



2016 PICES Annual Meeting

25 Years of PICES Celebrating the Past, Imagining the Future

Program

San Diego, CA, USA
November 2-13, 2016

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Notes for Guidance

The North Pacific Marine Science Organization (PICES) announces its 2016 Annual Meeting to be held November 2-13, 2016, at OMNI Hotel. The meeting is hosted by the National Oceanographic and Atmospheric Administration (NOAA), in coordination with the PICES Secretariat. Local arrangements are made by the Southwest Fisheries Science Center of NOAA.

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).

If complications occur due to incompatibilities between PCs and Macs, Macintosh owners may use their own computers to make presentations.

Posters

Posters will be on display from November 7 (a.m.) until the end of the “Wine and Cheese” Poster Session on the evening of November 10.

Two Poster Sessions for all posters (workshop and sessions) will be held on November 8 and November 10. Poster presenters are expected to be available to answer questions from 19:00-20:00 during at least one Poster Session.

Internet access

Internet access via wireless LAN will be available. A few desktop computers will also be available for participants.

Social activities

November 7 (18:30-21:00)

OMNI Hotel, Palm/Sail Terrace (6th Floor)

Welcome Reception

The Welcome Reception for all participants (and registered guests)

November 9 (18:30-21:00)

TBA at the Meeting

Sport Event

Please sign up for participation at the Registration Desk

November 8 and November 10 (18:30-21:00)

OMNI Hotel, Gallery (Ground Level)

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.

Floor of the Hotel for each of the room types:

Ground Level: Gallery

4th Floor: Grand Ballroom; Salon; Gaslamp; East Foyer; South Foyer

5th Floor: Balboa

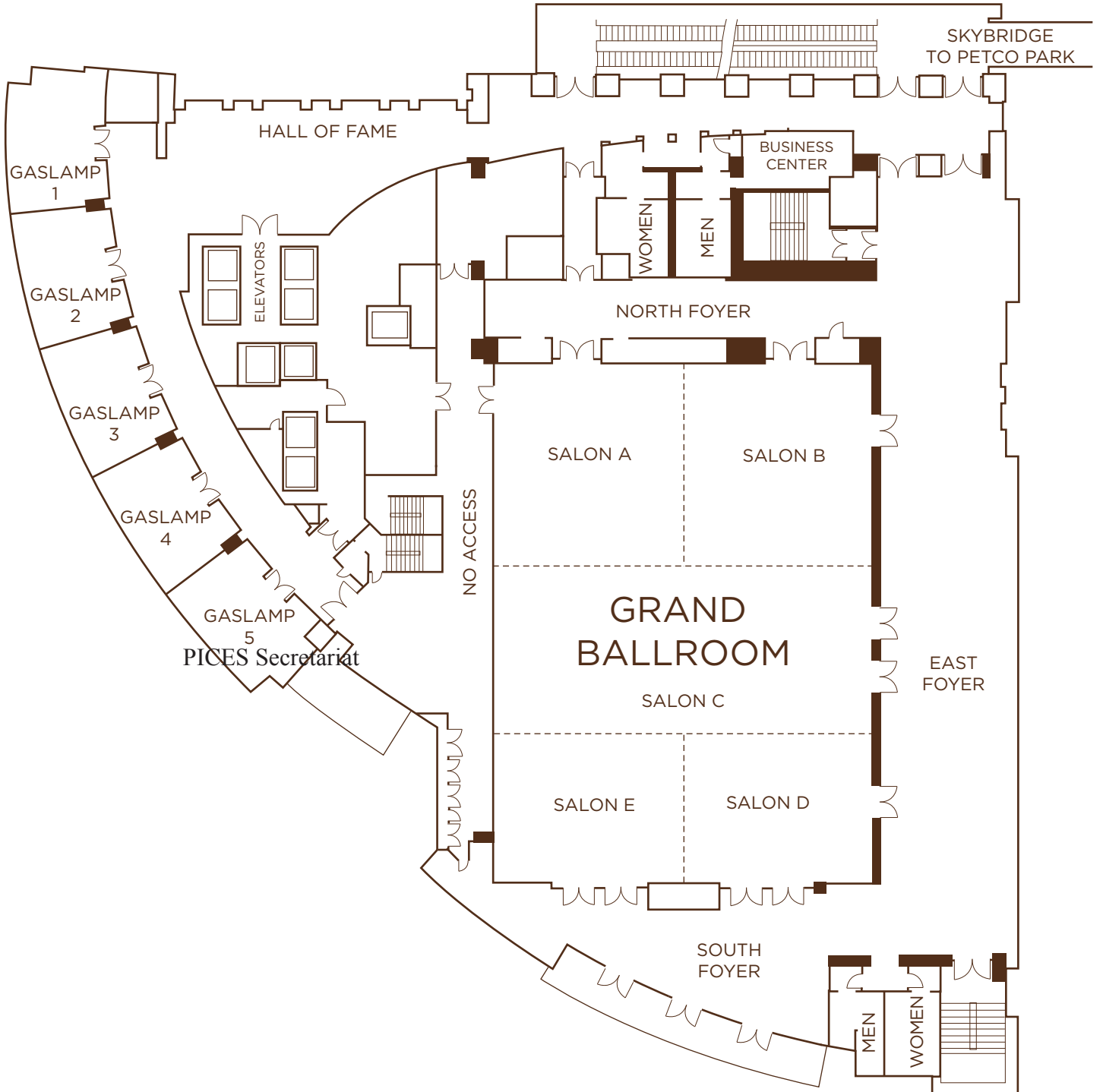
6th Floor: Boardroom; Palm/Sail Terrace

PICES Secretariat is located in Gaslamp-5 Room (4th Floor)

Local Organizing Committee is located in Board Room 1 (6th Floor)

Floor Plan

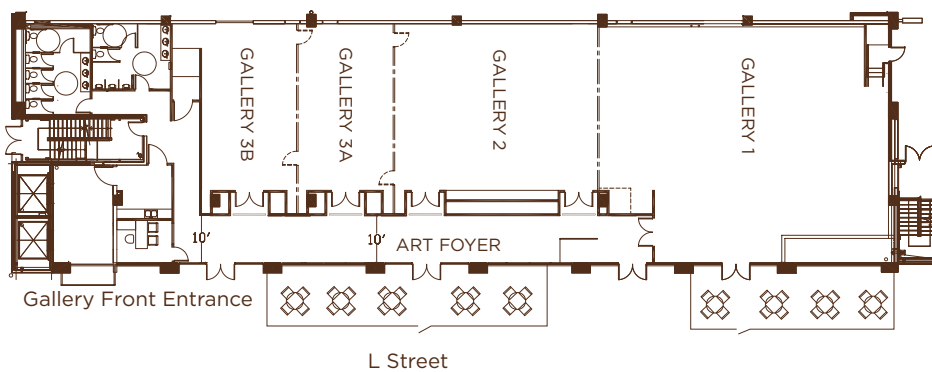
San Diego 4th Floor



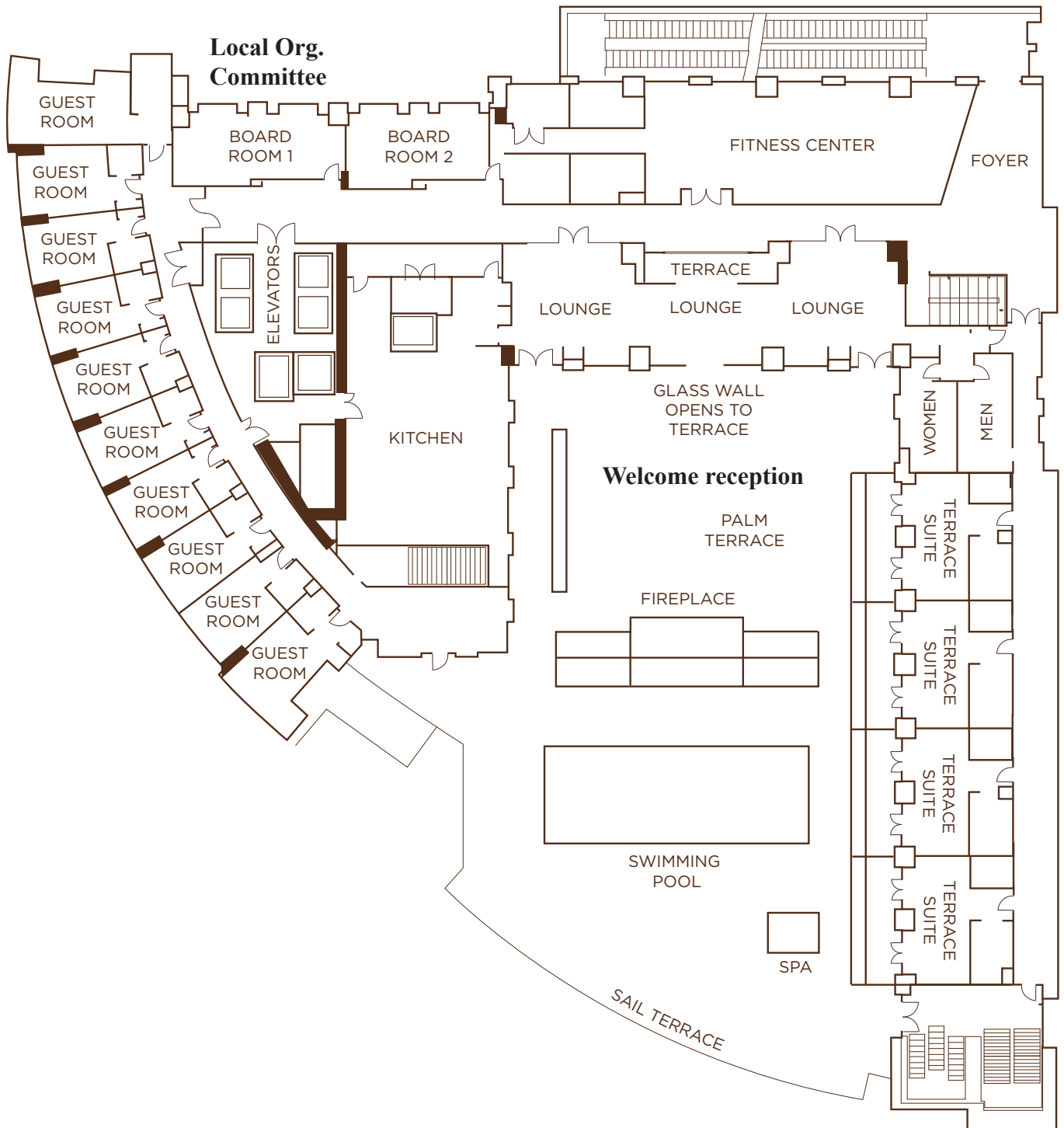
San Diego 5th Floor



San Diego Gallery Meeting Space



POSTER SESSION
Ground level



List of Sessions and Workshops

S1	Nov. 7	25 Years of PICES: Celebrating the Past, Imagining the Future
S2	Nov. 10	Early life history stages as indicators and predictors of climate variability and ecosystem change
S3	Nov. 10	Source, Transport and Fate of Hydrocarbons in the Marine Environment
S4	Nov. 10	Climate Variability, Climate Change and the Reproductive Ecology of Marine Populations
S5	Nov. 8	Understanding our Changing Oceans through Species Distributions and Habitat Models based on Remotely Sensed Data
S6	Nov. 8	What Factors make or break Trophic Linkages?
S7	Nov. 8	New Stage of Ocean Acidification Studies: Responses of Oceanic Ecosystem including Fisheries Resources
S8	Nov. 8, 9	The Effect of Marine Debris caused by the Great Tsunami of 2011
S9	Nov. 9, 10	Resilience, Transitions and Adaptation in Marine Ecosystems under a Changing Climate
S10	Nov. 10, 11	The Response of Marine Ecosystems to Natural and Anthropogenic Forcing: Past, Present and Future
S11	Nov. 8, 9	Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions
S12	Nov. 10	Causes and Consequences of 25 Years of Variability in Ocean Conditions on the Ecosystems of the North Pacific
S13	Nov. 9	Understanding the Changing Coastal Ocean: Advances and Challenges in Multi-parameter Observations
BIO-P1	Nov. 7-10	BIO-1 Contributed Poster Session Recent Progress in Deep-Sea Research and Conservation: Lessons from Various Parts of the Globe
BIO-P2	Nov. 7-10	BIO-2 Contributed Poster Session
FIS-P	Nov. 7-10	FIS Contributed Poster Session
MEQ-P	Nov. 7-10	MEQ Contributed Poster Session
POC-P	Nov. 7-10	POC Contributed Poster Session
MON-P	Nov. 7-10	MONITOR Contributed Poster Session
S-HD	Nov. 7-10	S-HD Contributed Poster Session
W1	Nov. 3	Acidification of the North Pacific Ocean: A Basin-Wide Assessment
W2	Nov. 3	Conditions promoting extreme Pseudo-nitzschia events in the eastern Pacific but not the western Pacific
W3	Nov. 2, 3	Distributions of habitat-forming coral and sponge assemblages in the North Pacific Ocean and factors influencing their distributions
W4	Nov. 3	Methods relating oceanographic conditions to the distribution of highly migratory species
W5	Nov. 4	Modeling effects of climate change on fish and fisheries
W6	Nov. 3	Consumption of North Pacific forage species by marine birds and mammals
W7	Nov. 3	Delivering quality multi-parameter data from the coastal ocean
W8	Nov. 4	Mesoscale and submesoscale processes in the North Pacific: history and new challenges
W9	Nov. 3	The role of the northern Bering Sea in modulating Arctic environments: Towards international interdisciplinary efforts
W10	Nov. 3	Distribution and risk analysis of radionuclides in the North Pacific

