



**PICES-2017 Annual Meeting**

**Environmental changes in the North Pacific  
and impacts on biological resources and  
ecosystem services**

**Program**

**Vladivostok, Russia  
Sept. 22 — Oct. 1, 2017**

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## Notes for Guidance

The North Pacific Marine Science Organization (PICES) announces its 2017 Annual Meeting to be held September 22 - October 1, 2017, at Bldg. B, Far Eastern Federal University (FEFU). The meeting is hosted by the Federal Agency for Fisheries of the Russian Federation in cooperation with the Primorsky Krai (Region) administration and in coordination with PICES Secretariat. Local arrangements are made by the Pacific Research Fisheries Center (TINRO-Center).

### Presentations

In order to allow the sessions to run smoothly, and in fairness to other speakers, please note that all presentations are expected to adhere strictly to the time allocated. All authors should designate at least 5 minutes for questions. Authors can download their presentations directly to the computers where the session/workshops will be held.

**Important:** Please rename your files - time-name.ppt (e.g. 0900-Smith.ppt, 1530-Kim.ppt).

### Posters

Posters will be on display from September 26 (noon) until the end of the "Wine and Cheese" Poster Session on the evening of September 28, Far Eastern Federal University, Bldg. B, Level 5, Hall and Cafeteria.

Poster Session for all posters (workshop and sessions) will be held on September 28.

Poster presenters are expected to be available to answer questions from 19:00-20:00.

### Internet access

Internet access via wireless LAN will be available in all Session/Workshop rooms of Buildings B & D. Network DVFU Guest (no access password is required - only authorization through the Internet browser).

### Social activities

*Monday, September 25 (18:30-21:00)*

*Big Panoramic Hall, Level 12, Bldg. B, FEFU*

#### **Welcome Reception**

The Welcome Reception for all participants (and registered guests)

*Wednesday, September 27 (18:30-21:00)*

*TBA at the Meeting*

#### **Sport Event**

Please sign up for participation at the Registration Desk

*Thursday, September 28 (18:00-21:00)*

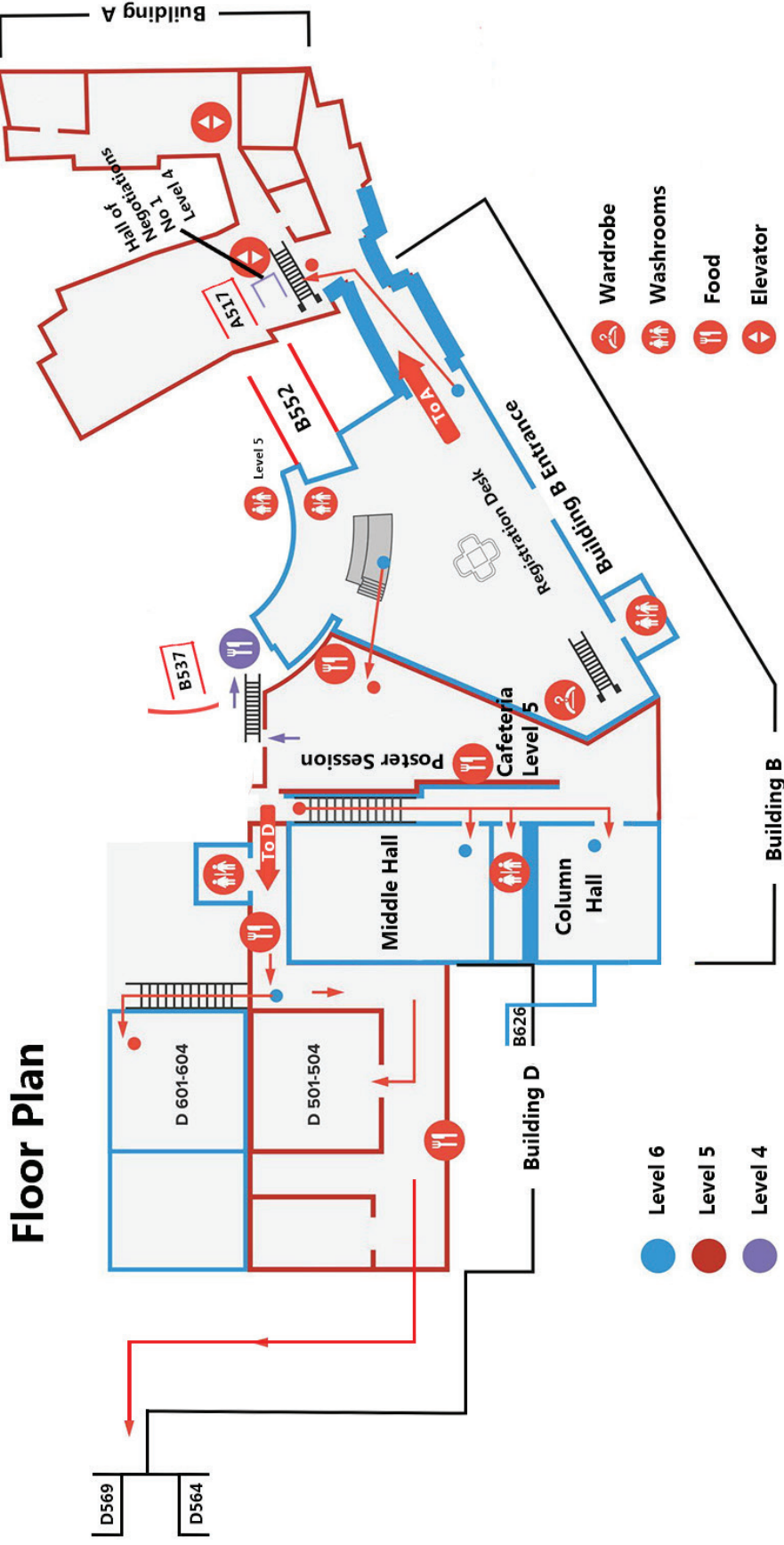
*Cafeteria and Hall, Level 5, Bldg. B, FEFU*

#### **Wine & Cheese Poster Session Reception**

The wine & cheese Poster Sessions at the meeting venue will allow participants to roam around the poster displays and chat with presenters while sipping beer or wine and nibbling on hot and cold hors d'oeuvres.

#### **PICES Secretariat and Local Organizing Committee**

are located at the Column Hall, Level 6, Bldg. B, FEFU



- Level 5:**
  - A-517 (W1)
  - D-501 (W4, S5, S11, S13, BIO-P)
  - D-504 (W3, S2, S3, S12, FIS-P)
  - Cafeteria, Hall (Poster Session)
- Level 6:**
  - D-601 (W2, W6, S4, S8/HD-P, MEQ-P)
  - D-604 (S6, S9, POC-P)
  - Column Hall (PICES Secretariat, Local Organizing Committee)
  - Registration Desk
  - Middle Hall (Opening Session, S10 FUTURE Plenary, Plenary Sessions)
- Level 12:**
  - Big Panoramic Hall (A Building)

## List of Sessions and Workshops

<b>S1</b>	Sept. 25	Environmental changes in the North Pacific and impacts on biological resources and ecosystem services
<b>S2</b>	Sept. 28	Microplastics in marine environments: Fate and effects
<b>S3</b>	Sept. 26	Below and beyond maximum sustainable yield: Ecosystem reference points
<b>S4</b>	Sept. 28	Adverse impacts on coastal ocean ecosystems: how do we best measure, monitor, understand and predict?
<b>S5</b>	Sept. 28	Coastal ecosystem conservation and challenges
<b>S6</b>	Sept. 26	Interannual variability in marine ecosystems and its coupling with climate projections
<b>S8/HD</b>	Sept. 26	Marine ecosystem health and human well-being: a social-ecological systems approach
<b>S9</b>	Sept. 28	Meso-/submeso-scale processes and their role in marine ecosystems
<b>S10</b>	Sept. 27	Emerging issues in understanding, forecasting and communicating climate impacts on North Pacific marine ecosystems
<b>S11</b>	Sept. 28	Environmental variability in arctic and subarctic regions and evaluating fishery management strategies
<b>S12</b>	Sept. 26	Seasonal and climatic influences on prey consumption by marine birds, mammals, and predatory fishes
<b>S13</b>	Sept. 26	Joint PICES-ICES Session on Anthropogenic effects on biogeochemical processes, carbon export and sequestration: Impact on ocean ecosystem services
<b>BIO-P</b>	Sept. 29	BIO Contributed Paper Session
<b>FIS-P</b>	Sept. 29	FIS Contributed Paper Session
<b>MEQ-P</b>	Sept. 29	MEQ Contributed Paper Session
<b>POC-P</b>	Sept. 29	POC Contributed PaperSession
<b>GP</b>		General Poster Session
<b>W1</b>	Sept. 23	The role of the northern Bering Sea in modulating the arctic II: international interdisciplinary collaboration
<b>W2</b>	Sept. 22	Coastal ecosystem services in the North Pacific and analytical tools/methodologies for the assessment
<b>W3</b>	Sept. 22	Linking oceanographic conditions to the distribution and productivity of highly migratory species and incorporation into fishery stock assessment models
<b>W4</b>	Sept. 22	Long-term changes in HAB occurrences in PICES nations; the Eastern vs. Western Pacific
<b>W6</b>	Sept. 22	Advantages and limitations of traditional and biochemical methods of measuring zooplankton production

