

**GC Appendix A****2017 Governing Council Decisions**

*(The following decisions were taken at the Governing Council Meeting at PICES-2017 in Vladivostok, Russia September 30 and October 1, 2017)*

**2017/A/1: 2016 Auditor's Report**

Council accepted the audited accounts for FY 2016.

**2017/A/2: Annual contributions**

- i. Council re-iterated the importance for all Contracting Parties to pay the Annual Fee by the January 1 deadline and confirmed that for planning of their funding requests for annual contributions, Contracting Parties should continue to use the guideline generally accepted at PICES-1999 (Decision 1999/A/2(ii)), which states that the annual contributions will increase at the rate of inflation in Canada.
- ii. Council instructed the F&A Chairman and Executive Secretary to continue to report metrics to characterize the increase in science activities of the Organization.

**2017/A/3: Budgetary considerations**

- i. Council accepted the estimated accounts for FY2017.
- ii. Council approved the FY 2018 budget of \$922,000. The amount of \$133,600 will be transferred from the Working Capital Fund to balance the budget, setting the total annual contributions at \$788,400 and the 2018 annual contribution at \$131,400 per Contracting Party.
- iii. Council approved a transfer from the Working Capital Fund to the Trust Fund to recover the 2017 expenses and restore the Trust Fund to the level of \$110,000.
- iv. Council approved:
  - a. a lump sum employer contribution of \$20,000 from the FY 2018 General Fund budget to the International Fisheries Commission (IFC) Pension Plan to pay down unfunded liabilities;
  - b. an additional lump sum payment in FY 2018 from the Working Capital Fund (up to \$25,000) to the IFC Pension Plan, if there is a FY 2017 surplus in the General Fund, as determined by the Auditor's Report for 2017; and
  - c. this practice be continued until PICES receives the next actuarial valuation and recommendations, which are currently expected in 2017.
- v. Council requested that Council members from Canada and the U.S.A. consult with the International Fisheries Pension Society to develop advice and options to address the pension shortfall and identify implications for the Organization. These Parties are asked to report to the Chair of the Finance and Administration Committee prior to PICES-2018.

**2017/A/4: Future PICES Annual Meetings and 2018 Inter-sessional Science Board meeting**

- i. Council approved the proposal from Japan to hold the 2018 PICES Annual Meeting from October 25 – November 4, 2018, in Yokohama.
- ii. Council approved the expenditure of up to \$40,000 from the General Fund to defray the costs of the 2018 Meeting, as requested by Japan.
- iii. Council accepted the offer from Canada to host the 2019 PICES Annual Meeting in Victoria from October 16-27. Canada requests up to \$40,000 from PICES to defray the costs of the 2019 Meeting.
- iv. Council requested China to confirm by March 31, 2018 their intention to host the 2020 PICES Annual Meeting in China.

- v. Council agreed to keep the same registration fee structure for PICES-2018 as for PICES-2010 through PICES-2017:

<b>Type of registration fee</b>	<b>CDN \$</b>
Regular	275
Early	200
Student	50
Spousal/guest	50

- vi. Council requests that the Executive Secretary prepare an analysis to provide options on how unexpected revenue from annual meetings with high attendance might be re-allocated to the host country to support increased participation at subsequent PICES annual meetings.
- vii. Council approved an Inter-sessional Science Board meeting to be hosted on May or June, 2018 at a location to be determined.
- viii. Council requests that the Secretariat continue to work individually with Contracting Parties to implement approaches for funding annual meetings that are consistent with PICES Financial Regulations.

**2017/A/5: PICES Intern Program**

- i. Considering funding currently available for the Intern Program and stated intentions for contributions by Contracting Parties, Council agreed to initiate the process to obtain an intern for the 2018/2019 term. To ensure continuity of the program, an earlier starting date, such as early May was suggested. Following the existing rotation cycle, China was requested to nominate an intern by February 28, 2018.
- ii. Council instructed the Executive Secretary to invite Contracting Parties to provide voluntary contributions to the Trust Fund to support the Intern Program in 2018 and beyond.

**2017/A/6: Staffing in the PICES Secretariat and impacts on Annual Contributions**

Council instructed the F&A Chair and the Executive Secretary to:

- i. Provide additional documentation on how the work of the Secretariat has evolved over time to meet strategic objectives and organizational needs.
- ii. Undertake comparisons on staffing levels and activities of similar organizations.
- iii. Develop draft recommendations on the additional funding required to address the staffing challenges and impact on annual fees for both current and anticipated organizational needs and strategic objectives.

