

The Fishery Science Committee

The meetings of the Fishery Science Committee (FIS) was held from 18:00–19:30 on October 14 and 14:00–18:00 h on October 17, 2012. Chair, Dr. Elizabeth (Libby) Logerwell, called the meeting to order and welcomed participants. She welcomed new member, Dr. Anya Dunham who is replacing Dr. Laura Richards and representing Canada. The meeting was attended by 9 FIS members plus 11 observers (*FIS Endnote 1*). The agenda was adopted without modification (*FIS Endnote 2*). Dr. John Field served as rapporteur.

AGENDA ITEM 3

2012 FIS Best Oral presentation and Poster awards

Volunteers were sought to form judging committees for the FIS Committee awards to be given during PICES 2012. Drs. Mikhail Stepanenko, Gordon Kruse and Libby Logerwell agreed to serve as the awards committee for FIS Best Oral Presentation by a young scientist. The FIS Best Oral Presentation Award was given to Xun Zhang for a presentation on “*Spatial modeling of the potential fishing zone of Japanese common squid in coastal waters of southwestern Hokkaido, Japan*” during the FIS Paper Session. Yasuzumi Fujimori and Toyomitsu Horii agreed to serve as the awards committee for FIS Best Poster. The FIS Best Poster Award was given to Atsushi Tawa for a poster on “*High dispersal of moray eel larvae to the open ocean: Early life history estimated from oceanwide distribution patterns*” during the FIS Paper Session. This year’s selections were chosen from topic sessions S7, S8, and the FIS Paper session.

AGENDA ITEM 4

FIS Chairman’s report: Implementation of PICES-2011 decisions

PICES-2012 Topic Sessions

At PICES-2012, FIS sponsored the following Topic Sessions:

- S1 Science Board Symposium on “*Effects of natural and anthropogenic stressors in the North Pacific ecosystems: Scientific challenges and possible solution*” (Oct. 15, ¾ day). Co-convenors: Sinjae Yoo (SB), Atsushi Tsuda (BIO), Elizabeth Logerwell (FIS), Hiroya Sugisaki (MONITOR), Kyung-II Chang (POC), Toru Suzuki (TCODE), Thomas Therriault (AICE), Hiroaki Saito (COVE), Robin Brown (SOFE), Igor Shevchenko (Russia), Fangli Qiao (China);
- S4: FIS/MONITOR/POC. *Monitoring on a small budget: Cooperative research and the use of commercial and recreational vessels as sampling platforms for biological and oceanographic monitoring* (Oct. 17, ½ day). Co-Convenors: Steven Barbeaux (USA), Jennifer Boldt (Canada), Martin Dorn (USA) and Jae Bong Lee (Korea);
- S7: BIO/FIS. *Jellyfish in marine ecosystems and their interactions with fish and fisheries* (Oct. 18, 1 day). Co-Sponsored by ICES, Co-Convenors: Richard Brodeur (PICES/USA), Cornelia Jaspers (ICES/Denmark), Christopher Lynam (ICES/UK), Song Sun (PICES/China), Shin-Ichi Uye (PICES/Japan) and Won-Duk Yoon (PICES/Korea);
- S8: POC/FIS. *Linking migratory fish behavior to End-to-End models II* (Oct. 17, ½ day). Co-Convenors: Enrique Curchitser (USA), Shin-ichi Ito (Japan) and Michio Kishi (Japan);
- S9: FIS/MEQ. *Ecological functions and services associated with marine macrophyte communities as indicators of natural and anthropogenic stressors in nearshore zones of the North Pacific* (Oct. 19, ½ day). Co-Convenors: Ik-Kyo Chung (Korea) and Jun Shoji (Japan);
- S12: BIO/FIS/POC. *Advances in understanding the North Pacific Subtropical Frontal Zone ecosystem* (Oct. 19, ½ day). Co-Convenors: Taro Ichii (Japan), Skip McKinnell (PICES) and Michael Seki (USA);
- FIS Paper Session (Oct. 18, 1 day). Co-Convenors: Xianshi Jin (China) and Elizabeth Logerwell (USA)

Summaries of these sessions and Symposium can be found in the *Session Summaries* section of the [2012 Annual Report](#).

