new! delta

Ports and nature, striking a new balance

provincie ZUID HOLLAND

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‘Ports and nature, striking a new balance’

Final report of the NEW! Delta project

The NEW! Delta project balances the improvement of the environment on the one hand and the economic growth of ports on the other.

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Preface

NEW! Delta was initiated in 2002, from within the Paralia Nature project. The Paralia Nature partners felt the need for a larger project focusing on practical experiences in finding a balance between ports and nature. The province of South Holland saw the value and potential synergy of such a project and volunteered to act as lead partner.

We are proud to present to you the final report on NEW! Delta, 'Ports and nature striking a new balance'. The report offers an overview of the project's aims and results, and its conclusions and recommendations.

NEW! Delta represents an international cooperative effort to strike a new balance between ports and nature in Europe. The ten partners from the UK, France, Belgium/Flanders and the Netherlands investigated how ports and nature in North-West Europe coexist at present, the key factors in improving that coexistence in the future and what tools can be applied to achieve that. The project, with a total budget of € 6.7 million, was cofinanced by the European Interreg IIIB North-West Europe programme.

The project focused on identifying best practices and tools for implementing the European Birds and Habitats Directives. These varied from items related to legal aspects and guidelines for long-term port and estuary management, to toolkits to provide a better picture of, for example, sustainable dredging methods or to help identify cause-effect relationships. All of these practices have been pooled together in a database.

Lastly, the project also delivered two practical investments in nature in the vicinity of ports. Together these investments accounted for half the project budget. The first created a network of small-scale nature entities in the Antwerp port area, varying from wetland with open water and reeds to a fish spawning site and a corridor and ponds for the Natterjack Toad. Secondly, some 40 hectares of dunes near De Zilk were extracted from the water-collection system and restored to a wet habitat with dune slacks and ponds, attractive for migratory birds. This area is situated on the Dutch coast in my own province, South Holland.

We are proud that, within a short time-frame of three years, the partnership managed to implement such a complex project on such a wide variety of issues and successfully initiate the two investments. The partnership was truly interregional and transnational, thereby contributing to the aims of Interreg. It has initiated a network on the coexistence of ports and nature, including Natura 2000, which is worth taking forward. In a network such as this, ports, public authorities, NGOs and other stakeholders can find each other across borders and regions.

For my part I would like to express my gratitude to all those who helped to make NEW! Delta a success. First of all, our project partners for a job well-done, the inspiring discussions and the pleasant cooperation. Secondly, the prominent figures from different related fields of expertise, especially for participating in sessions and peer reviewing reports.

We hope the tools, the database and the initial network created during the project continue to develop and prove to be of practical use in managing Natura 2000 areas and implementing the Birds and Habitats Directives and the Water Framework Directive. One area in which the project has succeeded in any case is connecting to ongoing EU policy development. At one of the stakeholder meetings towards the end of the project, the European Union's DG Environment undertook to take account of the NEW! Delta project results in the development of its Natura 2000 Estuary Guidance.

Will ports and nature have a shared future in, let's say, 2030? We truly hope so. May the NEW! Delta project make a small contribution to that future and to a better coexistence between ports and nature.

Mr. J.L. (Joop) Evertse
Delegate of the Province of South Holland

executive summary

Executive summary

NEW! Delta's overall aim is to strike a new balance between ports and nature: the sustainable development of ports and port-related activities in North-West European estuaries and coasts, in balance with the protection of nature, particularly as embodied in the European Natura 2000 network. This aim is promoted through four objectives:

- to contribute to a level playing field for competition by ports and port-related activities by avoiding the uneven application of the Birds and Habitats Directives (BHD) across EU member states;
- to offer practical guidance on dealing with Natura 2000;
- to contribute to a European partner network in these fields; and
- to promote information access to support the other objectives.

To achieve its aim, NEW! Delta has delivered practical guidelines, set up a partner network and implemented investment projects to develop practical experience at both the Port of Antwerp and the De Zilk dunes on the Dutch coast. The project partnership comprises ten partners from France, the UK, Belgium and the Netherlands, who have worked on seven themes. The project has been cofinanced by the EU Interreg IIIB North-West Europe programme.

The overview at the end of chapter 2 lists the theme reports and other products of the project, relating them to the seven themes and the four objectives. This final report draws together the salient points from these results, reflects on their application and makes recommendations on their use and further development. These findings are summarised below.

Level playing field

In respect of the commercial use of estuaries and coasts and their relation to Natura 2000, the playing field for ports and other stakeholders in North-West Europe is generally considered level. Complete equality is difficult to achieve because of differences in culture, legal systems and structures of government and business, the transposition of the BHD into national law, and rules on, for example, environmental quality. However, no member state within the NEW! Delta partnership is considered to have any systematic advantage over another.

European policy and legislation such as the Birds and Habitats Directives clearly apply equally across member states, and so should not unduly influence competition. A prime method of further developing a level playing field is cooperation and the exchange of good practices at regional, national and European level. This is NEW! Delta's main contribution to a level playing field: providing practical tools and sharing knowledge.

Practical guidance

The Birds and Habitats Directives are clear in themselves, but their application is complex. The scientific uncertainties and multiple stakeholder interests, common with port development in estuaries, add to this complexity. In the early years, collective experience gained from applying the BHD was scarce and little communicated. To help address this, NEW! Delta has developed practical guidelines and tools for planning, development and the management of estuaries and coasts. The work has focused on port development and the BHD by addressing the issues of ecological indicators, habitat creation and restoration, long-term planning, cause-effect relations, dredging and coastal defences.

European partner network and information access

To improve access to data, knowledge and organisations in the port-nature ecology sector, the NEW! Delta website www.newdelta.org has been created. The website gives access to NEW! Delta's reports and tools, examples of ecological research, sound estuary management and development, and links to related organisations and networks. In the near future, the intention is to also provide information on the legal aspects of working with the BHD. To promote use of the website, the content is regularly updated and expanded and the site will be promoted at seminars and conferences.

Conclusions and recommendations

Ports and estuaries/coasts can coexist, because estuaries and coasts are generally large, resilient and robust ecosystems. Maximising this potential for coexistence requires an integrated, multifunctional approach to design and management. This in turn calls for pro-active, communicative planning, with early stakeholder involvement. The tools developed within NEW! Delta support such strategies, thus reducing legal and practical confrontations. Natura 2000 does not hinder commercial development; rather, it encourages more sophisticated and sustainable economic use.

Some hurdles have yet to be overcome. The most difficult issue to be addressed is the tension between legal rules and processes, which are rigid by nature, and the dynamics of estuary and coastal ecosystems, which require more flexibility on planning and management. The Birds and Habitats Directives are intended to deal with these tensions, but their practical application (for instance to permit port development where 'nomadic' natural values are at stake), requires further development and exchanges of experience between European partners.

résumé

Résumé

L'objectif général de NEW! Delta est de trouver un nouvel équilibre entre les ports et la nature: Un développement durable des ports, et des activités qui leur sont liées, dans les estuaires et sur les côtes du Nord-Ouest de l'Europe, en équilibre avec la protection de la nature, comme cela a été prévu dans le réseau européen de Natura 2000.

Quatre objectifs ont été définis pour y participer:

- harmoniser les conditions de concurrence en évitant les inégalités d'application des Directives Habitats et Oiseaux entre les Etats Membres de l'Union Européenne;
- proposer des recommandations pratiques pour mettre en œuvre Natura 2000;
- contribuer à un réseau de partenaires européen dans ce domaine;
- favoriser l'accès à l'information afin de soutenir les autres objectifs.

Pour atteindre ce but, NEW! Delta à établi des lignes directrices à caractère pratiques, créé un réseau de partenaires et réalisé des projets d'investissement au port d'Anvers et dans les dunes De Zilk sur la côte néerlandaise, afin d'acquérir une expérience de terrain. Le projet comprend dix partenaires venant de France, du Royaume Uni, de Belgique et des Pays-Bas. Ils ont travaillé sur sept thèmes. Le projet a été co-financé par le programme Interreg IIIB de l'Union Européenne.

Le récapitulatif à la fin du chapitre 2 passe en revue les rapports des thèmes et les autres productions issues du projet en les reliant aux sept thèmes et aux quatre objectifs. Le présent rapport final en extrait les points forts, propose des domaines d'application et établit des recommandations pour les utiliser et les développer. Ces résultats sont résumés ci-dessous.

Harmonisation des conditions de concurrence

En ce qui concerne l'usage commercial des côtes et des estuaires et leurs relations avec Natura 2000, les conditions offertes aux ports et aux autres acteurs dans le Nord-Ouest de l'Europe sont considérées comme équivalentes. Une harmonisation complète est difficile à mettre en place à cause des différences de culture, des systèmes de droit, de l'organisation des gouvernements et du commerce, de la transposition des Directives Habitat et Oiseaux en réglementation nationale et des pratiques, par exemple en matière de qualité de l'environnement. Néanmoins, aucun Etat Membre au sein du partenariat de NEW! Delta n'est considéré comme ayant un avantage systématique par rapport aux autres.

Il est clair que la politique et la réglementation européennes, telles que les Directives Habitats et Oiseaux, s'appliquent uniformément dans les Etats Membres, et qu'ainsi, la concurrence n'est pas indûment influencée. La meilleure façon d'harmoniser les conditions de concurrence est de coopérer et d'échanger des bonnes pratiques au niveau régional, national et européen. C'est à cela que contribue NEW! Delta en fournissant des outils pratiques et en favorisant le partage de la connaissance.

Recommandations pratiques

Les Directives Habitats et Oiseaux sont claires, mais leur application est complexe. Les incertitudes scientifiques et les intérêts multiples des acteurs, tels qu'ils s'expriment couramment lors des développements portuaires dans les estuaires, ajoutent à cette complexité. Au départ, les expériences collectives acquises lors de l'application des Directives Habitats et Oiseaux étaient rares et peu communiquées. Afin de remédier à cela, NEW! Delta a développé des recommandations pratiques et des outils pour préparer le développement et la gestion des côtes et des estuaires. L'accent a été mis sur le développement des ports et les Directives Habitats et Oiseaux à travers des indicateurs écologiques, la création et la restauration d'habitats, la prospective, les relations de cause à effet, le dragage et la défense côtière.

Réseau de partenaires européen et accès à l'information

Afin d'améliorer l'accès à l'information, à la connaissance et à l'organisations dans le secteur des ports et de l'environnement, le site Internet de NEW! Delta www.newdelta.org a été créé. Ce site Internet donne accès aux rapports et outils de NEW! Delta, à des exemples de recherche écologique, de bonne gestion et de développement dans les estuaires. Il offre également des liens avec d'autres réseaux ou organisations. Dans un avenir proche, il fournira aussi de l'information sur les aspects réglementaires en lien avec les Directives Habitats et Oiseaux. Pour développer l'utilisation du site, son contenu est actualisé et enrichi régulièrement. Séminaires et conférences sont l'occasion d'en faire la promotion.

Conclusions et recommandations

Les ports et les zones côtières et estuariennes peuvent coexister, parce que les écosystèmes côtiers et estuariens sont en général étendus, dynamiques et robustes. Afin d'optimiser ce potentiel de coexistence, une approche intégrée et multi-fonctionnelle des projets et de la gestion est indispensable. Cela implique une organisation proactive et communicative intégrant une association précoce des intéressés. Les outils développés au sein de NEW! Delta peuvent appuyer de telles stratégies de façon à réduire les conflits d'usage et les contentieux qui peuvent surgir. Natura 2000 ne s'oppose pas au développement commercial; Natura 2000 favorise plutôt un usage économique plus raffiné et plus durable.

Certains obstacles doivent encore être surmontés. Le sujet le plus difficile est celui de la tension qui existe entre d'une part la réglementation et les procédures légales, qui sont rigides par nature, et d'autre part la dynamique des écosystèmes côtiers et estuariens qui exigent plus de flexibilité dans l'organisation et la gestion. Les Directives Habitats et Oiseaux visent à gérer ces tensions, mais leur application pratique (par exemple pour permettre le développement d'un port là où des espèces naturelles « nomades » sont présentes) réclame de plus amples développements et davantage d'échanges d'expérience entre les partenaires européens.

Management samenvatting

NEW! Delta's overkoepelende doelstelling is het bereiken van een nieuw evenwicht tussen havens en natuur: de duurzame ontwikkeling van havens en havenactiviteiten in noordwest Europese estuaria en kustgebieden, in evenwicht met bescherming van de natuur, in het bijzonder zoals die wordt beschermd door het Europese Natura 2000 netwerk. Deze overkoepelende doelstelling wordt bewerkstelligd via vier doelen:

- bijdragen aan een gelijk speelveld voor wat betreft concurrentie tussen havens door het tegengaan van verschillen tussen lidstaten in de toepassing van de Vogel- en Habitatrichtlijnen;
- praktische ondersteuning voor het werken met Natura 2000;
- bijdragen tot een Europees partnernetwerk; en
- toegang tot informatie als ondersteuning van de andere doelen.

Om haar doelstelling te bereiken heeft NEW! Delta praktische richtlijnen opgesteld, een partnernetwerk opgezet en investeringsprojecten uitgevoerd om praktische ervaring op te doen in de haven van Antwerpen en duingebied De Zilk aan de Zuid-Hollandse kust. Het samenwerkingsverband van NEW! Delta bestaat uit partners uit Frankrijk, het Verenigd Koninkrijk, België en Nederland, die hebben gewerkt aan zeven thema's. Het project werd gecofinancierd door het EU-programma Interreg IIIB .

Het overzicht aan het eind van hoofdstuk 2 zet de themarapporten en andere projectproducten op een rij en legt de relatie met de zeven thema's en de vier doelen. Dit eindrapport brengt de belangrijkste punten uit deze producten bij elkaar, bespreekt hun toepasbaarheid en doet aanbevelingen voor het gebruik en de verdere ontwikkeling. Hieronder volgen de belangrijkste conclusies.

Gelijk speelveld

Het speelveld voor havens en andere belangenpartijen met betrekking tot het commercieel gebruik van estuaria en kusten in relatie tot Natura 2000 is vlak te noemen. Volledige gelijkheid is moeilijk bereikbaar vanwege verschillen in cultuur, wetgeving, inrichting van bestuur en bedrijvigheid, de omzetting van de Vogel- en Habitatrichtlijnen in nationale wetgeving en regelgeving zoals die op milieugebied. Maar geen enkele lidstaat in NEW! Delta heeft een systematisch voordeel ten opzichte van een andere.

Europees beleid en wetgeving zoals de Vogel- en Habitatrichtlijnen gelden duidelijk voor alle lidstaten, en mogen concurrentie dus niet ongepast beïnvloeden. Een prima bijdrage aan het verder ontwikkelen van een gelijk speelveld is samenwerking en afstemming op regionaal, nationaal en Europees niveau. NEW! Delta's belangrijkste bijdrage aan een gelijk speelveld ligt dan ook hierin: het beschikbaar maken van praktische richtlijnen en het delen van kennis.