The documentation and draft recommendations are to be circulated to the Finance and Administration Committee for Review and comment by the end of December 2017. Recommendations from F&A to Governing Council are to be submitted by the end of February 2018.

**2017/A/7: Policy for approval and management of Special Projects**

Council approved the policy and procedures detailed below for the approval and management of Special Projects:

**I. Definition and Principles**

A Special Project (hereinafter as the Project) is a limited duration project supported through voluntary contributions by a Contracting Party and conducted under the authority of PICES in support of the scientific mission of the Organization.

The Project welcomes the participation of all Contracting Parties in accordance with the principle of equity, given due consideration of the interests and balance between PICES and the proponent.

The Project will use the existing mechanisms of PICES with the objective of minimizing any additional workload in the PICES Secretariat which cannot be compensated through the overhead retained by the Organization from the project funding.

The ownership of the outputs of the project, including materials, data, copyright and intellectual property rights shall be specified in the Project Proposal.

For the purposes of evaluation, approval and implementation, Projects will be divided into two categories:

- Projects with budgets below CAD \$50,000.
- Projects with budgets of CAD \$50,000 or above.

## **II. Approval Procedures**

1. The proponent shall provide the Project Proposal.
2. Projects with budgets below CAD \$50,000 will be evaluated and approved by the PICES Chair, Science Board Chair and Executive Secretary, with notification to the members of Governing Council.
3. For Projects with budgets of CAD \$50,000 and above, the following approval process will apply:
  - a. Science Board is responsible for reviewing and evaluating the Project Proposal and providing recommendations to Governing Council.
  - b. The Chair of Finance and Administration Committee and Executive Secretary are also required to review the Project Proposal, with a focus on financial aspects, workload and operational feasibility, forwarding recommendations to Governing Council.
  - c. Governing Council is responsible for approval of the Project. The PICES Chair will consult with all Contracting Parties for consensus to make a decision in accordance with PICES procedures.

## **III. Implementation**

1. For Projects with budgets below CAD \$50,000, the following management processes will apply:
  - a. Project funds will be deposited in the PICES Working Capital Fund.
  - b. The Secretariat is responsible for reporting on financial aspects of the Project to the Finance and Administration Committee, who provide recommendations to Governing Council.
  - c. The identified parent committee is responsible for reporting on scientific progress to Science Board, who provides recommendations to Governing Council.
2. For Projects with budgets of CAD \$50,000 and above, the following management processes will apply:
  - a. Project funds will be deposited in a separate account.
  - b. The Secretariat is responsible for reporting on financial aspects of the Project to the Finance and Administration Committee, who provide recommendations to Governing Council.

- c. A Project Science Team (hereinafter as PST) will be established, who is responsible for the detailed planning and execution of the project and reporting on scientific progress to the identified parent Committee.
- d. Science Board is responsible for recommending the members of PST, with the agreement of relevant Committee(s). If the Project does not have members from all PICES Contracting Parties, then any Contracting Party who does not have a member on the PST will have the opportunity to name a member or provide a statement declining this opportunity.
- e. A representative of the proponent organization may serve as a co-chair of the PST.
- f. The Secretariat may designate certain personnel to take responsibility for the Project implementation and financial management, as well as keeping close contact with the proponents.
- g. Science Board or the designated parent Committee will take responsibility for oversight of the scientific activities of the Project, and to review the reports.
- h. Science Board is responsible for reporting to Governing Council on the progress and achievements of the Project. The Finance and Administration Committee is responsible for reporting to Governing Council on the financial and management aspects of the Project.

#### **IV. Sharing the achievements of the Project**

1. The PST shall submit scientific reports of the Project to the relevant Committees, Science Board and the proponent agency.
2. Science Board is responsible for reviewing the scientific report and reporting results to the Governing Council.
3. Governing Council will approve reports as part of the normal process for approval of the PICES Publication plan.

#### **2017/A/8: Data Management Policy**

Council postponed a decision on the proposed Data Management Policy until PICES-2018 to allow for incorporation of results from a TCODE Workshop that will more fully review the policy and implementation requirements.

#### **2017/A/9: Election of Vice-Chairman of PICES**

Dr. Enrique Curchitser (U.S.A.) was elected to the position of Vice-Chairman of PICES.

