CHIRONOMIDAE	Procladius	sp.			0	0	0	0	0	0	-2	0	0	0
<i>Psectrotanypus varius</i> (Fabricius)	6635	Diptera	CHIRONOMIDAE	Psectrotanypus	varius		(FABRICIUS, 1787)	0	0	0	0	0	0	-1	2	0	0
<i>Larsia curticalcar</i> (Kieffer)	9054	Diptera	CHIRONOMIDAE	Larsia	sp.			0	0	0	0	0	0	-2	0	0	0
<i>Monopelopia tenuicalcar</i> (Kieffer)	6057	Diptera	CHIRONOMIDAE	Monopelopia	tenuicalcar		(KIEFFER, 1918)	0	0	0	0	0	0	-2	0	0	0
<i>Trisopelopia longimana</i> (Staeger)	7789	Diptera	CHIRONOMIDAE	Trisopelopia	longimana		(STAEGER, 1839)	0	0	0	0	0	0	2	0	0	0
<i>Diamesa</i> sp.	4940	Diptera	CHIRONOMIDAE	Diamesa	sp.			0	0	0	0	0	0	2	0	0	0
<i>Odontomesa fulva</i> (Kieffer)	6169	Diptera	CHIRONOMIDAE	Odontomesa	fulva		(KIEFFER, 1919)	0	0	0	0	0	0	1	2	0	0
<i>Procladius olivacea</i> (Meigen)	6583	Diptera	CHIRONOMIDAE	Procladius	olivacea		(MEIGEN, 1818)	0	0	0	0	0	1	1	1	0	0
<i>Acrotopus lucens</i> (Zetterstedt)	4201	Diptera	CHIRONOMIDAE	Acrotopus	lucens		(ZETTERSTEDT, 1850)	0	0	0	0	0	0	0	1	0	0
<i>Brillia longifurca</i> Kieffer	4497	Diptera	CHIRONOMIDAE	Brillia	sp.			0	0	0	0	0	0	1	1	0	0
<i>Brillia modesta</i> (Meigen)	4497	Diptera	CHIRONOMIDAE	Brillia	sp.			0	0	0	0	0	0	1	1	0	0
<i>Diplocladius cultriger</i> Kieffer	4984	Diptera	CHIRONOMIDAE	Diplocladius	cultriger		KIEFFER in KIEFFER & THIENEMANN, 1908	0	0	0	0	0	0	2	0	0	0
<i>Eukiefferiella</i> group	5234	Diptera	CHIRONOMIDAE	Eukiefferiella	sp.			0	0	0	0	0	0	1	1	0	0
<i>Heterotrissocladius</i> sp.	5480	Diptera	CHIRONOMIDAE	Heterotrissocladius	sp.			0	0	0	0	0	0	1	1	0	0

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Hydrobaenus sp.?	9023	Diptera	CHIRONOMIDAE	Hydrobaenus	sp.			0	0	0	0	0	0	0	0	0	1	0
Nanocladius sp.	6084	Diptera	CHIRONOMIDAE	Nanocladius	sp.			0	0	0	0	0	0	0	1	1	0	0
Paraccladius conversus (Walker)	6291	Diptera	CHIRONOMIDAE	Paraccladius	conversus		(WALKER, 1856)	0	0	0	0	0	0	0	0	1	0	0
Rheocricotopus sp.	6702	Diptera	CHIRONOMIDAE	Rheocricotopus	sp.			0	0	0	0	0	0	0	1	1	0	0
Synorthocladus semivirens (Kieffer)	6959	Diptera	CHIRONOMIDAE	Synorthocladus	semivirens		(KIEFFER, 1909)	0	0	0	0	0	0	0	1	1	0	0
Epitoccladius flavens (Malloch)	7878	Diptera	CHIRONOMIDAE	Epitoccladius	flavens		(MALLOCH, 1915)	0	0	0	0	0	0	0	1	1	0	0
Heleniella ornaticollis (Edwards)	5410	Diptera	CHIRONOMIDAE	Heleniella	sp.			0	0	0	0	0	0	0	2	0	0	0
Metricnemus sp.	5982	Diptera	CHIRONOMIDAE	Metricnemus	sp.			0	1	0	0	0	0	0	1	1	0	0
Parametricnemus borealpinus Gowin	7210	Diptera	CHIRONOMIDAE	Parametricnemus	sp.			0	0	0	0	0	0	0	2	0	0	0
Parametricnemus stylatus (Kieffer)	7210	Diptera	CHIRONOMIDAE	Parametricnemus	sp.			0	0	0	0	0	0	0	2	0	0	0
Paraphaenocladus sp.	6317	Diptera	CHIRONOMIDAE	Paraphaenocladus	sp.			0	0	0	0	0	0	0	1	1	0	0
Paratrisoccladius excerptus (Walker)	6345	Diptera	CHIRONOMIDAE	Paratrisoccladius	excerptus		(WALKER, 1856)	0	0	0	0	0	0	0	1	1	0	0
Thienemanniella sp.	7047	Diptera	CHIRONOMIDAE	Thienemanniella	sp.			0	0	0	0	0	0	0	2	0	0	0
Chironomus sp.	4663	Diptera	CHIRONOMIDAE	Chironomus	sp.			0	0	0	0	0	0	0	-2	0	0	0
Cladopelma sp.	4685	Diptera	CHIRONOMIDAE	Cladopelma	sp.			0	0	0	0	0	0	0	0	1	0	0
Cryptochironomus sp.	4831	Diptera	CHIRONOMIDAE	Cryptochironomus	sp.			0	0	0	0	0	0	0	0	0	1	0
Demicryptochironomus vulneratus (Zetterstedt)	8957	Diptera	CHIRONOMIDAE	Demicryptochironomus	sp.			0	0	0	0	0	0	0	0	0	1	0
Dicrotendipes sp.	4962	Diptera	CHIRONOMIDAE	Dicrotendipes	sp.			0	0	0	0	0	0	0	0	0	1	0
Glyptotendipes sp.	5325	Diptera	CHIRONOMIDAE	Glyptotendipes	sp.			0	0	0	0	0	0	0	0	0	1	0
Harnischia sp.	5404	Diptera	CHIRONOMIDAE	Harnischia	sp.			0	0	0	0	0	0	0	0	0	1	0
Kiefferulus tendipediformis (Goetghebuer)	5682	Diptera	CHIRONOMIDAE	Kiefferulus	tendipediformis		(GOETGHEBUER, 1921)	0	0	0	0	0	0	0	0	0	1	0
Microtendipes sp.	6034	Diptera	CHIRONOMIDAE	Microtendipes	sp.			0	0	0	0	0	0	0	0	0	1	1
Endochironomus group	5105	Diptera	CHIRONOMIDAE	Endochironomus	sp.			0	0	0	0	0	0	0	0	0	1	0
Parachironomus sp.	6285	Diptera	CHIRONOMIDAE	Parachironomus	sp.			0	0	0	0	0	0	0	0	0	1	0
Paraccladopelma sp.	6297	Diptera	CHIRONOMIDAE	Paraccladopelma	sp.			0	0	0	0	0	0	0	0	0	1	0
Paratendipes sp.	6341	Diptera	CHIRONOMIDAE	Paratendipes	sp.			0	0	0	0	0	0	0	1	1	0	0
Phaenopsectra sp.	6382	Diptera	CHIRONOMIDAE	Phaenopsectra	sp.			0	0	0	0	0	0	0	0	0	1	0
Stictochironomus sp.	6924	Diptera	CHIRONOMIDAE	Stictochironomus	sp.			0	0	0	0	0	0	0	0	0	1	0
Xenochironomus xenolabis (Kieffer)	7173	Diptera	CHIRONOMIDAE	Xenochironomus	xenolabis		(KIEFFER in THIENEMANN & KIEFFER, 1916)	0	0	0	0	0	0	0	0	0	1	0
Cladotanytarsus sp.	4693	Diptera	CHIRONOMIDAE	Cladotanytarsus	sp.			0	0	0	0	0	0	0	0	0	1	0
Neozavrella sp.																		
Stempellina bausei (Kieffer)	6908	Diptera	CHIRONOMIDAE	Stempellina	sp.			0	0	0	0	0	0	0	0	1	0	0
Atherix ibis (Fabricius)	4363	Diptera	ATHERICIDAE	Atherix	ibis		(FABRICIUS, 1798)	2	1	1	1	1	1	1	1	1	1	2
Atherix marginata (Fabricius)	4364	Diptera	ATHERICIDAE	Atherix	marginata		(FABRICIUS, 1781)	1	1	1	0	0	1	1	1	1	1	0
Atrichops crassipes (Meigen)	4374	Diptera	ATHERICIDAE	Atrichops	crassipes		(MEIGEN, 1820)	0	1	1	0	1	2	2	2	2	2	2

Appendix XI (continued) – German Stream Fauna Indices (TL5)

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	FI05	FI09	FI091	FI092	FI11	FI12	FI14	FI16	FI15	FI17	FI152
Polycelis felina (Dahyell)	7744		Turbellaria	PLANARIIDAE	Polycelis	sp.		0	-2	-2	0	-1	0	0	0	0	0	0
Polycelis nigra group	13666		Turbellaria	PLANARIIDAE	Polycelis	nigra/tenuis		0	-2	-2	0	-1	0	0	0	0	0	0
Dugesia tigrina (Girard)	5022		Turbellaria	DUGESIIDAE	Dugesia	tigrina	(GIRARD, 1850)	2	-2	-2	0	-2	0	0	-2	0	0	0
Dugesia polychaeta group	9745		Turbellaria	DUGESIIDAE	Dugesia	lugubris/polychaeta		2	0	0	0	0	0	0	0	0	0	0
Bellochehalia punctata (Pallas)	11361		Turbellaria	BELLOCHEHALIIDAE	Bellochehalia	punctata	(PALLAS, 1774)	0	0	0	0	0	0	0	0	0	0	0
Dendrocoelum lacteum (Muller)	4911		Turbellaria	DENDROCOELIIDAE	Dendrocoelum	lacteum	(O.F. MÜLLER, 1774)	0	-2	-2	-1	-1	0	0	0	0	0	0
Theodoxus fluviatilis (L.)	7025		Gastropoda	NERITIIDAE	Theodoxus	fluviatilis	(LINNAEUS, 1758)	0	0	0	0	2	0	0	0	2	1	0
Viviparus viviparus (L.)	7158		Gastropoda	VIVIPARIDAE	Viviparus	viviparus	(LINNAEUS, 1758)	0	-2	-2	0	-1	-1	0	2	2	1	0
Valvata cristata Muller	7142		Gastropoda	VALVATIDAE	Valvata	cristata	O.F. MÜLLER, 1774	0	-1	-1	0	0	-1	0	0	1	0	0
Valvata macrostoma Morch	7146		Gastropoda	VALVATIDAE	Valvata	sp.	O.F. MÜLLER, 1774	0	-1	-1	0	0	-1	0	0	0	0	0
Valvata piscinalis (Muller)	7144		Gastropoda	VALVATIDAE	Valvata	piscinalis piscinalis	(O.F. MÜLLER, 1774)	0	0	0	0	0	-1	0	0	0	0	0
Potamopyrgus jenkinsi (Smith)	8251		Gastropoda	HYDROBIIDAE	Potamopyrgus	antipodanum	(GRAY, 1843)	-2	-2	-2	0	-2	-2	0	0	-1	-2	0
Bithynia leachii (Sheppard)	4460		Gastropoda	BITHYNIIDAE	Bithynia	leachii leachii	(SHEPPARD, 1823)	0	0	0	0	0	-1	0	0	0	0	0
Bithynia tentaculata (L.)	4462		Gastropoda	BITHYNIIDAE	Bithynia	tentaculata	(LINNAEUS, 1758)	0	-1	-1	1	-1	-1	-1	-1	-1	-1	0
Physa fontinalis (L.)	6395		Gastropoda	PHYSIDAE	Physa	fontinalis	(LINNAEUS, 1758)	0	-2	-2	-1	-1	-1	-1	-1	-1	-1	0
Physa acuta group	6396		Gastropoda	PHYSIDAE	Physella	acuta	(DRAPARNAUD, 1805)	-2	-2	-2	0	-2	0	0	0	0	0	0
Lymnaea auricularia (L.)	6669		Gastropoda	LYMNAEIDAE	Radix	auricularia	(LINNAEUS, 1758)	-2	-2	-2	-2	-1	0	0	0	0	0	0
Lymnaea peregra (Muller)	16959		Gastropoda	LYMNAEIDAE	Radix	baithica	(LINNAEUS, 1758)	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	0
Lymnaea stagnalis (L.)	5916		Gastropoda	LYMNAEIDAE	Lymnaea	stagnalis	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	0
Planorbis carinatus Muller	6435		Gastropoda	PLANORBIDAE	Planorbis	carinatus	O.F. MÜLLER, 1774	0	-2	-2	-2	-2	-1	-1	-2	1	0	0
Planorbis planorbis (L.)	6436		Gastropoda	PLANORBIDAE	Planorbis	planorbis	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-2	-1	-2	0	0	0
Anisus leucostoma (Millet)	8874		Gastropoda	PLANORBIDAE	Anisus	sp.	STUDER, 1820	0	-2	-2	-2	-2	-1	-1	0	0	0	0
Anisus vortex (L.)	4318		Gastropoda	PLANORBIDAE	Anisus	vortex	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	-1	-1	1	-1	0
Bathymphalus contortus (L.)	4433		Gastropoda	PLANORBIDAE	Bathymphalus	contortus	(LINNAEUS, 1758)	0	-2	-2	-1	-1	-1	-1	0	0	0	0
Gyraulus albus (Muller)	5354		Gastropoda	PLANORBIDAE	Gyraulus	albus	(O.F. MÜLLER, 1774)	0	-2	-2	-1	-1	-1	-1	-1	0	0	-1
Gyraulus laevis (Alder)	5359		Gastropoda	PLANORBIDAE	Gyraulus	sp.	CHARPENTIER, 1837	0	-2	-2	-1	-1	-1	-1	-1	0	0	0
Hipppeutis complanatus (L.)	5483		Gastropoda	PLANORBIDAE	Hipppeutis	complanatus	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	-1	0	0	0	0
Segmentina nitida Muller	6812		Gastropoda	PLANORBIDAE	Segmentina	nitida	FLEMING, 1818	0	0	0	0	0	0	-1	0	0	0	0
Planorbartus cornuus (L.)	6431		Gastropoda	PLANORBIDAE	Planorbartus	cornuus	(LINNAEUS, 1758)	0	0	0	0	0	-1	-1	-2	0	0	0
Ancylus fluviatilis Muller	4310		Gastropoda	PLANORBIDAE	Ancylus	fluviatilis	O.F. MÜLLER, 1774	0	0	0	0	0	1	-1	0	0	0	0
Acroloxus lacustris (L.)	4205		Gastropoda	ACROLOXIDAE	Acroloxus	lacustris	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	0	0	0	0	1
Margaritifera margaritifera (L.)	5943		Bivalvia	MARGARITIFERIDAE	Margaritifera	margaritifera	(LINNAEUS, 1758)	0	2	2	0	0	0	0	2	0	0	0
Unio sp.	7138		Bivalvia	UNIONIDAE	Unio	sp.	PHILIPSSON, 1788	0	0	0	0	1	1	-1	0	0	1	1
Sphaerium sp.	6886		Bivalvia	SPHAERIIDAE	Sphaerium	sp.	SCOPOLI, 1777	0	1	1	1	0	-1	0	0	0	0	1
Pisidium sp.	6425		Bivalvia	SPHAERIIDAE	Pisidium	sp.	PFEIFFER, 1821	0	2	2	2	0	1	0	0	0	0	0
Dreissena polymorpha (Pallas)	4999		Bivalvia	DREISSENIDAE	Dreissena	polymorpha	(PALLAS, 1771)	0	-2	-2	0	-2	0	0	0	-2	-1	-1
Oligochaeta	8736		Oligochaeta	[K:Oligochaeta]	Oligochaeta	Gen. sp.		0	0	0	0	0	0	0	0	0	0	-1
Theromyzon tessellatum (Muller)	7034		Hirudinea	GLOSSIPHONIIDAE	Theromyzon	tessellatum	(O.F. MÜLLER, 1774)	0	-2	-2	0	0	-2	0	0	0	0	0
Hemiclepsis marginata (Muller)	5444		Hirudinea	GLOSSIPHONIIDAE	Hemiclepsis	marginata	(O.F. MÜLLER, 1774)	0	-2	-2	0	-2	0	0	0	0	0	0