International symposia

The following international symposia in late 2011 and 2012 were supported by FIS or of interest to FIS members:

- NPAFC International Workshop on “*Explanations for the high abundance of pink and chum salmon: Future trends*”, Nanaimo, British Columbia, Canada, October 30–31, 2011 (co-sponsored by PICES);
- PICES/FRA/NOWPAP/WESTPAC Workshop on “*Introduction to Rapid Assessment Survey methodologies for detecting non-indigenous marine species*”, Seikai National Fisheries Research Institute, Nagasaki, Japan, February 8–9, 2012 (co-convened by Thomas Therriault (Canada));
- CLimate Impacts on Oceanic TOP Predators (CLIOTOP) special session on “*Global science for global governance of oceanic ecosystems and fisheries*” co-sponsored by PICES at the Planet Under Pressure Conference (March 26–29, 2012, London, UK);
- 2nd ICES/PICES Early Career Scientist Conference on “*Oceans of change*” Majorca Island, Spain, April 24–27, 2012 (co-convened by Skip McKinnell (PICES));
- PICES/ICES/IOC Second International Symposium on the “*Effects of climate change on the world’s oceans*”, Yeosu, Korea, May 15–19, 2012 (co-convened by Suam Kim (Korea));
- IMBER ClimECO3 Summer School on “*A view towards integrated earth system models. Human-nature interactions in the marine world*”, Ankara, Turkey, July 23–28, 2012 (co-sponsored by PICES);
- GLOBEC/PICES/ICES International Workshop on “*Forecasting ecosystem indicators with climate-driven process models*”, Friday Harbor Labs, Washington, USA, September 8–10, 2012. (Jacquelynne King (Canada) was an organizer). Workshop report is available online at <http://wg27.pices.int/ecofor/>.
- 2012 ICES Annual Science Conference, September 17–21, Bergen, Norway. Joint theme sessions:
 - Session A on “*Understanding, measuring and projecting the limits of resilience in marine ecosystems*”;
 - Session I on “*Multidisciplinary perspectives in the use (and misuse) of science and scientific advice in Marine Spatial Planning*”;
 - Session M on “*Subarctic-Arctic interactions: Ecological consequences*”;
 - Session Q on “*Sustainability of aquaculture*”.

Publications

The following progress was made on FIS-related PICES publications:

- Special issue on “*Ecosystem-based approaches for the assessment of fisheries under data-limited situations*”, *Fisheries Research* 112, December 2011. Product of PICES-2009 Topic Session S2. Guest editors: Patricia Livingston (USA), Gordon Kruse (USA), and Laura Richards (Canada).
- Special issue on “*Economic relations between marine aquaculture and wild capture fisheries*”, *Aquaculture Economics and Management* 16 (2), 2012. Product of PICES-2010 FIS/MEQ Topic Session (S7). Guest Editors: Minling Pan (USA) and PingSun Leung (USA).
- Special issue on “*Comparative studies on climate effects on polar and subpolar ocean ecosystems: Progress in observations and predictions*”, *ICES Journal of Marine Science* 69 (7), 2012. Product of the second ESSAS (Ecosystem Studies of Sub-Arctic Seas) Symposium, May 22–26, 2011, Seattle, USA. Co-sponsored by PICES.
- Special issue based on selected papers from the 2011 ESSAS Open Science Meeting session on “*Modeling marine ecosystem dynamics in high latitude regions*”, *Progress in Oceanography*. Guest Editors: E. Curchitser, Geir Huse and S.I. Ito
- Proceedings of the 26th Wakefield Symposium on “*Global progress on ecosystem based fisheries management*”, November 8–11, 2010, Anchorage, USA, University of Alaska Sea Grant, 2012. Co-sponsored by PICES. Editors include: Gordon Kruse (USA), Patricia Livingston (USA) and Chang-Ik Zhang (Korea)
- PICES Advisory Report to the Cohen Commission on “*The decline of Fraser River sockeye salmon in relation to marine ecology*”. Reproduced from web-based Cohen Commission Tech. Rep. No. 4. Lead author: Skip McKinnell, PICES Scientific Report 41, 2012.

- McKinnell, S.M. and Reichardt, M.R. 2012. Early marine growth of juvenile Fraser River sockeye salmon (*Oncorhynchus nerka*) in relation to juvenile pink (*Oncorhynchus gorbuscha*) and sockeye salmon abundance. *Canadian Journal of Fisheries and Aquatic Sciences* 69: doi:10.1139/F2012-078.