## Meeting Timetable

<b>Friday, September 22</b>												
09:00 12:30	D-504				D-501				D-601			
	<b>W3</b> Highly Migratory Species				<b>W4</b> Long Term Changes HABs (end at 1900)				<b>W6</b> ZP Production			
14:00 18:00									<b>W2</b> Coastal Ecosystem Services			
<b>Saturday, September 23</b>												
	A-517	Rm1/L4	B-537	B-552	B-626	D-501	D-504	D-601	D-604	D-569	D-564	
09:00 12:30	<b>W1</b> Bering Sea	<b>WG-32</b> Meeting	SG-MES Meeting	<b>S-HAB</b> Meeting	<b>S-CC</b> Meeting	<b>WG-38</b> Meeting	<b>WG-30</b> Meeting	<b>WG-40</b> Meeting	<b>WG-36</b> Meeting	<b>WG-35</b> Meeting		
14:00 18:00											<b>S-MBM</b> Meeting [13-18:00]	
<b>Sunday, September 24</b>												
	B-626	B-537	D-504	D-564	D-569	D-501	B-552	D-601				
09:00 12:30	<b>Science Board Meeting*</b>	<b>WG-37</b> Meeting	AP-NPCOOS Meeting	<b>S-CCME</b> Meeting	AP-CREAMS Meeting	AP-NIS Meeting	<b>WG-39</b> Meeting	<b>WG-33</b> Meeting				
14:00 17:00	FUTURE SSC Meeting				S-MBM Meeting [13-17:00]							
18:00 20:00	<b>HD</b> Meeting Day 1	<b>MEQ</b> Meeting Day 1	<b>BIO</b> Meeting Day 1	<b>TCODE</b> Meeting Day 1	<b>POC</b> Meeting Day 1			<b>FIS</b> Meeting Day 1	<b>MONITOR</b> Meeting Day 1			
<b>Monday, September 25</b>												
08:45 10:10	[Middle Hall] <b>Opening Session</b>											
10:30 18:20	[Middle Hall] <b>Plenary Science Board Symposium (S1)</b>											
18:30 21:00	[Big Panoramic Hall] <b>Welcome Reception</b> (for all participants and registered guests)											
<b>Tuesday, September 26 [posters can be displayed starting at noon]</b>												
09:00 10:30	[Middle Hall] <b>Plenary Session (S3, S12, S13)</b>											
	D-501	D-504			D-601			D-604	B-537			
10:50 14:00	<b>S13</b> (Anthropogenic Effects)	<b>S3</b> (MSY)			<b>S8/HD-Paper</b> (Marine Ecosys Health)			<b>S6</b> (Inter Var; Forecasts & Climate Proj)				
14:00 16:00		<b>S12</b> (Prey Consumption)							<b>F&amp;A Meeting</b> (closed)			
16:20 18:00												
19:00 21:00										<b>FUTURE SSC Meeting</b>		
<b>Wednesday, September 27 [posters available for viewing all day] 5 level Building B</b>												
	Middle Hall						B-537					
09:00 12:30	<b>S10 FUTURE Plenary</b> (Emerging Issues)						<b>F&amp;A Meeting</b> (closed)					
	B-537	A-517	B-626	D-501		D-504	D-601	D-604				
14:00 18:00	<b>BIO</b> Meeting Day 2	<b>FIS</b> Meeting Day 2	<b>MEQ</b> Meeting Day 2	<b>MONITOR</b> Meeting Day 2		<b>POC</b> Meeting Day 2	<b>TCODE</b> Meeting Day 2	<b>HD</b> Meeting Day 2				
18:30 21:00	<b>Sport Event</b>											

## Meeting Timetable (*continued*)

<b>Thursday, September 28</b> [posters available for viewing all day] <b>5 level Building B</b>					
09:00 10:30	[Middle Hall] <b>Plenary Session (S2, S5, S11)</b>				
	D-601	D-604	D-501	D-504	TBA
10:50 12:30	<b>S4</b> (Adverse Impacts)	<b>S9</b> (Meso/Submeso)	<b>S11</b> (Arctic/Subarctic Envir Var)	<b>S2</b> (Microplastics)	13:00-15:00 Public Lectures for University students
14:00 18:00			<b>S5</b> (Coast Ecosys Cons)		
18:00 21:00	[Cafeteria Level 5] <b>Poster Session*</b> (reception) <b>“Wine and Cheese”</b>				
<b>Friday, September 29</b>					
	D-501	D-504	D-601	D-604	
09:00 12:20	<b>BIO-Paper</b>	<b>FIS-Paper</b>	<b>MEQ-Paper</b>	<b>POC-Paper</b>	
12:40 13:40	[Middle Hall] <b>Closing Session**</b>				
13:50 18:00	B-537 <b>Science Board Meeting</b> (closed)				
18:30 21:00	<b>Chairman’s Reception</b> [by invitation only]				
<b>Saturday, September 30</b>					
09:00 18:00	D-564 <b>Science Board Meeting</b> (closed)		D-569 <b>Governing Council Meeting</b> (closed)		
<b>Sunday, October 1</b>					
09:00 18:00	D-569 <b>Governing Council Meeting</b> (closed)				

\* Poster presenters are expected to be available to answer questions for at least one hour  
(19:00-20:00: Thursday, Sept. 28)

\*\* Award recipients for Best Oral/Poster presentations will be announced during the Closing Session

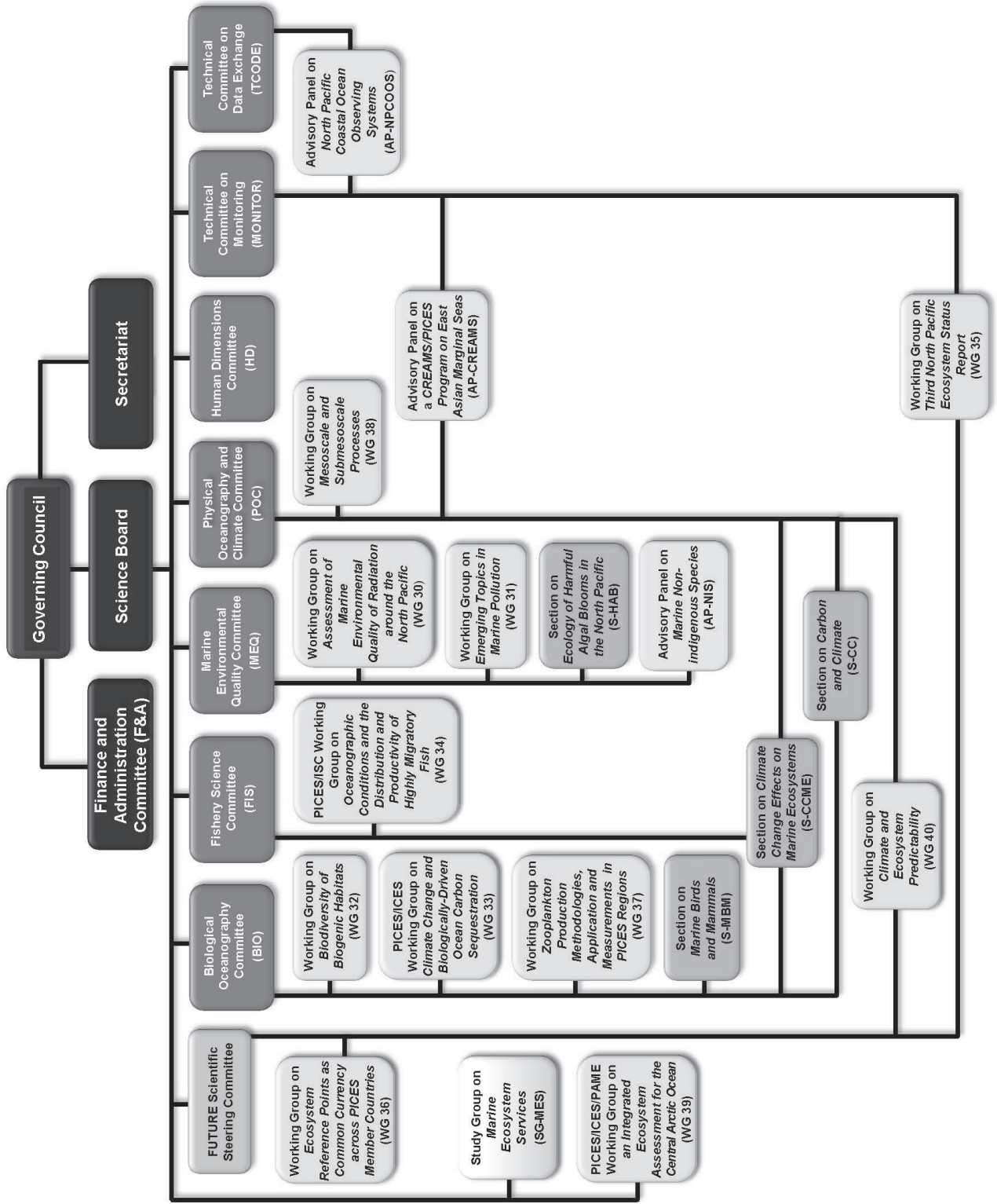
10:30-10:50 Coffee Break

12:30-14:00 Lunch

15:30-16:00 Coffee Break



# North Pacific Marine Science Organization (PICES) structure for 2016-2017





## **PICES Acronyms**

### **Committees**

<b>BIO</b>	Biological Oceanography Committee
<b>FIS</b>	Fishery Science Committee
<b>HD</b>	Human Dimensions Committee
<b>MEQ</b>	Marine Environmental Quality Committee
<b>MONITOR</b>	Technical Committee on Monitoring
<b>POC</b>	Physical Oceanography and Climate Committee
<b>TCODE</b>	Technical Committee on Data Exchange

### **Advisory Panels**

<b>AP-CREAMS</b>	Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas <i>(reports to MONITOR and POC Committees)</i>
<b>AP-NIS</b>	Advisory Panel on Marine Non-indigenous Species <i>(reports to MEQ Committee)</i>
<b>AP-NPCOOS</b>	Advisory Panel on North Pacific Coastal Ocean Observing Systems <i>(reports to MONITOR and TCODE Committees)</i>

### **Sections**

<b>S-CC</b>	Section on Carbon and Climate <i>(reports to BIO and POC Committees)</i>
<b>S-CCME</b>	Joint PICES/ICES Section on Climate Change Effects on Marine Ecosystems <i>(reports to BIO, FIS and POC Committees)</i>
<b>S-HAB</b>	Section on Ecology of Harmful Algal Blooms in the North Pacific <i>(reports to MEQ Committee)</i>
<b>S-MBM</b>	Section on Marine Birds and Mammals <i>(reports to BIO Committee)</i>

### **Study Group**

<b>SG-MES</b>	Study Group on Marine Ecosystem Services <i>(reports to Science Board)</i>
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### **Working Groups**

<b>WG-30</b>	Working Group on Assessment of Marine Environmental Quality of Radiation around the North Pacific <i>(reports to MEQ Committee)</i>
<b>WG-32</b>	Working Group on Biodiversity of Biogenic Habitats <i>(reports to BIO Committee)</i>
<b>WG-33</b>	Joint PICES/ICES Working Group on Climate Change and Biologically-driven Ocean Carbon Sequestration <i>(reports to BIO Committee)</i>
<b>WG-35</b>	Working Group on Third North Pacific Ecosystem Status Report (WG-NPESR3) <i>(reports to MONITOR Committee and FUTURE SSC)</i>
<b>WG-36</b>	Working Group on Common Ecosystem Reference Points across PICES Member Countries <i>(reports to FUTURE SSC)</i>

- WG-37** Working Group on Zooplankton Production Methodologies, Applications and Measurements in PICES Regions  
*(reports to BIO Committee)*
- WG-38** Working Group on Mesoscale and Submesoscale Processes  
*(reports to POC Committee)*
- WG-39** Joint PICES/ICES/PAME Working Group on an Integrated Ecosystem Assessment for the Central Arctic Ocean  
*(reports to Science Board)*
- WG-40** Working Group on Climate and Ecosystem Predictability  
*(reports to POC Committee and FUTURE SSC)*

### **Scientific Program**

- FUTURE-SSC** Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems - Scientific Steering Committee

