

## Report of the Mariculture Committee (MCC)

Chair: Ian Bricknell (UK)

Rapporteurs: Francis O'Beirn (Session 1 on 20 September) and Peter Cranford (Session 2 on 22 September)

### Attendance

	<b>Session 1 20 September</b>	<b>Session 2 22 September</b>
<u>Committee members:</u>	I. Bricknell (Chair, UK), Aad Smaal (the Netherlands), and Reinhold Hanel (Germany).	I. Bricknell (UK) and R. Hanel (Germany).
<u>ICES Delegates:</u>	Maurice Heral (France).	None.
<u>WG Chairs:</u>	Einar Eg Nielsen (WGAGFM), Thomas Lang (WGPDMO), Peter Cranford (WGMASC), and Francis O'Beirn (WGEIM).	Peter Cranford (WGMASC) and Francis O'Beirn (WGEIM).
<u>Observers:</u>	Vivian Piil (ICES Secretariat), Eva Jobel (Germany), and Georgios Kotoulas (Greece).	Adi Kellermann (ICES Secretariat) and Nickolay Aldain (Russia).
<u>Regrets:</u>	None received.	Thomas Lang (WGPDMO) and Aad Smaal (the Netherlands).

### Opening and introduction

The first session, which was held on 20 September 2006 during the ICES Annual Science Conference, began at 14:00 with attendees, committee members, and observers introducing themselves. The Chair presented a brief overview of the Mariculture Committee and its role, function, and structure within ICES for the benefit of those attending.

### Appointment of Rapporteur

Francis O'Beirn volunteered as Rapporteur for the first session and was accepted by the Committee.

### Adoption of Agenda and Timetable

The meeting timetable and agenda were circulated prior to the meeting, discussed briefly and adopted.

### Arrangements for MCC meeting and 2006 ASC

The MCC meeting was partitioned over two working days:

Part I: Wednesday 20 September from 1400 to 18:00, and

Part II: Friday 22 September from 13.30 to 18.00.

## **MCC Committee business**

### **Matters arising from the Consultative Committee and advisory committees**

ACME has requested “investigation of fouling hazards associated with the physical structures used in mariculture and assessment of their potential for the introduction of invasive and nuisance species into the local environment”. The suggestion to establish a new Working Group Mariculture on Invasive, Exotic and Nuisance Organisms (WGMIEO), possibly under the MCC, was timetabled to be discussed under the section presented by WGEIM on Friday 22 September.

A request from the floor asked the Chair to seek clarification from ConC on when Expert Group Chairs become full MCC members.

### **Discussion on the restructuring process**

The Chair (IB) presented the latest version of the restructuring of the advisory process within ICES. It is proposed that an advisory group (consisting of 3–4 administrators/facilitators and a delegate from each ICES member state) oversees a number of review groups that are responsible for integrating the advice from the expert groups. While the committee did not reject the proposed structure it did have many questions regarding the operation and responsibilities:

- Concern was raised that the advisory group could become very heavily fisheries biased, given the dominance of this sector within ICES and in the relevant institutions in the member states;
- It was unclear how many review groups would be created, what their specific function would be, and what their duration of existence would be? In addition, it was pointed out that the more structures are in place the less flexible the process can become – this could impact upon the timing of provision of advice, perhaps making it a long drawn-out process;
- The ability to provide client organizations with non-requested advice, garnered from expert group reports by the existing advisory committees, might be lost;
- It is unclear what the QA process assigned to the secretariat constitutes. The committee acknowledged that it is very important that all opinions relating to advice from the expert groups are considered and that specific justification is provided to the relevant party or group in the case of rejection of a viewpoint;
- It was expected that the review groups would be compensated (travel and per diem). It was pointed out that the EU commission is willing to pay more for environmental advice which is provided in a much more timely fashion than ICES does. The environmental side of ICES more or less competes with the EU on providing non-fisheries advice.

### **Integrated ecosystem advice**

The Consultative Committee continues its requests for new ToRs to promote integration of fisheries and ecosystem advice. The group discussed how it could contribute to the provision of integrated advice by creating new ToRs or expanding existing ToRs. Numerous examples were provided by the group of existing ToRs within the groups that would have cross-disciplinary appeal and could be categorized as integrated advice. One such example was investigating the interaction between wild and cultured fisheries for the WGPDMO and WGAGFM. The approach of WGMASC has been broadranging and underlying all of the ToRs is a holistic view on the aspects of shellfish culture. By its nature, the development of risk assessment methodologies carried out by WGEIM must integrate many sources of information to provide a meaningful output.

