

2003

Diadromous Fish Committee (I)

Chair: Niall Ó Maoiléidigh (Ireland)

Rapporteur: Malcolm Beveridge (UK)

The Committee met on 23rd and 26th September 2003 with 18 participants.

Opening

The Chair welcomed the participants outlining that the meeting would cover items brought forward from the first meeting of the newly formed Diadromous Fish Committee in Copenhagen in 2002, and to address issues raised at the inter-sessional meeting of the Consultative Committee. In particular, the Chair was charged with ensuring that all diadromous fish species were considered by the Committee.

The list of members was reviewed and amended as required.

Appointment of a rapporteur

Malcolm Beveridge was appointed Rapporteur.

Adoption of agenda

It was proposed that the Committee would be an appropriate place to provide overviews of the Baltic salmon and sea trout stocks and other diadromous fish species, and this item was added to the agenda. The report of the Baltic Committee's Study Group on Salmon Scale Reading (SGSSR) was also added to the list of agenda items.

While it was acknowledged that ACFM reviewed the advice from the working groups on North Atlantic Salmon (WGNAS) and Eels (WGEEL), the Committee considered that new developments, recommendations, and future plans in these working group reports should also be considered, and these were included on the agenda.

Committee business

Reports of Working Groups/Study Groups

Status of Diadromous Fish Stocks (Working Group on Fish Ecology ICES CM 2003/G:04 and Report of the Advisory Committee on Ecosystems, Final Report 2003)

At the first meeting of the Committee in 2002, it was agreed to establish a "baseline" status report on all diadromous fish in response to the query on the scope and diversity of species which should be handled by the Committee. In this regard, the Committee noted that the Working Group on Fish Ecology (WGFE) provides a review of the status of three diadromous fish species (Sea lamprey *Petromyzon marinus*, Houting Coregonus *lavaretus oxyrinchus*, and Allis Shad *Alosa alosa*) in the

context of the Texel-Faial criteria for assessment of the conservation status of a number of sensitive fish species (see Table G1 in the report of the Living Resources Committee). The Committee noted the structure and procedure adopted by the Working Group in reporting the status of these fish and agreed it was an appropriate format to adopt for a wider range of diadromous fish species. As a first step, a list of diadromous fish species was established (Appendix I1).

Overviews of WGNAS, WGBAST, and WGEEL

Key findings from the working groups on Baltic Salmon and Sea Trout (WGBAST) and North Atlantic Salmon were presented. In considering the continued decline of smaller stocks of Atlantic salmon and sea trout in the Baltic, there was discussion of hybridisation and M74 phenomena and the use of Bayesian statistical approaches to modelling.

The status of salmon stocks in Northern and Southern Europe and in North America was presented along with the Terms of Reference for 2004. Important changes from the 2003 Terms of Reference were noted including the request from NASCO for more information on stock rebuilding trajectories.

A review of the current status of European eels and the current terms of reference for the WGEEL work programme was given. The Terms of Reference were endorsed, although differences between the types of terms of reference for WGNAS and WGEEL were noted. The Committee expressed its interest in seeing the ICES/EIFAC report, and especially expressed its desire to comment on management-specific recommendations at future meetings.

Consideration of the WGNAS review of 'the appropriateness and possible development of an experimental tagging programme for investigating the behaviour of escaped farmed salmon'

A summary of the WGNAS response to this was given. The advice had been endorsed by NASCO and Lars Petter Hansen (Norway) had been asked to coordinate a pilot study. The UK (Scotland) and Norway had already agreed a programme of work, while the Faroes had indicated a willingness to participate. Interest from Ireland and Iceland was noted at the meeting. On-going work in North America with sonic tags was also noted.

The Committee endorsed the response. However, concerns were expressed about the numbers of fish to be used in the pilot trials, although the resource implications were acknowledged as constraints. The importance of writing up the findings and consideration of the implications of the findings for further work was also stressed.

Identify and highlight recommendations and new advances in research contained in the WGNAS

The Committee considered general and ICES Commission Area-specific deficiencies and research needs from the WGNAS report 2003. WGNAS recommendations with regard to Atlantic salmon in the North Atlantic area were endorsed by the Committee (see above). The recommendations regarding the urgent need for research into post-smolt migration and bycatch in the NEAC Area was discussed and the question of the need for a study group considered. While a number of the WGNAS recommendations regarding post-smolts in pelagic fish catches in the Norwegian Sea had been passed on to the appropriate Expert Groups, it was noted that the issues had not been taken further.

The WGNAS recommendations for salmon in the North American Commission (NAC) area highlighted data gaps from certain geographic areas and were endorsed.

The Committee endorsed the current sampling programme in the West Greenland Commission (WGC) area, especially the determination of CPUE. Members also stressed the importance of getting good estimates of catches in the subsistence fishery. The issue of scale samples and their analysis in order to correct catches for escaped farmed salmon was also raised.

The Committee also noted that the EU-funded SALGEN study should produce much information pertinent to the WGNAS NAC Area concerns about classification of stock complexes within and among continents.