# **Session/Workshop Schedules at a Glance**

# Friday, September 22

<b>W3 [D-504]</b> <i>Linking oceanographic conditions to the distribution and productivity of highly migratory species and incorporation into fishery stock assessment models</i>		<b>W4 [D-501]</b> <i>Long-term changes in HAB occurrences in PICES nations; the Eastern vs. Western Pacific</i>		<b>W6 [D-601]</b> <i>Advantages and limitations of traditional and biochemical methods of measuring zooplankton production</i>	
<b>Convenor:</b> Gerard DiNardo (USA)		<b>Convenors:</b> Mark Wells (USA) Polina Kameneva (Russia)		<b>Convenors:</b> Toru Kobari (Japan) Akash Sastri (Canada)	
8:55	<b>Introduction by Convenors</b>	8:55	<b>Introduction by Convenors</b>	8:55	<b>Introduction by Convenors</b>
9:00	<b>Yong Chen (Invited)</b> Challenge and opportunity for fisheries stock assessment in changing environments	9:00	<b>Keigo Yamamoto (Invited)</b> Long-term monitoring of the toxic dinoflagellate <i>Alexandrium tamarense</i> and environmental factors in Osaka Bay, eastern Seto Inland Sea, Japan: History of invasion and expansion of toxic blooms	9:00	<b>Toru Kobari</b> Background explanation
9:40	<b>Desiree Tommasi</b> Consequences of environmentally driven uncertainty in productivity for management of North Pacific Albacore tuna	9:45	<b>Nicholas Bond (Invited)</b> Observed climatic and oceanographic variations related to harmful algal blooms: Comparisons between the western and eastern North Pacific	9:10	<b>Andrew G. Hirst (Invited)</b> Revising our traditions: An overview on method and results of growth and production estimates for zooplankton
10:05	<b>Elliott Hazen</b> Dynamic ocean management applications for the Drift Gillnet fishery in the California Current			9:50	<b>Natalie Mahara (for Lian E. Kwong)</b> A comparison of zooplankton secondary production in a high nutrient low chlorophyll (HNLC) and seasonally productive regions in the North Pacific
10:30	<b>Coffee/Tea Break</b>	10:30	<b>Coffee/Tea Break</b>	10:00	<b>Natalie Mahara</b> Zooplankton communities in the coastal northeast Pacific Ocean: A comparison of a highly productive region and a light-limited high nutrient, low chlorophyll region
10:50	<b>Giphil Cho</b> Optimal harvest strategies of sandfish based on a stage-structured model in the East Sea	10:50	<b>Takafumi Yoshida</b> Trends of HAB occurrences and related environmental parameters in the NOWPAP region	10:20	<b>Akash Sastri</b> Coupling crustacean zooplankton production and primary production rates to estimate trophic transfer efficiencies in the NE Pacific
11:15	<b>Kyunghwan Lee</b> Differences in biological characteristics of Pacific cod ( <i>Gadus macrocephalus</i> ) between the East and the Yellow Sea, Korea	11:10	<b>Tae-Gyu Park</b> Temporal changes in <i>Cochlodinium polykrikoides</i> ribotypes and environmental factors in Korean coastal waters	10:40	<b>Coffee/Tea Break</b>
11:40	<b>Sukgeun Jung</b> Individual-based model of chub mackerel ( <i>Scomber japonicus</i> ) covering from larval to adult stages to project climate-driven changes in their spatial distribution in the western North Pacific	11:30	<b>Douding Lu</b> Can large scale of <i>Karenia</i> blooms in China coastal waters be linked to climate (weather) signals?	11:00 12:00	<b>Discussion and Summary</b> Workshop 6 Ends
		11:50	<b>Setsuko Sakamoto</b> Long-term trend of harmful algal blooms and environmental factors in the Seto Inland Sea of Japan		

<b>W3 [D-504] continued</b> <i>Linking oceanographic conditions to the distribution and productivity of highly migratory species and incorporation into fishery stock assessment models</i>		<b>W4 [D-501] continued</b> <i>Long-term changes in HAB occurrences in PICES nations; the Eastern vs. Western Pacific</i>		<b>W2 [D-601]</b> <i>Coastal ecosystem services in the North Pacific and analytical tools/methodologies for their assessment</i>	
<b>Convenor:</b> Gerard DiNardo (USA)		<b>Convenors:</b> Mark Wells (USA) Polina Kameneva (Russia)		<b>Convenors:</b> Shang Chen (China) Mitsutaku Makino (Japan)	
12:05	<b>Barbara A. Muhling</b> Oceanographic influences on the spawning and recruitment of Pacific bluefin tuna	12:10	<b>Vera L. Trainer (for S. Morgaine McKibben)</b> Decadal time series tell a story about climate and HABs		
12:30	<b>Yulina V. Hane</b> Development of methodology for analyses of larval ambient water temperature of Pacific bluefin tuna using SIMS	12:30	<b>Lunch</b>		
12:55	<b>Lunch</b>			13:55	<b>Introduction by Convenors</b>
		14:00	<b>Tatiana Morozova</b> Species composition and long-term dynamics of potentially toxic dinoflagellate species in benthic assemblages of Peter the Great Bay, Sea of Japan	14:00	<b>Benrong Peng (Invited)</b> Integrating the value of marine ecosystem services into decision making: A case study of Xiamen, China
		14:20	<b>Nicola Haigh</b> Long-term trends in abundance and impacts of <i>Cochlodinium fulvescens</i> M. Iwataki, H. Kawami & K. Matsuoka (Gymnodiniales, Dinophyceae) in British Columbia, Canada, from the Harmful Algae Monitoring Program time series	14:30	<b>Jingmei Li</b> Valuing the loss of ecological benefits of wetland reclamation in Jiaozhou Bay based on choice experiments
14:30	<b>Discussion</b>	14:40	<b>Jinhui Wang</b> The bloom species succession and related potential alien species in East China Sea		
		15:00	<b>Tatiana Y. Orlova</b> Long-term changes in HAB occurrences in Amursky Bay, Russia	15:00	<b>Chen Shang</b> Marine ecosystem services assessment methods
		15:20	<b>Mark Wells</b> Oceanographic conditions that lead to large <i>Pseudo-nitzschia</i> blooms in coastal waters	15:30	<b>Coffee/Tea Break</b>
15:40	<b>Coffee/Tea Break</b>	15:40	<b>Coffee/Tea Break</b>	15:50	<b>Kazumi Wakita</b> What influences people's value of marine ecosystem services: A case study of Japan
16:00	<b>Discussion</b>	16:00	<b>Melissa B. Peacock</b> Blurred lines: Multiple freshwater and marine algal toxins at the land-sea interface	16:15	<b>Meenu Rani</b> Development of a relative coastal vulnerability index for climate change adaptation and environmental changes in the North Pacific coastal zone
		16:20	<b>William P. Cochlan</b> The effects of ocean acidification and temperature on the growth and toxicity of <i>Pseudo-nitzschia australis</i> from the California Current upwelling system		
		16:40	<b>Discussion</b>	17:40	<b>Discussion</b>
18:00	Workshop 3 ends	18:00	Workshop 4 Ends	18:00	Workshop 2 ends

# Saturday, September 23

## Workshop 1 (A-517)

### The role of the northern Bering Sea in modulating the arctic II: International interdisciplinary collaboration

#### Convenors:

Matthew Baker (USA)

Lisa Eisner (USA)

Kirill Kivva (Russia)

- 9:00 Welcome [Kirill Kivva, VNIRO]
- 9:10 **Maria Pisareva** (USA/RUS, Polar Oceanography Group, P.P. Shirshov Institute of Oceanology (IO) RAS, Russia)  
Flow of pacific water in the Chukchi Sea: results from RUSALCA expeditions
- 9:30 **Zhixuan Feng** (USA/CHN, Woods Hole Oceanographic Institution)  
Benthic biological hotspots in the Pacific Arctic Region: Distribution and potential drivers. Modeling the sympagic-pelagic-benthic coupling processes in the St. Lawrence Island Polynya region, northern Bering Sea.
- 9:50 **Igor Semiletov** (USA/RUS – UAF/POI) (CANCELLED)
- 10:05 **Alexei Orlov** (RUS)/**Aleksey Somov** (RUS)  
Changes in the western Bering Sea upper epipelagic nekton communities in the early 21st century, Pacific Fisheries Research Center (TINRO-Center)
- 10:20 **Matthew Baker** (USA, North Pacific Research Board)  
Arctic Integrated Ecosystem Research Program and Research in the northern Bering Sea and Arctic
- 10:35 **Lisa Eisner** (USA, NOAA-Alaska Fisheries Science Center)  
Biological oceanographic sampling in the northern Bering and Chukchi seas and recent cruise data
- 10:40 *Coffee Break*
- 11:00 Participant presentations [10 minutes each]
- 12:30 *Lunch*
- 14:00 Intent of data sharing and collaboration [Matt, Lisa, Kirill]
- 14:10 Presentation on online portal and data sharing platform [Matthew Baker, North Pacific Research Board]
- 14:30 Discussion on potential adaptation to online portal and data-sharing format and approach
- 15:00 List of publications, reports, and analyses appropriate to the region and available to share
- 15:30 *Coffee Break*
- 15:50 List of new data, new analyses, new participants, and new research to include in this process
- 16:20 Discussion on limitations to data sharing and opportunities to facilitate data sharing
- 16:40 Discussion on opportunities for collaboration (concrete initiatives) and means to identify and link with opportunities for collaborative research in the region more broadly
- 17:00 Identify strategize specific opportunities for further data integration and coordinated analysis between interested researchers (initially as entire group and later among interested researchers)
- 18:00 Conclude Workshop



**HAB Section Meeting (B-552)**

- 9:00 **Introduction by Section Co-Chairs**
- 9:05 **Vera Trainer and Douding Lu**  
Discussion of new HAB-S terms of reference and requests to MEQ
- 9:45 **Vera Trainer**  
USA Country Report
- 10:00 **Mark Wells**  
Global HAB, Best Practices Manual and IPHAB meeting
- 10:15 **Mark Wells**  
Final MAFF project update, Indonesia Marine Ecosystem Health and Human Well Being
- 10:30 **Coffee Break**
- 11:00 **Setsuko Sakamoto, Ryuji Kuwahara, Ichiro Imai**  
Japan Country Report
- 11:15 **Hao Guo**  
2016 Red Tide in China (11989)
- 11:30 **Nicky Haigh**  
Canada Country Report
- 11:45 **Tatiana Orlova**  
Russia Country Report
- 12:00 **Weo-Ae Lim**  
Korea Country Report
- 12:15 Discussion
- 12:30 **Lunch**
- 14:00 **Lingjuan Wu**  
An analysis of dynamic factors influencing the 2013 giant jellyfish bloom near Qinhuangdao in the Bohai Sea, China (12333)
- 14:25 **Mitsunori Iwataki**  
Ultrastructure and phylogenetic position of a karenian dinoflagellate collected from Japanese coast (12043)
- 14:50 **Tatiana Y. Orlova**  
An under-ice phytoplankton blooms in Peter the Great Bay: Are they controlled by environmental factors? (12224)
- 15:10 **Charles Trick**  
Final MAFF project update, Guatemala Marine Ecosystem Health and Human Well Being
- 15:30 **Coffee Break**
- 16:00 **Nicky Haigh**  
PICES publication on E-W comparison of Pseudo-nitzschia
- 16:20 **TBA**  
FUTURE linkages and ideas for collaboration with HAB-S
- 16:40 **Polina Kamaneva and Mark Wells**  
Briefing on Time series analysis workshop and next steps
- 17:00 **Douding Lu and HAB-S members**  
Final review of terms of reference, proposals for the future, and requests/presentation to MEQ
- 18:00 Meeting Ends