AGENDA ITEM 5

Update on FUTURE activities and review of FUTURE meeting

Dr. Logerwell presented an update on FUTURE activities and review of the FUTURE meeting. FUTURE activities since PICES-2011 included an inter-sessional Science Board workshop which focused on the development of the FUTURE roadmap (May 24–25, 2012, Busan, Korea). In addition, all 12 Topic Sessions, and about half of the 8 Workshops, at PICES-2012 were FUTURE-related. New expert groups formed since last year include: Section on *Human Dimensions of Marine Systems*, Section on *Climate Change Effects on Marine Ecosystems* (jointly with ICES), and WG 29 on *Regional Climate Modeling*. In addition, a Section on Marine Pollution was proposed at PICES-2012. Regarding FUTURE APs, there is concern that some countries and Committees are weakly represented (this is a particular problem for AICE). FUTURE needs to work better with Committees to make sure they are properly represented. The next steps for FUTURE include reviewing the FUTURE roadmap, deciding on products from the expert groups and planning for the FUTURE Open Science Meeting. One proposed product is an annual North Pacific Ecosystem Status Report to be published on the internet. Inter-sessional FUTURE meetings or workshops for 2013 include the inter-sessional Science Board/FUTURE meeting to be held in St. Petersburg, Russia. S-CCME has proposed a workshop on range shifts and climate change (in collaboration with ICES) for this meeting. In addition, a Harmful Algal Bloom workshop has been proposed (in collaboration with NOAA, SCOR, IOC and GEOHAB). The FIS Committee discussed FUTURE products and outreach ideas. Members acknowledged that help is needed in coming up with ideas because the format may not be typical of most scientific activities. Some ideas brought up were to post newswire items on websites; and to make local connections in each PICES member country, for instance with educators, fishers or community groups in the city hosting the PICES Annual Meeting. FIS also discussed the FUTURE Roadmap as provided by Science Board Chairman, Dr. Sinjae Yoo. It is time to think ahead to new working groups that might follow up on the results of current FUTURE WGs 27, 28 and 29, such as a Working Group on Ecosystem Resilience. Regarding planning for the FUTURE Open Science Meeting, FIS members agreed that using the Implementation Plan to structure the meeting was a good start and are willing to provide more specific feedback as plans develop. Finally, FIS discussed the proposal by Dr. Phillip Mundy (AP-SOFE) to publish a web-based annual update to the North Pacific Ecosystem Status Report. Members recommended that indices and indicators be able to be linked to fisheries production. Automation of submission of indices and formatting of the report is an appealing feature of the plan. Overall, FIS supports the idea.

AGENDA ITEM 6

Status reports of FIS-sanctioned groupsa. PICES/ICES Section on *Climate Change Effects of Marine Ecosystems* (S-CCME)

S-CCME Co-Chair, Dr. Anne Hollowed, provided a summary of S-CCME activities.

- ICES WKOI meeting February 29–March 2, Copenhagen, Denmark. S-CCME member Jon Hare co-chaired a workshop to define the Ocean Observing Needs for ICES (WKOI).
- ICES WGIPEM meeting March 13–16, Copenhagen, Denmark. S-CCME member Myron Peck also serves as the chair of the Working Group on Integrative Physical-Biological and Ecosystem Modeling (WGIPEM).
- 6th World Fisheries Congress on “*Sustainable fisheries: Climate impacts*”, May 2012, Edinburgh, Scotland. S-CCME. Co-Chairs Manuel Barange and Brian MacKenzie were co-convenors of this session.
- S-CCME meeting, Yeosu, Korea, 2012.

- PICES/ICES/IOC 2nd Symposium on “*Effects of climate change on the world’s oceans*”, Yeosu, Korea (May 13–20, 2012). Dr. Suam Kim (S-CCME Co-Chair) served on the symposium scientific steering committee. Dr. Hollowed (S-CCME Co-Chair), Miguel Bernal (Spain, ICES WGIPEM) and Keith Criddle (University of Alaska Fairbanks, PICES Section on *Human Dimensions of Marine Systems*) co-convened a theme session (Session 4) titled: “*Climate change effects living marine resources: From physics to fish, marine mammals, and seabirds, to fishermen and fishery dependent communities*”. This was the largest session of the symposium, with 55 oral presentations from scientists from 17 countries. S-CCME Co-Chair, Dr. Manuel Barange (United Kingdom), was the keynote plenary speaker; his talk was titled: “*Quantifying the impacts of climate change on marine shelf ecosystems and their resources: Feeding the world in 2050*”. Dr. Shin-ichi Ito (Japan) was the theme session invited speaker, giving a presentation titled: “*Climate induced fluctuation of Japanese sardine, its influence on marine ecosystem and human being*”.
- PICES FUTURE Workshop May 22–24, 2012, Busan, Korea. S-CCME Co-Chairs, Drs. Hollowed and Kim, attended the workshop.
- PICES/ICES/GLOBEC Workshop on “*Forecasting ecosystem indicators with climate-driven process models*” held on September 8–10, 2012, Friday Harbor Labs, WA, USA. Dr. Hollowed attended as a S-CCME representative.
- S-CCME meeting, ICES ASC, Bergen, Norway 2012.
- ICES ASC 2012 – Theme Session M. S-CCME members, Drs. Ken Drinkwater (ICES) and Hollowed (PICES) along with two other scientists co-convened an ICES/ESSAS/PICES/AOSB Theme Session (Session M) “*Subarctic-Arctic interactions: Ecological consequences*” at the ICES ASC. This activity focused attention on the effects of climate change on polar ecosystems.
- PICES Annual Meeting POC Topic Session. S-CCME members Jürgen Alheit (ICES) and Michael Foreman (PICES) along with three other scientists co-convened a PICES/CLIVAR/ICES Topic Session S3 on “*Challenges in understanding Northern Hemisphere ocean climate variability and change*”.
- PICES Annual Meeting ESSAS Workshop. S-CCME members Ken Drinkwater (ICES) and James Overland (PICES) along with two other scientists co-convened an ESSAS Workshop W4 on “*Sub-arctic/Arctic interactions*”.
- Dr. Hollowed described many forthcoming publications from S-CCME activities, including special issues in *Deep Sea Research II* and *Global Environmental Change*.
- Dr. Hollowed also described a S-CCME proposal for the inter-sessional FUTURE workshop. The topic would be “*Climate change and spatial distribution*”. The first goal would be to produce a global atlas, the second would be to examine the utility of current models to predict distributional shifts, the third would be a vulnerability analysis to examine likelihood of fish movements with climate change and finally to examine the likely consequences with respect to management of transboundary stocks. **FIS is strongly supportive of the proposed S-CCME inter-sessional workshop.**