Praktische richtlijnen

De Vogel- en Habitatrichtlijnen zijn op zich helder, maar hun toepassing is complex. Wetenschappelijke onzekerheden en de betrokkenheid van veel belangenpartijen – gebruikelijk als het gaat om de ontwikkeling van havens in estuaria – vergroten die complexiteit. De eerste jaren was er weinig gezamenlijke ervaring met de toepassing van de Richtlijnen, en die werd weinig gedeeld. Om hier iets aan te doen heeft NEW! Delta praktische richtlijnen en gereedschappen ontwikkeld voor de planning, ontwikkeling en het beheer van estuaria en kusten. Het werk concentreerde zich op havenontwikkeling en de Vogel- en Habitatrichtlijnen en richtte zich op ecologische indicatoren, aanleg en herstel van habitats, langetermijnplanning, oorzaak-gevolgrelaties, baggeren en kustverdediging.

Europees partnernetwerk en informatietoegang

Om de toegang te verbeteren tot gegevens, kennis en organisaties op het gebied van havens en natuur, heeft NEW! Delta de website www.newdelta.org opgezet. De website geeft toegang tot NEW! Delta's rapporten en gereedschappen, voorbeelden van ecologisch onderzoek, gezond beheer en ontwikkeling van estuaria en links met verwante organisaties en netwerken. Het is de bedoeling om in de nabije toekomst ook informatie te verschaffen over de juridische kant van het werken met de Vogel- en Habitatrichtlijnen. Om het gebruik van de website te bevorderen zal de inhoud regelmatig geactualiseerd en uitgebreid worden. De site zal op seminars en conferenties onder de aandacht worden gebracht.

Conclusies en aanbevelingen

Havens en estuaria/kusten kunnen zij aan zij bestaan omdat estuaria en kusten over het algemeen grote, veerkrachtige en robuuste ecosystemen zijn. Het maximaal benutten van de mogelijkheid voor samengaan, vraagt een geïntegreerde, multifunctionele benadering van ontwerp en beheer. Dit op zijn beurt vraagt om een pro-actieve, communicatieve planning en om het vroeg betrekken van belangenpartijen. De gereedschappen ontwikkeld in NEW! Delta ondersteunen die strategie en beperken zo juridische en praktische confrontaties. Natura 2000 vormt geen hindernis voor commerciële ontwikkeling, maar een aanmoediging voor uitgekiend en duurzaam economisch gebruik.

Er moeten nog hindernissen genomen worden. Het moeilijkste punt is de spanning tussen juridische regels en processen – die van nature onbuigzaam zijn – en de dynamiek van estuarium- en kustecosystemen – die vragen om flexibiliteit in planning en beheer. De Vogel- en Habitatrichtlijnen hebben de intentie om te kunnen gaan met die spanning, maar hun praktische toepassing (bijvoorbeeld het toestaan van havenontwikkeling waar waardevolle 'nomadennatuur' voorkomt), vraagt verdere ontwikkeling en het uitwisselen van ervaring tussen Europese partners.

Outline of the project

NEW! Delta has sought to investigate suitable approaches to establish a balance between improvements in the environment of estuaries and the economic growth of ports. Against the background of the European Birds and Habitats Directives (BHD), it has fostered the protection of Natura 2000 sites as an integral part of economic port and estuary development. The project, which started in January 2003 and was completed in October 2007, has been cofinanced by the European Community Initiative Interreg IIIB North-West Europe.

The project area extends from Haute-Normandie on the French coast to the neighbouring Belgian and Dutch coasts and across the Southern North Sea and the English Channel to the UK. NEW! Delta represents a unique partnership, with port authorities and related institutions working closely together.

As well as developing best-practice manuals, guidelines and web-based decision-making tools, the project has realised two major environmental developments with a total value of around € 3 million:

- Establishment of an ecological infrastructure network in the Antwerp port area.
- Restoration of a dynamic dune area on the Dutch coast (De Zilk dunes).

NEW! Delta has been implemented by ten project partners from four countries in North-West Europe: England, France, Belgium and the Netherlands. The partnership, which includes port authorities, government bodies and knowledge institutions consists of (see project area map on page 47):

1. Province of South Holland, the Netherlands (lead partner), cooperating with Waternet as a sub-partner on the investment in De Zilk.
2. Agency for Maritime and Coastal Services, Coastal Division, part of the Flemish Ministry of Mobility and Public Works, Belgium.
3. Antwerp Port Authority, Belgium.
4. Institute for Infrastructure, Environment and Innovation, Belgium.
5. Ministry of Ecology and Sustainable Development, France.
6. Port of Rouen, France.
7. Port of Rotterdam Authority, the Netherlands, assisted by Radboud University Nijmegen as a sub-partner.
8. Alterra Green World Research, the Netherlands, assisted by the Wageningen Institute for Marine Resources & Ecosystem Studies as a sub-partner.
9. Delft University of Technology, the Netherlands.
10. ABP Marine Environmental Research Ltd, United Kingdom.

This overall aim is pursued through four objectives:

- to contribute to a level playing field for competition by avoiding the uneven application of the Birds and Habitats Directives (BHD) across EU member states, by promoting cooperation between partners;
- to offer practical guidance on dealing with Natura 2000, by developing knowledge and experience on how to address practical and legal problems;
- to contribute to a European partner network to promote cooperation and the exchange of information and experience; and
- to promote information access and the transfer of information.

The NEW! Delta project comprises seven themes, each led by one of the project partners:

1. Pooling resources for Natura 2000
2. Ecological goals and indicators
3. Creation and restoration of coastal and estuarine habitats
4. Cross-sectoral long-term port and estuary visions
5. Cause-effect relationships
6. Sustainable dredging strategies
7. Coastal morphology and coastal defences in the vicinity of ports.

Following this project outline this report is divided into a further two chapters and two annexes. Chapter 2 summarises each theme report and gives an overview of the other NEW! Delta products. Chapter 3 draws together and discusses the results, relates them to the four main objectives and makes a number of conclusions and recommendations. Annex I describes the partner organisations and their involvement in the different themes, and provides their contact details. Annex II gives the full report references and lists the figures and interviews included in the report.

NEW! Delta's overall aim is to strike a new balance between ports and nature: to achieve the sustainable development of ports and port-related activities in North-West European estuaries and coasts in balance with the protection of nature.

Figure 1.1 Construction of ecological network, Port of Antwerp, project Grote Kreek

Figure 1.2 Maasvlakte I (by Hans Slootweg, Province of South Holland)

Theme results

2.1 Theme 1 Pooling resources for Natura 2000

Background and objectives

Although European directives apply equally to all member states, each tends to implement them in different ways. This is partly because member states have discretionary rights, but is often due to cultural factors and local differences in regulations. The Birds and Habitats Directives are no exception. Member states can, however, learn from each other through coordination and cooperation. Sharing knowledge will lead to a more consistent implementation of European legislation. This will result in more effective and efficient developments and a level playing field for all countries concerned.

Port activities are also subject to the requirements of the BHD. NEW! Delta has focused on the implementation of the BHD in the valuable estuarine and coastal areas in North-West Europe. Port activities are widespread in these areas where both major economic interests and the coherence and vitality of Natura 2000 areas are at stake.

The objectives of Theme 1 were:

- to improve implementation of the Birds and Habitats Directives in Flanders, France, the Netherlands and the UK;
- to contribute to a more level playing field in respect of competition under BHD implementation;
- to develop tools and procedures for transnational cooperation and coordination between planners and managers working on coasts, estuaries and ports;
- to establish a European partner network; and
- to set up a database as a practical source of information for researchers, project planners and port managers.

Results

Using literature research, expert meetings, workshops/ conferences and interviews to pursue these objectives, Theme 1 has produced a number of reports on the application of the BHD in the partner countries. A proposal has been drawn up for applying the knowledge gained and the dissemination of other NEW! Delta outputs through a database and an ongoing partner network.

Application of the BHD in the partner countries: differences and best practices and cooperation

The transposition of the BHD into national legislation was analysed and compared in the four partner states. The results can be found in the Theme 1 report on the implementation of the BHD (see annex II, report 1.1). The study focused on national laws, administrative structures and institutes and processes, as well as the difficulties encountered with transposition. The subsequent Theme 1 report 'Benchmarks and common practices in the application of the Birds and Habitats Directives' (report 1.3) studied the implementation of Article 6 (3) and 6 (4) of the Habitats Directive (see the box below/on the following page for the text of these articles. For the full text of the directives see www.europa.eu.int/eur-lex/en/consleg).

Based on the results of the comparative study and interviews with the partners and stakeholders in this field, tools and procedures have been developed for transnational cooperation and coordination between planners and managers of coasts, estuaries and ports (see report 1.2).

The main conclusions of these studies are:

- Each partner state has had its own difficulties transposing the BHD into national legislation, for various reasons. In general, these mostly relate to the correct application of the Appropriate Assessment (Article 6 (3) Habitats Directive) and the designation of Natura 2000 sites (see report 1.1).
- No partner state has implemented both directives without experiencing difficulties with their national courts or the European Court of Justice. Figure 2.1.2 gives an overview of the legislation concerned, the competent authorities, Natura 2000 sites and guidance by partner states (see report 1.1).
- For most stages in the development of the Appropriate Assessment, the ports and governmental stakeholders operate on a level playing field throughout North-West Europe. Member states differ in how they realise the steps for Alternative Generation and Selection, and how they approach the Imperative Reasons of Overriding Public Interest (IROPI). These differences are reflected in the structures of their industries and administrations.
- A register of plans and projects in and around Natura 2000 sites would help to clarify the issue of assessing cumulative effects. The study showed that these effects are generally assessed only for habitats and species for which the affected site was designated (see report 1.3). In the UK and France this assessment is integrated into the Appropriate Assessment. A complicating factor is the relationship between the Appropriate Assessment and the environmental assessment.
- Instruments for transnational cooperation should be developed further, particularly where an estuary is shared between two member states, or in the case of development plans and (potential) compensation on both sides of a national border. Creating formal or informal common organisations of two or more member states, as e.g. ProSes2010 for the Scheldt Estuary, has been demonstrated to be very useful. More can be done, e.g. using the cooperative structures of the Water Framework Directive.

Habitats Directive, Article 6 (3): any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Article 6 (4): if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the member state shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Organisations active in the use, development and protection of estuaries include not only ports and government bodies, but also commercial organisations, NGOs and other stakeholders involved with Natura 2000. A number of these contributed directly to NEW! Delta by attending project meetings (see figure 2.1.1). The overlap in information, skills and knowledge shared by these networks is a focus of interest for NEW! Delta.

Database and partner network: the proposal

The NEW! Delta website www.newdelta.org has been created as a portal to the experience gained within the NEW! Delta project and to the many related projects and networks. At its centre is a database containing the project results (reports, tools), examples of ecological research and practical cases of port development projects and dredging in estuaries and coastal zones. Currently the database provides information on the NEW! Delta partner states. It is proposed to extend the database to include information on Germany, Poland and the Baltic states as well as case law regarding the BHD (see report 1.4).

The current website will operate for at least a year following completion of the current NEW! Delta project. The intention is that any future website will be linked to the websites of the European Commission's DG Environment, governmental organisations, interest groups and expert organisations. In addition to the organisations shown in figure 2.1, it will have links with the EcoPorts Foundation, Paralia Nature, Cambridge/Brookes University and the network of government authorities currently under development by Dutch, German, British and Spanish authorities and Natura 2000 staff.

Figure 2.1.1 Networks directly involved in NEW! Delta

Figure 2.1.2 Transposition of Birds and Habitats Directives in NEW! Delta partner states

	Flanders/Belgium	The Netherlands	UK	France
Transposition of the Birds and Habitats Directives into national legislation	**Site protection**: Amendment Decree 2002 (into force: 10/09/2004) **Species protection**: no proper legislation	**Site protection**: New Nature Conservation Act 1998 (into force 01/10/2005) **Species Protection**: Flora and Fauna Act (into force 01/04/2002)	**Birds Directive**: Wildlife & Countryside Act 1981, Wildlife Order (Northern Ireland) 1985 Nature Conservation and Amenity Lands Order (Northern Ireland) 1985 **Habitats Directive**: Conservation (Natural Habitats etc.) Regulations 1994	**Birds and Habitats Directives**: Environment Code no 2001-321 (Official Bulletin 14/04/2001), put into force by interministerial memorandum 03/05/2002 (Environment Ministry Official Bulletin nr. 02/6, 26/09/2002)
Competent authorities	Ministry of Public Works Ministry of Energy, Environment and Nature Agency for Nature and Forest (Department for the Environment, Nature and Energy, Flemish Government)	Ministry of Agriculture, Nature and Food Quality (LNV), Nature Department	Environment, Food and Rural Affairs (DEFRA) Important Advisors: *England:* Natural England *Scotland:* Scottish Natural Heritage *Northern Ireland:* Environment and Heritage Service *Wales:* Countryside Council for Wales	*National level:* Ministry of Ecology and Sustainable Development, Nature and Landscapes Directorate (DNP) *Regional level:* Regional Directorate for the Environment (DIREN) *Local level:* Prefecture
Guidance available or in progress	Nature for the future: 20 years of EU Habitats Directives, mainstay of the EU protected areas network (Nature reserves and AMINAL 1999) Procedure on protected areas (Ministry of the Flemish Community Directive LIN 2004/11, 30/6/2004) Natura 2000 in Flanders, link in a European network (AMINAL, Nature Point and WWF 2003)	Framework for Natura 2000 targets, decisions and management plans (LNV Nature Department) Species in legislation and policy (LNV database) The Nature Portal	Planning Policy Guidance Notes Habitats Regulations Guidance Notes	Ministry of Ecology and Sustainable Development: Guidance for art 6(3) and 6(4) HD Methodological Guidance to management plans (1998) Methodological guidance on environmental impact assessment in Natura 2000 sites and concerning transport infrastructures (Environment Ministry)
Main difficulties encountered and issues to be addressed	- Defining Favourable Conservation Status - Species protection - Poor transposition of Article 6 (3) and (4) Habitats Directive - Drawing up management plans	- Site protection - Defining Favourable Conservation Status - Management plans - Inadequate transposition of Article 6 Habitats Directive	- Data collation from national to European format - Wild ranging species: no clearly identifiable sites of importance	- Designation of navigation channels - Designation of SPAs and SACs - Non compliance with Article 6 (2), (3) and (4) Habitats Directive
Areas designated to date as SPAs and SACs	SAC: 38 areas, 101.891 ha SPA: 24 areas, 98.243 ha	SAC: 141 areas, 750.841 ha SPA: 79 areas, 1.010.910 ha	SAC: 611 areas, 2.504.622 ha SPA: 242 areas, 1.470.300 ha	SAC: 1307 areas, 4.887.272 ha SPA: 367 areas, 4.477.962 ha

2.2 Theme 2 Ecological goals and indicators

Background and objectives

Many seaports within the NEW! Delta region operate in or near wildlife habitats or harbour species protected under the BHD. In addition, there is overlap between the monitoring, evaluation and reporting requirements laid down in the Habitats Directives and the EU Water Framework Directives. The size, volume and dynamics of port systems, including the length of quay walls, the diversity of underwater structures and the way they are managed have changed the underwater environment significantly and have had an impact on the ecological functioning of the local marine environment. To help address this concern the NEW! Delta project has explored the use of aquatic ecological monitoring in port-estuaries. To achieve the aims of Theme 2, a package of fieldwork was established in the Port of Rotterdam. The site was chosen for its location in the transition zone between the Rhine and Maas rivers and the North Sea and because the aquatic ecological function of this area had so far remained unexplored, due to the high level of industrialisation. It is known that water and sediment quality is not limiting for ecosystem functioning, and that valuable aquatic ecotopes exist within the port area. Although it is not designated a Natura 2000 site, the port hosts numerous protected species.