Taxon	ID_ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1092	F111	12	F114	16	F115	17	F1152
Glossiphonia complanata (L.)	5304	Hirudinea	GLOSSIPHONIDAE	Glossiphonia	complanata	(LINNAEUS, 1758)	-1	0	0	-1	0	-1	-1	0	0	0	0
Glossiphonia heterodonta (L.)	4261	Hirudinea	GLOSSIPHONIDAE	Alboglossiphonia	heterodonta	(LINNAEUS, 1758)	0	-2	-2	0	0	0	0	0	0	0	0
Helobdella stagnalis (L.)	5413	Hirudinea	GLOSSIPHONIDAE	Helobdella	stagnalis	(LINNAEUS, 1758)	-2	-2	-2	0	-2	-2	-2	-2	-1	-1	-1
Haemopsis sanguisuga (L.)	5373	Hirudinea	HAEMOPIIDAE	Haemopsis	sanguisuga	(LINNAEUS, 1758)	0	-2	-2	0	-2	0	0	0	0	0	0
Eprobaddia octoculata (L.)	5159	Hirudinea	ERPOBDELLIDAE	Eprobaddia	octoculata	(LINNAEUS, 1758)	-2	-2	-2	-1	-2	-1	-1	-1	-1	0	0
Eprobaddia testacea (Savigny)	5161	Hirudinea	ERPOBDELLIDAE	Eprobaddia	testacea	(SAVIGNY, 1822)	-2	-2	-2	0	0	0	-1	-1	-1	1	1
Dina lineata (Muller)	4973	Hirudinea	ERPOBDELLIDAE	Dina	lineata	(O.F. MÜLLER, 1774)	0	0	0	1	0	0	0	0	0	0	0
Trocheta bykowskii Gedyroy	7109	Hirudinea	ERPOBDELLIDAE	Trocheta	sp.		0	-1	-1	0	0	0	0	0	0	0	0
Trocheta subviridis Dutrochet	7109	Hirudinea	ERPOBDELLIDAE	Trocheta	sp.		0	-1	-1	0	0	0	0	0	0	0	0
Aesilius aquaticus (L.)	8691	Crustacea	ASELIDAE	Aesilius	aquaticus	(LINNAEUS, 1758)	-2	-2	-2	-1	-2	1	-1	0	-1	0	-1
Aesilius meridianus Racovitz	8696	Crustacea	ASELIDAE	Proaesilius	meridianus	(RACOVITZA, 1919)	0	-2	-2	0	-2	0	0	0	0	0	0
Corophium sp.	4750	Crustacea	COROPHIDAE	Corophium	sp.	LATREILLE, 1806	0	-2	-2	0	-2	0	0	0	0	0	0
Gammarus duebeni Lilljeborg	5293	Crustacea	GAMMARIDAE	Gammarus	sp.	FABRICIUS, 1775	0	0	0	0	0	1	0	0	0	0	0
Gammarus lacustris Sars	5293	Crustacea	GAMMARIDAE	Gammarus	sp.	FABRICIUS, 1775	0	0	0	0	0	1	0	0	0	0	0
Gammarus pulex (L.)	5291	Crustacea	GAMMARIDAE	Gammarus	pulex	(LINNAEUS, 1758)	-2	1	1	1	2	0	0	0	0	0	0
Gammarus tigrinus	5294	Crustacea	GAMMARIDAE	Gammarus	tigrinus	SEXTON, 1939	0	0	0	0	-2	0	0	0	0	-2	0
Gammarus zaddachi Sexton	5293	Crustacea	GAMMARIDAE	Gammarus	sp.	FABRICIUS, 1775	0	0	0	0	0	1	0	0	0	0	0
Siphonurus lacustris Eaton	6863	Ephemeroptera	SIPHONURIDAE	Siphonurus	lacustris	(EATON, 1870)	0	1	1	1	1	0	0	0	0	0	0
Baetis atrebatinus Eaton	4419	Ephemeroptera	BAETIDAE	Baetis	sp.		0	0	0	0	0	-1	0	0	0	1	0
Baetis buceratus Eaton	4388	Ephemeroptera	BAETIDAE	Baetis	buceratus	EATON, 1870	0	0	0	1	2	0	0	0	2	2	2
Baetis digitatus Bengtsson	4419	Ephemeroptera	BAETIDAE	Baetis	sp.		0	0	0	0	0	-1	0	0	0	0	1
Baetis multicus (L.)	4409	Ephemeroptera	BAETIDAE	Baetis	multicus	(LINNAEUS, 1758)	0	2	2	1	0	0	0	0	0	2	2
Baetis niger (L.)	4410	Ephemeroptera	BAETIDAE	Baetis	niger	(LINNAEUS, 1758)	2	1	1	1	1	0	0	1	1	1	0
Baetis rhodani (Pictet)	4415	Ephemeroptera	BAETIDAE	Baetis	rhodani	PICTET, 1843-1845	-2	0	0	0	-1	-1	2	1	1	1	1
Baetis vernus Curtis	4427	Ephemeroptera	BAETIDAE	Baetis	vernus	CURTIS, 1834	0	0	0	0	0	-1	0	0	0	1	1
Baetis scambus group	4398	Ephemeroptera	BAETIDAE	Baetis	fuscatus/scambus		0	0	0	0	1	0	0	0	0	0	0
Centroptilum luteolum (Muller)	8850	Ephemeroptera	BAETIDAE	Centroptilum	luteolum	(MULLER, 1776)	0	-1	-1	0	0	-1	-1	-1	-1	0	0
Centroptilum pennulatum Eaton	4574	Ephemeroptera	BAETIDAE	Procloeon	pennulatum	(EATON, 1870)	0	2	2	0	0	0	0	0	0	0	0
Cloeon dpterum (L.)	4705	Ephemeroptera	BAETIDAE	Cloeon	dpterum	(LINNAEUS, 1761)	0	-2	-2	-2	-2	-1	-1	-1	-2	-2	-2
Cloeon simile Eaton	4708	Ephemeroptera	BAETIDAE	Cloeon	simile	EATON, 1870	0	-2	-2	-2	-2	-1	-1	-1	-2	-2	-2
Procloeon bifidum Bengtsson	6574	Ephemeroptera	BAETIDAE	Procloeon	bifidum	(BENGTSSON, 1912)	0	0	0	0	1	0	0	0	2	2	2
Rhithrogena sp.	6747	Ephemeroptera	HEPTAGENIDAE	Rhithrogena	sp.		0	1	1	2	1	0	0	0	0	0	0
Heptagenia fuscognisea (Retzius)	5452	Ephemeroptera	HEPTAGENIDAE	Kageronia	fuscognisea	(REITZUS, 1783)	0	0	0	0	0	0	-1	2	1	2	1
Heptagenia lateralis (Curtis)	5456	Ephemeroptera	HEPTAGENIDAE	Heptagenia	sp.		0	-1	-1	0	1	1	0	0	0	1	0
Heptagenia sulphurea (Muller)	5457	Ephemeroptera	HEPTAGENIDAE	Heptagenia	sulphurea	(MULLER, 1776)	0	0	0	1	1	1	1	1	1	1	2
Ecdyonurus sp.	5053	Ephemeroptera	HEPTAGENIDAE	Ecdyonurus	sp.		0	0	0	1	1	0	0	0	0	0	0
Leptophlebia marginata (L.)	5730	Ephemeroptera	LEPTOPHLEBIDAE	Leptophlebia	marginata	(LINNAEUS, 1767)	0	0	0	0	0	2	1	1	1	0	0
Leptophlebia vespertina (L.)	5732	Ephemeroptera	LEPTOPHLEBIDAE	Leptophlebia	vespertina	(LINNAEUS, 1758)	0	0	0	0	0	2	0	0	0	0	0
Paraleptophlebia cincta (Retzius)	6307	Ephemeroptera	LEPTOPHLEBIDAE	Paraleptophlebia	cincta	(REITZUS, 1835)	0	0	0	0	0	2	0	0	0	0	0
Paraleptophlebia submarginata (Stephens)	6309	Ephemeroptera	LEPTOPHLEBIDAE	Paraleptophlebia	submarginata	(STEPHENS, 1835)	0	1	1	1	1	1	1	1	1	1	0
Paraleptophlebia werneri Ulmer	6310	Ephemeroptera	LEPTOPHLEBIDAE	Paraleptophlebia	werneri	ULMER, 1919	0	0	0	0	0	2	0	0	0	0	0

Taxon	ID	ART	Taxa Group	Family	Genus	Species	Author	F105	F109	F1091	F1091_K	F1092	F111	12	F114	16	F115	17	F1152
Habrophlebia fusca (Curtis)	5369		Ephemeroptera	LEPTOPHEBIIDAE	Habrophlebia	fusca	(CURTIS, 1834)	0	-2	-2	0	0	2	1	1	1	0	0	0
Potamanthus luteus (L.)	6510		Ephemeroptera	POTAMANTHIDAE	Potamanthus	luteus	(LINNAEUS, 1767)	0	0	0	1	1	0	0	0	0	0	0	1
Ephemera danica Muller	5124		Ephemeroptera	EPHEMERIDAE	Ephemera	danica	MULLER, 1764	2	1	1	1	1	1	1	1	1	1	1	1
Ephemera lineata Eaton	5127		Ephemeroptera	EPHEMERIDAE	Ephemera	lineata	EATON, 1870	0	0	0	0	2	0	0	0	0	0	0	0
Ephemera vulgata L.	5129		Ephemeroptera	EPHEMERIDAE	Ephemera	vulgata	(LINNAEUS, 1758)	0	0	0	-1	0	0	0	-2	-1	-1	-1	
Ephemerella ignita (Podá)	5131		Ephemeroptera	EPHEMERELLIDAE	Serranella	ignita	(PODA, 1761)	0	0	0	0	0	0	0	0	0	0	0	
Ephemerella notata Eaton	5136		Ephemeroptera	EPHEMERELLIDAE	Ephemerella	notata	EATON, 1887	0	1	1	1	2	0	0	0	0	2	2	
Brachycercus harrisiella Curtis	4482		Ephemeroptera	CAENIDAE	Brachycercus	harrisiella	CURTIS, 1834	0	0	0	0	0	0	0	0	0	2	2	
Caenis horaria (L.)	4519		Ephemeroptera	CAENIDAE	Caenis	horaria	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	
Caenis rivulorum Eaton	4526		Ephemeroptera	CAENIDAE	Caenis	rivulorum	EATON, 1884	1	1	1	1	2	-1	1	1	1	0		
Caenis robusta Eaton	4527		Ephemeroptera	CAENIDAE	Caenis	robusta	EATON, 1884	0	-2	-2	-2	-2	-1	-1	-1	1	0		
Caenis pseudorivulorum group	16896		Ephemeroptera	CAENIDAE	Caenis	beskidensis/pseudorivulorum		0	2	2	0	1	0	0	0	0	0		
Caenis luctuosa group	9715		Ephemeroptera	CAENIDAE	Caenis	luctuosa/macnura		0	0	0	0	1	0	0	0	0	0		
Taeniopteryx nebulosa (L.)	6969		Plecoptera	TAENIOPTERYGIDAE	Taeniopteryx	nebulosa	(LINNAEUS, 1758)	0	0	0	0	0	2	2	2	2	2	2	
Brachyptera risi (Morton)	4487		Plecoptera	TAENIOPTERYGIDAE	Brachyptera	risi	(MORTON, 1896)	1	0	0	1	0	0	0	2	0	0	0	
Protonemura meyeri (Pictet)	6610		Plecoptera	NEMOURIDAE	Protonemura	meyeri	(PICTET, 1841)	0	2	2	0	1	0	2	1	1	1	1	
Protonemura montana Kimmis	6616		Plecoptera	NEMOURIDAE	Protonemura	sp.	KEMPNY, 1898	2	1	1	1	1	2	2	2	1	1		
Protonemura praecox (Morton)	6616		Plecoptera	NEMOURIDAE	Protonemura	sp.	KEMPNY, 1898	2	1	1	1	1	2	2	2	1	1		
Amphinemura standfussi Ris	13526		Plecoptera	NEMOURIDAE	Amphinemura	standfussi/sulcicollis		0	0	0	0	0	2	2	2	0	0		
Amphinemura sulcicollis (Stephens)	13526		Plecoptera	NEMOURIDAE	Amphinemura	standfussi/sulcicollis		0	0	0	0	0	2	2	2	0	0		
Nemurella picteti Klapalek	6113		Plecoptera	NEMOURIDAE	Nemurella	picteti	KLAPALEK, 1900	0	0	0	0	0	1	1	1	1	0		
Nemoura avicularis Morton	6108		Plecoptera	NEMOURIDAE	Nemoura	sp.	PICTET, 1841	1	0	0	0	0	1	1	1	1	1		
Nemoura chinera (Rezius)	6108		Plecoptera	NEMOURIDAE	Nemoura	sp.	PICTET, 1841	1	0	0	0	0	1	1	1	1	1		
Nemoura cambica group	6108		Plecoptera	NEMOURIDAE	Nemoura	sp.	PICTET, 1841	1	0	0	0	0	1	1	1	1	1		
Leuctra fusca (L.)	5763		Plecoptera	LEUCTRIDAE	Leuctra	fusca	(LINNAEUS, 1758)	0	1	1	0	1	2	2	2	1	1		
Leuctra geniculata (Stephens)	5237		Plecoptera	LEUCTRIDAE	Leuctra	geniculata	(STEPHENS, 1836)	0	0	0	0	1	0	0	0	2	2		
Leuctra hippopus (Kempny)	5768		Plecoptera	LEUCTRIDAE	Leuctra	hippopus	KEMPNY, 1899	0	2	2	0	0	0	0	0	0	0		
Leuctra inermis Kempny	5769		Plecoptera	LEUCTRIDAE	Leuctra	inermis	KEMPNY, 1899	0	2	2	0	0	0	0	0	0	0		
Leuctra moselyi Morton	5790		Plecoptera	LEUCTRIDAE	Leuctra	sp.	STEPHENS, 1835	1	0	0	1	1	2	2	1	1	1		
Leuctra nigra (Olivier)	5779		Plecoptera	LEUCTRIDAE	Leuctra	nigra	(OLIVIER, 1811)	2	0	0	0	0	2	2	1	1	0		
Capnia atra Morton	4552		Plecoptera	CAPNIIDAE	Capnia	sp.	PICTET, 1841	0	2	2	0	0	0	2	2	0	0		
Capnia bifrons (Newman)	4549		Plecoptera	CAPNIIDAE	Capnia	bifrons	(NEWMAN, 1839)	0	0	0	0	0	0	2	2	0	0		
Perlotia microcephala (Pictet)	6376		Plecoptera	PERLODIDAE	Perlotia	microcephalus	(PICTET, 1833)	0	1	1	0	1	0	1	0	1	2		
Diura bicaudata (L.)	4988		Plecoptera	PERLODIDAE	Diura	bicaudata	(LINNAEUS, 1758)	2	0	0	0	0	0	0	0	0	0		
Isoperla grammatica (Podá)	5667		Plecoptera	PERLODIDAE	Isoperla	grammatica	(PODA, 1761)	0	1	1	0	1	0	2	1	1	1		
Dinocras cephalobes (Curtis)	4978		Plecoptera	PERLIDAE	Dinocras	cephalobes	(CURTIS, 1827)	1	1	1	0	0	0	0	0	0	0		
Perla bipunctata Pictet	6372		Plecoptera	PERLIDAE	Perla	sp.	GEOFFROY, 1764	0	2	2	0	2	0	0	0	0	0		
Chloroperla torrentium (Pictet)	6869		Plecoptera	CHLOROPERLIDAE	Siphonoperla	torrentium	(PICTET, 1841)	0	1	1	0	0	0	0	0	0	0		
Chloroperla bipunctata (Scopoli)	4673		Plecoptera	CHLOROPERLIDAE	Chloroperla	bipunctata	(SCOPOLI, 1763)	1	2	2	0	0	0	0	0	0	0		
Platycnemis pennipes (Pallas)	6438		Odonata	PLATYCNEMIDIDAE	Platycnemis	pennipes	(PALLAS, 1771)	0	-2	-2	0	-2	1	0	1	1	1		
Pyrrhosoma nymphula (Zulzer)	6667		Odonata	COENAGRIONIDAE	Pyrrhosoma	nymphula	(ZULZER, 1776)	0	-1	-1	0	-2	1	0	0	0	0		

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1091_K	F1092	F111	12	F114	16	F115	17	F1152
<i>Ischnura elegans</i> (Van der Linden)	5658	Odonata	COENAGRIONIDAE	Ischnura	<i>elegans</i>	(VAN DER LINDEN, 1820)	0	-2	-2	0	-2	0	0	0	0	0	0	0	-1
<i>Enallagma cyathigerum</i> (Charpentier)	5100	Odonata	COENAGRIONIDAE	Enallagma	<i>cyathigerum</i>	(CHARPENTIER, 1840)	0	-2	-2	0	-2	0	0	0	0	0	0	0	0
<i>Coenagrion puella</i> group	11165	Odonata	COENAGRIONIDAE	Coenagrion	<i>puella/puella</i>	(HANSEMAN, 1823)	0	0	0	0	0	-2	0	0	0	0	0	0	0
<i>Erythronia najas</i> (Hansemann)	5164	Odonata	COENAGRIONIDAE	Erythronia	<i>najas</i>	(HANSEMAN, 1823)	0	0	0	0	0	-2	0	0	0	0	0	0	0
<i>Calopteryx splendens</i> (Harris)	4530	Odonata	CALOPTERYGIDAE	Calopteryx	<i>splendens</i>	(HARRIS, 1782)	0	0	0	0	0	0	1	1	1	-1	1	1	1
<i>Calopteryx virgo</i> (L.)	4532	Odonata	CALOPTERYGIDAE	Calopteryx	<i>virgo</i>	(LINNAEUS, 1758)	2	1	1	1	1	1	2	2	2	0	2	0	2
<i>Gomphus vulgatissimus</i> (L.)	5332	Odonata	GOMPHIDAE	Gomphus	<i>vulgatissimus</i>	(LINNAEUS, 1758)	0	-1	-1	1	2	0	0	0	0	0	1	1	1
<i>Cordulegaster boltonii</i> (Donovan)	4740	Odonata	CORDULEGASTRIDAE	Cordulegaster	<i>boltonii</i>	(DONOVAN, 1807)	0	0	0	0	0	2	2	2	2	0	0	0	0
<i>Brachytron pratense</i> (Müller)	4491	Odonata	AESHNIDAE	Brachytron	<i>pratense</i>	(MÜLLER, 1764)	0	0	0	0	-2	0	0	0	0	0	0	0	0
<i>Aeshna</i> sp.	4226	Odonata	AESHNIDAE	Aeshna	sp.		0	0	0	0	-2	2	2	2	0	0	0	0	0
<i>Orthetrum</i> sp.	9123	Odonata	LIBELLULIDAE	Orthetrum	sp.		0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Gerris argenteus</i> Schummel	5298	Heteroptera	GERRIDAE	Gerris	<i>argenteus</i>	SCHUMMEL, 1832	0	-2	-2	0	-2	0	0	0	0	0	0	0	0
<i>Gerris lacustris</i> (L.)	5299	Heteroptera	GERRIDAE	Gerris	<i>lacustris</i>	(LINNAEUS, 1758)	0	-2	-2	0	-1	0	0	0	0	0	0	0	0
<i>Gerris najas</i> (Degeer)	8184	Heteroptera	GERRIDAE	Aquatius	<i>najas</i>	(DE GEER, 1773)	0	2	2	0	0	1	1	0	1	1	0	0	0
<i>Nepra cinerea</i> L.	6118	Heteroptera	NEPRIDAE	Nepra	<i>cinerea</i>	LINNAEUS, 1758	0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Ilyocoris cimicoides</i> (L.)	5652	Heteroptera	NAUCORIDAE	Ilyocoris	<i>cimicoides cimicoides</i>	(LINNAEUS, 1758)	0	0	0	0	0	-2	0	0	0	0	0	0	0
<i>Aphelocheirus aestivalis</i> (Fabricius)	4335	Heteroptera	APHELOCHEIRIDAE	Aphelocheirus	<i>aestivalis</i>	(FABRICIUS, 1794)	0	-1	-1	1	1	1	0	0	0	2	2	2	2
<i>Notonecta glauca</i> L.	6136	Heteroptera	NOTONECTIDAE	Notonecta	<i>glauca glauca</i>	LINNAEUS, 1758	0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Notonecta maculata</i> Fabricius	6138	Heteroptera	NOTONECTIDAE	Notonecta	<i>maculata</i>	FABRICIUS, 1794	0	-2	-2	0	-2	0	0	0	0	0	0	0	0
<i>Notonecta obliqua</i> Gallen	6139	Heteroptera	NOTONECTIDAE	Notonecta	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Cymatia colepitrata</i> (Fabricius)	4849	Heteroptera	CORIXIDAE	Cymatia	<i>colepitrata</i>	(FABRICIUS, 1777)	0	0	0	0	-2	0	0	0	0	0	0	0	0
<i>Callicorixa praevusata</i> (Fieber)	8187	Heteroptera	CORIXIDAE	Callicorixa	<i>praevusata praevusata</i>	(FIEBER, 1848)	0	0	0	0	-2	0	-2	0	0	0	0	0	0
<i>Corixa affinis</i> Leach	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Corixa dentipes</i> (Thomson)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Corixa panzeri</i> (Fieber)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Corixa punctata</i> (Illiger)	4746	Heteroptera	CORIXIDAE	Corixa	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Hesperocorixa sahlbergi</i> (Fieber)	5463	Heteroptera	CORIXIDAE	Hesperocorixa	<i>sahlbergi</i>	(FIEBER, 1848)	0	-2	-2	0	0	0	0	0	0	0	0	0	0
<i>Sigara falleni</i> (Fieber)	6825	Heteroptera	CORIXIDAE	Sigara	<i>falleni</i>	(FIEBER, 1848)	0	-2	-2	-2	-2	0	0	0	0	0	0	0	0
<i>Sigara fossarum</i> (Leach)	8213	Heteroptera	CORIXIDAE	Sigara	<i>fossarum</i>	(LEACH, 1817)	0	-2	-2	-2	-2	-1	0	0	0	0	0	0	0
<i>Brychius elevatus</i> (Panzer)	17593	Coleoptera	HALIPLIDAE	Brychius	<i>elevatus</i>	(PANZER, 1794)	2	1	1	0	0	0	0	0	0	0	1	1	1
<i>Halipplus confinis</i> Stephens	17901	Coleoptera	HALIPLIDAE	Halipplus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	0	0	-1
<i>Halipplus flavicollis</i> Sturm	17883	Coleoptera	HALIPLIDAE	Halipplus	<i>flavicollis</i>	STURM, 1834	0	-2	-2	0	-2	0	0	0	0	0	0	0	0
<i>Halipplus fluvialis</i> Aubé	17884	Coleoptera	HALIPLIDAE	Halipplus	<i>fluvialis</i>	AUBÉ, 1836	0	-2	-2	0	-1	0	0	0	0	0	0	0	0
<i>Halipplus heydeni</i> Wienicke	17901	Coleoptera	HALIPLIDAE	Halipplus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	0	0	-1
<i>Halipplus immaculatus</i> Gerhardt	17890	Coleoptera	HALIPLIDAE	Halipplus	<i>immaculatus</i>	GERHARDT, 1877	0	0	0	0	-2	0	0	0	0	0	0	0	0
<i>Halipplus larnatus</i> Schaller	17901	Coleoptera	HALIPLIDAE	Halipplus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	0	0	-1
<i>Halipplus lineatocollis</i> (Marsham)	17893	Coleoptera	HALIPLIDAE	Halipplus	<i>lineatocollis</i>	(MARSHAM, 1802)	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Halipplus lineolatus</i> Mannerheim	17901	Coleoptera	HALIPLIDAE	Halipplus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	0	0	-1
<i>Halipplus ruficollis</i> (Degeer)	17899	Coleoptera	HALIPLIDAE	Halipplus	<i>ruficollis</i>	(DE GEER, 1774)	0	-2	-2	0	0	0	0	0	0	0	0	0	0
<i>Halipplus wehrckeri</i> (Gerhardt)	17901	Coleoptera	HALIPLIDAE	Halipplus	sp.		0	-1	-1	0	-1	0	-1	0	-1	0	0	0	-1
<i>Noterus clavicornis</i> (Degeer)	18488	Coleoptera	NOTERIDAE	Noterus	<i>clavicornis</i>	(DE GEER, 1774)	0	0	0	0	-2	0	0	0	0	0	0	0	0