**S1: Science Board Symposium**

**Environmental changes in the North Pacific and impacts on biological resources and ecosystem services**

**Convenors:**

Hiroaki Saito (SB), Se-Jong Ju (BIO), Elizabeth Logerwell (FIS),  
Keith Criddle (HD), Chuanlin Huo (MEQ), Jennifer Boldt (MONITOR),  
Emanuele Di Lorenzo (POC), Joon-Soo Lee (TCODE), Steven Bograd (FUTURE),  
Sukyung Kang (FUTURE), Igor Shevchenko (Russia), Motomitsu Takahashi (Japan)

**Keynote Speaker: Lev Zhivotovsky**

**Eco-geographic units across environmentally diverse species' ranges as useful surrogates of the species' management units: Salmonid fishes of the North Pacific as an example**

Russian Federal Research Institute of Fisheries and Oceanography (VNIRO), Russia  
Institute of General Genetics, Russian Academy of Sciences (IOGen RAS), Russia. E-mail: levazh@gmail.com

The concept of a 'management unit' is central to the fields of conservation biology and population ecology. Large populations or groups of related populations of a given species are commonly defined as such units. However, it often is problematic to determine the boundaries between populations as they include the adaptive variation at morphological, physiological, and behavioral traits that provide adaptation to specific habitat conditions, as well as the reproductive barriers that prevent gene flows between the units. Genetic markers have been suggested to be a good tool for discriminating of population units followed by correlation analyses of the genetic parameters (genetic distances, effective population sizes, estimated migration patterns, etc.) and environmental variables. However, population boundaries can be considerably shifted following the climate changes, ecological transformations and anthropogenic impacts on marine ecosystems. If so, genetic parameters may not distinguish fast population/environmental changes as the genetic parameters are slowly evolving.

We suggest a two-step approach for defining a 'proxy' of management units based on a combined use of environmental, geographic, and genetic data that are estimated from multiple population samples chosen across the species' range. First, the set of samples is subdivided into 'eco-geographic units' (EGUs) according to the environmental gradients, types of life strategies, and other ecological characteristics that presumably associate with population adaptations and inter-population reproductive isolation. Second, the selected EGUs are tested for their congruence with genetic data by comparing the genetic differentiation and other genetic estimates of population samples within EGUs to that between different EGUs.

The EGU-approach places the environmental/ecological variables at the first line in searching a template for management units and, after that, uses the genetic data to confirm and correct the proxy. This seems to be natural as the genetic structure of populations evolves following the changes in surrounding environmental conditions. This approach calls for wider and deeper studies in population biology and ecology of marine organisms.

Some of the issues discussed are: the relationship of the EGU concept with the concepts of evolutionarily significant units (ESUs) and other approaches, designing of EGUs in practice, the level of EGUs in a hierarchical population structure; the weights of genetic and phenotypic markers in estimating population differentiation, and others.

**References**

Zhivotovsky et al. 2015. *Conservation Genetics* 16:431-441 <doi: 10.1007/s10592-014-0670-4>  
Zhivotovsky. 2016. *Russian Journal of Marine Biology* 42:373–382 (transl. from Russian).

- 10:30 **Lev A. Zhivotovsky (Keynote)**  
Eco-geographic units across environmentally diverse species' ranges as useful surrogates of the species' management units: Salmonid fishes of the North Pacific as an example
- 11:15 **James T. Thorson (Invited)**  
(ECS) Measuring density dependence, portfolio effects, and climate-drivers in the North Pacific using spatio-temporal models and causal statistics
- 11:45 **Kirill Kivva (Invited)**  
(ECS) Nutrient fields reveal identity of ecosystems: A case study from the Bering Sea
- 12:15 **Sei-Ichi Saitoh**  
Future projected impacts of ocean warming to potential squid habitat in the North Pacific
- 12:35 **Lunch**
- 14:00 **Kanae Tokunaga (Invited)**  
(ECS) Towards socially and ecologically adaptive fisheries resource governance: A case of spiny lobster fishery in Shima Peninsula, Japan
- 14:30 **Keith R. Criddle**  
Durable entitlements and resilience in fishery social ecological systems
- 14:50 **Katerina Giamalaki**  
(ECS) Mechanisms triggering the 1976-77 regime shift in the North Pacific
- 15:10 **Nianzhi Jiao**  
Biological mediated carbon cycling and sequestration in the ocean and climate change:  
A new dimension and perspective
- 15:30 **Coffee/Tea Break**
- 15:50 **Mary Hunsicker (Invited)**  
Developing indices for early detection of abrupt change in northeast Pacific Ocean ecosystems
- 16:20 **Miho Ishizu**  
Ocean acidification trends in coastal waters in Japan
- 16:40 **Jianchao Li**  
(ECS) Ecological impacts of Yellow Sea Cold Water Mass variation on the early life history of Pacific cod (*Gadus macrocephalus*)
- 17:00 **Hae Kun Jung**  
(ECS) The influence of atmospheric condition on fishing grounds of walleye pollock in the East/Japan Sea
- 17:20 **John N. Smith**  
Transport of the Fukushima radioactivity plume to the Eastern North Pacific:  
Impacts on biological resources
- 17:40 **Vasilij Mishukov**  
Atmospheric transboundary transport of pollutants in East Asia
- 18:00 Session 1 Ends

# Tuesday, September 26

## Plenary [Middle Hall]

- 9:00 **Robert Blasiak (S3-Plenary)**  
(ECS) Towards common ecosystem reference points for North Pacific ecosystems
- 9:30 **Jock W. Young (S12-Plenary)**  
From regional to global-scale understanding of tuna food webs
- 10:00 **Farooq Azam (S13-Plenary)**  
Microbial Structuring of Marine Ecosystems: Significance for carbon cycling, climate and fisheries
- 10:30 *Coffee/Tea Break*

<b>S13 [D-501]</b> <i>Joint PICES-ICES Session on Anthropogenic effects on biogeochemical processes, carbon export and sequestration: Impact on ocean ecosystem services</i>		<b>S3 [D-504]</b> <i>Below and beyond maximum sustainable yield: Ecosystem reference points</i>	
<b>Convenors:</b> Richard B Rivkin (Canada), Louis Legendre (France) Nianzhi Jiao (China), M. Robin Anderson (DFO, Canada)		<b>Convenors:</b> Elliot L. Hazen (USA), Jennifer Boldt (Canada) Robert Blasiak (Japan), Mary Hunsicker (USA)	
10:50	<b>Introduction by Convenors</b>	10:50	<b>Introduction by Convenors</b>
11:00	<b>Chuanlun Zhang</b> Localized high abundance of Marine group II archaea in the subtropical Pearl River Estuary: Implication for their niche adaptation	11:00	<b>James T. Thorson</b> Time-varying processes in stock assessment: A bridge to ecosystem-based reference points
11:20	<b>M. Robin Anderson (by R. Rivkin)</b> Anthropogenic blue carbon: Assessing the contribution of seaweed aquaculture for carbon uptake and storage	11:20	<b>R. Ian Perry</b> Development of ecosystem indicators to characterize ecosystem responses to multiple stressors: A summary PICES Working Group 28
11:40	<b>Curtis A. Suttle</b> Viruses, carbon sequestration and the biological pump	11:40 (ECS)	<b>Jung Hyun Lim</b> A study on the estimation of the potential yield in the Korean waters of the East China Sea
12:00	<b>Uta Passow</b> Climate change, phytoplankton export and carbon sequestration	12:00	<b>Mary E. Hunsicker</b> Characterizing driver-response relationships and defining ecological thresholds in large marine ecosystems
12:20	<b>Angelica Peña</b> A model simulation of future biogeochemical conditions along the British Columbia Continental Shelf	12:20	Discussion
12:40	<b>Lunch</b>	12:40	Session 3 Ends

<b>S8 / HD-Paper [D-601]</b> <i>Marine ecosystem health and human well-being: A social-ecological systems approach</i>		<b>S6 [D-604]</b> <i>Interannual variability in marine ecosystems and its coupling with climate projections</i>	
<b>Convenors:</b> Keith R. Criddle (USA), Mitsutaku Makino (Japan) Ian Perry (Canada), Mark Wells (USA)		<b>Convenors:</b> Yury Zuenko (Russia), Jackie King (Canada) Masami Nonaka (Japan), Hee-Dong Jeong (Korea)	
10:50	<b>Introduction by Convenors</b>	10:50	<b>Introduction by Convenors</b>
11:00	<b>Mitsutaku Makino</b> PICES-Japan MAFF Project “MarWeB”	11:00	<b>Elena I. Ustinova (Invited)</b> Interannual variability of oceanographic conditions in the North-West Pacific and Far-Eastern Seas and examples of its effects on fisheries
11:30	<b>Suhendar I Sachoemar (Invited)</b> Sato-umi concept and sustainable aquaculture implementation in the coastal area of Indonesia	11:30	<b>Masami Nonaka</b> Wind-driven and intrinsic interannual variability in the Kuroshio Extension jet and its eddy activities
		11:50	<b>Dmitry V. Stepanov</b> On the effect of atmospheric forcing on the upper heat content variability in the Japan/East Sea from 1948 to 2009
12:00	<b>Suhendar I Sachoemar</b> Integrated multi-trophic aquaculture in traditional pond aquaculture, Indonesia	12:10	<b>Anne B. Hollowed</b> Bridging the gap between mechanistic understanding and climate projections: An example based on the Bering Sea Project
12:20	<b>Chares G. Trick (Invited)</b> When the nets leave the waters: A community needs assessment for the lost fishing communities of Pacific coastal Guatemala – Balancing ocean and human health		
12:50	<b>Lunch</b>	12:30	<b>Lunch</b>