#### **2017/A/10: Intersessional Governing Council Meeting**

Council approved an Intersessional Governing Council Meeting in accordance with Article VII (iv) (e) to review recommendations on the additional funding required to address the staffing challenges in the Secretariat and the impact on annual fees for both current and anticipated organizational needs and strategic objectives.

#### **2017/S/1: 2018 PICES Annual Meeting**

- i. The following scientific sessions are to be convened at PICES-2018:
  - ¾-day Science Board (SB) Symposium on *Towards integrated understanding of ecosystem variability in the North Pacific*;
  - 1 - day Topic Session on *Fish production through food web dynamics in the boundary current systems*;

- ½ -day Topic Session on *Science communication for North Pacific marine science*;
  - 1 - day Topic Session on *Indicators for assessing and monitoring biodiversity of biogenic habitats*;
  - 1 - day Topic Session on *Seasonal to interannual variations of meso-/submeso-scale processes in the North Pacific*;
  - ½ - day Plenary Topic Session on *The FUTURE of PICES: Next steps in understanding, forecasting and communicating climate impacts on North Pacific marine ecosystems*;
  - 1 - day Topic Session on *Ecological responses to variable climate changes and their applicability to ecosystem predictions*;
  - 1 - day Topic Session on *Ocean mixing processes and its impacts on biogeochemistry, climate and marine ecosystems* (co-sponsored by the OMIX Project of AORI; to be merged with the proposed session on internal tides and waves);
  - ½ - day Topic Session on *Integration of science and policy for sustainable marine ecosystem services* (potential co-sponsor IMBeR);
  - 1 - day Topic Session on *Ocean acidification and deoxygenation and their impact on ocean ecosystems: synthesis and next steps* (co-sponsored by ICES);
  - 1 - day Topic Session on *Influence of climate and environmental variability on pelagic and forage species*;
  - 1 - day Topic Session on *Applying ecosystem considerations in science advice for managing highly migratory species* (co-sponsored by ISC);
  - ½-day BIO Contributed Paper Session;
  - ½-day FIS Contributed Paper Session;
  - ½-day MEQ Contributed Paper Session;
  - ½-day POC Contributed Paper Session;
  - ½-day HD Contributed Paper Session.
- ii. The following workshops are to be convened at PICES-2018:
- 1 – day Workshop on *Ecological roles of gelatinous zooplankton: Evaluation, integration and future prospects in a more gelatinous ocean*;
  - ½-day Workshop on *PICES contribution to Central Arctic Ocean (CAO) ecosystem assessment*;
  - 1 – day Workshop on *Development of a systematic approach to data management in PICES* ;
  - 1 – day Workshop on *Synthesizing projected climate change impacts in the North Pacific*;
  - 1 – day Workshop on *Identifying common reference points and leading indicators of ecosystem change*;
  - 1 – day Workshop on *Synthesizing projected climate change impacts in the North Pacific*;
  - ½-day Workshop on *Regional evaluation of secondary production observations and application of methodology in the North Pacific*;
  - 1 – day Workshop on *Diets, consumption, and abundance of marine birds and mammals in the North Pacific*;
  - 1 – day Workshop on *Emerging blooms of toxic dinoflagellates in the Pacific: comparative analysis of their prevalence and ecological impacts in the eastern and western regions*.
- iii. The following business meetings are to be held at PICES-2018:
- 3-hour overture meeting, ½-day meeting and a 1-day meeting of Science Board;
  - 1-day FUTURE SSC meeting;
  - 2-hour overture meetings and ½-day meetings of Standing Committees;
  - 1-day meeting of the Section on *Marine Birds and Mammals* (S-MBM);
  - 1-day meeting of the Section on *Ecology of Harmful Algal Blooms in the North Pacific* (S-HAB);
  - 1-day meeting of the Section on *Carbon and Climate* (S-CC);
  - ½ -day meeting of the joint PICES/ICES Section on *Climate Change Effects on Marine Ecosystems* (S-CCME);
  - 1-day meeting of the Working Group 32 on *Working Group on Biodiversity of Biogenic Habitats*;