Study Group on Salmon Scale Reading (CM2003/H:01)

The agenda focused on the use of image analysis technology, the usefulness of scales compared with other measures of condition, the use of otoliths and coordination and centralisation of scale collection in the Baltic. It had been hoped to initiate a test exercise on scale reading, using scales from a wide range of sources, but the poor quality of many of the samples (mis-identification of species, poor collection technique, etc.) has further delayed plans.

The Committee considered the usefulness and practicality of otoliths to pose greater problems than scales. It was noted that a book on fish stock identification, reviewing all techniques, was imminent.

Future review by the Committee and inclusion of a wider range of diadromous fish stocks and topics

A range of issues, such as the impact of coastal wind farms, the impacts of freshwater quality on survival on transfer to sea, and habitat assessment for eels, were noted. The topic of stock restoration was noted as being of particular interest to members. A proposal for a specific theme session on this topic in 2005 was endorsed.

Consultative Committee and Committee business

Use of ICES reports by members

A number of ICES reports were identified as useful, including those produced on eels and by the Mariculture Committee. Nevertheless, it was acknowledged that many members are unaware of the ICES literature, such as the recent and highly relevant publication by the WGFE referred to above.

However, the ICES website, identified as a starting point for many in trying to identify pertinent ICES published material, was found to be difficult to navigate with success, depending largely upon the route taken and a specific rather than a general report being sought. It was also felt that the data available via the web was too limited in terms of time-series. By contrast, the excellent CD-ROM-based material made available at the Conference was noted as this appeared to provide easier access to reports, etc.

Links and overlap with other committees

The main overlap noted was with the ACFM and the Mariculture and Baltic Committees. Communication and coordination between these groups was considered to be important and should be facilitated as much as possible.

ICES Action Plan audit

An overview of the Action Plan audit system was made by the Chair. It was noted that the audit for 2002-2003 was based essentially on terms of reference for existing Expert Groups. As the Committee had not parented Expert Groups their input into this process for this period was considered to have been small. However, the meeting expressed a desire to contribute more fully as study groups, theme sessions, etc. were developed by the Committee. The ICES Action Plan audit document will be circulated by e-mail to members for comment and contributions. Once the various proposed Expert Groups have been approved and have begun their work, the Committee will respond formally.

Adequacy of arrangements for the meeting

It was generally agreed that the arrangements for the meeting had been very good. However, in the context of possibly having a more extensive review of WGNAS, WGBSST, SGSSR, and WGEEL reports, the second meeting (if structured over two days) would need to be at least one hour longer.

Feedback on Study Group on ACFM, ACE, ACME, and Working Group Procedures (SGAWWP) (CM2003/MCAP:02)

The Chair provided an overview of the SGAWWP with reference to the Conclusions and the proposed change to the way in which ICES would provide advice in future.

Malcolm Windsor (Secretary, NASCO) said that the contract between ICES and NASCO stipulates that ICES provides independent scientific advice free of political influence. There are concerns in NASCO that opening up the scientific advisory process could threaten that independence.

Forthcoming symposia and theme session topics

Proposed list of sessions for 2004

A list of proposed theme sessions, referenced to the four areas in the ICES Action Plan, was circulated for discussion. While a number were of interest to the Committee, there was a specific request to help organise and convene the session on 'Non-high seas habitats and the way different diadromous fish use these'. A working title 'Marine and diadromous fish use of estuarine and freshwater environments' was proposed. A text, drafted by Willem Dekker, was considered and given broad support. Vincent Vauclin (Conseil Supérieure de la Pêche, France) agreed to co-convene the session.

2005 ASC and suggestions for open session speakers

Stock re-building for diadromous species was proposed as a theme session for 2005. No nominations for open session speakers were made, but the Chair undertook to consult further with the Committee in due course.

Symposium in 2005 between NASCO and ICES on the interactions between cultivated and wild diadromous fish species

A presentation was made by Lars Petter Hansen (Norway). A working title "ICES/NASCO Symposium on the Impacts of Aquaculture on Wild Salmon and Other Diadromous Fish Species: Science and Management" was proposed. Venue: Norway (Trondheim or Bergen); Date: August or September 2005, perhaps immediately after the AquaNor meeting. There followed discussion of the composition and resourcing of the Scientific Steering Group, the structure (3-5 days), sessions (science session; management session; panel discussions; concluding session, including future prospects). Key themes for the science component included interactions between wild and cultured salmon, parasites and diseases, genetics, genetically modified fish, and ecological effects. The management session would include identification of cultured salmon, containment, the development of protected zones, recovery of escaped farmed fish, sterilisation, domestication, medicines, use of local fish, and effects of escaped farmed fish on the assessment of wild fish. Proposed theme sessions for the panel discussions included cultivation for stock enhancement and re-population, management of salmon farming management of wild salmon. The concluding session would have formal presentations by panel chairs and consideration of whether farmed/cultivated and wild fish interests are compatible. Publication would hopefully be in the *ICES*

Journal of Marine Science and in a report of the symposium.

