

## Contributions to the 1998 Annual Science Conference

	Page
Gen	General Assembly Reports and Papers of General Interest..... 14
Del	Delegates Meetings ..... 15
Fi	Finance Committee..... 16
Pub	Publications Committee..... 16
A	Consultative Committee ..... 17
B	Fisheries Technology Committee..... 18
C	Oceanography Committee ..... 19
D	Resource Management Committee..... 20
E	Marine Habitat Committee ..... 21
F	Mariculture Committee ..... 22
G	Living Resources Committee ..... 23
H	Baltic Committee..... 24
ACFM/ ACME	Working Group on Ecosystem Effects of Fishing Activities ..... 25
ACFM	Advisory Committee on Fishery Management Assessment Working Group Reports ..... 26
ACME	Advisory Committee on Marine Environment Environment-related Working Group Reports ..... 27
Mini	Mini-Symposium on Coastal Eutrophication, System Productivity, and (Harmful) Algal Blooms: What Do We Learn from Mesocosms? ..... 28
J	Variation in the Pattern of Fish Aggregation: Measurement and Analysis at Different Spatial and Temporal Scales and Implications ..... 29
K	The Use of Genetics in Aquaculture ..... 32
L	Farming Marine Fish beyond the Year 2000: Technological Solutions for Biological Challenges. 34
M	Impact of Cephalopods in the Food Chain and Their Interaction with the Environment..... 36
N	Ecology of Diadromous Fishes during the Early Marine Phase..... 39
O	Deepwater Fish and Fisheries..... 41
P	Development of Toxicity and Quality Standards for Contaminants in the Marine Environment ... 46
Q	Skill Assessment of Environmental Modelling ..... 47
R	Mesoscale Physical Phenomena and Biological Production: Implications for GLOBEC..... 48
S	Visualisation of Spatial (including Survey) Data (posters/software demonstrations)..... 50
T	Management under a Precautionary Approach: Ecological, Social, and Economic Consequences. 52
U	Evaluation of Marine Protected Areas as Management Tools ..... 54
V	Recovery and Protection of Marine Habitats and Ecosystems from Natural and Anthropogenic Impacts ..... 55

AA	Stock Components in Management.....	56
BB	Fisheries Assessment Methods.....	57
CC	Population Biology.....	58
DD	Spawning and Recruitment.....	60
OPEN	Open Poster Session .....	61

**Requests for additional copies of documents when supplies run out**

Authors have been requested to provide 200 copies of their papers (125 to be sent to Portugal and 75 to the ICES Secretariat). Copies of the various papers are made available in the Documents Room. Participants may help themselves to copies of scientific papers on a first-come-first-served basis. Should supplies of particular papers run out, those wishing to obtain copies should not contact the Secretariat but approach the senior author of the paper concerned (name and address given with Abstracts). It is hoped that authors will send copies to those requesting them once the Annual Science Conference is over.

## **GENERAL ASSEMBLY REPORTS AND PAPERS OF GENERAL INTEREST**

- Gen:1            Observers' Reports from Cooperating Organisations
- Gen:2            ICES Activities in 1997/1998
- Gen:3            Elections and Appointments of Council Officials at 1998 Annual Science Conference (86th Statutory Meeting) (E+F)
- Gen:4            Report of the Bureau Working Group on Strategic Planning
- Gen:5            Report on ICES Symposia
- Gen:6            1997/1998 Overview of ICES Committees and Subsidiary Groups and their Shadowing by Secretariat Staff, and Schedule of ICES Meetings and List of CM Codes

## DEL - DELEGATES DOCUMENTS

Del:1	Final Accounts for Financial Year 1996/1997
Del:2	Preliminary Report on Administration
Del:3	Cooperation with Other International Organisations: Working and Financial Arrangements
Del:4	Estimated Accounts for Financial Year 1997/1998 (E+F)
Del:5	Budget for Financial Year 1998/1999 (E+F)
Del:6	Forecast Budget for Financial Year 1999/2000 (E+F)
Addendum to Del:6	Summary of ICES Secretariat Workplan, including Associated Resources
Del:7	Elections and Appointments at the 1998 Annual Science Conference
Del:8	Arrangements for 1999 (87 <sup>th</sup> Statutory Meeting; Sweden), 2000 (88 <sup>th</sup> Statutory Meeting; Belgium), and Subsequent Annual Science Conferences
Del:9	Lithuanian Application to Accede to ICES Convention
Del:10	Report on Second Meeting of ICES/Commissions Working Group on Cooperative Procedures
Addendum to Del:10	Implications for ICES of Second Meeting of ICES/Commissions Working Group on Cooperative Procedures
Del:11	Developing Memoranda of Understanding
Del:12	Continuation of Advisory Honoraria to Chairmen of ACFM and ACME Beyond 1998/1999
Del:13	Progress on Planning and Funding for the ICES Centenary
Del:14	Report of Coordinating Group on ICES Advice
Del:15	Report of Bureau Working Group on Strategic Planning
Del:16	Report of Steering Group on Planning for Eleventh ICES Dialogue Meeting
Del:17	Progress Report on Planning for ICES Young Scientists Conference
Del:18	Status of ICES/GLOBEC Project Office

(E+F) in English and French

## **FI - FINANCE COMMITTEE**

FI:1\*            Agenda for Finance Committee

## **PUB - PUBLICATION COMMITTEE**

Pub:1            Agenda for Publications Committee  
Pub:2            Review of ICES publication activities in 1997/1998  
Pub:3            Sale and promotion of ICES publications during the last three years  
Pub:4            *ICES Journal of Marine Science*: Editors' Report for 1997/1998  
Pub:5            *ICES Journal of Marine Science*: Strategy for development  
Pub:6            *ICES Journal of Marine Science*: Academic Press Publisher's Report for 1997/1998  
Pub:7            *ICES Journal of Marine Science*: Status of ICES/Academic Press joint account for 1997,  
with two Annexes  
Pub:8            *ICES Cooperative Research Report* series: Editor's Report for 1997/1998  
Pub:9            *ICES Identification Leaflets for Plankton*: Editor's Report for 1997/1998  
Pub:10           *ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish*: Editor's  
Report for 1997/1998  
Pub:11           *ICES Techniques in Marine Environmental Sciences*: Editor's Report for 1997/1998  
Pub:12           Role of the ICES Publications Committee

**REFERENCE PAPER: DEL:15/GEN:6**

\* For Finance Committee and Delegates only

## CONSULTATIVE COMMITTEE

- A:1            Agenda for Consultative Committee
- A:2            Minutes from ACFM Meeting 22–31 October 1997
- A:3            Minutes from ACFM Meeting 18–21 May 1998
- A:4            Minutes from ACME Meeting 8–13 June 1998
- A:5            Report of Mid-Term Meeting of the Consultative Committee and the ASC  
Programme Planning Group 4–6 June 1998
- A:6            Compendium of Draft Recommendations

## **FISHERIES TECHNOLOGY COMMITTEE**

- B:1 Study Group on Echo Trace Classification
- B:2 Study Group on Grid (Grate) Sorting Systems in Trawls, Beam Trawls and Seine Nets
- B:3 Working Group on Fishing Technology and Fish Behaviour
- B:4 Working Group on Fisheries Acoustics Science and Technology
- B:5 Joint Session of the Working Group on Fishing Technology and Fishing Behaviour and the Working Group on Fisheries Acoustics Science and Technology
- B:6 Study Group on the Use of Selectivity and Effort Measurements in Stock Assessment

### **REFERENCE PAPER: H:1**



## OCEANOGRAPHY COMMITTEE

- C:1 ICES/GLOBEC Workshop on Applications of Environmental Data in Stock  
Ref. D, ACFM Assessment
- C:2 Working Group on Shelf Seas Oceanography  
Ref. ACME
- C:3 Working Group on Phytoplankton Ecology  
Ref. ACME
- C:4 Working Group on Harmful Algal Bloom Dynamics
- C:5 Working Group on Seabird Ecology  
Ref. E
- C:6 Working Group on Zooplankton Ecology
- C:7 Working Group on Marine Data Management
- C:8 Working Group on Oceanic Hydrography
- C:9 Third ICES/GLOBEC Backward-Facing Workshop
- C:10 ICES/GLOBEC Working Group on Cod and Climate Change
- C:11 ICES/GLOBEC North Atlantic Regional Coordination Group, September 1997
- C:12 Steering Group on Global Ocean Observing System  
Ref. G, E
- C:13 ICES/GLOBEC North Atlantic Regional Coordination Group, May 1998
- C:14 ICES/GLOBEC Workshop on Prediction and Decadal-Scale Ocean Climate  
Fluctuations of the North Atlantic

**REFERENCE PAPERS: E:1, E:2, ACME:1, ACME:2, ACME:3, ACME:9**

## RESOURCE MANAGEMENT COMMITTEE

D:1 Ref. H	Study Group on the Stock Structure of Baltic Spring-Spawning Herring
D:2 Ref. ACFM	Study Group on Stock-Recruitment Relationships for North Sea Autumn-Spawning Herring
D:3	Planning Group on Surveys on Pelagic Fish in the Norwegian Sea
D:4 Ref. ACFM	Study Group on the Evaluation of the Quarterly IBTS Surveys
D:5 Ref. ACFM	Comprehensive Fishery Evaluation Working Group
D:6 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1997: Quarter 1
D:7	Study Group on the Management Performance of Fisheries Systems
D:8 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1991: Quarter 2, 3, and 4
D:9 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1992: Quarter 2, 3 and 4
D:10 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1993: Quarter 2, 3 and 4
D:11 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1994: Quarter 2,3 and 4
D:12 Ref. G	International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1995: Quarter 2,3 and 4
D:13	International Bottom Trawl Survey Working Group

**REFERENCE PAPERS; C:1, E:1, E:2, G:2, G:4, H:3, ACFM:10, ACFM:13**

## MARINE HABITAT COMMITTEE

- E:1 Benthos Ecology Working Group  
Ref. ACME, C
- E:2 Marine Chemistry Working Group  
Ref. ACME, C
- E:3 Working Group on Biological Effects of Contaminants  
Ref. ACME
- E:4 Working Group on Environmental Assessment and Monitoring Strategies  
Ref. ACME
- E:5 Working Group on the Effects of Extraction of Marine Sediments on the Marine  
Ref. ACME Ecosystem
- E:6 Working Group on Marine Mammal Habitats  
Ref. ACME,  
G
- E:7 Working Group on Marine Sediments in Relation to Pollution  
Ref. ACME
- E:8 Working Group on Statistical Aspects of Environmental Monitoring  
Ref. ACME
- E:9 Joint Session of the Working Group on Biological Effects of Contaminants and the  
Ref. ACME Working Group on Statistical Aspects of Environmental Monitoring

**REFERENCE PAPERS: C:5, C:12, F:2, F:4, G:6, ACFM/ACME:1, ACME:1, ACME:2, ACME:3, ACME:4, ACME:5, ACME:6, ACME:7, ACME:8**

## MARICULTURE COMMITTEE

- F:1 Working Group on the Application of Genetics in Fisheries and Mariculture
- F:2 Working Group on Environmental Interactions of Mariculture  
Ref. ACFM,  
ACME, E
- F:3 Working Group on Marine Fish Culture
- F:4 Working Group on Pathology and Diseases of Marine Organisms  
Ref. ACME, E