## Tuesday, September 26 (continued)

<b>S13 [D-501] continued</b> <i>Joint PICES-ICES Session on Anthropogenic effects on biogeochemical processes, carbon export and sequestration: Impact on ocean ecosystem services</i>		<b>S12 [D-504] continued</b> <i>Seasonal and climatic influences on prey consumption by marine birds, mammals and predatory fishes</i>	
<b>Convenors:</b> Richard B. Rivkin (Canada), Louis Legendre (France) Nianzhi Jiao (China), M. Robin Anderson (DFO, Canada)		<b>Convenors:</b> Andrew Trites (Canada), Rob Suryan (USA) Mike Seki (USA), Tsutomu Tamura (Japan)	
		14:00	<b>Introduction by Convenors</b>
14:10	<b>Jung-Ho Hyun</b> Changes in plankton assemblages and role of microbial loop in biogeochemical carbon cycles associated with coastal upwelling in the Ulleung Basin, East Sea	14:10	<b>Stephani Zador (CANCELLED)</b> Increased prey consumption by groundfish during the 2014-2015 marine heat wave and the potential for competition with seabirds
14:30	<b>Koji Suzuki</b> Response of spring diatoms to CO <sub>2</sub> availability in the western North Pacific	14:30 (ECS)	<b>Jumpei Okado</b> Climate and prey consumption by Rhinoceros Auklets and Japanese Cormorants breeding in Teuri Island, Hokkaido, Japan
14:50	<b>Galina Yu. Pavlova</b> Silicate weathering and CO <sub>2</sub> consumption rates: New insights from rivers of the Primorskii Krai (Russia)	14:50 (ECS)	<b>Miran Kim</b> Breeding phenology and diet shift of seabirds in South Korea
15:10	<b>Pavel Ya. Tishchenko</b> Acidification of the interior of the Japan/East Sea	15:10	<b>Xuelei Zhang</b> Integrated study of marine mammals: An update of the regional project in the Southeast Asia
15:30	<i>Coffee/Tea Break</i>	15:30	<i>Coffee/Tea Break</i>
15:50	<b>Jizhong Zhou</b> Development and applications of high throughput metagenomics technologies to marine biogeochemistry	15:50	<b>Selina Agbayani</b> Bioenergetic requirements of migrating eastern North Pacific grey whales in the face of climate change
16:10	<b>Richard Rivkin</b> Microbes and ocean biogeochemical processes	16:10	<b>Tsutomu Tamura</b> Estimation of prey consumption by cetaceans in the western North Pacific-Update to Hunt <i>et al.</i> (2000)
16:30	Discussion	16:30 (ECS)	<b>Hiroko Sasaki</b> Spatial estimation of prey consumption by sei whales in the western North Pacific during the summers of 2008 – 2009: Density surface model approach
		16:50	<b>Andrew W. Trites</b> Simple models to predict daily energy requirements and prey consumption by marine mammals in the North Pacific
17:10	Session 13 Ends	17:10	Conclusion by Session Convenors
		17:20	Session 12 Ends



<b>S8 / HD-Paper [D-601] <i>continued</i></b> <i>Marine ecosystem health and human well-being: A social-ecological systems approach</i>		<b>S6 [D-604] <i>continued</i></b> <i>Interannual variability in marine ecosystems and its coupling with climate projections</i>	
<b>Convenors:</b> Keith R. Criddle (USA), Mitsutaku Makino (Japan) Ian Perry (Canada), Mark Wells (USA)		<b>Convenors:</b> Yury Zuenko (Russia), Jackie King (Canada) Masami Nonaka (Japan), Hee-Dong Jeong (Korea)	
		14:00 (ECS)	<b>Joo-Eun Yoon</b> What was the major factor that has caused declines in coccolithophore abundance in the North Pacific Sub-tropical Gyre since 2005?
14:20 (ECS)	<b>Amrtatjuti V. Sereda</b> Towards international cooperation in the development of Marine Spatial Plans for the North Pacific: Economic, social, and environmental dimensions	14:20	<b>Tetjana Ross</b> What is driving interannual variability in lower trophic levels near Explorer Seamount (Canada)?
14:40	<b>S. Kim Juniper</b> Development of broadly distributable metrics of ocean conditions using real-time data and marine 'community-observatories' along the British Columbia coast	14:40	<b>Jinhui Wang</b> Climate change and trends of phytoplankton abundance in the East China Sea
15:00 (ECS)	<b>Wei Liu</b> An index system for assessment of the performance of construction strategies marine ecological civilization framework	15:00	<b>Lu Yang</b> Interannual variability in zooplankton community and its relationship with environmental variables in Bohai Bay in China from 2004-2015
15:20	<b>Konstantin Osipov</b> Features of media-covering and promotion of marine and fishery researches in Russia	15:20 (ECS)	<b>Christina Eunjin Kong</b> Influence of the Three Gorges Dam on the East China Sea ecosystem
15:40	<i>Coffee/Tea Break</i>	15:40	<i>Coffee/Tea Break</i>
16:00	<b>Stephen Kasperski</b> Groundtruthing social vulnerability indices of Alaska fishing communities	16:00	<b>Susanna Nurdjaman</b> Seasonal and interannual variability of satellite chlorophyll- <i>a</i> in the Malacca Strait
16:20	<b>Keith R. Criddle</b> The economic importance of wild Pacific salmon	16:20	Discussion
16:40	<b>Keith R. Criddle</b> Retrospective benefit-cost analysis of federally-funded buyback programs for Southeast Alaska salmon purse seine permits	16:30	Session 6 Ends
17:00	Discussion/Summary		
17:30	Session 8 / HD-Paper Ends		



## Wednesday, September 27 [Middle Hall]

### **S10 FUTURE Plenary Session**

#### **Emerging issues in understanding, forecasting and communicating climate impacts on North Pacific marine ecosystems**

**Convenors:**

Steven Bograd (NOAA, USA), Sukyung Kang (NFRDI, Korea)

Oleg Katugin (Russia), Guangshui Na (China)

- 9:00      ***Introduction by Convenors***
- 9:05      **Zhongyong Gao (Invited)**  
Biogeochemical carbon cycling of Bering Sea and their impacts on the Western Arctic Ocean in the past two decades
- 9:35      **Desiree Tommasi (Invited)**  
(ECS) Climate predictions to support fisheries management in a changing ocean
- 10:05     **Michael Jacox**  
Seasonal forecast skill in the CCS and its connection to climate variability
- 10:25     ***Coffee/Tea Break***
- 10:50     **R. Ian Perry**  
The pelagic plankton and demersal fish communities of Pacific Canada over the past four decades: Ecosystem variability or change?
- 11:10     **Moojin Kim**  
(ECS) Biotic and abiotic impacts on walleye pollock (*Gadus chalcogrammus*) population off the east coast of Korea over the last 5 decades
- 11:30     **Steven Bograd**  
The FUTURE Science Program: Highlights and next steps
- 11:50     **Expert Groups talks**
- 12:30     Session 10 Ends

# Thursday, September 28

## Plenary

- 9:00 **Chelsea M. Rochman (S2-Plenary)**  
Contamination and effects of plastic debris in the marine environment
- 9:30 **Cody S. Szuwalski (S5-Plenary)**  
(ECS) Managing highly modified marine ecosystems
- 10:00 **Yury Zuenko (S11-Plenary)**  
Environmental impacts on zooplankton and pollock fishery in the northern Bering Sea
- 10:30 **Coffee/Tea Break**

<b>S4 [D-601]</b> <i>Adverse impacts on coastal ocean ecosystems: How do we best measure, monitor, understand and predict?</i>		<b>S9 [D-604]</b> <i>Meso-/submeso-scale processes and their role in marine ecosystems</i>	
<b>Convenors:</b> Akash Sastri (Canada), Naoki Yoshie (Japan)		<b>Convenors:</b> Hiromichi Ueno (Japan), Sachihiko Itoh (Japan) Elena Ustinova (Russia)	
10:50	<b>Introduction by Convenors</b>	10:50	<b>Introduction by Convenors</b>
11:00	<b>Peter Zhadan (Invited)</b> The mechanisms influencing the timing, success and failure of spawning in natural populations of the sea urchin <i>Strongylocentrotus intermedius</i> in the north-western Sea of Japan	10:55	<b>Sergey V. Prants (Invited)</b> Lagrangian maps as a new tool to simulate transport processes in the ocean
11:40	<b>Vladimir M. Shulkin</b> Elaboration of Ecological Quality Objectives as a step forward in cooperation to protect the marine environment in the Northwest Pacific	11:20	<b>Robert M. Suryan (Invited)</b> Characteristics of meso- and submeso-scale features used by highly migratory marine predators
12:00 (ECS)	<b>Anna S. Vazhova</b> Seasonal dynamics of nutrients in the river water and its influence on productivity of the coastal zone in the Japan/East Sea	11:45 (ECS)	<b>Ayako Yamamoto</b> Roles of the ocean mesoscale in the lateral supply of mass, heat, carbon and nutrients to the Northern Hemisphere subtropical gyres
12:20	<b>Elena A. Shtraikhert</b> Seasonal and diurnal distributions of the phytoplankton bloom, organic and suspended matter contents indicators in the Amur Bay and adjacent area (Japan/East Sea) according to satellite data	12:05	<b>Andrey G. Andreev</b> The mesoscale eddy activity in the Alaskan Stream area and its impact on biological productivity
12:40	<b>Lunch</b>	12:25	<b>Lunch</b>
14:10	<b>Tatiana N. Dautova</b> Coral communities in the North-West Pacific coastal ecosystems: Environmental impacts, future trends and distribution	14:00	<b>Annalisa Bracco</b> The submesoscale vertical pump of an anticyclonic eddy
14:30	<b>Yuichi Hayami (Invited)</b> Monitoring based research in Ariake Sea, Japan -To solve the environmental and fisheries problems	14:20	<b>Dongfeng Xu</b> The observed slope current of the Northern Slope of South China Sea
		14:40	<b>Igor A. Zhabin</b> The interaction of the mesoscale and submesoscale eddies in the Sea of Okhotsk