- ½-day meeting of the Working Group 33 - Joint PICES/ICES Working Group on *Climate Change and Biologically-driven Ocean Carbon Sequestration*;
  - ½-day meeting of the Working Group 34 on *Ocean Conditions and the Distribution and Productivity of Highly Migratory Fish*;
  - 1-day meeting of the Working Group 35 on the *Third North Pacific Ecosystem Status Report*;
  - 1-day meeting of the Working Group 36 on *Common Ecosystem Reference Points across PICES Member Countries\**;
  - ½-day meeting of the Working Group 37 on *Zooplankton Production Methodologies, Applications and Measurements in PICES Regions*;
  - 1 -day meeting of the Working Group 38 on *Mesoscale and Submesoscale Processes*;
  - 1 -day meeting of the Working Group 39 on *Joint PICES/ICES/PAME Working Group on an Integrated Ecosystem Assessment for the Central Arctic Ocean*;
  - 1 -day meeting of the Working Group 40 on *Climate and Ecosystem Predictability\**;
  - 1 -day meeting of the Working Group 41 on *Marine Ecosystem Services*;
  - 1-day meeting of the *Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas (AP-CREAMS)*;
  - ½-day meeting of the Advisory Panel on *North Pacific Coastal Ocean Observing System (AP-NPCOOS)*;
  - 1 -day meeting of the Advisory Panel on *Non-Indigenous Species (AP-NIS)*;
  - 1-day meeting of the Study Group on *Marine Microplastics (SG-MMP)*;
  - 1-day meeting of the Joint PICES-NPFC Study Group on *Scientific Cooperation in the North Pacific Ocean (SG-PICES-NPFC)*.
- \* - request that WG 36 and WG 40 share 2 hours of their business meetings to identify synergies and collaborations

**2017/S/2: Inter-sessional symposia/session/workshops and meetings**

Council approved the following activities:

Activity	Dates	Location	PICES Role	Support to be provided
Intersessional PICES Expert Group Workshops and Business Meetings				
NPESR3 International Synthesis Workshop	Spring 2018	TBD- Jeju/Honolulu/Vladivostok; *With ISB-2018, FUTURE, or BOTH	PICES High Priority Project	10 chapter lead authors at \$5K each
FUTURE SSC Business Meeting	Spring 2018	*With ISB, NPESR, or BOTH	PICES High Priority Project	Some funding may be required from FUTURE Fund in WCF
Intersessional Science Board-2018	Spring 2018	*With FUTURE, NPESR, or BOTH	Core PICES activity	Most support from national funds of travelers;
Intersessional Governing Council Meeting	Spring 2018	With ISB or other meeting – TBD	GC Meeting	none
WG36 Intersessional Workshop: Quantifying thresholds in driver-response relationships to identify reference points (2 days)	June 2018	Washington, DC, USA; ECCWO	PICES expert group activity	Partial travel support for four; ~6.5K CAD
WG40 Intersessional	June 2018	Washington, DC, USA;	PICES expert	Partial travel support; ~5K

Workshop: Census of Marine Ecosystem Forecasting Efforts in the North Pacific (1 day)		ECCWO	group activity	CAD
POC/HD/FUTURE/WG40 Intersessional Workshop: Regional ocean/climate forecasting and its application to HAB predictions in the North Pacific (3 days)	15-18 May 2018	Qingdao, China	PICES expert group activity	Partial travel support; ca. 5K CAD
WG41: Taking Stock of Marine Ecosystem Services in the North Pacific—exploring examples and examining methods (2 days)	April or May 2018	Qingdao, China	PICES expert group activity	Partial travel support; ~5K CAD
WG39 Intersessional Workshop: PICES contribution to Central Arctic Ocean (CAO) ecosystem assessment (First) – (1.5 days)	Spring 2018	Sapporo, Japan/Incheon, Korea	PICES expert group activity	No financial request
<b>Summer Schools and Capacity Building</b>				
PICES AP-NPCOOS Summer School: <i>“Coastal Ocean Observing Systems and Ecosystem Monitoring”</i> -6 <sup>th</sup> PICES Summer School	9-13 July 2018	Victoria, BC, Canada	PICES Capacity Building	\$10K for student travel and \$5K for local costs already approved at PICES-2016
SOLAS (Surface Ocean-Lower Atmosphere Study) 7 <sup>th</sup> Summer School	23 July – 4 August 2018	Cargese, France	Co-Sponsored Capacity Building	\$5K CAD for (up to 3) student travel support from PICES countries;
IMBER ClimEco6 Summer School <i>“Interdisciplinary approaches to achieving ocean sustainability for societal benefit”</i>	1-8 August 2018	Accra, Ghana	Co-Sponsored Capacity Building	\$5K CAD for student travel support from PICES countries;
PICES AP-CREAMS summer school on <i>“Satellite Oceanography”</i>	4 <sup>th</sup> week of August 2018	Seoul Natl Univ, Korea	PICES Capacity Building	~12K CAD for 5 non-Korean Student travels and 2 lecturers
Pacific Ecology and Evolution Conference	Late Feb/March 2018	Bamfield, BC, Canada	Co-Sponsored Capacity Building	1.5K CAD for partial support of conference logistics
<b>Co-sponsorship of other Organizations activities</b>				