Taxon	ID_ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1091_K	F1092	F111	F112	F114	F115	F115_17	F1152
Laccophilus hyalinus (Degeer)	18356	Coleoptera	DYTISCIDAE	Laccophilus	hyalinus	{DE GEER, 1774}	0	-2	-2	-2	-2	0	0	0	0	0	-1
Laccophilus minutus (L.)	18357	Coleoptera	DYTISCIDAE	Laccophilus	minutus	{LINNAEUS, 1758}	0	-2	-2	-2	-2	0	0	0	0	-1	-1
Hyphyrus ovatus (L.)	18296	Coleoptera	DYTISCIDAE	Hyphyrus	ovatus	{LINNAEUS, 1761}	0	-2	-2	-2	-2	0	0	0	0	0	0
Hygrobus inaequalis (Fabricius)	18285	Coleoptera	DYTISCIDAE	Hygrobus	sp.		0	-2	-2	-2	-2	0	0	0	0	0	0
Hygrobus versicolor (Schaller)	18286	Coleoptera	DYTISCIDAE	Hygrobus	versicolor	{SCHALLER, 1783}	0	-2	-2	0	-2	0	0	0	0	0	0
Hydroponus discretus Fairmaire & Brisout	18203	Coleoptera	DYTISCIDAE	Hydroponus	discretus	{FAIRMAIRE, 1859}	0	0	0	0	0	1	1	1	0	0	0
Hydroponus palustris (L.)	18240	Coleoptera	DYTISCIDAE	Hydroponus	palustris	{LINNAEUS, 1761}	0	-2	-2	0	-2	0	0	0	0	0	0
Deronectes latus (Stephens)	17701	Coleoptera	DYTISCIDAE	Deronectes	latus	{STEPHENS, 1829}	2	2	2	0	0	2	2	1	1	0	0
Potamonectes assimilis (Paykull)	18475	Coleoptera	DYTISCIDAE	Potamonectes	sp.		2	-1	-1	-1	-1	0	0	0	0	0	0
Potamonectes depressus (Fabricius)	18466	Coleoptera	DYTISCIDAE	Potamonectes	depressus	{FABRICIUS, 1775}	2	-1	-1	-1	-1	0	0	0	0	0	0
Stictotarsus duodecimpustulatus (Fabricius)	18736	Coleoptera	DYTISCIDAE	Stictotarsus	duodecimpustulatus	{FABRICIUS, 1792}	2	-1	-1	-1	-1	0	0	0	0	0	0
Oreodytes davisi (Curtis)	18618	Coleoptera	DYTISCIDAE	Oreodytes	sp.		0	1	1	0	0	0	0	0	0	0	0
Oreodytes sanmarkii (Sahlberg)	18616	Coleoptera	DYTISCIDAE	Oreodytes	sanmarkii	{SAHLBERG, 1834}	1	1	1	0	0	0	0	0	0	0	0
Oreodytes septentrionalis (Sahlberg)	18618	Coleoptera	DYTISCIDAE	Oreodytes	sp.		0	1	1	0	0	0	0	0	0	0	0
Piatambus maculatus (L.)	18649	Coleoptera	DYTISCIDAE	Piatambus	maculatus	{LINNAEUS, 1758}	2	1	1	1	0	1	1	1	1	0	0
Agabus bipustulatus (L.)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	2	2	0	0	0	0
Agabus chalconatus (Panzer)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	2	2	0	0	0	0
Agabus didymus (Olivier)	17473	Coleoptera	DYTISCIDAE	Agabus	didymus	{OLIVIER, 1795}	0	0	0	0	0	1	1	1	1	0	0
Agabus guttatus (Paykull)	17477	Coleoptera	DYTISCIDAE	Agabus	guttatus	{PAYKULL, 1798}	0	0	0	0	0	2	2	2	2	0	0
Agabus paludosus (Fabricius)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	2	2	0	0	0	0
Agabus sturmi (Gyllenhal)	17492	Coleoptera	DYTISCIDAE	Agabus	sp.		0	0	0	0	0	2	2	0	0	0	0
Hybius sp.	18321	Coleoptera	DYTISCIDAE	Hybius	sp.		0	-2	-2	-2	-2	1	1	0	0	0	0
Acilius sulcatus (L.)	17455	Coleoptera	DYTISCIDAE	Acilius	sp.		0	0	0	0	0	1	1	0	0	0	0
Gyrinus aeratus Stephens	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		0	0	0	-1	0	0	0	0	0	0	0
Gyrinus distinctus Aubé	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		0	0	0	-1	0	0	0	0	0	0	0
Gyrinus marinus Gyllenhal	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		0	0	0	-1	0	0	0	0	0	0	0
Gyrinus nator group	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		0	0	0	-1	0	0	0	0	0	0	0
Gyrinus urinator Jiliger	17874	Coleoptera	GYRINIDAE	Gyrinus	sp.		0	0	0	-1	0	0	0	0	0	0	0
Orectochilus villosus (Muller)	18613	Coleoptera	GYRINIDAE	Orectochilus	villosus	{MULLER, 1776}	0	1	1	1	1	1	1	0	1	1	1
Helophonus anermicus Mulsant	17915	Coleoptera	HELOPHORIDAE	Helophonus	anermicus	{MULSANT, 1846}	0	2	2	0	2	2	2	2	0	0	0
Helophonus brevipalpis Bebel	17919	Coleoptera	HELOPHORIDAE	Helophonus	brevipalpis	{BEDEL, 1881}	0	-1	-1	0	-1	0	0	0	0	0	0
Hydrobius fuscipes (L.)	18157	Coleoptera	HYDROPHILIDAE	Hydrobius	fuscipes	{LINNAEUS, 1758}	0	-2	-2	-2	-2	0	0	0	0	0	0
Anacaena bipustulata (Marsham)	17502	Coleoptera	HYDROPHILIDAE	Anacaena	bipustulata	{MARSHAM, 1802}	2	0	0	0	0	1	1	1	1	0	0
Anacaena globulus (Paykull)	17503	Coleoptera	HYDROPHILIDAE	Anacaena	globulus	{PAYKULL, 1798}	2	-1	-1	-1	-1	0	0	0	1	0	0
Anacaena limbata (Fabricius)	17504	Coleoptera	HYDROPHILIDAE	Anacaena	limbata	{FABRICIUS, 1792}	2	-1	-1	-1	-1	0	0	0	0	1	0
Anacaena lutescens (Stephens)	17505	Coleoptera	HYDROPHILIDAE	Anacaena	lutescens	{STEPHENS, 1929}	0	-1	-1	-1	-1	0	0	0	0	0	0
Laccobius minutus (L.)	18337	Coleoptera	HYDROPHILIDAE	Laccobius	minutus	{LINNAEUS, 1758}	0	0	0	0	-1	0	0	0	0	0	0
Laccobius stratiatus (Fabricius)	18347	Coleoptera	HYDROPHILIDAE	Laccobius	stratiatus	{FABRICIUS, 1801}	0	1	1	0	1	0	0	0	0	0	0
Ochthebius bicolor Germar	18502	Coleoptera	HYDRAENIDAE	Ochthebius	bicolor	{GERMAR, 1824}	0	2	2	0	0	0	0	0	0	0	0
Ochthebius dilatatus Stephens	18600	Coleoptera	HYDRAENIDAE	Ochthebius	sp.		0	2	2	0	2	0	2	0	0	0	0
Ochthebius exculptus Germar	18522	Coleoptera	HYDRAENIDAE	Ochthebius	exculptus	{GERMAR, 1824}	0	0	0	0	0	2	2	0	0	0	0

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1092	F111	12	F114	16	F115	17	F1152
Ochthebius minimus (Fabricius)	18600		Coleoptera	HYDRAENIDAE	Ochthebius	sp.		0	2	2	0	2	0	0	0	0	0	0
Hydraena gracilis Germar	18064		Coleoptera	HYDRAENIDAE	Hydraena	gracilis	GERMAR, 1824	1	1	1	1	2	0	0	2	1	0	0
Hydraena nigrita Germar	18095		Coleoptera	HYDRAENIDAE	Hydraena	nigrita	GERMAR, 1824	0	0	0	1	0	0	0	2	0	0	0
Hydraena pulchella Germar	18109		Coleoptera	HYDRAENIDAE	Hydraena	pulchella	GERMAR, 1824	0	2	2	0	0	0	0	1	1	2	0
Hydraena riparia Kugelann	18114		Coleoptera	HYDRAENIDAE	Hydraena	riparia	KUGELANN, 1794	0	1	1	0	0	1	0	1	2	2	0
Hydraena rufipes Curtis	18130		Coleoptera	HYDRAENIDAE	Hydraena	sp.		1	1	1	1	1	0	0	0	1	2	0
Hydraena testacea Curtis	18130		Coleoptera	HYDRAENIDAE	Hydraena	sp.		1	1	1	1	1	0	0	0	1	2	0
Limnebius truncatellus (Thunberg)	18409		Coleoptera	HYDRAENIDAE	Limnebius	truncatellus	(THUNBERG, 1794)	2	0	0	0	0	0	0	0	0	0	0
Elodes sp.	5418		Coleoptera	SCIRTIDAE	Elodes	sp. Lv.		0	0	0	0	0	2	0	0	0	0	0
Cyphon sp.	17684		Coleoptera	SCIRTIDAE	Cyphon	sp.		2	0	0	0	0	0	0	0	0	0	0
Hydrocyphon deflexicollis (Muller)	18179		Coleoptera	SCIRTIDAE	Hydrocyphon	deflexicollis	(MULLER, 1821)	2	0	0	0	0	0	0	0	0	0	0
Helichus substriatus (Muller)	18659		Coleoptera	DRYOPIDAE	Pomatinus	substriatus	(MULLER, 1806)	0	2	2	0	2	0	2	0	0	0	0
Dryops sp.	17749		Coleoptera	DRYOPIDAE	Dryops	sp.		2	1	1	0	0	1	0	1	0	0	0
Elmis aenea (Muller)	17768		Coleoptera	ELMIDAE	Elmis	aenea	(MULLER, 1806)	0	1	1	1	0	0	0	0	0	0	2
Esolus parralelepipectus (Muller)	17820		Coleoptera	ELMIDAE	Esolus	parralelepipectus	(MULLER, 1806)	0	2	2	0	2	0	0	0	0	0	0
Limnius volckmari (Panzer)	18421		Coleoptera	ELMIDAE	Limnius	volckmari	(PANZER, 1793)	2	1	1	1	1	0	1	1	2	2	0
Macronychus quadrifurcatus Muller	18432		Coleoptera	ELMIDAE	Macronychus	quadrifurcatus	MULLER, 1806	0	0	0	0	2	2	0	2	2	2	0
Normandia nitens (Muller)	18480		Coleoptera	ELMIDAE	Normandia	nitens	(MULLER, 1817)	0	0	2	0	2	0	0	0	0	0	0
Oulimnius major (Rey)	18626		Coleoptera	ELMIDAE	Oulimnius	sp.		0	0	0	1	1	0	0	0	0	0	0
Oulimnius nivalis (Rosenhauer)	18626		Coleoptera	ELMIDAE	Oulimnius	sp.		0	0	0	1	1	0	0	0	0	0	0
Oulimnius troglodytes (Gyllenhal)	18626		Coleoptera	ELMIDAE	Oulimnius	sp.		0	0	0	1	1	0	0	0	0	0	0
Oulimnius tuberculatus (Muller)	18629		Coleoptera	ELMIDAE	Oulimnius	tuberculatus	(MULLER, 1806)	0	0	0	1	0	0	0	0	0	0	1
Riolus cupreus (Muller)	18693		Coleoptera	ELMIDAE	Riolus	cupreus	(MULLER, 1806)	1	0	1	0	2	0	0	0	0	0	0
Riolus subvioletaceus (Muller)	18696		Coleoptera	ELMIDAE	Riolus	subvioletaceus	(MULLER, 1817)	0	0	1	0	1	0	0	0	0	0	0
Sialis fuliginosa Pictet	6821		Megaloptera	SIALIDAE	Sialis	fuliginosa	PICTET, 1836	2	-2	-2	-1	-1	1	1	1	0	0	0
Sialis lutaria (L.)	6822		Megaloptera	SIALIDAE	Sialis	lutaria	(LINNAEUS, 1758)	0	-2	-2	-2	0	0	-1	-1	-1	-1	-1
Sialis nigripes Pictet	9781		Megaloptera	SIALIDAE	Sialis	nigripes	PICTET, 1865	0	-2	-2	-1	1	0	0	0	1	0	0
Rhyacophila dorsalis (Curtis)	19110		Trichoptera	RHYACOPHILIDAE	Rhyacophila	dorsalis/nubila		0	0	0	0	0	0	0	0	0	0	1
Rhyacophila munda McLachlan	6780		Trichoptera	RHYACOPHILIDAE	Rhyacophila	sp.		0	0	0	0	0	0	0	0	0	0	1
Rhyacophila obliterata McLachlan	6773		Trichoptera	RHYACOPHILIDAE	Rhyacophila	obliterata	McLACHLAN, 1863	2	0	0	0	0	0	0	0	0	0	0
Rhyacophila septentrionis McLachlan	6765		Trichoptera	RHYACOPHILIDAE	Rhyacophila	fasciata fasciata	HAGEN, 1859	2	0	0	0	0	0	0	0	0	0	0
Glossosoma sp.	5316		Trichoptera	GLOSSOSOMATIDAE	Glossosoma	sp.		0	2	2	0	0	0	0	0	0	0	0
Agapetus sp.	4254		Trichoptera	GLOSSOSOMATIDAE	Agapetus	sp.		0	2	2	2	2	0	0	0	0	0	0
Agrayea multipunctata Curtis	4255		Trichoptera	HYDROPTILIDAE	Agrayea	multipunctata	CURTIS, 1834	0	0	0	0	-2	0	0	0	0	0	0
Agrayea sexmaculata Curtis	4256		Trichoptera	HYDROPTILIDAE	Agrayea	sexmaculata	CURTIS, 1834	0	-2	-2	0	-2	0	0	0	0	0	0
Allotrichia pallicornis (Eaton)	4274		Trichoptera	HYDROPTILIDAE	Allotrichia	pallicornis	(EATON, 1873)	0	2	2	0	0	0	0	0	0	0	0
Hydroptila sp.	5616		Trichoptera	HYDROPTILIDAE	Hydroptila	sp.		0	0	0	0	0	0	0	0	0	-1	1
Oxyethira sp.	6268		Trichoptera	HYDROPTILIDAE	Oxyethira	sp.		0	0	0	0	0	0	0	0	0	0	1
Philopotanus montanus (Donovan)	6387		Trichoptera	PHILOPOTAMIDAE	Philopotanus	montanus montanus	(DONOVAN, 1813)	2	0	0	0	0	0	0	0	0	0	0
Wormaldia sp.	7168		Trichoptera	PHILOPOTAMIDAE	Wormaldia	sp.		0	2	2	0	0	0	0	0	0	0	0
Chimarra marginata (L.)	4641		Trichoptera	PHILOPOTAMIDAE	Chimarra	marginata	(LINNAEUS, 1767)	0	2	2	0	2	0	0	0	0	0	0