The objectives of Theme 2 were:

- to conduct research on crustaceans and fouling communities in the port-related waters and infrastructures of the Port of Rotterdam;
- to gain more understanding of the interrelationship between heavily modified areas such as port infrastructure and Natura 2000 sites;
- to develop a methodology for defining goals and indicators specifically designed for the aquatic environment of ports;
- to generate answers to questions concerning the species protection requirements under both the EU Habitat Directive and the EU Water Framework Directive and the implications for setting standards for good aquatic ecological objectives;
- to develop a port-orientated protocol for ecological data management and methodologies; and
- to identify and define links between possible goals for port areas and goals set for Natura 2000 sites.

Results

At present management objectives and indicators for estuarine port environments are largely undefined and so an adaptive management strategy, based on an ecosystem approach, seems the best way to proceed. It is generally agreed that the management of the port environment is developed on a 'learning by doing' basis, while understanding of how the port ecosystem functions and its role within the surrounding ecosystems is an evolving process. In this framework port ecosystem management can, for example, improve the significance of the estuary and river for migrating fish. However this approach must be underpinned by codes of conduct, stakeholder involvement and long-term agreements with regulatory authorities. In order to make management measures cost-effective, feasible and realistic it is in the interest of both nature and commercial users to create favourable ecological conditions based on the existing port and water infrastructure.

Theme 2 proposed the use of crustaceans as the main indicator to monitor the aquatic ecosystem in ports, since they play an important role in typical estuarine food webs and are found living in both hard and soft substrates. This also makes them suitable as an indicator in the Water Framework Directive monitoring requirements. Under the WFD, all typical ecotypes present must be monitored, and hard substrata are commonly found in ports. Abundant and healthy benthic communities in any ecosystem provide a clear sign of a well functioning environment. To help demonstrate this concept the project included a pilot crustacean monitoring programme in the Port of Rotterdam, but recognises that long-term monitoring is needed to finalise and fine-tune any methodologies used (see report 2.1).

Due to the dynamic character of estuarine systems, pressures on species in port areas and the risks of unexpected adverse events, the protection of aquatic ecosystems in such areas is best served by the WFD ecosystem approach. Restoring and creating aquatic ecological values within ports is practical for port managers when natural values do not raise additional legal issues. Concerns for such problems are a major disincentive to ports considering habitat creation and restoration projects.

Figure 2.2.1 Shore Crab (Carcinus maenas)

Figure 2.2.2 Palaemon shrimps (Peter Paalvast, Ecoconsult)

Interview

Han Lindeboom

Member of the Board of Directors (Science), Wageningen IMARES

'NEW! Delta could be a first step towards a European delta library'

As an advice and research institute, how does IMARES approach Interreg and other projects like NEW! Delta?
Generally speaking, we participate in projects that are closely related to our area of activity. That benefits us in two ways – it means that we take part in Interreg or other EU projects, and that we acquire knowledge that we can use later in similar projects or for other clients. My group was involved in the dredging component of NEW! Delta. And Alterra conducted some of the research on dunes.

Looking at NEW! Delta, does science contribute to practice, or vice versa?
As an advisory and research institute, it is our task to contribute knowledge to practice. But if we feel that practice can help us to improve our products, we take advantage of that too, of course. And you can learn a lot from taking part in projects like NEW! Delta, where the other partners may look at things from a different perspective.

Your role in NEW! Delta was that of researcher, as a provider of answers. Do you make an effort to share the knowledge you have acquired, for example with other European seaports?
Many of our research results are public and are available as PDF files through our website or the sites of clients or partners. And, of course, if the opportunity arises, we publish the results in international journals and suchlike. That helps to make knowledge accessible. And if we see that there is a demand for specific research or knowledge, we do our best to market it.

NEW! Delta will soon come to an end. How do you feel about that?
I would like to see it continue in one way or another. From experience, I know that there is an enormous need for a sort of library of the successes and failures in coastal management. NEW! Delta has gathered a wide range of good examples from several different deltas. That allows us to look at how successful we have actually been in implementing all kinds of measures, in compensation, and – ultimately – in generating conditions in which a thriving port can co-exist with the surrounding natural environment in a delta area. After all, that is what NEW! Delta is all about. I can imagine that if we were to collect together – certainly in Europe, but perhaps also worldwide – a large inventory of examples of successes and failures and make them available, it would be very useful to everyone involved. In that respect I fully support the continuation of the project.

How you do that and in what form is another story. If an international association of shipowners or port operators were interested, perhaps they could take it over. But it is important that, whatever the follow-up, it starts immediately after the end of the project. If a long time passes, perhaps two years or more, before any further action is taken, the consortium will have broken up and it will be too late. But if there is a demand and a need, I think you should continue in one way or another. I'm not sure if that needs to be within the context of Interreg or the EU. One crucial factor is, of course, whether the money is there, because these things do not happen by themselves. Even if it is done under the flag of Interreg or the EU, someone will have to take it over at some point. And it must be a library with a stock of good and constantly updated material. Just keeping the shop open to show what NEW! Delta has discovered will get you nowhere. If you manage to meet all these conditions, I think you could create a library that would continue to grow, and would therefore become increasingly valuable.

2.3 Theme 3 Creation and restoration of coastal and estuarine habitats

2.3.1 Review and guidelines

Background and objectives
The central question addressed in Theme 3 is: what best practices and lessons are to be learned for conserving and restoring nature in or near ports, without affecting the port's economic potential?

A significant number of protected areas and valuable habitats forming part of the EU Natura 2000 network are located in or near ports. Port infrastructure has also created 'unintended' zones where new habitats have developed. Measures need to be introduced under the Birds and Habitats Directives to conserve or restore the ecological value of these locations. This will create new and innovative options for coexistence between industrial activities, port infrastructure and habitats that host a significant number of species. In general, the benefits of these strategies are clear: a coherent and solid Natura 2000 network, strengthened by a support system of natural habitats in port areas able to coexist with port activities.

The objectives of Theme 3 were:
- to provide practical examples and demonstration projects;
- to contribute to land-use planning in areas where coastal and estuarine habitats are created and restored and port development takes place;
- to evaluate demonstration activities and apply the results in a planning and decision making tool; and
- to develop a transferable and generic planning and decision-making tool to support both ecological functioning and port development.

Results
Theme 3 has produced the following results:
- a review of methods and practices for creating and restoring coastal and estuarine habitats;
- the implementation of two demonstration projects, in the Port of Antwerp and the De Zilk dunes;
- a review of the differences between France, the Netherlands, Belgium and the UK regarding site selection, port planning, nature policy and legislation; and
- the first version of a decision-making tool (sequential guidelines) to facilitate combined nature/port developments.

The results of the demonstration projects are described in section 2.3.2.

Review of practical examples
The study focused on success and failure factors for habitat creation and restoration and on the techniques used to achieve them. Twenty-six cases were studied, located in the Netherlands, Belgium, the UK, and France.

Success factors include a clear need for the restoration/creation scheme, policy support, clear objectives for the scheme, adequate and timely stakeholder engagement, delivery of multiple benefits, political support, financial support, a clear approval process, effective project management and public acceptance. Factors contributing to ecological success include available knowledge, scale, local physical conditions, complexity of desired habitat, management and disturbance.

In selecting sites for restoration schemes, scientific and multi-criteria analyses can be useful in developing plans and evaluating spatial scenarios. The elements that need to be considered when selecting adequate sites depend on ecological, physical and economic considerations. Site selection is however also influenced by pragmatic motives, such as land ownership, zonal planning and opportunities to purchase land.

Port planning, nature conservation policy and legislation differ between the UK, France, Belgium and the Netherlands. An important difference is the extent to which economic development in estuarine and coastal areas is driven by public or privately owned port authorities. In the UK, for example, individual companies are responsible for port development. In the Netherlands, Belgium and France public authorities play a more dominant role in the process of port development. Interestingly, the difference in port ownership is also reflected in conflicts between port activities and the occurrence of protected species. Such conflicts are apparent in the ports of Rotterdam, Antwerp and Le Havre, but rarely occur in the UK. The reason appears to be the lack of unused space in commercially owned ports, which cannot afford to create land and not use it. Another difference is the spatial coverage of designated sites, and the way boundaries are defined. In the UK, Natura 2000 areas typically include a whole estuary, while in the Netherlands, Belgium and France, they generally only cover parts of an estuary.

'Natural events, e.g. severe storm surges, may cause damage to habitats in Natura 2000 areas. Artificial restoration to the pre-hazard state however is not recommended'

Jan van de Graaff,
Senior Scientific Officer, Delft University of Technology

Sequential guidelines
The sequential guidelines were developed to support sustainable development in coastal and estuarine areas, using a multi-functional integrated approach. In accordance with the rationale of NEW! Delta, port economy and ecology are central issues in the guidelines, but they also explicitly incorporate multi-sectoral policies and functions.

The guidelines aim to facilitate a strategic spatial vision or plan, compliant with the BHD provisions on protected areas and species protection. They deal specifically with cases where port development can potentially conflict with Natura 2000 areas and 'nomadic' nature (species and habitats that tend to move around). They make use of scenarios aimed at creating robust, resilient ecological networks, able to withstand negative impacts. The guidelines require further testing and development.

Recommendations
Further progress in the field of habitat creation and restoration will gain from:

- adapting the expert model used for the Natterjack Toad for the general development of ecological infrastructure for sustainable populations of protected species in port areas (see report 3.3);
- research into the spatial relationships between coastal bird populations in ports and estuaries, developing a meta-population model to explore the opportunities for mitigation and compensation of breeding habitats between different port areas around the North Sea (see report 3.2);
- setting up a database on the development and management of estuarine/coastal areas, including habitat creation/restoration techniques, spatial planning and possible compensation areas to reinforce the Natura 2000 network;
- applying and further developing the sequential guidelines.

2.3.2 Investment projects

Two investment projects have been carried out to demonstrate how a balance between economic activities and nature can be achieved in practice. The projects were located in and around the Port of Antwerp and at the De Zilk dunes, on the Dutch coast some 40 km north of the Port of Rotterdam.

Like the port areas of Antwerp and Rotterdam, the De Zilk dunes are part of the huge and complex coast-estuary ecosystem that stretches from Northern France via the Belgian and Dutch coasts up to Germany and Denmark. Within this ecosystem, interventions at one site, e.g. port development, will not only impact locally but may also have consequences for the rest of the ecosystem. Port extension into the sea, for example, will affect sand transport by the net northbound tidal streams, and thus the growth or erosion of (submerged) land further north, or may reduce salt-spray, changing vegetation development along the coastline.

Conversely, the creation of an ecological reserve provides a source of species for natural sites in nearby ports. This helps make the development of port activities and coastal defence structures acceptable by mitigating negative effects – an innovative way to permit cohabitation between industrial activities/port infrastructure and nature.

De Zilk
The De Zilk dunes, which are part of the Natura 2000 network, are already recognised as an important stopover site for migratory birds on their routes along the Atlantic coasts. As part of the Amsterdam Water Supply Area, however, the groundwater regime has been severely modified, resulting in the desiccation of 200 hectares of wet dune slacks and the disappearance of typical flora and fauna. The NEW! Delta investment project has helped to restore the groundwater system to a more natural, wetter condition and, in addition to filling in the man-made water channels and raising water tables, management measures have been revised to encourage the return of characteristic flora and fauna to the area.

The Amsterdam Water Supply Dune Area is used by 700.000 visitors a year, coming mainly from adjacent urban areas. Its conservational values are taken into account in the further development of the area for its recreational function. Because it is a multiple-use area, such integrated solutions are required. This requires applying the principles of Integrated Coastal Zone Management, especially cooperation with stakeholders (nature management authorities, municipalities, water boards, provinces, agricultural organisations, etc.). Stakeholder participation was included in the Environmental Impact Assessment of the proposed modifications to the area (see report 3.1).

> **'Nothing is quite as convincing as a practical result'**
>
> Leen van der Sar,
> Delegate, Province of South-Holland

Port of Antwerp
The second investment project, in the Port of Antwerp, consisted of the construction of an ecological network of small core areas, linked by corridors and stepping stones. The network occupies 5% of the port land cover of 13.300 hectares in total. The first objective was to create the physical backbone for sustainable populations of several port-specific species of plants and animals, protected by European and/or Flemish legislation. The network also ecologically supports large nature areas surrounding the port (see report 3.1).

The project involved the creation of new areas/habitats and the replacement of existing areas endangered by port development. Examples are the creation of habitat areas for swifts and peregrines (on buildings), sand martins (during construction works), Mediterranean gulls and common terns. Much attention was also given to the protected Natterjack Toad.

Generally, these species respond well to a change of breeding location, making it easy to protect viable populations. In some cases however, such as the Marsh Helleborine site, the situation required more careful study. As part of the NEW! Delta project, and with the participation of Alterra and stakeholders, an experiment was set up to study the relocation of the population to a place near its original site.

Figure 2.3.1 De Zilk with filled-in water infiltration channel

Figure 2.3.2 Construction of ecological network, Port of Antwerp, project Kuifeend

2.4 Theme 4 Cross-sectoral long-term port and estuary visions

Background and objectives
All NEW! Delta partner countries would like to see secure, realistic long-term port and estuary visions on the future status and management of these areas. To effectively underpin such visions, a clear and common understanding is needed of the way estuaries change and respond to multiple factors. This, and the joint development of working models, will harmonise the way estuarine habitats are managed, which will in turn contribute to the overall aim of creating a level playing field.

The objectives of Theme 4 were:
- to obtain a clear and common understanding of system-level change and how systems respond to multiple factors;
- to establish best-practice rules based on experiences in the four partner countries; and
- to create a generic model for developing long-term port and estuary visions that can be applied in the four partner countries and elsewhere.

Interview

Pierre Chapuy

Professor at the Conservatoire National des Arts et Metiers, Paris. Drafted the Theme 4 report on Cross-sectoral long term port & estuary visions.