b. Working Group on *Environmental Interactions of Marine Aquaculture* (WG 24)

WG 24 Co-Chair, Dr. Katsuyuki Abo, provided a summary of the activities of the FIS/MEQ Working Group. WG 24 held its final meeting on October 15, 2011, in Khabarovsk, Russia. Although 2010/2011 was to be the last year of the WG, members were not able to complete the Final Report, so an extension was requested and granted until PICES-2012. After the PICES-2011, the activity of WG 24 was low. The WG did not receive a report from USA for TOR-1 (country reports on environmental interactions of aquaculture) or reports from China for all TORs. WG members will discuss the possibility of forming a new Study Group at PICES-2012. WG 24 members feel that aquaculture issue are important for PICES and WG members should assist in the success of proposed Topic Sessions on rehabilitation of depleted wild fishery stocks and ecosystem indicators to characterize ecosystem responses to multiple stressors. WG members intend to propose a Topic Session or Workshop on aquaculture for the PICES-2014.

AGENDA ITEM 7

Relations with other programs and organizations*a. Fisheries and Aquaculture Department, FAO*

Dr. Yimin Ye, Senior Fishery Resources Officer, presented a report on the Fisheries and Aquaculture Department of FAO. He described the structure of the Department, the location of Regional Offices and the staff composition. The role of the department is to collect and distribute statistics, monitor world fish resources and fisheries, provide management advice (upon request), develop research and fisheries management capacity, promote technology transfer, provide policy advice and technical assistance and provide a neutral forum and negotiation platform. FAO has been involved in several activities related to climate change. For instance, FAO co-sponsored the International Symposium on “*Climate change effects on fish and fisheries*” in April 2010 in Sendai, Japan. FAO also co-organized a sub-theme on climate change at the Korean Expo 2012 in Yeosu. Dr. Ye mentioned that FAO will organize a world conference on adaptation and mitigation to climate change in 2013, but no details were provided. FAO is seeking collaboration with PICES on several issues, including: assessment and monitoring of fish resources and fisheries; integration of climate change mitigation and adaptation measures in fisheries management; implementation of an Ecosystem Approach to Fisheries; and development of collaborative information systems in statistics and bibliographic databases. FAO has submitted a proposal to PICES to co-sponsor the World Conference on “*Stock assessment methods*” to be held in Boston, USA, from July 15–19, 2013. **FIS recommends PICES support this conference.** In addition, FIS recommends that the conference include discussion of ecosystem effects that are important capture in stock assessments.