**REFERENCE PAPERS: ACME:4, ACME:6**

## LIVING RESOURCES COMMITTEE

G:1	Workshop on Otolith Ageing of North Sea Whiting (Preliminary report)
G:2 Ref. D	Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX
G:3 Ref. H	Study Group on Redfish Stocks
G:4 Ref. D	Planning Group for Herring Surveys
G:5	Horse Mackerel Otolith Workshop - no meeting held
G:6 Ref. E, ACME, ACFM	Working Group on Marine Mammal Population Dynamics and Trophic Interactions
G:7 Ref. ACFM	Working Group on Cephalopod Fisheries and Life History
G:8	Working Group on <i>Crangon</i> Fisheries and Life History
G:9	Study Group on Life Histories of <i>Nephrops</i>
G:10	Study Group on the Biology and Life History of Crabs
G:11	Planning Group on the Census of the Fishes
G:12 Ref. ACFM	Study Group on Elasmobranch Fishes
G:13 Ref. ACFM	Study Group on Beam Trawl Surveys
G:14 Ref. ACFM	Working Group on Mackerel and Horse Mackerel Egg Surveys
G:15	Study Group on Sea Trout
G:16	Stock Identification Methods Working Group
G:17	Study Group on Ocean Salmon Tagging Experiments with Data Logging Tags
G:18 Ref. ACFM	EIFAC/ICES Working Group on Eels

**REFERENCE PAPERS: C:12, D:6, D:8, D:9, D:10, D:11, D:12, ACFM:12, E:6, ASSESS:5**

## **BALTIC COMMITTEE**

- H:1            Workshop on Standard Trawls for Baltic International Fish Surveys  
Ref. B
- H:2            Baltic Herring Age-Reading Study Group
- H:3            Study Group on Baltic Acoustic Data  
Ref. D
- H:4            Baltic International Fish Survey Working Group

**REFERENCE PAPERS: D:1, G:3, ACFM:11, ACME:1, ACME:2, ACME:3**

## ACFM/ACME

ACFM/  
ACME:1  
Ref. E

Working Group on Ecosystem Effects of Fishing Activities

**REFERENCE PAPERS: F:2, G:6**

## ACFM

Assess:1	Working Group on the Assessment of Northern Shelf Demersal Stocks
Assess:2	Arctic Fisheries Working Group
Assess:3	Joint ICES/NAFO Working Group on Harp and Hooded Seals
Assess:4	Working Group on the Assessment of Southern Shelf Demersal Stocks
Assess:5, Ref. G	<i>Pandalus</i> Assessment Working Group
Assess:6	Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy
Assess:7	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
ACFM:8	Study Group on the Assessment of Other Fish and Shellfish Species
ACFM:9	Study Group on Future Requirements for Fisheries Assessment Data and Software
ACFM:10 Ref. D	Study Group on the Precautionary Approach to Fishery Management
ACFM:11 Ref. H	Study Group on Management Strategies for Baltic Fish Stocks
ACFM:12 Ref. G	Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources
ACFM:13 Ref. D	Workshop on Setting Conservation Limits for Salmon in the Northeast Atlantic
ACFM:14	Herring Assessment Working Group for the Area South of 62°N
ACFM:15 + supplement	Working Group on North Atlantic Salmon
ACFM:16	Baltic Fisheries Assessment Working Group
ACFM:17	Baltic Salmon and Trout Assessment Working Group
ACFM:18	Northern Pelagic and Blue Whiting Fisheries Working Group
ACFM:19	North-Western Working Group

**REFERENCE PAPERS: C:1, D:2, D:4, D:5, D:6, D:8, D:9, D:10, D:11, D:12, F:2, G:6, G:7, G:12, G:13, G:14, G:18**



## ACME

ACME:1 Ref. C, E, H	ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea
ACME:2 Ref. C, E, H	ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea
ACME:3 Ref. C, E, H	ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements Related to Eutrophication Parameters
ACME:4 Ref. E, F	Working Group on Introductions and Transfers of Marine Organisms
ACME:5 Ref. E	ICES/IOC/IMO Study Group on Ballast Water and Sediments
ACME:6 Ref. E, F	ICES/GESAMP Working Group on the Control of Marine Pests - no meeting held
ACME:7 Ref. E	Study Group on Monitoring Programmes for Contaminants in Sediments - no meeting held
ACME:8 Ref. E	ICES/HELCOM Benthos Taxonomic Workshop
ACME:9 Ref. C	ICES/HELCOM Workshop/Training Course on Phytoplankton

**REFERENCE PAPERS: C:2, C:3, E:1, E:2, E:3, E:4, E:5, E:6, E:7, E:8, E:9**

**MINI-SYMPOSIUM ON COASTAL EUTROPHICATION, SYSTEM PRODUCTIVITY, AND (HARMFUL) ALGAL BLOOMS: WHAT DO WE LEARN FROM MESOCOSMS?**

- Mini:1 V.V. Sapozhnikov and N.M. Lapina Studies of production-destruction processes in the Black Sea lagoons with the mesocosm systems
- Mini:2 A.I. Agatova and V.V. Sapozhnikov The biohydrochemical studies in the shelf zone of the Black Sea and several reasons of the development of harmful algal blooms
- Mini:3 D.K. Mills and R. Sanders Ecosystem response to nutrient input: preliminary analysis of results from Thames plume
- Mini:4 S.M. Mykkestad, K.Y. Børshheim, S. Kirkvold, and H. Reinertsen The production of soluble cellular carbohydrates and the release of dissolved organic carbon (doc) including carbohydrates, in relation to nutrient supply in a mesocosm experiment
- Mini:5 T. Tamminen, A.-S. Heiskanen, R. Lignell, J. Seppälä, P. Kuuppo, K. Olli, K. Kivi, and P. Tuomi Nutrient enrichments and food web interactions in shaping phytoplankton responses, and retention vs. export of accumulated nutrients in four large-scale mesocosm experiments
- Mini:6 Y. Olsen et al. Studies of ecological response versus nutrient dose relationship using experimental mesocosms - Comparison of short-term response in chlorophyll-a following nutrient additions to European coastal waters
- Mini:7 A. Jöborn, H. Oscarsson, and L. Phil A new approach to combat blooms of ephemeral opportunistic macroalgae in Scandinavian coastal waters
- Mini:8 R. Dame, D. Edwards, L. Gregory, S. Thomas, C. Corbett, B. Kjerfve, E. Koepfler, A. Lewitus, D. Allen, D. Bushek, and T. Prins Ecosystem scale observations of estuarine variability
- Mini:9 T.C. Prins, V. Escaravage, L.P.M.J. Wetsteyn, and J.C.H. Peeters Effects of N and P enrichment on phytoplankton composition, primary and secondary production in an experimental marine ecosystem

**THEME SESSION ON VARIATION IN THE PATTERN OF FISH AGGREGATION:  
MEASUREMENT AND ANALYSIS AT DIFFERENT SPATIAL AND TEMPORAL SCALES AND  
IMPLICATIONS (J)**

J:1	Withdrawn	
J:2	R. Aukland and D. Reid	The impact of changing stock size on the aggregative behaviour of North Sea herring
J:3	D.G. Reid, P.G. Fernandez, E. Bethke, A. Couperus, E. Goetze, N. Håkansson, J. Pedersen, K.J. Staehr, E.J. Simmonds, R. Toresen and E. Torstensen	On visual scrutiny of echograms for acoustic stock estimation
J:4	D.N. MacLennan and E.J. Simmonds	Fish aggregations near the seabed
J:5	P. Petitgas and B. Samb	On the clustered occurrence of fish schools along acoustic survey transects and its relation to population abundance
J:6	P.G. Fernandes	A spatial analysis of trawl variability in the 1995 North Sea herring acoustic survey
J:7	K. Wieland, L. Foldager, R. Holst, and A. Jarre-Teichmann	Spatial distribution and variability of abundance estimates of juvenile (age 1 and 2) whiting and cod in the North Sea
J:8	M. Soria, P. Petitgas, T. Bahri, and T. Lafont	On the size of fish schools and clusters of schools: a spatial analysis of multibeam sonar images of schools in the Mediterranean sea
J:9	U. Böttcher, R. Oeberst, and B. Mieske	Daily vertical migration patterns of Baltic 0-group cod
J:10	E. Lebarbier, J. Massé, and P. Petitgas	Relating trawl catches to aggregation variability to improve identification of echo-traces during acoustic surveys
J:11	S. Mackinson and N. Newlands	Using local and scientific knowledge to predict distribution and structure of herring shoals
J:12	S. Mackinson, L. Nøttestad, S. Guénette, T. Pitcher, O.A. Misund and A. Fernö	Distribution and behavioural dynamics of ocean feeding Norwegian spring spawning herring: observations across spatio-temporal scales
J:13	L. Gonzalez, F. Gerlotto, and J. J. Cardenas	Pelagic fish populations in Eastern Venezuela: impact of the environmental characteristics on the morphology, aggregation and spatio-temporal distribution of <i>Sardinella aurita</i> schools
J:14	L. Millischer and D. Gascuel	Individual-based modelling of fishing tactics
J:15	V.M. Tsontos	Spatial abundance distribution patterns and scaling properties within an exploited bivalve population
J:16	G. Huse and J. Giske	Individual based spatial models with evolved behaviour
J:17	N. Kuyeye and O.A. Misund	Seasonal changes in distribution and aggregation characteristics of sardinella species in Angolan waters
J:18	M. Ostrowski and I.J. Huse	Variation in acoustically measured abundance from repeated surveys of herring

- J:19 B.E. Axelsen, L. Nøttestad, A. Fernö, A. Johannessen, and O.A. Misund Await in the pelagic: herring compromising reproduction and survival within a vertically split school
- J:20 L. Nøttestad Extensive gas bubble release in Norwegian spring spawning herring (*Clupea harengus*) during predator avoidance
- J:21 H. Mosegaard Medium and large scale aggregations of different herring stocks in the Eastern North Sea, the Skagerrak and the Kattegat areas
- J:22 J. Pedersen and R. Holst Description of fish layers using the three-dimensional information obtained by a split-beam echo sounder
- J:23 P. Petitgas, N. Diner, S. Georgakarakos, D. Reid, R. Aukland, J. Massé, C. Scalabrin, M. Iglesias, R. Muino, and P. Carrera Sensitivity analysis of school parameters to compare schools from different surveys: A review of the standardisation task for the EC-FAIR programme CLUSTER
- J:24 Withdrawn
- J:25 S. Ehrich, S. Adlerstein, S. Götz, N. Mergardt and A. Temming Variation of mesoscale fish distribution in the North Sea
- J:26 B. Rothschild and D. Cai Spatially explicit theory of recruitment -and-stock and plankton interactions
- J:27 C. Goss and I. Everson Acoustic sampling intensity and vertical distribution of targets, with special reference to Antarctic Krill
- J:28 Withdrawn
- J:29 E.J. Simmonds The implications of the distribution and mobility of North Sea herring on the evaluation of the stock
- J:30 O.A. Misund, N'Kosi Luyeye, D. Boyer, J. Coetzee, R. Cloete, J. Dalen, and G Oechslin School dynamics, swimming behaviour and surface appearance of sardinella in Angolan waters
- J:31 J. Coetzee, N'Kosi Luyeye, G. Oechslin, and O.A. Misund Variability in the spatial structure of three schooling pelagic species off Namibia
- J:32 A. Slotte Patterns of aggregation in Norwegian spring spawning herring (*Clupea harengus* L.) during the spawning season
- J:33 P. Fernandez, M. Soria, and F. Gerlotto Into the next dimension: three-dimensional acoustic observations of fish school aggregations
- J:34 J. Santos and F. Nøstvik  
Poster Spatial scale of variation of biological traits in different fish species of the Barents Sea
- J:35 J. Santos and L. Krag  
Poster Comparative study of density estimation of marine species in bottom trawl surveys and acoustic surveys
- J:36 R.G. Perrotta, A. Madirolas,  
Poster and M. Delia Viñas Aggregation patterns of mackerel (*Scomber japonicus*) schools in relation to the environmental conditions for two different fishing areas off the Argentine coast
- J:37 Withdrawn
- J:38 A.R.G. Tomas  
Poster Environment on population structure of the cusk-eel, *Ophidion holbrooki*, from the Southeastern Brazil