Taxon	ID_ART	TaxaGroup	Family	Genus	Species	Author	FI05	FI09	FI091	FI091_K	FI092	FI11	FI11_12	FI14	FI14_16	FI15	FI15_17	FI152
Type sp.	8847	Trichoptera	PSYCHOMYIIDAE	Type	sp.		0	2	2	1	2	1	1	1	2	1	2	0
Psychomyia pusilla (Fabricius)	6661	Trichoptera	PSYCHOMYIIDAE	Psychomyia	pusilla	(FABRICIUS, 1781)	0	-1	-1	0	1	0	0	0	0	1	1	1
Tinodes waeneri (L.)	21224	Trichoptera	PSYCHOMYIIDAE	Tinodes	waeneri waeneri	(LINNAEUS, 1758)	0	0	0	-2	0	0	0	0	0	0	0	-2
Ecnomus tenellus (Rambur)	5064	Trichoptera	ECNOMIDAE	Ecnomus	tenellus	(RAMBUR, 1842)	0	0	0	0	0	-2	0	0	0	0	1	0
Cymus flavidus McLachlan	4874	Trichoptera	POLYCENTROPODIDAE	Cymus	flavidus	McLACHLAN, 1864	0	-2	-2	-2	-2	0	0	0	0	0	0	0
Cymus trimaculatus (Curtis)	4877	Trichoptera	POLYCENTROPODIDAE	Cymus	trimaculatus	(CURTIS, 1834)	0	-2	-2	-1	-1	-1	-1	-1	-1	-1	1	1
Holocentropus piccomis (Stephens)	5488	Trichoptera	POLYCENTROPODIDAE	Holocentropus	piccomis	(STEPHENS, 1836)	0	0	0	0	0	0	0	0	0	0	0	-1
Neureclipsis bimaculata (L.)	6122	Trichoptera	POLYCENTROPODIDAE	Neureclipsis	bimaculata	(LINNAEUS, 1758)	0	-2	-2	-2	-2	-1	-1	-1	1	1	0	0
Plectrocnemia conspersa (Curtis)	6444	Trichoptera	POLYCENTROPODIDAE	Plectrocnemia	conspersa conspersa	(CURTIS, 1834)	0	0	0	0	0	2	2	2	0	0	0	0
Plectrocnemia geniculata McLachlan	6445	Trichoptera	POLYCENTROPODIDAE	Plectrocnemia	geniculata geniculata	McLACHLAN, 1871	2	0	0	0	0	0	0	0	0	0	0	0
Polycentropus flavomaculatus (Pictet)	6468	Trichoptera	POLYCENTROPODIDAE	Polycentropus	flavomaculatus	(PICTET, 1834)	-1	0	0	0	0	0	0	0	0	0	0	1
Polycentropus innotatus (Curtis)	6469	Trichoptera	POLYCENTROPODIDAE	Polycentropus	innotatus	(CURTIS, 1834)	0	-1	-1	0	0	0	0	0	1	1	1	1
Cheumatopsyche lepida (Pictet)	4639	Trichoptera	HYDROPSYCHIDAE	Cheumatopsyche	lepida	(PICTET, 1834)	0	0	0	0	1	0	0	0	2	2	2	2
Hydropsyche angustipennis (Curtis)	5588	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	angustipennis angustipennis	(CURTIS, 1834)	0	-2	-2	-1	-2	-1	-1	-1	-1	1	0	0
Hydropsyche contubernalis McLachlan	21231	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	contubernalis contubernalis	McLACHLAN, 1865	0	0	0	-2	0	0	0	0	0	0	0	0
Hydropsyche fulvipes (Curtis)	5605	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	sp.		0	0	0	0	0	-1	0	0	0	0	1	0
Hydropsyche instabilis (Curtis)	5598	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	instabilis	(CURTIS, 1834)	1	2	2	2	0	-1	0	0	0	0	0	0
Hydropsyche pellucidula (Curtis)	5601	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	pellucidula	(CURTIS, 1834)	0	0	0	0	0	0	0	0	0	0	0	1
Hydropsyche saxonica McLachlan	5602	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	saxonica	McLACHLAN, 1884	2	0	0	0	0	-1	-1	2	0	0	0	0
Hydropsyche sitalai Döhler	5604	Trichoptera	HYDROPSYCHIDAE	Hydropsyche	sitalai	DÖHLER, 1963	-1	0	0	0	0	-1	0	0	1	1	1	1
Agrypnia obsoleta group	8864	Trichoptera	PHRYGANEIDAE	Agrypnia	sp.		0	0	0	0	0	2	0	0	0	0	0	0
Phryganea sp.	6393	Trichoptera	PHRYGANEIDAE	Phryganea	sp.		0	-2	-2	0	-2	2	2	0	0	0	0	0
Brachycentrus subnubilus Curtis	4481	Trichoptera	BRACHYCENTRIDAE	Brachycentrus	subnubilus	CURTIS, 1834	0	0	0	1	2	2	2	2	2	2	2	2
Lepidostoma hirtum (Fabricius)	5723	Trichoptera	LEPIDOSTOMATIDAE	Lepidostoma	hirtum	(FABRICIUS, 1775)	2	0	0	1	1	2	1	2	1	1	1	2
Drusus annulatus (Stephens)	5001	Trichoptera	LIMNephilidae	Drusus	annulatus	(STEPHENS, 1837)	1	0	0	0	0	0	0	0	0	0	0	0
Ecdiisopteryx guttulata (Pictet)	5034	Trichoptera	LIMNephilidae	Ecdiisopteryx	guttulata	(PICTET, 1834)	2	0	0	0	0	0	0	0	0	0	0	0
Halesus sp.	5378	Trichoptera	LIMNephilidae	Halesus	sp.		2	0	0	0	0	1	1	1	1	1	1	1
Hydatophylax infumatus (McLachlan)	5499	Trichoptera	LIMNephilidae	Hydatophylax	infumatus	McLACHLAN, 1865	1	0	0	0	0	2	2	2	2	0	0	0
Melampophylax mucoreus (Hagen)	5956	Trichoptera	LIMNephilidae	Melampophylax	mucoreus	(HAGEN, 1861)	2	0	0	0	0	0	0	0	0	0	0	0
Anabolia nervosa (Curtis)	4300	Trichoptera	LIMNephilidae	Anabolia	nervosa	(CURTIS, 1834)	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
Glyptotaelius pellucidus (Retzius)	5318	Trichoptera	LIMNephilidae	Glyptotaelius	pellucidus	(RETZIUS, 1783)	2	1	1	0	-2	2	0	0	2	0	0	0
Limnephilus binotatus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus bipunctatus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus decipiens (Kolenati)	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus exdracatus McLachlan	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus flavicornis (Fabricius)	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus fuscicornis (Rambur)	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus lunatus Curtis	5837	Trichoptera	LIMNephilidae	Limnephilus	lunatus	CURTIS, 1834	0	-2	-2	-1	-2	0	0	0	0	0	0	-1
Limnephilus marmoratus Curtis	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	1	0	0	0	0	0	0
Limnephilus pollus McLachlan	5844	Trichoptera	LIMNephilidae	Limnephilus	sp.		0	0	0	0	0	0	1	0	0	0	0	0
Limnephilus rhombicus (L.)	5841	Trichoptera	LIMNephilidae	Limnephilus	rhombicus rhombicus	(LINNAEUS, 1758)	0	-2	-2	-1	-2	0	0	0	0	0	0	0

Taxon	ID	ART	TaxaGroup	Family	Genus	Species	Author	F105	F109	F1091	F1091_K	F1092	F111	F112	F114	F16	F115	F17	F1152
Limnephilus vittatus (Fabricius)	5844	Trichoptera	LIMNEPHILIDAE	Limnephilus	sp.			0	0	0	0	0	1	0	0	0	0	0	0
Goera pilosa (Fabricius)	5329	Trichoptera	GOERIDAE	Goera	pilosa		(FABRICIUS, 1775)	-2	0	0	0	1	-2	-2	0	0	-1		
Silo nigricornis (Pictet)	6833	Trichoptera	GOERIDAE	Silo	nigricornis		(PICTET, 1834)	0	1	0	0	0	0	0	2	2	0	0	
Silo pallipes (Fabricius)	6834	Trichoptera	GOERIDAE	Silo	pallipes		(FABRICIUS, 1781)	1	1	1	1	0	0	0	1	1	1	0	
Beraea pullata (Curtis)	4441	Trichoptera	BERAETIDAE	Beraea	pullata		(CURTIS, 1834)	0	0	0	0	0	1	2	0	0	0	0	
Beraea minutus (L.)	4444	Trichoptera	BERAETIDAE	Beraea	minutus		(LINNAEUS, 1761)	0	0	0	0	0	1	1	1	1	0	0	
Notidobia ciliaris (L.)	6134	Trichoptera	SERICOSTOMATIDAE	Notidobia	ciliaris		(LINNAEUS, 1761)	0	0	0	0	0	0	0	0	0	1	1	-1
Sericostoma personatum (Spence)	6817	Trichoptera	SERICOSTOMATIDAE	Sericostoma	personatum		KIRBY & SPENCER, 1826	0	0	0	0	1	0	0	0	0	0	0	0
Odonocerum albicornis (Scopoli)	6168	Trichoptera	ODONOCERIDAE	Odonocerum	albicornis		(SCOPOLI, 1763)	2	1	1	0	0	0	0	2	2	0	0	
Molania angustata Curtis	6045	Trichoptera	MOLANIIDAE	Molania	angustata		CURTIS, 1834	0	-2	0	0	-2	-1	0	0	-2	-1		
Athripsodes albifrons (L.)	4366	Trichoptera	LEPTOCERIDAE	Athripsodes	albifrons		(LINNAEUS, 1758)	2	0	0	0	1	0	0	1	2	2	0	
Athripsodes aterrimus (Stephens)	4367	Trichoptera	LEPTOCERIDAE	Athripsodes	aterrimus		(STEPHENS, 1836)	0	-2	-2	-2	-2	-1	-1	0	0	-1		
Athripsodes bilineatus (L.)	4368	Trichoptera	LEPTOCERIDAE	Athripsodes	bilineatus	bilineatus	(LINNAEUS, 1758)	2	0	0	0	0	0	0	1	0	0	1	
Athripsodes cinereus (Curtis)	4369	Trichoptera	LEPTOCERIDAE	Athripsodes	cinereus		(CURTIS, 1834)	0	-1	0	-1	1	-1	-2	0	0	0	1	
Athripsodes commutatus (Rostock)	4370	Trichoptera	LEPTOCERIDAE	Athripsodes	commutatus		(ROSTOCK, 1874)	0	2	2	0	0	0	0	0	0	0	0	0
Ceraclea albimaculata (Rambur)	4577	Trichoptera	LEPTOCERIDAE	Ceraclea	albimaculata		(RAMBUR, 1877)	0	0	0	-1	0	0	0	0	0	0	0	2
Ceraclea annulicornis (Stephens)	4579	Trichoptera	LEPTOCERIDAE	Ceraclea	annulicornis		(STEPHENS, 1836)	0	0	0	0	0	1	0	0	0	2	2	
Ceraclea dissimilis (Stephens)	4580	Trichoptera	LEPTOCERIDAE	Ceraclea	dissimilis		(STEPHENS, 1836)	0	-2	-2	-1	-1	0	0	0	0	2	1	
Ceraclea fulva (Rambur)	4581	Trichoptera	LEPTOCERIDAE	Ceraclea	fulva		(RAMBUR, 1842)	0	0	0	0	0	0	0	0	0	2	1	
Ceraclea nigronervosa (Retzius)	4582	Trichoptera	LEPTOCERIDAE	Ceraclea	nigronervosa		(RETZIUS, 1783)	0	-2	-2	0	-1	0	0	1	2	2		
Ceraclea senilis (Burmeister)	4583	Trichoptera	LEPTOCERIDAE	Ceraclea	senilis		(BURMEISTER, 1839)	0	0	0	0	0	0	0	0	2	1		
Mystacides azurea (L.)	6062	Trichoptera	LEPTOCERIDAE	Mystacides	azurea		(LINNAEUS, 1761)	-2	-2	-2	-2	-2	-1	-1	-1	-2	0	0	
Mystacides longicornis (L.)	6063	Trichoptera	LEPTOCERIDAE	Mystacides	longicornis		(LINNAEUS, 1758)	-2	-2	-2	-1	-2	0	0	0	0	0	-2	
Mystacides nigra (L.)	6064	Trichoptera	LEPTOCERIDAE	Mystacides	nigra		(LINNAEUS, 1758)	-2	-2	-2	-2	-2	0	0	0	0	0	0	
Adicella reducta (McLachlan)	4212	Trichoptera	LEPTOCERIDAE	Adicella	reducta		(MCLACHLAN, 1865)	0	2	2	0	0	0	0	2	1	0	0	
Trianoes bicolor (Curtis)	7088	Trichoptera	TRIANOESIDAE	Trianoes	bicolor		(CURTIS, 1834)	0	0	0	0	0	0	0	0	0	1	-1	
Ylodes simulans (Tjeder)	8150	Trichoptera	LEPTOCERIDAE	Ylodes	simulans		(TJEDER, 1929)	0	0	0	0	0	0	0	1	2	2	0	
Oecetis lacustris (Pictet)	6171	Trichoptera	LEPTOCERIDAE	Oecetis	lacustris		(PICTET, 1834)	0	-2	-2	-2	-2	1	0	0	0	0	0	
Oecetis notata (Rambur)	6172	Trichoptera	LEPTOCERIDAE	Oecetis	notata		(RAMBUR, 1842)	0	1	1	0	1	0	0	0	0	2	1	
Oecetis ochracea (Curtis)	6173	Trichoptera	LEPTOCERIDAE	Oecetis	ochracea		(CURTIS, 1825)	0	-2	-2	0	-2	0	0	0	0	0	0	
Oecetis testacea (Curtis)	6175	Trichoptera	LEPTOCERIDAE	Oecetis	testacea		(CURTIS, 1834)	0	2	2	0	2	1	1	1	2	2	0	
Ceratopogonidae	4585	Diptera	CERATOPOGONIDAE	Ceratopogonidae	Gen. sp.			0	0	0	0	0	0	0	0	0	0	-1	
Stratiomyidae	8761	Diptera	STRATIOMYIDAE	Stratiomyidae	Gen. sp.			0	0	0	0	0	0	-1	0	0	0	0	
Tabanidae	8485	Diptera	TABANIDAE	Tabanidae	Gen. sp.			2	0	0	0	0	0	0	0	0	0	1	0
Athericidae	7750	Diptera	ATHERICIDAE	Athericidae	Gen. sp.			0	1	1	0	1	0	0	0	0	0	0	0

Appendix XI (continued) – SPEAR (fam) (TL2)

Taxon	SPEAR
Planariidae	0
Dugesidae	0
Dendrocoelidae	0
Neritidae	0
Viviparidae	0
Valvatidae	0
Hydrobiidae	0
Bithyniidae	0
Physidae	0
Lymnaeidae	0
Planorbidae	0
Ancylidae	0
Acroloxidae	0
Unionidae	0
Sphaeriidae	0
Dreissenidae	0
Oligochaeta	0
Pisicidae	0
Glossiphoniidae	0
Hirudinidae	0
Erpobdellidae	0
Astacidae	0
Asellidae	0
Corophiidae	0
Crangonyctidae	0
Gammaridae	0
Niphargidae	1
Baetidae	1
Heptageniidae	1
Siphonuridae (incl. Ameletidae)	1
Leptophlebiidae	1
Potamanthidae	1
Ephemeridae	1
Ephemerellidae	1
Caenidae	1
Taeniopterygidae	1
Nemouridae	1
Leuctridae	1
Capniidae	1
Perlodidae	1
Perlidae	1
Chloroperlidae	1
Platycnemididae	0
Coenagrionidae	1
Calopterygidae	1
Cordulegasteridae	0
Aeshnidae	0
Libellulidae	0
Mesovelidae	0
Hydrometridae	0
Veliidae	0
Gerridae	0
Nepidae	0
Naucoridae	0
Aphelocheiridae	0
Notonectidae	0
Corixidae	0
Halplidae	0
Noteridae	0
Dytiscidae	0
Gyrinidae	0
Hydrophilidae (incl. Helophoridae, Georissidae & Hydrochidae)	0
Hydraenidae	0
Scirtidae	0
Dryopidae	0
Elmidae	0
Sialidae	1
Sisyridae	1

Taxon	SPEAR
Rhyacophilidae	1
Glossosomatidae	1
Hydroptilidae	1
Philopotamidae	1
Psychomyiidae	1
Polycentropodidae	1
Hydropsychidae	0
Phryganeidae	1
Brachycentridae	1
Lepidostomatidae	1
Goeridae	1
Beraeidae	1
Sericostomatidae	1
Odontoceridae	1
Molannidae	1
Limnephilidae (incl. Apataniidae)	1
Leptoceridae	1
Tipulidae (incl. Limoniidae, Cylindrotomidae & Pediciidae)	0
Psychodidae	0
Ptychopterae	1
Dixidae	1
Chaoboridae	1
Culicidae	0
Ceratopogonidae	0
Simuliidae	0
Chironomidae	0
Stratiomyidae	0
Tabanidae	0
Athericidae	1
Empididae	1
Dolichopodidae	1
Syrphidae	0
Sciomyzidae	1
Muscidae	1

Appendix XI (continued) – SPEAR (sp) (TL4)

Taxon	SPEAR
Planaria torva (Muller)	0
Polycelis felina (Dalyell)	0
Polycelis nigra group	0
Phagocata vitta (Duges)	0
Crenobia alpina (Dana)	0
Dugesia tigrina (Girard)	0
Dugesia polychroa group	0
Bdellocephala punctata (Pallas)	0
Dendrocoelum lacteum (Muller)	0
Theodoxus fluviatilis (L.)	0
Viviparus viviparus (L.)	0
Valvata cristata Muller	0
Valvata macrostoma Morch	0
Valvata piscinalis (Muller)	0
Potamopyrgus jenkinsi (Smith)	0
Bithynia leachii (Sheppard)	0
Bithynia tentaculata (L.)	0
Aplexa hypnorum (L.)	0
Physa fontinalis (L.)	0
Physa acuta group	0
Lymnaea auricularia (L.)	0
Lymnaea palustris (Muller)	0
Lymnaea peregra (Muller)	0
Lymnaea stagnalis (L.)	0
Lymnaea truncatula (Muller)	0
Planorbis carinatus Muller	0
Planorbis planorbis (L.)	0
Anisus leucostoma (Millet)	0
Anisus vortex (L.)	0
Bathymphalus contortus (L.)	0
Gyraulus albus (Muller)	0
Gyraulus laevis (Alder)	0
Armiger crista (L.)	0
Hippeutis complanatus (L.)	0
Segmentina nitida Muller	0
Planorbis cornutus (L.)	0
Ancylus fluviatilis Muller	0
Acroloxus lacustris (L.)	0
Unio sp.	0
Anodonta group	0
Sphaerium comeum (L.)	0
Sphaerium lacustre (Muller)	0
Sphaerium rivicola (Lamarck)	0
Sphaerium transversum (Say)	0
Pisidium amnicum (Muller)	0
Pisidium casertanum (Poli)	0
Pisidium henslowianum (Sheppard)	0
Pisidium hibemicum Westerlund	0
Pisidium liljeborgii Clessin	0
Pisidium milium Held	0
Pisidium moitessierianum Paladilhe	0
Pisidium nitidum Jenyns	0
Pisidium obtusale (Lamarck)	0
Pisidium personatum Malm	0
Pisidium pulchellum Jenyns	0
Pisidium subbruncatum Malm	0
Pisidium supinum Schmidt	0
Pisidium tenuilineatum Stelfox	0
Dreissena polymorpha (Pallas)	0
Aeolosoma sp.	0
Stylodrilus brachystylus Hrahe	0
Stylodrilus heringianus Claparede	0
Stylodrilus lemami (Grube)	0
Eclidrilus lacustris (Verrill)	0
Lumbriculus group	0
Haplotaxis gordioides (Hartmann)	0
Chaetogaster sp.	0
Specaria josinae (Vejdovsky)	0