b. North Pacific Research Board

Dr. Francis Wiese, Science Director, North Pacific Research Board (NPRB), gave an overview of the NPRB, its major projects/research initiatives, and ideas for collaboration with PICES. The vision of NPRB is to build a clear understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems that enables effective management and sustainable use of marine resources. NPRB-funded research should address pressing fishery management issues or marine ecosystem information needs in the Gulf of Alaska, Bering Sea and Aleutian Islands, and the Arctic Ocean. These goals are to be implemented following the NPRB Science Plan and a competitive, annual Request for Proposals (RFP). In addition NPRB funds a three larger Integrated Ecosystem Research Projects (IERP). The first is being conducted on the Gulf of Alaska shelf (GOAIERP). The goal of this project is to investigate what factors most affect how five target species of groundfish survive from spawning to recruitment. Factors being investigated include currents, temperature, nutrients, prey, predation, competition and habitat. The second large project is the Bering Sea Project (BEST-BSIERP). The goal of this project is to develop whole ecosystem climate change scenarios by collecting new field data and building vertically-integrated coupled ecosystem models from climate to humans. The third large project is the Pacific-Arctic Gateway Ecosystem Study which will focus on energy flow between the Northern Bering Sea and Chukchi Sea through Bering Strait. Dr. Wiese also described a new program on Long-term Monitoring that will be launched in June 2013. This program will support collaborative studies that are multi-disciplinary and applied (*i.e.*, important to subsistence or commercial fishing activities). NPRB is seeking collaboration with PICES scientists on topics such as Bering Sea model comparisons, pollock migration in the Bering Sea, young-of-the-year fish studies in other areas (to compare with the Gulf of Alaska), climate change implications in the Northern Bering and Chukchi Seas. One way to make the interaction between PICES and NPRB more formal would be for PICES to submit a list of research priorities that NPRB could incorporate into its Annual RFP. **FIS is supportive of this suggestion**, particularly as NPRB can fund investigators from outside the USA, as long as the research takes place in Alaskan waters.

c. Ecosystem Studies of Sub-Arctic Seas (ESSAS)

Dr. Franz Mueter gave a presentation on the goals and activities of ESSAS. The goal of ESSAS is to compare, quantify and predict the impact of climate variability and global change on the productivity and sustainability of subarctic marine ecosystems of both the Atlantic and Pacific. The 2011 ESSAS Open Science Meeting (held in Seattle in May) resulted in three special publications: *ICES Journal of Marine Science* (volume dedicated to

the late Dr. Bern Megrey), *Marine Ecology Progress Series* special section on gadoid-crustacean interactions, and *Deep Sea Research II* special issue on Bering Sea studies. Activities in 2012 included: a poster session on Arctic-subarctic interactions at the Ocean Sciences Meeting in Salt Lake City, USA; an ESSAS/ICES workshop on “*Advection in polar and subpolar regions*” at the Symposium on “*Climate change in the world’s oceans*” in Yeosu, Korea; an ESSAS/PICES/ICES theme session on “*Arctic-subarctic interactions*” at the ICES Annual Science Conference in Bergen, Norway; and an ESSAS/PICES/ICES workshop on “*Arctic-subarctic interactions*” at the PICES Annual Meeting in Hiroshima, Japan. ESSAS will hold its next Annual Science Meeting in Hakodate, Japan, January 7–9, 2013. The overall theme will be spatial dynamics. One day will focus on Japanese research. There will be theme sessions on spatial dynamics, modeling of subarctic ecosystems, Arctic-subarctic interactions, bioenergetics and human dimensions. The latter two sessions may also result in new Working Groups. ESSAS requests that PICES encourage participation of its scientists in ESSAS activities, especially the Annual Science Meeting in Hakodate. ESSAS requests that PICES support financially at least one PICES scientist to attend the ESSAS Annual Science Meeting. **FIS supports this request.** ESSAS is particularly interested in having a bioenergetics expert from PICES participate in the meeting. A second need is experts of the spatial distribution of fishes in the Arctic, in particular at the Arctic/sub-Arctic boundary.

d. International Scientific Committee to study the tuna and tuna-like species of the North Pacific Ocean (ISC)

