



PICES-2021 SCHEDULE OF BUSINESS MEETINGS, WORKSHOPS AND SESSIONS.

PICES-2021 Note: All start times are PACIFIC TIME (Victoria, BC, Canada)

Convert to your local time zone using this converter: <https://www.timeanddate.com/worldclock/converter.html>

SB - Science Board
GC - Governing Council
F&A Finance and Administration
FUTURE Science Program (Forecasting and Understanding Trends, Uncertainty and Responses of North Pacific Marine Ecosystems)

Standing Committees:

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

Working Groups:

WG-35: Working Group on Third North Pacific Ecosystem Status Report (WG-NPESR3)
WG-37: Zooplankton Production Methodologies, Applications and Measurements in PICES Regions
WG-38: Mesoscale and Submesoscale Processes
WG-39: Joint PICES/ICES/PAME Working Group on an Integrated Ecosystem Assessment for the Central Arctic Ocean
WG-40: Working Group on Climate and Ecosystem Predictability
WG-41: Working Group on Marine Ecosystem Services
WG-42: Working Group on Indicators of Marine Plastic Pollution
WG-43: Joint PICES/ICES Working Group on Small Pelagic Fish
WG-44: Joint PICES/ICES Working Group on Integrated Ecosystem Assessment for the Northern Bering Sea - Chukchi Sea
WG-45: Joint PICES/ICES Working Group on Impacts of Warming on Growth Rates and Fisheries Yields (GRAFY)
WG-46: Joint PICES/ICES Working Group on Ocean Negative Carbon Emissions (ONCE)
WG-47: Working Group on Ecology of Seamounts
WG-48: Working Group on Towards best practices using Imaging Systems for Monitoring Plankton (WGISMP)

Sections:

S-MBM: Section on Marine Birds and Mammals
S-CCME: Section on Climate Change Effects on Marine Ecosystems
S-HAB: Section on Ecology of Harmful Algal Blooms in the North Pacific
S-CC: Section on Carbon and Climate

Advisory Panels:

AP-CREAMS: Advisory Panel for a CREAMS/PICES Program in East Asian Marginal Seas
AP-NPCOOS: Advisory Panel on North Pacific Coastal Ocean Observing Systems
AP-NIS: Advisory Panel on Marine Non-indigenous Species

Study Groups:

SG-UNDOS: Study Group on United Nations Decade of Ocean Science
SG-ECOP: Study Group on Early Career Ocean Professionals
SG-SciCom: Study Group on Science Communications

CM = Closed meeting



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Workshops:

W1: Can we link zooplankton production to fisheries recruitment?

W2: Pelagic and forage species – predicting response and evaluating resiliency to environmental variability

CANCELLED W3: ~~Anthropogenic stressors, mechanisms and potential impacts on Marine Birds and Mammals~~

W4: Monitoring Essential Biodiversity Variables in the coastal zone

W5: Engaging Early Career Ocean Professionals in PICES to further the next generation of integrated ocean sustainability science

Sessions:

S1: Towards a shared vision of sustainable marine ecosystems

S2: Global warming patterns and multiscale climate variability in the North Pacific

E-Poster ONLY S3: Upper ocean energetics from mesoscale, submesoscale to small-scale turbulence in the North Pacific

CANCELLED S4: ~~How the studies on human dimensions can contribute to meet the seven societal needs of the Decade of Ocean Science?~~

S5: Atmospheric nutrient deposition and microbial community responses, and predictions for the future in the North Pacific Ocean

S6: Connecting knowledge of ocean deoxygenation in coastal and offshore regions of the North Pacific

S7: Predictions of extreme events in the North Pacific and their incorporation into management strategies

S8: Using environmental indicators to assess baselines, targets, and risk of plastic pollution in the North Pacific

S9: Applications of artificial intelligence to advance the understanding of North Pacific ecosystems



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SEPTEMBER 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 17:00-19:00 WG-38	2 17:00-20:00 WG-39	3	4
5	6	7 17:00-19:00 WG-45 17:00-19:00 WG-48	8 16:00-18:00 SG-ECOP 17:00-19:00 WG-41 (Day-1)	9 17:00-19:00 WG-40 17:00-19:00 WG-41 (Day-2)	10	11
12	13	14	15	16 17:00-19:00 WG-35	17	18
19	20 17:00-20:00 WG-47	21 14:00-17:00 WG-37	22 15:00-18:00 WG-42 17:00-20:00 SG-Sci-Com	23 17:00-20:00 WG-43 17:00-20:00 WG-44	24 06:00-08:00 WG-46	25
26	27 17:00-20:00 FIS (Day-1) 16:00-19:00 AP-NIS	28 17:00-20:00 FIS (Day-2) 17:00-20:00 TCODE 17:00-19:00 S-HAB	29 17:00-20:00 S-CCME 17:00-20:00 MEQ 17:00-20:00 S-MBM	30 17:00-20:00 POC 17:00-20:00 AP-CREAMS 17:00-20:00 S-CC		



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OCTOBER-NOVEMBER 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 17:00-20:00 MONITOR (D1) 17:00-21:00 BIO (Day-1) 17:00-20:00 HD	5 17:00-20:00 AP-NPCOOS 17:00-20:00 FUTURE (D-1)	6 17:00-20:00 MONITOR (D2) 17:00-20:00 FUTURE (D-2)	7 17:00-20:00 BIO (Day-2) 17:00-20:00 FUTURE (D-3)	8	9
10	11 17:00-20:00 SB (Day-1) CM	12 17:00-20:00 SB (Day-2) CM	13 17:00-20:00 SB (Day-3) CM F&A (Day-1) CM	14 17:00-20:00 F&A (Day-2) CM	15	16
17	18 17:00-18:00 W1 19:00-20:00 W2	19 17:00-18:00 W3 19:00-21:00 W4 W3 - CANCELLED	20 17:00-18:30 W5	21	22	23
24	25 17:00-21:00 OPENING CEREMONY AWARDS, S1	26 17:00-19:00 S2, S4 19:00-21:00 S3, S5 S3, S4 - CANCELLED	27 17:00-19:00 S6, S8 19:00-21:00 S7, S9	28 17:00-20:00 E-Posters	29	30
31	NOVEMBER 1 17:00-20:00 GC (Day-1) CM	2 17:00-20:00 GC (Day-2) CM	3 17:00-20:00 GC (Day-3) CM [if needed]			

