

## REPORT OF WORKING GROUP 18 ON MARINE AQUACULTURE



The Working Group (WG 18) on *Mariculture in the 21<sup>st</sup> century – The intersection between ecology, socio-economics and production* met on October 14, 2006, with Mr. Michael Rust (U.S.A.) chairing the meeting. Dr. Jack Rensel served as rapporteur. Only 7 scientists from 4 PICES member countries were in attendance (representatives from China and Korea were absent), and only 4 of the 14 Working Group members were present (*WG 18 Endnote 1*). After brief introductions, the draft agenda was reviewed and approved with no additions (*WG 18 Endnote 2*).

### **Third International Symposium on “Stock enhancement and sea ranching” (Agenda Item 3)**

The symposium took place in September 2006, in Seattle (U.S.A.), without PICES support. The abstracts and program of the meeting can be found at <http://www.searanching.org>. Posters from the meeting will be added in the future. The symposium proceedings will be published in *Reviews in Fisheries Sciences*. The next symposium will be held in China in 2010.

### **Reports on other relevant meetings (Agenda Item 4)**

A meeting on “*The role of aquaculture in integrated coastal and ocean management*” was convened in April 2005, on Oahu, U.S.A. The product of that meeting entitled “*The role of aquaculture in integrated coastal and ocean management: An ecosystem approach*” (Eds. J.P. McVey, C-S. Lee, and P.J. O’Bryen) will be published by The World Aquaculture Society.

Drs. Galina Gavrilova and Vasily Radashevsky reported that the MEQ/FIS Topic Session on “*Current and emerging issues of marine and estuarine aquaculture in the Pacific Region: Carrying capacity, ecosystem function and socioeconomics*” was convened at PICES XIV

(October 2005, Vladivostok, Russia). The summary of the session is included in the 2005 PICES Annual Report. The talks on aquaculture in Russia and on salmon culture were very well attended. A conclusion from the discussion at the session was that the issues of carrying capacity should be continued. Unfortunately there was no participation by our Chinese colleagues, and WG 18 membership attendance was low (only 4 Working Group members were present).

### **Summary of WG 18 activities and history (Agenda Item 5)**

WG 18 was established at PICES XII (2003) in Seoul (Korea), under the direction of the Fishery Science (FIS) and Marine Environmental Quality (MEQ) Committees. It was expected that the focus of this group should be on the environmental and ecosystem function, sustainability of production (*e.g.*, carrying capacity of ecosystems), and socioeconomics, rather than on the technology of aquaculture or specific aspects of nutrition of culture species. The WG 18 Terms of Reference can be found in *WG 18 Endnote 3*. WG 18 met for the first time at PICES XIII (October 2004, Honolulu, U.S.A.) to plan its activities.

National reports on “*Current status and trends in aquaculture*” of 5 PICES member countries were published in the 2004 PICES Annual Report, and the Russian report was included in the 2005 Annual Report. This accomplishes the first Term of Reference of WG 18.

The second Term of Reference was to develop an overview of current and emerging issues, with respect to environmental and ecosystem function, sustainability of production (*e.g.*, carrying capacity of ecosystems), and socioeconomics. Two MEQ/FIS Topic Sessions related to this issue were held at PICES Annual Meetings (on “*Current and emerging issues of*

*marine and estuarine aquaculture in the Pacific Region: Carrying capacity, ecosystem function and socio-economics*” at PICES XIV, and on “*Aquaculture for sustainable management of marine environment and ecosystem*” at PICES XV), but no overview of current and emerging issues was produced or discussed. The summary of the last session is included in the *Session Summaries* chapter of this Annual Report.

The third and final Term of Reference was to convene a workshop on “*Scientific issues for sustainable aquaculture in the PICES region*”. It was expected that a product from the workshop would be recommendations for a PICES Action Plan on scientific issues of marine aquaculture. No action on this issue was taken.

#### **Discussion on WG 18 future (Agenda Item 7)**

Some of the objectives in the WG 18 Terms of Reference were duplicated by other international groups, such as APEC, FAO and the World Aquaculture Society. The question arises – How should WG 18 fit in or add to what other groups are already doing? Another question is – What recommendation should be made to our parent committees, FIS and MEQ, based on progress on the three Terms of Reference?

After much discussion, three options were identified:

1. complete Terms of Reference 2 and 3; if so, then who does what?
2. change the Terms of Reference; if so, then to what and who takes leadership for this?
3. dissolve the Working Group.

However, given the importance of this decision and the lack of attendance of other WG 18 members, those present felt that an e-mail should be sent to all members to provide their input (*WG 18 Endnote 4*).