'The challenge is to serve the interests of all in a limited space'

What is the relationship between ports and nature, and the BHD in particular, and where do the tensions lie in that relationship?
There have always been tensions between ports and the natural environment, especially over the past century. Port development requires space and land. Ports need to continually secure access to and from the sea at all times and in all weather conditions, and that can have a massive impact on surrounding habitats. This was clearly one of the main reasons for introducing the Birds and Habitats Directives. Recently, there has been a new wave of thinking, focusing on an integrated approach to economic, social and natural development. The challenge is to serve the interests of all in what is often a limited space.

Is that challenge being met?
Through the case studied, we can see that there is definitely an increasing dialogue between the actors involved. And my field of activity – future studies and scenario development – is playing a part in that dialogue. It offers a long-term perspective, presenting actors with different futures, and showing them the potential consequences of their actions and decisions. The ultimate aims of future studies and scenarios are to encourage an open dialogue and to feed the decision-making and planning process with better visions of the future.

Is NEW! Delta helping to meet that challenge?
I was closely involved in Theme 4 – the review of how countries develop long-term visions for the four estuaries. It was a very valuable experience. It is always good to exchange ideas and compare experiences. It helps you to broaden your views. By learning about others with similar problems, you acquire a different perspective on your own situation, and you start questioning things that may have seemed self-evident. There are, of course, major differences between countries. The detailed problems facing Le Havre, for example, are often different from those facing Rotterdam. But the basic issues are the same. We have many common problems, and that generates potentially converging solutions.

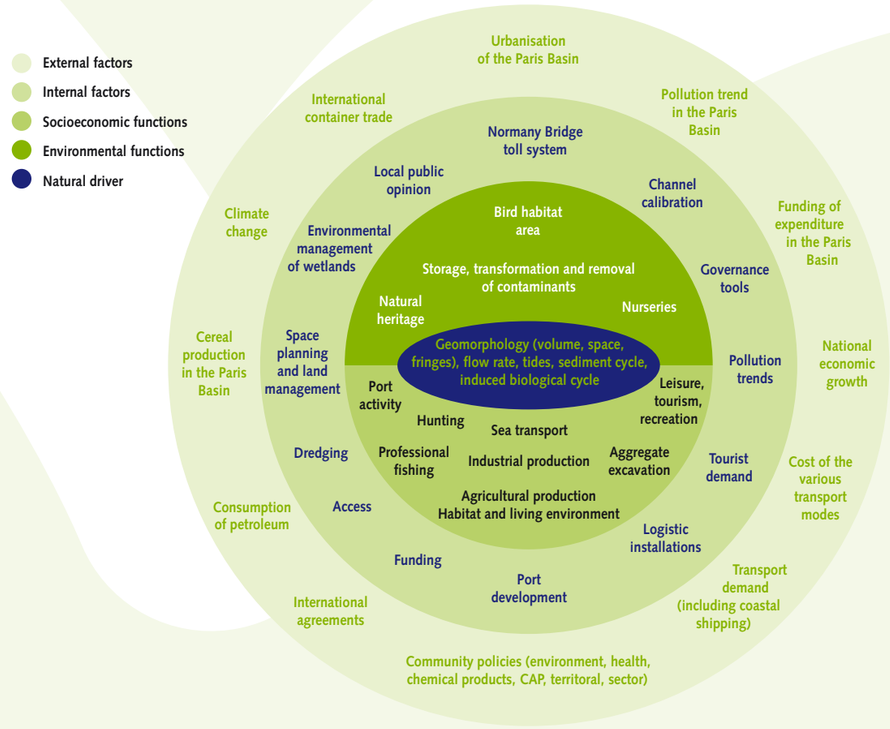
Were there any areas in which the project could have been improved?
NEW! Delta suffered from a problem that occurs more and more today with many large-scale collaborative projects – a lack of time to really do them justice. The actors are often involved with many such initiatives, in addition to their core work. In the case of Theme 4, it has proved very difficult, and too often impossible, for representatives of all four estuaries to get together in a meeting, and we did not find the time to visit all the estuaries. That is a pity, but it does not detract from the value of working on shared problems together and learning essential lessons from each other's experiences.

Results
A comparative analysis of the way long-term visions are developed and used in Belgium, the UK, the Netherlands and France shows that (see report 4.1):
- a long-term vision is useful in estuary management and planning;
- a long-term vision needs special approaches and tools;
- governance is one of the critical success factors; and
- beyond its importance for the integrated management of coastal and estuarine zones, a long-term vision also brings benefits for sectoral management, in terms of nature protection, port activities, land use, etc.

Particular attention was devoted to the Seine estuary, where a long-term vision study was implemented just before the start of NEW! Delta. The aim of the study was to produce a vision shared by the various stakeholders on the state of the estuary in 2025, given the overriding objective of gradually restoring the environmental quality of the area. Four scenarios were explored, based on a 'laisser faire' approach, a pro-active restoration, a major economic crisis and a restoration using local initiatives. The study showed that a long-term vision is valuable:
- for exploring scenarios and analysing their potential consequences; and
- as a tool for defining a policy framework.

Theme 4 concluded that (see report 4.1):
- the process of developing a long-term vision must be initiated by a single respected authority with significant political weight;
- it is imperative to clearly define the general characteristics and components of the process (stages, programme, etc.) at the outset, recognising that they will very likely need to be adapted throughout the course of the project;
- it is usually better to develop an open, sequential process with broad goals rather than a closed process with detailed objectives. This facilitates an exploratory process and produces more fruitful results;
- all stakeholders, whether they are commercial parties or NGOs, must be prepared to make concrete decisions on the basis of their analyses and findings, and to submit them before the end of the process;
- each local stakeholder, in each situation and each estuary, is responsible for defining the time-frame of the long-term analysis, in keeping with local issues and priorities;
- the process of developing a long-term vision, with its different stages (start, analysis, findings, validation, proposals for decisions, dissemination of results and findings) can take as long as two to three years; and
- there is a clear need to update the long-term vision regularly. This must be carefully assessed in the final phase of the process.

Figure 2.4 The Seine estuary: an example of a systems response to multiple factors



Interview

Roel Hoenders

Policy Advisor at the European Sea Ports Organisation (ESPO).

‘If ports work together they can be very successful in finding solutions’

Looking back on NEW! Delta, what do you think is its added value?
NEW! Delta produced a number of valuable results. From the perspective of the partners, it brought about a change of mindset. This change was the result of cooperation and the exchange of knowledge and information down to a very detailed level. Consequently, the partners acquired new insights into nature conservation in port areas. They also ‘discovered’ how they can work actively with the provisions of the Birds and Habitats Directives. That is added value that the partners have been able to experience themselves. They now have to decide what they want to do with the project’s results, whether there are still areas or topics which they wish to explore more deeply.

That added value will grow even further if NEW! Delta succeeds in disseminating the knowledge and experience gained through the project and the results achieved to other ports. In my view, that requires thinking carefully about how the results are presented. They need to ask whether the content and scale of the theme reports and the final report are applicable to other ports. Is this the best way to reach new partners? Comprehensive reports that cover ‘everything’ are very useful for the participants in NEW! Delta, and for ports which are looking for specific information. Furthermore, the results need to be presented in more bite-size chunks. Summaries of the main findings are a good way to inform and reach other ports and new partners.

Should NEW! Delta carry on? In other words: do you think continuing with the project would be worthwhile?
That needs to be thought about carefully. You shouldn’t set up a new organisation just because you don’t want a project to end. There has to be genuine added value in carrying on. If the project has been successful, it is more important that the conclusions and recommendations are disseminated as widely as possible. Instead of continuing with the project, you can use existing networks to pass on the NEW! Delta message and ensure that it lives on. But, again, stopping or carrying on is primarily a matter for the partners to decide, and that will depend on what information they still wish to capture.

ESPO represents nearly all ports in Europe. What advice would you give your members after the final conference of the NEW! Delta project?
I believe that general conclusions can be drawn from NEW! Delta, but that what can be done specifically in a certain port depends very much on the local situation. It is the ports themselves that have to apply the results of NEW! Delta and decide for themselves what is useful for them and what is not. It is an important task for us, as a branch organisation, to provide support and make options available. We are already doing that: ESPO recently published a report based on the outcomes and interim conclusions of NEW! Delta. The report shows our members – the ports – that although environmental legislation may be difficult, you can do a lot with it if you adopt a pro-active and positive attitude. NEW! Delta has shown that if ports work together they can be very successful in finding solutions. That is one of the most important messages for our members.

Many ESPO members are smaller ports. Is NEW! Delta of interest to them, too?
In my view, it is precisely cooperation between larger and smaller ports that can generate added value. Large ports might be more willing and able to spend money on these issues, but it is first and foremost a matter of sharing knowledge and experience. A combination of larger and smaller might prove to be the ideal mix of partners.

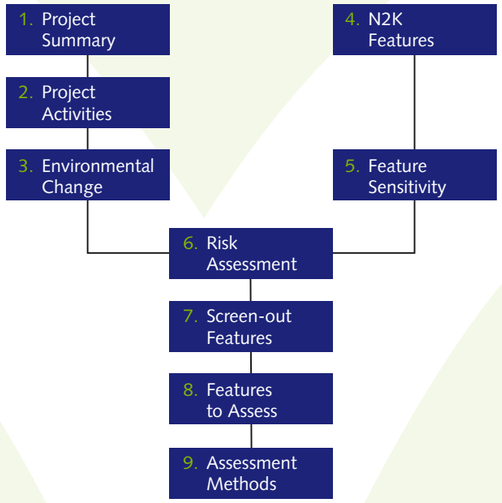
2.5 Theme 5 Cause-effect relationships

Background and objectives
Against the background of the current difficult relationship between Natura 2000 sites and port operators, the overriding objective of NEW! Delta Theme 5 was to develop best practice guidance for undertaking cause-effect analysis of projects, plans and activities related to ports and harbours that have the potential to affect Natura 2000 sites. Agreement on the methodology was sought from regulators and developers, contributing to continued improvements in the consenting process, potentially saving time and money for both. For port management and nature conservation agencies alike, the desire must be to ensure that there is early and efficient decision-making on a number of issues, including:

- potential environmental changes resulting from projects, plans or activities;
- how the changes might affect the Natura 2000 features present and which aspects require assessment of cause-effect; and
- methods available for assessing cause-effect to enable the resulting impact to be assessed.

Early decision-making on these issues will allow strategic decisions to be made during the planning of a development, whilst ensuring compliance with the Birds and Habitats Directives. The question therefore was how to facilitate discussion and agreement within the wider planning process for port development and port operations.

Figure 2.5.1 Cause-effect relations scoping tool (ABPmer 2007)



Results
A review was undertaken of the existing practices used to assess cause-effect relationships between infrastructure development, particularly in estuaries, and the ecosystems affected (see report 5.1). With these practices in mind, a web-based tool was developed which identified what effects are probable, likely and potentially harmful, during the development of a port and/or while related activities (dredging, navigation) in estuaries are carried out (see report 5.2). The chosen method was tested with stakeholders who found it useful, particularly at the start of planning, consultation and decision-making processes. The resulting scoping tool is now available at www.newdelta.org

‘For all those involved in implementing the Habitats Directive, ABPmer’s cause-effect scoping tool is a helpful approach to auditing the impact assessment process and properly identifying the possible implications of their projects’

Roger Morris,
Natural England

Figure 2.5.2 Redshanks

2.6 Theme 6 Sustainable dredging strategies

Background and objectives

Given the increasing demand for maritime transport, there is a great need for sustainable dredging. In most cases, dredging is essential to maintain or create sufficient navigable water depth, but it does have environmental effects. The Birds and Habitats Directives apply to dredging and disposal activities and their implementations in this field are problematic, especially due to their slow and complex procedures.

The objectives of Theme 6 were:

- to improve and optimise dredging strategies through international cooperation;
- to promote the sustainable development of ports; and
- to prevent distortion of competition.

Through international cooperation, combining the knowledge, experience and best practices of several countries, a common approach to a sustainable dredging strategy has been developed. Reducing differences in management approaches should lead to the desired level playing field for ports in close proximity, with the environment as the main beneficiary.

Results

Existing practices in dredging management in three estuaries (Humber, Seine and Western Scheldt) were reviewed and the main issues in assessing dredging and disposal activities identified (see report 6.1). Some countries feel that dredging and the disposal of dredged material causes damage to natural habitats. However, while it is clear that dredging does cause changes, whether these changes actually have adverse effects on the integrity of designated sites depends on many factors.

The morphology of an estuary changes continuously, adjusting to processes which themselves are changing. No estuary is stable and its ecology would change continuously even without human interference. Only a detailed understanding of the estuary system can lead to proper assessment of the effects of existing and future dredging activities. As dredging is only one of many activities in an estuary, a holistic management plan is necessary, which takes into account the requirements of the European Directives and the interests and impact of all uses and users of the estuary. Because of the uncertainties in the prediction of impacts, management must rely on historical analysis of past impacts and comprehensive monitoring of the system's response to dredging.

Any strategy developed will be specific to that estuary/system since it is not possible to apply the same dredging strategy to all areas. The Theme 6 partners have therefore developed a procedural framework that is universally applicable. The framework (see figure 2.6.2) aims to provide an overall methodology for assessing the impacts of a dredging (or development) project. The framework should be applicable in all situations, with individual components taken into account depending on specific system conditions (see report 6.2).