CM = Closed meeting



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PICES-2021 WORKSHOPS

#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
W1	BIO/FIS	10/18	17:00	18:00	Can we link zooplankton production to fisheries recruitment?
Wsh 1 Convenors		Toru Kobari (Japan), corresponding Russ Hopcroft (USA), Hui Liu (USA), Karyn Suchy (Canada)			
Wsh 1 Description		Sustainability of fisheries requires a better understanding of stock dynamics and resilience to environmental and anthropogenic forcing. Zooplankton play a vital nexus between primary producers and higher level consumers and are thus highly relevant to fisheries production and ecosystem functions. Understanding the impact of trophic relationships on the nutrition of larvae and foraging fishes is a critical step needed to forecast the stock response and resilience to environmental changes. However, limited attention has been paid to the role of zooplankton in sustaining fisheries production, which is largely because routine measurements of secondary production remain rare. This workshop will discuss prospective ways for understanding functional and structural roles of secondary production on fisheries dynamics and production. In particular, we encourage presentations and discussions on research using experimental, observational and modeling approaches linking zooplankton productivity and fish larvae and foraging fishes.			
Workshop 1 Recorded Presentations (should be viewed before the workshop)					
1	Toru Kobari <i>Comparison of plankton community structure, standing stocks and productivity along the Kuroshio at the Tokara Strait</i>				
2	Gen Kume <i>Distribution, feeding habits, and growth of chub mackerel, <i>Scomber japonicus</i>, larvae during a high-stock period in the northern Satsunan area, southern Japan</i>				
3	Yusuke Manako <i>Community structure of fish larvae associated with advections of the Kuroshio and its neighboring waters</i>				
4	Yusuke Tokumo <i>Importance of gelatinous zooplankton on plankton food web in the Kuroshio based on metabarcoding analysis</i>				



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5	Tomoko Kusano <i>How to adapt growth and productivity of fish larvae to the Kuroshio</i>
6	Karyn D. Suchy <i>Model-based spatiotemporal variability in mesozooplankton productivity in the Salish Sea</i>
7	Shin Kazuno <i>Source of coastal waters advected to the Kuroshio using particle-tracking experiments on high-resolution coastal ocean model</i>
8	Lian Kwong <i>Evaluating pathways of environmental association with mesozooplankton and fisheries production</i>
9	Hui Liu <i>Promising perceptions of linking zooplankton production to fisheries dynamics</i>
10	Megan N. Wilson <i>The Tortoise and the Hare: distinct early growth strategies in a nearshore groundfish persist in the seasonally variable Northern California Current</i>
11	Theresa A. Venello <i>The effect of zooplankton community composition on spatiotemporal variability of trophic transfer efficiency in the subarctic NE Pacific</i>
Oct 18 17:00-18:00pm Victoria, BC Time	Workshop 1 Agenda (Discussion)
	(1) What is necessary for zooplankton production to evaluate fishery dynamics and production?
	(2) What are the advantages/disadvantages for current zooplankton production methodologies and measurements to link fishery dynamics and production?
	(3) Future prospect (workshops, sessions or working group)



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
W2	FIS	10/18	19:00	20:00	Pelagic and forage species – predicting response and evaluating resiliency to environmental variability?
Wsh 2 Convenors		Matthew Baker (USA), corresponding Brian Hunt (Canada), Hui Liu (USA), Elizabeth Siddon (USA)			
Wsh 2 Description		<p>Climate and environmental variability influence pelagic ecosystems with direct and indirect impacts on pelagic and forage fish populations. These species are particularly responsive to shifts in the physical environmental and the production and phenology of biological production at lower trophic levels. Forage fish are also the link between planktonic food webs and higher trophic levels in the global ocean. Despite their critical role in North Pacific ecosystems, forage fish have remained understudied due to the majority of research resources and effort being focused on the predatory species that they support. This knowledge gap is increasingly pressing as the North Pacific advances into new climate and ocean modes. We propose to host a workshop that builds on the 2018 Session in Yokohama, Japan and related collaborations to share results on trends in pelagic and forage fishes in the North Pacific PICES region, including work using experimental, observational and modeling approaches. We intend to use the North Pacific as a case study for global response to warming and determine the attributes important in understanding how different populations respond in similar or divergent ways to common drivers. We also aim to examine two overarching themes (1) adaptation/resiliency and (2) forecasting) to better define our 'current state of knowledge' and use this workshop to further identify data gaps, research needs, and useful tools and models to further research in this area. This workshop aims to bring forage fish researchers from around the North Pacific. The workshop will use regional presentations as a springboard for discussion on common ecosystem drivers and similarities / dissimilarities among regions. Priority data gaps will be ranked as a step towards focusing direction for short and long-term research objectives. discussions on research using experimental, observational and modeling approaches linking zooplankton productivity and fish larvae and foraging fishes.</p>			
Workshop 2 Recorded Presentations (should be viewed before the workshop)					
1	Wei Yu <i>Response of abundance and distribution of a top predator squid species to short-lived eddies in the Eastern Equatorial Pacific Ocean</i>				
2	Kelsey Swieca <i>Oceanographic and trophodynamic underpinnings of larval anchovy success in the northern California Current</i>				
3	Carolina Lang <i>Impact of environmental variability on jack mackerel spawning grounds in the open sea of the Southeast Pacific Ocean</i>				



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<p>Oct 18 19:00-20:00pm Victoria, BC Time</p>	<p>Workshop 2 Agenda</p>
	<p>Intent</p> <p>We intend to convene experts for a one-hour session designed to outline the development of a manuscript on a synthesis of research on the influence of climate and environmental variability on pelagic and forage fish populations in the North Pacific. That manuscript would address the themes of (1) adaption/resiliency and (2) forecasting. The workshop will use regional presentations as a springboard for discussion on common ecosystem drivers and similarities / dissimilarities among regions. Priority data gaps will be ranked as a step towards focusing direction for short and long-term research objectives. It will also address ‘what we know’ and ‘where we need to go in this field’. Specifically, we aim to:</p> <ul style="list-style-type: none"> • Define our current state of knowledge • Identify data gaps, research needs and tools and models to further research in this area • Develop a hierarchical/ranked list of short- and long-term research priorities
<p>19:00-19:10</p>	<p>Introductions – Workshop Themes</p>
<p>19:10-19:12</p>	<p>Results of Online Poll 1 [poll available during introduction]</p>
<p>19:12-19:25</p>	<p>Breakout Session: Important themes and insights related to adaptation/resiliency</p>
<p>19:25-19:30</p>	<p>Plenary [report of discussions from Convenors]</p>
<p>19:30-19:32</p>	<p>Results of Online Poll 2 [poll available during introduction]</p>
<p>19:32-19:45</p>	<p>Breakout Session: Advances and challenges to understanding mechanisms and forecasting</p>
<p>19:45-19:50</p>	<p>Plenary [report of discussions from Convenors]</p>
<p>19:50-20:00</p>	<p>Synthesis and Next Steps</p>
	<p>Polls/Surveys</p> <p>Poll/Survey 1 – What do we know</p> <ul style="list-style-type: none"> • What is the current state of knowledge [multiple choice] • What are important data gaps, research needs, tools and models [textbox] • What are important short-term and long-term research priorities [textbox]