Taxon	SPEAR
Uncinatis uncinata (Orsted)	0
Ophidonais serpentina (Muller)	0
Nais alpina Sperber	0
Nais bretscheri Michaelsen	0
Nais elinguis Muller	0
Nais pardalis Pigué	0
Nais communis group	0
Nais simplex group	0
Slavina appendiculata (d'Udekem)	0
Vejdovskya comata (Vejdovsky)	0
Vejdovskya intermedia (Bretscher)	0
Ripistes parasita (Schmidt)	0
Stylaria lacustris (L.)	0
Piguétiella blanci (Pigué)	0
Dero digitata (Muller)	0
Pristina aequisetata Bourne	0
Pristina longiseta Ehrenberg	0
Pristina idrensensis group	0
Tubifex ignotus (Stolc)	0
Tubifex tubifex (Muller)	0
Limnodrilus cervix Brinkhurst	0
Limnodrilus claparedeianus Ratzel	0
Limnodrilus hoffmeisteri Claparede	0
Limnodrilus profundicola (Verrill)	0
Limnodrilus udekemianus Claparede	0
Psammoryctides albicola (Michaelsen)	0
Psammoryctides barbatus (Grube)	0
Potamothenis bavaricus (Oschmann)	0
Potamothenis hammoniensis (Michaelsen)	0
Potamothenis heuscheri Bretscher	0
Potamothenis moldaviensis (Vejdovsky & Mrazek)	0
Potamothenis vejovskyi (Hrahe)	0
Ilyodrilus templetoni (Southern)	0
Spirosperma ferox (Eisen)	0
Spirosperma velutinus (Grube)	0
Haber simsi (Brinkhurst)	0
Aulodrilus limnobioides Bretscher	0
Aulodrilus plurisetata (Pigué)	0
Rhyacodrilus coccineus (Vejdovsky)	0
Rhyacodrilus falciformis Bretscher	0
Branchiura sowerbyi Beddard	0
Thalassodrilus prostatus (Knöllner)	0
Enchytraeidae (incl. Propappidae)	0
Lumbricidae (incl. Glossoscolecidae)	0
Piscicola geometra (L.)	0
Theromyzon tessulatum (Muller)	0
Hemiclepsis marginata (Muller)	0
Glossiphonia complanata (L.)	0
Glossiphonia heteroclitata (L.)	0
Batrachobdella paludosa (Carena)	0
Boreobdella verrucata (Muller)	0
Helobdella stagnalis (L.)	0
Haemopsis sanguisuga (L.)	0
Erbobdella octoculata (L.)	0
Erbobdella testacea (Savigny)	0
Trocheta subviridis Dutrochet	0
Hydracarina	1
Asellus aquaticus (L.)	1
Asellus meridianus Racovitza	0
Corophium sp.	0
Crangonyx pseudogracilis Bousfield	0
Gammarus duebeni Liljeborg	0
Gammarus lacustris Sars	1
Gammarus pulex (L.)	0
Gammarus tigrinus Sexton	0
Gammarus zaddachi Sexton	1
Niphargus aquilex Schiodte	1
Siphonurus lacustris Eaton	1

Taxon	SPEAR
Ameletus inopinatus Eaton	1
Baetis atrebatinus Eaton	1
Baetis buceratus Eaton	1
Baetis digitatus Bengtsson	1
Baetis muticus (L.)	1
Baetis niger (L.)	1
Baetis rhodani (Pictet)	1
Baetis vernus Curtis	1
Baetis scambus group	1
Centroptilum luteolum (Muller)	1
Centroptilum pennulatum Eaton	1
Cloeon dipterum (L.)	1
Cloeon simile Eaton	1
Proclleon bifidum Bengtsson	1
Rhithrogena sp.	1
Heptagenia fuscogrisea (Retzius)	1
Heptagenia lateralis (Curtis)	1
Heptagenia sulphurea (Muller)	1
Ecdyonurus sp.	1
Leptophlebia marginata (L.)	1
Leptophlebia vespertina (L.)	1
Paraleptophlebia clincta (Retzius)	1
Paraleptophlebia submarginata (Stephens)	1
Paraleptophlebia wernerii Ulmer	1
Habroplebia fusca (Curtis)	1
Potamanthus luteus (L.)	1
Ephemera danica Muller	1
Ephemera lineata Eaton	1
Ephemera vulgata L.	1
Ephemerella ignita (Poda)	1
Ephemerella notata Eaton	1
Brachycercus harrisiella Curtis	1
Caenis horaria (L.)	1
Caenis rivulorum Eaton	1
Caenis robusta Eaton	1
Caenis pusilla Navas	1
Caenis pseudorivulorum group	1
Caenis luctuosa group	1
Taeniopteryx nebulosa (L.)	1
Brachyptera putata (Newman)	1
Brachyptera risi (Morton)	1
Protonemura meyeri (Pictet)	1
Protonemura montana Kimmins	1
Protonemura praecox (Morton)	1
Amphinemura standfussi Ris	1
Amphinemura sulcirostris (Stephens)	1
Nemurella picteti Klapalek	1
Nemoura avicularis Morton	1
Nemoura cinerea (Retzius)	1
Nemoura cambria group	1
Leuctra fusca (L.)	1
Leuctra geniculata (Stephens)	1
Leuctra hippopus (Kempny)	1
Leuctra inermis Kempny	1
Leuctra moselyi Morton	1
Leuctra nigra (Olivier)	1
Capnia atra Morton	1
Capnia bifrons (Newman)	1
Perlodes microcephala (Pictet)	1
Diura bicaudata (L.)	1
Isoperla grammica (Poda)	1
Dinocras cephalotes (Curtis)	1
Perla bipunctata Pictet	1
Chloroperla torrentium (Pictet)	1
Chloroperla tripunctata (Scopoli)	1
Platycnemis pennipes (Pallas)	0
Pyrhosoma nymphula (Sulzer)	1
Ischnura elegans (Van der Linden)	1
Enallagma cyathigerum (Charpentier)	1
Coenagrion puella group	1

Taxon	SPEAR
Erythromma najas (Hansemann)	1
Calopteryx splendens (Harris)	1
Calopteryx virgo (L.)	1
Gomphus vulgatissimus (L.)	0
Cordulegaster boltonii (Donovan)	0
Brachytron pratense (Muller)	0
Aeshna sp.	0
Orthetrum sp.	0
Sympetrum sp.	0
Mesovelia furcata Mulsant & Rey	0
Hydrometra stagnorum (L.)	0
Velia sp.	0
Gerris argentatus Schummel	0
Gerris lacustris (L.)	0
Gerris odontogaster (Zetterstedt)	0
Gerris thoracicus Schummel	0
Gerris najas (Degeer)	0
Nepa cinerea L.	0
Ilyocoris cimicoides (L.)	0
Aphelocheilus aestivalis (Fabricius)	0
Notonecta glauca L.	0
Notonecta maculata Fabricius	0
Notonecta obliqua Gallen	0
Micronecta sp.	0
Cymatia coleoprata (Fabricius)	0
Callicorixa praeusta (Fieber)	0
Callicorixa wollastoni (Douglas & Scott)	0
Corixa affinis Leach	0
Corixa dentipes (Thomson)	0
Corixa panzeri (Fieber)	0
Corixa punctata (Illiger)	0
Hesperocorixa linnei (Fieber)	0
Hesperocorixa sahlbergi (Fieber)	0
Sigara (Sigara) sp.	0
Sigara distincta (Fieber)	0
Sigara falleni (Fieber)	0
Sigara fossarum (Leach)	0
Sigara scotti (Fieber)	0
Sigara lateralis (Leach)	0
Sigara nigrolineata (Fieber)	0
Sigara semistriata (Fieber)	0
Sigara venusta (Douglas & Scott)	0
Brychius elevatus (Panzer)	0
Haliplus confinis Stephens	0
Haliplus flavicollis Sturm	0
Haliplus fluvialis Aube	0
Haliplus heydeni Wehncke	0
Haliplus immaculatus Gerhardt	0
Haliplus laminatus Schaller	0
Haliplus lineatocollis (Marsham)	0
Haliplus lineolatus Mannerhelm	0
Haliplus ruficollis (Degeer)	0
Haliplus wehnckei (Gerhardt)	0
Noterus clavicornis (Degeer)	0
Laccophilus hyalinus (Degeer)	0
Laccophilus minutus (L.)	0
Hyphidrus ovatus (L.)	0
Hygrotus inaequalis (Fabricius)	0
Hygrotus versicolor (Schaller)	0
Hydroporus angustatus Sturm	0
Hydroporus discretus Fairmaire & Brisout	0
Hydroporus ferrugineus Stephens	0
Hydroporus memorialis Nicolai	0
Hydroporus nigrita (Fabricius)	0
Hydroporus obscurus Sturm	0
Hydroporus palustris (L.)	0
Hydroporus planus (Fabricius)	0
Hydroporus pubescens (Gyllenhal)	0
Hydroporus tessellatus Drapiez	0
Stictonectes lepidus (Olivier)	0

Taxon	SPEAR
Graptodytes pictus (Fabricius)	0
Porhydrus lineatus (Fabricius)	0
Deronectes latus (Stephens)	0
Potamonectes assimilis (Paykull)	0
Potamonectes depressus (Fabricius)	0
Stictotarsus duodecimpustulatus (Fabricius)	0
Oreodytes sanmarkii (Sahlberg)	0
Oreodytes septentrionalis (Sahlberg)	0
Scarodytes halensis (Fabricius)	0
Platambus maculatus (L.)	0
Agabus bipustulatus (L.)	0
Agabus chalconatus (Panzer)	0
Agabus didymus (Olivier)	0
Agabus guttatus (Paykull)	0
Agabus paludosus (Fabricius)	0
Agabus sturmi (Gyllenhal)	0
Ilybius sp.	0
Colymbetes fuscus (L.)	0
Acilius sulcatus (L.)	0
Dytiscus marginalis L.	0
Dytiscus semisulcatus Muller	0
Gyrinus aeratus Stephens	0
Gyrinus distinctus Aube	0
Gyrinus marinus Gyllenhal	0
Gyrinus natator group	0
Gyrinus urinator Illiger	0
Orectochilus villosus (Muller)	0
Hydrochus angustatus Germar	0
Helophorus aequalis Thomson	0
Helophorus grandis Illiger	0
Helophorus arvensis Mulsant	0
Helophorus brevipalpis Bedel	0
Helophorus flavipes Fabricius	0
Helophorus minutus Fabricius	0
Helophorus obscurus Mulsant	0
Helophorus strigifrons Thomson	0
Paracymus scutellaris (Rosenhauer)	0
Hydrobius fuscipes (L.)	0
Anacaena bipustulata (Marsham)	0
Anacaena globulus (Paykull)	0
Anacaena limbata (Fabricius)	0
Anacaena lutescens (Stephens)	0
Laccobius biguttatus Gerhardt	0
Laccobius minutus (L.)	0
Laccobius atratus Rottenburg	0
Laccobius atrocephalus Reitter	0
Laccobius sinuatus Motschulsky	0
Laccobius striatulus (Fabricius)	0
Enochrus testaceus (Fabricius)	0
Ochthebius bicolon Germar	0
Ochthebius dilatatus Stephens	0
Ochthebius exsculptus Germar	0
Ochthebius minimus (Fabricius)	0
Hydraena gracilis Germar	0
Hydraena nigrita Germar	0
Hydraena pulchella Germar	0
Hydraena riparia Kugelann	0
Hydraena rufipes Curtis	0
Hydraena testacea Curtis	0
Limnebius nitidus (Marsham)	0
Limnebius truncatellus (Thunberg)	0
Elodes sp.	0
Cyphon sp.	0
Prionocyphon serricornis (Muller)	0
Hydrocyphon deflexicollis (Muller)	0
Helichus substriatus (Muller)	0
Dryops sp.	0
Elmis aenea (Muller)	0
Esolus parallelepipedus (Muller)	0
Limnius volckmari (Panzer)	0

Taxon	SPEAR
Macronychus quadrituberculatus Muller	0
Normandia nitens (Muller)	0
Oulimnius major (Rey)	0
Oulimnius rivularis (Rosenhauer)	0
Oulimnius troglodytes (Gyllenhal)	0
Oulimnius tuberculatus (Muller)	0
Riolus cupreus (Muller)	0
Riolus subviolaceus (Muller)	0
Sialis fuliginosa Pictet	1
Sialis lutaria (L.)	1
Sialis nigripes Pictet	1
Sisyra sp.	1
Rhyacophila dorsalis (Curtis)	1
Rhyacophila munda Mclachlan	1
Rhyacophila oblitterata Mclachlan	1
Rhyacophila septentrionis Mclachlan	1
Glossosoma sp.	1
Agapetus sp.	1
Agraylea multipunctata Curtis	1
Agraylea sexmaculata Curtis	1
Allotrichia pallicornis (Eaton)	1
Hydroptila sp.	1
Oxyethira sp.	1
Ithytrichia sp.	1
Philopotamus montanus (Donovan)	1
Wormaldia sp.	1
Chimarra marginata (L.)	1
Lype sp.	1
Metalype fragilis (Pictet)	1
Psychomyia pusilla (Fabricius)	1
Tinodes dives (Pictet)	1
Tinodes unicolor (Pictet)	1
Tinodes waeneri (L.)	1
Ecnomus tenellus (Rambur)	1
Cyrnus flavidus Mclachlan	1
Cyrnus trimaculatus (Curtis)	1
Holocentropus picicornis (Stephens)	1
Neureclipsis bimaculata (L.)	1
Plectrocnemia conspersa (Curtis)	1
Plectrocnemia geniculata Mclachlan	1
Polycentropus flavomaculatus (Pictet)	1
Polycentropus irroratus (Curtis)	1
Polycentropus kingi Mclachlan	1
Cheumatopsyche lepida (Pictet)	0
Hydropsyche angustipennis (Curtis)	0
Hydropsyche contubernalis Mclachlan	0
Hydropsyche fulvipes (Curtis)	0
Hydropsyche instabilis (Curtis)	0
Hydropsyche pellucidula (Curtis)	0
Hydropsyche saxonica Mclachlan	0
Hydropsyche sitalai Dohler	0
Diplectrona felix Mclachlan	0
Agrypnia obsoleta group	1
Phryganea sp.	1
Brachycentrus subnubilus Curtis	1
Crunoecia irrorata (Curtis)	1
Lasiocephala basalis (Kolenati)	1
Lepidostoma hirtum (Fabricius)	1
Apatania muliebris Mclachlan	1
Drusus annulatus (Stephens)	1
Ecclosopteryx guttulata (Pictet)	1
Halesus sp.	1
Hydatophylax infumatus (Mclachlan)	1
Melampophylax mucoreus (Hagen)	1
Anabolia nervosa (Curtis)	0
Glyptotaelius pellucidus (Retzius)	1
Limnephilus binotatus Curtis	1
Limnephilus bipunctatus Curtis	1
Limnephilus decipiens (Kolenati)	1
Limnephilus extricatus Mclachlan	1

Taxon	SPEAR
<i>Limnephilus flavicornis</i> (Fabricius)	1
<i>Limnephilus fuscicornis</i> (Rambur)	1
<i>Limnephilus lunatus</i> Curtis	1
<i>Limnephilus marmoratus</i> Curtis	1
<i>Limnephilus politus</i> McLachlan	1
<i>Limnephilus rhombicus</i> (L.)	1
<i>Limnephilus vittatus</i> (Fabricius)	1
Micropterna group	0
Potamophylax group	1
<i>Goera pilosa</i> (Fabricius)	1
<i>Silo nigricornis</i> (Pictet)	1
<i>Silo pallipes</i> (Fabricius)	1
<i>Beraea maurus</i> (Curtis)	1
<i>Beraea pullata</i> (Curtis)	1
<i>Beraeodes minutus</i> (L.)	1
<i>Notidobia ciliaris</i> (L.)	1
<i>Sericostoma personatum</i> (Spence)	1
<i>Odontocerum albicorne</i> (Scopoli)	1
<i>Molanna angustata</i> Curtis	1
<i>Athripsodes albifrons</i> (L.)	1
<i>Athripsodes aterrimus</i> (Stephens)	1
<i>Athripsodes bilineatus</i> (L.)	1
<i>Athripsodes cinereus</i> (Curtis)	1
<i>Athripsodes commutatus</i> (Rostock)	1
<i>Ceraclea albimacuta</i> (Rambur)	1
<i>Ceraclea annulicornis</i> (Stephens)	1
<i>Ceraclea dissimilis</i> (Stephens)	1
<i>Ceraclea fulva</i> (Rambur)	1
<i>Ceraclea nigronervosa</i> (Retzius)	1
<i>Ceraclea senilis</i> (Burmeister)	1
<i>Leptocerus lusitanicus</i> (McLachlan)	1
<i>Mystacides azurea</i> (L.)	1
<i>Mystacides longicornis</i> (L.)	1
<i>Mystacides nigra</i> (L.)	1
<i>Adicella reducta</i> (McLachlan)	1
<i>Triaenodes bicolor</i> (Curtis)	1
<i>Oecetis lacustris</i> (Pictet)	1
<i>Oecetis notata</i> (Rambur)	1
<i>Oecetis ochracea</i> (Curtis)	1
<i>Oecetis testacea</i> (Curtis)	1
<i>Parapopynx</i> sp.	1
<i>Dolichopeza albipes</i> (Stroem)	0
<i>Tipula rufina</i> Meigen	0
<i>Tipula signata</i> group	0
<i>Tipula unca</i> Wiedemann	0
<i>Tipula solstitialis</i> Westhoff	0
<i>Tipula montium</i> group	0
<i>Tipula oleracea</i> L.	0
<i>Tipula paludosa</i> Meigen	0
<i>Tipula maxima</i> Poda	0
<i>Tipula vittata</i> Meigen	0
<i>Nephrotoma</i> sp.	0
<i>Limonia</i> sp.	1
<i>Antocha vitripennis</i> (Meigen)	1
<i>Thaumastoptera calceata</i> Mik	1
<i>Helius</i> sp.	1
Gonempeda group	1
<i>Dicranota</i> sp.	0
<i>Austrolimnophila ochracea</i> (Meigen)	1
<i>Pseudolimnophila</i> sp.	1
<i>Limnophila</i> (Eloeophila) sp.	1
<i>Limnophila</i> (Phylidorea) sp.	1
<i>Limnophila</i> (Euphytidorea) sp.	1
<i>Limnophila</i> (Limnophila) sp.	1
<i>Pilaria</i> (Neolimnomyia) sp.	1
<i>Pilaria</i> (Pilaria) sp.	1
<i>Hexatoma</i> sp.	1
<i>Lipsothrix</i> sp.	1
<i>Erioptera</i> sp.	1
<i>Ormosia</i> sp.	1

Taxon	SPEAR
<i>Scleroprocta</i> sp.	1
<i>Molophilus</i> sp.	1
<i>Rhypholophus</i> sp.	1
<i>Pericoma blandula</i> Eaton	0
<i>Pericoma calcilega</i> Feuerborn	0
<i>Pericoma canescens</i> (Meigen)	0
<i>Pericoma cognata</i> Eaton	0
<i>Pericoma diversa</i> Tonnoir	0
<i>Pericoma exquisita</i> Eaton	0
<i>Pericoma fallax</i> Eaton	0
<i>Pericoma fuliginosa</i> (Meigen)	0
<i>Pericoma neglecta</i> Eaton	0
<i>Pericoma pseudosexquisita</i> Tonnoir	0
<i>Pericoma pulchra</i> Eaton	0
<i>Pericoma trifasciata</i> (Meigen)	0
<i>Pericoma trivialis</i> group	0
<i>Peripsychoda fusca</i> (Macquart)	0
<i>Psychoda alternata</i> Say	0
<i>Psychoda gemina</i> Eaton	0
<i>Psychoda phalaenoides</i> (L.)	0
<i>Psychoda severini</i> Tonnoir	0
<i>Psychoda surcoufi</i> Tonnoir	0
<i>Ptychoptera</i> sp.	1
<i>Dixa dilatata</i> Strobl	1
<i>Dixa nebulosa</i> Meigen	1
<i>Dixa puberula</i> Loew	1
<i>Dixa maculata</i> complex	1
<i>Dixella filicornis</i> Edwards	1
<i>Chaoborus flavicans</i> (Meigen)	1
<i>Anopheles</i> sp.	0
Ceratopogonidae	0
<i>Prosimulium hirtipes</i> (Fries)	0
<i>Prosimulium latimicro</i> (Enderlein)	0
<i>Prosimulium tomosvaryi</i> (Enderlein)	0
<i>Simulium latipes</i> (Meigen)	0
<i>Simulium costatum</i> Friederichs	0
<i>Simulium angustitarse</i> group	0
<i>Simulium cryophilum</i> group	0
<i>Simulium vernum</i> group	0
<i>Simulium aureum</i> group	0
<i>Simulium</i> (Wilhelmia) sp.	0
<i>Simulium erythrocephalum</i> (de Geer)	0
<i>Simulium rostratum</i> Lundström	0
<i>Simulium morsitans</i> Edwards	0
<i>Simulium noelleri</i> Friederichs	0
<i>Simulium posticatum</i> Meigen	0
<i>Simulium reptans</i> (L.)	0
<i>Simulium argyreatum</i> group	0
<i>Simulium ornatum</i> group	0
<i>Simulium tuberosum</i> (Lundström)	0
<i>Clinotanypus nervosus</i> (Meigen)	0
<i>Apsectrotanypus trifascipennis</i> (Zetterstedt)	0
<i>Macropelopia</i> sp.	0
<i>Procladius</i> sp.	0
<i>Psectrotanypus varius</i> (Fabricius)	0
<i>Ablabesmyia</i> sp.	0
<i>Thienemannimyia</i> group	0
<i>Zavrelimyia</i> group	0
<i>Krenopelopia</i> sp.	0
<i>Larsia curticalcar</i> (Kieffer)	0
<i>Monopelopia tenuicalcar</i> (Kieffer)	0
<i>Natarsia</i> sp.	0
<i>Nilotanypus dubius</i> (Meigen)	0
<i>Trissopelopia longimana</i> (Staeger)	0
<i>Xenopelopia</i> sp.	0
<i>Tanypus</i> sp.	0
<i>Diamesa</i> sp.	0
<i>Potthastia gaedii</i> group	0
<i>Potthastia longimana</i> group	0
<i>Pseudodiamesa</i> sp.	0