Figure 2.6.1 Typical NEW! Delta: industrial activity in the Humber estuary, UK (by Hans Slootweg)

Figure 2.6.2 Framework for sustainable dredging strategies

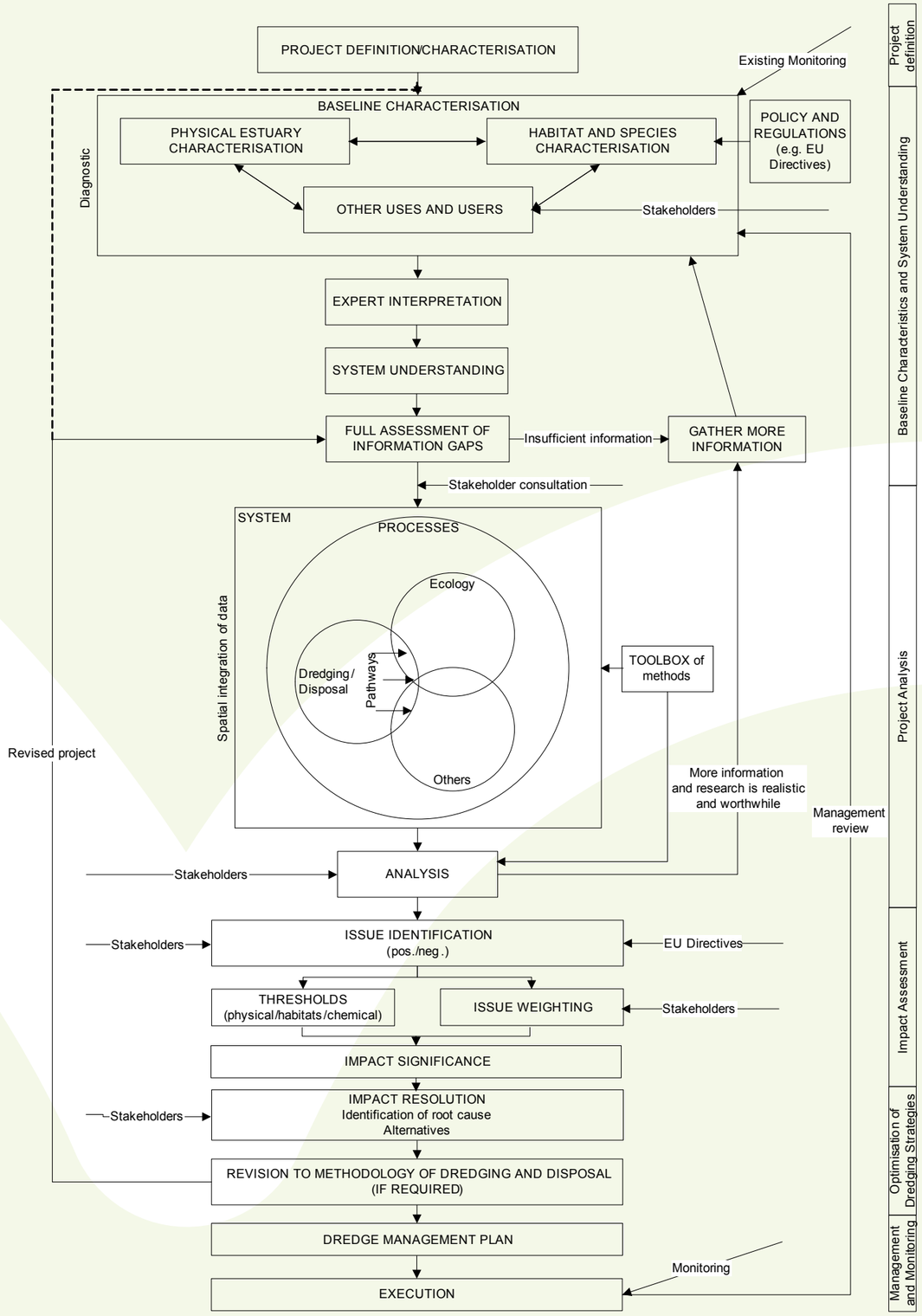


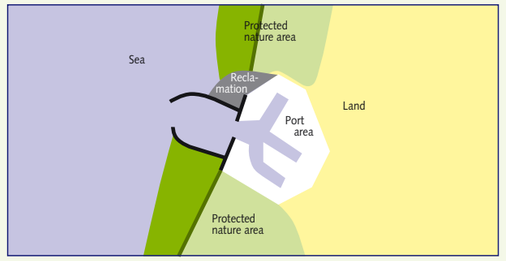
Figure 2.6.3 Trailing suction hopper dredger (Boskalis)

2.7 Theme 7 Coastal morphology and coastal defences in the vicinity of ports

Background and objectives

Theme 7 has focused on ports on sandy coasts facing open sea, where breakwaters, which are often required to provide safe entrance for vessels, can have a significant impact on currents and morphology in the vicinity of the port. Any impacts on the adjacent marine and land areas, including Specially Protected Areas (SPAs) and Special Areas of Conservation (SACs), might lead to further ecological impacts and in some cases, the safety of the hinterland might become an issue.

Figure 2.7.1 Port with protected areas adjoining



The objectives of Theme 7 were:

- to share collective experiences;
- to identify best practices;
- to develop realistic procedures for dealing with SACs and SPAs; and
- to produce clear guidelines.

Results

Three cases were studied: the port entrance at IJmuiden (the Netherlands), the plans for extending the Port of Rotterdam (Maasvlakte 2, the Netherlands) and the combined harbour and coastal protection scheme at Ostend (Belgium). The analysis carried out showed that the ports could affect bordering Natura 2000 sites and that their influence was often due to morphological changes arising from the introduction of the structures (e.g. breakwaters) forming part of the port infrastructure.

One complicating factor is the long period of time often taken for morphological equilibrium to be reached following construction of a port or port extension. In cases where a port was built many years previously, it is difficult to distinguish between the impact of the port and autonomous developments.

A generic procedural framework, similar to the one in Theme 6, has been developed, providing an overall methodology for assessing the impacts of port development projects.

The analysis of the case studies identified various difficulties resulting from the complex interaction between the port and nearby Natura 2000 sites and possible solutions have been proposed (see report 7.1).

Figure 2.7.2 Port of IJmuiden, the Netherlands (Rijkswaterstaat)

2.8 Overview of theme products

The table below shows all the outputs of the NEW! Delta project, including the theme reports and tools, and relates them to the four main objectives. Details of all the products, including the full titles of the reports, are given in Annex II References.

Figure 2.8 NEW! Delta's products and their contribution to the main objectives

Direct contribution by product to objective	

	Level playing field	Practical guidance	European partner network	Information access
Theme 1 Pooling resources for Natura 2000				
1.1 Comparative study on the implementation of the Birds and Habitats Directives (BHD)	■			
1.2 Transnational cooperation tools		■		
1.3 Benchmarks and common practices in the application of the BHD	■			
1.4 Website/database continuation proposal			■	■
Theme 2 Establishment of ecological goals and indicators				
2.1 Indicators for ecological quality		■		
Theme 3 Creation and restoration of coastal and estuarine habitats				
3.1 Creation and restoration of coastal and estuarine habitats		■		
3.2 Spatial relations among coastal bird populations		■		
3.3 A more natural Port of Antwerp		■		
Port of Antwerp investment project		■		
De Zilk investment project		■		
Theme 4 Cross-sectoral long-term port and estuary visions				
4.1 Cross sectoral long-term port and estuary visions		■		
Theme 5 Cause-effect relationships				
5.1 Cause effect relationships, review of methodologies		■		
5.2 Web-based tool for cause-effect analysis		■		■
Theme 6 Sustainable dredging strategies				
6.1 Issues and system understanding		■		
6.2 Framework for a sustainable dredging strategy		■		
Theme 7 Coastal morphology and coastal defences in the vicinity of ports				
7.1 Coastal morphology and coastal defences		■		
Final report				
Theme result summaries, overall results and discussion	■	■	■	■

Discussion, conclusions and recommendations

This chapter discusses the results of the seven themes and draws conclusions from them. It does so from the perspective of NEW! Delta's four main objectives: contributing to a level playing field, offering practical guidance, contributing to a European partner network and promoting information access. The latter two objectives are examined together, as they are closely related in practice.

Subsequently, a number of general observations are made on port-nature issues and application of the Birds and Habitats Directives. The chapter ends with the main conclusions, looking back and to the future, and highlights the remaining questions, suggesting what further action is needed.

3.1 Level playing field

Regarding the use of estuaries for port activities, there is generally a level playing field in respect of the requirements of Natura 2000. Although there are differences, none of the countries in the NEW! Delta partnership has a systematic competitive disadvantage (see report 1.1).

In the NEW! Delta partner countries, the Birds and Habitats Directives were transposed to programme in the UK, while there were delays of some five to ten years in the Netherlands, Belgium and France. This caused difficulties for ports in their expansion planning as, for a long period, it was not clear what the consequences would be for their further development. There are still differences in implementation of the directives across the partnership region with highly prescriptive applications in some aspects being offset by leniency in others. From a different perspective, the playing field could be said to be level in the sense that everyone is facing difficulties implementing the BHD.

The European Commission plays a major role in the transposition of EU directives into national legislation. The Commission acts as 'guardian of the Treaties', which means that, together with the Court of Justice, it makes sure EU law is properly applied in all member states. The directives provide a minimum framework, leaving the member states free to apply national legislation in a more flexible manner. The Birds and Habitats Directives are therefore transposed into national legislation differently in the various member states, depending on their culture and legal system. The European Commission, however, is responsible for checking the resulting legislation and will request corrections where it is considered unacceptable.

A completely level playing field is an illusion, as all countries are different. In addition, estuaries and ports are subject to a wide range of European and national legislation. The significance of air quality, water quality, safety or noise may differ by country, as may the requirements for coastal safety levels. There are clear differences in the following areas (see report 1.1):

- permit requirements and procedures for dredging and the disposal of dredged material and the division of responsibilities and costs between private and public parties (see report 6.1). In the UK, for example, permits apply for one year, whereas France and some other countries issue five-year permits;
- assessment of cumulative effects, Alternative Generation and Selection, and application of the Imperative Reasons of Overriding Public Interest (IROPI);
- the division of responsibilities and financial contributions between private and public parties. In the UK, for example, ports are privatised to a greater extent than in continental partner countries. A key issue is getting all stakeholders to take their responsibilities for managing estuaries and sharing the costs;
- species protection within and outside protected areas; and
- stakeholder involvement: public port authorities tend to involve the public earlier than private ports do.

One obvious difference lies in the way the boundaries of protected areas are defined. In some cases, wide boundaries are used, which include multi-purpose areas, not just strict nature reserves. In others, the boundaries are narrower. This does not result in a greater or lesser degree of protection for natural values, because outside influences must be taken into account. In the case of stricter or narrower boundaries, the effects will become significant earlier, as sites are smaller and can be affected by smaller interventions.

It has been identified that long-term, integrated management plans are needed, based on clear objectives for all uses and values involved. There is more likely to be a lack of knowledge of conservation value in the new member states, where nature protection is at an earlier stage of development, than within the NEW! Delta partnership. Such differences are unavoidable, but it is recognised that it is our common responsibility to try to solve them by sharing our knowledge and experience.

One recurring issue is the definition of conservation objectives for protected sites. Most of the partner countries are currently involved in the process of formalising these objectives, which have become central to measuring the significance of effects, particularly since the Dutch cockle fisheries judgement (Judgement C127/02, Dutch Court of Justice, 7 September 2004). The ruling states that the assessment of effects must be made '…in the light … of the characteristics and specific environmental conditions of the site concerned.' This implies that, if no specific objectives have been defined, the characteristics and specific conditions of the site are to be protected. In other words, sites where no objectives have been specifically defined enjoy as much

protection as sites where they have. It is therefore very important to exchange experience on how the conservation objectives are defined, monitored and evaluated. This will avoid different definitions of objectives in cases where protected areas extend across national borders, causing conflicting assessments of the significance of effects.

A level playing field does not mean equal competitive strength. Allocating more resources to develop ports and estuaries, including the protection of natural values, offers ecological and economic advantages. This is fair; the playing field must be level, but putting together a better team and thereby gaining an advantage is acceptable.

The European Commission has an important role in ensuring that differences do not lead to systematic inequality. It fulfils this role by checking the competency of the member states in identifying the conservation values to protect, how to protect them, and the quality of the monitoring evidence to show that the conservation objectives are being met.

In satisfying the Commission's criteria the selection of appropriate conservation objectives at the start of the project is key. Sharing working methods and knowledge can make a realistic contribution to establishing a level playing field and this is where NEW! Delta's main strength lies. The following section describes the tools and guidelines developed by the project to provide practical guidance.

3.2 Practical guidance

The introduction of the Birds and Habitats Directives has led to much discussion in most member states, where communication about the implications of the directives, particularly at regional and local level, has previously been scarce. Although communication improved towards the end of the 1990s, it has remained less than optimal. Combining scientific uncertainty with complex processes of collective decision-making among stakeholders has presented a further challenge. Difficulties with these processes, which are especially common in large-scale infrastructure developments, can be avoided by initiating structured stakeholder interaction at an early stage.

The main difficulty with the Birds and Habitats Directives is the complexity of their application. The directives themselves are clear, so there is little need to revise them and irrespective of the fact that a revision would be politically doubtful, it could not – and should not – make them easier to apply. The complexity of the situation, from both a technical-ecological and social-economic viewpoint, requires a clear understanding of the issues and mechanisms involved. These cannot be reduced to simple requirements or highly prescriptive technical algorithms. The integrity of the ecosystem is what counts, not meeting simple standards. Consequently, a thorough understanding of what is at stake and strong process management skills are essential.

The transfer of experience and knowledge is therefore valuable, but cannot be simplified to providing 'tick-box lists'. Sound scientific methods are called for which need to be continually revised and developed to meet the forever changing environment. Expert judgement plays an important role, certainly in the case of estuary ecosystems, where our knowledge is less developed than for systems with a long history of human use, such as forests and grasslands. One reason for this is the relative inaccessibility of the areas of change in estuaries, which are below water. Furthermore, estuaries are frequently highly dynamic ecosystems that present an ever-changing challenge to the science of prediction.

The NEW! Delta project has produced both knowledge and methods. They have been developed in the context of the BHD and Natura 2000, but generally serve NEW! Delta's overall aim: the sustainable development of coasts and estuaries and port areas. Section 2.8 provides an overview of the project's products.

Depending on the choice of tools and how they are applied, they may assist in providing answers to technical questions or help clarify issues for non-technical stakeholders. The latter is important because, although technical professionals may be able to understand and agree on what is at stake, what can be done and what the consequences might be, timely success depends on non-professional stakeholders also understanding these issues. The cause-effect tool clearly shows all parties involved what effects should be taken into account when human intervention is planned for estuary systems.

To make these tools workable in the wider community their target audience must know of their existence. It is therefore essential that they are disseminated and made widely available. This issue is addressed in section 3.3 on the European partner network and information access.

It is further arguable that the use of such tools should be incentivised. There is an ongoing discussion about how much encouragement or enforcement this requires and how the compulsory application of tools or 'soft law' are not compatible with the BHD, as the directives focus on outcomes rather than methods. However, the directives do require that the right steps are taken at the right time, such as the early involvement of stakeholders to ensure transparency of the processes throughout. The application of proper process tools should therefore be strengthened to assist the application of a consistent approach to meet the requirements of the directives. The European Commission is in favour of recommending methods, but should it go as far as formal certification? If so, who should apply such certification? Certainly at this stage, with tools and methods in development, formal certification would be premature.

The use of tools and knowledge must be in the interest of all parties concerned. Economic interests will benefit from time saving and better stakeholder relationships and there will be expected ecological gains in the quality of nature protection plans and support for their implementation. For society as a whole, sustainable win-win solutions should result. Tools that help to find these solutions, such as those developed by NEW! Delta, should ensure that these benefits can be realised.

Interview

Roger Morris

Senior Policy Officer, Natural England. Roger Morris chaired initial project conference and reviewed reports for Theme 1, 3 and 5.

'Tension between ports and nature decreasing, but still work to do'

How is the relationship between ports and nature in the UK?
Broadly speaking, there is a good working relationship between the ports and nature conservation. With a few exceptions, the industry has moved from a situation of tension to one of constructive cooperation. As far as the Birds and Habitats Directives are concerned, the UK does tend to receive criticism for 'gold-plating', interpreting them more rigorously than anyone else.

Is NEW! Delta helping to find ways of solving the remaining tensions?
NEW! Delta can help solve tensions by bringing different stakeholders together. Unfortunately, however, I don't think that projects like NEW! Delta are able to dispel the kind of tensions we are experiencing in the UK, about gold-plating, site designations, and suchlike. They will only be resolved through normal processes and, if necessary, legal challenges.