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<p>Poll/Survey – How do we synthesize information and apply it</p> <ul style="list-style-type: none"> • How do we rank priorities? • What are ways to incorporate information across different knowledge or data streams [textbox] • How to integrate these into management or applied context [textbox] <p>Poll/Survey – What is your interest and next steps</p> <ul style="list-style-type: none"> • What is your interest in participating? • List other individuals that might have interest in participating • What are the best means to facilitate collaboration [provide link to GoogleDrive folder] <p>https://meetings.pices.int/meetings/annual/2021/PICES/Program</p>					
#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
W4	AP-NPCOOS/ MONITOR/ TCODE/BIO/ FUTURE	10/19	19:00	21:00	Monitoring Essential Biodiversity Variables in the coastal zone
Wsh 4 Convenors		Jack Barth (USA), corresponding; Charles Hannah (Canada), corresponding Vyacheslav Lobanov (Russia); Hanna Na (Korea); Naoki Yoshie (Japan)			
Wsh 4 Description		The goals of FUTURE and UN Decade of Ocean Science require systematic and sustained observations of marine ecosystems, especially in the coastal regions where the interactions between humans and the marine environment are most intense. The Advisory Panel on North Pacific Coastal Ocean Observing Systems is responsible for advising PICES on the linkages between coastal ocean observing systems and the PICES FUTURE Science Program. We propose a Workshop to address the question of how the PICES community plan to measure the Essential Biodiversity Variables (EBV; Miloslavich et al 2018 DOI: 10.1111/gcb.14108) and make them available to the community (the essence of Coastal Ocean Observing Systems). The workshop will provide a basis for identifying gaps in observing systems relative to FUTURE's goals of providing a synthesis of knowledge on: a) ecosystem resilience and vulnerability; b) ecosystem response to natural and anthropogenic forcing; and c)			



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	<p>future ecosystem change. We will solicit contributions that will address the following questions: 1) what is the current state of monitoring EBVs in each PICES country; 2) what new technologies are being developed which will help monitor EBVs (e.g. eDNA, satellite mapping of macro algae); 3) which technologies are moving beyond the pilot stage to the mature stage; and 4) what is the state of the art in getting EBVs into databases and getting them out via user friendly interfaces? The primary output from the workshop is expected to be a journal article describing the current state of the art in both the measurement of EBVs in the coastal zone and in making the data widely available.</p>
<p>Workshop 4 Recorded Presentations (should be viewed before the workshop)</p>	
1	<p>Sejal Pramlall <i>Characterizing phytoplankton phenology patterns in the Northeast Pacific coastal waters using the GlobColour Project</i></p>
2	<p>Takafumi Yoshida <i>Assessment of the distribution of tidal flats in the Northwest Pacific region</i></p>
3	<p>Young Nam Kim <i>Overview of the National Marine Ecosystem Monitoring program in Korea</i></p>
4	<p>Natalya D. Gallo <i>Contributions of fisheries surveys to monitoring essential ocean, climate, and biodiversity variables: A synthesis from the U.S. West Coast</i></p>
5	<p>Margot Hessing-Lewis <i>Adoption and implementation of Seagrass Essential Ocean Variables (EOVs)</i></p>
6	<p>Justin A. Del Bel Belluz <i>High temporal resolution phytoplankton compositions and environment drivers in the northern Salish Sea, British Columbia, Canada</i></p>
7	<p>Chieh Hsu <i>"Wishing I'm Fishing": OceanView -- A fisherman's lifelong app</i></p>
8	<p>Sandy Starkweather <i>Sustaining Arctic Observing Networks: A Roadmap for Arctic Observing and Data Systems (SAON-ROADS)</i></p>
9	<p>Akash Sastri <i>Integrating coastal zooplankton monitoring programs into an Essential Biodiversity Variable (EBV) framework: Current status, challenges, and new developments, for Canada's west coast</i></p>



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10	<p>Maria T. Kavanaugh <i>Marine Biodiversity Observing in the Northern California Current: Understanding changing plankton community composition and seascape habitats</i></p>
11	<p>Erin V. Satterthwaite <i>Linking marine ecosystem data to action within the context of climate change: Toward developing the global observing system for marine life</i></p>
12	<p>Brett Johnson <i>Mobilizing essential salmon biodiversity variables collected by the Hakai Institute Juvenile Salmon Program via the Canadian Integrated Ocean Observing System</i></p>
<p>Oct 19 19:00-21:00pm Victoria, BC Time</p>	<p>Workshop 4 Agenda</p>
19:00 – 19:15	Welcome, introductions, goal of the workshop
19:15 – 19:55	Review of important points that should be included in the paper
19:55 – 20:05	Break (and organize breakout groups)
20:05 – 20:25	Breakout group discussion
20:25 – 20:45	Report of the group discussions
20:45 – 21:00	Next steps (writing tasks)



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
W5	FUTURE	10/20	17:00	18:30	Engaging Early Career Ocean Professionals in PICES to further the next generation of integrated ocean sustainability science
Wsh 5 Convenors		Erin Satterthwaite (USA), corresponding Aoi Sugimoto (Japan); Pengbin Wang (China)			
Wsh 5 Description		Intergenerational diversity is central to sustainability since it relies on meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. As such, early career ocean professional (ECOP) engagement is a central focus of PICES and within the context of the UN Decade of Ocean Science for Sustainable Development (2021-2030) since emerging ocean leaders are needed to bring fresh ideas, sustained engagement and scientific cooperation, and diverse perspectives to the next chapter of scientific discovery. This workshop will bring together the next generation of ocean professionals and mentors to engage in a networking/interactive session with Expert Group chairs and other PICES visionaries.			
Oct 20 17:00-19:00pm Victoria, BC Time		Workshop 5 Agenda			
17:00-17:05		Welcome & Intro			
17:05-17:15		Introduction to PICES Keynote Address (Enrique Curchitser)			
17:15-17:30		Introduction to ECOP engagement in PICES			
17:30-18:20		'Ask a PICES Veteran' sessions			
18:20-18:40		Closing remarks			



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S1	SB	10/25	17:00	21:00	OPENING CEREMONY, AWARDS Science Board Symposium
		Oct 25 17:00-18:30 Victoria, BC Time	PICES-2021 OPENING CEREMONY		
		<ol style="list-style-type: none"> 1. Welcoming Address PICES Chair, Prof. Enrique Curchitser 2. Award presentations: Chair Wooster Award POMA Award Zhu-Peterson Early Career Scientist Award 3. PICES Year in Review, PICES Science Board Chair, Dr. Vera Trainer 4. Keynote Presentation, Prof Fangli Qiao 5. Closing remarks and announcements, PICES Deputy Executive Secretary, Dr Sanae Chiba 6. Short Break 7. Opening of the Science Board Symposium, PICES Science Board Chair, Dr. Vera Trainer 8. Science Board Symposium 			