SCOR WG EBUS ( <i>Eastern Boundary Upwelling Systems</i> )	3 years	various	Co-sponsored activity with key partner	Partial support of 1 Associate Member from
SCOR WG P-OBS ( <i>Integration of Plankton Observing Sensor Systems to Existing Global Sampling Programs</i> )	3 years	various	Co-sponsored activity with key partner	Partial support of 1 Associate Member from PICES
SCOR WG FLOTSAM ( <i>Floating litter and its oceanic transport analysis and modeling</i> )	3 years	various	Co-sponsored activity with key partner	No financial request
Joint NPFC-FAO-PICES Workshop on Protection of VMEs	12-15 Mar 2018	Yokohama, Japan	Co-sponsored activity with key partners	5K CAD partial travel support for two PICES participants
Marine and Freshwater Invasive Species Conference	May 2018	Beijing, China	Co Sponsor	\$5K CAD support for partial travel support for two PICES participants
6 <sup>th</sup> International Marine Debris Conference— Session sponsorship ( <i>“The risks of marine debris mega-pulse events: lessons from the 2011 Great Japan Tsunami”</i> )	12-16 Mar 2018	San Diego, USA	Co-sponsored activity; showcase for results from Special Project	\$12.5K from MoE ADRIFT Project is secured for this
<b>Other Financial Support Requests</b>				
GlobalHAB Meeting	Mar 2018?	TBD; prob. China	Contributor	1 S-HAB member (Vera Trainer); up to \$2K CAD
IPHAB Best Practices Manual	TBD	TBD	Contributor	1 S-HAB member (Mark Wells); up to \$3K CAD
Travel Support for Up to 3 conveners for sessions at the ICES-2018 meeting in Hamburg, Germany	Sept 2018	Hamburg, Germany; Note, ICES has not provided the complete list of accepted Theme Sessions to PICES yet	PICES Co-sponsorship of up to three ICES Sessions at 2018 ASC	~3K CAD per convener, or up to 9K CAD all-together

### 2017/S/3: Publications

- i. The following publications are to be produced in or submitted to primary journals in 2017–2018:
  - a. A Special Issue in *Deep Sea Research II* on Small Pelagic Fish resulting from the Small Pelagic Fish Symposium in March 2017.
  - b. A Special Issue in *Marine Ecology Progress Series* on Small Pelagic Fish resulting from the Small Pelagic Fish Symposium in March 2017.
  - c. A Special Issue in *Progress in Oceanography* dedicated to the memory of Dr. William Peterson.
  - d. *Marine Pollution Bulletin* – special issue of selected papers on “*The Effect of Marine Debris caused by the Great Tsunami of 2011*”.
  - e. *Aquatic Invasions* - special issue on “*Transoceanic Dispersal of Marine Life from Japan to North America and the Hawaiian Islands as a Result of the Japanese Earthquake and Tsunami of 2011*”.



- f. Papers resulting from the 6<sup>th</sup> Zooplankton Production Symposium, Bergen, Norway, May 2016, to be published in the ICES Journal of Marine Science.
- g. FUTURE Synthesis Paper; currently being developed by FUTURE SSC. Submission for publication is anticipated in the first quarter of 2018.
- h. Special Issue of Oceanography Magazine on “International Cooperation in Harmful Algal Bloom Science; Article titled “*GlobalHAB: A new program to promote international research, observations, and modelling of harmful algal blooms in aquatic systems*”;
- ii. The following publications are to be produced in the PICES Scientific Report series in 2018–2019:
  - a. ADRIFT Scientific Report in the PICES Special Publication Series
  - b. MarWeB Scientific Report in the PICES Scientific Report Series
  - c. Working Group 30 on *Assessment of Marine Environmental Quality of Radiation around the North Pacific* final report in the PICES Scientific Report Series
  - d. Working Group 31 on *Emerging Topics in Marine Pollution* final report in the PICES Scientific Report Series
- iii. The following products are to be produced in 2017-2018:
  - a. MarWeB Advisory Report as an outreach brochure
  - b. ADRIFT Factsheet as an outreach brochure
  - c. ADRIFT Videoscribe as an outreach video
  - d. Brochure for WG 30 on *Assessment of Marine Environmental Quality of Radiation around the North Pacific*.