Meeting Timetable

Ground Level:
Gallery

4th Floor:
Sal = Salon
GL = Gaslamp
Grand Ballroom

5th Floor:
Bal = Balboa

6th Floor:
BR = Boardroom
Palm/Sail Terrace

Wednesday, November 2												
	Gaslamp-2			Gaslamp-3						Gaslamp-1		
09:00 18:00	MAFF Meeting			W3 (corals) Day 1			WG-33 Meeting (cancelled)			SG-CEP Meeting		
Thursday, November 3												
	Bal-3	Bal-1	GL-3	GL-2	Sal-A	Sal-B	Sal-D	Bal-2	GL-4	Bal-4		
09:00 12:30	W1 (OA)	W2 (HABS)	W3 (corals) Day 2	W4 (HMS)	W6 (MBM) forage)	W7 NPCOOS	W9 (Bering Sea)	W10 (Radionu clides)	SG- CERP Meeting	WG-31 Meeting	WG-33 Meeting (cancelled)	
14:00 18:00												
Friday, November 4												
	Sal-A	Sal-B	Bal-2	GL-3	GL-2	Bal-3	Bal-1	GL-4	GL-1	Bal-4	Sal-D	
09:00 12:30	W5 (Mod- CCME)	W8 (Meso Proc)	WG-30 Meeting	WG-32 Meeting	WG-34 Meeting	S-CC Meeting	S-HAB Meeting	S-MBM Meeting	AP- NPCOOS Meeting	SG- NPESR3 Meeting	MoE Meeting	
14:00 18:00					AP- CREAMS Meeting							
18:00 20:00/ 21:00	GL-2 AP-CREAMS Meeting					Sal-A S-CCME Meeting						
Saturday, November 5												
09:00 18:00	Sal-D, Sal-E FUTURE SSC Meeting											
Sunday, November 6 [set clocks back 1 hour to Pacific Standard Time]												
09:00 12:30	Sal-A, Sal-B FUTURE Mini-Symposium											
12:30 17:00	GL-1 Science Board Meeting (closed)											
	Sal-A	Sal-E	Sal-B	Sal-D	GL-3	GL-4	GL-2					
18:00 20:00	BIO Meeting Day 1	FIS Meeting Day 1	MEQ Meeting Day 1	MONITOR Meeting Day 1	POC Meeting Day 1	TCODE Meeting Day 1	S-HD Meeting Day 1					
Monday, November 7												
08:30 10:15	Grand Ballroom Opening Session											
10:30 18:20	Grand Ballroom Science Board Symposium (S1)											
18:30 21:00	Palm/Sail Terrace Welcome Reception (for all participants and registered guests)											
Tuesday, November 8												
09:00 10:30	Grand Ballroom Plenary Session (S1, S5, S8)											
	Sal-C	Sal-D, Sal-E			Sal-B		Sal-A		GL-1			
10:50	S11 - Day 1 (Model Phys. Process)	S5 (Changing Oceans)			S6 (Trophic Links)		S7 (Ocean Acidification)		[14:00] F&A Meeting (closed)			
16:20 18:00	S8 - Day 1 (Marine Debris)											
18:30 21:00	Gallery Poster Session* (begins at noon) "Wine and Cheese" (18:30-21:00)											

Meeting Timetable (continued)

Wednesday, November 9							
09:00 12:30	Sal-D, Sal-E	Sal-B	Sal-A	Sal-C	GL-1		
	S8 (Marine Debris) Day 2	S9 (Resilience) Day 1	S11 (Model Physical Process) Day 2	S13 (Changing Coastal Ocean)	F&A Meeting (closed)		
14:00 19:00	GL-3	GL-4	GL-2	Bal-1	Bal-2	Bal-3	GL-1
	BIO Meeting Day 2	FIS Meeting Day 2	MEQ Meeting Day 2	MONITOR Meeting Day 2	POC Meeting Day 2	TCODE Meeting Day 2	S-HD Meeting Day 2
18:30 21:00	Sport Event						
Thursday, November 10							
09:00 10:20	Grand Ballroom Plenary Session (S10)						
10:40 11:40	Sal-B	Sal-D, Sal-E		Sal-A		Sal-C	
	S10 (FUTURE)	S2 (Early Life History Stages)		S4 (Climate Variability/ Reproductive Ecology)		S12 (Causes/Consequences)	
11:50 15:00	S9 (Resilience)						
15:10	S3 (Hydrocarbons)						
18:30 21:00	Gallery Poster Session* (all day) "Wine and Cheese" (18:30-21:00)						
Friday, November 11							
09:00 12:20	Grand Ballroom FUTURE (Plenary) Session (S10)						
12:30 13:15	Grand Ballroom Closing Session**						
13:30 18:00	GL-1 Science Board Meeting (closed)						
18:30 21:00	Chairman's Reception* [by invitation only]						
Saturday, November 12							
09:00 18:00	GL-1 Science Board Meeting (closed)			GL-3 Governing Council Meeting (closed)			
Sunday, November 13							
09:00 18:00	GL-3 Governing Council Meeting (closed)						

Ground Level:
Gallery

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Grand Ballroom

5th Floor:
Bal = Balboa

6th Floor:
BR = Boardroom

* Poster presenters are expected to be available to answer questions for at least one hour
(19:00-20:00: Tuesday, Nov. 8 and Thursday, Nov. 10)

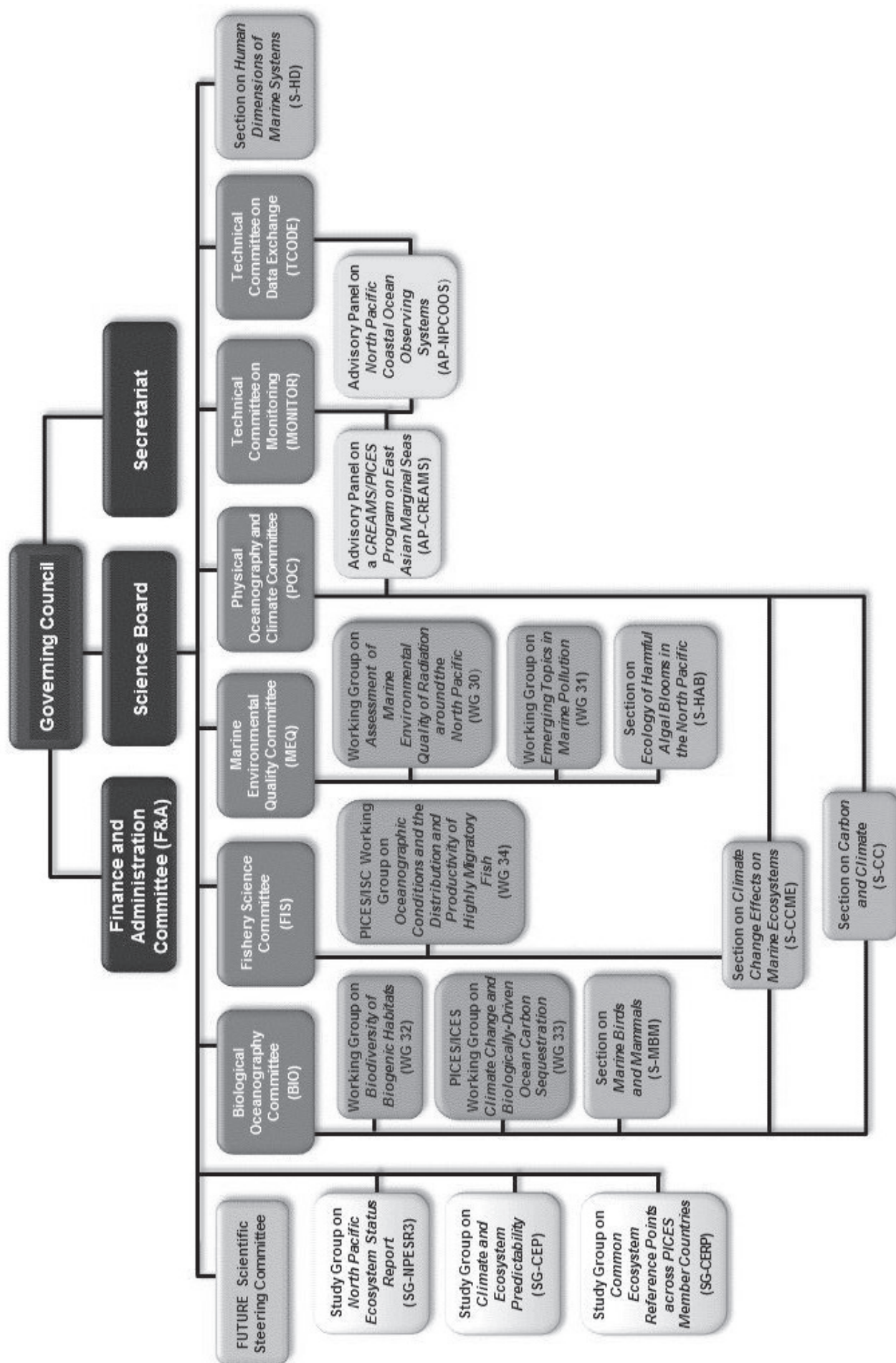
** Award recipients for Best Oral/Poster presentations will be announced during the Closing Session

10:30-10:50 Coffee Break (Except for Nov. 10, 10:20-10:40)

12:30-14:00 Lunch

16:00-16:20 Coffee Break

North Pacific Marine Science Organization (PICES) structure for 2015-2016



PICES Acronyms

Committees

BIO	Biological Oceanography Committee
FIS	Fishery Science Committee
MEQ	Marine Environmental Quality Committee
MONITOR	Technical Committee on Monitoring
POC	Physical Oceanography and Climate Committee
TCODE	Technical Committee on Data Exchange

Advisory Panels

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

Sections

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

Study Groups

SG-CEP	Study Group on Climate and Ecosystem Predictability <i>(reports to Science Board)</i>
SG-CERP	Study Group on Common Ecosystem Reference Points across PICES Member Countries <i>(reports to Science Board)</i>
SG-NPESR3	Study Group on North Pacific Ecosystem Status Report <i>(reports to Science Board)</i>

Working Groups

WG-30	Working Group on Assessment of Marine Environmental Quality of Radiation around the North Pacific <i>(reports to MEQ Committee)</i>
WG-31	Working Group on Emerging Topics in Marine Pollution <i>(reports to MEQ Committee)</i>
WG-32	Working Group on Biodiversity of Biogenic Habitats <i>(reports to BIO Committee)</i>
WG-34	Joint PICES/ISC Working Group on Ocean Conditions and the Distribution and Productivity of Highly Migratory Fish <i>(reports to FIS Committee)</i>

Scientific Program

FUTURE-SSC	Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems - Scientific Steering Committee
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**Session/Workshop Schedules
at a Glance**

Distributions of habitat-forming coral and sponge assemblages in the North Pacific Ocean and factors influencing their distributions

Convenors:

Kwang-Sik Choi (Korea)

Masashi Kiyota (Japan)

Chris Rooper (USA)

9:15 *Introduction by Workshop Convenors*

Session 1: Multiple factors affecting the dynamics of shallow-water corals and other organisms
(Facilitator: Kwang-Sik Choi)

9:25 **Hiroya Yamano (Invited)**

Environmental factors affecting the distribution of habitat-forming shallow-water corals

10:05 **Jin-Soo Park**

First report on the annual gametogenesis of high-latitude corals *Alveopora japonica* (Eguchi, 1968) and *Oulastrea crispata* (Lamarck, 1816) on Jeju Island, Korea

10:30 *Coffee Break*

Session 2: Factors and processes affecting corals and sponges in mesophotic and deep water zones
(Facilitator: Les Watling)

10:50 **Les Watling**

Biogeographic patterns and hypotheses relating deep-sea coral distributions to water masses

11:30 **Christopher Rooper**

Factors affecting the large scale distribution of deep sea corals and sponges in the Alaskan ecosystems of the North Pacific Ocean

11:55 **Stephanie K. Archer**

Seascape ecology of glass sponge reefs: Fine scale measurements of habitat heterogeneity and its relationship to community structure

12:20 *Lunch*

Session 3: SDM approach: Data collection, modeling, and evaluation (Facilitator: Samuel Georgian)

14:00 **Samuel E. Georgian**

Resolving biogeographic patterns in the deep sea using species distribution modeling

14:40 **Anders Knudby**

Data-driven bioregions for local ecosystem context in species distribution models

15:05 **Mai Miyamoto**

Selection of the proper spatial resolution for habitat modeling of cold-water corals

15:30 **Dana Haggarty**

Testing the transferability of species distribution models between shallow seamounts in the North Pacific Ocean

15:55 *Coffee Break*

Session 4: Workshop on distribution modeling of data-limited species: Corals and sponges as an example
(Facilitator: C. Rooper and S. Georgian)

16:20 *Introduction by Session Convenors*

16:25 **Scoping discussion**

Presentation of biotic and abiotic data; Choice of target area; Taxonomic resolution; Available model types

17:20 **Data compilation and formatting**

18:00 *End*

W1 [Balboa 3]		W2 [Balboa 1]		W3 (Day 2)[Gaslamp 3]		W4 [Gaslamp 2]	
Acidification of the North Pacific Ocean: a basin-wide assessment		Conditions promoting extreme <i>Pseudo-nitzschia</i> events in the eastern Pacific but not the western Pacific		Distributions of habitat-forming coral and sponge assemblages in the North Pacific Ocean and factors influencing their distributions		Methods relating oceanographic conditions to the distribution of highly migratory species	
Convenors: James Christian (Canada) Tsuneo Ono (Japan)		Convenors: Vera Trainer (USA) Polina A. Kameneva (Russia)		Convenors: Kwang-Sik Choi (Korea) Janelle Curtis (Canada) Masashi Kiyota (Japan) Chris Rooper (USA)		Convenors: Gerard DiNardo (USA) Chi-lu Sun (Chinese Taipei)	
		8:55	<i>Introduction by Workshop Convenors</i>	8:55	<i>Introduction by</i> C. Rooper and S. Georgian		
9:00	<i>Introduction by Workshop Convenors</i>	9:00	Inna V. Stonik (Invited) <i>Pseudo-nitzschia</i> diversity, bloom events and their impacts in the North Pacific: An East-West comparison	9:00	Modeling: Interpretation of model outputs; Model validation; Multimodel comparison/ensemble	9:00	Barbara A. Muhling (Invited) Ecology and management of Atlantic bluefin tuna under climate variability and change
9:10	Karen E. Kohfeld (Invited) Assessing vulnerability to ocean acidification in the Strait of Georgia along the Canadian Pacific Coast						
		9:40	Nicola Haigh <i>Pseudo-nitzschia</i> species and domoic acid on the west coast of Vancouver Island, British Columbia, in 2015			9:40	Xianshi Jin Population dynamics of fish species in marine ecosystem: A case study in the Bohai Sea, China
9:50	Discussion						
		10:05	Yuichi Kotaki Amnesic shellfish poisoning (ASP) potential in Japan			10:10	Rosa Runcie The impact of climate change on Pacific Bluefin (<i>Thunnus orientalis</i>) tuna distribution in the Eastern Pacific Ocean
10:30	<i>Coffee Break</i>	10:30	<i>Coffee Break</i>	10:30	<i>Coffee Break</i>		
						10:40	<i>Coffee Break</i>