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S1 Convenors	PICES Science Board
S1 Description	<p>PICES is well-positioned as a northern hemisphere leader of multi-national collaborations to further our understanding of the ocean's natural systems, to contribute "the science we need for the ocean we want" for the United Nations Decade of Ocean Science for Sustainable Development. The international scientific platforms and cooperation mechanisms that PICES scientists have created with organizations and individuals from around the world will now be expanded to strengthen ocean science research and collaboration among countries in the Northern and Southern hemispheres. This will further our scientific progress in understanding climate change impacts, ecosystem-based fisheries management approaches, biologically-driven ocean carbon sequestration, and regional integrated ecosystem assessments including social, ecological and environmental dynamics of marine systems and coastal communities.</p> <p>Strategies for communicating our science and applying scientific building blocks toward solutions to mitigate the impacts of climate change are also critical for preserving our oceans and the coastal communities that depend upon its bounty. Papers that describe these broad scientific ideas and also incorporate strategies to facilitate PICES Ocean Decade cross-cutting inclusivity themes relating to gender equality, early career ocean professional engagement, and significant involvement of indigenous communities and developing nations are encouraged.</p>
<p>Oct 25 18:35-20:00 Victoria, BC Time</p>	Session 1 Scheduled Oral Presentations
18:35-18:40	<i>Introduction by the Science Board Chair (Vera Trainer)</i>
<p>Live Talk 1 18:40-19:00</p>	<p><i>Shion Takemura</i> <i>Identifying changes of research focuses and potential collaborations in PICES toward the UN Decade of Ocean Science for Sustainable Development (UNDOS)</i></p>
<p>Live Talk 2 19:00-19:20</p>	<p><i>Vishnu P Suseelan</i> <i>Phytoplankton community composition in the Gulf of Alaska determined using CHEMTAX and OLCI Sentinel 3 satellite data</i></p>
<p>Live Talk 3 19:20-19:40</p>	<p><i>Erin Satterthwaite</i> <i>The evolving efforts of PICES early career ocean professionals to foster international, intergenerational and cross-sectoral engagement in the North Pacific and beyond</i></p>
<p>Live Talk 4 19:40-20:00</p>	<p><i>Mark Saunders</i> <i>Basin-scale Events to Coastal Impacts (BECI): An ocean intelligence system for a changing world</i></p>



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S2	POC	10/26	17:00	19:00	Global warming patterns and multiscale climate variability in the North Pacific
S2 Convenors		Jian Ma (China), corresponding Emanuele Di Lorenzo (USA); Kyong-Hwan Seo (Korea)			
S2 Description		<p>Climate change and compounding anthropogenic pressures pose a risk to marine social-ecological systems. Of increasing concern is the potential for systems to rapidly shift (often irreversibly) to new states in response to pressures. In some cases, such shifts can occur abruptly without much warning, despite years of mounting pressure and apparent system resilience. These nonlinear inflection points in pressure-response relationship, -- i.e. "tipping points"--, are defined by the IPCC SR15 as "critical thresholds in a system that, when exceeded, can lead to a significant change in the state of the system, often with an understanding that the change is irreversible." Identifying singular or compound, nonlinear, or contextual tipping points is of paramount importance to the IPCC as the likelihood of crossing tipping points increases with atmospheric carbon, climate instability, and ecological sensitivity, posing a significant risk for ecological and human wellbeing. Tools and methods for managing systems prone to tipping points are important for national, regional, and local resource management and climate adaptation. While identifying tipping points is challenging, there are multiple recent approaches that advance this objective, especially in terms of multivariate tipping points. We propose a topic session that will a) explore emergent tools and approaches for identifying multivariate thresholds and tipping points, 2) explore existing and potential social and ecological tipping points and responses, and 3) review approaches for managing systems prone to tipping points. This topic session will bring together international experts from oceanographic, ecological, and social sciences to compare methodologies and synergies across systems. Of particular focus will be methods to promote adaptation and resilience to climate change in marine systems increasing pushed towards extremes and tipping points.</p>			
Oct 26 17:00-19:05 Victoria, BC Time		Session 2 Scheduled Oral Presentations			
Intro 17:00-17:05		<i>Introduction by Session Convenors</i>			
Invited Live Talk 1 17:05-17:30		<i>Dongliang Yuan</i> <i>Role of the Indo-Pacific oceanic channel dynamics in ENSO development and global climate change</i>			



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Live Talk 2 17:30-17:45	Emily Lemagie <i>Multidecadal oceanographic variability over the Bering Sea Inner Shelf</i>
Live Talk 3 17:45-18:00	Lin Liu <i>Preliminary Assessment of Simulated Tropical Pacific SST Warming Based on CMIP Models</i>
Live Talk 4 18:00-18:15	Susan Allen <i>Resilience to climate variability of nutrient delivery and primary productivity in a coastal sea</i>
Live Talk 5 18:15-18:30	Virendra Goswami <i>Application of Remote Sensing to Study the Correlation of Climate Variability with Air-Sea CO2 exchange to develop Sea-Level Variability Forecasting Models (SLVFM) Over Tropical Oceanic Regions</i>
Recorded Talk 6 18:30-18:45	Gian Giacomo Navarra <i>Predictability and Empirical Dynamics of Fish Indicators in the North Pacific</i>
Recorded Talk 7 18:45-19:00	Po-Yuan Hsiao <i>Climate-induced fluctuations in primary production required in summertime upwelling ecosystems around the Taiwan Bank</i>
Closing 19:00-19:05	Closing by Convenors



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PICES-2021 SCIENCE SESSIONS

#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S5	BIO/POC	10/26	19:00	21:00	Atmospheric nutrient deposition and microbial community responses, and predictions for the future in the North Pacific Ocean
S5 Convenors		Jun Nishioka (Japan), corresponding Huiwang Gao (China); Santiago Gassó (USA); Kitack Lee (Korea); Maurice Levasseur (Canada); Guiling Zhang (China)			
S5 Description		Atmospheric deposition is an important nutrient source for marine ecosystems, with consequences for local, regional, and global biogeochemical cycles, as well as the climate system. This session focuses on natural and anthropogenic atmospheric nutrient inputs to the North Pacific Ocean. Microbial communities respond to SB-2019 SB 19 changing atmospheric inputs, which may result in significant effects on the marine carbon and nitrogen budgets, as well as on atmospheric carbon dioxide uptake. Key questions to be addressed within this theme are: How do biogeochemical and ecological processes interact in response to natural and anthropogenic material input from the atmosphere across coastal and open ocean regions? How do global warming, ocean acidification, and other anthropogenic stressors synergistically alter the uptake of atmospheric nutrients and metals by marine biota in different oceanic regions? What is the prognosis for the future? We welcome new interdisciplinary presentations and active discussions on physical, chemical, and biological sciences both from the ocean and atmospheric fields in this session.			
Oct 26 19:00-21:10 Victoria, BC Time		Session 5 Scheduled Oral Presentations			
Intro 19:00-19:05		<i>Introduction by Session Convenors</i>			
Live Talk 1 19:05-19:25		<i>Fumikazu Taketani</i> <i>Impact assessment of deposition of atmospheric nitrogen compounds to the surface chlorophyll-a concentration over Northwestern Pacific Ocean</i>			
Recorded Talk 2 19:25-19:45		<i>Shijie Jia</i> <i>The distribution and diversity of antibiotic resistance genes in aerosols between a coastal site and marine sites</i>			