Taxon	SPEAR
Symphothastia sp.	0
Odontomesa fulva (Kieffer)	0
Prodiamesa olivacea (Meigen)	0
Acricotopus lucens (Zetterstedt)	0
Brillia longifurca Kieffer	0
Brillia modesta (Meigen)	0
Cardiocladius sp.	0
Diplocladius cultriger Kieffer	0
Eukiefferiella group	0
Cricotopus group	0
Eurycnemus crassipes (Panzer)	0
Heterotanytarsus apicalis (Kieffer)	0
Heterotrissocladius sp.	0
Hydrobaenus sp.?	0
Nanocladius sp.	0
Orthocladius lignicola (Kieffer)	0
Paracladius conversus (Walker)	0
Psectrocladius sp.	0
Rheocricotopus sp.	0
Synorthocladius semivirens (Kieffer)	0
Bryophaenocladius sp.	0
Chaetocladius sp.	0
Corynoneura sp.	0
Epicodadius flavens (Malloch)	0
Gymnometricnemus sp.	0
Heleniella ornaticollis (Edwards)	0
Krenosmittia sp.	0
Limnophyes sp.	0
Metricnemus sp.	0
Parakiefferiella sp.	0
Parametricnemus boreoalpinus Gowin	0
Parametricnemus stylatus (Kieffer)	0
Paraphaenocladius sp.	0
Parasmittia carinata Strenzke	0
Paratrissocladius excerptus (Walker)	0
Pseudorthocladius sp.	0
Pseudosmittia sp.	0
Smittia sp.	0
Thienemannia gracilis Kieffer	0
Thienemanniella sp.	0
Chironomus sp.	0
Cladopelma sp.	0
Cryptochironomus sp.	0
Cryptotendipes sp.	0
Demicrochironomus vulneratus (Zetterstedt)	0
Dicrotendipes sp.	0
Glyptotendipes sp.	0
Harnischia sp.	0
Kiefferulus tendipediformis (Goetghebuer)	0
Microtendipes sp.	0
Endochironomus group	0
Einfeldia group	0
Nilothauma brayi (Goetghebuer)	0
Parachironomus sp.	0
Paracladopelma sp.	0
Paralauterborniella nigrohalteralis (Malloch)	0
Paratendipes sp.	0
Phaenopsectra sp.	0
Polypedilum sp.	0
Stenochironomus sp.	0
Stictochironomus sp.	0
Xenochironomus xenolabis (Kieffer)	0
Cladotanytarsus sp.	0
Neozavrelia sp.	0
Stempellina bausei (Kieffer)	0
Microsectra group	0
Paratanytarsus group	0
Stempellinella group	0
Nemotelus sp.	0
Oxycera sp.	0

Taxon	SPEAR
Odontomyia sp.	0
Atherix ibis (Fabricius)	1
Atherix marginata (Fabricius)	1
Atrichops crassipes (Meigen)	1
Chrysops sp.	0
Tabanus group	0
Chelifera group	1
Hemerodromia group	1
Dolichopodidae	1
Clinocerinae	1
Syrphidae	0
Sciomyzidae	1
Limnophora sp.	1

Appendix XI (continued) – SPEAR (sp) (TL5)

Taxon	SPEAR
Planaria torva (Muller)	0
Polycelis felina (Dalyell)	0
Polycelis nigra group	0
Phagocata vitta (Duges)	0
Crenobia alpina (Dana)	0
Dugesia tigrina (Girard)	0
Dugesia polychroa group	0
Bdellocephala punctata (Pallas)	0
Dendrocoelum lacteum (Muller)	0
Theodoxus fluviatilis (L.)	0
Viviparus viviparus (L.)	0
Valvata cristata Muller	0
Valvata macrostoma Morch	0
Valvata piscinalis (Muller)	0
Potamopyrgus jenkinsi (Smith)	0
Bithynia leachii (Sheppard)	0
Bithynia tentaculata (L.)	0
Aplexa hypnorum (L.)	0
Physa fontinalis (L.)	0
Physa acuta group	0
Lymnaea auricularia (L.)	0
Lymnaea palustris (Muller)	0
Lymnaea peregra (Muller)	0
Lymnaea stagnalis (L.)	0
Lymnaea truncatula (Muller)	0
Planorbis carinatus Muller	0
Planorbis planorbis (L.)	0
Anisus leucostoma (Millett)	0
Anisus vortex (L.)	0
Bathymorphus contortus (L.)	0
Gyraulus albus (Muller)	0
Gyraulus laevis (Alder)	0
Armiger crista (L.)	0
Hippeutis complanatus (L.)	0
Segmentina nitida Muller	0
Planorbarius corneus (L.)	0
Ancylus fluviatilis Muller	0
Acroloxus lacustris (L.)	0
Unio sp.	0
Anodonta group	0
Sphaerium sp.	0
Pisidium sp.	0
Dreissena polymorpha (Pallas)	0
Oligochaeta	0
Piscicola geometra (L.)	0
Theromyzon tessellatum (Muller)	0
Hemiclepsis marginata (Muller)	0
Glossiphonia complanata (L.)	0
Glossiphonia heteroclita (L.)	0
Batrachobdella paludosa (Carena)	0
Boreobdella verrucata (Muller)	0
Helobdella stagnalis (L.)	0
Haemopsis sanguisuga (L.)	0
Erpobdella octoculata (L.)	0
Erpobdella testacea (Savigny)	0
Trocheta subviridis Dutrochet	0
Hydracarina	1
Asellus aquaticus (L.)	1
Asellus meridianus Racovitz	0
Corophium sp.	0
Crangonyx pseudogracilis Bousfield	0
Gammarus duebeni Liljeborg	0
Gammarus lacustris Sars	1
Gammarus pulex (L.)	0
Gammarus tigrinus Sexton	0
Gammarus zaddachi Sexton	1
Niphargus aquilex Schiodte	1

Taxon	SPEAR
Siphonurus lacustris Eaton	1
Ameletus inopinatus Eaton	1
Baetis atrebatinus Eaton	1
Baetis buceratus Eaton	1
Baetis digitatus Bengtsson	1
Baetis muticus (L.)	1
Baetis niger (L.)	1
Baetis rhodani (Pictet)	1
Baetis vernus Curtis	1
Baetis scambus group	1
Centroptilum luteolum (Muller)	1
Centroptilum pennulatum Eaton	1
Cloeon dpterum (L.)	1
Cloeon simile Eaton	1
Procloeon bifidum Bengtsson	1
Rhithrogena sp.	1
Heptagenia fuscogrisea (Retzius)	1
Heptagenia lateralis (Curtis)	1
Heptagenia sulphurea (Muller)	1
Ecdyonurus sp.	1
Leptophlebia marginata (L.)	1
Leptophlebia vespertina (L.)	1
Paraleptophlebia cincta (Retzius)	1
Paraleptophlebia submarginata (Stephens)	1
Paraleptophlebia werneri Ulmer	1
Habrophlebia fusca (Curtis)	1
Potamanthus luteus (L.)	1
Ephemera danica Muller	1
Ephemera lineata Eaton	1
Ephemera vulgata L.	1
Ephemerella ignita (Poda)	1
Ephemerella notata Eaton	1
Brachycercus harrisella Curtis	1
Caenis horaria (L.)	1
Caenis rivulorum Eaton	1
Caenis robusta Eaton	1
Caenis pusilla Navas	1
Caenis pseudorivulorum group	1
Caenis luctuosa group	1
Taeniopteryx nebulosa (L.)	1
Brachyptera putata (Newman)	1
Brachyptera risi (Morton)	1
Protonemura meyeri (Pictet)	1
Protonemura montana Kimmins	1
Protonemura praecox (Morton)	1
Amphinemura standfussi Ris	1
Amphinemura sulcicollis (Stephens)	1
Nemurella picteti Klapalek	1
Nemoura avicularis Morton	1
Nemoura cinerea (Retzius)	1
Nemoura cambrica group	1
Leuctra fusca (L.)	1
Leuctra geniculata (Stephens)	1
Leuctra hippopus (Kempny)	1
Leuctra inermis Kempny	1
Leuctra moselyi Morton	1
Leuctra nigra (Olivier)	1
Capnia atra Morton	1
Capnia bifrons (Newman)	1
Perlodes microcephala (Pictet)	1
Diura bicaudata (L.)	1
Isoperla grammatica (Poda)	1
Dinocras cephalotes (Curtis)	1
Perla bipunctata Pictet	1
Chloroperla torrentium (Pictet)	1
Chloroperla tripunctata (Scopoli)	1
Platycnemis pennipes (Pallas)	0
Pyrrhosoma nymphula (Sulzer)	1

Taxon	SPEAR
Ischnura elegans (Van der Linden)	1
Enallagma cyathigerum (Charpentier)	1
Coenagrion puella group	1
Erythromma najas (Hansemann)	1
Calopteryx splendens (Harris)	1
Calopteryx virgo (L.)	1
Gomphus vulgatissimus (L.)	0
Cordulegaster boltonii (Donovan)	0
Brachytron pratense (Muller)	0
Aeshna sp.	0
Sympetrum sp.	0
Mesovelia furcata Mulsant & Rey	0
Hydrometra stagnorum (L.)	0
Velia sp.	0
Gerris argentatus Schummel	0
Gerris lacustris (L.)	0
Gerris odontogaster (Zetterstedt)	0
Gerris thoracicus Schummel	0
Gerris najas (Degeer)	0
Nepa cinerea L.	0
Ilyocoris cimicoides (L.)	0
Aphelocheirus aestivalis (Fabricius)	0
Notonecta glauca L.	0
Notonecta maculata Fabricius	0
Notonecta obliqua Gallen	0
Micronecta sp.	0
Cymatia coleoptrata (Fabricius)	0
Callicorixa praeusta (Fieber)	0
Callicorixa wollastoni (Douglas & Scott)	0
Corixa affinis Leach	0
Corixa dentipes (Thomson)	0
Corixa panzeri (Fieber)	0
Corixa punctata (Illiger)	0
Hesperocorixa linnei (Fieber)	0
Hesperocorixa sahlbergi (Fieber)	0
Sigara (Sigara) sp.	0
Sigara distincta (Fieber)	0
Sigara falleni (Fieber)	0
Sigara fossarum (Leach)	0
Sigara scotti (Fieber)	0
Sigara lateralis (Leach)	0
Sigara nigrolineata (Fieber)	0
Sigara semistriata (Fieber)	0
Sigara venusta (Douglas & Scott)	0
Brychius elevatus (Panzer)	0
Haliplus confinis Stephens	0
Haliplus flavicollis Sturm	0
Haliplus fluviatilis Aube	0
Haliplus heydeni Wehncke	0
Haliplus immaculatus Gerhardt	0
Haliplus laminatus Schaller	0
Haliplus lineatocollis (Marsham)	0
Haliplus lineolatus Mannerheim	0
Haliplus ruficollis (Degeer)	0
Haliplus wehncke (Gerhardt)	0
Noterus clavicornis (Degeer)	0
Laccophilus hyalinus (Degeer)	0
Laccophilus minutus (L.)	0
Hyphydrus ovatus (L.)	0
Hygrotus inaequalis (Fabricius)	0
Hygrotus versicolor (Schaller)	0
Hydroporus angustatus Sturm	0
Hydroporus discretus Fairmaire & Brisout	0
Hydroporus ferrugineus Stephens	0
Hydroporus memnonius Nicolai	0
Hydroporus nigrita (Fabricius)	0
Hydroporus obscurus Sturm	0
Hydroporus palustris (L.)	0
Hydroporus planus (Fabricius)	0
Hydroporus pubescens (Gyllenhal)	0

Taxon	SPEAR
Hydroporus tessellatus Drapiez	0
Stictonectes lepidus (Olivier)	0
Graptodytes pictus (Fabricius)	0
Porhydrus lineatus (Fabricius)	0
Deronectes latus (Stephens)	0
Potamonectes assimilis (Paykull)	0
Potamonectes depressus (Fabricius)	0
Stictotarsus duodecimpustulatus (Fabricius)	0
Oreodytes sanmarkii (Sahlberg)	0
Oreodytes septentrionalis (Sahlberg)	0
Scarodytes halensis (Fabricius)	0
Platambus maculatus (L.)	0
Agabus bipustulatus (L.)	0
Agabus chalconatus (Panzer)	0
Agabus didymus (Olivier)	0
Agabus guttatus (Paykull)	0
Agabus paludosus (Fabricius)	0
Agabus sturmi (Gyllenhal)	0
Ilybius sp.	0
Colymbetes fuscus (L.)	0
Acilius sulcatus (L.)	0
Dytiscus marginalis L.	0
Dytiscus semisulcatus Muller	0
Gyrinus aeratus Stephens	0
Gyrinus distinctus Aube	0
Gyrinus marinus Gyllenhal	0
Gyrinus natator group	0
Gyrinus urinator Illiger	0
Orectochilus villosus (Muller)	0
Hydrochus angustatus Germar	0
Helophorus aequalis Thomson	0
Helophorus grandis Illiger	0
Helophorus arvernicus Mulsant	0
Helophorus brevipalpis Bedel	0
Helophorus flavipes Fabricius	0
Helophorus minutus Fabricius	0
Helophorus obscurus Mulsant	0
Helophorus strigifrons Thomson	0
Paracymus scutellaris (Rosenhauer)	0
Hydrobius fuscipes (L.)	0
Anacaena bipustulata (Marsham)	0
Anacaena globulus (Paykull)	0
Anacaena limbata (Fabricius)	0
Anacaena lutescens (Stephens)	0
Laccobius biguttatus Gerhardt	0
Laccobius minutus (L.)	0
Laccobius atratus Rottenburg	0
Laccobius abrocephalus Reitter	0
Laccobius sinuatus Motschulsky	0
Laccobius striatulus (Fabricius)	0
Enochrus testaceus (Fabricius)	0
Ochthebius bicolor Germar	0
Ochthebius dilatatus Stephens	0
Ochthebius exsculptus Germar	0
Ochthebius minimus (Fabricius)	0
Hydraena gracilis Germar	0
Hydraena nigrita Germar	0
Hydraena pulchella Germar	0
Hydraena riparia Kugelann	0
Hydraena rufipes Curtis	0
Hydraena testacea Curtis	0
Limnebius nitidus (Marsham)	0
Limnebius truncatellus (Thunberg)	0
Elodes sp.	0
Cyphon sp.	0
Prionocyphon serricornis (Muller)	0
Hydrocyphon deflexicollis (Muller)	0
Helichus substriatus (Muller)	0
Dryops sp.	0
Elmis aenea (Muller)	0

Taxon	SPEAR
<i>Esolus parallelepidus</i> (Muller)	0
<i>Limnius volckmari</i> (Panzer)	0
<i>Macronychus quadrituberculatus</i> Muller	0
<i>Normandia nitens</i> (Muller)	0
<i>Oulimnius major</i> (Rey)	0
<i>Oulimnius rivularis</i> (Rosenhauer)	0
<i>Oulimnius troglodytes</i> (Gyllenhal)	0
<i>Oulimnius tuberculatus</i> (Muller)	0
<i>Riolus cupreus</i> (Muller)	0
<i>Riolus subviolaceus</i> (Muller)	0
<i>Sialis fuliginosa</i> Pictet	1
<i>Sialis lutaria</i> (L.)	1
<i>Sialis nigripes</i> Pictet	1
<i>Rhyacophila dorsalis</i> (Curtis)	1
<i>Rhyacophila munda</i> Mclachlan	1
<i>Rhyacophila obliterated</i> Mclachlan	1
<i>Rhyacophila septentrionalis</i> Mclachlan	1
<i>Glossosoma</i> sp.	1
<i>Agapetus</i> sp.	1
<i>Agraylea multipunctata</i> Curtis	1
<i>Agraylea sexmaculata</i> Curtis	1
<i>Allotrichia pallicornis</i> (Eaton)	1
<i>Hydroptila</i> sp.	1
<i>Oxyethira</i> sp.	1
<i>Ithytrichia</i> sp.	1
<i>Philopotamus montanus</i> (Donovan)	1
<i>Wormaldia</i> sp.	1
<i>Chimarra marginata</i> (L.)	1
<i>Lype</i> sp.	1
<i>Metatype fragilis</i> (Pictet)	1
<i>Psychomyia pusilla</i> (Fabricius)	1
<i>Tinodes dives</i> (Pictet)	1
<i>Tinodes unicolor</i> (Pictet)	1
<i>Tinodes waeneri</i> (L.)	1
<i>Ecnomus tenellus</i> (Rambur)	1
<i>Cynus flavidus</i> Mclachlan	1
<i>Cynus trimaculatus</i> (Curtis)	1
<i>Holocentropus picicornis</i> (Stephens)	1
<i>Neureclipsis bimaculata</i> (L.)	1
<i>Plectrocnemia conspersa</i> (Curtis)	1
<i>Plectrocnemia geniculata</i> Mclachlan	1
<i>Polycentropus flavomaculatus</i> (Pictet)	1
<i>Polycentropus litoratus</i> (Curtis)	1
<i>Polycentropus kingi</i> Mclachlan	1
<i>Cheumatopsyche lepida</i> (Pictet)	0
<i>Hydropsyche angustipennis</i> (Curtis)	0
<i>Hydropsyche contubernalis</i> Mclachlan	0
<i>Hydropsyche fulvipes</i> (Curtis)	0
<i>Hydropsyche instabilis</i> (Curtis)	0
<i>Hydropsyche pellucidula</i> (Curtis)	0
<i>Hydropsyche saxonica</i> Mclachlan	0
<i>Hydropsyche siltalai</i> Dohler	0
<i>Diplectrona felix</i> Mclachlan	0
<i>Agrypnia obsoleta</i> group	1
<i>Phryganea</i> sp.	1
<i>Brachycentrus subnubilus</i> Curtis	1
<i>Crunoecia imorata</i> (Curtis)	1
<i>Lasiocephala basalis</i> (Kolenati)	1
<i>Lepidostoma hirtum</i> (Fabricius)	1
<i>Apatania muliebris</i> Mclachlan	1
<i>Drusus annulatus</i> (Stephens)	1
<i>Ecdisopteryx guttulata</i> (Pictet)	1
<i>Halesus</i> sp.	1
<i>Hydatophylax infumatus</i> (Mclachlan)	1
<i>Melampophylax mucoreus</i> (Hagen)	1