J:39 A. Madirolas and F.C.  
Poster Machado

In situ target strength measurements of Argentine hake  
(*Merluccius hubbsi*)

## THEME SESSION ON THE USE OF GENETICS IN AQUACULTURE (K)

- K:1 P. Eskelinen and J. Piironen Effects of inbreeding on fertilization, fry size and juvenile growth of rainbow trout
- K:2 M. Pempera, R. Wenne, and D.O.F. Skibinski Length heteroplasmy of mitochondrial DNA and population differentiation of the mussel *Mytilus trossulus* from the Southern Baltic
- K:3 S.-E. Fevolden, J. Solvang, and E. Berg Population divergence of Atlantic cod at the synaptophysin locus; microgeographic variation within fjords
- K:4 E. Wlodarczyk and R. Wenne Genetic differentiation of Polish sea trout, *Salmo trutta m. trutta*, populations based on RFLP analysis of PCR-amplified mtDNA segments
- K:5 I. Martinez and L.A. Pastene RAPD-typing of North Atlantic and Western North Pacific minke whales, *Balaenoptera acutorostrata*
- K:6 T.F. Cross, P. Galvin and E. Dillane The use of molecular markers in aquaculture genetics
- K:7 P. Boudry, B. Collet, G. Kotoulas, A. Magoulas, V. Hervouet, F. Bonhomme, and A. Gérard The use of microsatellite markers for parentage analysis in the Pacific cupped oyster, *Crassostrea gigas* (Thunberg)
- K:8 T. Aho, J. Piironen, E. Ranta, and C.R. Primmer Microsatellites for assessment of genetic variation and improvement of hatchery practices in salmonid populations
- K:9 O. Vasin First finding of polymorphism at esterase D loci on the Baltic salmon (*Salmo salar* L.)
- K:10 Withdrawn
- K:11 R.H. Devlin Benefits, limitations, and risks of transgenic fish for aquaculture
- K:12 Withdrawn
- K:13 Poster P. Bossier, G. Vanderstappen, G.V. Triantaphyllidis and P. Sorgeloos Long-primer RAPD for authentication of *Artemia* species
- K:14 Poster S.-E. Fevolden and K.H. Røed Selective breeding for post-stress levels of lysozyme and cortisol in rainbow trout
- K:15 Poster M. De Lourdes Sardinha and G. Nævdal Population genetics studies of the Angolan Horse Mackerels; *Trachurus trecae cadenat*, 1949 and *Trachurus Capensis Castelnua*, 1861
- K:16 Poster E. Gagicas, and G. Blanco E. Vázquez, and J.A. Sánchez Prado The use of allozyme, microsatellite and RAPDs markers in the identification of brown trout (*Salmo trutta*) populations
- K:17 Poster T. Johansen, A.K. Danielsdottir, N.R. Hareide, and G. Nævdal Progress report on the genetic characterisation of Giant *Sebastes* along the Reykjanes Ridge
- K:18 Poster T. Johansen, A.K. Danielsdottir, and G. Nævdal Progress report on the studies of the genetic relationship of deep-sea and oceanic *Sebastes mentella* in the Irminger Sea

- K:19  
Poster O.D.B. Jonsdottir, A.K. Imstrand, A.K. Danielsdottir, V. Thorsteinsson, and G. Nævdal Genetic differentiation among Atlantic cod in south and southeast Icelandic waters: Synaptophysin (Syp I) and haemoglobin (HbI) variation
- K:20  
Poster T. Johansen, N.R. Hareide, and G. Nævdal Genetic variation in Icelandic brown trout (*Salmo trutta*) populations
- K:21  
Poster G. Blanco, H. Pineda, I. McCarthy, E. Vázquez, and J.A. Sánchez Genetic variability, timing of first feeding and life history strategy in Atlantic salmon

**THEME SESSION ON FARMING MARINE FISH BEYOND THE YEAR 2000:  
TECHNOLOGICAL SOLUTIONS FOR BIOLOGICAL CHALLENGES (L)**

- |      |   |   |
|------|---|---|
| L:1  | H.K. Strand   | Social interactions; a comparative study of pre- and post-metamorphosed halibut and turbot fry  |
| L:2  | V. Øiestad  | Shallow raceway as a solution to compact resource-maximizing farming procedure for marine fish species  |
| L:3  | J.G. Støttrup and H. Paulsen                                      | Stocking of marine fish - a growing market for aquaculture  |
| L:4  | J.C. Holm, S.A. Tuene and J.E. Fosseidengen                       | Halibut behaviour as a means of assessing suitability of ongrowth systems   |
| L:5  | I-B Falk-Petersen, T.K. Hansen, R. Fieler, and L.M. Sunde         | Cultivation of the spotted wolffish ( <i>Anarhichas minor</i> Olafsen) - A new candidate for cold-water fish farming  |
| L:6  | B. Björnsson  | Can fisheries yield be enhanced by large-scale feeding of a predatory fish stock? A case study of the Icelandic cod stock   |
| L:7  | A. Kittelsen  | The modern cage culture in fish farming   |
| L:8  | P. Bovbjerg Pedersen  | Status of recirculation technology in Denmark   |
| L:9  | Y. Olsen, G. Øie, K.I. Reitan, O. Vadstein and J. Rainuzzo        | Cultivation of turbot ( <i>Scophthalmus maximus</i> ) juveniles. Effects of larval stocking density during first feeding  |
| L:10 | B.R. Howell   | The effect of stocking density on growth and size variation in cultured turbot, <i>Scophthalmus maximus</i> , and sole, <i>Solea solea</i>  |
| L:11 | T. Pedersen, T.S. Kristiansen, and T. Svåsand                     | Possibilities and limitations of extensive aquaculture of marine fish - evaluation of current results with Atlantic cod and further prospects   |
| L:12 | J.P. Peleteiro, M. Olmedo, C. Gómez, and B. Alvarez-Blázquez      | Evaluation of five new potentially farmable fish species: Blackspot sea bream ( <i>Pagellus bogaraveo</i> ), red mullet ( <i>Mullus surmuletus</i> ), white bream ( <i>Diplodus sargus</i> ), sea bream ( <i>Diplodus vulgaris</i> ), pollack ( <i>Pollachius pollachius</i> ), axillary bream ( <i>Pagellus acarne</i> ), in the NW of the Iberian Peninsula |
| L:13 | T. van der Meeren, T. Harboe, J.C. Holm, and R. Solbakken         | A new cleaning system for rearing tanks in larval fish culture  |
| L:14 | T. Harboe, S.Å. Skår, K.E. Naas, and J.C. Holm                    | Incubation of halibut yolk sac larvae improved by addition of freshwater and oxygen   |
| L:15 | K.Ø Midling, K. Aas, B. Isaksen, J. Pettersen, and S.H. Jørgensen | A new design in net cage technology for live seafood and aquacultural purposes  |
| L:16 | P. Pagand, J.-P. Blancheton, J. Lemoalle, and C. Casellas         | High rate algal pond for the treatment of marine effluent from a semi-closed fish rearing system  |
| L:17 | T. Næss, K. Hamre, and J.Chr. Holm                                | Successful early weaning of Atlantic halibut ( <i>Hippoglossus, hippoglossus</i> ) in small shallow raceway systems   |
| L:18 | G. Bæverfjord   | Ethics and animal welfare in intensive aquaculture production   |
| L:19 | E. Kjørsvik, K. Hoehne, K-I Reitan, and J. Rainuzzo               | Evaluation of egg and larval quality criteria as predictive measures for juvenile production in turbot ( <i>Scophthalmus maximus</i> L.)  |



- L:20 A. Sanchez-Lamadrid Stock enhancement of gilthead sea bream, *Sparus aurata* L., in the  
Poster Bay of Cádiz: growths, movements and survivals
- L:21 M. Olmedo, J.P. Peleteiro, First experiences of larval culture of blackspot sea bream (*Pagellus*  
Poster B. Alvarez-Blázquez, and C *bogaraveo*)  
Gómez

**THEME SESSION ON IMPACT OF CEPHALOPODS IN THE FOOD CHAIN AND THEIR INTERACTION WITH THE ENVIRONMENT (M)**

- M:1 E.A.G. Vidal, H. Herb, F.P. DiMarco, J.H. Wormuth and P.G. Lee Prey capture by hatchling loliginid squid
- M:2 M. Vecchione The role of young cephalopods in food webs and their environment: a major gap in our knowledge
- M:3 M. Vecchione, C.F.E. Roper and M. Sweeney In-situ observations on ommastrephid squids in the western North Atlantic
- M:4 C.W. Glass, B. Sano, H.O. Milliken, G.D. Morris, and H.A. Carr Squid (*Loligo pealeii*) reactions to towed fishing gears; the role of behaviour in bycatch reduction
- M:5 P. Rodhouse The South Georgia squid fishery
- M:6 Withdrawn
- M:7 R. Macnaughton, E. Rogan, V. Hernández-García, and C. Lordan The importance of cephalopods in the diet of blue shark (*Prionace glauca*) south and west of Ireland
- M:8 M.R. Clarke, M.B. Santos, and G.J. Pierce The importance of cephalopods in the diets of marine mammals and other top predators
- M:9 R.K. O'Dor and J.A. Hoar Does geometry limit squid growth?
- M:10 H. Bjørke and H. Gjørseter Who eats the larger *Gonatus fabricii* (Lichtenstein) in the Norwegian Sea?
- M:11 Y. Ikeda, S. Onaka, N. Takai, H. Kidokoro, N. Arai, and W. Sakamoto Migratory routes of the Japanese common squid (*Todarodes pacificus*) inferred from analyses of statolith trace elements, and nitrogen and carbon stable isotopes
- M:12 N. Takai, S. Onaka, Y. Ikeda, A. Yatsu, H. Kidokoro, and W. Sakamoto Biological and geographical variations of carbon and nitrogen stable isotope ratios of squid
- M:13 N. Koueta, B.B. Castro, and E. Boucaud-Camou Biological indices for instantaneous growth estimation in young cephalopod *Sepia officinalis* L.
- M:14 E. Hatfield Seasonal temperature change affects the growth of the squid *Loligo gahi* (*Cephalopoda: Loliginidae*): I. The length-at-age relationship
- M:15 E. Hatfield, S. Cadrin, and D. Mountain Factors influencing the abundance of the longfin inshore squid, *Loligo pealeii*
- M:16 B.A. Roel and A.I.L. Payne Management of the South African chokka squid jig fishery under uncertainty regarding trends in resource abundance
- M:17 Withdrawn
- M:18 Y. Sakuari, J.R. Bower, H. Kiofuji, S. Saitoh, T. Goto, Y. Hiyama, K. Mori, and Y. Nakamura Changes in inferred spawning sites of *Todarodes pacificus* based on changing environment
- M:19 A.F. González, S. Pascual, C. Gestal, E. Abollo, and A. Guerra What makes a cephalopod a suitable host for parasites? The case of Galician waters