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Recorded Talk 3 19:45-20:05	Qin Wang <i>The response of phytoplankton in the oligotrophic and eutrophic waters of the Yellow Sea to the addition of haze in spring</i>
Live Talk 4 20:05-20:25	Minako Kurisu <i>Estimation of the contribution of combustion Fe in marine aerosols over the North Pacific using Fe stable isotope ratios</i>
Recorded Talk 5 20:25-20:45	Jiao Wang <i>The concentrations and depositions of atmospheric particles nutrient into the China adjacent seas</i>
Live Talk 6 20:45-21:05	Yoko Iwamoto <i>Dry nitrogen deposition to the eastern Indian Ocean during boreal autumn and its impact on the primary production</i>
Closing 21:05-21:10	Closing by Convenors

#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S6	S-CC	10/27	17:00	19:00	Connecting knowledge of ocean deoxygenation in coastal and offshore regions of the North Pacific

S6 Convenors	Tsuneo Ono (Japan), corresponding Alex Kozyr (USA); Tetjana Ross (Canada)
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S6 Description	Ocean deoxygenation is the loss of oxygen in the ocean resulting from ocean warming, which reduces oxygen solubility and increases oxygen consumption and stratification, thereby reducing the mixing of oxygen into the ocean interior. Ocean deoxygenation exacerbates coastal hypoxia and the expansion of oxygen minimum zones globally. Hypoxia is known as a severe threat to ocean ecosystems and fisheries resources, in both offshore and coastal regions. Decreasing oxygen in seawater is caused by several processes such as increase of water temperature, changing ocean circulation and stratification, changes in production and remineralization of organic matter, and coastal eutrophication. The main cause of oxygen decline varies regionally, and sometimes multiple processes contribute. Multiple causes make it difficult to get a comprehensive understanding of ocean deoxygenation at the various scales from coastal regions to ocean
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	<p>basins. PICES S-CC is planning a new program to collect an inventory of oxygen monitoring programs, as well as data and knowledge obtained from them, that are ongoing among the PICES countries. At the commencement of this program, we convene this session to gather information on ongoing ocean deoxygenation and oxygen variability studies and the resulting scientific knowledge, in both the coastal and offshore North Pacific. For this purpose, we encourage attendees to present studies of detection of deoxygenation, as well as causes of oxygen variability, at the various scales from coastal regions to ocean basins in this session. We also welcome studies of impacts of deoxygenation and hypoxia on ocean ecosystems and/or fisheries.</p>
<p>Oct 27 17:00-19:10 Victoria, BC Time</p>	<p>Session 6 Scheduled Oral Presentations</p>
<p>Intro 17:00-17:05</p>	<p><i>Introduction by Session Convenors</i></p>
<p>Live Talk 1 17:05-17:20</p>	<p><i>Ahron Cervania</i> <i>Isopycnal shoaling causes interannual variability in oxygen on isopycnals in the subarctic Northeast Pacific</i></p>
<p>Live Talk 2 17:20-17:35</p>	<p><i>Ana C. Franco</i> <i>Drivers of oxygen trends and variability in the Northeast Pacific</i></p>
<p>Live Talk 3 17:35-17:50</p>	<p><i>Benjamin O'Connor</i> <i>Variability in oxygen within the coastal region of Queen Charlotte Sound: seasonal patterns, spatial trends, and implications for the marine carbonate system</i></p>
<p>Live Talk 4 17:50-18:05</p>	<p><i>Jennifer M. Jackson</i> <i>Identification of a seasonal subsurface oxygen minimum in Rivers Inlet, British Columbia</i></p>
<p>Live Talk 5 18:05-18:20</p>	<p><i>Masahiko Fujii</i> <i>Continuous monitoring and future projection of ocean warming, acidification, and deoxygenation on the subarctic coast of Hokkaido, Japan</i></p>
<p>Live Talk 6 18:20-18:35</p>	<p><i>Ana C. Franco</i> <i>Impact of natural and anthropogenic deoxygenation on the habitat distribution of Pacific Halibut</i></p>



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Live Talk 7 18:35-18:50		Makiko Yorifuji <i>Interactive effects of ocean deoxygenation and acidification on demersal fish in early life stages</i>			
Live Talk 8 18:50-19:05		Akira Iguchi <i>Evaluation of the effects of ocean acidification and deoxygenation on eggs of Japanese whiting, Sillago japonica: An approach based on comprehensive gene expression analysis</i>			
Closing 19:05-19:10		Closing by Convenors			
#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S7	FUTURE/POC	10/27	19:00	21:00	Predictions of extreme events in the North Pacific and their incorporation into management strategies
S7 Convenors		Samantha Siedlecki (USA), corresponding Jing-Jia Luo (China); Ryan Rykaczewski (USA)			
S7 Description		<p>Marine ecosystems of the North Pacific are susceptible to episodic, extreme events of various types, including marine heatwaves, periods of hypoxia/anoxia or corrosive conditions, and harmful algal blooms (HABs). There is rising concern that these events may become more common and/or severe in the future. Extreme events can have a marked impact on ecosystem resources and societal use of the coast environment with consequences for recreation, human and ecosystem health, aquaculture productivity, and the distribution, composition, and productivity of marine fisheries. While our ability to predict ecosystem changes and societal impacts has improved in recent years with improved understanding of coupled physical, biological, and social dynamics, the episodic nature of extreme events and the rarity at which they have been observed challenge attempts to forecast their occurrence. However, the severe ecological and societal consequences of these extreme events make them desirable targets for predictions that enable proactive management. PICES WG-40 aims to identify, diagnose, and quantify predictable response in North Pacific marine ecosystems that arise from regional and large-scale climate processes. In this session we will seek contributions that highlight advances in the prediction of extreme events (e.g., temperature, oxygen, pH, HABs), the characterization or identification of mechanisms responsible for their individual or co-occurrence, and the strategies to incorporate those predictions into management. This topic is relevant to the first three ToR of WG40, but also to ToR #4 (exploring integration of predictions in the management of ecosystem services), which has received somewhat less attention in our previous activities. This proposed session is intended to advance the terms of reference of WG-40 and build on strong momentum from (1) the ECCWO session "From prediction to projection: the role of seasonal to decadal forecasts in a changing climate", (2) the PICES 2018 session "Ecological responses to variable climate changes and their applicability to ecosystem predictions", (3) the</p>			