What do you feel are weaknesses of the project?
Some of the project's work is helpful and of a high quality. But they do have to be careful about reinventing the wheel in terms of, for example, habitat creation. In the UK Defra (Department for the Environment, Food & Rural Affairs), for example, has spent a lot of time and money looking at realignment schemes, best practices, etc., which do not seem to have been taken much notice of. So I'm not sure whether the project adds much to the body of existing knowledge.

It is of course valuable to learn about what's going on elsewhere. There's always some benefit to thinking about possible ways forward and developing aspects of policy. But that is a rather narrow perspective and does not necessarily generate the kind of broader community benefits we should be aiming for.

Are the port situations across Europe too different to find common ground?
Not necessarily. Aspects of the situation in Antwerp, for example, are relevant to Rotterdam or Zeebrugge. But that is only a triangle of three ports. If you look at Hamburg, which is more focused on dredging strategies, or UK ports, which are concerned about building a footprint out into an estuary, those impacts are much more about hydromorphology. That requires a completely different package of measures.

Do you think that the products of the project are useful?
One of the best practical outcomes of the project is the web-based tool devised in Theme 5. It is a logically developed product and could certainly be adapted for broader application to other green developments, like windfarms or tidal power. The compendium of habitat creation and site designation projects in Theme 3 is also potentially useful in providing information about similar case studies elsewhere.

3.3 European partner network and information access

Information is about both data/knowledge and people/organisations. It is also very much about communication. Objective 3 (Contributing to a European partner network) covers the 'people' side, while objective 4 (Promoting information access) is about knowledge and how to communicate it. Since, in practice, this entails addressing the same questions and answers, these two objectives are discussed together.

A European partner network offers a strong means of distributing the results of NEW! Delta and making them work. Combining port development and nature protection in estuaries and coasts in a positive way, and more specifically working with the Birds and Habitats Directives at a practical level, is a relatively new endeavour. The parties involved can benefit greatly from sharing their experiences. Exchanging information on issues and solutions enables knowledge and methods to be developed and improved, avoiding duplicated effort and maximising the rate of improvement in capability.

NEW! Delta includes participants from France, Belgium, the UK and the Netherlands and in the course of the project, many organisations and networks have been involved, who are active in the field of coasts, estuaries, Natura 2000 and

the Birds and Habitats Directives. These organisations and networks are shown in figure 2.1. As all European countries have to comply with the BHD and many have experience in the development of estuaries and coasts, it is important to share NEW! Delta's findings as widely as possible. The NEW! Delta network is therefore to be expanded. Interest has been shown by the Hamburg Port Authority, the Port of Le Havre Authority, the Port of Marseille Authority, ESPO, Rhine Scheldt Delta, Natuurpunt and other organisations both within and outside the Interreg IIIB region. The network is also being extended to include a wider range of interests, such as agriculture and fisheries, which are not represented in the current NEW! Delta partnership, but are recognised as important stakeholders in the port-estuary sector.

An effective way of widening NEW! Delta's reach is to link with existing European networks, including those of sector organisations like ESPO and those emerging around other EU projects, e.g. EcoPorts, Copranet, ENCORA, ComCoast, Time2C and the new Estuaries Committee. The project partners already have personal links to these networks, and a number already participate in one or more of them.

In line with the above, NEW! Delta intends to launch a partner network, carried by the website www.newdelta.org. Central to the network is a database containing all the project results (reports, tools), examples of ecological research and practical cases of sound economic development projects and management in estuaries and coastal zones.

Interview

François Kremer

Nature Protection Unit, DG Environment, European Commission.

'NEW! Delta shows that the integration of Natura 2000 is genuinely feasible'

You are very familiar with NEW! Delta. What is your general opinion of the project?
The NEW! Delta project has been a most successful initiative, bringing together different stakeholders concerned with implementing EU nature legislation in major North-West European estuaries. It has allowed a very useful exchange of knowledge and experience and progress to be made towards a pro-active approach to implementing the directives and integrating nature conservation objectives with socio-economic development.

Is there a natural tension between socio-economic development and nature conservation objectives?
There are always tensions between economic development needs and nature conservation objectives. But if the basic principles of sustainable development are applied in a transparent and communicative way, the Habitats Directive will not represent a major additional constraint. In my opinion, many conflicts can be avoided by early and active communication. And by building partnerships between all stakeholders concerned with the development and management of Natura 2000 sites. NEW! Delta is a good example of such a partnership. Integrated management plans addressing nature conservation and socio-economic development needs are key to achieving sustainable management and development of these sites.

Do you feel that NEW! Delta helps relieve these tensions?
The NEW! Delta project certainly made a contribution, yes. The outcomes, conclusions and recommendations of the project provide the partners with sufficient material to address the economic development that ports need to grow. At the same time NEW! Delta shows that the integration of Natura 2000 is genuinely feasible. The project investments are clear evidence that this is possible.

The project can be considered as very successful on all fronts. In my view it has certainly lived up to it's slogan: NEW! Delta: Ports and Nature, Striking a New Balance!

Do you see any follow-up for NEW! Delta or its products?
The objective of exchanging information, experience and good practice on the implementation of the EU Nature Directives can certainly be pursued further. This could occur, for example, through the new communication platforms currently being prepared by the European Commission, notably in the context of the work of the expert group on estuaries and the planned communication initiatives in relation to the management of Natura 2000 sites. NEW! Delta could also be continued in the form of a new Interreg project involving new partners and regions.

3.4 General observations

When considering the results of the project, two general issues arise that are not dealt with under the discussion of the four objectives. The first is related to the overall approach, and the second to the flexibility of approach to dynamic ecosystems.

Need for a comprehensive and integrated approach
In North-West Europe, a comprehensive and integrated approach currently proves to be the best way to address the multiple uses of coasts and estuaries (for specifics see Theme 4). This applies in particular to the combination of port activities, flood protection and nature conservation.

Interest in this approach is growing in Europe, but progress is slow. Although there is no disagreement on the best approach, comprehensive and integrated work is not easy. It requires:

- a thorough knowledge of the area and the situation in all its aspects, historically, culturally and in terms of developments;
- strong communication;
- a competent and strong facilitating agency;
- the early involvement of all stakeholders, who take their interests seriously;
- developing a shared vision;
- formulating a workable strategy to achieve agreed goals;
- formulating an action programme;
- a legal framework;
- signing of an agreement by all stakeholders;
- monitoring results and if necessary adjusting the process as measures are carried out; and
- resources, i.e. money and personnel, founded on a sense of urgency and commitment.

For in-depth assessment of this issue, see the reports on Theme 3 and 4 (see annex II) and other publications, such as the guide produced by the recent EU project Pegasus. See:

- www.eurocities.org

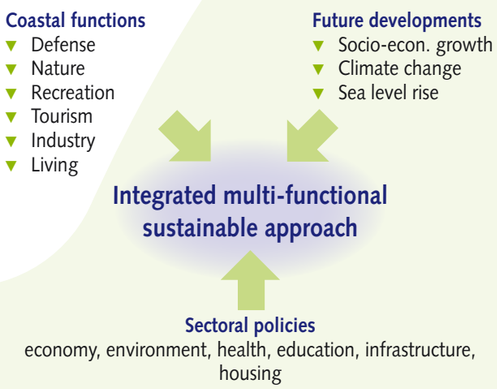
Relevant website:

- www.coastlearn.org

Other ICZM sites:

- www.time2C.org
- www.ec.europa.eu/environment/iczm

Figure 3.4 The integrated multifunctional sustainable approach (Province of South Holland)



There can be many reasons for not applying available knowledge, including ignorance, a lack of skills or resources, or political will. The importance of accessible knowledge has been discussed in previous chapters in the context of information access and networks. Lack of political will and, as a consequence, of resources, is a different matter. Politicians cannot be, and should not be, coerced, but it is agreed that European legislation should encourage them to take action willingly. Most people subscribe to the conservation of nature, but in practice, when costs and jobs are at stake, non-market values easily go by the board. It takes rules decided at a common, higher level, to ensure that weak players on the economic market keep their footing. The BHD and Natura 2000 are excellent examples of such rules.

Now the Birds and Habitats Directives have established conservation as a major consideration when planning a port development, their effective application gains most by the integrated and comprehensive approach advocated by NEW! Delta. Such a flexible approach could easily fail to deliver results where, uncertainty and the weakness of conservation as an interest pose serious risks.

A flexible approach to fit dynamic ecosystems
The dynamic character of estuaries as ecosystems has implications for the protection of ecological values, for compensation and for the issue of 'nomadic' habitats and species in ports.

The Birds and Habitats Directives are legal rules and are therefore by nature not necessarily dynamic and flexible. Estuaries, on the other hand, are, and the directives are therefore not ideally suited to such dynamic ecosystems in which habitats and organisms are subject to change and influence in a three dimensional environment.

The directives are, however, clear and flexible on what they aim to achieve: favourable conservation status for the natural habitats they protect, which means ensuring both the long-term survival of their typical species and their long-term natural distribution, structure and function.

This takes account of the dynamic character of coastal and estuarine ecosystems, where the conservation goal cannot be the preservation of a given species or habitat in a given place, but rather the ecological integrity of the system as a whole, requiring the continuation of natural processes in large areas and maintaining robust and resilient ecosystems.

Safeguarding natural values in this dynamic environment cannot be achieved by rigid measures, but by solid procedures. These procedures must ensure that:

- ecological interests are included properly and at an early stage in planning and decision-making processes and therefore do not hamper economic development; and
- the ecological understanding required is gained and applied, by making sure fact-finding studies and analyses are carried out properly, using the best available practices methods. NEW! Delta is contributing to such methods.

Large ecosystems require large areas of study for effects and compensation

The character of estuaries means that studies of effects on protected habitats and species, and of options for compensation must take large areas as a point of reference to ensure that all relevant morphological and ecological mechanisms will be covered. Where intended developments and protected values occur together within one large Natura 2000 area, the process will occur naturally. However where protected areas are of limited size, it is necessary to look well beyond their boundaries. Studies seeking compensation options for port development in an estuary should therefore consider the estuary as a whole.

Distance from the affected site is an important factor. As the distance increases, so do the potential differences in site characteristics, also in larger systems subject to large-scale morphological mechanisms. Because each site is unique, compensation should be found as close as possible to the affected site. If it can only be developed further away, then the area will have to be larger. The greater size can then make up for the difference in values or lower densities of protected organisms in the compensation area, thus preventing a net-loss of ecological value.

'The Belgian coastline is only about 65 kilometres long, and much of it is built-up.
Finding sites for nature compensation is evidently not easy along this coastline'

Peter De Wolf,
Agency for Maritime and Coastal Services,
Belgium/Flanders

Cross-border compensation can also be a viable option where ecosystems transcend national boundaries, as with the Scheldt between Netherlands and Belgium/Flanders, and the Ems-Dollard Estuary on the German-Dutch border. Legal and administrative differences can present major obstacles to compensation in a neighbouring country. These can be overcome by solid agreement and cooperation. A good example is the case of the Scheldt Estuary, where an organisation was set up, comprising Dutch and Belgian experts, to develop a management plan and to deal with cross-border issues (see: www.proces.nl or www.proces.be).

When considering effects and compensation special consideration must be given to groups such as meta-populations of birds that have specific breeding and feeding habitats that may be far apart. In such cases potential suitability, rather than proximity, becomes the prime concern when searching for compensation. These meta-populations underline the importance of the Natura 2000 concept, that the continued survival of mechanisms and systems, especially large-scale ones like those of coasts and estuaries, require networks of ecological reserves.

It must be remembered that the sequence of measures for dealing with negative effects on protected species and habitats is well defined; first comes protection (no effects), next mitigation (reducing effects), and only then compensation (making up for effects elsewhere). Therefore, although important, the need for compensation is only considered when protection and mitigation are unable to match the impacts of the development.

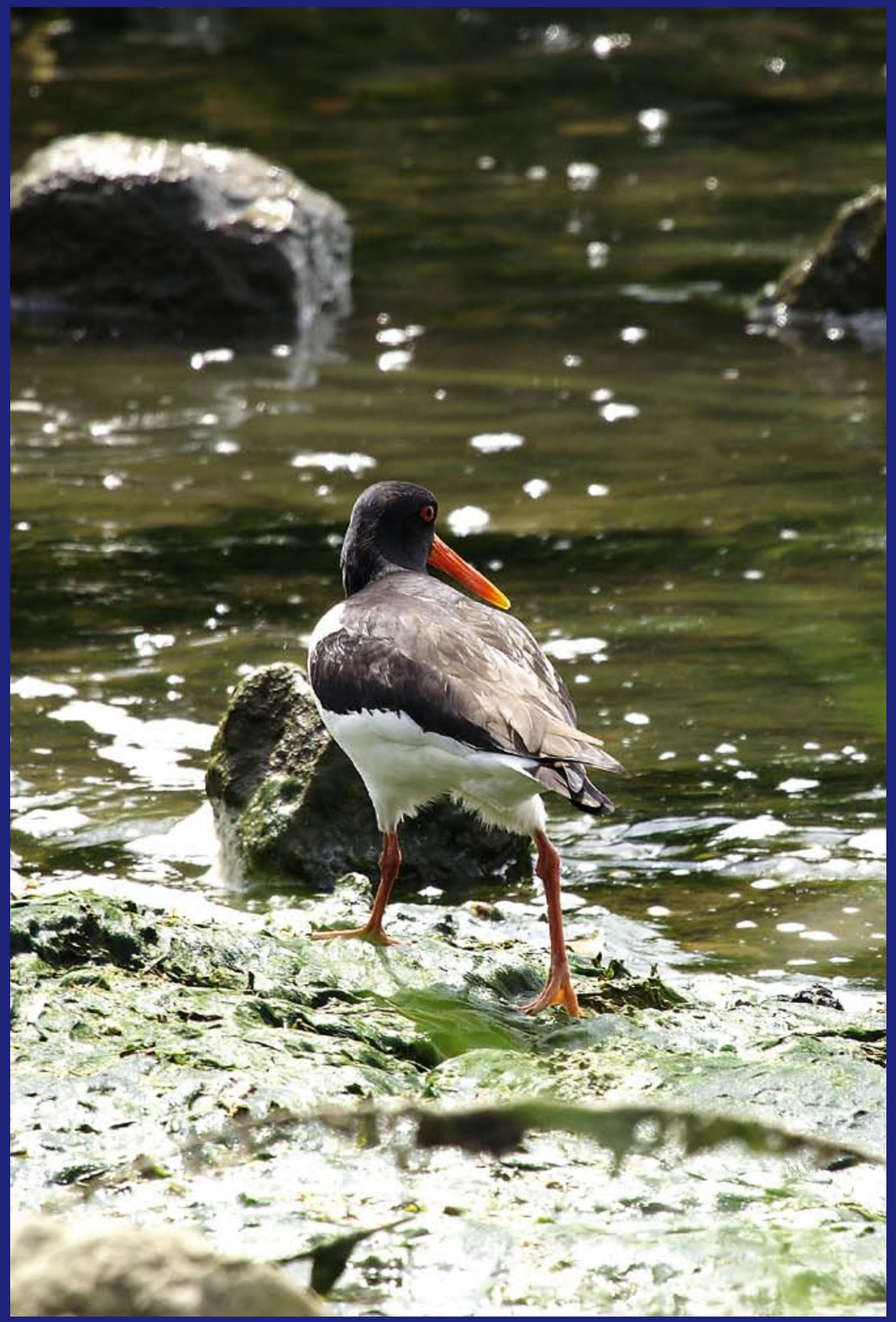
Nomadic habitats and species

The marine environment is highly mobile and poses a tough issue in the context of protecting temporary habitats and species. Such 'nomadic communities' are a common and indeed desirable characteristic in estuaries and coasts. Although the Habitats Directive does, in principle, allow for their protection in a flexible manner, in practice the authorities find the legislation hard to apply. When issuing a permit for operations affecting Natura 2000 areas or species, it is tempting to stick to a clear and easy 'X individuals of species Y in location Z'. But this is not a good fit with the character of the ecosystem (or the needs of port operators), where they may not mind a protected species colonising a temporarily available habitat but where a subsequent permanent protection status would severely restrict future development options. An inflexible attitude towards the colonisation of protected species may then result. This may avoid legal confrontation, but also precludes the coexistence of nature and port operations, the very aim of NEW! Delta. The solution is to prescribe required levels of protection in broader terms, such as the survival of the habitats/species concerned, over a large area and a long period of time. This is very much in line with the Habitats Directive.