November 3

W6 [Salon A]		W7 [Salon B]		W9 [Salon D]		W10 [Balboa 2]	
Consumption of North Pacific forage species by marine birds and mammals		Delivering quality multi-parameter data from the coastal ocean		The role of the northern Bering Sea in modulating Arctic environments: Towards international interdisciplinary efforts		Distribution and risk analysis of radionuclides in the North Pacific	
Convenors: Andrew Trites (Canada) Elliott Hazen (USA) Tsutomu Tamura (Japan) Yutaka Watanuki (Japan)		Convenors: Akash Sastri (Canada) Chuanxi Xing (China)		Convenors: Lisa Eisner (USA) Matthew Baker (USA) Kirill Kivva (Russia)		Convenors: Yusheng Zhang (China) Kathryn A. Higley (USA)	
		8:55	<i>Introduction by Workshop Convenors</i>			8:55	<i>Introduction by Workshop Convenors</i>
9:00	<i>Introduction by Workshop Convenors</i>	9:00	Zhifeng Zhang (Invited) Delivering quality multi-parameter data from on-line monitoring network in estuaries and bays: A case study in Bohai Sea	9:00	<i>Introduction by Workshop Convenors</i> Overview of data collection efforts/data sharing	9:00	Núria Casacuberta (Invited) Assessment of the distribution of radionuclides (¹³⁷ Cs, ¹³⁴ Cs, ⁹⁰ Sr, ¹²⁹ I, ²³⁶ U and Pu isotopes) in the coast off Japan derived from the Fukushima Dai-ichi nuclear accident
9:10	Pete Warzybok Consumption of forage fishes by marine birds in the Gulf of the Farallones, California			9:10	Seth Danielson (Invited) Currents and water mass structure in and near the Gulf of Anadyr		
9:30	Yutaka Watanuki Consumption of salmon fingerlings by Rhinoceros Auklets breeding in Hokkaido, Japan	9:45	Hidekatsu Yamazaki Joint Environmental Data Integration System: JEDI System in 2016	9:40	Alexander Zavolokin (Invited) Impact of oceanographic fluctuations on the northwestern Bering Sea ecosystem	9:40	John N. Smith Transport of the Fukushima radioactivity plume to the eastern North Pacific
9:50	Motohiro Ito The records of Chum salmon fingerling predation by avian predators at the coastal area of Otsuchi, Japan	10:05	Genki Terauchi Identification of potential eutrophic zones in the Northwest Pacific region			10:05	Hideki Kaeriyama Five years monitoring activity on radioactive cesium in seawater after the Fukushima Dai-ichi Nuclear Power Plant accident
10:10	Yu Kanaji Spatio-temporal variations in the stable carbon and nitrogen isotopic compositions of Delphinidae species in the western North Pacific	10:25	<i>Coffee Break</i>	10:10	Ellen M. Yasumiishi Climate related changes in abundance and range shifts of pelagic fishes and jellyfish in the eastern Bering Sea during late summer, 2002-2015		
10:30	<i>Coffee Break</i>			10:30	Yury Zuenko Environmentally driven variability of zooplankton composition in the northwestern Bering Sea and its influence on the pollock fishery	10:30	<i>Coffee Break</i>

W1 [Balboa 3]		W2 [Balboa 1]		W3 (Day 2)[Gaslamp 3]		W4 [Gaslamp 2]	
Acidification of the North Pacific Ocean: a basin-wide assessment		Conditions promoting extreme <i>Pseudo-nitzschia</i> events in the eastern Pacific but not the western Pacific		Distributions of habitat-forming coral and sponge assemblages in the North Pacific Ocean and factors influencing their distributions		Methods relating oceanographic conditions to the distribution of highly migratory species	
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10:50	Individual national delegation presentations	10:50	Vera L. Trainer <i>Pseudo-nitzschia</i> and domoic acid on the US west coast: State of our knowledge and implications for the future	10:50	Model transfer; Future projection	11:00	Stephanie Snyder Crossing the line: Albacore actively exploit submesoscale fronts to enhance foraging success
		11:25	Meredith L. Elliott <i>Pseudo-nitzschia</i> occurrence in the central California Current			11:30	Discussion
		12:00	William P. Cochlan The effects of temperature and ocean acidification on the growth and toxicity of <i>Pseudo-nitzschia australis</i> from the California Current upwelling system				
		12:20	Lunch			12:30	Lunch
		12:35	Lunch			12:30	Lunch

W6 [Salon A]		W7 [Salon B]		W9 [Salon D]		W10 [Balboa 2]	
Consumption of North Pacific forage species by marine birds and mammals		Delivering quality multi-parameter data from the coastal ocean		The role of the northern Bering Sea in modulating Arctic environments: Towards international interdisciplinary efforts		Distribution and risk analysis of radionuclides in the North Pacific	
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11:00	Julie A. Thayer (Invited) Predator consumption of forage species in the California Current	10:50	Naoki Yoshie Monitoring of coastal ocean in the Western Seto Inland Sea, Japan	10:50	<i>Coffee Break</i>	10:50	Takami Morita Radioactive cesium in marine biota off Fukushima
		11:10	Chuanxi Xing Analysis on the patterns and formation dynamics of the summertime coastal circulation system in the western Bohai Sea	11:20	Lisa Eisner Spatial and temporal variations in late summer chlorophyll a and zooplankton distributions in the northeastern Bering Sea	11:15	Shizuho Miki Concentrations of strontium-90 in marine fishes after the Fukushima Dai-ichi Nuclear Power Plant accident
11:30	Hiroko Sasaki Spatial estimation of prey consumption by common minke, Bryde's and sei whales in the western North Pacific: A preliminary attempt	11:30	Discussion	11:40	Discussion	11:40	Daisuke Ambe Spatio-temporal variation of radiocesium in sea sediment around off Fukushima
11:50	Andrew W. Trites Simple models to predict daily energy requirements may not yield accurate estimates of prey consumption by marine mammals in the North Pacific			12:05	Jiniqu Du Distribution of radionuclides in sediment and sedimentation rates in Dalian Bay		
12:10	George L Hunt, Jr Prey consumption by marine birds in the eastern Bering Sea: Variability over time						
12:30	<i>Lunch</i>	12:30	<i>Lunch</i>	12:30	<i>Lunch</i>	12:30	<i>Lunch</i>
13:45	Introduction - goal of afternoon workshop						

W1 [Balboa 3]		W2 [Balboa 1]		W3 (Day 2)[Gaslamp 3]		W4 [Gaslamp 2]	
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14:00	Zhongyong Gao Variations of carbon uptake and ocean acidification in the Bering Sea and Western Arctic Ocean from 1999 to 2014	14:00	Lin Yang <i>Pseudo-nitzschia</i> harmful algal blooms (HAB) in the coast of China	14:00	Application of the SDM technique to other species (e.g., shallow-water corals)	14:00	Discussion
14:20	Simone Alin Reconstructing ocean acidification in deep coastal and estuarine waters of the north-eastern Pacific Ocean (Cascadia Margin): A crab's eye view	14:25	Weol-Ae Lim Temporal changes and toxicity of <i>Pseudo-nitzschia</i> species in Korean coastal waters				
14:40	Breakout sessions	14:50	Tamara Russell <i>Pseudo-nitzschia</i> spp. and domoic acid in the waters of Haida Gwaii, British Columbia: A summary of occurrences and details on anthropogenic and environmental considerations				
15:20		15:15	Devan Johnson <i>Pseudo-nitzschia</i> species and domoic acid in southeast Vancouver Island, November 2015 to July 2016				
	Discussion	15:40	Anthony Odell Washington State Pacific coast <i>Pseudo-nitzschia</i> bloom of 2016				

W6 [Salon A]		W7 [Salon B]		W9 [Salon D]		W10 [Balboa 2]	
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Convenors: Andrew Trites (Canada) Elliott Hazen (USA) Tsutomu Tamura (Japan) Yutaka Watanuki (Japan)		Convenors: Akash Sastri (Canada) Chuanxi Xing (China)		Convenors: Lisa Eisner (USA) Matthew Baker (USA) Kirill Kivva (Russia)		Convenors: Yusheng Zhang (China) Kathryn A. Higley (USA)	
14:00	How to estimate food consumption (birds - Julie Thayer)	14:00	Rich Pawlowicz (Invited) What do we do with observatory data? A user's perspective	14:00	Kirill Kivva (Invited) Summer water masses and fish communities in the north-western Bering and western Chukchi Seas in 2003-2010	14:00	Jianhua He Effect of settle time on absorption of AMP to ¹³⁷ Cs in co-precipitation method
14:15	How to estimate food consumption (mammals - Andrew Trites)			14:30	Jared Weems Crab larvae in the north-eastern Bering Sea and southern Chukchi Sea: Abundance relative to water masses in 2012	14:25	Kyung Tae Jung Preliminary results from modeling of radionuclide transfer through marine food web using a multi-organ fish model
14:30	Dietary information & methodological biases (birds - Yutaka Watanuki)						
14:45	Dietary information & methodological biases (mammals - Andrew Trites)	14:45	Marlene Jeffries Data quality assurance/ quality control approaches for coastal ocean multi-parameter data from a cabled observatory in the NE subarctic Pacific	14:50	Edward Farley Defining critical periods for Yukon River Chinook salmon	14:50	Wu Men Marine radioactive environmental quality assessment method of China
15:00	Desired spatial resolution (Elliot Hazen)	15:05	Wiley Evans Tracking ocean acidification in coastal settings using land-based Burke-O-Lator pCO ₂ /TCO ₂ Analyzers	15:10	Albert J. Hermann Statistical downscaling of global projections to the Bering Sea, based on an ensemble of regional model output	15:15	Jinzhao Zhang The <i>in-situ</i> measurement of ocean radioactive base on HPGe detector
15:15	Seasonality & decadal changes (Tsutomu Tamura)	15:25	Discussion	15:30	Matthew Baker Opportunities for data sharing in the northern Bering Sea – Research and data to support international and interdisciplinary analyses	15:40	Allen H. Andrews Nuclear bombs and coral: Guam coral core reveals operation-specific radiocarbon signals from the Pacific Proving Grounds
15:30	Population abundances and distributions (birds - TBA)						
15:45	Population abundances and distributions (mammals - TBA)						

W1 [Balboa 3]		W2 [Balboa 1]		W3 (Day 2)[Gaslamp 3]		W4 [Gaslamp 2]	
Acidification of the North Pacific Ocean: a basin-wide assessment		Conditions promoting extreme <i>Pseudo-nitzschia</i> events in the eastern Pacific but not the western Pacific		Distributions of habitat-forming coral and sponge assemblages in the North Pacific Ocean and factors influencing their distributions		Methods relating oceanographic conditions to the distribution of highly migratory species	
Convenors: James Christian (Canada) Tsuneo Ono (Japan)		Convenors: Vera Trainer (USA) Polina A. Kameneva (Russia)		Convenors: Kwang-Sik Choi (Korea) Janelle Curtis (Canada) Masashi Kiyota (Japan) Chris Rooper (USA)		Convenors: Gerard DiNardo (USA) Chi-lu Sun (Chinese Taipei)	
16:00	<i>Coffee Break</i>	16:05	<i>Coffee Break</i>	16:00	<i>Coffee Break</i>	Discussion (cont)	
16:20	Breakout sessions	16:25	Discussion about publication on <i>Pseudo-nitzschia</i>	16:20	Synthesis		
16:50	Presentation of results of breakout sessions, final discussion and next steps						
17:30	<i>End</i>						
		18:00	<i>End</i>	18:00	<i>End</i>	18:00	<i>End</i>

W6 [Salon A]		W7 [Salon B]		W9 [Salon D]		W10 [Balboa 2]		
Consumption of North Pacific forage species by marine birds and mammals		Delivering quality multi-parameter data from the coastal ocean		The role of the northern Bering Sea in modulating Arctic environments: Towards international interdisciplinary efforts		Distribution and risk analysis of radionuclides in the North Pacific		
Convenors: Andrew Trites (Canada) Elliott Hazen (USA) Tsutomu Tamura (Japan) Yutaka Watanuki (Japan)		Convenors: Akash Sastri (Canada) Chuanxi Xing (China)		Convenors: Lisa Eisner (USA) Matthew Baker (USA) Kirill Kivva (Russia)		Convenors: Yusheng Zhang (China) Kathryn A. Higley (USA)		
16:00	<i>Coffee Break</i>	16:00	<i>Coffee Break</i>	15:50	<i>Coffee Break</i>	16:05	<i>Coffee Break</i>	
16:20	Identifying available data; 2 groups (birds & mammals) to fill in spreadsheet; data sought: diets, population numbers, distributions	16:20	Yeseul Kim Optical discrimination of <i>Cochlodinium polykrikoides</i> blooms from non-harmful blooms in Korean coastal waters	16:20	Open discussion and ask audience to show slides of other datasets	16:25	Discussion	
		16:40	Akash Sastri Real-time sea-surface measurements of coloured dissolved organic matter (CDOM) in the Strait of Georgia, Canada: Developing techniques to account for sensor fouling					
17:00	Groups report back	17:00	Discussion					
17:15	Consensus on how to proceed with estimating food consumption by birds and mammals in the N Pacific							
17:30	Proposal for PICES-2017 meeting				17:30	<i>End</i>		
18:00	<i>End</i>	18:00	<i>End</i>			18:00	<i>End</i>	

S-HAB [Balboa 1]		W5 [Salon A]	
Meeting of the Section on <i>Ecology of Harmful Algal Blooms in the North Pacific</i>		Modeling effects of climate change on fish and fisheries	
Convenors: Douding Lu (China) Vera Trainer (USA)		Convenors: Anne B. Hollowed (USA) Shin-ichi Ito (Japan)	
9:00 <i>Introduction by Section Convenors</i>		8:55	<i>Introduction by Workshop Convenors</i>
9:15	Weo-Ae Lim Korea Country Report	9:05	Michio Kawamiya (Invited) Earth system and climate modeling activities toward CMIP6 in Japan: A review
9:30	Vera Trainer USA Country Report	9:30	John Keith Pinnegar (Invited) CERES (Climate change and European aquatic RESources): Socio-political scenarios for use alongside climate change projections
9:45	Setsuko Sakamoto, Ryuji Kuwahara, Ichiro Imai Japan Country Report	9:55	Phoebe A. Woodworth-Jefcoats Climate change is projected to reduce carrying capacity in North Pacific pelagic marine ecosystems
10:00	Hao Guo China Country Report	10:15	Kirstin Holsman The Alaska Climate-change Integrated Modeling project (ACLIM): Identifying impacts and management solutions for Eastern Bering Sea fisheries
10:15	Nikky Haigh Canada Country Report	10:35	<i>Coffee Break</i>
10:30	<i>Coffee Break</i>	10:50	Sukgeun Jung Climate-change driven range shifts of exploitable chub mackerel (<i>Scomber japonicus</i>) projected by bio-physical coupling individual based model in the western North Pacific
11:00	Russia Country Report	11:10	Shin-ichi Ito Updated plan for modeling effects of climate change on fish and fisheries in the western North Pacific Ocean
11:15	Joo-Hwan Kim First record of the genus <i>Azadinium</i> (Dinophyceae) from the Puget Sound, western Washington State	Lightning talks: Reports from S-CCME members (8 min each with 2 min for questions)	
		11:30	Canada, Jacquelynne King