- M:20 G.J. Pierce, J. Wang, J.M Bellido, C.M. Waluda, J.-P. Robin, V. Denis, D. Kousoubas, V. Valavanis, and P.R. Boyle Relationships between cephalopod abundance and environmental conditions in the Northeast Atlantic and Mediterranean as revealed by GIS
- M:21 H.I. Daly, G.J. Pierce and S.K. Cho Stock assessment for squid in Scottish waters  
Poster
- M:22 J.-P. Robin, V. Denis, and A. Carpentier Distribution and abundance indexes of East English Channel squid populations: comparison of commercial trawlers LPUE and CGFS research cruise data
- M:23 J. Royer, M.B. Santos, S.K. Cho, G.J. Pierce, G. Stowasser, H.I. Daly, and J.-P. Robin Cephalopod consumption by fish in English Channel and Scottish waters
- M:24 K. Henry, V. Denis, and J.-P. Robin *Ommastraepid squids* exploited by French trawlers: preliminary analysis of stock structure based on the sampling of Southern Brittany landings  
Poster
- M:25 R. Abbes and F. X. Bard La part des Céphalopodes dans la nutrition des thons tropicaux profonds d l'Océan Pacifique
- M:26 F. Velasco, I. Olaso, and F. Sánchez The role of cephalopods as forage for the demersal fish community in the southern Bay of Biscay
- M:27 M.J. Roberts, P. Rodhouse, R. O'Dor, and Y. Sakurai A global perspective of environmental research on squid
- M:28 M. Parry Feeding ecology of *Ommastrephes bartramii* in the Central North Pacific
- M:29 J.M.F. Pereira, A. Moreno, and M M. da Cunha Western European squid distribution: a review
- M:30 Withdrawn
- M:31 J.M. Portela and M. Rasero Daily feeding pattern of Patagonian squid *Loligo gahi* in Falkland/Malvinas Islands waters
- M:32 E.G. Dawe and E.B. Colbourne Short-finned squid (*Illex illecebrosus*) abundance with environmental conditions in Canadian fishery areas
- M:33 E. Balguerías and M.E. Quintero The origin of the Saharan Bank fishery for cephalopods
- M:34 Withdrawn
- M:35 R. A. Santos and M. Haimovici Cephalopods in the diet of marine mammals stranded or incidentally caught along Southeast and Southern Brazil (22° to 34° S)  
Poster
- M:36 E.K. Shea and M. Vecchione Quantitative analysis of morphology to determine developmental discontinuities in cephalopod life cycles
- M:37 H. Kidokoro How do environmental variables affect growth and feeding of the Japanese common squid (*Todarodes pacificus*)?  
Poster
- M:38 J. Mori, T. Kubodera, and N. Baba Squids in the diet of northern fur seals, *Callorhinus ursinus*, caught in the western and central North Pacific  
Poster
- M:39 A. Yatsu, J. Mori, T. Watanabe, T. Meguro, Y. Komei, and Y. Sakuari Interannual variability in the neon flying squid abundance and oceanographic conditions in the Central North Pacific Ocean during 1979-1997  
Poster

- M:40  
Poster S. Craig, K.D. Black And P.R. Boyle The effects of temperature on development and hatching of squid *Loligo forbesi* (Cephalopod, Liliiginidae) embryos
- M:41  
Poster V. Bettencourt, B.G. Castro, L. Fuentes, and A. Guerra Changes on biochemical indices of growth of *Sepia officinalis* with starvation and refeeding
- M:42  
Poster A. Moreno and J.M.F. Pereira Cephalopod paralarval distribution in Iberian Atlantic waters
- M:43 V. Denis and J.-P. Robin Present status of the French Atlantic fishery for cuttlefish (*Sepia officinalis*)
- M:44  
Poster E. Lefkaditou, A. Siapatis, and C. Papaconstantinou Seasonal and spatial changes in the abundance and distribution of *Eledone Moschata* (Cephalopoda: Octopoda), in the South Aegean Sea (Eastern Mediterranean)
- M:45  
Poster A. Caveriviere, F. Domain, and A. Diallo Observations about the influence of temperature on the length of the *Octopus vulgaris* embryonic development (Senegal, West Africa)
- M:46  
Poster C. MacKenzie and D.E. Wells Organism contaminants in the cephalopod, *Loligo forbesi* and mackerel (*Scomber scombrus*) from Scottish coastal waters: The influence of prey selection on contaminant patterns in cetaceans
- M:47  
Poster F.J. Sánchez, J. Iglesias, C. Moxica, and J.J. Otero Growth of octopus (*Octopus vulgaris* Cuvier) males and females under culture conditions
- M:48  
Poster E. Jónsson Study of the biology of European flying squid, *Todarodes sagittatus*, occurring in deep waters south of Iceland

## THEME SESSION ON ECOLOGY OF DIADROMOUS FISHES DURING THE EARLY MARINE PHASE (N)

N:1	E. Feunteun, A. Acou, P. Laffaille and A. Legault	European eel, <i>Anguilla anguilla</i> , population parameters and prediction of spawner escapement from continental hydrosystems to marine waters
N:2	E. Rochard, M. Lepage, S. Tremblay and C. Gazeau	Downstream migration evolution of the juvenile European sturgeon <i>Acipenser sturio</i> L. in the Gironde estuary
N:3	C. Taverny and P. Elie	Feeding habits of shads <i>Alosa alosa</i> (Linné, 1766) and <i>Alosa fallax</i> (Lacépède, 1803) in the Bay of Biscay
N:4	C. Taverny and P. Elie	Spatio-temporal distribution of shads <i>Alosa alosa</i> and <i>Alosa fallax</i> in the Bay of Biscay
N:5	M. García-Gallego, A. Sánchez de Lamadrid, A. Sanz, J.L. Muñoz, J. Domezain, M.C. Soriguer, A. Domezain, and J.A. Hernando	Effect of age/weight on the process of seawater induced adaptation of the sturgeon <i>Acipenser naccarii</i> (Bonaparte 1836)
N:6	A.F. Youngson	Diadromy: making good in a complex world
N:7	K.D. Friedland and D.G. Reddin	Growth patterns in post-smolts captured in Labrador Sea and the temporal scale of recruitment coherence in North America
N:8	K.D. Friedland, J.-D. Dutil and T. Sadusky	Post-smolt growth in Atlantic salmon from North America and the nature of marine juvenile nurseries
N:9	M.-N. de Casamajor, N. Bru, and P. Prouzet	Characteristics of glass eels migration ( <i>Anguilla anguilla</i> L.) on Adour estuary according to environmental conditions
N:10	R.F. Tallman	The early marine phase of Arctic anadromous fishes - the Dark Portal
N:11	H. Westerberg	The migration of glass-eel and elvers in the Skagerrak and the Kattegat
N:12	N. Bru, M.-N. de Casamajor, E. Albert, P. Prouzet, F. Sanchez, and P. Lazore	Model of glass-eels ( <i>Anguilla anguilla</i> L.) behaviour into the Adour estuary
N:13	A.V. Zubchenko, N.G. Popov, and M.A. Svenning	Salmon rivers on the Kola Peninsula. Some results from acclimation of pink salmon ( <i>Oncorhynchus gorbusha</i> Walbaum)
N:14	M.A. Svenning and A. Klemetsen	Latitudinal variation in sea water migration, growth and survival of wild anadromous Arctic charr, <i>Salvelinus alpinus</i>
N:15	M. Holm, J.C. Holst, and L.P. Hansen	Spatial and temporal distribution of Atlantic salmon post-smolts in the Norwegian Sea and adjacent areas - origin of fish, age structure and relation to hydrographical conditions in the sea
N:16	A. Moore, I.C. Russell, M. Ives, S. Ives, E.C.E. Potter and C.P. Waring	The riverine, estuarine and coastal migratory behaviour of wild Atlantic salmon ( <i>Salmo salar</i> L.) smolts
N:17	M. Holm, B.E. Axelsen, J. Sturlagusson, N.A. Hvidsten, E. Ikonen and B.O. Johnsen	Behaviour of acoustically tagged post-smolts in the Trondheim fjord - Influence of hydrographical and meteorological conditions on migration

- N:18 M. Holm, O.T. Skilbrei, E. Ona, I. Huse, and K.E. Jørstad Migratory behaviour of cultured Atlantic salmon smolts released during day or night
- N:19 Ö. Karlström and I. Perä Smoltrun in a large northern Baltic River
- N:20 Withdrawn
- N:21 J.R. Waldman, D.J. Dunning, Q.E. Ross, and M.T Mattson Movements of young striped bass out of the Hudson River in relation to age, length, and abundance
- N:22 J. Sturlaugsson, I.R. Jónsson, and T. Tómasson Sea migration of anadromous arctic charr (*Salvelinus alpinus* L.) recorded by data storage tags
- N:23 J. Sturlaugsson and M. Jóhannsson Sea migration of anadromous brown trout (*Salmo trutta* L.) recorded by data storage tags
- N:24 M. Lepage, R. LeBarh, and E. Rochard Accidental catches at sea of an endangered migratory species, the European sturgeon (*Acipenser sturio* L.), and connections with various types of fishing

## THEME SESSION ON DEEPWATER FISH AND FISHERIES (O)

- |                |   |   |
|----------------|---|---|
| O:1            | K. Kilongo  | Distribution, abundance, and feeding habits of hake ( <i>Merluccius polli</i> ) in Angolan waters   |
| O:2            | K. Erzini, J.M.S. Gonçalves, L. Bentes, P.G. Lino, and J. Ribeiro | The hake semi-pelagic (“pedra-boia”) longline fishery in Algarve (southern Portugal) waters: catch composition, catch rates, discards, hook selectivity, and inter-annual variability |
| O:3            | M. Vecchione and J. Galbraith                                     | Cephalopod species captured by deepwater exploratory fishing off New England  |
| O:4            | V. Allain   | Reproduction and fecundity of 3 species of deep-sea fish from the north-east Atlantic Ocean   |
| O:5            | Withdrawn   |   |
| O:6            | M.R. Pinho and G.M. Menezes                                       | Demersal and deep-water fishery in the Azores   |
| O:7            | T.M. Gomes, E. Sola, M.P. Grós, G. Menezes, and M.R. Pinho        | Trophic relationships and feeding habits of demersal fishes from the Azores: importance to multispecies assessment  |
| O:8            | B. Morales-Nin  | Mediterranean deep-water fish age determination and age validation: the state of the art  |
| O:9<br>Poster  | J.-M. Casas, C.G. Piñeiro, and R. Bañón                           | Results of experimental fishing surveys carried out in Galician Deep-waters   |
| O:10           | C.G. Piñeiro, M. Casas, and R. Bañón                              | Current situation of the deep-water fisheries exploited by Spanish fleets in the North and Northeast Atlantic: A review   |
| O:11           | T. Blasdale and A.W. Newton                                       | Estimates of discards from two deep-water fleets in the Rockall Trough  |
| O:12           | S.P. Melnikov, V.S. Mamylov, V.N. Shibanov, and A.P. Pedchenko    | Results from Russian trawl-acoustic survey on <i>Sebastes mentella</i> stock in the Irminger Sea in 1997  |
| O:13           | V.I. Vinnichenko  | <i>Alfonsino (Beryx splendens)</i> biology and fishery on the seamounts in the open North Atlantic  |
| O:14           | M.R. Clark  | Are deep-water fisheries sustainable? - the example of orange roughy in New Zealand   |
| O:15           | V.I. Vinnichenko  | On conditions of formation of Greenland halibut ( <i>Reinhardtius hippoglossoides</i> ) concentrations in the open Northwest Atlantic   |
| O:16           | O.V. Smirnov  | Dynamics of population fecundity of Greenland halibut ( <i>Reinhardtius hippoglossoides</i> ) of the Norwegian-Barents Sea stock by the data from 1984-1997 trawl surveys             |
| O:17<br>Poster | C. Lobo and K. Erzini   | Age and growth and diet of the Atlantic pomfret ( <i>Brama brama</i> ) from the south of Portugal (Algarve)   |
| O:18           | J.D.M. Gordon   | Deep-water fish and fisheries in the Northeastern Atlantic and Mediterranean: an overview of the EC Fair Deep Fisheries Project   |
| O:19           | P. Lorance and H. Dupouy  | C.p.u.e. abundance indices of the main target species of the French deep-water fishery in ICES Sub-Areas V, VI and VII  |
| O:20           | H. Dupouy, V. Allain, and B. Kergoat                              | The discards in the French fishery of roundnose grenadier in ICES Sub-Areas VI and VII  |

