



# PICES Engagement with the UN Decade of Ocean Science for Sustainable Development

**Steven J. Bograd**

Co-Chair, PICES FUTURE Scientific Steering Committee  
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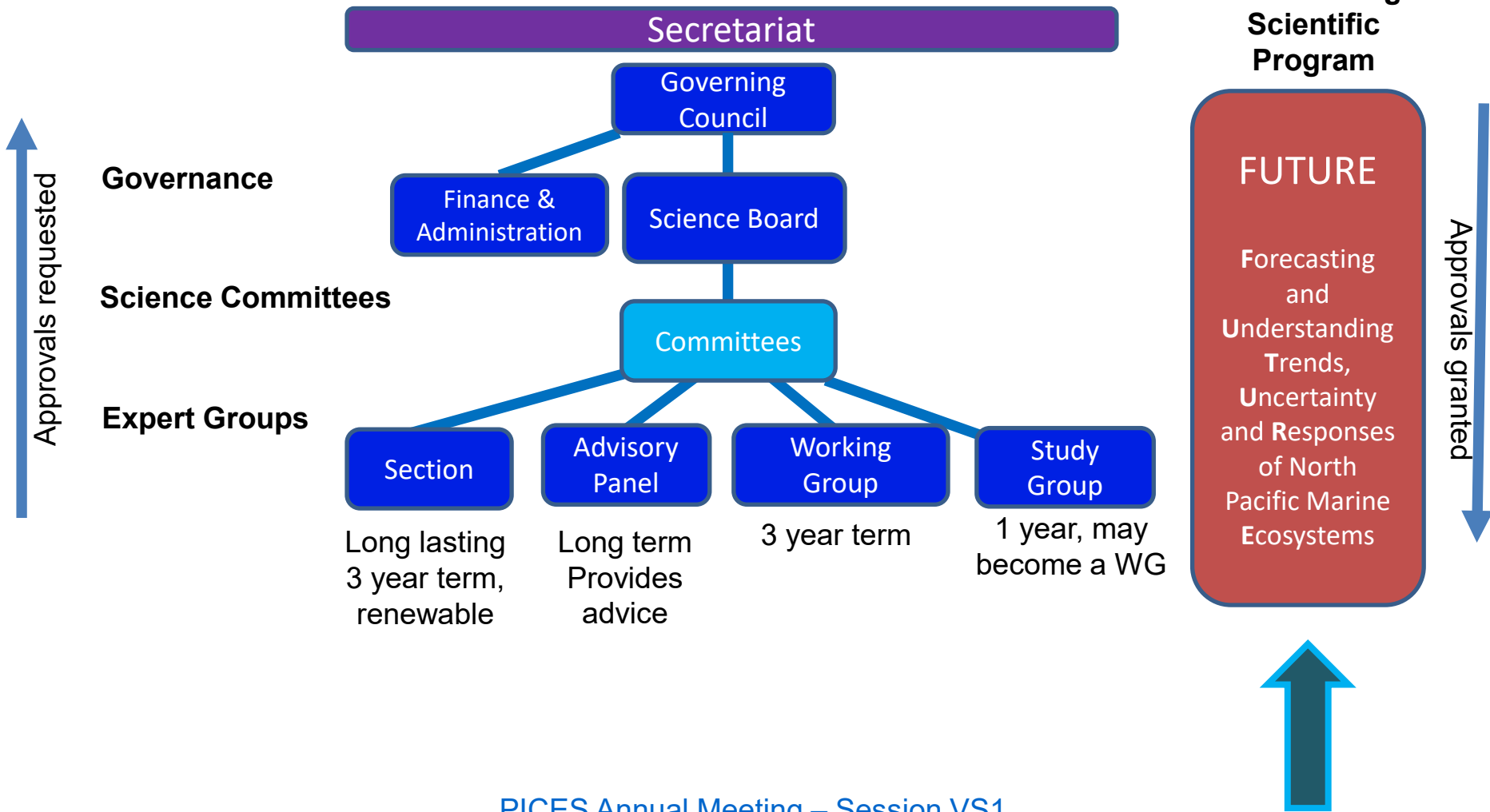


# PICES Engagement with the UN Decade of Ocean Science for Sustainable Development

- **Update on **FUTURE** Science Program**
- **Goals of UN Decade of Ocean Science for Sustainable Development**
- **UN Ocean Decade Structure & Timeline**
- **Current & Potential PICES engagement in the UN Ocean Decade**



# PICES Structure





## OBJECTIVES

To increase understanding of climatic and anthropogenic impacts and consequences on marine ecosystems, with continued leadership at the frontiers of marine science

To develop activities that include the interpretation, clarity of presentation, peer review, dissemination, and evaluation of ecosystem products (e.g., status reports, outlooks, forecasts).

# FUTURE

Science Program



## SCIENCE THEMES

What determines an ecosystem's intrinsic resilience and vulnerability to natural and anthropogenic forcing?

How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?