It was suggested by Aad Smaal that a potential ToR could be considered to examine the interaction between extensive shellfish culture operations and nature conservation legislation, quantifying the value as well as the negative aspects for both sides.

## **Expert Group reports**

### **Introduction**

WG Chairs were requested to prepare short presentations summarizing the highlights, significant results and bringing forward outstanding issues for discussion. For example, progress being made in relation to achieving the ICES action plan or ToRs being suggested for other Expert Groups to consider.

As agreed at the 2005 ASC WG reports will be reviewed in light of the following criteria:

- 1 ) Were the Terms of Reference properly addressed and completed?
- 2 ) Is the report clear and understandable?
- 3 ) Is the science quality adequate?
- 4 ) Are the conclusions well supported and acceptable?
- 5 ) Linkages to ICES Action Plan, other topics, or work elsewhere in ICES?
- 6 ) Is the work suitable for an ICES publication?
- 7 ) How should the work be continued?
- 8 ) Other points to note or query?
- 9 ) Was attendance adequate?
- 10 ) Was the range of expertise appropriate or adequate?

### **Presentation and adoption of reports and draft resolutions**

#### **MCC:01 – Working Group on Pathology and Diseases of Marine Organisms [WGPDMO]**

Thomas Lang presented the highlights of this working group's activities. No issues with the execution of the previous year's ToRs and their progress were identified. The efficacy of sea lice vaccine was considered as a ToR and would continue to be dealt with by the group. The Chair committed to formally asking the group to consider the efficacy of sea lice vaccines for adult sea lice, where little progress has been generated in the literature and expand this ToR to consider immunological control of sea lice at earlier life history stages in the louse. Sharon McClean was elected incoming Chair by the working group and this was formally endorsed by the committee.

Thomas Lang also proposed a theme session for the 2008 meeting in Halifax entitled "New trends in diseases of marine organisms: causes and effects". This theme session received unanimous support from MCC and has since been submitted to the Secretariat for further consideration in ConC.

The Committee thanked Thomas Lang for his service as Chair of WGPDMO and hoped he would continue to serve on WGPDMO in the future.

The Working Group on Pathology and Diseases of Marine Organisms [WGPDMO] (Chair: Sharon MacLean, USA) will meet at [suggestions: Tenerife, Spain, or St. John's, Canada] from [dates to be decided] to:

- a ) produce a report on new disease trends in wild and cultured fish, mollusks, and crustaceans, based on national reports;
- b ) review the condition of hyperpigmentation in common dab (*Limanda limanda*) with special reference to histopathological and ultrastructure findings, analysis of prevalence and temporal changes, possible causes and similarities with other species;

- c) update information on progress made in the development of salmon sea louse vaccines and sea louse management strategies in ICES member countries;
- d) review progress made with regard to international collaborative actions including disease and pathology aspects:
  - i) REGNS Integrated Assessment of the North Sea Ecosystem,
  - ii) Baltic Sea Regional Project (BSRP),
  - iii) BEQUALM;
- e) produce a review of testing, intercalibration, and validation of current and newly developed molecular techniques for the purpose of pathogen diagnosis in bivalves;
- f) review progress made intersessionally by selected members of WGPDMO on the pilot study on constructing a 'fish disease index' by using empirical dab (*Limanda limanda*) disease data;
- g) produce ICES publications on pathology and diseases of marine organisms;
- h) provide expert knowledge and advice on fish disease and related data to the ICES Data Centre on a continuous basis.

WGPDMO will report by a date to be decided in 2007 for the attention of the Mariculture Committee, ACME, and the Marine Habitat Committee.

#### **MCC:02 – Working Group on Marine Shellfish Culture [WGMASC]**

Peter Cranford gave an overview of the working group's activities for 2006. No issues with the execution of the previous year's ToRs and their progress were identified. The genetic significance of using hatchery-reared scallops to enhance wild stocks was highlighted and should be closely monitored. Interaction with the WGAGFM should allow this ToR to develop further.

The theme session for ASC 2007 "Ecological Carrying Capacity in Shellfish Culture" was discussed. Intersessional discussions subsequently suggested that this theme session be moved from 2007 to 2008, which was revisited under **5.2.3** and a resolution passed by MCC endorsing this decision. This session has been approved by ConC and can go ahead. The discussion then reviewed potential theme session speakers and it was agreed that a first class set of presentations was expected.