- O:21 J. Landa, , P. Pereda, R. Duarte, and M. Azevedo Growth study of white and black anglerfish (*Lophius piscatorius*; *L. budegassa*) based on annual sampling in the southern stock (ICES Divisions VIIIc and IXa)
- O:22 O.T. Albert, E.M. Nilssen, A. Stene , A.C. Gundersen, and K.H. Nedreaas Spawning of the Barents Sea/Norwegian Sea Greenland halibut (*Reinhardtius hippoglossoides*)
- O:23 R. Duarte, M. Azevedo, J. Landa, and P. Pereda Reproduction of black and white anglerfish (*Lophius budegassa*; *L. piscatorius*) in the southern stock (ICES Divisions VIIIc and IXa)
- O:24 P.A. Large, P. Lorance, and J.G. Pope The survey estimates of the overall size composition of the deep-water fish species on the European continental slope, before and after exploitation
- Poster
- O:25 Withdrawn
- O:26 J.E. Rønneberg , A.C. Gundersen, and J. Boje Fecundity of Greenland halibut (*Reinhardtius hippoglossoides* Walbaum) in East Greenlandic waters
- O:27 A. Stene, A. Gundersen, O.T. Albert, P. Solemdal, and K.J. Nedreaas Early development of Northeast Arctic Greenland halibut (*Reinhardtius hippoglossoides*)
- Poster
- O:28 A.K. Woll, J. Boje, R. Holst, and A.C. Gundersen Selectivity in longline fishery for Greenland halibut (*Reinhardtius hippoglossoides* Walbaum) using different types of hooks and bait
- O:29 A.C. Gundersen, O.S. Kjesbu, A. Stene, and K.H. Nedreaas Fecundity of Greenland halibut (*Reinhardtius hippoglossoides*) in the north east Arctic
- O:30 O.A. Bergstad , O. Bjelland, and J.D.M. Gordon Fish communities on the slope of the Eastern Norwegian Sea
- O:31 B. Thomsen Faroese quest of orange roughy in the North Atlantic
- O:32 J.V. Magnússon Age, maturity and other biological parameters of two morid species *Lepidion eques* (Günther, 1887) and *Antimora rostrata* (Günther, 1878) in Icelandic waters
- O:33 R.A. Coggan, J.D.M. Gordon, and N.R. Merrett Reproduction, age and growth in the grenadier *Nezumia aequalis* (Günther, 1878) (*Pisces*: Macrouridae), a by-catch species of deep-water fisheries to the west of the British Isles
- O:34 M.R. Pinho, J.M. Gonçalves, H.R. Martins and G.M. Meneses Some aspects of the biology of the deep-water crab *Chaceon affinis* (A. Milne Edwards & Bouvier, 1894) off the Azores
- O:35 K.B. Jakobsdóttir Maturity and other biological aspects of two deep-water squaloid sharks, *Centroscyllium fabricii* (Reinhardt, 1825) and *Etmopterus princeps* (Collett, 1904), in Icelandic waters
- O:36 W.W. Wakefield, V.M. O'Connell, H.G. Greene, D.W. Carlite, and J.E. McRea The role of sidescan sonar in seafloor classification with a direct application to commercial fisheries management
- O:37 R.L. Haedrich and N.R. Merrett Can ecological knowledge catch up with deep-water fishing?
- O:38 Ch. Mytilineou, G. Petrakis, and A. Fourtouni Composition of the discarded catches from experimental bottom trawl surveys in Greek waters
- Poster



- O:39 N.R. Hareide and G. Garnes The distribution and abundance of deep-water fish along the Mid-Atlantic Ridge from 43° N to 61° N
- O:40 C.J. Kelly, P.L. Connolly, and M.W. Clarke The deep water fisheries of the Rockall trough; some insights gleaned from Irish survey data
- O:41 M. Clarke, P.L. Connolly, and J.J. Bracken Age estimation of the squaliform shark *Centrophorus squamosus* (Bonnaterre, 1788) using the second dorsal spine
- O:42 Withdrawn
- O:43 P.R. Crone Spatial differences in maturity schedules of female Dover sole off Oregon
- O:44 J.A. Moore and J.K. Galbraith Results from exploratory deep-sea fishing off the northeastern US
- O:45 G. Petrakis, A. Terrats, A. Plastiras, and C. Papaconstantinou Some aspects on the reproduction of six deep-water fish species off the west coast of Greece (Ionian Sea)
- O:46 P. Pereda, A. Punzón, and J. Landa The “rasco” a gillnet fishery for anglerfish (*Lophius piscatorius* L., 1758 and *L. budegassa* Spinola, 1807) in the Cantabrian Sea (ICES Div. VIIIc)
- O:47 I. Quincoces, P. Lucio, and M. Santurtún Biology of the black anglerfish (*Lophius budegassa*) in the Bay of Biscay waters during 1996-1997
- O:48 I. Quincoces M. Santurtún, and P. Lucio Biological aspects of the white anglerfish (*Lophius piscatorius*) in the Bay of Biscay (ICES Divisions VIII a,b,d) in 1996-1997
- O:49 B. Draganik, I. Psuty-Lipska, and J. Janusz Ageing of roundnose grenadier (*Coryphaenoides rupestris* Gunn.) from otoliths
- O:50 G. Petrakis Catch per unit of effort fluctuations in deep waters off the west coast of Greece (Ionian Sea)
- O:51 O. Bjelland and O.A. Bergstad Trophic ecology of deep-water fishes associated with the continental slope off the eastern Norwegian Sea
- O:53 E. Cillaurren and M. Simier Deepwater fisheries in Vanuatu (Oceania): are usual tools adequate for the management of small insular artisanal fisheries?
- O:54 C. Yau, M.A. Collins, I. Everson, and C.P. Nolan A new method for estimating the abundance of Patagonian toothfish (*Dissostichus eleginoides*)
- O:55 S. Mormede and I.M. Davies Trace elements in deep-water fish species from the Rockall Trough
- O:56 V.M. O'Connell, D.C. Carlile, and W.W. Wakefield Using line transects and habitat-based assessment techniques to estimate the density of yelloweye rockfish (*Scorpaenidae: Sebastes*) in the Eastern Gulf of Alaska
- O:57 J. Santos and T. Borges Trophic relationships in deep-water fish communities off the Algarve coast, Portugal  
Poster
- O:58 J. Gordon The EC FAIR Deep Fisheries Project  
Poster
- O:59 L. Carvalho and I. Figueiredo Black scabbardfish fishery. Analysis of a pilot sampling  
Poster
- O:60 P. Lorance, H. Dupouy, and V. Allain Assessment of the roundnose grenadier (*Coryphaenoides rupestris*) stock in the Rockall Trough and neighbouring areas (ICES Sub-Areas V, VI and VII)  
Poster

O:61 Poster	H. Dupouy and P. Lorance	Biomass estimate and optimum rate of exploitation for three main species of deep-sea fishes in ICES Divisions VI and VII b,c
O:62	Withdrawn	
O:63 Poster	L.W. Bullough, W.R. Turrell, J.D.M. Gordon, I.G. Priede, and J. Hislop	Hydrographic variability and deep-water fishery West of Shetland
O:64 Poster	O.A. Bergstad, and J.E. Skjæraasen	Distribution and feeding of rays in the northeastern North Sea and on the Norwegian Sea slope
O:65 Poster	V. Henriques	Portuguese deep-water fisheries on the continental slope
O:66 Poster	J. Magnússon	Deep-water fisheries at Iceland
O:67 Paper	O. Moura, I.Figueiredo, P.Bordalo Machado, and V. Henriques	Research on deep-water species off the Portuguese continental coast
O:68 Poster	M.J. Figueiredo, I. Figueiredo, and P.B. Machado	Deep-water crustaceans off the Portuguese continental slope. Will they be an alternative in the future?
O:69 Poster	P.B. Machado, R. Martins, I. Figueiredo, and L. Gordo	Some notes on the biology of the black scabbardfish
O:70 Poster	I. Figueiredo and A. Moreira	Biological aspects of bluemouth off the Portuguese continental slope
O:71 Poster	A. dos Santos	On the occurrence of megalopa larvae of the giantred crab <i>Chaceon affinis</i> off the Portuguese continental coast
O:72 Poster	O. Moura	Species density estimated by kriging and stratified random sampling estimators
O:73 Poster	C. Berrehar, M-H Dubuit, and P. Lorance	Orange roughy fishery in the North East Atlantic
O:74 Poster	P. Lorance	Comparison of the deep demersal fish assemblage structure sampled before and after fishery exploitation
O:75 Poster	T. Sigurdsson and P. Reynisson	Distribution of pelagic redfish ( <i>S. mentella</i> Travin), at depths below 500 m, in the Irminger Sea and adjacent waters in May 1998
O:76 Poster	E. Katsarou and G. Nævdal	Population studies on roughhead grenadier, <i>Macrourus berglax</i> L., from the North Atlantic
O:77 Poster	R.L. Haedrich and N.R. Merrett	Changing size structure in exploited deep-sea fish communities
O:78 Poster	I. Quincoces, M. Santurtún, and P. Lucio	Histological study of the gonadal development of the white anglerfish, <i>Lophius piscatorius</i> (L.1758)
O:79 Poster	I. Quincoces, P. Lucio, and M. Santurtún	The gonadal development of the black anglerfish, <i>Lophius budegassa</i> (Spinola 1807): a histological study
O:80 Poster	G.M. Menezes, H.M. Silva, and M.R. Pinho	Demersal fish assemblages of the Azores Islands based on longline cruise surveys
O:81 Poster	O. Melo, G.M. Menezes, and M. Weber	Vertical distribution of catch and interspecific competition in bottom longline (Stone/Buoy)