November 4

W8 [Salon B]	
Mesoscale and submesoscale processes in the North Pacific: History and new challenges	
Convenors: Kyung-Il Chang (Korea) Hiromichi Ueno (Japan) Annalisa Bracco (USA)	
8:55	<i>Introduction by Workshop Convenors</i>
9:00	Sachihiko Itoh (Invited) Finescale variability of isopycnal salinity in the southern California Current System
9:30	Yasuhide Kobayashi Eddy trajectory in a closed rectangular oceanic basin
9:50	Young-Gyu Park Mesoscale and submesoscale wavenumber spectra from the Geostationary Ocean Color Imager (GOCI)
10:10	Hiromichi Ueno Mesoscale eddies in the western subarctic North Pacific
10:30	<i>Coffee Break</i>
10:50	Discussion

S-HAB [Balboa 1]		W5 [Salon A]	
Meeting of the Section on <i>Ecology of Harmful Algal Blooms in the North Pacific</i>		Modeling effects of climate change on fish and fisheries	
Convenors: Douding Lu (China) Vera Trainer (USA)		Convenors: Anne B. Hollowed (USA) Shin-ichi Ito (Japan)	
11:40	Svetlana Esenkulova A review of unusual phytoplankton dynamics and oceanographic conditions favoring diatom growth in the Strait of Georgia, Canada 2015	Lightning talks: Reports from S-CCME members (8 min each with 2 min for questions) (cont)	
		11:40	China
		11:50	Japan
		12:00	Korea, Suam Kim
12:05	Clarissa Anderson Harmful algal bloom warning system for fisheries and marine mammal management	12:10	Russia, Yury Zuenko
		12:20	California Current USA
12:30	Lunch	12:30	Lunch
14:00	Charles Trick and Vera Trainer Update on MAFF project, Marine Ecosystem Health and Human Well Being	14:00	Reports from other S-CCME members and discussion
14:20	Mark Wells Joint ICES/PICES/GEOHAB symposium on HABs and Climate Change, update	14:20	Jonathan Hare A review of species distribution modeling in the Northeast U.S. Shelf Large Marine Ecosystem
14:40	Henrik Enevoldsen and Vera Trainer The joint Harmful Algal Bloom Programme and International Oceanographic Data and Information Exchange Harmful Algae Information System: An update and country maps	14:40	Alan C. Haynie Report on the 2016 ICES/PICES Workshop on Economic Modelling of the Effects of Climate Change on Fish and Fisheries
15:00	Vera Trainer Global HAB	15:00	Discussion selecting representative fishing pathways
15:20	Takufumi Yoshida NOWPAP	15:30	Discussion techniques for cold or warm bias corrections and incorporating ESM data into projection models
15:40	Toyomitsu Horii FUTURE		
16:00	Coffee Break	16:00	Coffee Break
16:20	Masahito Hirota New MAFF project	16:20	Discussion on future plans
18:00	End	18:00	End

W8 [Salon B]	
Mesoscale and submesoscale processes in the North Pacific: History and new challenges	
Convenors: Kyung-Il Chang (Korea) Hiromichi Ueno (Japan) Annalisa Bracco (USA)	
12:30	Lunch
14:00	Naomi M. Levine (Invited) Competition in a patchy world: Submesoscale dynamics, phytoplankton growth, and carbon export in the oligotrophic North Pacific
14:30	Elena I. Ustinova Mesoscale structures and Pacific saury fishing grounds in the Northwestern Pacific
14:50	Dongfeng Xu The cross-shelf transport by the eddy-pair in the Northern South China Sea in June 2015
15:10	Discussion
16:00	Coffee Break
16:20	Discussion
18:00	End

Monday, November 7 [Grand Ballroom, 4th Floor]

Session 1: Science Board Symposium
25 Years of PICES: Celebrating the Past, Imagining the Future

Convenors:

Thomas Therriault (SB), Angelica Peña (BIO), Elizabeth Logerwell (FIS)
Chuanlin Huo (MEQ), Jennifer Boldt (MONITOR), Kyung-Il Chang (POC)
Toru Suzuki (TCODE), Steven Bograd (FUTURE), Hiroaki Saito (FUTURE)
Igor Shevchenko (Russia)

Ryan R. Rykaczewski (Keynote)

**Projecting ecosystem consequences of climate variability and change:
Aspirations for the next 25 years of PICES**

University of South Carolina, Columbia, SC, USA

Research associated with the goals of PICES has transformed scientific perceptions of ecosystem variability. The vibrant forums of PICES meetings and coordinated efforts by scientists from participating regions have stimulated understanding of the relationships between large-scale atmospheric processes, oceanographic conditions, and marine ecosystems--notably at decadal scales. Even while the mechanisms of decadal scale variability continue to be investigated, the PICES community must also devote attention to changes associated with increasing greenhouse gas emissions. Our improving understanding of low-frequency, climate-ecosystem interactions may inform understanding of ecosystem responses to anthropogenic climate change. However, responses to climate change will be unlike responses to natural variability. Recognized patterns of natural climate variability have been characterized as oscillatory in space, with signs of change that differ regionally. Anthropogenic change, in contrast, is expected to result in large-scale physical forcing of a similar sign throughout ocean basins; as concentrations of carbon dioxide rise, surface temperatures, water-column stratification, and ocean acidity will increase in nearly all regions. Projecting the consequences of such forcing on other physical characteristics, biogeochemical properties (namely subsurface dissolved oxygen content, carbonate speciation, nutrient supply, and primary production) is possible. However, understanding ecosystem responses at scales relevant to individual populations, community structure, fisheries, and human society remains extremely challenging, particularly as conditions cross thresholds not experienced in the recent past. Physical, chemical, and biological anomalies in the Northeast Pacific over the last several years have demonstrated the insufficiency of describing conditions using a combination of well recognized atmosphere-ocean modes.

During the next 25 years, marine scientists will face the challenge of distinguishing the effects of anthropogenic climate change from those of natural variability, fisheries exploitation, and other anthropogenic stressors. Investigations of the frequency, intensity, and spatial patterns of natural variability, their sensitivities to climate change, and their ecological consequences are necessary. Developing technologies and increasing computational power provide research opportunities that were nearly inconceivable two decades ago, but maintaining and expanding long-term ocean observing systems capable of concurrent physical, chemical, and biological measurements remains essential for resolving changes relevant to biogeochemical cycles and ecosystem structure. Creating conceptual and operational models that can relate physical variability to human society, represent ecological mechanisms that are robust to climate change, and convey appropriate levels of uncertainty will be critical. Developing "objective advice on scientific questions with great practical implications" was one of the primary justifications for the creation of PICES. We continue to make progress toward this goal, but effectively applying new oceanographic understanding to improve management of marine resources remains difficult. Achieving this goal requires consideration of both short-term model forecasts with practical utility as well as long-term model projections with more strategic emphasis. Continued multi-national collaboration among PICES members and partnerships with other marine science organizations are crucial to addressing these challenges.

- 11:15 **Philip Munday (Invited)**
Predicting evolutionary responses to climate change in the sea: Progress and challenges
- 11:45 **Alan C. Haynie (Invited)**
Why people matter: Past and future analysis of the role of humans in marine ecosystems
- 12:15 **Robert Blasiak (*)**
Applying fractionalization indices to transboundary fish stocks to forecast future conflict hotspots
- 12:35 *Lunch*
- 14:00 **Cornelius Hammer (Invited)**
PICES-ICES Cooperation: Where we are and where to go?
- 14:30 **Guido Marinone (Invited)**
Oceanography of the Mexican Pacific Ocean: An interactive region between north and south
- 15:00 **Luis Valdés**
The UN role in for ocean science and ocean governance
- 15:20 **Jeffrey Polovina**
Recent advances, ongoing challenges, and future directions in ecosystem approaches to fisheries management in the central North Pacific
- 15:40 **Sanae Chiba**
Can we use zooplankton diversity to fill the global indicator gap of the Aichi Biodiversity Target 10?
- 16:00 *Coffee Break*
- 16:20 **Essam Yassin Mohammed (Invited)**
Harnessing blue capital for blue growth: Why invest?
- 16:50 **Shang Chen**
Marine Ecological Capital: Assessment, management and investment
- 17:10 **Naomi Harada (Invited)**
Potential environmental changes in the western Arctic and the western North Pacific: Their impacts on lower trophic level organisms
- 17:40 **Maciej Telszewski**
Future Global Ocean Observing System – Built on requirements, promoting alignment, delivering relevant information
- 18:00 **William J. Sydeman**
Marine birds, mammals and PICES: History and roadmap for the future
- 18:20 *End*

Plenary

- 9:00 **Phillip R. Mundy (S1)**
A reference frame of environmental time series observations for detecting change in North Pacific Ecosystems; the North Pacific Ecosystem Status Report
- 9:30 **James T. Carlton (S8)**
Life rafts on the open sea: Successful long-term transoceanic transport of coastal marine organisms by marine debris
- 10:00 **Robert M. Suryan (S5)**
Making the most of satellite-derived oceanographic data and habitat use models to understand species distributions
- 10:30 **Coffee Break**

S5		[Salon D, E]	S6		[Salon B]
Understanding our Changing Oceans through Species Distributions and Habitat Models based on Remotely Sensed Data			What Factors make or break Trophic Linkages?		
Convenors: Patrick O'Hara (Canada) Elliott L. Hazen (USA) Sei-Ichi Saitoh (Japan) Yutaka Watanuki (Japan)			Convenors: Elliott L. Hazen (USA) Jameal Samhouri (USA) Shin-ichi Ito (Japan) Jennifer Boldt (Canada)		
10:50	Elizabeth A. Becker	Moving towards dynamic ocean management: How well do modeled ocean products predict species distributions?	10:50	Masashi Kiyota (Invited)	Response of commercial fisheries and a top predator to long-term ecosystem fluctuations in the western North Pacific Ocean off northeastern Japan
11:10	Sei-Ichi Saitoh	Spatio-temporal patterns of potential fishing zones for Pacific saury in a warming climate	11:10	Charles Stock	Trophodynamic drivers of global fisheries catch
11:30	Daniel M. Palacios	Modeling blue whale movement behavior in relation to environmental conditions in the California Current from satellite tracking and remote sensing	11:30	Jennifer Boldt	Juvenile Pacific Herring (<i>Clupea pallasii</i>) trophic linkages in the Strait of Georgia, British Columbia
11:50	Daniela Y. Munguía-Cajigas (*)	Foraging patterns of Laysan Albatross from Guadalupe Island, Mexico and their relation to oceanographic variables from the California Current System	11:50	Lianggen Wang (*)	Role of small copepod in four genera (<i>Calocalanus</i> , <i>Clausocalanus</i> , <i>Farranula</i> and <i>Oithona</i>) in South China Sea fisheries resources conservation
12:10	Jarrood Santora	Submarine canyons and essential krill habitat: Implications for modeling distribution patterns under climate change	12:10	Sonia Batten	A comparison of trophic linkages across the PICES region, based on Continuous Plankton Recorder data
12:30	Lunch		12:30	Lunch	

November 8

(*) Flags an Early Career Scientist

S7		[Salon A]	S11 (Day 1)		[Salon C]
New Stage of Ocean Acidification Studies: Responses of Oceanic Ecosystem including Fisheries Resources		Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions			
Convenors: Tsuneo Ono (Japan) Jun Kita (Japan) Debby Ianson (Canada) John Pinnegar (ICES / UK)		Convenors: Shin-ichi Ito (Japan) Kyung-Il Chang (Korea) Steven Bograd (USA)			
10:50	Tsuneo Ono <i>Introduction by Convenor</i>	10:50	Ichiro Yasuda (Invited) Ocean mixing processes: Impact on biogeochemistry, climate and ecosystems		
10:55	Steve Widdicombe (Invited) Ocean acidification: What can species responses tell us about ecosystem consequences?				
11:25	George G. Waldbusser (Invited) Coastal zone acidification and bivalves: Carbonate chemistry complexity, high frequency variability, and organism interactions, oh my!	11:15	M. Debora Iglesias-Rodriguez Oceanographic conditions facilitating the formation and propagation of a novel coccolithophore bloom in the Santa Barbara Channel		
11:55	Carrie A. Holt Effects of ocean acidification on temperate coastal marine ecosystems and fisheries in the Northeast Pacific	11:35	Olga Trusenkova Long-term sea level variation in the Japan/East Sea from two decades of altimetry data		
12:15	Short introductions of posters	11:55	Sayaka Yasunaka Long-term variability of surface nutrient concentrations in the North Pacific		
12:30	Lunch	12:15	Makoto Kashiwai Mechanism of warming the Okhotsk Sea Intermediate Water, from consideration on the seasonal cycle		
		12:35	Lunch		