'Temporary nature is not temporary'

Harry Smit,
Ecology officer, Province of South Holland

Figure 3.4 Oystercatcher (by Christina van Schie, Chris Cras Reclame, NL)



3.5 Conclusions and recommendations

The theme results and the above discussion allow a number of conclusions to be drawn and recommendations to be made.

1. Port development and nature can coexist well within the same estuarine and coastal system. Examples show that in North-Western Europe natural values and commercial activities, like port operations or agriculture, are not mutually exclusive but may well reinforce one another. The size and resilience of these ecosystems make such coexistence possible. Their basic mechanisms are robust and they provide space for many different uses.

'The role of port areas as habitats for pioneer species is increasing as a result of an overall decline in dynamic habitats along the coast'

Robbert Snep,
Researcher urban landscape ecology, Alterra

'Natterjack Toads in a sustainable setting on industrial port areas is a realistic option'

Fabrice Ottburg,
Ecologist, Alterra

2. Coexistence requires an integrated, multifunctional approach to area design and management. This enables multiple use and is essential to make the most of the limited space available in heavily used landscapes. It calls for pro-active, communicative planners and government, who involve stakeholders at an early stage and include nature aspects and other interests. NEW! Delta has produced tools and strategies to support this approach.

'The cooperation within the NEW! Delta project has shown that port managers show an open mind concerning environmental issues'

Kees den Heijer,
Researcher Coastal Engineering,
Delft University of Technology

'Port managers really are good guys after all'

Conservation campaigner

Figure 3.5 Common tern

3. Legal and practical confrontations causing difficulties and delays are avoidable. Natura 2000 does not have to 'lock up land' or bring development to a standstill. Instead, applying not just the rules but the spirit of Natura 2000 makes port extensions and operations more sophisticated and acceptable to society while benefiting nature, provided the process is sound, integrated, multifunctional, pro-active and communicative.

4. Although, generally speaking, the European playing field with respect to application of the Birds and Habitats Directives is level, a number of practical aspects deserve the attention of the European Commission. The NEW! Delta project encountered difficulties in permit procedures for dredging, the way partners deal with cumulative effects, the generation of alternatives and Imperative Reasons of Overriding Public Interest (IROPI), mitigation and compensation, the sharing of responsibilities between public and private partners, stakeholder participation and species protection within and outside protected areas.

5. When defining and managing conservation areas and protected species outside protected areas, a clear and concise identification of the natural values to be protected is vital to the success of protection measures. This means focusing on the regular management of these values, mitigating the impact of other uses of the area, and compensating values unavoidably lost because of development. In practice, identification is the first link to fail in the chain of sound multiple land use, as it requires a good initial inventory of the habitats/species present and monitoring their development over time both prior to and following any development. Joint fact-finding is indispensable, given the multi-stakeholder nature of decision-making and the uncertain character of the relationship between ports and nature.

6. Some of NEW! Delta's products and tools have demonstrated great value and would benefit highly from further development:
   - the database needs upgrading and updating, especially sections on BHD case law, examples of ecological research and practical cases of port extension projects and dredging in estuaries and coastal zones (Theme 1);
   - ecological research should be conducted on the design of the ecological infrastructure in ports (Theme 3);
   - research is needed on meta-populations of coastal birds to explore the opportunities for the mitigation and compensation of breeding habitats (Theme 3); and
   - the web-based tool identifying the likely effects of port development and activities needs elaborating (Theme 5).

7. The exchange of knowledge and experience between all stakeholders involved is essential to the practical application of nature protection measures in general and the BHD in particular, including the designation of Natura 2000 areas, the definition of protected values and the development of a level playing field. This requires organised support. The European Commission has a number of mechanisms to provide this support, through Interreg and other cooperative programmes. These efforts need to be followed up by partner networks, to communicate and further develop the results of the programmes, and to ensure that examples of best practice are applied and are not lost through lack of follow-up or resources. Although these networks need to be carried by the parties directly involved, European support is vital (Theme 1).

Annex I Partners

Partner descriptions

The NEW! Delta project partners are listed below. You will find a short profile of each partner on pages 38 - 41.

Figure I.1 NEW! Delta partners

provincie ZUID HOLLAND	**Province of South Holland** (Provincie Zuid-Holland) *Subpartner, theme 3 investment:* Waternet	The Netherlands
AFDELING KUSTMDK Mobiliteit en Openbare Werken	**Agency for Maritime and Coastal Services, Coastal Division, part of the Flemish Ministry of Mobility and Public Works** (Ministerie van Mobiliteit en Openbare Werken, Agentschap Maritieme Dienstverlening en Kust, afdeling Kust)	Belgium
PORT OF ANTWERP	**Antwerp Port Authority** (Gemeentelijk Havenbedrijf Antwerpen)	Belgium
Institute for Infrastructure, Environment and Innovation	**Institute for Infrastructure, Environment and Innovation**	Belgium
Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT ET DE L'AMÉNAGEMENT DURABLES	**Ministry of Ecology and Sustainable Development** (Ministère de l'Ecologie, du Développement et de l'Aménagement Durables)	France
PORT DE ROUEN VALLEE DE SEINE	**Port of Rouen** (Port Autonome de Rouen)	France
Port of Rotterdam	**Port of Rotterdam Authority** (Havenbedrijf Rotterdam N.V) *Subpartner:* Radboud University Nijmegen, Institute for Wetland and Water Research	The Netherlands
ALTERRA WAGENINGEN UR	**Alterra Green World Research** *Subpartner:* Wageningen IMARES, Institute for Marine Resources & Ecosystem Studies	The Netherlands
TU Delft Delft University of Technology	**Delft University of Technology** (Technische Universiteit Delft)	The Netherlands
ABP mer marine environmental research	**ABP Marine Environmental Research Ltd.**	UK

Figure I.2 Partners' involvement in themes

Partner *subpartner*	Theme								
	1 Pooling resources	2 Goals and indicators	3 Habitat creation and restoration			4 Long-term vision	5 Cause-effect relations	6 Sustain-able dredging	7 Coastal defences
				investments					
				De Zilk	*Antwerp*				
PSH									
WN									
MDK									
POA									
IMI									
ROU									
DIREN									
POR									
RUN									
ALT									
IMARES									
TUD									
ABPmer									

	theme coordinator
	involved
	lightly involved (supplier of information)

Province of South Holland

South Holland is a densely populated and busy province, with around 3.5 million inhabitants and 130,200 registered businesses. The province is home to various centres of knowledge and expertise, including three universities in Leiden, Delft and Rotterdam, the TNO research laboratories and the European Space Research and Technology Centre. South Holland is the country's leading province in terms of economy, agriculture and services. It is criss-crossed by a busy network of roads, railways and waterways. The largest city is Rotterdam, with its mainport, and the provincial capital is The Hague, the seat of national government and the Queen's official place of residence. Outside its urban centres, South Holland offers tranquil open spaces, sprawling countryside, rivers, polders, lakes, dunes and sandy beaches. It is a constant challenge for the provincial government to strike a balance between the many conflicting interests of such a multifaceted province. It pursues this objective in cooperation with the central government, the municipalities, the neighbouring provinces and the regional water boards.

In the Theme 3 investment project at De Zilk, PSH cooperates with Waternet. Waternet is responsible for drinking water, waste water, surface water and flood protection in the Amsterdam area and manages large tracts of dunes, including De Zilk.

Agency for Maritime and Coastal Services, Coastal Division

The Agency for Maritime and Coastal Services falls under the Flemish Ministry of Mobility and Public Works. The activities of the Coastal Division extend over the entire Belgian coastal zone and cover the Flemish coastal marinas of Nieuwpoort, Ostend, Blankenberge and Zeebrugge. Within the limits of the Belgian continental shelf the division takes part in a number of hydro-meteorological activities and is responsible for several hydrographic tasks which extend as far as the Western Scheldt.

The Coastal Division's mission is:

- to protect the population and the national heritage against the violence of the sea, storm surges and floods;
- to promote the economic, social and ecologically sustainable and integrated development of the coastal zone;
- to promote active nature and landscape development along the coast; and
- to support coastal and sea-related tourist-recreational activities, and cultural and educational initiatives.

Antwerp Port Authority

The Antwerp Port Authority is an autonomous municipal body. It owns the docks and the sites used by port operators and industries on the right bank of the Scheldt river and also some of the port's equipment.
The authority is also responsible for managing the port on the left bank, thus ensuring uniform policies on both sides of the river.
General land development and industrialisation on the left bank is in the hands of an inter-municipal corporation.
The Antwerp Port Authority is responsible for planning, modernising and maintaining the infrastructure of the port, and for operating its own equipment, including floating cranes, shore cranes, tugs and dredgers. It leases sites and land, and distributes electricity in the port.

The Antwerp Port Authority aims to maximise the added value the port of Antwerp generates for the city and the region, in a long-term perspective.

The Institute for Infrastructure, Environment and Innovation (IMI)

As an independent not-for-profit organisation based in Belgium and the Netherlands, IMI's mission is to initiate European cooperation projects which focus on efficient and effective implementation of EU environmental policy and sustainability goals through innovative approaches in the development of infrastructure projects. The Institute has eight years of experience in advising on the Habitats Directive and port projects, coastal infrastructure and other strategic physical planning projects in Flanders, France, the Netherlands, Germany and Finland.

The Institute's working programme has so far particularly focused on infrastructure development in coastal and estuary areas. Occasionally IMI gives advice on onshore infrastructure projects. In 2000, IMI initiated Paralia Nature, a practical project on the Habitats Directive and port development that includes Belgian, Dutch, English and German partners and from which many of the ideas for NEW! Delta were derived.

In addition, IMI advises on renewable energy issues such as the siting of wind and solar energy plants, fisheries and cross-border issues in relation to nature protection and infrastructure planning. The Institute also specialises in cross-border issues and problems relating to Natura 2000 and the Water Framework Directive.

The project work has resulted in an extensive array of scientific, legal and policy publications and a number of guidance books on European and national nature protection policy (published by the Dutch State Printers). IMI employs a small multidisciplinary and international staff of legal experts, ecologists, engineers and political scientists. Working languages include English, French, Dutch, German and Spanish.

Figure I.3 Limburger Channel de Zilk (Province of South Holland)

Regional Directorate for the Environment of Haute-Normandie

Though the official partner in the project is the French Ministère de l'Ecologie, du Développement et de l'Aménagement Durables, the work on the NEW! Delta project was carried out by the Ministry's Regional Directorate for the Environment of Haute Normandie (DIREN). DIREN's work lies in the fields of nature conservation and protection, especially the conservation of wetlands and historic landscapes, environmental improvement, water supply, natural risk prevention, integrated coastal zone management and promoting sustainable development. DIREN implements national and European policies on the protection of wild plants and animals on behalf of the ministry. It also supports environmental associations and inventories of patrimonial species and protected areas.

DIREN of Haute Normandie is specifically involved in the combination of ecologically important areas (wetlands, chalk hills) containing many species and habitats protected under European Directives with commercial activity such as port activities (Le Havre and Rouen), industry, agriculture, towns and generally the overflow of the upstream activities of Paris and its suburbs.

Port of Rouen

The Paris-Rouen-Le Havre port complex is the French leader for freight throughput for all categories of goods, and ranks third in Europe in terms of tonnage. Its infrastructure network includes waterways, motorways and rail connections linking Paris, Rouen and Le Havre to the surrounding area and the rest of Europe. The three ports (Paris, in its capacity as river and maritime port, the estuary port of Rouen, and the deep-water port of Le Havre), the different facilities they offer as well as their strategic positioning in the heartland of Europe with easy access to business centres and transport network hubs, make them a favourable choice for freight transit to and from major European economic zones.

Port of Rotterdam Authority

The Port of Rotterdam is part of the identity of the Rijnmond region, not only in an economic sense, but also because of its characteristic and dynamic port-estuary landscape. The natural areas and recreational facilities in and around the port attract many visitors, while the appearance of the port forms a showcase for companies. Rotterdam wishes to make the port more presentable, to enhance natural areas and recreational functions and improve its ecological and recreational network. Essential in achieving this ambition is an integral, multifunctional approach to the natural values surrounding the port area, especially the 90,000 hectare coastal nature reserve of the Voordelta, protected under the Habitats Directive. An integrated approach to the Port estuary should advance the protection objectives set for the Voordelta as a whole and the species for which this Natura 2000 site was designated, while at the same time allowing Rotterdam to function and develop as Europe's largest port. As port development can have an adverse effect on the Voordelta, more research is required to solve the tension between them. One important research field, addressed in NEW! Delta, is the development of methods to set ecological goals and indicators specific for ports.

The Port of Rotterdam's subpartner, which assisted on data analysis, was the Institute for Wetland and Water Research of the Radboud University of Nijmegen (RUN). RUN is active in interdisciplinary research in the fields of microbiology, ecology, plant and environmental sciences.

Alterra

Alterra is the Dutch research institute for the natural environment. It offers a combination of practical and scientific research in a multitude of disciplines related to nature and the sustainable use of the natural environment. Alterra focuses on fields as diverse as flora and fauna, soil, water, the physical environment, geo-information and remote sensing, landscape and spatial planning, man and society.
Alterra is the non-profit part of the Wageningen University and Research Centre (WUR) and closely cooperates in research and education with the WUR's School of Environmental Sciences. This exchange of expertise and research capacity and the match between theoretical and practical research in various projects give Alterra a scientific advantage.