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	<p>CLIVAR-PICES 2019 workshop “Towards an integrated approach to understanding ecosystem predictability in the North Pacific,” (4) the PICES 2019 sessions “Marine heat waves in the North Pacific: Predictions and impacts in coastal regions,” “Coastal ocean modelling in the North Pacific,” and “Advances in North Pacific marine prediction”, and (5) a planned FUTURE-sponsored workshop on social impacts of extremes at the 2020 PICES annual meeting. Outside of PICES-associated meetings, this proposed session also leverages efforts of NOAA’s Marine Prediction Task Force (MPTF) whose lifespan matches that of WG-40 (2017-2020) and whose intent is to improve seasonal forecasts for management of living marine resources. Co-sponsorship We seek POC and FUTURE cosponsorship for this session. We envision this session being offered in coordination with a FUTURE-sponsored workshop exploring the social impacts of extreme events in the context of the SEES framework.</p>
<p>Oct 27 19:00-21:10 Victoria, BC Time</p>	<p>Session 7 Scheduled Oral Presentations</p>
<p>Intro 19:00-19:05</p>	<p><i>Introduction by Session Convenors</i></p>
<p>Live Talk 1 19:05-19:25</p>	<p>Andrew R.S. Ross <i>Recent advances in measuring and predicting the occurrence and impacts of harmful algal biotoxins in British Columbia coastal waters</i></p>
<p>Live Talk 2 19:25-19:45</p>	<p>Jessica Cross <i>The next decade of ocean acidification research in the Bering Sea: what we’ve learned and what’s coming next</i></p>
<p>Live Talk 3 19:45-20:05</p>	<p>Antonietta Capotondi <i>Tropical influence on the development of Northeast Pacific marine heatwaves</i></p>
<p>Recorded Talk 4 20:05-20:25</p>	<p>Hui Shi <i>Co-occurrence of California drought and northeast Pacific marine heatwaves under climate change</i></p>
<p>Recorded Talk 5 20:25-20:45</p>	<p>Brandi Kamermans <i>Detecting and identifying saxitoxin-producing algae in the Salish Sea</i></p>
<p>Recorded Talk 6 20:45-21:05</p>	<p>Elena Ustinova <i>Extreme events in the thermal state of the Far-Eastern Seas and adjacent waters of the Northwestern Pacific</i></p>
<p>Closing 21:05-21:10</p>	<p><i>Closing by Convenors</i></p>



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S8	MEQ	10/27	17:00	19:00	Using environmental indicators to assess baselines, targets, and risk of plastic pollution in the North Pacific
S8 Convenors		Chengjun Sun (China), corresponding Sanghee Hong (Korea); Matthew Savoca (USA)			
S8 Description		<p>The North Pacific and its marginal seas are heavily polluted with plastics. It is important to develop environmental indicators of plastic pollution to determine baselines, set targets, and project risk to species and ecosystems. The goal of this session is to continue to identify indicators – both biotic and abiotic – of plastic pollution, and to move beyond the development of indicators to determine how we can use indicators to determine baselines in the North Pacific. Environmental indicators will also prove important to project risk from plastics to the ecosystem. Risk may be assessed by the quantity or abundance of plastic particles, or as the concentration of plastic associated pollutants in organismal tissues. Research presented in this topic session will help us elucidate the status and trends of plastic pollution and their environmental impacts in the North Pacific to better allow comparisons to other regions globally. This science-informed approach will allow us to make informed decisions for plastic usage and litter management policies.</p>			
Oct 27 17:00-19:00 Victoria, BC Time		Session 8 Scheduled Oral Presentations			
Intro 17:00-17:05		<i>Introduction by Session Convenors</i>			
Recorded Talk 1 17:05-17:15		<i>Matthew Savoca</i> <i>Evaluating species as bioindicators for plastic pollution in North Pacific food webs</i>			
Recorded Talk 2 17:15-17:25		<i>K David Hyrenbach</i> <i>Assessing impacts of plastic accumulation in Laysan Albatross (<i>Phoebastria immutabilis</i>) chick growth and body condition</i>			
Recorded Talk 3 17:25-17:35		<i>Shirel R. Kahane-Rapport</i> <i>Field measurements reveal the risk of microplastic ingestion by filter-feeding megafauna</i>			



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<p>Recorded Talk 4 17:35-17:45</p>	<p>Jinfeng Ding <i>Occurrence and risk assessment of microplastics in various shellfish from the two major coastal cities of China</i></p>
<p>Recorded Talk 5 17:45-17:55</p>	<p>C. Anela Choy <i>Widespread plastic ingestion in an abundant pelagic fish species, Alepisaurus ferox, across the subtropical North Pacific</i></p>
<p>Recorded Talk 6 17:55-18:05</p>	<p>Won Joon Shim <i>Ecological risk assessment of waterborne microplastic particles in the marine environments of Korea</i></p>
<p>Recorded Talk 7 18:05-18:15</p>	<p>Seung-Kyu Kim <i>First estimates on the amount of water-borne microplastics entering the ocean from the Korean Peninsula</i></p>
<p>Recorded Talk 8 18:15-18:25</p>	<p>Soeun Eo <i>Prevalence of small high-density microplastics in continental shelf and deep-sea waters of East Asia</i></p>
<p>Recorded Talk 9 18:25-18:35</p>	<p>Sarah-Jeanne Royer <i>Polyolefins and the effect of biofouling on their sinking behaviours in the oceanic water column</i></p>
<p>Recorded Talk 10 18:35-18:45</p>	<p>Jennifer F. Provencher <i>Litter and microplastics monitoring in the Arctic under the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP)</i></p>
<p>Live Talk 11 18:45-18:55</p>	<p>Chengjun Sun <i>Using shellfish as potential microplastic pollution indicator</i></p>
<p>Closing 18:55-19:00</p>	<p>Closing by Convenors</p>