#### **2017/S/4: Future of Current Expert Groups**

Council approved the following changes to existing Expert Groups:

- i. The Working Group on *Assessment of Marine Environmental Quality of Radiation around the North Pacific* (WG 30) shall be disbanded on completion of their final report.
- ii. The Working Group on *Emerging Topics in Marine Pollution* (WG 31) shall be disbanded on completion of their final report.
- iii. The Study Group on *Marine Ecosystem Services* shall be disbanded on completion of their final report.

#### **2017/S/5: New Expert Groups**

The following expert groups, with terms of reference as described in GC Appendix B, were established:

- i. Joint PICES-NPFC Study Group for *Scientific Cooperation in the North Pacific Ocean* (SG-PICES-NPFC)
- ii. Study Group on *Marine Microplastics* (SG-MMP)
- iii. Working Group on Marine Ecosystem Services (WG 41)

#### **2017/S/6: Chairmanship and membership for Science Board, Standing Committees and expert groups**

- i. Dr. Xianshi Jin (China) elected as Chair of the Fisheries Science Committee (FIS), replacing Dr. Elizabeth Logerwell (USA);
- ii. Dr. Jacquelyne King (Canada) was elected as Vice-Chair of the Fisheries Science Committee (FIS), replacing Dr. Xianshi Jin (China);
- iii. Dr. Jacquelyne King (Canada) was elected Co-Chair of Section on Climate Change and Marine Ecosystems (S-CCME), replacing Dr. Anne Hollowed (USA);
- iv. Dr. Thomas Therriault (Canada) was elected Vice-Chair of the Marine Environmental Quality Committee (MEQ), replacing Dr. Darlene Smith (Canada);
- v. Dr. Vera Trainer’s (USA) term as Co-Chair of Section on Harmful Algal Blooms (S-HAB) has ended. A North American replacement has not been identified yet;
- vi. Dr. Lydia Yebra was approved as an ICES ex-officio member of WG 37 on *Zooplankton Production Methodologies, Applications and Measurements in PICES Regions* or the duration of the Working Group.

## ***GC Appendix B***

### **Joint PICES-NPFC Study Group for Scientific Cooperation in the North Pacific Ocean (SG-PICES-NPFC)**

**Parent Committee:** Science Board

**Duration:** 1 year

#### **Description**

The purpose of a joint PICES-NPFC Study Group for Scientific Cooperation of PICES and NPFC is to develop a framework of enhanced collaboration between the two organizations to achieve a greater understanding of pelagic ecosystem structure and variability, and its effect on the dynamics and production of fisheries target species, for sustainable use of high seas fish production. The Study Group will review each organization's scientific needs and identify where similar key questions or scientific issues might be explored jointly by both organizations.

#### **Terms of Reference**

1. Review the scientific interests and objectives of each organization;
2. Identify potential areas and specific topics for scientific cooperation;
3. Identify potential collaborative methods (such as representation at each other's meetings, holding of joint workshops or symposia, development of a Memorandum of Understanding (MOU) between the organizations or other formal agreements, establishment of joint working groups);
4. Clarify practical steps to advance the cooperative activities identified above;
5. Provide advice on how information produced by PICES can be shared and applied in NPFC;
6. Make a specific proposal to each organization for further consideration.

**Proposed Co-Chairs:** TBD (PICES), TBD (NPFC)

#### **Products**

PICES-NPFC Framework for Scientific Cooperation in the North Pacific Ocean

PICES Press article

Annual Report

Other Publications (if desired)

## **Study Group on Marine Microplastics (SG-MMP)**

**Parent Committee:** Science Board

**Duration:** 1 year

**Proposed Chair:** TBD

### **Description**

Along with microplastic topic sessions in 2014 and 2017 PICES Annual Meeting, there has been a growing need to establish an expert group on microplastic pollution in the North Pacific region which is considered one of the ‘hot spots’ on the globe. While SG-MMP will focus on impacts of microplastics and their associated chemicals on marine environment and biota, linkages will be established with other efforts that describe socio-economic impacts of microplastic pollution.