Dr. Cisco Werner presented an overview of ISC and specific ideas for PICES collaboration. The ISC is an intergovernmental body dedicated to advancing fishery science of North Pacific tuna and tuna-like fishes through cooperation and collaboration among interested parties. The ISC was established in 1995 through an inter-governmental agreement between the governments of Japan and the U.S. Membership is open to coastal states and fishing entities that border the region or that have vessels fishing for tuna and tuna-like species in the region, and to relevant intergovernmental fishery or marine science organizations. The mission of ISC is to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fisheries which inhabit the North Pacific and to establish the scientific groundwork for the conservation and rational utilization of these species in the region. Results of the ISC from stock assessments are made available to participating members and highly migratory species Regional Fishery Management Organizations of the Pacific Ocean. In addition, the ISC provides scientific support for the work of the Northern Committee of the Western and Central Pacific Fisheries Commission (WCPFC) and scientific collaboration with the Inter-American Tropical Tuna Commission (IATTC). Current members of the ISC are Canada, China, Chinese-Taipei, Japan, Korea, Mexico, and the United States. Recent and future assessments and activities include tuna, marlin and shark assessments and a tuna age and growth workshop (to be held in late 2013-early 2014). ISC also supports research on: the relation between pelagic species and environmental signals, climate change scenarios and end-to-end modeling. Dr. Werner suggested three possible avenues for collaboration between ISC and PICES: 1) Support one PICES scientist for a Special PICES Seminar at ISC13 (Korea, July 2013) focusing on environmental data availability and modeling capabilities and possible techniques for incorporating this information into ISC stock assessments; 2) Support a Topic Session or Workshop at the 2013 PICES Annual Meeting (Oct. 2013, Nanaimo, Canada). The topics could explore the incorporation of oceanographic data and modeled scenarios into analyses for ISC fisheries such as stock assessments, stock structure, and species movement; 3) Participation/*ex-officio* membership of scientists in appropriate committees/WGs, *e.g.*, PICES scientists in ISC Working Groups such as North Pacific Albacore, and/or ISC Scientists in PICES WGs or Task Teams. **FIS supports the idea of sharing membership and participation between PICES and ISC Working Groups. FIS is also in favor of sending a PICES scientist to the ISC13 meeting in Korea.** FIS found the PICES-2013 Topic Session proposal of interest, but did not formally rank the proposal because it was submitted after the deadline. FIS members noted that the Topic Session proposed by ISC could be incorporated into the existing Topic Session proposal by Hollowed et al. on recruitment curves.

e. North Pacific Anadromous Fish Commission (NPAFC)

Dr. Shigehiko Urawa made a presentation on NPAFC activities and potential collaborations with PICES. Dr. Urawa presented an update of the Salmon Status Report for 1995–2011. Recent Pacific salmon abundance is at

high levels (over 1 million tonnes in 2007, 2009 and 2011) although temporal abundance patterns vary among species and regions. For example, pink and chum salmon abundance is high but coho and chinook are less abundant than in the past. The NPAFC Science Plan (2011–2015) details the overarching goals of the commission. They are to: explain and forecast the annual variation in Pacific salmon production; and improve understanding of common mechanisms that regulate Pacific salmon production to increase the accuracy of short-term and long-term forecasting. NPAFC will convene two symposia in the near future. The Third International Workshop on “*Migration and survival mechanisms of juvenile salmon and steelhead in ocean ecosystems*” will be held during April 25–26, 2013, in Honolulu, USA. The International Symposium on “*Forecasting Pacific salmon production*” will take place in Japan in 2015 (exact date and location not determined yet). A proposal has recently been submitted to the Commission to establish an “International Year of the Salmon”. The concept is to construct an initiative to conduct cooperative and focused research to identify definitive mechanisms that regulate Pacific salmon abundance. The first step will be to form a working group to study the feasibility of this initiative. Dr. Urawa presented a proposal for enhanced collaboration and communication between NPAFC and PICES. He proposed that PICES and NPAFC hold a Joint Study Group Session in conjunction with the 2013 PICES Annual Meeting in Nanaimo, Canada to develop a framework and action plan for mutual scientific cooperation. **FIS supports a meeting at PICES-2013 between NPAFC and PICES to prepare joint goals and outline an action plan.**

AGENDA ITEM 8

Status report on FIS topic sessions and workshops for PICES 2013

PICES-2013 Topic Sessions

Prior to PICES-2012, the following Topic Sessions were proposed and prioritized from highest to lowest priority by FIS for PICES-2013:

1. 1-day FIS Contributed Paper Session (top priority, *FIS Endnote 3*),
2. *Banking on recruitment curves; returns on intellectual investment (FIS Endnote 3)*,
3. *Ecosystem indicators to characterize ecosystem responses to multiple stressors in North Pacific marine ecosystems (WG 28 Endnote 5)*,
4. *Marine ecosystem services and the contribution from marine ecosystems to the economy and human well-being (S-HD Endnote 3)*,
5. *Ecosystem considerations in the management of Pacific cod fisheries in the North Pacific Ocean with lessons from Atlantic cod [not accepted at the Science Board meeting]*,
6. *Science needs for offshore oil and gas development in the North Pacific (FIS Endnote 3)*,
7. *Rehabilitation of depleted wild fishery stocks and their deteriorated habitat by artificial means - successes and failures, potential and limits [not accepted at the Science Board meeting]*,
8. *Aquatic invasive species in the North Pacific: integrating research and management [not accepted at the Science Board meeting]*,
9. *Are marine ecosystems of the North Pacific becoming more variable? (AP-MBM Endnote 6)*,
10. *Recent trends and future projections of North Pacific climate and ecosystems (WG 29 Endnote 5)*,
11. *The changing carbon cycle of North Pacific continental shelves and marginal seas (S-CC Endnote 3)*,
12. *Towards the development of low-cost cooperative ocean monitoring networks (MONITOR Endnote3)*,
13. *Impacts of ecosystem assessment on fishery policy and management [not accepted at the Science Board meeting]*.