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#	Cmttes	Date: MM/DD	Start Time (Pacific)	End Time (Pacific)	Title
S9	FUTURE/POC/TCODE	10/27	19:00	21:00	Applications of artificial intelligence to advance the understanding of North Pacific ecosystems
S9 Convenors		Charles Hannah (Canada), corresponding Igor Shevchenko (Russia); Jinkun Yang (China); Naoki Yoshie (Japan)			
S9 Description		<p>The development and application of artificial intelligence (AI) and machine learning to marine science issues is advancing rapidly. The combination of modern instrumentation with real time delivery, satellite data streams, biogeochemical model output, and shipboard data collection, means that many marine ecosystems are data rich but information poor. AI offers the opportunity to speed up the process of turning data into information that can be used for decision making, but also has advantages over more traditional statistics for detecting patterns and offers the potential to find meaningful ecological relationships between ecosystem state variables for which there is no theoretical framework to connect them. For this session we encourage submissions that use AI for investigating the important drivers/variables in ecological datasets, as well as computer vision applications dealing, for instance, with satellite imagery, acoustics, plankton, and corals/sediment. We invite submissions at all levels of biological organization (individuals to ecosystems), and are particularly interested in studies that integrate different types of observation technology and data types. Papers focusing on methodological advancements, ecosystem applications and the data management processes required to get ecosystem related data into forms that make it easy to use the new tools. Other information. Support: POC, TCODE, FUTURE This session is not focused on a particular problem but rather seeks to have a lively session that would help identify more practitioners of these modern tools who are already working on PICES related problems. The proposed science session is an outcome from the very successful PICES 2019 Workshop on Application of Machine Learning to Ecosystem Change Issues in the North Pacific. This Science session would continue the process of building an AI community within PICES This session is a contribution to 2 of the PICES Strategic goals • Goal 4: Advance methods and tools. Machine learning and AI are new tools with enormous potential that should be explored in the PICES context. • Goal 6: Engage with early career scientists to sustain a vibrant and cutting edge PICES scientific community. Big data and AI represent the cutting edge of the process to convert data into information in the modern world, therefore encouraging the development and application of these new tools is one way to attract early career scientists to PICES.</p>			



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Oct 27 19:00-21:10 Victoria, BC Time	Session 9 Scheduled Oral Presentations
Intro 19:00-19:05	<i>Introduction by Session Convenors</i>
Live Talk 1 19:05-19:20	Albert J. Hermann <i>Enhanced dynamical downscaling of global climate projections to regional scales using Machine Learning</i>
Recorded Talk 2 19:20-19:35	Lu Sun <i>Auto-detection of marine mammals from drone photos based on deep learning</i>
Recorded Talk 3 19:35-19:50	Moritz S. Schmid <i>Fine-scale interannual distributions of meso-zooplankton in the Northern California Current</i>
Live Talk 4 19:50-20:05	Igor I. Shevchenko <i>Using the PICES TCODE catalog service</i>
Recorded Talk 5 20:05-20:20	Yi Xu <i>Disentangling climate impacts on Sockeye Salmon population dynamics using machine learning</i>
Recorded Talk 6 20:20-20:35	Minkyung Bang <i>Projected changes in the potential habitat distribution of Japanese anchovy (<i>Engraulis japonica</i>) in Korean waters from a maximum entropy model</i>
Live Talk 7 20:35-20:50	Tongtong Xu <i>A Linear Inverse Model Approach to Comprehensively Examine Marine Heatwaves</i>
Live Talk 8 20:50-21:05	Di Wan <i>Using Machine Learning (ML) to study the timing of renewal events in Douglas Channel, British Columbia, Canada</i>
Closing 21:05-21:10	Closing by Convenors



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Oct 28	E-POSTER SESSION
	https://airtable.com/shrok6AJmXvUVB4xg/tbIBG0XLRAEroX6y6
Poster ID	GENERAL POSTER SESSION 5:15-6:00 pm Victoria, BC Time
GP-1	Hajime Tanaka <i>Economic evaluation of MSY-based fishery policy using Input-Output Table: A case study of squid-related industries in Hakodate City, Hokkaido Prefecture, Japan</i>
GP-2	Julia V. Stochkute <i>Influence of climatic changes of the eastern coast of Chukotka on ice coverage of the Bering Sea</i>
GP-3	Megan Williams <i>From theory to action: Solutions for climate-ready fisheries</i>
GP-4	Hitoshi Kaneko <i>Horizontal scale of chlorophyll a variation in relation to eddy activities in the midlatitudes of global oceans</i>
GP-5	June-Woo Park <i>Toxic effects of aged-High Density Polyethylene fragment on zebrafish</i>
GP-6	Mikhail A. Stepanenko <i>Influence of environmental factors on the Bering Sea pollock reproduction, abundance and spatial distribution</i>
GP-7	Guoqi Han <i>Variability of longshore surface current on the shelf edge and slope off the west coast of Canada</i>
GP-8	Mei Ishikura <i>Effects of the Kuroshio Large Meander on euphausiids in Suruga Bay, Japan</i>
GP-9	Chieh Hsu <i>"Wishing I'm Fishing": OceanView -- A fisherman's lifelong app</i>
GP-10	Eligio Maúre <i>Application of the NEAT for global eutrophication assessment</i>



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GP-11	Anna V. Klimova <i>Heavy metals in brown algae, vascular plants and soils of Bering Island (Commander Islands) in 2020</i>
GP-13	V.A. Shelekhov <i>Age-size composition and some characteristics of the population biology of the <i>Helicolenus avius</i> on the underwater uplifts of the Emperor ridge</i>
GP-14	Mitsuhide Sato <i>Distribution and chemical speciation of iron on the outer edge of the Changjiang diluted water plume of the East China Sea</i>
GP-15	Wei-Yu Lee <i>Using animal trajectory tracking software to compare the effects of different baits on the behavior of <i>Portunidae</i></i>
GP-16	Aoi Sugimoto <i>Marine science communication in the UN Ocean Decade: What we have done, and what's coming next</i>
Poster ID	S1 (SCIENCE BOARD SESSION) 5:15-6:00 pm Victoria, BC Time
S1-1	Iwao Fujii <i>Promoting cooperation of monitoring, control, and surveillance for IUU fishing in the Asia-Pacific</i>
S1-2	Christian Marchese <i>Delineation of marine bioregions of British Columbia and Southeast Alaska using Sentinel-3 Chlorophyll-a data and self-organizing maps</i>
S1-4	Luo Minbo <i>Ecological characteristics of phytoplankton community in the East China Sea</i>
S1-5	Muhamad Naimullah <i>Effects of climate variability on the catches and habitat suitability variations of three swimming crabs in the Taiwan Strait</i>
S1-6	Wen-Hoa Lee <i>The structure of fishery resources and construction of ecosystem model in the southwestern waters of Taiwan</i>