<b>S11 [D-501]</b> <i>Environmental variability in Arctic and Subarctic ecosystems and impacts on fishery management strategies</i>		<b>S2 [D-504]</b> <i>Microplastics in marine environments: Fate and effects</i>	
<b>Convenors:</b> Thomas Helser (USA) Mikhail Stepanenko (Russia), Mikhail Zuev (Russia)		<b>Convenors:</b> Wonjoon Shim (Korea), Hideshige Takada (Japan) Peter Kershaw (GESAMP), Lev Neretin (NOWPAP)	
10:50	<b>Introduction by Convenors</b>	10:50	<b>Introduction by Convenors</b>
11:00	<b>Lisa B. Eisner</b> Large zooplankton abundance as an indicator of walleye pollock recruitment in the southeastern Bering Sea	11:00	<b>Daoji Li (Invited)</b> Microplastic in the marine environments, China
11:20	<b>Sei-Ichi Saitoh</b> Assessing biodiversity patterns of fish resources in the Eastern Bering Sea	11:30	<b>Seung-Kyu Kim (Invited)</b> Microplastics in Arctic surface water and sea ice: 2016 ARAON Expedition
11:40	<b>Andrei Krovnin</b> Changes in recruitment of Pacific cod in the northwestern Bering Sea and their relation to climate variations in the Northern Hemisphere		
12:00	<b>Thomas E. Helser</b> Climate variability on arctic fish growth rates: Empirical evidence for biophysical coupling and its effect on harvest policies	12:00	<b>Won Joon Shim</b> Global distribution of microplastics: An overview
12:20	Session 11 Ends	12:20	<b>Peter Kershaw</b> Monitoring and assessment of marine plastics and microplastics – Towards harmonised methods
<b>S5 [D-501]</b> <i>Coastal ecosystem conservation and challenge</i>		12:40	<b>Lunch</b>
<b>Convenor:</b> Xianshi Jin (China)			
14:00	<b>Introduction by Convenors</b>		
14:10	<b>Xiujuan Shan</b> Signature of global warming on dynamics of anchovy <i>Engraulis japonicas</i> stock in the Yellow Sea	14:10 (ECS)	<b>Young Kyoung Song</b> Vertical distribution and composition of microplastics in Korean coastal waters
14:30	<b>Tatiana Krupnova</b> Kelp of Laminaria thickets recovery in dependence on abiotic and biotic environments	14:30	<b>Nikolai Kozlovskii</b> River discharge as a source of plastic litter pollution in the Northwest Pacific Russia

## Thursday, September 28 (continued)

<b>S4 [D-601] continued</b> <i>Adverse impacts on coastal ocean ecosystems: How do we best measure, monitor, understand and predict?</i>		<b>S9 [D-604] continued</b> <i>Meso-/submeso-scale processes and their role in marine ecosystems</i>	
15:10	<b>Feng Zhou</b> Large variability of hypoxia off the Changjiang Estuary	15:00	<b>Dmitry V. Stepanov</b> Mesoscale eddies and eddy energy sources in the Okhotsk Sea during the winter-spring period, 2005-2009
15:30	<i>Coffee/Tea Break</i>	15:20 (ECS)	<b>Maria N. Pisareva</b> On the nature of wind-forced upwelling in Barrow Canyon
15:50 (ECS)	<b>Jiyoung Lee</b> Seasonal microbial community composition in the Jinhae Bay hypoxic zone, South Korea	15:40	<i>Coffee/Tea Break</i>
16:10	<b>Guimei Liu</b> A modeling study of hypoxia in the bottom layers off the Changjiang Estuary in summer	16:00	<b>Pavel Fayman</b> Submesoscale eddies in Peter the Great Bay of the East/Japan Sea
16:30	<b>Qingsheng Li</b> Spatialtemporal variation of nutrients and eutrophication in Xiamen Bay	16:20	<b>Alexander Ostrovskii</b> Variations of the turbulent eddy diffusivity in the Primorye Current region of the northwestern East/Japan Sea in the warm season
16:50 (ECS)	<b>Lu Guan</b> Detecting multi-scale temporal dynamics of acoustically estimated zooplankton biomass: A case study of high-resolution ocean observatory system in Saanich Inlet (British Columbia, Canada)	16:40	<b>Olga Trusenкова</b> Short-term variability of the thermohaline stratification under the seasonal pycnocline in the Primorye Current zone in the Japan/East Sea
17:10	<b>Xiutang Yuan</b> Winner or loser: Sea cucumber's future in a changing ocean	17:00	<b>Daisuke Ambe</b> Transportation route and habitat of Japanese eel ( <i>Anguilla japonica</i> ) larvae in association with mesoscale eddy area
17:30	<b>Jennifer Jackson</b> The Hakai Institute Oceanography program: An examination of oceanographic properties from the northern Strait of Georgia to the central British Columbia coast	17:20	<b>Elena I. Ustinova</b> Mesoscale processes influence on migrations and the fishing grounds formation of saury, sardine and mackerel in the North-west Pacific
17:50	Session 4 Ends	17:40	<b>Daisuke Hasegawa</b> Enhanced biological productivity in a warm core ring
		18:00	Session 9 Ends



<b>S5 [D-501] <i>continued</i></b> <i>Coastal ecosystem conservation and challenge</i>		<b>S2 [D-504] <i>continued</i></b> <i>Microplastics in marine environments: Fate and effects</i>	
14:50 (ECS)	<b>Natalie Mahara</b> Zooplankton communities in the coastal northeast Pacific Ocean: A comparison of a highly productive region and a light-limited high nutrient, low chlorophyll region	14:50	<b>Katerina Vassilenko</b> Microfiber source characterization in the Northeastern Pacific Ocean
15:10 (ECS)	<b>Lisha Guan</b> Improving estimations of fish species abundance and distribution via accounting for the effects of diel vertical movements	15:10	<b>Seongbong Seo</b> Fate of floating debris released from Korean rivers
15:30	<b>Coffee/Tea Break</b>	15:30	<b>Coffee/Tea Break</b>
15:50	<b>Shufang Liu</b> DNA barcoding and electronic microarray for common fish species in Shandong coastal waters	15:50 (ECS)	<b>Garth A. Covernton</b> Microplastic concentrations in wild and cultured clams and their environment in British Columbia, Canada
16:10	<b>Mitsuo Yamamoto</b> Potential influence of oceanic environmental change on seaweed bed distribution in Tsushima Islands	16:10 (ECS)	<b>You Na Cho</b> Assessment of microplastic contamination in commercial bivalves from South Korea
16:30	<b>Anton Klimov</b> Relationship of energy metabolism and juvenile Pacific salmon survival of during adaptation at sea	16:30	<b>Patrick D. O'Hara</b> Seasonal variability in vulnerability for Cassin's Auklets exposed to plastic pollution in the Canadian Pacific region
16:50 (ECS)	<b>Xindong Pan</b> Habitat history reconstruction of the Japanese-Spanish mackerel <i>Scomberomorus niphonius</i> in the southern Yellow Sea, inferred from otolith chemistry	16:50	<b>Youn-Joo An</b> Ecological effect of micro-sized plastics: Research trends and research needs
17:10	Discussion	17:10	<b>June-Woo Park</b> Assessment of microplastic fibers impacts from the chronic exposure to juvenile sheepshead minnow ( <i>Cyprinodon variegatus</i> )
17:20	Session 5 Ends	17:30	<b>Lev Neretin</b> Applying precautionary principle to microplastics governance framework: Solutions in the absence of "complete" scientific evidence
		17:50	Discussion
		18:00	Session 2 Ends

# Friday, September 29

<b>BIO-Paper Session [D-501]</b>		<b>FIS-Paper Session [D-504]</b>	
<b>Convenors:</b> Se-Jong Ju (Korea)		<b>Convenor:</b> Xianshi Jin (China)	
8:55	<b>Introduction by Convenors</b>	8:55	<b>Introduction by Convenors</b>
9:00	<b>Kazuaki Tadokoro</b> Geographical variation of community structure of bacillariophyceae (diatom) in the western North Pacific Ocean	9:00	<b>Jie Kong</b> Multiple-trait genetic evaluation of the Pacific white shrimp <i>Litopenaeus vannamei</i> in China
9:20	<b>Garam Kim</b> Feeding impact of the planktonic copepod <i>Calanus sinicus</i> on phytoplankton in the northern East China Sea in late spring	9:20	<b>Motomitsu Takahashi</b> Growth and survival of jack mackerel <i>Trachurus japonicus</i> juveniles in the Tsushima Warm Current
9:40 (ECS)	<b>Takuya Ohnishi</b> Identification of gene markers associated with starvation in female <i>Calanus sinicus</i> Brodsky (Calanoida: Copepoda)	9:40	<b>Xianhong Meng</b> An overview of the culturing and breeding of <i>Fenneropenaeus chinensis</i> in China
10:00	<b>Shinji Shimode</b> Egg sizes and life histories of the two planktonic copepod families Eucalanidae and Calanidae	10:00 (ECS)	<b>Kristina Zhukova</b> Gonadal abnormalities in walleye pollock <i>Theragra chalcogramma</i>
10:20 (ECS)	<b>Lianggen Wang</b> Seasonal variation of arrow-worm (Chaetognatha: Sagittidea) assemblages and impact of small copepods in the south-central South China Sea	10:20	<b>Ryan R. Rykaczewski</b> Scales of variability in forage fish populations: Comparing interpretations of ichthyoplankton and sedimentary records
10:40	<b>Coffee/Tea Break</b>	10:40	<b>Coffee/Tea Break</b>
11:00 (ECS)	<b>Jungsoo Park</b> Understanding of mutualistic interaction between marine phytoplankton ( <i>Tetraselmis striata</i> ) and bacteria ( <i>Pelagibaca bermudensis</i> and <i>Stappia</i> sp.) in phycosphere	11:00 (ECS)	<b>Xiaodong Bian</b> Ichthyoplankton succession and assemblage structure in the Bohai Sea during the past 30 years since the 1980s
11:20 (ECS)	<b>Hyeong-Gi Kim</b> A comparative study of nematode assemblages associated with <i>Sargassum muticum</i> in its native range in South Korea and as an invasive species in the English Channel	11:20 (ECS)	<b>Yang Liu</b> Development of a growth prediction model for Japanese scallop along the Okhotsk coast of Hokkaido, Japan using RS and FRA-ROMS
11:40 (ECS)	<b>Soeon Ahn</b> Environmental predictors of habitat suitability and spatial distribution of Indo-Pacific bottlenose dolphin ( <i>Tursiops aduncus</i> ) in Jeju waters	11:40	<b>Nadezhda Aseeva</b> Long-term dynamics of the greenland halibut population in the Okhotsk Sea
12:00	<b>Patrick D. O'Hara</b> Capturing Non-AIS vessel data in Southern Resident Killer Whale (SRKW) Critical Habitat	12:00	<b>Olga Novikova</b> Seasonal distribution of commercial concentrations of saffron cod ( <i>Eleginus gracilis</i> (Til.)) on the shelf of West Kamchatka
12:20	BIO-Paper Session Ends	12:20	FIS Paper Session Ends