The purpose of the proposed SG-MMP is to identify major microplastic issues in the North Pacific including marginal coastal seas and to identify knowledge gaps. The Study Group will establish a list of priority research needs in PICES member countries as well as world society by avoiding duplication of the other international and regional working groups and programs on microplastics. This will help to fill urgent knowledge gaps through further expert group involvement and activity in PICES. Input from regional and international bodies such as ICES (International Council for the Exploration of the Sea), GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) and NOWPAP (Northwest Pacific Action Plan), will increase efficiencies and the scientific value of the SG-MMP outcome.

The establishment of SG-MMP is consistent with the FUTURE Science Plan component 3 (How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?), and contribute insight into the structure, function and resilience of ecosystems as in components 1 and 2. This will provide a critical evaluation of highly complex microplastics, clarify priority concerns in the North Pacific, and provide a platform to evaluate the relative importance of microplastics compared to other stressors.

### **Linkages to the FUTURE Science Plan**

Component 3: How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?

### **Terms of Reference**

1. Identify knowledge gaps and establish research priority for impacts of microplastics and their associated chemicals on marine environment and biota
2. Identify interactions within PICES scientific committees and expert groups that will complement the Study Group
3. Explore potential partnerships with other professional or multilateral organizations (e.g., ICES, GESAMP, NOWPAP) which could lead to joint activities (working group, sessions, publications), improve efficiencies and strengthen scientific outcomes.
4. Develop recommendations for a possible PICES WG on marine microplastics.

## **Working Group on Marine Ecosystem Services (WG-MES/ WG 41)**

**Parent Committee:** HD

**Duration:** 3 years

**Proposed Chair:** TBD

### **Motivation and Goals**

Marine ecosystems provide direct or indirect benefits to people. Ocean ecosystems provide human populations with ecological goods and services, such as seafood, climate regulation and air quality maintenance, storm damage prevention, waste purification, recreation and leisure opportunities, and biodiversity maintenance, among others. The accounting for anthropogenic values of marine ecosystem services (MES) in policy and management decisions has become an emergent issue recognized as critical from a social, economic, and cultural perspective, but also one that poses challenges both from a scientific and policy perspective. As a result, MES has become a hot topic of many international meetings and organizations. The United Nation (UN)'s Millennium Ecosystem Assessment focuses on the change of global ecosystem services' status and trends. Similarly, the ongoing World Ocean Assessment expresses urgent need for knowledge on marine ecosystem services. The United Nations Environmental Programme (UNEP) established the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) in 2012. The IPBES aims to develop and use knowledge about ecosystem services and biodiversity to improve ecosystem-based management at national, regional, and global scales. PICES has already contributed to these efforts but more substantial work is needed.

Since 1992, PICES as a scientific organization has become more important in promoting marine science and better understanding of the marine environment in the North Pacific, as well as in the world. One of PICES' strategic goals is to establish a scientific-policy integrated platform to provide sound scientific support to national and regional policy decision-making processes. To meet the demand of members from PICES, The Human Dimensions Committee (HD) was established under the PICES Science Board (SB) in November 2016. HD's area of responsibility is to promote and coordinate interdisciplinary research that leads to increased understanding of the relationship between North Pacific marine ecosystems and the people, communities, and economies that are part of those systems and rely on the resources and services they provide. In November 2016, a Study Group on MES (SG-MES) was established by the SB to promote and coordinate research to improve MES assessment methodologies and to mainstream the MES in marine management and policy. SG-MES was also charged with developing the terms of reference for a working group that would continue these efforts.

HD and S-HD have organized several topic sessions/workshops on marine ecosystem services during PICES annual meetings. One of them also attracted support from IMBER as a co-sponsor. Consequently, the importance of ecosystem services in PICES' FUTURE program was recognized, so much so that "Ecosystem Services" was prominent in the title of the 2017 PICES annual meeting, "*Environmental Changes in the North Pacific and Impacts on Biological Resources and Ecosystem Services.*"

Based on the SG-MES's one-year work, HD proposes the establishment of a working group (WG-MES) to promote studies related to science and policy of marine ecosystem services. WG-MES will facilitate exchange of information and share the experiences of case studies on MES in North Pacific waters in order to promote ecosystem service science and improve the consideration of MES in decision making related to marine integrated management. There are differences in methodology and practice of MES studies among North Pacific countries. Therefore, one of the goals of the WG-MES is to establish a set of regional technical guidelines on MES assessment and the integration and utilization of MES information in the policy process, as well as to provide technical support to national and regional bodies engaged in

these activities. Formation of the WG-MES will allow PICES to attract more researchers with specific interest in MES.