Taxon	SPEAR
<i>Anabolia nervosa</i> (Curtis)	0
<i>Glyptotaelius pellucidus</i> (Retzius)	1
<i>Limnephilus binotatus</i> Curtis	1
<i>Limnephilus bipunctatus</i> Curtis	1
<i>Limnephilus decipiens</i> (Kolenati)	1
<i>Limnephilus extricatus</i> Mclachlan	1
<i>Limnephilus flavicornis</i> (Fabricius)	1
<i>Limnephilus fuscicornis</i> (Rambur)	1
<i>Limnephilus lunatus</i> Curtis	1
<i>Limnephilus marmoratus</i> Curtis	1
<i>Limnephilus politus</i> Mclachlan	1
<i>Limnephilus rhombicus</i> (L.)	1
<i>Limnephilus vittatus</i> (Fabricius)	1
Micropterna group	0
Potamophylax group	1
<i>Goera pilosa</i> (Fabricius)	1
<i>Silo nigricornis</i> (Pictet)	1
<i>Silo pallipes</i> (Fabricius)	1
<i>Beraea maurus</i> (Curtis)	1
<i>Beraea pullata</i> (Curtis)	1
<i>Beraeodes minutus</i> (L.)	1
<i>Notidobia ciliaris</i> (L.)	1
<i>Sericostoma personatum</i> (Spence)	1
<i>Odontocerum albicorne</i> (Scopoli)	1
<i>Molanna angustata</i> Curtis	1
<i>Athripsodes albifrons</i> (L.)	1
<i>Athripsodes aterrimus</i> (Stephens)	1
<i>Athripsodes bilineatus</i> (L.)	1
<i>Athripsodes cinereus</i> (Curtis)	1
<i>Athripsodes commutatus</i> (Rostock)	1
<i>Ceraclea albimacula</i> (Rambur)	1
<i>Ceraclea annulicornis</i> (Stephens)	1
<i>Ceraclea dissimilis</i> (Stephens)	1
<i>Ceraclea fulva</i> (Rambur)	1
<i>Ceraclea nigronervosa</i> (Retzius)	1
<i>Ceraclea senilis</i> (Burmeister)	1
<i>Leptocerus lusitanicus</i> (Mclachlan)	1
<i>Mystacides azurea</i> (L.)	1
<i>Mystacides longicornis</i> (L.)	1
<i>Mystacides nigra</i> (L.)	1
<i>Adicella reducta</i> (Mclachlan)	1
<i>Triaenodes bicolor</i> (Curtis)	1
<i>Oecetis lacustris</i> (Pictet)	1
<i>Oecetis notata</i> (Rambur)	1
<i>Oecetis ochracea</i> (Curtis)	1
<i>Oecetis testacea</i> (Curtis)	1
Pyralidae	1
Tipulidae	0
Limonidae	1
Psychodidae	0
Ptychopteridae	1
Dixidae	1
Chaoboridae	1
Culicidae	0
Ceratopogonidae	0
Simuliidae	0
Chironomidae	0
Stratiomyidae	0
Tabanidae	0
Athericidae	1
Empididae	1
Dolichopodidae	1
Syrphidae	0
Sciomyzidae	1

Appendix XI (continued) – CCI (TL4)

Taxon	CS
Planaria torva (Muller)	6
Polycelis felina (Dalyell)	3
Polycelis nigra group	1
Phagocata vitta (Duges)	3
Crenobia alpina (Dana)	2
Dugesia tigrina (Girard)	3
Dugesia polychroa group	2
Bdellocephala punctata (Pallas)	7
Dendrocoelum lacteum (Muller)	2
Theodoxus fluviatilis (L.)	3
Viviparus viviparus (L.)	3
Valvata cristata Muller	2
Valvata macrostoma Morch	9
Valvata piscinalis (Muller)	1
Potamopyrgus jenkinsi (Smith)	1
Bithynia leachii (Sheppard)	5
Bithynia tentaculata (L.)	1
Aplexa hypnorum (L.)	5
Physa fontinalis (L.)	1
Lymnaea auricularia (L.)	2
Lymnaea palustris (Muller)	2
Lymnaea peregra (Muller)	1
Lymnaea stagnalis (L.)	1
Lymnaea truncatula (Muller)	3
Planorbis carinatus Muller	1
Planorbis planorbis (L.)	1
Anisus leucostoma (Millet)	5
Anisus vortex (L.)	1
Bathymphalus contortus (L.)	2
Gyraulus albus (Muller)	1
Gyraulus laevis (Alder)	6
Armiger crista (L.)	2
Hippeutis complanatus (L.)	3
Segmentina nitida Muller	10
Planorbis cornuus (L.)	4
Ancylus fluviatilis Muller	1
Acroloxus lacustris (L.)	2
Margaritifera margaritifera (L.)	7
Sphaerium comeum (L.)	1
Sphaerium lacustre (Muller)	3
Sphaerium rivicola (Lamarck)	3
Sphaerium transversum (Say)	5
Pisidium amnicum (Muller)	3
Pisidium casertanum (Poli)	1
Pisidium henslowianum (Sheppard)	4
Pisidium hibernicum Westerlund	4
Pisidium lilljeborgii Clessin	5
Pisidium millium Held	4
Pisidium moitessierianum Paladilhe	4
Pisidium nitidum Jenyns	3
Pisidium obtusale (Lamarck)	4
Pisidium personatum Malm	3
Pisidium pulchellum Jenyns	5
Pisidium subtruncatum Malm	1
Pisidium supinum Schmidt	5
Pisidium tenuilineatum Stelfox	8
Dreissena polymorpha (Pallas)	2
Piscicola geometra (L.)	2
Theromyzon tessulatum (Muller)	2
Hemiclepsis marginata (Muller)	4
Glossiphonia complanata (L.)	1
Glossiphonia heteroclita (L.)	4
Batracobdella paludosa (Carena)	7
Boreobdella verrucata (Muller)	7
Helobdella stagnalis (L.)	1
Haemopsis sanguisuga (L.)	5
Erpobdella octoculata (L.)	1
Erpobdella testacea (Savigny)	5

Taxon	CS
Dina lineata (Muller)	6
Trocheta bykowskii Gedroyc	5
Trocheta subviridis Dutrochet	4
Asellus aquaticus (L.)	1
Asellus meridianus Racovitza	3
Crangonyx pseudogracilis Bousfield	1
Gammarus duebeni Lilljeborg	4
Gammarus lacustris Sars	5
Gammarus pulex (L.)	1
Gammarus tigrinus Sexton	1
Gammarus zaddachi Sexton	1
Niphargus aquilex Schiodte	6
Siphonurus lacustris Eaton	4
Ameletus inopinatus Eaton	5
Baetis atrebatinus Eaton	6
Baetis buceratus Eaton	6
Baetis digitatus Bengtsson	5
Baetis muticus (L.)	2
Baetis niger (L.)	4
Baetis rhodani (Pictet)	1
Baetis vernus Curtis	3
Baetis scambus group	4
Centroptilum luteolum (Muller)	4
Centroptilum pennulatum Eaton	5
Cloeon dipterum (L.)	1
Cloeon simile Eaton	2
Procloeon bifidum Bengtsson	6
Heptagenia fuscogrisea (Retzius)	7
Heptagenia lateralis (Curtis)	2
Heptagenia sulphurea (Muller)	4
Leptophlebia marginata (L.)	3
Leptophlebia vespertina (L.)	3
Paraleptophlebia cincta (Retzius)	3
Paraleptophlebia submarginata (Stephens)	2
Paraleptophlebia werneri Ulmer	8
Habrophlebia fusca (Curtis)	2
Potamanthus luteus (L.)	9
Ephemera danica Muller	1
Ephemera lineata Eaton	9
Ephemera vulgata L.	4
Ephemerella ignita (Poda)	1
Ephemerella notata Eaton	6
Brachycercus harrisella Curtis	6
Caenis horaria (L.)	1
Caenis rivulorum Eaton	3
Caenis robusta Eaton	5
Caenis pusilla Navas	6
Taeniopteryx nebulosa (L.)	4
Brachyptera putata (Newman)	7
Brachyptera risi (Morton)	3
Protonemura meyeri (Pictet)	6
Protonemura montana Kimmins	6
Protonemura praecox (Morton)	5
Amphinemura standfussi Ris	6
Amphinemura sulciollis (Stephens)	2
Nemurella picteti Klapalek	2
Nemoura avicularis Morton	4
Nemoura cinerea (Retzius)	1
Leuctra fusca (L.)	1
Leuctra geniculata (Stephens)	4
Leuctra hippopus (Kempny)	3
Leuctra inermis Kempny	1
Leuctra moselyi Morton	6
Leuctra nigra (Olivier)	4
Capnia atra Morton	5
Capnia bifrons (Newman)	6
Perlodes microcephala (Pictet)	3
Diura bicaudata (L.)	3

Taxon	CS
Isoperla grammatica (Poda)	2
Dinocras cephalotes (Curtis)	4
Perla bipunctata Pictet	3
Chloroperla torrentium (Pictet)	1
Chloroperla tripunctata (Scopoli)	4
Platycnemis pennipes (Pallas)	5
Pyrrhosoma nymphula (Sulzer)	3
Ischnura elegans (Van der Linden)	1
Enallagma cyathigerum (Charpentier)	2
Erythromma najas (Hansemann)	4
Calopteryx splendens (Harris)	2
Calopteryx virgo (L.)	5
Gomphus vulgatissimus (L.)	7
Cordulegaster boltonii (Donovan)	4
Brachytron pratense (Muller)	5
Orthetrum sp.	5
Mesovelia furcata Mulsant & Rey	6
Hydrometra stagnorum (L.)	2
Gerris argentatus Schummel	5
Gerris lacustris (L.)	1
Gerris odontogaster (Zetterstedt)	2
Gerris thoracicus Schummel	4
Gerris najas (Degeer)	5
Nepa cinerea L.	3
Ilyocoris cimicoides (L.)	4
Aphelocheirus aestivalis (Fabricius)	5
Notonecta glauca L.	1
Notonecta maculata Fabricius	5
Notonecta obliqua Gallen	5
Cymatia coieoprata (Fabricius)	4
Callicorixa praeusta (Fieber)	3
Callicorixa wollastoni (Douglas & Scott)	5
Corixa affinis Leach	6
Corixa dentipes (Thomson)	5
Corixa panzeri (Fieber)	5
Corixa punctata (Illiger)	1
Hesperocorixa linnei (Fieber)	4
Hesperocorixa sahlbergi (Fieber)	2
Sigara distincta (Fieber)	3
Sigara falleni (Fieber)	1
Sigara fossarum (Leach)	3
Sigara scotti (Fieber)	5
Sigara lateralis (Leach)	2
Sigara nigrolineata (Fieber)	2
Sigara semistriata (Fieber)	5
Sigara venusta (Douglas & Scott)	4
Brychius elevatus (Panzer)	3
Haliplus confinis Stephens	2
Haliplus flavicollis Sturm	4
Haliplus fluviatilis Aube	2
Haliplus heydeni Wehncke	7
Haliplus immaculatus Gerhardt	4
Haliplus laminatus Schaller	7
Haliplus lineatocollis (Marsham)	1
Haliplus lineolatus Mannerheim	4
Haliplus ruficollis (Degeer)	1
Haliplus wehncke (Gerhardt)	3
Noterus clavicornis (Degeer)	2
Laccophilus hyalinus (Degeer)	1
Laccophilus minutus (L.)	2
Hyphydrus ovatus (L.)	2
Hygrotus inaequalis (Fabricius)	2
Hygrotus versicolor (Schaller)	5
Hydroporus angustatus Sturm	2
Hydroporus discretus Fairmaire & Brisout	3
Hydroporus ferrugineus Stephens	7
Hydroporus memnonius Nicolai	4
Hydroporus nigrita (Fabricius)	3
Hydroporus obscurus Sturm	5
Hydroporus palustris (L.)	1

Taxon	CS
Hydroporus planus (Fabricius)	2
Hydroporus pubescens (Gyllenhal)	2
Hydroporus tessellatus Drapiez	2
Stictonectes lepidus (Olivier)	7
Graptodytes pictus (Fabricius)	3
Porhydrus lineatus (Fabricius)	6
Deronectes latus (Stephens)	7
Potamonectes assimilis (Paykull)	5
Potamonectes depressus (Fabricius)	7
Stictotarsus duodecimpustulatus (Fabricius)	2
Oreodytes davisii (Curtis)	6
Oreodytes sanmarkii (Sahlberg)	2
Oreodytes septentrionalis (Sahlberg)	3
Scarodytes halensis (Fabricius)	7
Platambus maculatus (L.)	2
Agabus bipustulatus (L.)	1
Agabus chalconatus (Panzer)	7
Agabus didymus (Olivier)	1
Agabus guttatus (Paykull)	5
Agabus paludosus (Fabricius)	1
Agabus sturmii (Gyllenhal)	1
Colymbetes fuscus (L.)	1
Acilius sulcatus (L.)	5
Dytiscus marginalis L.	1
Dytiscus semisulcatus Muller	4
Gyrinus aeratus Stephens	7
Gyrinus distinctus Aube	7
Gyrinus marinus Gyllenhal	2
Gyrinus urinator Illiger	7
Orectochilus villosus (Muller)	3
Hydrochus angustatus Germar	7
Helophorus aequalis Thomson	1
Helophorus grandis Illiger	2
Helophorus arvernensis Mulsant	7
Helophorus brevipalpis Bedel	1
Helophorus flavipes Fabricius	2
Helophorus minutus Fabricius	3
Helophorus obscurus Mulsant	3
Helophorus strigifrons Thomson	7
Paracymus scutellaris (Rosenhauer)	7
Hydrobius fuscipes (L.)	1
Anacaena bipustulata (Marsham)	7
Anacaena globulus (Paykull)	1
Anacaena limbata (Fabricius)	1
Anacaena lutescens (Stephens)	3
Laccobius biguttatus Gerhardt	5
Laccobius minutus (L.)	2
Laccobius abratius Rottenburg	7
Laccobius atrocephalus Reitter	7
Laccobius sinuatus Motschulsky	7
Laccobius striatulus (Fabricius)	2
Enochrus testaceus (Fabricius)	3
Ochthebius bicolor Germar	7
Ochthebius dilatatus Stephens	3
Ochthebius exsculptus Germar	7
Ochthebius mirimus (Fabricius)	1
Hydraena gracilis Germar	1
Hydraena nigrita Germar	7
Hydraena pulchella Germar	7
Hydraena riparia Kugelann	1
Hydraena rufipes Curtis	7
Hydraena testacea Curtis	7
Limnebius nitidus (Marsham)	7
Limnebius truncatellus (Thunberg)	1
Prionocyphon semicornis (Muller)	8
Helichus substriatus (Muller)	7
Elmis aenea (Muller)	1
Esolus parallelepipedus (Muller)	4
Limnius volckmani (Panzer)	2
Macronychus quadrituberculatus Muller	8

Taxon	CS
Normandia nitens (Muller)	9
Oulimnius major (Rey)	8
Oulimnius rivularis (Rosenhauer)	7
Oulimnius troglodytes (Gyllenhal)	7
Oulimnius tuberculatus (Muller)	2
Riolus cupreus (Muller)	7
Riolus subviolaceus (Muller)	7
Sialis fuliginosa Pictet	5
Sialis lutaria (L.)	1
Sialis nigripes Pictet	7
Osmylus fulvicephalus (Scopoli)	5
Rhyacophila dorsalis (Curtis)	1
Rhyacophila munda Mclachlan	3
Rhyacophila obliterata Mclachlan	4
Rhyacophila septentrionis Mclachlan	7
Agraylea multipunctata Curtis	1
Agraylea sexmaculata Curtis	5
Allotrichia pallicornis (Eaton)	5
Philopotamus montanus (Donovan)	2
Chimarra marginata (L.)	7
Metatype fragilis (Pictet)	7
Psychomyia pusilla (Fabricius)	4
Tinodes dives (Pictet)	7
Tinodes unicolor (Pictet)	7
Tinodes waeneri (L.)	1
Ecnomus tenellus (Rambur)	5
Cymus flavidus Mclachlan	5
Cymus trimaculatus (Curtis)	3
Holocentropus picicornis (Stephens)	3
Neureclipsis bimaculata (L.)	3
Plectrocnemia conspersa (Curtis)	2
Plectrocnemia geniculata Mclachlan	3
Polycentropus flavomaculatus (Pictet)	2
Polycentropus inoratus (Curtis)	5
Polycentropus kingi Mclachlan	5
Cheumatopsyche lepida (Pictet)	4
Hydropsyche angustipennis (Curtis)	1
Hydropsyche contubernalis Mclachlan	4
Hydropsyche fulvipes (Curtis)	7
Hydropsyche instabilis (Curtis)	4
Hydropsyche pellucidula (Curtis)	2
Hydropsyche saxonica Mclachlan	10
Hydropsyche siltalai Dohler	1
Diplectrona felix Mclachlan	4
Brachycentrus subnubilus Curtis	6
Crunoecia irrorata (Curtis)	3
Lasiocephala basalis (Kolenati)	6
Lepidostoma hirtum (Fabricius)	2
Apatania muliebris Mclachlan	5
Drusus annulatus (Stephens)	1
Eclisopteryx guttulata (Pictet)	4
Hydatophylax infumatus (Mclachlan)	5
Melampophylax mucoreus (Hagen)	5
Anabolia nervosa (Curtis)	2
Glyptotaelius pellucidus (Retzius)	3
Limnephilus binotatus Curtis	5
Limnephilus bipunctatus Curtis	5
Limnephilus decipiens (Kolenati)	5
Limnephilus extricatus Mclachlan	2
Limnephilus flavicornis (Fabricius)	2
Limnephilus fuscicornis (Rambur)	5
Limnephilus lunatus Curtis	1
Limnephilus marmoratus Curtis	3
Limnephilus politus Mclachlan	4
Limnephilus rhombicus (L.)	3
Limnephilus vittatus (Fabricius)	3
Goera pilosa (Fabricius)	3
Silo nigricornis (Pictet)	5
Silo pallipes (Fabricius)	2
Beraea maurus (Curtis)	3