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S1-7	Je-Wei Sheu <i>Explore the simultaneous characteristics of abundance and habitats of tuna species in the Pacific Ocean</i>
S1-8	Y-Lin Li <i>Analyze the relationship between the fishing conditions of Scomberomorus species and changes in forage species around the waters of Taiwan</i>
S1-9	Nina Bednarsek <i>Integrated assessment of ocean acidification risks to pelagic calcifiers in the northern high latitudes: Regional comparison of exposure, sensitivity and adaptive capacity</i>
Poster ID	S2: Global warming patterns and multiscale climate variability in the North Pacific 5:15-6:00 pm Victoria, BC Time
S2-1	Wei Yu <i>Synchronous changes in potential habitats of Trachurus murphyi and Dosidicus gigas off Chile in relation to regime shift of Pacific Decadal Oscillation</i>
S2-2	Luz de Lourdes Aurora Coronado-Álvarez <i>Ocean acidification in the Pacific off Mexico: How to change the pH values across various regions</i>
S2-3	Yan-Lun Wu <i>Decadal climate indices effect on the spatiotemporal distribution in Indo-Pacific yellowfin tuna population</i>
S2-4	Lu-Chi Chen <i>The catch rate and distribution of narrow-barred spanish mackerel (Scomberomorus commerson) in relation to oceanographic factors in the waters around Taiwan</i>
S2-5	Che-Chen Chuang <i>The annual variations of grey mullet (Mugil cephalus) population in related to changed sea surface temperature and multiscale climate indices in the Northwest Pacific Ocean</i>
S2-6	Thomas Y. Chen <i>Developing Synergies between the U.N. Southern Ocean Task Force and the North Pacific: A Safe Ocean</i>



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Poster ID	S3: Upper ocean energetics from mesoscale, submesoscale to small-scale turbulence in the North Pacific 6:15-7:00 pm Victoria, BC Time
S3-1	Olga Trusenkova <i>Signal of near inertial waves in Peter the Great Bay, the Japan/East Sea, from ADCP data measured at the WaveScan stationary buoy</i>
S3-2	Yisen Zhong <i>Seasonal Variation of the Surface Kuroshio Intrusion into the South China Sea Evidenced by Satellite Geostrophic Streamlines</i>
S3-3	Qicheng Meng <i>Impact of submesoscale currents on the vertical transport of nutrient in the East China Sea</i>
S3-4	Seungyong Lee <i>Eddy kinetic energy variability of the Kuroshio Extension and its upstream-downstream connectivity</i>
S3-5	Khushboo Jhugroo <i>River-induced submesoscale processes in a southwest Pacific shelf sea and similarities to a northeast Pacific shelf sea</i>
S3-6	G.V. Shevchenko <i>Diurnal shelf waves in the area of South Kuril Islands from TOPEX/Poseidon satellite altimetry data</i>
Poster ID	S5: Atmospheric nutrient deposition and microbial community responses, and predictions for the future in the North Pacific Ocean 6:15-7:00 pm Victoria, BC Time
S5-1	Chao Zhang <i>Distinct impacts of dust and haze particles on marine phytoplankton</i>
S5-2	Haoyu Jin <i>Impact of atmospheric deposition on the utilization of dissolved organic phosphorus by phytoplankton in the Pacific Ocean</i>



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S5-3	Sachi Umezawa <i>Nutrient consumption by diatom in darkness below the euphotic zone during spring bloom in Funka-bay, Hokkaido, Japan</i>
S5-4	Kana Nagashima <i>Seasonal Asian dust transport to the western subarctic Pacific based on the cathodoluminescence analysis of single quartz grains</i>
Poster ID	S6: Connecting knowledge of ocean deoxygenation in coastal and offshore regions of the North Pacific 6:15-7:00 pm Victoria, BC Time
S6-1	A.S. Kurnosova <i>Application of E-TRIX index for evaluation of eutrophication in the Amur Bay, as a background for its bottom layer deoxygenation</i>
Poster ID	S7: Predictions of extreme events in the North Pacific and their incorporation into management strategies 6:15-7:00 pm Victoria, BC Time
S7-1	Huihang Sun <i>The effects of ocean data assimilation on North Pacific marine heatwave prediction</i>
Poster ID	S8: Using environmental indicators to assess baselines, targets, and risk of plastic pollution in the North Pacific 6:15-7:00 pm Victoria, BC Time
S8-1	Mi Jang <i>A close relationship between microplastic contamination and coastal area use pattern</i>



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S8-2	Lauren Kashiwabara <i>Microplastics and microfibers in surface waters of Monterey Bay National Marine Sanctuary, California</i>
S8-3	Seung-Kyu Kim <i>Importance of seasonal sea ice in the western Arctic Ocean to the Arctic and global microplastic budgets</i>
S8-4	Ji-Su Kim <i>Importance of point source to microplastic accumulation in Antarctic environment</i>
Poster ID	S9: Applications of artificial intelligence to advance the understanding of North Pacific ecosystems 6:15-7:00 pm Victoria, BC Time
S9-1	Olga Trusenkova <i>Application of multivariate statistical analysis to vertical profiles of oceanographic characteristics on the example of moorings in Peter the Great Bay, the Japan/East Sea</i>
S9-2	Steven E. Zhang <i>Unsupervised Machine Learning for ocean profile classification and outlier detection using the Pacific Ocean temperature-conductivity-depth profile data</i>
S9-3	Ferdinant Mkrtchyan <i>Big data processing algorithms and environmental indicators in multi-channel monitoring systems</i>
S9-4	Pramod Thupaki <i>Data Lakes for Ocean Data - How CIOOS is enabling data-science and AI research projects in the North East Pacific</i>
S9-5	Emiliya Chernienko <i>Machine learning methods for chub mackerel fishing area forecasting in the northwestern Pacific Ocean</i>
S9-6	Ferdinant A. Mkrtchyan <i>About problems of the biocomplexity of marine ecosystems on the example of the Okhotsk Sea</i>



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Poster ID	W2: Pelagic and forage species – predicting response and evaluating resiliency to environmental variability 6:15-7:00 pm Victoria, BC Time
W2-1	Dongwha Sohn <i>Effects of environmental variability on the spatial dynamics of common squid (Todarodes pacificus) in Korean waters</i>
W2-2	G.V. Shevchenko <i>Analysis of thermal conditions in the northwest Pacific Ocean</i>
W2-3	Dmitry Lozhkin <i>Seasonal and interannual variability of shortwave radiation in the northwest Pacific Ocean from satellite data</i>
Poster ID	W5: Engaging Early Career Ocean Professionals in PICES to further the next generation of integrated ocean sustainability science 6:15-7:00 pm Victoria, BC Time
W5-1	Nina Okrestina <i>New marine objects in the pacific salmon nutriment</i>



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Poster ID	Observing Organizations Posters 6:15-7:00 pm Victoria, BC Time
Observer-1	CLIVAR [1 Mb, pdf] Climate and Ocean - Variability, Predictability and Change http://www.clivar.org/
Observer-2	IWC [0.5 Mb, pdf] International Whaling Commission https://iwc.int/home
Observer-3	NPFC [1 Mb, pdf] North Pacific Fisheries Commission https://www.npfc.int/
Observer-4	SOLAS [3 Mb, pdf] Surface Ocean Lower Atmosphere Study http://www.solas-int.org/
Observer-5	SCOR [6 Mb, pdf] Scientific Committee on Oceanic Research https://scor-int.org/
Observer-6	CPR [2 Mb, pdf] Continuous Plankton Recorder Survey https://www.cprsurvey.org/