### **Contributions to FUTURE**

The WG-MES will help meet the FUTURE program Objective 1 (Understanding Critical Processes in the North Pacific) and Objective 2 (Status Reports, Outlooks, Forecasts, and Engagement). Ecosystem services represent an important dimension of the third key scientific question under FUTURE Objective 1 (How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?). In addition, case studies on the assessment of ecosystem services in the North Pacific ecosystem will be added as a new section in PICES' Reports.

### **Linkages to other organizations**

The WG-MES will be led by PICES and will focus on the MES issues in the North Pacific Ocean. However, WG-MES could benefit from engagement with other international organizations and programs that include MES expertise. It is anticipated that WG-MES activities will attract participation from within PICES and from outside.

IMBER has expressed strong interest in the WG-MES if approved by PICES. If PICES agrees, WG-MES would like to accept IMBER's support, such as co-sponsorship of topic sessions, workshops, and intersessional meetings, sending group members, observers and/or sending experts to participate in WG-MES meetings. If PICES agrees, WG-MES would like to seek the similar collaboration with ICES because they have many experts in MES.

### **Terms of Reference**

1. Review MES studies of North Pacific marine ecosystems, identifying the scientific tools and methodologies employed, and the role these studies have played in policy analyses, management, or natural resource damage assessment.
2. Develop a typology of marine ecosystem services, tools and methodologies (e.g., environmental accounting/natural capital, non-market values, replacement cost/Natural Resource Damage Assessment, productivity change methods, etc.) that can be used to analyze marine ecosystem services, and the strengths and weaknesses of those tools and methodologies.
3. Illustrate (2) by applying two or more methods to the assessment of marine ecosystem services in identical case studies in multiple regions of the North Pacific.
4. Collaborate with WG-36 (Common Ecosystem Reference Points) and WG-40 (Climate and Ecosystem Predictability) to explore development of an indicator-based framework to study the resilience of social ecological systems and to advance integration envisioned in the FUTURE science program.
5. Complete a detailed technical report on the results of the analyses detailed in TORs (1), (2), and (3) and scoping requested in (4). The report should include practical recommendations for characterizing the status and trends of marine ecosystem services in the North Pacific. In addition, the WG will contribute articles on ecosystem services to PICES Press.

### **Proposed membership**

Each member country recommends 3-5 members with backgrounds in marine ecology, marine economics, marine law, or management.

### **Proposed members**

## **1. Timeline**

- a. October 2017: Working group approval from HD, SB, and GC.
- b. January 2018: Nominate/finalize membership and chairmanship.
- c. March 2018: Initiate work by correspondence
- d. April or May 2018: Hold a 2-day workshop in Qingdao to develop a work plan to address the TORs, including preliminary discussion of possible case study sites and methods. Review MES studies of North Pacific marine ecosystems (TOR-1). Submit the work plan to HD for approval.
- e. October 2018: Hold a 1-day business meeting and a ½-day topic session during PICES annual meeting in Yokohama. The business meeting will be used to draft a typology of marine ecosystem services, tools and methodologies that can be used to analyze marine ecosystem services, and the strengths and weaknesses of those tools and methodologies (TOR-2). Selection of case study sites and analytic methods will be finalized during this meeting (TOR-3). The WG-MES will meet with WG-36 and WG-40 to begin exploration of synergies (TOR-4).
- f. Fall 2019: Hold a 1-day business meeting during the PICES annual meeting. The meeting will review progress on case studies (TOR-3). The WG-MES will meet with WG-36 and WG-40 to continue exploration of synergies (TOR-4).
- g. May 2020: Hold a 3-day workshop (at an eastern Pacific location TBD) to review results of case studies (TOR-3) and to draft the technical report (TOR-5).
- h. Fall 2020: Hold a 1-day business meeting during PICES annual meeting to finalize the technical report (TOR-5).

## **Possible financial support**

The State Oceanic Administration of China has indicated it might support this working group's activities together with PICES, such as covering expenses related to meeting facilities, invited speakers' travel, etc.

## **Expected outcomes/outputs**

- a. A technical report on the methods used for, and case studies of, the assessment of MES, and the integration of MES information in marine management and policy analytic frameworks.
- b. The ecosystem service section/paper to PICES Scientific Report series and/or PICES Press.