FIS also considered a last-minute proposal for a Topic Session on “*Marine pollutants – status and trends of pollutants for marine ecosystems*”, but the Committee decided the topic was more directly relevant to the interests of MEQ and less so for FIS, so no prioritization was made for this proposal.

FIS-2012

AGENDA ITEM 9

Proposals for new FIS Working Groups and Study Groups

The FIS Committee received no new proposals for working groups.

AGENDA ITEM 10

Proposals for new meetings/conferences with PICES as organizer

Dr. Adi Kellerman Head (ICES Scientific Program) presented five ICES science symposia for 2013–2014 that PICES might have interest in co-sponsoring. They are:

- With NAFO: Symposium on “*Gadoid fisheries: the ecology and management of rebuilding*”. Convenors: Ed Trippel (CAN), Fritz Koester (DK), St. Andrews, Canada, June 2013;
- With FAO: World Conference on “*Stock assessment methods*”. Convenors: Steve Cadrin (USA), Mark Dickey-Collas (DK), Rick Methot (USA), Boston, USA, July 16–18, 2013;
- With FAO: Symposium on “*Making the most of fisheries dependent data: Science, management, and policy-making with the active participation of stakeholders*”, March 2014, at FAO Headquarters, Rome, Italy. Convenors: Norman Graham (IRE) Hendrik Doerner (JRC) William Karp (USA) and Marco Frederiksen (DK);
- Symposium on “*Effects of fishing on benthic fauna and habitat: Change in ecosystem composition and functioning in response to fishing intensity, gear type and discard*”, May 2014, Tromsø, Norway. Convenors: Lene Buhl-Mortensen, Carsten Hvingel and Børge Holte (NOR), Francis Neat (UK) and Mariano Koen-Alonso (CAN);
- Symposium on “*Ecological basis of risk analysis for marine ecosystems*”, June 2–6, 2014, Helsinki, Finland. Convenors: Sakari Kuikka (FIN), Tony Smith (AUS).

FIS strongly supported the Symposium on “*Stock assessment methods*”. FIS members noted that FIS has supported session on both cod and gadids in the past, thus the gadid symposium is a good candidate. After some discussion it was decided that FIS would support PICES involvement in the Symposium on “*Fisheries dependent data*”. FIS noted that the topic of the symposium on effects of fishing on habitat directly fulfills an item in the FIS Action Plan and is consistent with FUTURE as well. Finally, FIS found interest in the Symposium on “*Ecological basis of risk analysis for marine ecosystems*”.

AGENDA ITEM 11

High priority projects

None

AGENDA ITEM 12

Other priority items with funding implications

Dr. Hollowed made a request for support for the inter-sessional FUTURE workshop to be organized by S-CCME and held in western Russia. Three invited speakers as well as involvement from WGs 27, 28, 29, MONITOR, and S-CCME. **FIS ranks this workshop as a high priority and would like to provide strong support.**

AGENDA ITEM 13

Proposed publications

No proposals for new publications were received.

Some FIS members believed that the Final Report of WG 24 on *Environmental Interactions of Marine Aquaculture* should be published as a PICES Scientific Report. The FIS chair explained that Science Board had decided in its inter-sessional meeting in May 2012 that if sections from China were not provided then the report would only be published on the web. **FIS would like to suggest to Science Board that the WG 24 Final Report be published in hard copy despite the lack of material from China.**

AGENDA ITEM 14

Inter-sessional activities, meetings and requests for travel support

FIS will contribute \$2,000 each for invited speaker travel support to PICES-2013 for its top two ranked Topic Session proposals; and \$1,000 for its third-ranked proposal.