In NEW! Delta, Alterra was assisted by Wageningen IMARES, the Institute for Marine Resources & Ecosystem Studies, which specialises in strategic and applied marine ecological research.

ABP Marine Environmental Research Ltd (ABPmer)

ABPmer is a leading UK marine environmental consultancy creating sustainable solutions for the marine environment. It has an excellent track record in managing and contributing to integrated environmental studies across a wide range of industries. It also undertakes focused and strategic research for government agencies.

ABPmer is part of Associated British Ports (ABP), the UK's leading ports group, which owns and operates 21 ports around the UK, providing innovative and high-quality port facilities and services to shippers and cargo owners. ABP works in close partnership with its customers, responding quickly to meet their requirements and offering business solutions to their demands and problems.

Based in Southampton, ABPmer provides services across the UK and overseas. It offers a flexible and personalised approach tailored to meet clients' individual needs. All the services provided by ABPmer are in accordance with its quality system, accredited to ISO 9001: 2000. ABPmer is involved in numerous research programmes concerned with scientific understanding, management approaches and technological advancement.

Delft University of Technology

Delft University of Technology was founded more than 100 years ago as the first technical university in the Netherlands.

The Faculty of Civil Engineering and Geosciences is one of the eight faculties of the university. Staff from the Section of Hydraulic Engineering and the Water Resources Section participated in NEW! Delta.

Delft University of Technology is internationally recognised as a leader in fluid mechanics, coastal dynamics, coastal protection, coastal sediment transport, morphology, wind waves, coastal currents and the mathematical and numerical modelling of these processes.

Interview

François Xicluna

Director for Access, Infrastructures and Environment,
Port of Rouen.

‘The cross-feeding that occurs with NEW! Delta benefits both port managers and the natural environment’

Do you feel that there are tensions in the relationship between ports and nature?
While the relationship is better than in the past, there is still a problem of public perception of seaports. Perhaps port developers, like society as a whole, used to take insufficient account of the environment but these days port managers, as citizens, care about preserving the quality of nature. It is important to make people realise that ports are not just places where big ships come to load and unload their cargo, but that port managers are also taking positive action to protect and enhance the ecological value of the area in which they work.

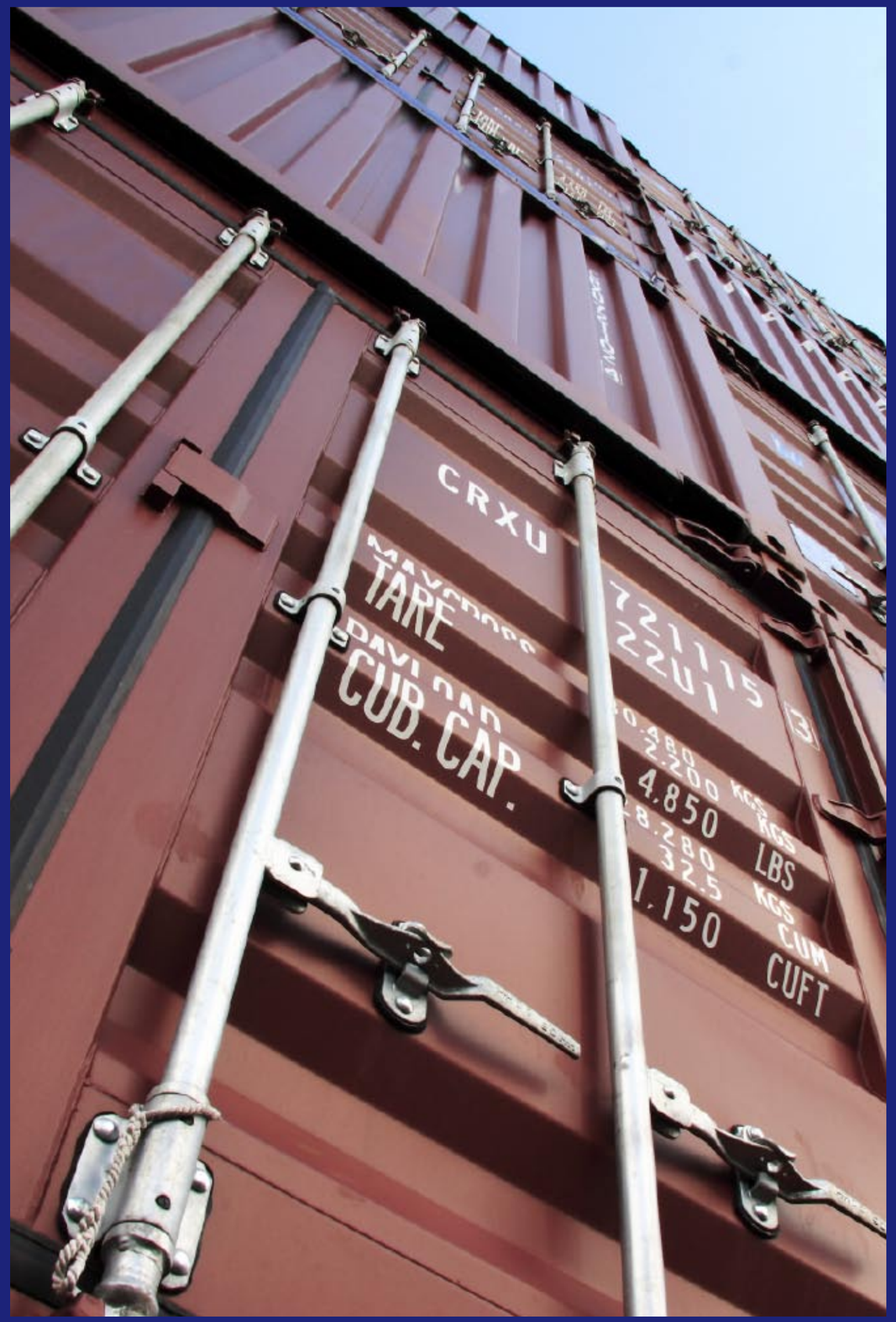
Is that message getting through?
I think so. At first, there was significant opposition to the extension of the port of Le Havre (Port 2000), but a dialogue was set in motion with NGOs and the public. The project proved a success, while the environment in the Seine Estuary improved to the extent that certain kinds of fish and other species that had disappeared have now returned.

Are projects like New! Delta valuable in this respect?
Yes, certainly. It is very valuable for ports to exchange their experiences with each other and with other stakeholders. We were closely involved in Theme 6, which was seeking sustainable dredging strategies. Dredging is of course a major issue for ports, and we were able to show that we use the most modern techniques to ensure that we minimise the impact on the environment. The cross-feeding that occurs with projects like NEW! Delta benefits both us, as port managers, and the natural environment.

Do you think the tools and products of the NEW! Delta project are usable in your situation, for example, by the GEODE dredging network in France?
We are applying or taking inspiration from some of the tools developed during the project in the Seine Estuary, adapting them where necessary to suit the situation. The scoping tool developed by ABPmer is proving particularly valuable.

What are weaknesses of the NEW! Delta project? Where do you think there is room for improvement?
I think that Theme 6 on dredging strategies was perhaps a little too theoretical or academic. In comparison, the GEODE project in France is a little more aimed at finding practical solutions. The project could have focused more on particularity, but of course, theory and practice complement each other. Cross-feeding between GEODE and NEW! Delta proved genuinely fruitful.

Figure 1.4 Containers.



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Ms. Christina van Schie
Ms. Marian Hage
Mr. Peter van der Graaf

Annex II References

Reports and other products

Theme 1 Pooling resources for Natura 2000

1.1 The comparative study: the implementation of Directives 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and 79/409/EEC on the conservation of wild birds in Flanders, France, the Netherlands and the UK. F. Sahin, 2007. IMI, Brussels.

1.2 Cooperation tools, transnational cooperation and coordination: tools and procedures for coastal, estuary and port planners and managers. F. Sahin, 2007. IMI, Brussels.

1.3 Report on benchmarks and common practices: benchmarks, checklists and basics for essential steps in the application of Habitats Directive Article 6 (3) en 6 (4). S. Bus, F. Neumann and K. Rossoglou, 2007. IMI, Brussels.

1.4 European platform Delta/Natura 2000. NEW! Delta website and database continuation proposal. F. Neumann, May 2007. IMI, Brussels.

Theme 2 Establishment of ecological goals and indicators

2.1 Contribution to the development of ecological goals and indicators for the aquatic environment in ports. Challenges in the Port of Rotterdam area. P.C.B. de Wit (Port of Rotterdam), G. Bolier (Delft University of Technology), P. Paalvast (Ecoconsult), G. van der Velde (Radboud University Nijmegen) and M. de Vries (Delft Hydraulics), May 2007. NEW! Delta, Rotterdam.

Theme 3 Creation and restoration of coastal and estuarine habitats

3.1 Creation and restoration of coastal and estuarine habitats. S. Bracke, T. Bucx, N. Frost, H. Jaspers, J. de Groot, G. Quemeneur, F. Sahin, P. Slim, H. Smit, E. de Swart, T. Tessier, L. Vermeersch, T. Vanoutrive and H. Slootweg, 2007. Province of South Holland, The Hague.

3.2 Spatial relations among coastal bird populations in NEW! Delta estuaries and ports: exploration of how the metapopulation concept can provide new clues for the conservation of protected coastal bird species with the Common Tern as example. Robbert Snep, Alex Schotman, René Jochem, Peter Schippers, Jan-Willem van Veen, Arjan Griffioen and Pieter Slim, 2007. Alterra – Wageningen UR, Wageningen.

3.3 A more natural Port of Antwerp: ecological infrastructure network for the Natterjack Toad *(Bufo calamita)* on the left bank of the Scheldt; application of the LARCH model to the Natterjack Toad in the Port of Antwerp on the left bank of the Scheldt as basis for the sustainable conservation of the species. F.G.W.A. Ottburg, R. Pouwels and P.A. Slim, 2007, Alterra–Wageningen UR, Wageningen.

Theme 4 Cross-sectoral long-term port and estuary visions

4.1 Cross-sectoral long-term port and estuary visions. S. Bracke, S. Bus, P. Chapuy, N. Dankers, S. Kazer, C. den Heijer, F. Neumann, N. Poisson, G. Quemeneur, F. Sahin, C. Scott, H. Slootweg, T. Vanoutrive and P. de Wit, 2007. Regional Directorate for the Environment of Haute-Normandie, Rouen.

Theme 5 Cause-effect relationships

5.1 Theme 5: cause-effect relationships: review of methodologies. INTERREG 111B North-West Europe, NEW! Delta Theme 5.1. ABPmer, 2007.

5.2 Framework for the cause-effect scoping tool: web-based best practice tool for projects, plans and activities potentially affecting Natura 2000 sites. ABPmer, 2007.

Theme 6 Sustainable dredging strategies

6.1 Issues and system understanding; review of existing practices in dredging management of partner countries. NEW! Delta Theme 6.1. Delft University of Technology, 2007.

6.2 Framework for a sustainable dredging strategy. NEW! Delta Theme 6.2. Delft University of Technology, 2007.

Theme 7 Coastal morphology and coastal defences in the vicinity of ports

7.1 Coastal morphology and coastal defences in vicinity of ports (in relation to the Birds and Habitats Directives). C. den Heijer and J. van de Graaff. Delft University of Technology, 2007.

Figure II.1 Project area, showing locations of partners and investment projects

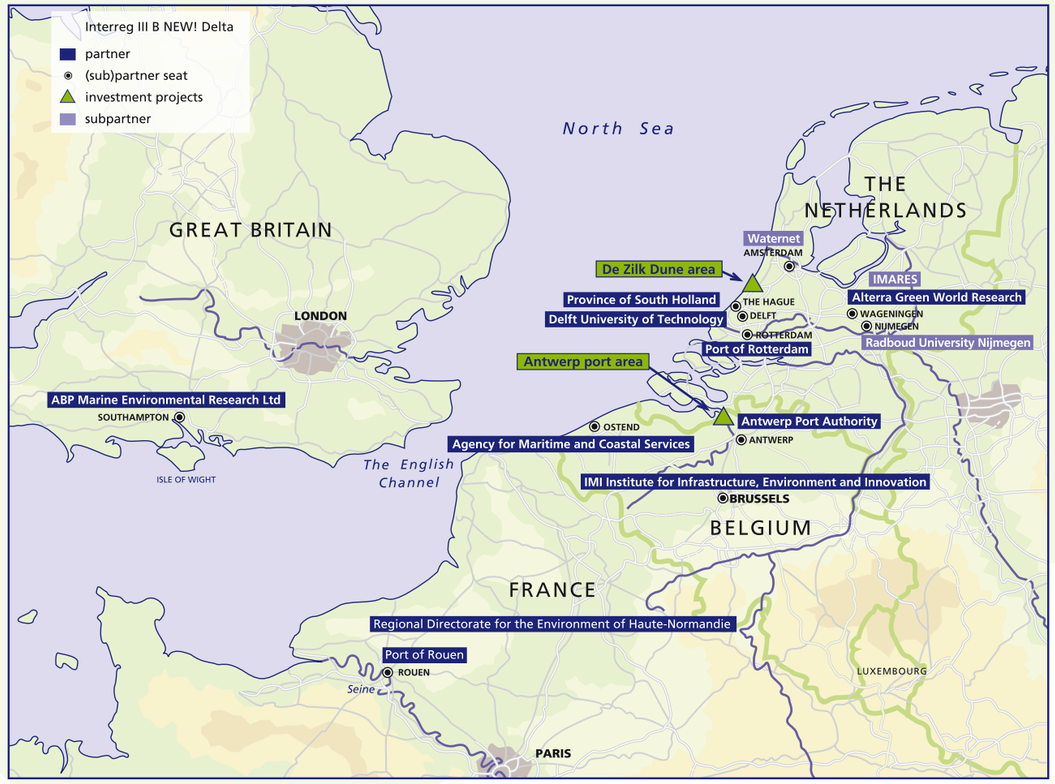

Figure II.2 List of interviews

Han Lindeboom Member of the Board of Directors (Science), Wageningen IMARES	**'NEW! Delta could be a first step towards a European delta library'**	page 14
Pierre Chapuy Professor at the Conservatoire National des Arts et Metiers, Paris	**'The challenge is to serve the interests of all in a limited space'**	page 18
Roel Hoenders Policy Advisor at the European Sea Ports Organisation (ESPO)	**'If ports work together they can be very successful in finding solutions'**	page 20
Roger Morris Senior Policy Officer, Natural England	**'Tension between ports and nature decreasing, but still work to do'**	page 29
François Kremer Nature Protection Unit, DG Environment, European Commission	**'NEW! Delta shows that the integration of Natura 2000 is genuinely feasible'**	page 30
François Xicluna Director for Access, Infrastructures and Environment, Port of Rouen	**'The cross-feeding that occurs with NEW! Delta benefits both port managers and the natural environment'**	page 42

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September 2007

PORT DE ROUEN
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