Concern was expressed about the title – off-putting to industry versus the need to consider eel and other diadromous fish issues. The consensus was to continue to include the term 'diadromous' in the title. The composition of the Steering Group (which must have both geographic and technical coverage; industry and scientists) and sponsorship was debated.

Symposium for 2006 on 'Factors affecting mortality of salmon at sea'

The consensus of the Committee was that this was premature and that 2007 or 2008 was more appropriate. The Secretary of NASCO outlined the establishment of a Marine Research Board which would be actively seeking funding for research into significant factors contributing to the marine mortality of North Atlantic salmon. Development of a joint symposium would be more appropriate when these initiatives had generated research and results for presentation.

Draft resolutions

It was proposed that the parentage of the Baltic Committee's Study Group on Salmon Scale Reading should be transferred to this Committee. The Chair informed that this had the support of the Baltic Committee. It was also agreed to submit draft resolutions on the formation of three new study groups:

- A Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries [SGBYSAL]. This need arises from a request by NASCO to provide estimates of bycatch of salmon in pelagic fisheries and advise on their reliability, for its meeting in June 2004.
- A Study Group on the Status of Diadromous Fish Species [SGSDFS]. This was proposed as a result of the Committee's decision to establish "baseline" status report on all diadromous fish in response to the query on the scope and diversity of species which should be handled.

The Committee also agreed to prepare a case for a new study group on stocking and recruitment on eels, which it will put forward as a draft resolution at next year's meeting.

Any other business

There was no other business raised.

Appendix II Fish species to be considered by the Diadromous Fish Committee

List of core fish species

Diadromous fish are fish that migrate between freshwater and saltwater. Only about one percent of all fish in the world are diadromous. The migration patterns differ for each species and have seasonal and lifecycle variations. The purpose of this list (Table II) is to guide the Committee to those fish species identified as diadromous in the ICES area. It includes catadromous fish species that spend most of their adult life in freshwater and migrate to saltwater to spawn. Examples are eels belonging to the genus *Anguilla*. Anadromous fish species, such as striped bass (*Morone saxatilis*) may spend most of their adult time in salt water and migrate to freshwater rivers and lakes to reproduce.

Other fish species and circumstances

Within the ICES area, there are many fish species that move between freshwater and marine environments under certain circumstances. Amphidiadromous species move between estuaries and coastal rivers and streams, usually in search of food and/or refuge rather than the

need to reproduce. Such species may extend their movement in large brackish water regions. It is suggested that the Committee should include these in their initial status report on diadromous fishes. A few of these fish species occur in the ICES area as a result of transfers from other parts of the world. Rainbow trout (*Onchorhynchus mykiss*) is an excellent example in this category. It was introduced from the western parts of North America to Europe in the 20th century. It is now widespread as a cultivated species in large parts of the ICES area and it is also common in nature, but there are only few examples of successful establishment in nature.

In the Baltic Sea and other brackish water areas, fish movement between freshwater (rivers and lakes) and the sea is common. In the Baltic it is actually difficult to find freshwater fish species that do not move between the different environments under some circumstances. For instance pikeperch (*Stizostedion lucioperca*), normally considered a freshwater species, makes regular migrations between lakes and the sea in parts of the Baltic.

In North America, white perch (*Morone americana*), tomcod (*Microgadus* spp.), and bay anchovy (*Anchoa mitchillis*) also fall into the above category and could also be considered.

English name	Scientific name
Allis Shad	<i>Alosa alosa</i>
Twaite shad	<i>Alosa fallax</i>
Alewife	<i>Alosa pseudoharengus</i>
American shad	<i>Alosa sapidissima</i>
Blueback herring	<i>Alosa aestivalis</i>
Hickory shad	<i>Alosa mediocris</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
American eel	<i>Anguilla rostrata</i>
European eel	<i>Anguilla anguilla</i>
Sea char	<i>Salvelinus alpinus</i>
Brook trout	<i>Salvelinus fontinalis</i>
Sea trout	<i>Salmo trutta</i>
Atlantic salmon	<i>Salmo salar</i>
River lamprey	<i>Lampetra fluviatilis</i>
Sea lamprey	<i>Petromyzon marinus</i>
European sturgeon	<i>Acipenser sturio</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>
Shortnosed sturgeon	<i>Acipenser brevirostrum</i>
Striped bass	<i>Morone saxatilis</i>
Houting	<i>Coregonus lavaretus oxyrinchus</i>
Smelt	<i>Osmerus eperlanus</i>
Rainbow smelt	<i>Osmerus mordax</i>
Three-spine stickleback	<i>Gasterosteus aculeatus</i>
Four-spined stickleback	<i>Apeltes quadracus</i>
Nine-spined stickleback	<i>Pungitius pungitius</i>
Mummichug	<i>Fundulus heteroclistus</i>

Table II. List of core fish species to be considered by the Diadromous Fish Committee.