- O:82 Poster A. Canha, M.R. Pinho, and G.M. Menezes A preliminary approach to stock assessment of the multispecific demersal fishery of the Azores
- O:83 Poster A. Mendonça, S. Estácio, H. Krug, G.M. Menezes, J. Branco, and M.R. Pinho Reproduction aspects of some demersal fishes captured in the Azores archipelago
- O:84 Poster H. Krug, D. Rosa, G.M. Menezes, and M.R. Pinho Age and growth of some demersal species of the Azores
- O:85 Poster C. Papaconstantinou, C. Boutsoulis, and G. Petrakis Biological aspects of the black-bellied angler (*Lophius budegassa*, spinola, 1807) in the Aegean Sea (Mediterranean Sea)
- O:86 Poster M. Girard and M.-H. Du Buit Particularities of the reproductive cycle in two species of deep-water sharks: *Centrophorus squamosus* and *Centroscymnus coelolepis*
- O:87 Poster A. Giga, G. Silva, and G.M. Menezes Assay of ageing techniques for deep-water sharks of the Azores
- O:88 Poster G.M. Menezes Preliminary analysis of the feeding habits of demersal fish in the Azores
- O:89 Poster G.M. Menezes Some aspects of the biology and ecology of *Chaceon affinis* in the Azores
- O:90 Poster G.M. Menezes Demersal cruise surveys in Azores and Madeira using a bottom-longline gear
- O:91 Poster G.M. Menezes Contribution for the multispecific stock assessment of several demersal speices of the Azores

**THEME SESSION ON DEVELOPMENT OF TOXICITY AND QUALITY STANDARDS FOR  
CONTAMINANTS IN THE MARINE ENVIRONMENT (P)**

- P:1 M.D. Nicholson and R. Fryer A note on using fuzzy sets to summarise and rank contaminant monitoring data
- P:2 B. Bjerkeng, N.W. Green, and K. Hylland Sør fjorden, western Norway: a case for testing alternative monitoring strategies using accumulation in and effects on Atlantic cod (*Gadus morhua*)
- P:3 K. Lee, K.-L. Tay, and C. Belanger Development of a microscale biotest based on microbial exoenzyme activity in sediments
- P:4 J.M. Lourens, T. Crommentuijn, B.J. Kater, T.C. Brummelsen, and D. Jonkers Setting environmental quality standards with specific considerations to the marine environment
- P:5 Withdrawn
- P:6 P. Hess, C. Robinson, R.M. Stagg, and D.E. Wells Method for the evaluation of the contribution of CBs, PCDD/Fs and PAHs to the P450 1A toxicity present in marine sediments

## THEME SESSION ON SKILL ASSESSMENT OF ENVIRONMENTAL MODELLING (Q)

- Q:1 J.M. de Kok, C. de Valk, J.A.Th.M. van Kester, E.D. de Goede and R.E. Uittenbogaard Validation of a temperature and salinity model for the Rhine plume
- Q:2 A.C. Le Gall, D.J. Hydes, B.A. Kelly-Gerreyn, and D.J. Slinn Development of a 2-D horizontal biogeochemical model for the Irish Sea DYMONIS
- Q:3 H. Søliland and M.D. Skogen Validation of a 3-D biophysical model using nutrient observations in the North Sea
- Q:4 A. Eigenheer and H. Dahlin Baltic Sea modelling and validation procedures at SMHI
- Q:5 A. Moll Assessment of three-dimensional physical-biological ECOHAM1 simulations by quantified validation for the North Sea with ICES and ERSEM data
- Q:6 C.N.K. Mooers and R.C. Perez Skill assessment of a Gulf of Mexico shelf circulation model
- Q:7 P.G.J. ten Brummelhuis, J. G. Boon, H. Gerritsen, and R.J. Vos Sensitivity analysis and skill assessment of an integrated model for SPM transport on a regional scale
- Q:8 H. Scholten, M.W.M. van der Tol, and A.C. Smaal Models or measurements? Quantitative validation of an ecophysiological model of mussel growth and reproduction
- Q:9 C. Schrum and F. Janssen Validations for a coupled ice/ocean model for the North Sea and the Baltic Sea  
Poster

**THEME SESSION ON MESOSCALE PHYSICAL PHENOMENA AND BIOLOGICAL  
PRODUCTION: IMPLICATIONS FOR GLOBEC (R)**

- R:1 R.P. Sánchez, J. Altheit, P. Martos, and M. Pájaro The spawning and early life of *Engraulis anchoita* in the tidal fronts off Patagonia
- R:2 P. Dalpadado, B. Ellertsen, W. Melle and A. Dommasnes Food, and feeding condition and prey selectivity of herring (*Clupea harengus*) through its feeding migrations from coastal areas of Norway to the Atlantic and Arctic waters of the Nordic Seas
- R:3 Withdrawn
- R:4 J.O. Blanton and K.R. Tenore Interannual variability of upwelling strength and mussel production on the Iberian Peninsula
- R:5 J.H. Steele and A. Beet Physical factors affecting copepod migration
- R:6 J.H. Steele Incorporating the microbial loop in a simple plankton model
- R:7 E. Gaard The zooplankton community structure in relation to its biological and physical environment on the Faroe Shelf, 1989-1997
- R:8 P. Møller, M.A. St. John, T. Lund, and K.P. Madsen Identifying the effect of frontal regimes on conditions of larval and juvenile sand lance (*Ammodytes* sp.): Utilization of foodweb specific tracer lipids
- R:9 S. Kimura, H. Nakata, Y. Okazaki, and A. Kasai Biological production in meso-scale eddies caused by frontal disturbances of the Kuroshio and the Kuroshio Extension
- R:10 Y. Okazaki, H. Nakato, and S. Kimura Distribution, food availability and nutritional condition of anchovy larvae (*Engraulis japonicus*) in a frontal area of the Kuroshio Extension
- R:11 A. Makarchouk and H-H Hinrichsen The vertical distribution of ichthyoplankton in relation to the hydrographic conditions in the Eastern Baltic
- R:12 P. Danielsen Investigations of hydrographic processes influencing the distribution and production of phyto- and zooplankton in the Bornholm Basin, Baltic Sea
- R:13 H. Nakata, S. Kimura, Y. Okazaki, and A. Kasai Entrainment of coastal water into meso-scale eddies caused by frontal disturbances of the Kuroshio Current: Its implication for anchovy recruitment
- R:14 Withdrawn
- R:15 K.F. Drinkwater Horizontal dispersion on the northern flank of Georges Bank
- R:16 B.R. MacKenzie, A. Visser, M. Heath, A. Gallego, and W. Crawford Environmental variability along the drift track of larval haddock in the East Shetland Atlantic inflow
- R:17 R. Sætre, E. Svendsen, P. Fossum, M.D. Skogen, and G. Eriksrød On the site-specific role of the central Norwegian shelf for the recruitment strategy of the Norwegian spring spawning herring
- R:18 S.A. Iversen, M.D. Skogen, and E. Svendsen Influx of Atlantic water and feeding migration of horse mackerel
- R:19 V.L. Filipe A cyclonic eddy observed in Angolan waters in April 1997
- R:20 P. B. Oliveira and A.F.G. Fiuza Seasonal and interannual variability of sea surface temperature in the NE Atlantic Coastal upwelling region using NOAA/AVHRR data

- R:21 D. Schnack and F.W. Köster Baltic COd REcruitment Project: Summary of results 1994-1997
- R:22 S. Skreslet The Norwegian coastal current frontal system, a spawning habitat of *Calanus finmarchicus* that forces yearclass formation in NE Arctic cod (*Gadus morhua*) by food-web telecommunication
- R:23 J.M. Cabanas and C. Porteiro Links between the North Atlantic Sardine recruitment and its environment
- R:24 M.D. Viñas and B.A. Santos First-feeding of hake (*Merluccius hubbsi*) larvae and prey availability in the Patagonian spawning area
- R:25 E.A.G. Vidal and M. Haimovici Distribution and abundance of *Illex argentinus* paralarvae (*Cephalopoda: Ommastrephidae*) in relation to oceanographic processes off southern Brazil
- R:26 S. Hernández-León, J. Arístegui, and J.M. Rodríguez Physical-biological interactions in the Northeast Central Atlantic: filaments, eddies and waves in the Canary current
- R:27 H. Nakata, Y. Suenaga, M. Fujihara, T. Nagasawa, and H. Yamada Interaction of wind-induced onshore/offshore drifts with coastal eddies on the shelf near the Sado Strait, Sea of Japan, in relation to recruitment strategies of brown sole (*Pleuronectes herzensteini*)
- R:28 R.P. Sánchez and D.R. Brown Larval and early juvenile growth of two Patagonian clupeoids: *Engraulis ancoita* and *Sprattus fuegensis*
- R:29 A. Reul, J.M. Blanco, F. Jiménez-Gómez, J. Rodríguez, F. Guerrero, B. Bautista, and V. Rodríguez Temporal variability in the mesoscale structure of plankton in the upwelling and frontal region of the NW Alboran sea
- R:30 S.O. Pires and A.F.G. Fiuza A satellite-based study of the seasonal evolution and the spatial structure of mesoscale physical processes off Portugal with relevance to the marine ecosystem

**THEME SESSION ON VISUALISATION OF SPATIAL (INCLUDING SURVEY) DATA  
(POSTERS/SOFTWARE DEMONSTRATIONS) (S)**

S:1	B.A. Megrey, E. Dobbins, and S. Hinckley	Using scientific visualization tools to facilitate analysis of multidimensional data from a spatially-explicit, biophysical, individual-based model of marine fish early life history
S:2	L. Mayer, Y. Li, G. Melvin, and C. Ware	The application of 3-D visualization technology to pelagic fisheries assessment and research
S:3	J.S. Ault and J. Luo	Coastal bays to coral reefs: visualizations of a spatial multistock production model
S:4	C. Walters, D. Pauly, and V. Christensen	Ecospace: a software tool for predicting mesoscale spatial patterns in trophic relationships of exploited ecosystems, with special reference to impacts of marine protected areas
S:5	A. Basu	Case study of land and marine data integration using GIS with 3D and fly-through visualization
S:6	A.J. Booth	Visualisation of the spatial component of fisheries data and its incorporation into existing stock assessment models
S:7	J. Luo, P.B. Ortner, D. Forcucci, and S.R. Cummings	Diel vertical migration of zooplankton and mesopelagic fish in the Arabian Sea
S:8	Withdrawn	
S:9	M.E. Monaco and S.K. Brown	Integration of GIS technology, habitats and living marine resource distributions
S:10	S.B. Brandt, J.M. Jech, E. Demers, K. Barry, and D. Hondorp	Spatial visualization and analyses: merging underwater acoustics and ecological modelling to view habitat from the fishes perspective
S:11	C. Mooers	A regional GOOS as an approach to fisheries oceanography
S:12	G.H. Wheless	Virtual reality in oceanography
S:13	Withdrawn	
S:14	G. Melvin, Y. Li, L. Mayer, and A. Clay	Development of an automated sounder/sonar acoustic logging system for deployment on commercial fishing vessels
S:15 Poster	C.F. Greenlaw, D.V. Holliday, C.A. Barans, and B.W. Stender	Long-term, high-resolution acoustical monitoring of plankton in an estuary
S:16 Poster	D.E. McGehee, C.F. Greenlaw, D.V. Holliday, and R.E. Pieper	High-frequency acoustical backscattering in the Arabian Sea: Acoustical analyses
S:17 Poster	R.E. Piper, D.E. McGehee, C.F. Greenlaw, and D.V. Holliday	High-frequency acoustical backscattering in the Arabian Sea: Zooplankton size classes
S:18 Poster	Z. Kemp and G. Meaden	Visualisation for fisheries management from a spatio-temporal perspective
S:19 Poster	R.D. Stanley, R. Kieser, K. Cooke, and B. Mose	3-D visualization of acoustic survey data for widow rockfish ( <i>Sebastes entomelas</i> ) off British Columbia, Canada. Its use in survey design and communication with industry participants



S:20 Poster	R.L. Johnson and D.B. Rex	Interactive 3-D visualization of multibeam sonar data for fish behaviour evaluations
S:21 Poster	L. Fortunati, G. Garofalo, and R. Demontis	TSDV: a GIS tool for inspecting trawl survey data
S:22 Poster	M. Ostrowski	Quality control and preparation of acoustic survey data for treatment by spatial analysis techniques. Experiences from using integrated visualization software tools
S:23 Poster	J.T. Anderson, R.S. Gregory, and W. Collins	Digital acoustic seabed classification of marine habitats in coastal waters of Newfoundland
S:24 Poster	A. Sharov and A. Akhremenko	User-friendly graphic software for survey design and data visualization of shellfish and finfish resource assessment in the Chesapeake Bay
S:25 Poster	K.Kr. Olsen and R. Jørgensen	Is the application of fixed linear regression equations of target strength versus logarithm of fish length, a severe oversimplification in practical acoustic survey work?