Taxon	CS
Beraea pullata (Curtis)	4
Beraeodes minutus (L.)	5
Notidobia ciliaris (L.)	6
Sericostoma personatum (Spence)	1
Odontocerum albicorne (Scopoli)	3
Molanna angustata Curtis	2
Athripsodes albifrons (L.)	4
Athripsodes aterrimus (Stephens)	1
Athripsodes bilineatus (L.)	5
Athripsodes cinereus (Curtis)	1
Athripsodes commutatus (Rostock)	6
Ceraclea albimacula (Rambur)	5
Ceraclea annulicornis (Stephens)	4
Ceraclea dissimilis (Stephens)	3
Ceraclea fulva (Rambur)	5
Ceraclea nigronevosa (Retzius)	4
Ceraclea senilis (Burmeister)	7
Leptocerus lusitanicus (Mclachlan)	9
Mystacides azurea (L.)	2
Mystacides longicornis (L.)	1
Mystacides nigra (L.)	6
Adicella reducta (Mclachlan)	3
Trienodes bicolor (Curtis)	2
Ylodes conspersus (Rambur)	7
Ylodes simulans (Tjeder)	8
Oecetis lacustris (Pictet)	3
Oecetis notata (Rambur)	8
Oecetis ochracea (Curtis)	2
Oecetis testacea (Curtis)	4
Thaumastoptera calceata Mik	7
Dixa dilatata Strobl	5
Dixa nebulosa Meigen	4
Dixa puberula Loew	5
Dixella filicornis Edwards	7
Prosimulium hirtipes (Fries)	5
Prosimulium latimucro (Enderlein)	7
Prosimulium tomosvaryi (Enderlein)	7
Simulium latipes (Meigen)	6
Simulium costatum Friederichs	5
Simulium erythrocephalum (de Geer)	3
Simulium rostratum Lundström	6
Simulium morsitans Edwards	7
Simulium noelleri Friederichs	3
Simulium posticatum Meigen	5
Simulium reptans (L.)	5
Simulium tuberosum (Lundstrom)	4
Atrichops crassipes (Meigen)	8

Appendix XI (continued) – CCI (TL5)

Taxon	CS
Planaria torva (Muller)	6
Polycelis felina (Dalyell)	3
Polycelis nigra group	1
Phagocata vitta (Duges)	3
Crenobia alpina (Dana)	2
Dugesia tigrina (Girard)	3
Dugesia polychroa group	2
Bdellocephala punctata (Pallas)	7
Dendrocoelum lacteum (Muller)	2
Theodoxus fluviatilis (L.)	3
Viviparus viviparus (L.)	3
Valvata cristata Muller	2
Valvata macrostoma Morch	9
Valvata piscinalis (Muller)	1
Potamopyrgus jenkinsi (Smith)	1
Bithynia leachii (Sheppard)	5
Bithynia tentaculata (L.)	1
Aplexa hypnorum (L.)	5
Physa fontinalis (L.)	1
Lymnaea auricularia (L.)	2
Lymnaea palustris (Muller)	2
Lymnaea peregra (Muller)	1
Lymnaea stagnalis (L.)	1
Lymnaea truncatula (Muller)	3
Planorbis carinatus Muller	1
Planorbis planorbis (L.)	1
Anisus leucostoma (Millet)	5
Anisus vortex (L.)	1
Bathymphalus contortus (L.)	2
Gyraulus albus (Muller)	1
Gyraulus laevis (Alder)	6
Armiger crista (L.)	2
Hippeutis complanatus (L.)	3
Segmentina nitida Muller	10
Planorbis corneus (L.)	4
Ancylus fluviatilis Muller	1
Acroloxus lacustris (L.)	2
Margaritifera margaritifera (L.)	7
Dreissena polymorpha (Pallas)	2
Piscicola geometra (L.)	2
Theromyzon tessulatum (Muller)	2
Hemiclepsis marginata (Muller)	4
Glossiphonia complanata (L.)	1
Glossiphonia heteroclita (L.)	4
Batrachobdella paludosa (Carena)	7
Boreobdella verrucata (Muller)	7
Helobdella stagnalis (L.)	1
Haemopsis sanguisuga (L.)	5
Erpobdella octoculata (L.)	1
Erpobdella testacea (Savigny)	5
Dina lineata (Muller)	6
Trocheta bykowski Gedroyc	5
Trocheta subviridis Dutrochet	4
Asellus aquaticus (L.)	1
Asellus meridianus Racovitz	3
Crangonyx pseudogracilis Bousfield	1
Gammarus duebeni Ljeborg	4
Gammarus lacustris Sars	5
Gammarus pulex (L.)	1
Gammarus tigrinus Sexton	1
Gammarus zaddachi Sexton	1
Niphargus aquilex Schiodte	6
Siphonurus lacustris Eaton	4
Ameletus inopinatus Eaton	5
Baetis atrebatinus Eaton	6
Baetis buceratus Eaton	6
Baetis digitatus Bengtsson	5
Baetis muticus (L.)	2

Taxon	CS
Baetis niger (L.)	4
Baetis rhodani (Pictet)	1
Baetis vernus Curtis	3
Baetis scambus group	4
Centroptilum luteolum (Muller)	4
Centroptilum pennulatum Eaton	5
Cloeon dipterum (L.)	1
Cloeon simile Eaton	2
Procloeon bifidum Bengtsson	6
Heptagenia fuscogrisea (Retzius)	7
Heptagenia lateralis (Curtis)	2
Heptagenia sulphurea (Muller)	4
Leptophlebia marginata (L.)	3
Leptophlebia vespertina (L.)	3
Paraleptophlebia cincta (Retzius)	3
Paraleptophlebia submarginata (Stephens)	2
Paraleptophlebia wernerii Ulmer	8
Habrophlebia fusca (Curtis)	2
Potamanthus luteus (L.)	9
Ephemera danica Muller	1
Ephemera lineata Eaton	9
Ephemera vulgata L.	4
Ephemerella ignita (Poda)	1
Ephemerella notata Eaton	6
Brachycercus harrisella Curtis	6
Caenis horaria (L.)	1
Caenis rivulorum Eaton	3
Caenis robusta Eaton	5
Caenis pusilla Navas	6
Taeniopteryx nebulosa (L.)	4
Brachyptera putata (Newman)	7
Brachyptera risi (Morton)	3
Protonemura meyeri (Pictet)	6
Protonemura montana Kimmins	6
Protonemura praecox (Morton)	5
Amphinemura standfussi Ris	6
Amphinemura sulcicollis (Stephens)	2
Nemurella picteti Klapalek	2
Nemoura avicularis Morton	4
Nemoura cinerea (Retzius)	1
Leuctra fusca (L.)	1
Leuctra geniculata (Stephens)	4
Leuctra hippopus (Kempny)	3
Leuctra inermis Kempny	1
Leuctra moselyi Morton	6
Leuctra nigra (Olivier)	4
Capnia atra Morton	5
Capnia bifrons (Newman)	6
Perlodes microcephala (Pictet)	3
Diura bicaudata (L.)	3
Isoperla grammatica (Poda)	2
Dinocras cephalotes (Curtis)	4
Perla bipunctata Pictet	3
Chloroperla torrentium (Pictet)	1
Chloroperla tripunctata (Scopoli)	4
Platycnemis pennipes (Pallas)	5
Pyrrhosoma nymphula (Sulzer)	3
Ischnura elegans (Van der Linden)	1
Enallagma cyathigerum (Charpentier)	2
Erythromma najas (Hansemann)	4
Calopteryx splendens (Harris)	2
Calopteryx virgo (L.)	5
Gomphus vulgatissimus (L.)	7
Cordulegaster boltonii (Donovan)	4
Brachytron pratense (Muller)	5
Orthetrum sp.	5
Mesovelia furcata Mulsant & Rey	6
Hydrometra stagnorum (L.)	2

Taxon	CS
Gerris argentatus Schummel	5
Gerris lacustris (L.)	1
Gerris odontogaster (Zetterstedt)	2
Gerris thoracicus Schummel	4
Gerris najas (Degeer)	5
Nepa cinerea L.	3
Ilyocoris cimicoides (L.)	4
Aphelocheirus aestivalis (Fabricius)	5
Notonecta glauca L.	1
Notonecta maculata Fabricius	5
Notonecta obliqua Gallen	5
Cymatia coleoptrata (Fabricius)	4
Callicorixa praeusta (Fieber)	3
Callicorixa wollastoni (Douglas & Scott)	5
Corixa affinis Leach	6
Corixa dentipes (Thomson)	5
Corixa panzeri (Fieber)	5
Corixa punctata (Illiger)	1
Hesperocorixa linnei (Fieber)	4
Hesperocorixa sahlbergi (Fieber)	2
Sigara distincta (Fieber)	3
Sigara falleni (Fieber)	1
Sigara fossarum (Leach)	3
Sigara scotti (Fieber)	5
Sigara lateralis (Leach)	2
Sigara nigrolineata (Fieber)	2
Sigara semistriata (Fieber)	5
Sigara venusta (Douglas & Scott)	4
Brychius elevatus (Panzer)	3
Haliphus confinis Stephens	2
Haliphus flavicollis Sturm	4
Haliphus fluviatilis Aube	2
Haliphus heydeni Wehncke	7
Haliphus immaculatus Gerhardt	4
Haliphus laminatus Schaller	7
Haliphus lineatocollis (Marsham)	1
Haliphus lineolatus Mannerheim	4
Haliphus ruficollis (Degeer)	1
Haliphus wehncke (Gerhardt)	3
Noterus clavicornis (Degeer)	2
Laccophilus hyalinus (Degeer)	1
Laccophilus minutus (L.)	2
Hyphydrus ovatus (L.)	2
Hygrotus inaequalis (Fabricius)	2
Hygrotus versicolor (Schaller)	5
Hydroporus angustatus Sturm	2
Hydroporus discretus Fairmaire & Brisout	3
Hydroporus ferrugineus Stephens	7
Hydroporus memnonius Nicolai	4
Hydroporus nigrita (Fabricius)	3
Hydroporus obscurus Sturm	5
Hydroporus palustris (L.)	1
Hydroporus planus (Fabricius)	2
Hydroporus pubescens (Gyllenhal)	2
Hydroporus tessellatus Drapiez	2
Stictonectes lepidus (Olivier)	7
Graptodytes pictus (Fabricius)	3
Porhydrus lineatus (Fabricius)	6
Deronectes latus (Stephens)	7
Potamonectes assimilis (Paykull)	5
Potamonectes depressus (Fabricius)	7
Stictotarsus duodecimpustulatus (Fabricius)	2
Oreodytes davisi (Curtis)	6
Oreodytes sanmarkii (Sahlberg)	2
Oreodytes septentrionalis (Sahlberg)	3
Scarodytes halensis (Fabricius)	7
Platambus maculatus (L.)	2
Agabus bipustulatus (L.)	1
Agabus chalconatus (Panzer)	7
Agabus didymus (Olivier)	1

Taxon	CS
Agabus guttatus (Paykull)	5
Agabus paludosus (Fabricius)	1
Agabus sturmi (Gyllenhal)	1
Colymbetes fuscus (L.)	1
Acilius sulcatus (L.)	5
Dytiscus marginalis L.	1
Dytiscus semisulcatus Muller	4
Gyrinus aeratus Stephens	7
Gyrinus distinctus Aube	7
Gyrinus marinus Gyllenhal	2
Gyrinus urinator Illiger	7
Orectochilus villosus (Muller)	3
Hydrochus angustatus Germar	7
Helophorus aequalis Thomson	1
Helophorus grandis Illiger	2
Helophorus arvernicus Mulsant	7
Helophorus brevipalpis Bedel	1
Helophorus flavipes Fabricius	2
Helophorus minutus Fabricius	3
Helophorus obscurus Mulsant	3
Helophorus strigifrons Thomson	7
Paracymus scutellaris (Rosenhauer)	7
Hydrobius fuscipes (L.)	1
Anacaena bipustulata (Marsham)	7
Anacaena globulus (Paykull)	1
Anacaena limbata (Fabricius)	1
Anacaena lutescens (Stephens)	3
Laccobius biguttatus Gerhardt	5
Laccobius minutus (L.)	2
Laccobius atratus Rottenburg	7
Laccobius atrocephalus Reitter	7
Laccobius sinuatus Motschulsky	7
Laccobius striatulus (Fabricius)	2
Enochrus testaceus (Fabricius)	3
Ochthebius bicolor Germar	7
Ochthebius dilatatus Stephens	3
Ochthebius exsculptus Germar	7
Ochthebius minimus (Fabricius)	1
Hydraena gracilis Germar	1
Hydraena nigrita Germar	7
Hydraena pulchella Germar	7
Hydraena riparia Kugelann	1
Hydraena rufipes Curtis	7
Hydraena testacea Curtis	7
Limnebius nitidus (Marsham)	7
Limnebius truncatellus (Thunberg)	1
Prionocyphon serricornis (Muller)	8
Helichus substriatus (Muller)	7
Elmis aenea (Muller)	1
Esolus parallelepipedus (Muller)	4
Limnius volckmari (Panzer)	2
Macronychus quadrituberculatus Muller	8
Normandia nitens (Muller)	9
Oulimnius major (Rey)	8
Oulimnius rivularis (Rosenhauer)	7
Oulimnius troglodytes (Gyllenhal)	7
Oulimnius tuberculatus (Muller)	2
Riolus cupreus (Muller)	7
Riolus subviolaceus (Muller)	7
Sialis fuliginosa Pictet	5
Sialis lutaria (L.)	1
Sialis nigripes Pictet	7
Rhyacophila dorsalis (Curtis)	1
Rhyacophila munda McLachlan	3
Rhyacophila oblitterata McLachlan	4
Rhyacophila septentrionis McLachlan	7
Agraylea multipunctata Curtis	1
Agraylea sexmaculata Curtis	5
Allotrichia pallicornis (Eaton)	5
Philopotamus montanus (Donovan)	2

Taxon	CS
<i>Chimarra marginata</i> (L.)	7
<i>Metatype fragilis</i> (Pictet)	7
<i>Psychomyia pusilla</i> (Fabricius)	4
<i>Tinodes dives</i> (Pictet)	7
<i>Tinodes unicolor</i> (Pictet)	7
<i>Tinodes waeneri</i> (L.)	1
<i>Ecnomus tenellus</i> (Rambur)	5
<i>Cynus flavidus</i> Mclachlan	5
<i>Cynus trimaculatus</i> (Curtis)	3
<i>Holocentropus picicornis</i> (Stephens)	3
<i>Neureclipsis bimaculata</i> (L.)	3
<i>Plectrocnemia conspersa</i> (Curtis)	2
<i>Plectrocnemia geniculata</i> Mclachlan	3
<i>Polycentropus flavomaculatus</i> (Pictet)	2
<i>Polycentropus irroratus</i> (Curtis)	5
<i>Polycentropus kingi</i> Mclachlan	5
<i>Cheumatopsyche lepida</i> (Pictet)	4
<i>Hydropsyche angustipennis</i> (Curtis)	1
<i>Hydropsyche contubernalis</i> Mclachlan	4
<i>Hydropsyche fulvipes</i> (Curtis)	7
<i>Hydropsyche instabilis</i> (Curtis)	4
<i>Hydropsyche pellucidula</i> (Curtis)	2
<i>Hydropsyche saxonica</i> Mclachlan	10
<i>Hydropsyche siltalai</i> Dohler	1
<i>Diplectrona felix</i> Mclachlan	4
<i>Brachycentrus subnubilus</i> Curtis	6
<i>Crunocla imorata</i> (Curtis)	3
<i>Lasiocephala basalis</i> (Kolenati)	6
<i>Lepidostoma hirtum</i> (Fabricius)	2
<i>Apatania muliebris</i> Mclachlan	5
<i>Drusus annulatus</i> (Stephens)	1
<i>Ecdisopteryx guttulata</i> (Pictet)	4
<i>Hydatophylax infumatus</i> (Mclachlan)	5
<i>Melampophylax mucoreus</i> (Hagen)	5
<i>Anabolia nervosa</i> (Curtis)	2
<i>Glyphotaelius pellucidus</i> (Retzius)	3
<i>Umnephilus binotatus</i> Curtis	5
<i>Umnephilus bipunctatus</i> Curtis	5
<i>Umnephilus decipiens</i> (Kolenati)	5
<i>Umnephilus extricatus</i> Mclachlan	2
<i>Umnephilus flavicornis</i> (Fabricius)	2
<i>Umnephilus fuscicornis</i> (Rambur)	5
<i>Umnephilus lunatus</i> Curtis	1
<i>Umnephilus marmoratus</i> Curtis	3
<i>Umnephilus politus</i> Mclachlan	4
<i>Umnephilus rhombicus</i> (L.)	3
<i>Umnephilus vittatus</i> (Fabricius)	3
<i>Goera pilosa</i> (Fabricius)	3
<i>Silo nigricornis</i> (Pictet)	5
<i>Silo pallipes</i> (Fabricius)	2
<i>Beraea maurus</i> (Curtis)	3
<i>Beraea pullata</i> (Curtis)	4
<i>Beraeodes minutus</i> (L.)	5
<i>Notidobia dilaris</i> (L.)	6
<i>Sericostoma personatum</i> (Spence)	1
<i>Odontocerum albicorne</i> (Scopoli)	3
<i>Molanna angustata</i> Curtis	2
<i>Athripsodes albifrons</i> (L.)	4
<i>Athripsodes aterrimus</i> (Stephens)	1
<i>Athripsodes bilineatus</i> (L.)	5
<i>Athripsodes cinereus</i> (Curtis)	1
<i>Athripsodes commutatus</i> (Rostock)	6
<i>Ceraclea albimacula</i> (Rambur)	5
<i>Ceraclea annulicornis</i> (Stephens)	4
<i>Ceraclea dissimilis</i> (Stephens)	3
<i>Ceraclea fulva</i> (Rambur)	5
<i>Ceraclea nigronervosa</i> (Retzius)	4
<i>Ceraclea senilis</i> (Burmeister)	7
<i>Leptocerus lustranicus</i> (Mclachlan)	9
<i>Mystacides azurea</i> (L.)	2

Taxon	CS
<i>Mystacides longicornis</i> (L.)	1
<i>Mystacides nigra</i> (L.)	6
<i>Adicella reducta</i> (Mclachlan)	3
<i>Trienodes bicolor</i> (Curtis)	2
<i>Ylodes conspersus</i> (Rambur)	7
<i>Ylodes simulans</i> (Tjeder)	8
<i>Oecetis lacustris</i> (Pictet)	3
<i>Oecetis notata</i> (Rambur)	8
<i>Oecetis ochracea</i> (Curtis)	2
<i>Oecetis testacea</i> (Curtis)	4

Appendix XI (continued) – CCI (community score categories)

Highest CS (CSmax)	BMWP	CoS
0	0	0
1	1-50	1
2	1-50	1
3	51-100	3
4	51-100	3
5	101-150	5
6	101-150	5
7	151-200	7
8	201-250	10
9	251-300	12
10	>301	15

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial statements. This includes not only sales and purchases but also expenses and income. The document also highlights the need for regular reconciliation of bank statements and the company's records to identify any discrepancies early on.

In addition, the document outlines the various methods used for recording transactions, such as the double-entry system. This system ensures that every transaction is recorded in two accounts, one as a debit and one as a credit, which helps in maintaining the balance of the accounting equation. The document also touches upon the use of journals and ledgers to organize and summarize the recorded transactions.

Furthermore, the document discusses the importance of proper classification of transactions into different accounts. This is essential for the preparation of the income statement and the balance sheet. It also mentions the need for adequate documentation, such as invoices and receipts, to support the recorded transactions.

The second part of the document focuses on the process of closing the books at the end of an accounting period. It explains that closing entries are used to transfer the balances of temporary accounts, such as revenues, expenses, and dividends, to permanent accounts like retained earnings. This process is crucial for starting a new period with a clean slate and for determining the net income or loss for the period.

The document also discusses the preparation of the financial statements, including the income statement, balance sheet, and statement of cash flows. It provides a detailed explanation of how each statement is derived from the accounting records and how they provide different perspectives on the company's financial performance and position.

Finally, the document concludes by emphasizing the importance of accuracy and transparency in financial reporting. It stresses that the financial statements should provide a true and fair view of the company's financial health, which is essential for the confidence of investors, creditors, and other stakeholders.