S5		[Salon D, E]		S6		[Salon B]	
Understanding our Changing Oceans through Species Distributions and Habitat Models based on Remotely Sensed Data				What Factors make or break Trophic Linkages?			
Convenors: Patrick O'Hara (Canada) Elliott L. Hazen (USA) Sei-Ichi Saitoh (Japan) Yutaka Watanuki (Japan)				Convenors: Elliott L. Hazen (USA) Jameal Samhouri (USA) Shin-ichi Ito (Japan) Jennifer Boldt (Canada)			
14:00	Elliott L. Hazen Forecasting bycatch and ship strike risk for dynamic ocean management in the California Current	14:00	Kenneth A. Rose (Invited) Linear and non-linear responses of marine and coastal fish populations to physics and habitat: A view from the virtual world				
14:20	Bungo Nishizawa (*) Seasonal distribution of short-tailed shearwaters and their prey in the Bering and Chukchi seas	14:20	Konstantin Rogachev Effects of freshwater discharge and tidal currents on zooplankton aggregations in the coastal Sea of Okhotsk				
14:40	Trevor W. Joyce (*) Relationships between seabird, tuna, and dolphin foraging aggregations and El Niño-Southern Oscillation in the oceanic eastern tropical Pacific	14:40	Julie E. Keister Cryptic trophic connections to juvenile salmon survival are revealed by a zooplankton time series				
15:00	Vladimir V. Kulik (*) Climate change impacts on distribution patterns of boreopacific gonate squid (<i>Boreoteuthis borealis</i>) in the Northwest Pacific	15:00	C. Anela Choy (*) New insights on the trophic diversity of pelagic "forage species" in the central North Pacific and northern California Current ecosystems				
15:20	Brian Wells Salmon prey assemblages and oceanographic conditions along the California Current shelf ecosystem	15:20	Hitomi Oyaizu (*) Modeling recruitment variability of Pacific saury (<i>Cololabis saira</i>) using an individual-based model				
15:40	George L. Hunt, Jr. Eastern Bering Sea seabirds shift distributions in response to timing of sea-ice retreat	15:40	Kelly Kearney (*) A comparison of Bering Sea ecosystem energy pathways in warm versus cold years				
16:00	Coffee Break	16:00	Coffee Break				

S7		[Salon A]	S11 (Day 1)		[Salon C]
New Stage of Ocean Acidification Studies: Responses of Oceanic Ecosystem including Fisheries Resources		Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions			
Convenors: Tsuneo Ono (Japan) Jun Kita (Japan) Debby Ianson (Canada) John Pinnegar (ICES / UK)		Convenors: Shin-ichi Ito (Japan) Kyung-II Chang (Korea) Steven Bograd (USA)			
14:00	Richard A. Feely The 2016 NOAA west coast ocean acidification cruise	14:00	Vyacheslav B. Lobanov (Invited) Recent advances and future perspectives in the understanding of mesoscale water dynamics in the Japan/East Sea		
14:20	Jinwen Liu (*) Respiration and enhanced ocean acidification in the hypoxic zone off the Changjiang estuary	14:25	Hanna Na (*) Mesoscale-eddy-induced variability of flow through the Kerama Gap between the East China Sea and the western North Pacific		
14:40	Katherine M. Swiney Ocean acidification and increased temperatures reduce young-of-the-year red king crab (<i>Paralithodes camtschaticus</i>) survival, but not growth or morphology	14:45	Hironmichi Ueno Studies on mesoscale eddies in the subarctic North Pacific		
15:00	Cristina Villalobos (*) Interactive effects of ocean acidification and ocean warming on Pacific herring (<i>Clupea pallasii</i>) early life stages	15:05	William Crawford Mesoscale eddies of the Northeast Pacific Ocean		
15:20	Thomas P. Hurst Nutritional and ocean acidification effects on larval growth of a North Pacific flatfish	15:25	Cheryl Harrison (*) The effect of mesoscale circulation on biological production and carbon export in the North Pacific		
15:40	Jonathan Reum (*) Identifying potential ecosystem effects of ocean acidification using size structured food web models	15:45	Hally B. Stone Reconciling perspectives of upwelling system dynamics and basin-scale drivers on shelf water variability in the Pacific Northwest coastal ocean		
16:00	Coffee Break	16:05	End of S11, Day 1		

S5		[Salon D, E]		S6		[Salon B]	
Understanding our Changing Oceans through Species Distributions and Habitat Models based on Remotely Sensed Data				What Factors make or break Trophic Linkages?			
Convenors: Patrick O'Hara (Canada) Elliott L. Hazen (USA) Sei-Ichi Saitoh (Japan) Yutaka Watanuki (Japan)				Convenors: Elliott L. Hazen (USA) Jameal Samhouri (USA) Shin-ichi Ito (Japan) Jennifer Boldt (Canada)			
16:20	Irene D. Alabia (*) Bioclimatic velocity for walleye pollock in the Bering Sea	16:20	Brian Wells Caught in the middle: Top-down impact of seabirds on Chinook salmon (<i>Oncorhynchus tshawytscha</i>) is dependent on bottom-up mechanisms				
16:40	Dorothy M. Dick (*) Forecasting the flock: Using species distribution models to evaluate the effects of climate change on future seabird foraging aggregations in the California Current System	16:40	Yoichi Miyake Shoreward intrusions of Kuroshio waters may influence the recruitment of a top predator in river ecosystems				
17:00	Hironmichi Igarashi Adaptive improvement of habitat suitability index (HSI) model for neon flying squid in central North Pacific by using ocean forecasts and real-time fishery reports	17:00	Adam J. Schlenger (*) Temporal variability of net primary production drives global patterns of structure and function across multiple marine ecosystems				
17:20	Juan P. Zwolinski Use of a potential habitat model to reduce uncertainty in surveys of Pacific sardine	17:20	Kirstin Holsman Suboptimal thermal conditions and spatial mismatch between predators and prey and may limit walleye pollock growth under climate change				
17:40	Matthew Baker Integrating species environmental thresholds to explore species interactions and parameterize multi-species models	17:40	James J. Ruzicka Comparing the roles of physical context and food web structure among continental shelf ecosystems using intermediate complexity end-to-end models				
18:00	<i>End</i>	18:00	<i>End</i>				
18:30 21:00	Poster Session						

S7		S8 (Day 1)	
[Salon A]		[Salon C]	
New Stage of Ocean Acidification Studies: Responses of Oceanic Ecosystem including Fisheries Resources		The Effect of Marine Debris caused by the Great Tsunami of 2011	
Convenors: Tsuneo Ono (Japan) Jun Kita (Japan) Debby Ianson (Canada) John Pinnegar (ICES / UK)		Convenors: Cathryn Clarke Murray (Canada) Nancy Wallace (USA) Hideaki Maki (Japan) Thomas Therriault (Canada)	
16:20	John Keith Pinnegar (Invited) Ocean acidification research in the United Kingdom: Scaling from chemistry to commercial fisheries	16:20	Introduction by Convenors Maki/Wallace/Therriault
		16:25	Nancy Wallace Responding to the debris generated by the Great Tsunami of 2011
16:50	Masahiro Hayashi Effects of ocean acidification on growth of juvenile Japanese surf clam <i>Pseudocardium sachalinense</i>	16:40	Masafumi Kamachi Drift simulation of Japan Tsunami Marine Debris (JTMD) as an application of data assimilation
17:10	Robert J. Foy Sustainability of crab fisheries with ocean acidification uncertainty in Alaska	17:00	Nikolai Maximenko Modeling the drift of marine debris generated by the 2011 tsunami in Japan
17:30	Masahiko Fujii Anticipated impacts of ocean acidification on local societies in Japan	17:20	Sherry Lippiatt (*) The NOAA Marine Debris Monitoring and Assessment Project: Four years of effort in the U.S. Pacific States
17:50	Tsuneo Ono Wrap up	17:40	Cathryn Clarke Murray (*) The influx of marine debris to North American shorelines after the Great Tsunami of 2011
18:00	<i>End</i>	18:00	<i>End</i>

S8 (Day 2)		S9 (Day 1)	
[Salon D, E]		[Salon B]	
The Effect of Marine Debris caused by the Great Tsunami of 2011		Resilience, Transitions and Adaptation in Marine Ecosystems under a Changing Climate	
Convenors: Cathryn Clarke Murray (Canada) Nancy Wallace (USA) Hideaki Maki (Japan) Thomas Therriault (Canada)		Convenors: Franz Mueter (USA) Ken Drinkwater (Norway) Sei-Ichi Saitoh (Japan) Emanuele Di Lorenzo (USA)	
9:00	<i>Introduction by Convenors</i>	9:00	Benjamin Planque (Invited) Marine ecosystem resilience, what is it and how can we measure it?
9:05	Shin'ichiro Kako Sequential monitoring of marine debris washed ashore on a western US beach using a webcam system		
9:25	Tomoya Kataoka (*) Accumulation of beach litter in Vancouver Island, Canada	9:30	Mary E. Hunsicker Early warning signals of declining resilience and abrupt transitions in ocean ecosystems
9:45	Atsuhiko Isobe An estimate of the tsunami-debris quantity washed ashore on the US and Canadian beaches, based on a webcam monitoring and a particle tracking model experiment	9:50	Yongjun Tian Status and trend of four commercially important coastal cephalopods in China Seas: An overview with implications for climate change
10:05	John W. Chapman Crustaceans adrift: Multiyear observations of Asian marine amphipods, isopods, and tanaids arriving in North American shores on open ocean drift objects generated by the 2011 Japanese Tsunami	10:10	Koji Sugie (*) Effects of high-CO ₂ and temperature on the dynamics of plankton communities in the subarctic Pacific
10:25	<i>Coffee Break</i>	10:30	<i>Coffee Break</i>
10:50	Hiroshi Kawai Genetic diversity and biogeography of the macroalgal species associated with the Japanese tsunami marine debris	10:50	Kenneth L. Denman A model simulation of the adaptive evolution through mutation of the coccolithophore <i>Emiliana huxleyi</i> based on a published laboratory study
11:10	Nancy Treneman The fate of wood at sea: shipworms (Bivalvia: Teredinidae) in woody debris from the 2011 Japanese tsunami	11:10	Salvador E. Lluch-Cota Detection of a geographically fixed center of high abundance of macroinvertebrates along the west coast of Baja California

November 9

S11 (Day 2)		[Salon A]	S13	[Salon C]
Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions			Understanding the Changing Coastal Ocean: Advances and Challenges in Multi-parameter Observations	
Convenors: Shin-ichi Ito (Japan) Kyung-Il Chang (Korea) Steven Bograd (USA)			Convenors: Vyacheslav B. Lobanov (Russia) Matthew Baker (USA) Sung Yong Kim (Korea) John Barth, USA (USA) Daisuke Ambe (Japan)	
9:00	Michael Foreman (Invited) Linking technological and POC advances over the past 25 years		9:00	Introduction by Convenors
			9:05	Hidekatsu Yamazaki (Invited) Coastal observation systems to monitor physical, chemical and biological parameters
9:25	Fangli Qiao Wave turbulence interaction induced vertical mixing and its effects in ocean and climate models		9:30	Jinyong Jeong Introduction to the Ocean Research Stations (ORSs) in Korea and application activities
9:45	Chanhyung Jeon (*) Distribution of near-inertial waves in the mixed and deep layers of the East/Japan Sea using a high-resolution wind-forced ocean model		9:50	David M. Anderson Recording extreme events in the multi-parameter Central and Northern California Ocean Observing System (CeNCOOS)
10:05	Daji Huang Synoptic variability of wintertime wind-driven circulation in the Bohai, Yellow and East China seas		10:10	Sung Yong Kim Probing multi-scale oceanic signals from the coast
10:25	<i>Coffee Break</i>		10:30	<i>Coffee Break</i>
10:50	Jerome Fiechter (Invited) Regional and climate forcing on forage fish and apex predators in the California Current: New insights from a fully coupled ecosystem model		10:50	Richard Dewey Using multiple platforms to assess a potential link between the North Pacific warm anomaly (the 'Blob') and anomalous conditions in the Salish Sea during 2015
11:15	Romeo Saldívar-Lucio (*) Macro-scale patterns in upwelling/downwelling activity along the North American west coast		11:10	Brian P. V. Hunt From marine terrestrial interactions to the "warm blob": Integrating land-ocean-atmospheric research in a coastal observatory framework

S8 (Day 2)		[Salon D, E]		S9 (Day 1)		[Salon B]	
The Effect of Marine Debris caused by the Great Tsunami of 2011				Resilience, Transitions and Adaptation in Marine Ecosystems under a Changing Climate			
Convenors: Cathryn Clarke Murray (Canada) Nancy Wallace (USA) Hideaki Maki (Japan) Thomas Therriault (Canada)				Convenors: Franz Mueter (USA) Ken Drinkwater (Norway) Sei-Ichi Saitoh (Japan) Emanuele Di Lorenzo (USA)			
11:30	Jonathan Geller DNA barcoding of potential Japanese tsunami marine debris-associated invaders of U.S. and Canadian waters			11:30	Caren Barceló (*) Identifying climatically resilient or sensitive locations in the Northern California Current using partitioned beta-diversity		
11:50	Jocelyn C. Nelson (*) The invasion risk of invertebrate species associated with Japanese tsunami marine debris in North America and Hawaii			11:50	Paul Spencer Climate vulnerability analysis of eastern Bering Sea fish and invertebrate stocks		
12:10	Gregory M. Ruiz Detection of non-native species in North America: Effects of the large-scale arrival of biota on Japanese tsunami marine debris (JTMD)?			12:10	Ekaterina P. Kurilova (*) Resilience and adaptation of marine ecosystems in Vanina Bay, Sea of Japan: Past, present and scenarios for the future		
12:30	<i>End</i>			12:30	<i>End</i>		

S11 (Day 2)		[Salon A]	S13	[Salon C]
Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions		Understanding the Changing Coastal Ocean: Advances and Challenges in Multi-parameter Observations		
Convenors: Shin-ichi Ito (Japan) Kyung-Il Chang (Korea) Steven Bograd (USA)		Convenors: Vyacheslav B. Lobanov (Russia) Matthew Baker (USA) Sung Yong Kim (Korea) John Barth, USA (USA) Daisuke Ambe (Japan)		
11:35	Andrey G. Andreev The seasonal and interannual variability of circulation in the eastern and western Okhotsk Sea and its impact on plankton biomass	11:30	Yang Luo Water quality comparison and ecological environment assessment during major and minor tides in near sea area of Fujian Province	
11:55	Nicholas A. Bond The response of Northeast Pacific Ocean circulation to recent atmospheric forcing	11:50	Tetjana Ross Multi-parameter observations of whales, zooplankton and hydrography on the west coast of Vancouver Island using ocean gliders	
12:15	Alexander Kurapov Anomalous oceanic conditions along the US West Coast in 2014: Inferences from a high resolution regional ocean model	12:10	David W. Welch Advances in the science and technology underlying measurement of survival of juvenile fish in the ocean	
12:35	End	12:30	End	

Plenary (S10) [Grand Ballroom]

- 9:00 **Richard B. Rivkin**
Influence of phytoplankton-bacterial coupling on the export of biogenic carbon in the ocean: Insights from iron enrichment experiments
- 9:20 **Colleen Petrik (*)**
The response of fisheries production to natural and anthropogenic forcing: Past, present and future
- 9:40 **Michael Litzow**
Non-analogue ecosystem states in the Gulf of Alaska
- 10:00 **Ivonne Ortiz**
Applications of downscaled regional ocean biophysical models: Forecasting indicators and fish habitat
- 10:20 **Coffee Break**