**THEME SESSION ON MANAGEMENT UNDER A PRECAUTIONARY APPROACH:  
ECOLOGICAL, SOCIAL, AND ECONOMIC CONSEQUENCES (T)**

T:1	J.-D. Dutil, D. Gascon, M. Castonguay, M.O. Hammill, P. Ouellet, Y. Lambert, D. Chabot, H. Browman, D. Gilbert, A. Fréchet, J.-A. Gagné, and L. Savard	Biological limits to tradeoffs between biological and social considerations in fish stocks management: the need to factor in stock productivity
T:2	F.J. Martinez Cordero and J. C. Seijo	Economic projects assessment under uncertainty: case study applying the precautionary approach to aquaculture
T:3	J.D. van Zyl	A precautionary approach in a longline fishery from a socioeconomic perspective
T:4	S. Christensen and H. Lassen	Short-term economic costs of the precautionary approach to management of the North Sea Herring
T:5	A.V. Zubchenko and A.V. Zelentsov	Salmon rivers of the Kola Peninsula. Precautionary approach and management of Atlantic salmon stocks
T:6	P. Marchal	Variation in catchability and precautionary TACs
T:7	E.A. Totàro and E. Totàro	The possibility of the environmental tourism as an ecological, social and economic approach in the coastal areas
T:8	O. Le Pape and J. Vigneau	Influence of fishing vessels properties and polyvalence on their fishing capacity: interest for management measures
T:9	E. Cadima and M. Azevedo	Are limit reference F levels useful for management when they are smaller than target reference F levels?
T:10	A.J. Cass, L.J. Richards, and J. Schnute	Consequences of precautionary management for mixed stock fisheries on sockeye salmon from the Fraser River, Canada
T:11	R.L.P. Lanfers and E.L. Enserink	Integration of ecological and fisheries objectives through indicator development
T:12	J.P. Hillis	Avoidance of growth overfishing as an effective solution to both economic problems for the fishing community and ecological problems for the environment
T:13	A.F. Sharov and A.E. Bobyrev	Fisheries strategies versus reproductive strategies: is consensus possible?
T:14	A.E. Morcom-Harneis, I.H. Townend, A.J. Kenny and N.I. Pontee	Environmental risk assessment and its application in managing coastal and estuarine developments
T:15	Withdrawn	
T:16	K. Hiis Hauge	The use of personal knowledge in stock assessment
T:17	E.C.E. Potter, L.P. Hansen, G. Gudbergsson, W.C. Crozier, J. Erkinaro, C. Insulander, J. MacLean, N. O'Maoileidigh, and S. Prusov	A method for estimating preliminary conservation limits for salmon stocks in the NASCO-NEAFC area

T:18	B.J. Rothschild, A.R. Robinson, M. Miller, A. Gangopadhyay, J. Bisagni, A. Cabeza, D. Cai, P. Fortier, , P.J. Haley. H.S. Kim, L. Lannerolle, W.G. Leslie, and C. Losano	Management information systems and the precautionary approach
T:19	I. Lutchman and S. Des Clers	The precautionary approach and fishermen
T:20	D.E. Lane and B. Kaufmann	Information requirements for alternative precautionary fisheries management systems
T:21 Poster	J.P. Hillis	Predictions of changes in annual and cumulative catch revenues and profits in depleted fishery rehabilitation

## THEME SESSION ON EVALUATION OF MARINE PROTECTED AREAS AS MANAGEMENT TOOLS (U)

U:1	K.T. Frank and J.E. Simon	An evaluation of the Emerald/Western Bank juvenile haddock closed area
U:2	M.A. Pastoors, A.D. Rijnsdorp, and F.A. van Beek	Evaluation of the effects of a closed area in the North Sea ('Plaice Box') on the stock development of plaice ( <i>Pleuronectes platessa</i> )
U:3	J.W. Horwood	Evaluation of the effects of closed areas on fish stocks
U:4	J.D. Metcalfe, G.P. Arnold, and E. Hunter	The use of electronic data storage tags in modelling the effectiveness of marine protected areas
U:5	Withdrawn	
U:6	Withdrawn	
U:7	A. Punzón and R.M.Gancedo	Specific characterisation and identification of the fishing gears in use in the Cantabrian Sea (NE Atlantic, Northern Spain)
U:8	S. Ehrich, W. Weber, and C. Zimmermann	A four-week area closure in the German Bight: A measure to protect the strong 1996 cod year-class
U:9	R.W. Brown, D. Sheehan, and B. Figuerido	Response of cod and haddock populations to area closures on Georges Bank
U:10	I. Røttingen and A. Slotte	Norwegian spring spawning herring ( <i>Clupea harengus</i> L.): Protection of spawning areas in relation to changes in migration pattern
U:11	A.V. Soldal, O. Bergstad, T. Kristiansen, S. Løkkeborg, and I. Svellingen	Oil production structures in the North Sea as fish aggregating devices
U:12	H. Lai and P. Rago	Potential uses of area closure for rehabilitating over-harvested population: an example from Sea Scallops ( <i>Placopecten magellanicus</i> ) on Georges Bank
U:13 Poster	C. Pipitone, F. Badalamenti, and G. D'Anna	Can coastal demersal resources be effectively enhanced and managed through trawling bans in temperate areas? A proposal for European Mediterranean countries
U:14 Poster	H.M. Silva and G.M. Menezes	An intensive fishing experiment in a seamount in the Azores: implications for the assessment and management of demersal fishery
U:15 Poster	R.R. Ferraz, G.M. Menezes, and R.S. Santos	The limpets marine protected zones in the Azores
U:16 Poster	F. Tempera and R.S. Santos	Spatial variation of fish assemblages in the Faial-Pico Channel (Azores-Portugal)

**THEME SESSION ON RECOVERY AND PROTECTION OF MARINE HABITATS AND ECOSYSTEMS FROM NATURAL AND ANTHROPOGENIC IMPACTS (V)**

V:1	T.D. Nickell, K.D. Black, T.H. Pearson, I.M. Davies, and P.G. Provost	The recovery of the sea-bed after the cessation of fish farming: benthos and biogeochemistry
V:2	N.F. Plotitsyna	Content of pollutants in harp seals ( <i>Phoca groenlandica</i> ) of the White Sea population
V:3	O.V. Titov	Hydrochemical and density indications of interannual variations in the Barents Sea ecosystem: periodical “disturbances”, their reasons and consequences
V:4	E.A. Totàro and E. Totàro	An integrated programme on the management of coastal areas: advanced training for managers of pleasure craft ports
V:5	J.G. Støttrup, S. Helmig, J.K. Petersen, C. Krog, R. Zorn, H.T. Madsen, and J. Olsen	Is there a case for artificial reefs in Denmark?
V:6	M. Service	Recovery of benthic communities in Strangford Lough following changes in fishing practice
V:7	Withdrawn	
V:8	H.L. Rees, R. Waldoock, P. Matthiessen, and M.A. Pendle	Improvements in the fauna in the Crouch estuary (United Kingdom) following a decline in TBT concentrations
V:9	S.E. Boyd and H.L.Rees	Nematodes as sensitive indicators of change at dredged material disposal sites
V:10	J. Dalsgaard, A. Jarre-Teichmann, and D. Pauly	An approach to the modelling of persistent pollutants in marine ecosystems
V:11	K. Lee	Accelerating natural processes for oil spill remediation
V:12	G.J. Piet, J.A. Craeymeersch, J. Buijs, and A.D. Rijnsdorp	Changes in the benthic invertebrate assemblage following the establishment of a protected area, the “plaice box”
V:13	K. Hiscock, T. Hill, and D. Connor	Recovery of seabed wildlife from natural change and human activity - assessing 'sensitivity' and 'importance'
V:14	A.J. Kenny, H.L. Rees, J. Greening, and S. Campbell	The effects of marine gravel extraction on the macrobenthos at an experimental dredge site off north Norfolk, UK (Results from 3 years post-dredging)
V:15 Poster	A. Lappalainen and M. Rask	How did the coastal fish community structure change after strong reduction in waste-water loading? - a case study in the Helsinki sea area
V:16 Poster	V.M. O'Connell, W.W. Wakefield, and H.G. Greene	Using in-situ technology to identify and characterize essential fish habitat for classification as a marine reserve in the Eastern Gulf of Alaska
V:17 Poster	I. J.-O. Krakstad, I. Bethinussen, and T. Johannessen	Differences in the diet of 0-group cod in a polluted vs. a non-polluted area on the south coast of Norway: possible implications for the recruitment

## THEME SESSION ON STOCK COMPONENTS IN MANAGEMENT (AA)

- |       |   |  |
|-------|---|--|
| AA:1  | V.M. Borisov, V.P. Ponomarenko, and N.A. Yaragina                                 | Are there independent populations of coastal cod in the Barents and Norwegian Seas? (An analysis of views)   |
| AA:2  | F. Saborido-Rey and K.H. Nedreaas   | Population structure of <i>S. mentella</i> in the North-East Arctic  |
| AA:3  | P.J. Wright, S.A. Pedersen, I.D. Tuck, L. Donald, and P. Lewy                     | The influence of physical factors on habitat quality for the lesser sandeel, <i>Ammodytes marinus</i> and its relevance to fishing pressure in the North Sea   |
| AA:4  | Yu. I. Bakay, S.A. Kuzmin, and S. Yu. Utevsy                                      | Ecological and parasitologic investigations on the Barents Sea red king crab ( <i>Paralithodes camtschatica</i> ) (the first results)  |
| AA:5  | E. Karasiova  | On some peculiarities of Baltic cod distribution in connection with its migration pattern  |
| AA:6  | M.A. Svenning, A. Zubchenko, and A. Putukin                                       | Life history and migration patterns of the Atlantic salmon in the River Varzuga, Kola, Russia. Preliminary results from radio tagging studies of summer and autumn runners                           |
| AA:7  | S.A. Pedersen, P. Lewy, and P. Wright   | Assessments of the lesser sandeel ( <i>Ammodytes marinus</i> ) in the North Sea based on revised stock divisions   |
| AA:8  | S.V. Belikov, S.H. í Jákupsstovu, E. Shamrai, and B. Thomsen                      | Migration of mackerel during summer in the Norwegian Sea   |
| AA:9  | J. Rasmus Nielsen, B. Lundgren, K.-J. Stæhr, T.F. Jensen, J. Pedersen, S. Poulsen | Distribution, abundance and stock composition of herring ( <i>Clupea harengus</i> ) in the Sound (ICES Sub-division 23) during the autumn, winter and spring periods from September 1993 to May 1998 |
| AA:10 | H. Eiríksson  | Spatial variabilities of CPUE and mean size as possible criteria for unit stock demarcations in analytical assessment of <i>Nephrops</i> at Iceland  |
| AA:11 | C. Ulrich, D. Gascuel and O. Maury  | A proposal for stock assessment and management in mixed stock fisheries: the in/out model. Application to Western English Channel cod  |