<b>MEQ-Paper Session [D-601]</b>		<b>POC-Paper Session [D-604]</b>	
<b>Convenor:</b> Chuanlin Huo (China)		<b>Convenors:</b> Emanuele Di Lorenzo (USA), Yury I. Zuenko (Russia)	
8:55	<i>Introduction by Convenors</i>	8:55	<i>Introduction by Convenors</i>
9:00	<b>Renyan Liu</b> Yessotoxins: History, existence, risk and warning		
9:20	<b>Mikhail V. Simokon</b> Monitoring of marine bioresources safety in the Far Eastern Seas	9:20	<b>Dmitry Kaplunenko</b> Recent reduction of dissolved oxygen in the North-western Pacific and Japan Sea
9:40 (ECS)	<b>Wu Men</b> Environmental evolution of Fukushima-derived <sup>134</sup> Cs in the Northwest Pacific	9:40 (ECS)	<b>Wonkeun Choi</b> Evaluation of climatological mean surface winds over the Korean Waters simulated by CORDEX regional climate models
10:00 (ECS)	<b>Jinqiu Du</b> Sediment accretion and carbon sequestration in tidal flat of Liaohe estuary	10:00	<b>Chan Joo Jang</b> Timing of unprecedented climate in Korea: A linear projection
10:20	MEQ Paper Session Ends	10:20	<b>Yong Lin</b> Regional variation of heat transfer to deep sea during the recent warming hiatus
		10:40	<i>Coffee/Tea Break</i>
		11:00 (ECS)	<b>Giovanni Liguori</b> Increasing Pacific decadal variability under greenhouse forcing
		11:20	<b>Jennifer M. Jackson</b> The influence of seasonal upwelling and downwelling on a coastal fjord: An example from Rivers Inlet, Canada from 1951 to 2017
		11:40	<b>Viktor Kuzin (Cancelled)</b> Simulation of river runoff in Siberia and the propagation of this fresh water in the Arctic
		12:00	<b>Vadim Navrotsky</b> Characterizing the shelf ecosystem status using heat, momentum, and energy fluxes in the near-bottom layers over the continental shelf
		12:20	POC Paper Session Ends

**S1: Environmental changes in the North Pacific and impacts on biological resources and ecosystem services**

- S1-P1        **Alexander A. Dulenin**  
Influence of temperature changes on the bottom marine biota in the western part of Tatar Strait
- S1-P2        **Albina N. Kanzeparova**  
Forecast for 4 anadromous fish stocks status in the rivers of the mainland part of Tatarsky Strait (Sea of Japan) to the end of the 21st century
- S1-P3        **Ekaterina Lepskaya**  
The directivity of the ecosystem processes in the spawning-nursery lake and the optimal spawning escapement
- S1-P5        **Galina Mishukova**  
Methane fluxes in the North Western Pacific Region
- S1-P6        **Vladimir Goryachev**  
The Accident Fukushima's radionuclides in the northwestern Pacific in the summer of 2012
- S1-P7        **Hyoung Chul Shin**  
Central Arctic Ocean challenge; An emerging opportunity to view the changing North Pacific from above

**S2: Microplastics in marine environments: Fate and effects**

- S2-P1        **Wei Huang**  
Ecotoxicity effects of microplastic to the early life stages of large yellow croaker
- S2-P2        **Young Kyoung Song**  
(ECS) Abundance, composition and distribution of microplastics on Korean Beaches
- S2-P3        **Young Kyoung Song**  
(ECS) Changes of carbonyl and vinyl index of three plastics by outdoor exposure
- S2-P4        **You Na Cho**  
(ECS) Development of efficient analytical method for microplastics in bivalves
- S2-P5        **Hong gil Yun**  
Bioaccumulation of microplastics in sheepshead minnow (*Cyprinodon variegatus*)
- S2-P6        **Jung Hoon Kang**  
Spatial characteristics of microplastics in the surface waters along the coast of Korea
- S2-P7        **Guyu Peng**  
(ECS) Microplastics in freshwater river sediments in Shanghai, China: Case study of environmental risk assessment in mega cities

**S3: Below and beyond maximum sustainable yield: Ecosystem reference points**

- S3-P1        **Zuozhi Chen**  
Relationship between intrinsic rate of population increase and natural mortality in fish and invertebrates
- S3-P2        **Peng Lian**  
The application of Argo profile data and innovative methods in fisheries sciences

#### **S4: Adverse impacts on coastal ocean ecosystems: How do we best measure, monitor, understand and predict?**

- S4-P2            **Chunjiang Guan**  
Studies on the bloom timing of moon jellyfish (*Aurelia aurita*) in the nearshore waters of the Hongyanhe River – an estuary of the Liaodong Bay
- S4-P3  
(ECS)            **Rikuya Kurita**  
High-resolution monitoring of phytoplankton communities using spectral fluorescence signatures
- S4-P4  
(ECS)            **Gabriel R. Freitas**  
Plankton biodiversity, community structure and the physical and chemical environment of Izu-Oshima, Japan: A high resolution and multidisciplinary observational approach
- S4-P5            **Guangshui Na**  
The effect of estuarine physicochemical conditions on antibiotic-resistant *E. coli* migration and competitive ability
- S4-P6  
(ECS)            **Hyeong-Gi Kim**  
Alpha, beta and gamma diversity of nematode assemblages in seaweeds from Korea the British Isles
- S4-P7            **Ferdenant Mkrtchyan**  
Application GIMS- technology for the monitoring coastal and marine ecosystems
- S4-P8  
(ECS)            **Soyeon Kim**  
Temporal variation in microbial community composition in Gadeok Channel, South Korea
- S4-P9            Jennifer M. Jackson (for Justin **Del Bel Belluz**)  
Fluorescence to chlorophyll a ratios on the central coast of British Columbia – Data quality control and spatial-temporal variability across a diverse and optically complex environment

#### **S5: Coastal ecosystem conservation and challenge**

- S5-P1            **Vladimir Evdokimov**  
The effect of the lights on reproduction of sea urchin
- S5-P2            **Jeong-In Chang**  
Improvement of coastal use fee and levy system based on the marine ecosystem in Korea
- S5-P3            **Qun Lin**  
Changes on the ecological Carrying Capacity of fleshy prawn (*Fenneropenaeus chinensis*) in the Bohai Sea
- S5-P4            **Seung Won Jung**  
Real-time detection of the red tide dinoflagellate *Akashiwo sanguinea* using a newly developed ultrasonic acoustic technique

#### **S6: Interannual variability in marine ecosystems and its coupling with climate projections**

- S6-P1            **Yanlong Chen**  
Spatio-temporal distribution of the specific growth rate of *Prorocentrum donghaiense* related with SST

**S8/HD-Paper: Marine ecosystem health and human well-being:  
A social-ecological systems approach**

- S8/HD-P1      **Yunyun Xiang**  
(ECS)      Research into marine ecological suitability assessment and zoning based on spatial analysis: A case study in Dongtou County
- S8/HD-P2      **Robert Blasiak**  
(ECS)      Developing a global database on fishery conflicts
- S8/HD-P3      **Naoki Tojo**  
Fishing alternatives of a local stock of Coonstripe shrimp *Pandalus hypsinotus* for sustainability of the local communities in southern Hokkaido, Japan
- S8/HD-P4      **Olga N. Lukyanova**  
Seafood consumption and pesticide accumulation in humans in the Russian Far East (Primorsky Krai)

**S9: Meso-/submeso-scale processes and their role in marine ecosystems**

- S9-P1      **Polina K. Kozub**  
(ECS)      Dependence of Pacific saury fisheries upon the distribution of oceanographic parameters in the South-Kuril area
- S9-P2      **Yuki Okada**  
(ECS)      Submesoscale structure in the mesoscale eddies in the western subarctic North Pacific
- S9-P3      **Hiromichi Ueno**  
Characteristics of Aleutian eddy and its impact on Chlorophyll distribution
- S9-P4      **Eugene V. Samko**  
Features of distribution and efficiency of saury fishery in relation to oceanological conditions in South Kuril Region on satellite data in August-November, 2002-2014
- S9-P5      **Qinsheng Wei**  
Physical-biogeochemical characteristics off the northern Jiangsu coast (Yellow Sea, China) and their potential relations with the occurrence and expansion of *Ulva prolifera* in summer
- S9-P6      **Suyun Noh**  
(ECS)      Near-inertial internal waves observed in the vicinity of an anticyclonic eddy in the southwestern East Sea (Japan Sea)
- S9-P7      **KyungJae Lee**  
Mesoscale eddies in the East Sea (Japan Sea): Statistical categorization and characterization
- S9-P8      **Sachihiko Itoh**  
Mesoscale and submesoscale coherence from physics to phytoplankton
- S9-P9      **Lei Zhou**  
Seasonal variation of barrier layer in the Southern Ocean
- S9-P10      **Igor Semiletov**  
Outer shelf of the Laptev Sea: Specific features of sedimentology processes



**S11: Environmental variability in Arctic and Subarctic ecosystems and impacts on fishery management strategies**

- S11-P1        **Mikhail A. Stepanenko**  
Environmental impacts on the Bering Sea pollock spatial distribution, migrations and evaluating fishery management
- S11-P2        **Genndayi A. Shevtsov**  
Distribution patterns of cephalopods on the Emperor Seamounts as revealed from bottom trawl catches
- S11-P3        **Olga Novikova**  
The specifics of gonad maturation and the terms of spawning in saffron cod (*Eleginus gracilis* (Til.)) on the coasts of Kamchatka
- S13-P4        **Igor Semiletov**  
DOM and its optical characteristics on the East Siberian Arctic shelf: The spatial distribution and its inter-annual variability (2003-2016)

**BIO Paper Session**

- BIO-P1        **Hui Zhang**  
(ECS) Identification of myogenic regulatory genes in the muscle transcriptome of beltfish (*Trichiurus lepturus*): A major commercial marine fish species with robust swimming ability
- BIO-P2        **Seung Won Jung**  
Diatom biogeography: Abundance and species diversity of a major phytoplankton group in Korean coastal waters during winter
- BIO-P3        **Yusuke Ikawa**  
(ECS) Seasonal and year-to-year variations in the surface copepodid population and egg production rate of *Eucalanus californicus* (Copepoda: Calanoida) in Sagami Bay, Japan
- BIO-P4        **Natalia Shlyk (or K. Rogachev)**  
Coastal currents and effects of freshwater discharge on zooplankton aggregations in the Sea of Okhotsk
- BIO-P5        **Jianming Chen**  
Transcriptome profiling of *Galaxea fascicularis* and its endosymbiont *Symbiodinium* reveals chronic eutrophication tolerance pathways and metabolic mutualism between partners
- BIO-P6        **Elena Dulepova**  
Zooplankton production parameters in the north-western Bering Sea in the present period
- BIO-P7        **Kwang-Sik Choi**  
Pathologic survey of Protozoan Parasites in different marine bivalve hosts in the South Coast of Korea using PCR and histology