S2 [Salon D, E]		S4 [Salon A]	
Early Life History Stages as Indicators and Predictors of Climate Variability and Ecosystem Change		Climate Variability, Climate Change and the Reproductive Ecology of Marine Populations	
Convenors: Richard Brodeur (USA) Tony Koslow (USA) Ian Perry (Canada) Moto Takahashi (Japan)		Convenors: John Field (USA) Sandi Neidetcher (USA) Michio Yoneda (Japan) Sukgeun Jung (Korea)	
10:50	Jonathan Hare (Invited) Climate change, stock identification, and the distribution of early life stages	10:50	Olav Sigurd Kjesbu (Invited) Crucial factors affecting reproductive investment of marine fishes in a changing climate
11:15	Benjamin Laurel Climate-driven growth potential affects recruitment signals in coastal age-0 cod surveys from the Atlantic and Pacific	11:20	Richard S. McBride (Invited) Fish responses to climate variation along a capital-income breeding continuum
11:35	Lu Guan (*) Decadal-scale changes in larval fish abundance and composition in the Strait of Georgia (British Columbia, Canada)		

November 10

(*) Flags an Early Career Scientist

S10		[Salon B]		S12		[Salon C]	
The Response of Marine Ecosystems to Natural and Anthropogenic Forcing: Past, Present and Future				Causes and Consequences of 25 Years of Variability in Ocean Conditions on the Ecosystems of the North Pacific			
Convenors: Steven Bograd (USA) Hiroaki Saito (Japan) Jacquelynn King (Canada) Sukyung Kang (Korea)				Convenors: William Peterson (USA) Jack Barth (USA) Sanae Chiba (Japan) Yury Zuenko (Russia)			
10:40	Yuliang Li (*) An ecological compensation mechanism for marine protection area in China, based on the ecosystem services valuation	10:50	Arthur J. Miller (Invited) Changes in climate and changes in concepts: Physical-biological interplay in the Pacific Ocean over the PICES years				
11:00	Youngji Joh (*) Extreme ocean temperature events in the North Pacific under greenhouse forcing						
11:20	Henry Lee II The Icarus challenge - Predicting vulnerability to climate change using an algorithm-based species' trait approach	11:20	Emanuele Di Lorenzo (Invited) Increasing variance and synchrony in North Pacific climate and ecosystems				
11:40	10-min break to switch from S10 to S9 Session						

S2 [Salon D, E]		S4 [Salon A]	
Early Life History Stages as Indicators and Predictors of Climate Variability and Ecosystem Change		Climate Variability, Climate Change and the Reproductive Ecology of Marine Populations	
Convenors: Richard Brodeur (USA) Tony Koslow (USA) Ian Perry (Canada) Moto Takahashi (Japan)		Convenors: John Field (USA) Sandi Neidetcher (USA) Michio Yoneda (Japan) Sukgeun Jung (Korea)	
11:55	José A. Valencia (*) The spring spawning habitats of small pelagic fish in northwestern Mexico	11:50	Hiroshige Tanaka Temperature-related variability in the resource allocation to egg production in Japanese anchovy <i>Engraulis japonicus</i> as revealed by stable isotope approach
12:15	Sam McClatchie Variability, collapse, and recovery of forage fish populations	12:10	Laura M. Slater Female reproductive potential of eastern Bering Sea snow crab (<i>Chionoecetes opilio</i>)
12:35	Lunch	12:30	Lunch
13:55	Akinori Takasuka (Invited) Decadal changes in abundance and distribution of early life stages of fish in the Kuroshio Current system	14:00	Michio Yoneda Size dependent energy allocation to reproductive output of short-lived multiple-batch-spawning Japanese anchovy <i>Engraulis japonicus</i>
14:20	Tetsuichiro Funamoto Two walleye pollock stocks around Japan under different recruitment control mechanism	14:20	Christina L. Conrath Variability in spawning omission and the productivity of deepwater rockfish in the North Pacific Ocean
14:40	Hwahyun Lee (*) Specific gravity measurements on mackerel eggs and larvae and implications for interannual variability in recruitment	14:40	Yutzil Lora-Cabrera Impacts of recent environmental anomalies on seabirds of the Baja California Pacific Islands, Mexico
15:00	Chiyuki Sassa Comparative larval growth and mortality of mesopelagic fishes and their predatory impact on zooplankton in the Kuroshio waters	15:00	Melissa A. Head (*) Challenges associated with assessing maturity, skipped spawning, and abortive maturation rates for fisheries managers: A case study of <i>Sebastes pinniger</i>

S9 (Day 2)		[Salon B]	S12		[Salon C]
Resilience, Transitions and Adaptation in Marine Ecosystems under a Changing Climate			Causes and Consequences of 25 Years of Variability in Ocean Conditions on the Ecosystems of the North Pacific		
Convenors: Franz Mueter (USA) Ken Drinkwater (Norway) Sei-Ichi Saitoh (Japan) Emanuele Di Lorenzo (USA)			Convenors: William Peterson (USA) Jack Barth (USA) Sanae Chiba (Japan) Yury Zuenko (Russia)		
11:50	Anne B. Hollowed Are Arctic and sub-arctic fish stocks more prepared for a changing climate?		11:50	Phoebe A. Woodworth-Jefcoats Relationships between climate variability and fisheries catch in the central North Pacific	
12:10	Jorge García Molinos Going with the flow: Ocean currents modify the coupling between climate change and biogeographical shifts		12:10	Elena I. Ustinova Climate variability and changes in the marginal Far-Eastern Seas	
12:30	<i>Lunch</i>		12:30	<i>Lunch</i>	
14:00	Lorenzo Ciannelli Life history spatial constraints and species adaptability to climate change		14:00	Paul Fiedler Warm and cool years in the California Current: Relation to ENSO	
14:20	Chang Seung Assessment of management strategies for eastern Bering Sea walleye pollock fishery with climate change		14:20	Mark S. Lowry California sea lions: Historical diet patterns in relation to environmental changes in the California Current	
14:40	Chaewon Yoo (*) Fisheries collapse and social changes in a fishing-dependent community: The case of Goseong		14:40	Jaime Jahncke Mid- and upper trophic level responses to variability in ocean conditions off central California	
15:00	10-min break to switch from S9 to S3 Session		15:00	John A. Barth The subsurface and inner-shelf structure of 25 years of variability in the Northern California Current	

S2 [Salon D, E]		S4 [Salon A]	
Early Life History Stages as Indicators and Predictors of Climate Variability and Ecosystem Change		Climate Variability, Climate Change and the Reproductive Ecology of Marine Populations	
Convenors: Richard Brodeur (USA) Tony Koslow (USA) Ian Perry (Canada) Moto Takahashi (Japan)		Convenors: John Field (USA) Sandi Neidetcher (USA) Michio Yoneda (Japan) Sukgeun Jung (Korea)	
15:20	Xuelei Zhang Effects of global warming and ocean acidification on population recruitment and growth of marine economic species	15:20	Hyun-Sung Yang (*) Inter-annual variation in the reproductive pattern of Manila clam <i>Ruditapes philippinarum</i> and impacts of <i>Perkinsus olseni</i> infection on the reproduction observed from the west coast of Korea
15:40	Motomitsu Takahashi Effects of temperature and prey abundances on larval growth rates of Carangid fishes in the East China Sea	15:40	Sabrina G. Beyer (*) Interannual variability in larval production of rockfishes (<i>Sebastes</i> spp.) in the California Current
16:00	<i>Coffee Break</i>	16:00	<i>Coffee Break</i>
16:20	Janet Duffy-Anderson (Invited) Examining ichthyoplankton across spatial and temporal scales as an approach to promote understanding and management of fisheries across Large Marine Ecosystems	16:20	Loretta O'Brien Evaluating environmental effects on maturity, spawning stock biomass, and biological reference points of Georges Bank Atlantic cod using state-space models
16:45	J. Anthony Koslow The influence of climate on the biodiversity and community structure of fishes in the southern California Current, 1969 – 2011	16:40	Peng Sun (*) Fisheries-induced evolution effects on fish populations in the East China Sea and its management implications
17:05	Esther D. Goldstein (*) Patterns and processes: Spatial and temporal variability in ichthyoplankton assemblages across the Gulf of Alaska	17:00	Moojin Kim (*) Differences in biological characteristics and recruitment variability of walleye pollock (<i>Gadus chalcogrammus</i>) off the eastern Korean Peninsula during 1960s–2000s
17:25	Peter C. Davison (*) Basin-scale ichthyoplankton response to environmental change in the northeastern Pacific Ocean	17:20	Sandra Neidetcher Fecundity estimates for walleye pollock during varying climate conditions
17:45	Toby D. Auth Changes in the ichthyoplankton in the northern California Current during the 2015-16 warm 'blob' and El Niño phenomena	17:40	
18:05	<i>End</i>	18:00	<i>End</i>
18:30 21:00	Poster Session		

S3 [Salon B]		S12 [Salon C]	
Source, Transport and Fate of Hydrocarbons in the Marine Environment		Causes and Consequences of 25 Years of Variability in Ocean Conditions on the Ecosystems of the North Pacific	
Convenors: Hideaki Maki (Japan) Staci Simonich (USA) Robert Duce (GESAMP, USA)		Convenors: William Peterson (USA) Jack Barth (USA) Sanae Chiba (Japan) Yury Zuenko (Russia)	
15:10	Kenneth Lee (Invited) Sources, behaviour and environmental impacts of petroleum hydrocarbons released into the marine environment	15:20	William T. Peterson Effects of the Blob on phytoplankton and copepod species composition, community structure and biodiversity off the central Oregon coast
15:40	Tanika Ladd (*) Physiological responses of marine phytoplankton to oil exposure in the context of the 2015 oil spill in the Santa Barbara Channel	15:40	C. Tracy Shaw Euphausiid responses to recent warming events in the coastal upwelling zone off the Oregon Coast, USA
16:00	<i>Coffee Break</i>	16:00	<i>Coffee Break</i>
16:20	Hideaki Maki Photo-oxidation of crude fuel and its toxicity to marine amphipods	16:20	Nathan Mantua Historical context for the atmospheric forcing of record high SSTs in the NE Pacific Arc in 2014-16
16:40	Andrew Loh (*) <i>In situ</i> formation of oil-suspended particulate matter aggregate during flushing activities	16:40	Lingbo Li The impacts of climate variability on the distribution of groundfish along the Northeast Pacific coastal shelf
17:00	Charles Hannah How far will it go? The estimation of oil spill extents from surface drifter data	17:00	Angelica Peña A decade of phytoplankton composition and environmental measurements along Line P in the NE subarctic Pacific
17:20	Miriam O A framework to assess vulnerability of biological components to oil spilled in the marine environment	17:20	Stephen B. Brandt Variability in North Pacific Ocean conditions: Assessing habitat-specific vital rates and thresholds for fishes
17:40	Wrap up	17:40	Discussion
18:00	<i>End</i>	18:00	<i>End</i>

Friday, November 11 [Grand Ballroom]

Session 10

The Response of Marine Ecosystems to Natural and Anthropogenic Forcing: Past, Present and Future

Convenors:

Steven Bograd (USA)

Hiroaki Saito (Japan)

Jacquelynne King (Canada)

Sukyung Kang (Korea)

9:00 **Samantha Stevenson (Invited) (*)**

An ensemble approach to understanding climate change in the Pacific

9:25 **Edward Gregr**

Marine habitats in a changing world: Looking beyond correlation

9:45 **Antonietta Capotondi**

The influence of ENSO diversity on North Pacific ecosystems

10:05 **Ryan R. Rykaczewski (Invited) (*)**

Wind stress, stratification, and source waters: How will eastern boundary current upwelling processes respond to climate change?

10:30 **Coffee Break**

10:50 **Haruka Nishikawa (*)**

Simulated influence of the 1976–77 regime shift on anchovy and sardine in the California Current System

11:10 **Masaki Miya (Invited)**

Environmental DNA metabarcoding from fishes (and other vertebrates) using universal primers
MiFish: A data-driven approach for fish community research

11:35 **Desiree Tommasi (*)**

Seasonal climate predictions to improve fisheries management decisions

11:55 **Jennifer M. Sunday (Invited)**

The mechanics of range shifts in a warming world

12:20 **End**

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

Poster Sessions, November 8 and 10, 18:30-21:00

S1: Science Board Symposium

25 Years of PICES: Celebrating the Past, Imagining the Future

- S1-P1 **Sonia Batten**
Highlights from 16 years of the North Pacific CPR program, a PICES MONITOR project.
- S1-P2 **Robert Blasiak (*)**
Negotiating the international instrument on BBNJ: Long-term implications
- S1-P3 **Michio j. Kishi**
25 years history of ecosystem modeling related to PICES and myself
- S1-P4 **Monica Tydlaska (*)**
Visitor activities and awareness of Marine Protected Areas and species composition at rocky intertidal sites in San Diego
- S1-P5 **Ichiro Imai**
Increase in the toxic *Alexandrium tamarense* blooms with the climate regime shift to warming in the eastern Bering Sea shelf

S2: BIO/TCODE/FIS Topic Session

Early Life History Stages as Indicators and Predictors of Climate Variability and Ecosystem Change

- S2-P1 **Xiaodong Bian (*)**
Interactive effects of incubation temperature and salinity on the early life stages of Pacific cod *Gadus macrocephalus*
- S2-P2 **Cameron Freshwater (*)**
Density dependent effects on growth and migratory rate during sockeye salmon early marine residency
- S2-P3 **Zhe Li (*)**
Interactive effect of thermal gradient and prey mismatch on thermal selection of juvenile Pacific cod (*Gadus macrocephalus*)
- S2-P4 **Jarrod Santora**
Climate-driven variability in forage fish biodiversity in the California Current
- S2-P5 **Hui Zhang**
Autumn ichthyoplankton assemblage in the Yangtze Estuary shaped by environmental factors
- S2-P6 **Isaac D. Schroeder**
Source water variability in the California Current System and implications to rockfish production

S3: MEQ Topic Session

Source, Transport and Fate of Hydrocarbons in the Marine Environment

- S3-P1 **Joon Geon An**
Atmospheric concentration of petroleum derived polycyclic aromatic hydrocarbons after the *Hebei Spirit* oil spill
- S3-P2 **Anna S. Vazhova** (presented by colleague)
Influence of ships bilge water on sea water pollution with petroleum hydrocarbons

S4: FIS Topic Session

Climate Variability, Climate Change and the Reproductive Ecology of Marine Populations

- S4-P1 **Lyndsey S. Lefebvre (*)**
Plasticity in reproductive strategies for rockfish in the Southern California Current and linkages to maternal characteristics and climatic variability
- S4-P2 **Cara Rodgveller**
Ovarian development, energy storage, and skipped spawning in female sablefish in Alaska
- S4-P3 **Michael J. Malick (*)**
Effects of the North Pacific Current on productivity of 163 Pacific salmon stocks
- S4-P4 **Tatyana Belonenko**
On identification of mesoscale eddies from satellite altimetry based on the area in the NW Pacific
- S4-P5 **Susanne McDermott**
Influence of environmental factors and density dependence on variability in reproductive output and growth of Atka mackerel (*Pleurogrammus monopterygius*)
- S4-P6 **Hiroshige Tanaka**
Temperature effects on the reproductive traits of walleye pollock *Gadus chalcogrammus*
- S4-P7 **Gavin Fay**
Identifying robust model selection tools for including environmental links to recruitment in North Pacific groundfish stock assessments

S5: BIO/MONITOR/MEQ Topic Session

Understanding our Changing Oceans through Species Distributions and Habitat Models based on Remotely Sensed Data

- S5-P1 **Yang Liu (*)**
Impacts of climate change on suitable region for Japanese scallop aquaculture in Shandong, China and southern Hokkaido, Japan, using RS/GIS
- S5-P2 **Caren Barceló (*)**
Integrating habitat, prey and predators over space and time to assess distributional responses to environmental variability and climate change
- S5-P3 **Yutaka Watanuki**
Distribution of Arctic and Pacific copepods and their habitat in the northern Bering and Chukchi Seas

S6: POC/MEQ/MONITOR/BIO Topic Session
What Factors make or break Trophic Linkages?