## THEME SESSION ON FISHERIES ASSESSMENT METHODS (BB)

BB:1	H. Sparholt and J. Tomkiewicz	A robust way of compiling trawl survey data for the use in the Central Baltic cod stock assessment
BB:2	Withdrawn	
BB:3	D.A. Vasilyev	Separable cohort procedures with internal property of unbiasedness of the solution
BB:4	D. Schnack, N. Rohl, and J. Gröger	Effects of calculation procedure and reduced sampling effort on abundance indices of herring larvae as a measure of spawning stock size
BB:5	F.A. van Beek	Discarding in the Dutch beam trawl fishery
BB:6	T. Neudecker, J. Fischer, and U. Damm	Influence of tidal currents on fishing performance in the Wadden Sea
BB:7	J. Gröger	An intrinsic linear cumulative growth rate model
BB:8	R.J. Conser	A fresh look at surplus production modelling as a pragmatic assessment tool
BB:9	T. Sigurdsson and K. Thórarinnsson	Icelandic fishery of oceanic redfish ( <i>S. Mentella</i> Travin); information based on log-book data and sampling from commercial fishery
BB:10	S. Poulsen, J.R. Nielsen, R. Holst, and K.-J. Stæhr	A herring size selection model for experimental gillnets used in the Sound (ICES Subdivision 23)
BB:11	B.R. MacKenzie, J. Tomkiewicz, F. Köster, and A. Nissling	Quantifying and disaggregating the spawner effect: incorporating stock structure, spatial distribution and female influences into estimates of annual population egg production
BB:12	P. Fonseca, A. Campos, and J. Feitoria	Square mesh windows experiments in Portuguese waters
BB:13	V. Thorsteinsson Poster	Vertical migration patterns of Atlantic Cod ( <i>Gadus morhua</i> ) in Icelandic waters; results from electronic data storage tags (DSTs)
BB:14	Withdrwan	
BB:15	M.E. Costa and T.C. Borges	Shark discards from the southern Portuguese coastal fisheries
BB:16	D.W. Skagen, B. Bogstad, K.G. Frøysa, and K. Hiis Hauge	Fleksibest - a flexible toolbox for fish stock assessment
BB:17	A. Lago de Lanzós, L. Quintanilla, A. Solá, and C. Franco	The daily egg production method applied to the spawning biomass estimation of sardine, <i>Sardina pilchardus</i> (Walb.), off the North Atlantic Spanish coast

## THEME SESSION ON POPULATION BIOLOGY (CC)

- CC:1 B. Esben, P. Braaten, A. Bjørge, D. Thompson and E. Bryant Strategies for optimising energy expenditure and energy intake during foraging dives of free-ranging harbour seals
- CC:2 H. Ojaveer, A. Lankov, L. Näks, M. Eero, A. Turkovski, J. Kotta, I. Kotta, and A. Lumberg Dynamics of the biota component of the Gulf of Riga in the 1970s-1990s
- CC:3 U. Lindstrøm, T. Haug, and I. Røttingen Herring (*Clupea harengus*) as a key species in Northeast Atlantic minke whale (*Balaenoptera acutorostrata*) diets
- CC:4 K.T. Nilssen, I. Ahlqvist, A. Harbitz, T. Haug, and L. Lindblom Feeding habits of harp seals (*Phoca groenlandica*) during summer in Svalbard waters
- CC:5 A. Rindorf, H. Gislason and P. Lewy Does the diet of cod and whiting reflect the species composition estimated from trawl surveys?
- CC:6 L.V. Scherbich Daily age of juvenile turbot *Psetta maxima* L. (*Pseuronectiformes, Scophthalmidae*) and some peculiarities of juvenile and adult fishes distribution in the coastal area of the Baltic Sea, adjacent to the Kaliningrad region
- CC:7 F.A. Patokina and V.N. Feldman Peculiarities of trophic relations between Baltic (*Clupea harengus membras* L.) herring and sprat in the south-eastern Baltic Sea in 1995-1997
- CC:8 J.S. Christiansen and S.I. Siikavuopio Survival and growth of post-spawning capelin (*Mallotus villosus*) - An introductory report from a laboratory study
- CC:9 M.C. Bell and P. Walker Size at maturity in common whelks (*Buccinum undatum* L.) in England and Wales
- CC:10 B.K. Stensholt and O. Nakken Spatial distribution of variables in marine environmental and fisheries research Part II: Distribution and length of 0-group fish in relation to environmental factors
- CC:11 B.R. MacKenzie, B. Ueberschär, D. Basford, M. Heath, and A. Gallego Diel variability of feeding activity in haddock larvae in the East Shetland area, North Sea
- CC:12 I.S. Thompson, J.E. Whitmore, J.P. Hillis, and J. Carroll Temporal and spatial variations in the age structure and growth rates of *Nephrops norvegicus* in the Western Irish Sea
- CC:13 Withdrawn
- CC:14 P. Gouletquer, P. Soletchnik, O. Le Moine, D. Razet, P. Geairon, N. Faury, and S. Taillade Summer mortality of the Pacific cupped oyster *Crassostrea gigas* in the Bay of Marennes-Oléron (France)
- CC:15 R. Oeberst and U. Böttcher Development of juvenile Baltic cod described with meristic, morphometric and *Sagitta otolith* parameters
- CC:16 S.V. Prusov, M.Ju. Alexeev, N.G. Popov, V.P. Antonova, and V.A. Valetov Atlantic salmon from Russian rivers. Fisheries and status of stocks in 1997



- CC:17 M.M. Martins *S. scombrus* L. from ICES Division IXa (Portugal): Analysis on otolith first ring and an infestation study of *Anisakis simplex* (Nematoda: Ascaridae)
- CC:18 A.V. Dolgov Some results from investigations of feeding of demersal fish from the Barents Sea in the 90s
- CC:19 E. Torstensen Growth and maturity of sprat in Norwegian coastal waters
- CC:20 P. Lucio, M. Santurtún, and H. Murua Growth and reproduction of hake (*Merluccius merluccius*) in the Bay of Biscay during 1996-1997
- CC:21 Withdrawn

## THEME SESSION ON SPAWNING AND RECRUITMENT (DD)

DD:1	M.Ju. Alexeev and S. Prusov	Estimates of conservation limits for Atlantic Salmon females for four Russian rivers
DD:2	J. Landa	Influence of sea surface temperature on recruitments of megrim ( <i>Lepidorhombus whiffiagonis</i> ) and four spot megrim ( <i>L. boscii</i> ) in the northern Spanish continental shelf (ICES Division VIIIc)
DD:3	M. Bleil and R. Oeberst	The spawning of cod ( <i>Gadus morhua morhua</i> ) under controlled conditions of captivity, quantity and quality of spawned eggs
DD:4	G. Marteinsdóttir, B. Gunnarsson, I.M. Suthers, and A. Jonsdóttir	Spatial variation in birthdate distributions and origin of pelagic juvenile cod in Icelandic waters
DD:5	G. Marteinsdóttir and V. Thorsteinsson	Size specific time and duration of spawning of cod in Icelandic waters
DD:6	Withdrawn	
DD:7	G.P. Mazhirina and E.A. Shamrai	Status of the reproductive system of mackerel during its feeding in the Norwegian Sea
DD:8	P. Solemdal and V. Makhotin	Long-term studies on spawning in Arcto - Norwegian cod - mortality patterns in eggs and early larvae

## OPEN POSTER SESSION

- OPEN:1 Poster Age and growth and feeding ecology of *Brama brama* from Algarve (southern Portugal) waters
- OPEN:2 Poster M. Breen, G. Sangster, and A. Soldal Evidence of cover induced mortality in fish survival experiments - a cautionary note
- OPEN:3 Poster R.S.T. Ferro and G.N. Graham Recent Scottish data on demersal fish selectivity
- OPEN:4 Poster Å.S. Høines and O.A. Bergstad Winter density of a benthic pelagic fish, the lesser sandeel
- OPEN:5 Poster Å.S. Høines and O.A. Bergstad Structure and biology of exploited and unexploited populations of the lesser sandeel of the North Sea and the coast of Norway
- OPEN:6 Poster L. Borges Snipefish abundance and distribution patterns in the Portuguese Continental Waters
- OPEN:7 Poster D. Delbare and R. De Clerck Put the drill in brill
- OPEN:8 Poster E. Ongenae and R. De Clerck Contribution to the biology of turbot stocks in the N.E. Atlantic
- OPEN:9 Poster R. Ercoli, J. García, A. Aubone, L. Salvini, and R. Bertello Selectivity experiences on hake (*Merluccius hubbsi*) with different inter rod distance in a single grid sorting device (DEJUPA) and the use of special retention codend design
- OPEN:10 Withdrawn
- OPEN:11 Poster S. Godinho and A. Silva The growth of blue whiting (*Micromesistius poutassou*) off the Portuguese coast
- OPEN:12 Poster M.C. Bell and D.R. Eaton Catchability of edible crabs *Cancer pagurus* L. in baited traps estimated from mark-recapture data
- OPEN:13 Poster S Huggenberger, H. Benke, G. Schulze, U. Siebert, and R.P. Sonntag Geographical variations of the populations of the harbour porpoises (*Phocoena phocoena* L.) in the German north- and Baltic Sea using morphometric comparisons
- OPEN:14 Poster A. Sánchez-Lamadrid Assessment of season, fish size and place of release of reared Gilthead sea bream, destined to stocking at sea
- OPEN:15 Poster A. Campos and P. Fonseca Codend mesh selection for crustacean species in Portuguese waters
- OPEN:16 Poster P. Fonseca and A. Campos Codend mesh selection for fish species when captured as target species and as by-catch in Portuguese waters
- OPEN:17 Poster N.A. Scarlato, J.E. Marcovecchio, and A.E. Pucci Relationships between heavy metal contents and pea crab (*Tumidotheres maculatus* Say) commensalism in the common La Plata river mussel (*Mytilus platensis*) from a coastal ecosystem of Argentina
- OPEN:18 Poster M. Santurtún, I. Quincoces, and P. Lucio Gonad histology and its development in megrim, *Lepidorhombus whiffiagonis* (Walbaum, 1792)
- OPEN:19 Poster P. Lucio, M. Santurtún, I. Quincoces, and H. Murua Histological studies of the gonadal development of hake, *Merluccius merluccius* (L. 1758)

- OPEN:20 A.C. Smaal, M.R. van  
Poster Stralen, B. Ens, N.  
Dankers, and V.N. de  
Jonge Evaluation of 5 years of mussel and cockle fisheries regulation in  
the Dutch Wadden Sea
- OPEN:21 N. Graham  
Poster By-catch reduction in the brown shrimp, (*Crangon crangon*),  
fisheries using a rigid separation grid
- OPEN:22 E.J. Simmonds et al.  
Poster 1997 ICES coordinated acoustic survey of ICES Divisions IIIa,  
IVa, IVb and VIa
- OPEN:23 J. Simmonds, R. Toresen,  
Poster J. Pedersen, and E. Götze Inter-calibration of participating vessels in the ICES coordinated  
surveys of North Sea herring
- OPEN:24 Withdrawn
- OPEN:25 A. Burmeister  
Poster Snow crab in Greenland