AGENDA ITEM 15

Products listed in the FIS Action Plan

None discussed

AGENDA ITEM 16

Other business

None

FIS Endnote 1**FIS participation list**Members

Anya Dunham (Canada)
John Field (USA)
Yasuzumi Fujimori (Japan)
Toyomitsu Horii (Japan)
Jacquelynne King (Canada)
Libby Logerwell (USA, Chair)
Gordon Kruse (USA)
Mikhail Stepanenko (Russia)
Akihiko Yatsu (Japan)

Observers

Richard Beamish (retired, Canada)
Anne Hollowed (USA)
Yukimasa Ishida (Japan)
Masahide Kaeryiyama (Japan)
Adolf Kellerman (ICES)
Franz Mueter (ESSAS)
Peng Sun (China)
Yuko Takigawa (Japan)
Shigehiko Urawa (NPAFC)
Cisco Werner (ISC)
Yimin Ye (FAO)

FIS Endnote 2**FIS meeting agenda**

1. Welcome, introductions
2. Adoption of agenda
3. 2012 FIS Best Oral presentation and Poster awards
4. FIS Chairman's report: Implementation of PICES-2011 decisions
5. Update on FUTURE activities and review of FUTURE meeting

6. Status reports of FIS-sanctioned groups
7. Relations with other programs and organizations
8. Status report on FIS topic sessions and workshops for PICES 2013
9. Proposals for new FIS working groups and study groups
10. Proposals for new meetings/conferences with PICES as organizer
11. High priority projects
12. Other priority items with funding implications
13. Proposed publications
14. Inter-sessional activities, meetings and requests for travel support
15. Products listed in the FIS Action Plan
16. Other business

FIS Endnote 3

Proposals for Paper and Topic Sessions at PICES-2013

1. Contributed Paper Session

Sponsoring Committee: FIS

Convenors: Xianshi Jin (China) and Elizabeth Logerwell (USA)

Duration: 1 day

Invited Speakers: none

2. Topic Sessions

Proposal for a 1-day Topic Session on “*Banking on recruitment curves; returns on intellectual investment*” [merged with ISC proposal on “*Pan-Pacific environmental variability and relationship to tuna/billfish/shark productivity and distributions*”]

During the first half of the 20th century, one of the fundamental issues in the then nascent discipline of fisheries science was determining how many individuals could be removed from a fish population without affecting its ability to keep producing fish for a fishery. In the 1950s, theoretical solutions to this problem were discovered in mathematical formulations that emerged from the work of Ricker, Beverton, Holt and others. These closed-form solutions led to widespread adoption as electronic computing technology became widely available in fisheries labs in the 1960s. Concepts that emerged from their equations underpin current estimation of biological reference points used to set harvest strategies for many of the world’s fisheries. Spawner-recruitment (S-R) curves serve as the foundation for what of a fish population remains to be conserved. With so much at stake, it is surprising that their application in contemporary fisheries is taken for granted. This session will delve into the good, the bad, and the ugly consequences of using recruitment curves, with an idea of determining whether an intellectual course correction is needed for the next 50 years. This topic session seeks papers that introduce new approaches to modeling the relationship between spawners and recruitment including: (1) incorporating predator prey interactions in S-R models, (2) use of coupled bio-physical models in identifying mechanisms linking spawners and recruitment, (3) consideration of the role of cohort resonance, (4) techniques for incorporating environmental variability into S-R functions, (5) stage-based S-R approaches, (6) comparative studies testing the performance of different methods relative to observations, and (7) decision rules regarding how to utilize knowledge of S-R relationships in formulating harvest advice. Enthusiasm for this topic session will be used to seek publication in a Special Issue in a primary journal.

Sponsoring Committees: FIS, TCODE

Co-convenors: Anne Hollowed (USA), Skip McKinnell (PICES), Hiroshi Okamura (Japan) and Cisco Werner (ISC)

Invited speakers: TBD

Proposal for a 1-day Topic Session on
“Science needs for offshore oil and gas development in the North Pacific”

Information is needed to advise agencies and institutions involved in offshore oil and gas (O&G) development and its regulation, clean-up, damage assessment and habitat restoration. Many of the information needs are similar to those of fisheries management, aquaculture, and pollution. They include: baseline data on population distribution, abundance and habitat use; effects of climate change and shifting baselines; ocean current and wind transport models. The purpose of this session is to introduce the PICES community to the processes and issues associated with O&G development, response and damage assessment, and to demonstrate how current and future research by PICES scientists could contribute to improved understanding. Presentations are sought on: applications of oceanic circulation models; factors affecting the distribution, abundance, habitat use, and population trends of zooplankton, fish, marine mammals, seabirds, and benthos; O&G development, including permitting and regulation; technologies and techniques used in exploration; damage assessment and restoration, physical and biological information needed for response and restoration planning; models of the fate of oil and its impacts; toxicology of oil to marine organisms; impacts on human communities and use of Traditional Ecological Knowledge.

Sponsoring Committees/Program: FIS, FUTURE

Co-convenors: Graham Gillespie (Canada), Elizabeth Logerwell (USA), Olga Lukyanova (Russia) and Lyman Thorsteinson (USA)

Invited speakers: TBD