**FIS Paper Session**

- FIS-P1  
(ECS)      **Jun Zhang**  
A preliminary study on the nautical area scattering coefficient and distribution of mesopelagic fishes in the central-southern part of the South China Sea
- FIS-P2      **Zhengguo Cui**  
Denitrification effect, substrate enzymatic activities and microbial information in an integrated vertical-flow marine constructed wetlands
- FIS-P3      **Sergey S. Ponomarev**  
Histological observation of hermaphroditism of chum salmon *Oncorhynchus keta* (Walbaum, 1792)
- FIS-P4      **Hiromichi Igarashi**  
Development of habitat suitability index models of demersal fishes off the eastern coast of Japan
- FIS-P5  
(ECS)      **Peng Sun**  
Estimation of trawl selectivity for four cephalopod species in the Yellow Sea
- FIS-P6  
(ECS)      **Zhongxin Wu (CANCELLED)**  
Partitioning of food resources among three co-occurring scorpionfish in the coastal waters of the northern Yellow Sea
- FIS-P7  
(ECS)      **Akira Hayashi**  
Evaluation of the increasing trend of Japanese sardine *Sardinops melanostictus* recruitment in the waters north and west off Kyushu island, Japan
- FIS-P8  
(ECS)      **Alexey A. Khoruzhiy**  
The nekton community of the Pacific waters off the Kuril Islands and Northwestern Pacific: Trophic links and the amount of forage base consumption
- FIS-P9      **Aleksei Khoruzhiy (for Pavel O. Emelin)**  
Mesopelagic species in the upper epipelagial layer of the deep-sea part of Okhotsk Sea in summer and autumn periods
- FIS-P10      **Jennifer Boldt**  
Development of stereo camera methodologies to improve pelagic fish biomass estimates and inform ecosystem management in marine waters
- FIS-P11      **Vladimir Tuponogov**  
Migrations of rat-tail and greenland halibut in the Okhotsk Sea
- FIS-P12      **Roman Novikov**  
Environmental influence on Pacific Halibut *Hippoglossus stenolepis* spatial distribution and migration in the Eastern Okhotsk Sea

**MEQ Paper Session**

- MEQ-P1      **Alexander V. Moshchenko**  
Assessment of contamination in the coastal zone around Vladivostok and benthos status in 2016
- MEQ-P2  
(ECS)      **Anna S. Vazhova**  
Oxygen regime in the rivers flowing into the Japan/East Sea as an indicator of anthropogenic impact
- MEQ-P3      **Alexander V. Moshchenko**  
Soft bottom macrozoobenthos of Peter the Great Bay and chemical contamination of marine environment

- MEQ-P4  
(ECS) **Wen Yu**  
Levels of artificial radionuclides in squid from northwestern Pacific after Fukushima accident
- MEQ-P5 **Daisuke Ambe**  
Spatio-temporal variation of radiocesium in sea sediment East of Japan after the Fukushima Dai-ichi Nuclear Power Plant accident
- MEQ-P6 **Sang Hee Hong (for Gi Myung Han)**  
Persistent Organic Pollutants in black-tailed gull eggs from South Korea
- MEQ-P7  
(ECS) **Artyom Tadzhibaev (Cancelled)**  
Concentrations of heavy metals in the echinoid *Strongylocentrotus intermedius* from the Gulf of Vladimír, Sea of Japan
- MEQ-P8 **Jianhua He**  
An in-situ monitoring system for gamma radionuclides in seawater
- MEQ-P9  
(ECS) **Oleg G. Borzykh**  
Contamination the Japanese Scallop *Mizuhopecten yessoensis* (Jay, 1856) by the filamentous fungi (Peter the Great Bay, Sea of Japan)

### POC Paper Session

- POC-P1 **Larissa Muktepavel**  
Okhotsk troposphere cyclone as the general factor for ice cover formation in Tatar Strait and in the Okhotsk sea
- POC-P2 **Kwang-Young Jeong**  
Mean sea-level rises and coastal vulnerability along the Korea coasts
- POC-P3  
(ECS) **Yushiro Tsukada**  
Interannual variation of solar heating in the Chukchi Sea, Arctic Ocean
- POC-P4 **Lijian Shi**  
Sea ice detection for the Bohai Sea using MODIS IST data
- POC-P5 **Heeseok Jung**  
Development of a medium range ocean prediction model for the seas around Korea
- POC-P6 **Konstantin Rogachev**  
Argos drifters reveal amplification of tidal currents in the Oyashio
- POC-P7 **Igor P. Semiletov**  
Carbonate characteristics of the western Chukchi Sea Shelf
- POC-P8  
(ECS) **Anna A. Artemyeva**  
SST variations in the Northwest Pacific related to West Pacific Teleconnection Pattern
- POC-P9 **Chan Joo Jang**  
The transition of the sea surface temperature long-term trend in the Yellow and East China Seas in the late 1990s: Effects of the North Pacific regime shift
- POC-P11 **Alexander Nikitin**  
Oceanographic conditions in the northwestern Japan Sea based on satellite information and data from the regular 'TSUGARU' transect in winter 2000-2015

**General Poster Session**

- GP-1           **Oleg Zaitsev**  
The great 2011 Tohoku tsunami on the Mexican Coast: Spectral analysis and energy parameterization
- GP-2           **Guimei Liu**  
Establishment of marine ecosystem forecasting systems in China
- GP-3  
(ECS)       **Oleg V. Losev**  
Investigation results of pollution of Uglovoy Bay in winter of 2017 (Peter the Great Bay, Japan/East Sea)
- GP-4           **Salim Dautov**  
*Echinocardium cordatum* from the Sea of Japan is not the same species as from North Sea
- GP-5  
(ECS)       **Pavel Gushcherov**  
Research of the cetacean sighting survey in the northern part of the Sea of Okhotsk in 2015-2016
- GP-6  
(ECS)       **Anna V. Klimova**  
Intraspecific differentiation of *Alaria esculenta* (Phaeophyceae, Laminariales) from southeastern Kamchatka based on molecular-phylogenetic and cytochemical study
- GP-7           **Adedotun Oke**  
The Effect Of Noise On Aquatic Life : A Literature Review
- GP-8           **Donghwan Kim**  
Distribution and Diffusion of an Invasive Solitary Ascidian, *Ciona intestinalis*, in South Korea
- GP-9           **Minkyung Kim**  
Effects of the Salinity on the egg development and the larval settlement in various temperatures of *Ciona intestinalis* (Ascidiacea: Phlebobranchia: Cionidae)
- GP-10  
(ECS)       **Daniel M. Mbithi**  
Contribution of black carbon induced climate change on mountain snow-melt over Eastern Africa region
- GP-11        **Douding Lu**  
Morphology, phylogeny and life history of *Chattonella marina* from the East China Sea
- GP-12        **Julia V. Stochkute**  
Contribution of atmospheric circulation in the change of the thermal regime of the north-eastern coast of Russia in the period 1950-2013
- GP-14  
(ECS)       **Minji Lee**  
The Responses of phytoplankton and bacterial communities along the salinity gradients in the Seomjin River estuary
- GP-15  
(ECS)       **Yunji Kim**  
Study on the outbreak and extinction mechanisms of marine harmful microalga *Cochlodinium polykrikoides* in Southern Sea of Korea in 2016
- GP-16  
(ECS)       **Minju Kim**  
Distribution of mesozooplankton during spring and autumn across the frontal zone of South Sea, Korea
- GP-17        **Taehee Lee**  
Geochemical characteristics of the sediment pore water in the Northeastern Equatorial Pacific
- GP-18        **Tae-Hoon Kim**  
Unusually significant bacterial production of dissolved organic matter in a marginal sea (East/Japan Sea)

- GP-19 **Jianing Wang**  
(ECS) Surface current in “Hotspot” serves as a new and effective precursor for El Niño prediction
- GP-20 **Fan Wang**  
IOCAS scientific observing network in the Western Pacific Ocean
- GP-21 **Xinyang Yue**  
(ECS) Low frequency shift of wind waves induced by long waves based on experimental observation data
- GP-22 **Keliang Chen**  
Marine environmental situation and Blue Bay remediation in Xiamen
- GP-23 **Zhang Jian**  
(ECS) Distribution of coccolithophores in the Yellow Sea and East China Sea in summer and winter
- GP-24 **Kyoungsoon Shin**  
A staining method to determine marine microplanktonic organism viability and investigate the efficacy of a ship’s ballast water treatment system
- GP-25 **Alexey M. Trukhin (for Peter A. Permyakov)**  
Disturbance of seals by anthropogenic activity at the haul out of Piltun Bay (Sakhalin Isl.)
- GP-26 **Cui Liang**  
Impacts of ocean warming on China’s fisheries catches: An application of ‘mean temperature of the catch’ concept
- GP-27 **Sergey V. Loboda**  
Pacific herring distribution and some features of biology in the northwestern Bering Sea in 2010-2015

#### **W4: Long-term changes in HAB occurrences in PICES nations; the Eastern vs. Western Pacific**

- W4-P1 **Bin Zou**  
Green tide monitoring in the China Sea using Remote Sensing Data
- W4-P2 **Jaeyeon Park**  
Outbreak and movement pattern of red tide patches occurred by *Cochlodinium polykrikoides* during last 4 years in the Korean coastal waters

#### **W6: Advantages and limitations of traditional and biochemical methods of measuring zooplankton production**

- W6-P1 **Toru Kobari**  
A comparison of protein synthetases activity to standing stock and productivity in a cultured copepod population, *Pseudodiaptomus inopinus*
- W6-P2 **Akash Sastri**  
A comparison of chitobiase-based estimates to developing biomass and production rates of a laboratory culture of *Pseudodiaptomus inopinus*

## **Poster Observers Session**

- NPFC**            **Aleksandr Zavolokin**  
North Pacific Fisheries Commission – new Regional Fisheries Management Organization  
in the North Pacific Ocean
- NOWPAP**        **Lev Neretin**  
Strengthening regional cooperation for the protection of the marine and coastal environ-  
ment in the Northwest Pacific through the Northwest Pacific Action Plan to achieve Sus-  
tainable Development Goals (SDGs)
- NEAR-GOOS**    **Vyacheslav Lobanov**  
North-East Asian Regional Global Ocean Observing System: 20 years of building partner-  
ship in oceanographic data exchange and services

**Upcoming International Events**  
**[www.pices.int](http://www.pices.int)**

**PICES/ICES/IOC/NOAA Fisheries 4th International Symposium**

*The Effects of Climate Change on the World's Oceans*

June 4-8 2018, Washington DC, USA

[www.pices.int/2018-climate-change](http://www.pices.int/2018-climate-change)

**PICES/CIBNOR/CICIMAR International Symposium**

*Understanding Changes in Transitional Areas of the Pacific*

April 24-26, 2018, La Paz, Baja California Sur, Mexico

[www.pices.int/2018-pacific-ta](http://www.pices.int/2018-pacific-ta)

**PICES-2018 Annual Meeting**

*Toward Integrated Understanding of Ecosystem Variability in the North Pacific*

October, 2018, Yokohama, Japan

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