



## **Report of the 264. Cruise of FF "Walther Herwig III" 01.06.04 – 21.06.04**

Chief scientist : Dr. Horst Karl

### **Studies on food safety and quality changes of fish**

#### **Summary:**

Investigations of this cruise included studies of the influence of high pressure on the quality of fish fillets, the possible occurrence of tainting in herring fillets as result of incorrect treatment during CSW storage and deep freezing and studies of migration of nematode larvae in saithe fillets stored on ice.

Fish samples for pollution studies on dioxin and dioxin like PCBs and inorganic contaminants were collected at different fishing grounds.

Fish samples were monitored on the occurrence of *Vibrio*, *Listeria* and *Enterobacteria*

#### **Narrative of cruise**

FFS "Walther Herwig III" (W.H. III) departed Bremerhaven the 1<sup>st</sup> of June and started investigations next morning north of the German Bight.

The progress of the cruise is summarised in table 1.

Date	Area of investigation	Main fish samples taken
02.06.04	North of German Bight	Plaice
03.06.04	Utsira Ground, North sea	Herring
04.06.04	Halibut Bank, Shetlands	Saithe
05.06.04	Tampen, north of Shetlands	Ocean perch, black halibut
06.06.04	West Orkneys area	Various species
07.06.04	St. Kilda	Various species
08.06.04	South-West of Hebrides	Various species
09.06.04	West of Ireland	Various species
10.06.04	South-West of Ireland	Various species
11-12.06.04	Stop in Cork Ireland	
13.06.04	Celtic Sea	Herring
14.06.04	South of Ireland	Horse mackerel
15.06.04	Nymphe Bank	Various species
16.06.04	N-West of Great Sole Bank	Sardines
17.06.04	Eddystone Bay, England	Various species
18.06.04	Lyme Bay, England	Various species

On the afternoon of June 11<sup>th</sup>, Walther Herwig III arrived at Cork in Ireland for a scientific information exchange with scientists from the Irish Sea Fisheries Board (BIM). W.H.III left Cork the next day, June 12<sup>th</sup> and continued research work in the Celtic Sea east of Ireland and thereafter further work south on the shelf northwest of the Great Sole Bank. In the evening of June 18<sup>th</sup> fishing ended in the Lyme Bay and FFS “Walther Herwig III” returned to Bremerhaven on June 21<sup>st</sup>.

### **Preliminary results**

A total of 52 hauls were made and samples of 60 different species of fish were collected and prepared for later species identification, analysis of essential elements and organic pollutants at land based laboratories. Special interest was focused on important fish species for the German market e.g. herring, mackerel, ocean perch etc.

#### Microbiological studies

50 fish and shell fish samples from various fishing grounds were analysed for the presence of *Vibrio*, *Listeria monocytogenes* and Enterobacteria.

#### Application of high pressure technology on fish

The influence of isostatic high pressure on fresh fish fillets from 5 species was studied in terms of quality changes in relation to different rigor states.

#### Parasites in fish

As part of the ongoing studies on nematodes in the muscle of fish for human consumption the possible migration of nematodes in saithe fillets was studied with respect to conditions found in retail shops.

#### Tainting of herring fillets

The aim of this study was to prove if incorrect treatment of herring during CSW storage and/or deep freezing can lead the development of off flavour in the fillets.

### **Scientific crew members**

Name	Institution
Dr. Horst Karl	BFEL HH, scientist of charge
Dr. Carsten Meyer	BFEL HH, microbiologist
Dr. Reinhard Schubring	BFEL HH, chemist
Dr. Ulrike Ruoff	BFEL Kiel, chemist
Prof. Dr. Oehlenschläger	BFEL HH, chemist
Hans-Jürgen Knaack	BFEL HH, technician
Iris Bagge	BFEL HH, technician
Rainer Kündiger	BFEL HH, technician
Ines Müller	BFEL HH, technician
Wilfried Westrup	BFA Fi, technician
Maike von Klinkowström	BFA Fi, technician
Tom McLaughlin	Irish Sea Fisheries Board
Fritz Johannes	BMVEL