The Working Group on Marine Shellfish Culture [WGMASC] (Chair: Peter Cranford, Canada) will meet in Halifax, Canada, from 27 to 29 March 2007 to:

- a) prepare a state of knowledge report comparing and contrasting the standard methods used to measure stress indicators in shellfish and provide a discussion of how they would be used to diagnose incidents of cultured shellfish mortality;
- b) complete the development of a recommended framework for the integrated evaluation of the impacts of shellfish aquaculture activities in the coastal zone by identifying a suite of tools (e.g. modelling, technologies) and indicators (ecosystem and shellfish performance) specific for monitoring ecosystem status in relation to shellfish aquaculture and for evaluating ecosystem quality objectives and effects on the productive capacity of coastal systems. This will also provide guidelines for monitoring programmes and the selection of management reference points (operational objectives) and mitigations;
- c) prepare a report assessing the utility of hatchery-reared seed to enhance wild scallops fisheries with the view of improving the management of this resource. Culture techniques, population dynamics parameters, such as growth to the commercial size and mortality, monitoring during the growing stages, yields, number and cost of seeded spat vs. fished adults, potential impacts of culture and dredging should be collected and assessed from different sources during intersessional work;

- d) identify emerging shellfish aquaculture issues and related science advisory needs for maintaining the sustainability of living marine resources and the protection of the marine environment. The task is to briefly highlight new and important issues that may require additional attention by the WGMASC and/or another Expert Group as opposed to providing a comprehensive analysis.

WGMASC will report by 20 April 2007 for the attention of the Mariculture Committee.

The meeting closed at 17:05 on 20 September 2006.

## **Day two Friday 22 September 2006**

Chair: Ian Bricknell (UK)

Rapporteur: Peter Cranford

### **Committee business**

Peter Cranford volunteered as Rapporteur and was accepted by the Committee.

Additional agenda item: Nikolay Aladin from St Petersburg presented a short review of mariculture in Russia.

### **Presentation and adoption of reports and draft resolutions (continued from Day one)**

#### **MCC:03 – Working Group on Environmental Interactions of Mariculture [WGEIM]**

Francis O’Beirn presented the highlights from this year’s meetings. No issues with the execution of the previous year’s ToRs and their progress were identified.

#### **Discussion**

Two suggested amendments were made to the 2006 ToRs, the first being the possibility of a new working group to consider an ACME request on “investigation of fouling hazards associated with the physical structures used in mariculture and assess their potential for the introduction of invasive and nuisance species into the local environment”. The proposal was to prepare a working paper in 2007 to distribute it for consideration by other working groups (WGEIM, WGMASCV, WGITMO, SGBOSV, etc.) on standardizing approach for monitoring these invasive species. The possibility of a new WG in this area was discussed and a decision deferred until after the production of the working paper in 2007 and feedback from the other working groups. It was also suggested that WGEIM and WGMASC overlap in 2008 to collaborate via a combined plenary session to evaluate cross-cutting issues.

The second request was for “Environmental impacts of integrated (multitrophic) culture systems” (ToRd). It was suggested to postpone this work until 2008, as there are several current scientific projects due to report shortly, and it was recommended to consider these reports before tackling ToRd.

There was some discussion as to the theme session “Ecological carrying capacity in shellfish aquaculture”, currently planned for ASC 2007 in Helsinki (see Section 5.2.2). There would be considerable competition between this meeting and other shellfish meetings that year which, it was felt, would adversely impact attendance. It was recommended that this theme session be postponed until 2008 (where it would be complemented by T. Lang’s proposed theme session on emerging diseases) and this was supported by the MCC. There was some discussion on the requirement of ICES to partly fund the plenary speaker and whether ICES would consider

funding basic advertising such as pamphlet production and a mail slot. An action point was for I. Bricknell to bring this issue up at ConC or to discuss it with AK or VP.

The Working Group on Environmental Interactions of Mariculture [WGEIM] (Chair F. O’Beirn, Ireland) will meet in Kiel, Germany, from 16–20 April 2007 to:

- a) discuss the status of the risk assessment papers on non-salmonid mariculture species and the outcome of the GESAMP WG 31 meeting in November 2007;
- b) further evaluate the examples of sustainability indices proposed for mariculture activities and critically evaluate those SIs recommended by WGEIM and other forums;
- c) further the review on alternative feeds with a view to generating a manuscript to be submitted for publication in a peer-reviewed scientific journal;
- d) further investigate fouling hazards associated with the physical structures used in mariculture and assess their potential for the introduction of invasive/nuisance species into the local environment;
- e) review the role and tasks of WGEIM in relation to ICES Strategic Plan and action plan as well as the key tasks of the Mariculture Committee, and prepare a draft future work plan.

WGEIM will report by 15 May 2007 for the attention of the Mariculture Committee and ACME.