- S6-P1 **Elizabeth A. Daly**
 Anomalous ocean conditions in 2015 and the impact on spring Chinook salmon and their prey field
- S6-P2 **Taketoshi Kodama (*)**
 Interannual variation in phytoplankton blooms and its biological impacts in the Sea of Japan
- S6-P3 **Ryan J. Hartnett (*)**
 Developing marine food web models to evaluate blue whale, Cassin's auklet and salmon responses to long- and short-term changes in oceanography in the California Current
- S6-P4 **Francis Juanes** (on behalf of Paris Duguid)
 Fine scale oceanography and the ecology of juvenile Chinook Salmon in the Salish Sea
- S6-P5 **Yoshikazu Sasai**
 Impact of physiological flexibility of phytoplankton on modeled primary production in the western North Pacific
- S6-P6 **Dimitris V. Politikos**
 Climate events and recruitment dynamics of anchovy in the California Current: A mechanistic understanding using a climate-to-fish model
- S6-P7 **Peter Lawson**
 Deepening thermocline displaces salmon catch on the Oregon coast
- S6-P8 **Jarrold Santora**
 Biogeography of seabird assemblages in the Bering Sea: Spatial assessment of oceanographic drivers and multispecies aggregation hotspots
- S6-P9 **Xiuning Du**
 Winter phytoplankton blooms and trophic implications on copepod and krill biomass and egg production in the northern California Current
- S6-P10 **James J. Ruzicka**
 Jellyfish - fish trophic interactions in the Bering Sea: Ecosystem impacts of jellyfish population fluctuations
- S6-P11 **Cheryl Harrison (*)**
 Sim-turtle: Biophysical interactions in the mesoscale
- S6-P12 **Brian P. V. Hunt**
 Integrating stable isotope analyses of zooplankton and returning adult salmon tissues to inform high seas North Pacific food web dynamics

S7: POC/TCODE/MEQ Topic Session

New Stage of Ocean Acidification Studies: Responses of Oceanic Ecosystem Including Fisheries Resources

- S7-P1 **Yumei Zhao**
Ocean acidification observation system at Bohai Gulf based on ocean acidification characteristic parameters
- S7-P2 **Sanae Chiba** (on behalf of Minoru Kitamura)
Is there decadal change in shell morphology of planktonic foraminifera due to ocean acidification?
- S7-P3 **Naohiro Kosugi**
Frequent column observations revealed low pCO₂ water under the sea ice melt in the Canada Basin of the Arctic Ocean
- S7-P4 **Masahiro Hayashi**
The combined effect of high pCO₂ and warming on reproduction of Japanese whiting *Sillago japonica*
- S7-P5 **Norma L. Oliva-Méndez**
Dynamic of aragonite saturation horizon depth in waters of Baja California, Mexico
- S7-P6 **Tomohiko Tsunoda**
Development of communication tools on ocean acidification
- S7-P7 **JeongHee Shim**
Seasonal variations of pH and aragonite saturation at oyster culture beds in Tongyeong and Geoje Bays, southeast coast of Korea
- S7-P8 **Futian Li**
Physiological responses of coastal and oceanic diatoms to diurnal fluctuations in seawater carbonate chemistry under two CO₂ concentrations

S8: MoE/MEQ/TCODE Topic Session

The Effect of Marine Debris caused by the Great Tsunami of 2011

- S8-P1 **Gayle I. Hansen**
Marine algae carried across the North Pacific on Japanese Tsunami Marine Debris (JTMD) and their invasion threat to the coasts of Oregon and Washington, USA
- S8-P2 **Gayle I. Hansen**
Marine algae carried across the North Pacific on Japanese Tsunami Debris: How have they survived the journey?
- S8-P3 **Cathryn Clarke Murray (*)**
Aerial surveillance for tsunami debris in British Columbia, Canada
- S8-P4 **Kirsten Moy (*)**
Synthesizing the state of debris in Hawaii from 2015 aerial imagery and spatial analysis data
- S8-P5 **Won Joon Shim**
Contamination of hexabromocyclododecanes (HBCDs) in styrofoam marine debris from Asia and Pacific region and the Great Tsunami
- S8-P6 **Sandra Lindstrom**
An undescribed species of Japanese *Pyropia* appeared on the coast of British Columbia in 2015

- S8-P7 **Reva Gillman**
Life history and environmental requirement analyses of Japanese tsunami marine debris (JTMD) biota
- S8-P8 **Amy MacFadyen**
Trends in arrival and deposition of Marine Debris generated by the March 2011 Japan Tsunami on Eastern Pacific Shorelines

S9: FIS/TCODE Topic Session

Resilience, Transitions and Adaptation in Marine Ecosystems under a Changing Climate

- S9-P1 **Mikhail A. Stepanenko**
Fluctuations of the Bering Sea pollock recruitment, abundance, distribution as impacts on environmental changes
- S9-P2 **Pavel Emelin (*)**
Species composition and biomass dynamics of nekton in the upper epipelagial of the deep-sea part of Okhotsk Sea during the autumn periods in 1998-2015 years
- S9-P3 **Alexey A. Khoruzhiy (*)**
Seasonal shifts of compound and structure of the nekton community in the North-western Pacific Ocean
- S9-P4 **Atsushi Yamaguchi**
Inter-oceanic differences in macrozooplankton biomass and community structure in four regions around Hokkaido Island, Japan: Consequences for marine ecosystem structure
- S9-P5 **Wendy Morrison**
Literature review of management approaches that improve resilience for species, ecosystems, and/or fishing businesses.
- S9-P6 **Keliang Chen**
Advancing the practice of marine eco-compensation in China: Knowledge synthesis from implementation
- S9-P7 **Jianguo Du (*)**
Food sources and trophic structure of fishes and benthic macroinvertebrates in a tropical seagrass meadow revealed by stable isotope analysis

S10: FUTURE Topic Session

The Response of Marine Ecosystems to Natural and Anthropogenic Forcing: Past, Present and Future

- S10-P1 **Zhongxin Wu (*)**
The exploration for system stability in the coastal marine ecosystem of northern Yellow Sea of China
- S10-P2 **Taewon Kim**
Effects of climatic stressors on behavioral and physiological response of marine animals
- S10-P3 **Aimee A. Keller**
Species-specific responses of demersal fishes to near-bottom environmental conditions within the California Current large marine ecosystem

- S10-P4 **James Christian**
Detection of anthropogenic impacts on ocean biogeochemical cycles
- S10-P5 **Taketo Hashioka**
Potential responses of phytoplankton community structure to future global warming
- S10-P6 **Albert J. Hermann**
Statistical downscaling of global projections to the Bering Sea, based on an ensemble of regional model output
- S10-P7 **Jung-Ho Hyun**
Upwelling-induced changes in the structure of plankton assemblages and role of heterotrophic bacterioplankton in biogeochemical carbon cycles in the Ulleung Basin, East Sea
- S10-P8 **Weiwei Xian**
Estuarine ecology and environment: in response to long-term variations of Changjiang (Yangtze River) runoff input and sediment load

S11: POC Topic Session

Advances in Understanding and Modeling of Physical Processes in the North Pacific in the Past 25 Years of PICES and Future Directions

- S11-P1 **Konstantin Rogachev**
Rapid freshening of the Kamchatka and Oyashio currents
- S11-P2 **Nan Zang**
Spreading of Antarctic Intermediate Water in the Philippine Sea
- S11-P3 **Jilong Chen**
Recent change of sea level variations in the East China Sea from merged altimetry data
- S11-P4 **Toshiya Nakano**
A long-term reference for detecting oceanic variations in the western North Pacific: JMA 50-year long 137°E repeat hydrographic section
- S11-P5 **Rong-shuo Cai**
Comparison of chlorophyll-a responses to climate change in the tropical western Pacific marginal seas
- S11-P6 **Yukiharu Hisaki**
Time interpolation of surface winds and its impact on the modelling of inertial currents in the North Pacific
- S11-P7 **Seongbong Seo (*)**
Vertical mixing observed on the continental slope of the southwestern East/Japan Sea
- S11-P8 **Sayaka Yasunaka**
Mapping of the air–sea CO₂ flux in the Arctic Ocean and its adjacent seas: Basin-wide distribution and seasonal to interannual variability
- S11-P9 **Ferdinand A. Mkrtychyan**
About microwave radiometry and spectroellipsometric technologies for monitoring marine ecosystems

- S11-P10 **Chan Joo Jang (*)**
Evaluation surface winds over the Korean Peninsula and its surrounding seas
- S11-P11 **Eliana Gómez-Ocampo (*)**
Approach of dynamic physical thresholds on spatial-temporal phytoplankton variability in NE Pacific

S12: MONITOR/BIO/TCODE Topic Session
Causes and Consequences of 25 Years of Variability in Ocean Conditions on the Ecosystems of the North Pacific

- S12-P1 **Christina Eunjin Kong (*)**
Responses of marine primary productivity (PP) to the future climate change scenario: The role of the subsurface chlorophyll maximum (SCM) in the mid-latitude marginal seas
- S12-P2 **Hitoshi Kaneko (*)**
Interannual variation of ocean environment in the Kuroshio Extension, Oyashio, and their transition area correlated with the recruitment of chub mackerel (*Scomber japonicas*)
- S12-P3 **Timothy Jones (*)**
Mass mortality of small seabirds in NE Pacific 2014/2015: Consequences of NE Pacific anomaly

S13: MONITOR/TCODE Topic Session
Understanding the Changing Coastal Ocean: Advances and Challenges in Multi-parameter Observations

- S13-P1 **Vadim Navrotsky**
Multifactor effects of near-bottom processes in the coastal ocean
- S13-P2 **Tae-Hoon Kim**
Submarine groundwater discharge (SGD) and SGD-driven nutrient fluxes in Geojje Bay, Korea
- S13-P3 **Semi Jeong (*)**
Biochemical composition of surface sedimentary organic matter and material fluxes at the sediment-water interface of Jaran Bay, Korea
- S13-P4 **Yarong Zou**
Analysis on coastline change under ecological environment of coastal zone - A case of Sanya
- S13-P5 **Jingsong Yang**
Typhoon storm surges observed by Chinese HY-2A satellite radar altimetry
- S13-P6 **Chungho Lee**
The present and future of Ocean Research Stations (ORSs) of the Korea Hydrographic and Oceanographic Agency (KHOA)
- S13-P7 **Sarah Ann Thompson**
Multivariate Ocean Climate Indicator (MOCI): Describing the California Current
- S13-P8 **Seul-Ye Lim (*)**
Non-market value of marine ecosystem service in Saemangeum open sea in Korea

- S13-P9 **Yong Lin**
Spatial-temporal pattern analysis of sea surface temperature evolution in North Pacific Ocean
- S13-P10 **Luis Valdés**
New light for time series: international collaboration in ship-based ecosystem monitoring
- S13-P11 **Fangfang Wan (*)**
Integration and duplication removal of the oceanographic and marine meteorological data at CMOC/China

BIO Contributed Poster Session 1
Recent Progress in Deep-Sea Research and Conservation:
Lessons from Various Parts of the Globe

- BIO-P1-1 **Alexei M. Orlov**
Range-wide analysis of spatial distribution of Pacific flatnose *Antimora microlepis* in the North Pacific
- BIO-P1-2 **Alexei M. Orlov**
Spatial distribution, size composition, and dynamics of abundance of Okhotsk skate *Bathyraja violacea* in the North Pacific
- BIO-P1-3 **Alexei M. Orlov** (on behalf of A. Brandt and M. Milyutina)
Joint German-Russian deep-sea expeditions in the NW Pacific
- BIO-P1-4 **Lian E. Kwong (*)**
A novel approach to estimating active carbon flux using the biomass size spectra
- BIO-P1-5 **Yongling Zhu**
Progress of Chinese deep sea research activities in recent 2 years
- BIO-P1-6 **S. Kim Juniper**
Georeferenced sensor, survey and sample data for the Endeavour Hydrothermal Vents Marine Protected Area
- BIO-P1-7 **Brandon M. Genco (*)**
Biogeographical analysis of abyssal bottom habitats: Using an abiotic province scheme and metazoan occurrence databases
- BIO-P1-8 **Anders Knudby**
Data-driven bioregions for local ecosystem context in species distribution models
- BIO-P1-9 **Ryan Gasbarro (*)**
A time-series of epibenthic community turnover along a dissolved oxygen gradient
- BIO-P1-10 **Benjamin Grupe (*)**
Endeavour Hydrothermal Vents Marine Protected Area conservation and management supported through institutional collaborations and interdisciplinary research