The Working Group has suffered from low attendance by members at the past two meetings (only 4 of the 14 members were present at both PICES XIV and XV), so work will be done by correspondence to ensure that any meeting or workshop at PICES XVI (October 2007,

Victoria, Canada) is interesting and attractive to members.

In discussion of option 2, each participant at the meeting was invited to answer the question “What would be most beneficial to your country for a PICES Working Group on Aquaculture to focus on?” Responses are below:

Canada: Salmon aquaculture is under attack from some sectors of society. There is considerable culture of shellfish on both coasts. NGO and fisheries groups oppose aquaculture and there is significant misinformation on the actual risks of aquaculture operations.

Japan: Economic issues, disease issues and improving effectiveness of stock enhancement (sea ranching works but populations continue to decline) are high priorities. An issue is to improve quality, not quantity of fish produced for higher price. Imports from Norway, Korea and China keep prices of fish low. Hatchery diseases are problematic, and while there has been achievements with sea ranching there has not been much success in recovery and enhancement of existing stocks.

Russia: There are few hatcheries or farms but they need to expand. Aquaculture has not been a focus in the past but is becoming more so now. In comparison to Japan and China, Russia is not a traditional seafood consuming country, but attitudes are changing about expanding seafood production. Progress is slow, and there are no government initiatives, but there is growing recognition that seafood in the diet is important for health and for socio-economic reasons.

U.S.A.: Marine aquaculture is not a highly developed industry except for mollusks and a few finfish on Pacific Coast. Public confidence in the industry and opposition by fishermen are major issues, and perhaps PICES should take a socio-economic focus. The national government is in the process of developing laws and regulations for off-shore aquaculture, and scientific efforts are being made to adopt and apply FAO guidelines for risk assessment to help in the decision-making process.

**WG 18 Endnote 1****Participation list**Members

Galina Gavrilova (Russia)  
 Toyomitsu Horii (Japan)  
 Michael Rust (U.S.A.)  
 Hisashi Yokoyama (Japan)

Observers

Vasily Radashevsky (Russia)  
 Jack Rensel (U.S.A.)  
 Darlene Smith (Canada)

**WG 18 Endnote 2****WG 18 meeting agenda**

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| <ol style="list-style-type: none"> <li>1. Welcome and introductions, appointment of rapporteur</li> <li>2. Comments from WG 18 Co-Chairmen</li> <li>3. Report on Third International Symposium on “<i>Stock enhancement and sea ranching</i>”</li> </ol> | <ol style="list-style-type: none"> <li>4. Reports on other relevant meetings or WG interactions</li> <li>5. Summary of WG 18 activities and history</li> <li>6. Discussion on future of WG 18</li> <li>7. Other business</li> </ol> |
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**WG 18 Endnote 3****Email to WG 18 members sent October 14, 2006**

Dear WG-18 member,

We are having discussions in Yokohama that impact the future of our Working Group and would like your input. This is the third year of our Working Group and it is set to expire. Below are the Terms of Reference for our group that was agreed to at our first meeting in Hawaii. WG members from Japan, Russia, and U.S.A. have been discussing these along with observers from Canada and U.S.A. Our current status is listed under each Term of Reference.

Terms of Reference:

1. Review and report on the current status and projected trends in aquaculture in marine and estuarine regions of PICES that substantively contribute to world aquaculture; [Done – published by PICES]
2. Develop an overview of current and emerging issues, with respect to environmental and ecosystem function, sustainability of production (*e.g.*, carrying capacity of ecosystems), and socio-economics; [Sessions at PICES XIV and XV were convened but no overview document was produced. Are meeting reports enough? How is this different from other non-PICES efforts?]
3. Convene a workshop on “*Scientific issues for sustainable aquaculture in the PICES region*”. A product from the workshop would be recommendations for a PICES Action Plan on scientific issues of marine aquaculture. [Not started yet. What do we want to do?]

Based on our progress on the three terms of reference, what recommendation should be made to our parent committees, FIS and MEQ? We have identified three options. Please vote for one and return the email to [mike.rust@noaa.gov](mailto:mike.rust@noaa.gov) by Tuesday, October 17th.

Recommendations to FIS/MEQ

1. Go ahead and complete TORs 2 and 3? If so, then who does what?
2. Change the Terms of Reference? If so, then to what and who takes leadership for this?

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### 3. Dissolve Working Group.

If you choose option 2 would you support a new Working Group focused on one of these issues? (Vote for all you would support)

1. Possible new aquaculture working group focused on Canada, Japan, Russia and U.S.A. common
2. Aquatic animal health
3. Economics and regulated development of aquaculture industry (how does science inform decisions?)  
Do scientists have these skills alone? Who else should be included in human health (quality?) aspects of aquaculture?