#### **MCC:04 – Working Group on the Application of Genetics in Fisheries and Mariculture [WGAGFM]**

Einar Eg Nielsen presented the highlights of the expert group’s activities in 2006. No issues with the execution of the previous year’s ToRs and their progress were identified. .

New ToRd. There were several questions about the exact meaning of this new ToR and that it maybe a little limited in scope, making the task very difficult. This was realized by the WG Chair and it was agreed that the scope of the task may need to be broadened at the next spring meeting.

There is currently no date for the 2007 meeting, but the dates will be confirmed shortly.

The Working Group on the Application of Genetics in Fisheries and Mariculture [WGAGFM] (Chair: Einar Eg Nielsen, Denmark) will meet in Ispra, Italy, from 24 to 27 April 2007 to:

- a) update and review the available information on the genetics of the European eel (*Anguilla anguilla*), including the importance of recovery plans;
- b) critically review the potential application of genomics in fisheries management and aquaculture;
- c) identify and provide recommendations for the optimal extraction and storage of DNA from fish destined for molecular-based studies;
- d) assess, through a case study of anadromous salmonids, the potential of genetic and spatial data analysis methods for resolving spatial boundaries of finfish and shellfish populations, and for gaining insight into the geographic and ecological factors controlling the development of population boundaries;
- e) identify the structural and institutional requirements for developing meta-databases for genetics of fish species covered under the ICES remit;
- f) review and provide recommendations on the application of state of the art Genetic Stock Identification methods, with particular emphasis on evaluating the precision for identifying the population of origin of individual Atlantic salmon.

WGAGFM will report by 11 May 2007 for the attention of the Mariculture and Diadromous Fish Committees, ACME, and ACE (WGECO).

### **Additional agenda item**

#### **Presentation by Nickolai Aladin on Russian mariculture**

Professor Aladin gave a short presentation on the status of aquaculture in Russia. This was well received by the committee as information on mariculture from Russia is recognized as being scarce. There were presentations on *Mytilus edulis* culture in the White Sea, sturgeon culture in the Aral and Black Sea, and crayfish culture in the Aral Sea. Professor Aladin urged collaboration between MCC members and the St Petersburg Zoological Institute, and this was endorsed by the committee. The presentation ended with Professor Aladin promising to send references, production details, and contacts to Ian Bricknell for circulation amongst the MCC and its expert groups.

#### **MCC:05 – Working Group on Marine Fish Welfare [WGMAFW]**

No meetings were held in 2005 or 2006 (the last meeting was in Vigo in 2004 as WHMAFC).

Anders Mangor-Jensen resigned as Chair of WGMAFC/WGMAFW (WGMAFW yet to meet).

Possible ways forward for WGMAFW were discussed. It was felt that there was no need to reform the old WGMAFW as WGMAFW is still required to provide advice in the area of farmed fish welfare. Ian Bricknell reported that he had informally approached several potential chairs to head the WG and there is a chance that with some financial support from the secretariat a transitional Chair could be appointed whose brief would be to oversee the group for one year and oversee the election of a new Chair to serve from 2008.

The terms of reference remain intact from 2004, but no formal (or informal) report has been made. It was proposed that when the group meets again the following ToRs are to remain extant:

- a) Report on the status of fish welfare policies in the different ICES countries and on the development of EU policy on fish welfare;
- b) Work on developing guidelines for “Fish Welfare in Mariculture” aimed at publishing the completed work as an *ICES Cooperative Research Report*. The guidelines will address different species, life stages, and rearing systems, including topics such as:
  - Spawning,
  - Egg production,
  - Feeding,
  - Environmental parameters such as water quality,
  - Rearing technology,
  - Husbandry techniques,
  - Health management and biosecurity;
- c) Compile information on the state of the art of microdiets as a replacement for live food for larval fish.

### **Any other business**

- 1) It was generally agreed that there is a need to raise the profile of mariculture at the ASC. It was noted that mariculture would be poorly represented at the ASC in 2007 (mainly as the ASC clashes with a major shellfish and aquaculture conference and the subsequent resolution to postpone the mariculture theme session “Ecological Carrying Capacity in Shellfish Culture”), but would be very strong at ASC 2008 with two theme sessions and no obvious competing conference;

- 2) WG chairs were encouraged to consider new theme session proposals for the ASCs of 2009 and beyond, as the MCC wants to keep the momentum generated from the ASC 2008. It was also agreed that potential theme sessions would be discussed at the next round of expert group meetings.

**Closing**

The meeting closed at 15:37 on 22 September 2006.