BIO Contributed Poster Session 2

- BIO-P2-1 **(Bin Zou?) Lijian Shi**
Green tide (*Enteromorpha prolifera*) monitoring in the Yellow Sea and East China Sea using multi-sensor
- BIO-P2-2 **Dharmamony Vijai (*)**
Effects of temperature on embryonic development and paralarval behavior of the neon flying squid *Ommastrephes bartramii*
- BIO-P2-3 **Dharmamony Vijai (*)**
Atlas of neon flying squid embryonic and paralarval development
- BIO-P2-4 **Alexei I. Pinchuk**
Spatial and temporal heterogeneity in distribution of euphausiid *Thysanoessa longipes* from the northern Gulf of Alaska
- BIO-P2-5 **Masahiko Fujii**
Study on material cycling in the coastal waters and the role of the Kiritappu Wetland, in Hamanaka Town, Hokkaido: An analysis using surf clam (*Pseudocardium sachalinense*) as an environmental indicator
- BIO-P2-6 **Xianhong Meng**
An overview of culturing and breeding of *Fenneropenaeus chinensis* in China
- BIO-P2-7 **Yang Jin Jo and Won Gyu Park**
Temperature effects on the egg development time and productivity of *Acartia omorii* and *Acartia steueri*
- BIO-P2-8 **Tae-Ho Yoon (*)**
Application of end-pairing sequencing technique for the phytoplankton community analysis in East Sea
- BIO-P2-9 **Vladimir V. Kulik (*)**
Boreopacific gonate squid (*Boreoteuthis borealis*) abundance and its relation to climate indices in the Northwest Pacific
- BIO-P2-10 **Lucie Hannah**
Pilot application of a framework to assess vulnerability of biological components to oil spilled in the marine environment to the Canadian Pacific Region
- BIO-P2-11 **Hiroaki Saito**
Geographical variation in the concentration and form of biogenic elements in the North Pacific Ocean
- BIO-P2-12 **Stephanie E. Nehasil (*)**
The dietary response of the California sea lion population during the 2013 Unusual Mortality Event
- BIO-P2-13 **David Martínez-Cervantes (*)**
Density and distribution of seabirds on the Baja California Pacific islands, Mexico
- BIO-P2-14 **Timothy S. Lee (*)**
Synthesis of benthic macroinvertebrate diversity in coastlines of the Puget Sound before and after shoreline restoration
- BIO-P2-15 **Keyseok Choe**
Macromolecular compositions of phytoplankton in the Japan/East Sea

FIS Contributed Poster Session

- FIS-P1 **Caitlin I. Allen Akselrud (*)**
Application of an age-length structured population dynamics model to data for eastern Bering Sea tanner crab (*Chionoecetes bairdi*), Pribilof Island blue king crab (*Paralithodes platypus*), and Pacific cod (*Gadus macrocephalus*)
- FIS-P2 **Mikinori Ueno (*)**
Comparison of fish-killing activities of *Chattonella antiqua* and *Chattonella marina* against three fish species and possible mitigation effect of alginate oligomer on *Chattonella* sp.
- FIS-P3 **HoJin Bae (*)**
Reproduction and growth of the spiny lebbeid shrimp, *Lebbeus groenlandicus* (Fabricius, 1775) (Caridea, Hippolytidae) in the East sea of Korea
- FIS-P4 **Christopher N. Rooper**
Linking Pacific Ocean perch productivity to deep-sea corals and sponges in Alaska
- FIS-P5 **Hiroki Yasuma**
Annual changes in distributions and abundances of dominant myctophid fishes in the Pacific side of Hokkaido, Japan
- FIS-P6 **Gordon H. Kruse**
Cumulative effects of size-selective fishing on size-at-age of Pacific halibut in the northeast Pacific Ocean
- FIS-P7 **HanJu Kim (*)**
Age and growth of damselfish *Chromis notata* (Temminck & Schlegel, 1843) in the Jeju Island, Korea
- FIS-P8 **SeongEun Kim (*)**
Growth and reproduction of the Japanese mantis shrimp, *Oratosquilla oratoria* (De Haan 1844) in the coastal area of Tongyeong, Korea
- FIS-P9 **Jun Shoji**
Effects of submarine groundwater on feeding and growth of juvenile marbled flounder *Pseudopleuronectes yokohamae* in the Seto Inland Sea, Japan
- FIS-P10 **Hyun-Ki Hong (*)**
First report on an annual gametogenesis of *Hyotissa hyotis* (Linnaeus 1758), the subtropical oyster in Jeju Island off the south coast of Korea
- FIS-P11 **Makoto Tomiyasu (*)**
Spawning migration tracking of adult Pacific herring (*Clupea pallasii*) using supersonic telemetry
- FIS-P12 **Jie Kong**
Multiple-trait genetic evaluation of the Pacific white shrimp *Litopenaeus vannamei* in China
- FIS-P13 **Mariella Canales (*)**
Climate and feedback structures influence the population dynamics of small pelagic fish population off Chile
- FIS-P14 **Jung-Yeon Kim (*)**
Age validation and growth rate of *Mactra chinensis* (Bivalvia, Mactridae) by chondrophore

- FIS-P15 **Chiyuki Sassa**
 Ontogenetic changes and interannual variations in diet of Japanese jack mackerel (*Trachurus japonicus*) juveniles in the East China Sea
- FIS-P16 **Minkyung Bang (*)**
 Changes in biomass of walleye pollock *Gadus chalcogrammus* in the East Sea: |
 The late 1980s regime shift
- FIS-P17 **Yoshiki Kato**
 Growth, migration and trophic interactions role of neon flying squid (*Ommastrephes bartramii*) in the North Pacific
- FIS-P18 **Tetsuichiro Funamoto**
 Importance of early life transports for recruitment of walleye pollock *Gadus chalcogrammus* in the Sea of Japan off Hokkaido Island
- FIS-P19 **Kazuo Ishikawa (*)**
 Successive recruitment of age-0 jack mackerel (*Trachurus japonicus*) in coastal areas along the Kuroshio
- FIS-P20 **Shufang Liu**
 Biodiversity patterns and changes in the fishery ecosystem of the Yellow Sea and the East China Sea
- FIS-P21 **Shannon G. Obradovich (*)**
 Bare hooks and other species interactions with benthic longline gear can influence hook-based abundance indices
- FIS-P22 **James R. Hilger**
 Disentangling the impact of regulation and climate on vessel productivity: A case study of the Leatherback Turtle Conservation Area closure and the California drift gill net swordfish fishery
- FIS-P23 **Francis Juanes**
 Does returning sockeye salmon (*Oncorhynchus nerka*) condition vary with climate in two BC rivers?
- FIS-P24 **Matthew Baker**
 Pacific sand lance in the San Juan Islands: synthesis of research 2010-2016
- FIS-P25 **Matthew Baker**
 Quantifying and evaluating implications for trawlable and untrawlable habitat

MEQ Contributed Poster Session

- MEQ-P1 **Dong-Woon Hwang**
 Evaluation of organic matter and trace metal concentration in Korean coastal sediment using geochemical assessment techniques
- MEQ-P2 **Minkyu Choi**
 Rapid determination of organochlorine pesticides in fish using selective pressurized liquid extraction and gas chromatography–mass spectrometry
- MEQ-P3 **Hyung Chul Kim**
 Estimation of carrying capacity for oyster farming in Korea and its economic benefits

- MEQ-P4 **Taehee Lee**
Sediment oxygen consumption rate and hydrogen sulfide release by dissolved oxygen depletion in hypoxic area of the Gamak Bay, Korea
- MEQ-P5 **Won Chan Lee (*)**
Modelling pollution contribution rate for watershed management in Masan Bay
- MEQ-P6 **Osamu Tominaga**
Estimate the contribution of submarine groundwater discharge to the biological productivity in coastal waters by the stable isotope signal recorded in the shell
- MEQ-P7 **Jianwei Wu (*)**
The design of an integrated Sino-Vietnam marine and island environment | information management system deployed in Beibu Gulf
- MEQ-P8 **Haiyan Wang**
The levels of total phosphorous, total nitrogen, in sediments from ST06 areas, South Sea, China

MONITOR Contributed Poster Session

- MON-P1 **Mi-Ok Park**
Distribution of the CDOM(Chromophoric Dissolved Organic Matter) in spring of 2012-2014 at southwestern East(Japan) Sea
- MON-P2 **Clarissa Anderson**
How ocean observations work for you: A perspective from the U.S. IOOS Regional Association serving Southern California

POC Contributed Poster Session

- POC-P1 **Lijian Shi**
Sea ice detection for the Bohai Sea using MODIS data
- POC-P2 **Ki-Hyuk Eom**
Ocean acidification on coast of the korea
- POC-P3 **Rong-shuo Cai**
Enhanced responses of sea surface temperature in offshore China to global warming and hiatus
- POC-P4 **Carol Ladd**
Cross-isobath exchange in Bering Canyon
- POC-P5 **Xiao-Hua Zhu**
The impact of monsoon winds and mesoscale eddies on the South China Sea western boundary current
- POC-P6 **Dong Guk Kim**
Comparison between two types of moored vertical profiler
- POC-P7 **Kwang-Young Jeong**
Mean sea level (MSL) trends around the Korea Peninsula with tide gauge and altimeter data

- POC-P8 **Chan Joo Jang**
Regional characteristics of global warming: Linear projection for the timing of unprecedented climate
- POC-P9 **Chan Joo Jang**
Recent cooling trend in the Yellow and East China Seas and the associated North Pacific climate regime shift
- POC-P10 **A-Ra Choi**
Long-term changes of South China Sea surface temperatures in winter and summer
- POC-P11 **Hee Dong Jeong**
Ferry based monitoring in the NEAR-GOOS Area
- POC-P12 **Allen H. Andrews**
Nuclear bombs and coral: Guam coral core reveals operation-specific radiocarbon signals from the Pacific Proving Grounds

Section on *Ecology of Harmful Algal Blooms in the North Pacific* Poster Session

- S-HAB-P1 **Lin Yang**
The detection of lipophilic toxins and hydrophilic toxins in shellfish collected from Chinese East Sea by LC–MS/MS
- S-HAB-P2 **Polina A. Kameneva (*)**
Prorocentrum foraminosum Faust (Dinophyceae) as a potential source of DSTs in the Peter the Great Bay, Sea of Japan (East Sea)
- S-HAB-P3 **Zhengguo Cui**
Treatment of saline aquaculture wastewater with a constructed wetland

Section on *Human Dimensions of Marine Systems* Poster Session

- S-HD-P1 **Elizabeth D. Tobin (*)**
Linking traditional knowledge and ecological studies to improve understanding of paralytic shellfish poisoning and enhance sustainability of shellfish harvest in Southeast Alaska.
- S-HD-P2 **Michael Waine**
Implementation of ecosystem-based fisheries management in U.S. Fisheries
- S-HD-P3 **Lv Han**
Ecological service value assessment and distribution of seaweed aquaculture in China using GIS
- S-HD-P4 **Jingmei Li (Shang Chen?)**
Valuing the loss of ecological benefits of wetland reclamation in Jiaozhou Bay based on choice experiments
- S-HD-P5 **Keith R. Criddle**
Alaska’s sablefish fishery after Individual Fishing Quota program implementation— A bioeconomic analysis
- S-HD-P6 **Yoshioki Oozeki**
Evaluation of sustainability of fisheries products around Japan: Sustainable, Healthy and “*Umai*” Nippon seafood (SH“U”N) Project

W8: POC Workshop

Mesoscale and submesoscale processes in the North Pacific: History and new challenges

- W8-P1 **Hiromu Ishiyama**
Global distribution of mergers and splits of oceanic mesoscale eddies
- W8-P2 **Eligio de Raús Maúre**
Impact of mesoscale eddies on spring bloom initiation in the Japan Sea
- W8-P3 **Kyung-Jae Lee**
Mesoscale eddies in the East/Japan Sea: Detecting methods and characteristics of eddy properties

W9: POC Workshop

The role of the northern Bering Sea in modulating Arctic environments: Towards international interdisciplinary efforts

- W9-P1 **Kirill Kivva (*)**
Seasonal dynamics of dissolved inorganic nutrient in the Bering Sea

W10: MEQ Workshop

Distribution and Risk Analysis of Radionuclides in the North Pacific

- W10-P1 **Delvan R. Neville (*)**
Effect of migratory life history on North Pacific albacore (*Thunnus alalunga*) uptake of radiocesium
- W10-P2 **Kankan Wu (*)**
Application of environmental risk assessment for strategic decisionmaking in coastal areas: Case studies in China

Observing Organizations Posters

Argo	Megan Scanderbeg Argo in 2016: Sustaining core Argo and implementing recommended enhancements
CLIVAR	Nico Caltabiano Coordinated international activities on the climate study of ocean-atmosphere interactions
ESSAS	Kenneth Drinkwater and Franz Mueter Ecosystem Studies of Subarctic and Arctic Seas
IAMSLIC	Debra A. Losey and Amy Butros International Association of Aquatic and Marine Science Libraries and Information Centers
IATTC	Daniel Margulies The IATTC's research program on the reproductive biology and early life history of tunas in the eastern Pacific Ocean
IMBER	Gro van der Meeren The Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project
IOCCP	Maciej Telszewski International Ocean Carbon Coordinated Project
ISC	Chi-Lu Sun and Gerard DiNardo International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean
NANOOS	Jan Newton Northwest Association of Networked Ocean Observing Systems
NEAR-GOOS	Vyacheslav Lobanov North East Asian Regional GOOS
NPAFC	Vladimir I. Radchenko International Year of the Salmon: From idea to launch
SAHFOS	Willie Wilson Sir Alister Hardy Foundation for Ocean Science
SCCOOS	Clarissa Anderson Southern California Coastal Ocean Observing System
SCOR	Ed Urban Scientific Committee on Oceanic Research

Upcoming International Events

www.pices.int

PICES/ICES Symposium

Drivers of Small Pelagic Fish Resources

March 6–11, 2017, Victoria, Canada

www.pices.int/smallpelagics2017

PICES/ICES 3rd Early Career Scientist Conference

Climate, Oceans and Society Challenges and Opportunities

May 30 – June 2, 2017, Busan, Korea

www.pices.int/ecs3

PICES-2017 Annual Meeting

Environmental Changes in the North Pacific and Impacts on Biological Resources and Ecosystem Services

September 20 – October 1, 2017, Vladivostok, Russia

www.pices.int

PICES/ICES/IOC 4th International Symposium

The Effects of Climate Change on the World's Oceans

May 2018, Washington DC, USA

www.pices.int/2018-climate-change



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