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

# FUTURE Phase II (2014-2020)

FUTURE SSC members published an article that used the **SEES approach** to describe several “crisis” case studies in the North Pacific.



## Developing a Social-Ecological-Environmental System Framework to Address Climate Change Impacts in the North Pacific

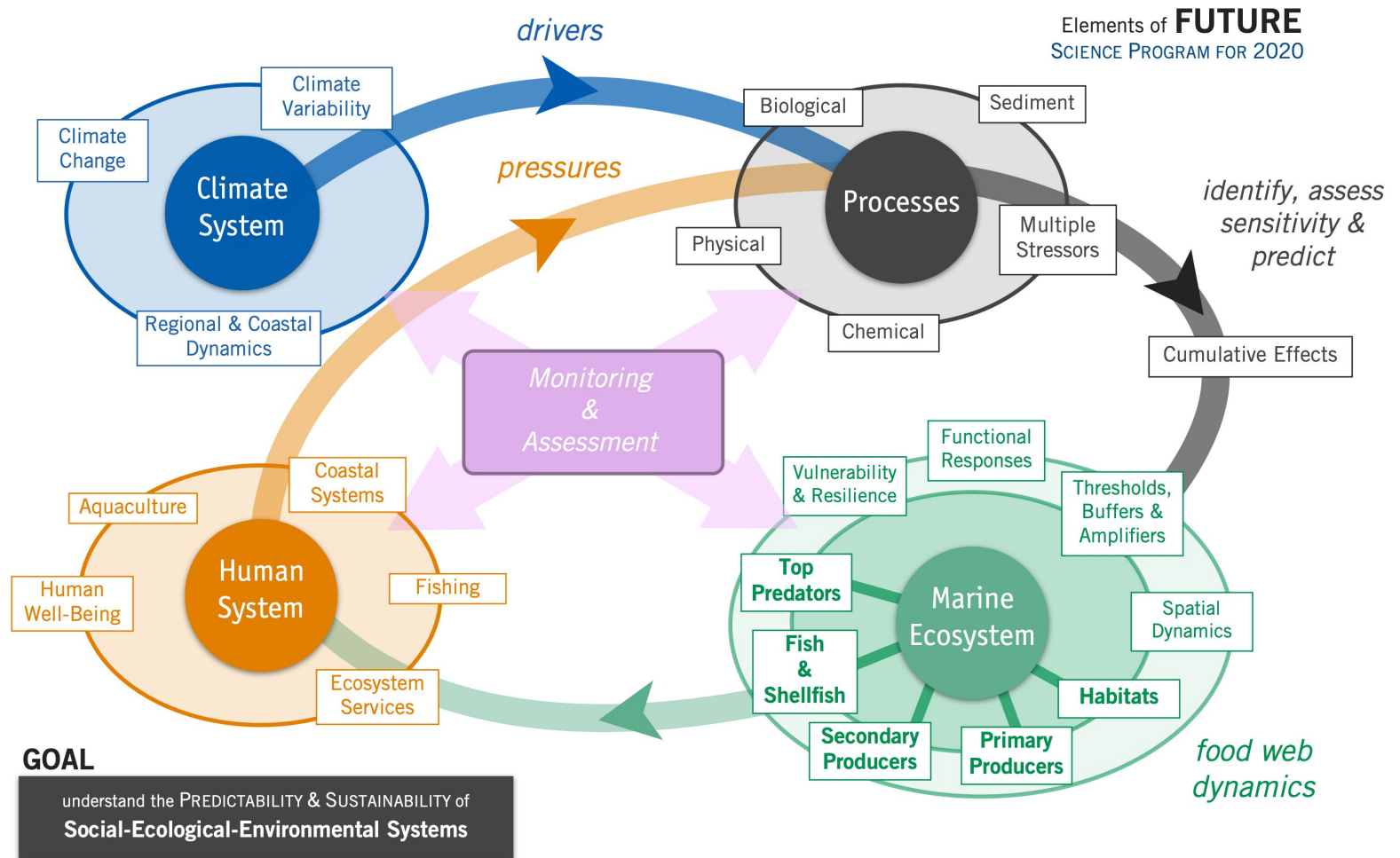
Steven J. Bograd<sup>1\*</sup>, Sukyung Kang<sup>2</sup>, Emanuele Di Lorenzo<sup>3</sup>, Toyomitsu Horii<sup>4</sup>, Oleg N. Katugin<sup>5</sup>, Jackie R. King<sup>6</sup>, Vyacheslav B. Lobanov<sup>7</sup>, Mitsutaku Makino<sup>4</sup>, Guangshui Na<sup>8</sup>, R. I. Perry<sup>6</sup>, Fangli Qiao<sup>9</sup>, Ryan R. Rykaczewski<sup>10</sup>, Hiroaki Saito<sup>11</sup>, Thomas W. Therriault<sup>6</sup>, Sinjae Yoo<sup>12</sup>, Harold (Hal) Batchelder<sup>13</sup>

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*Submitted to Journal:*  
Frontiers in Marine Science

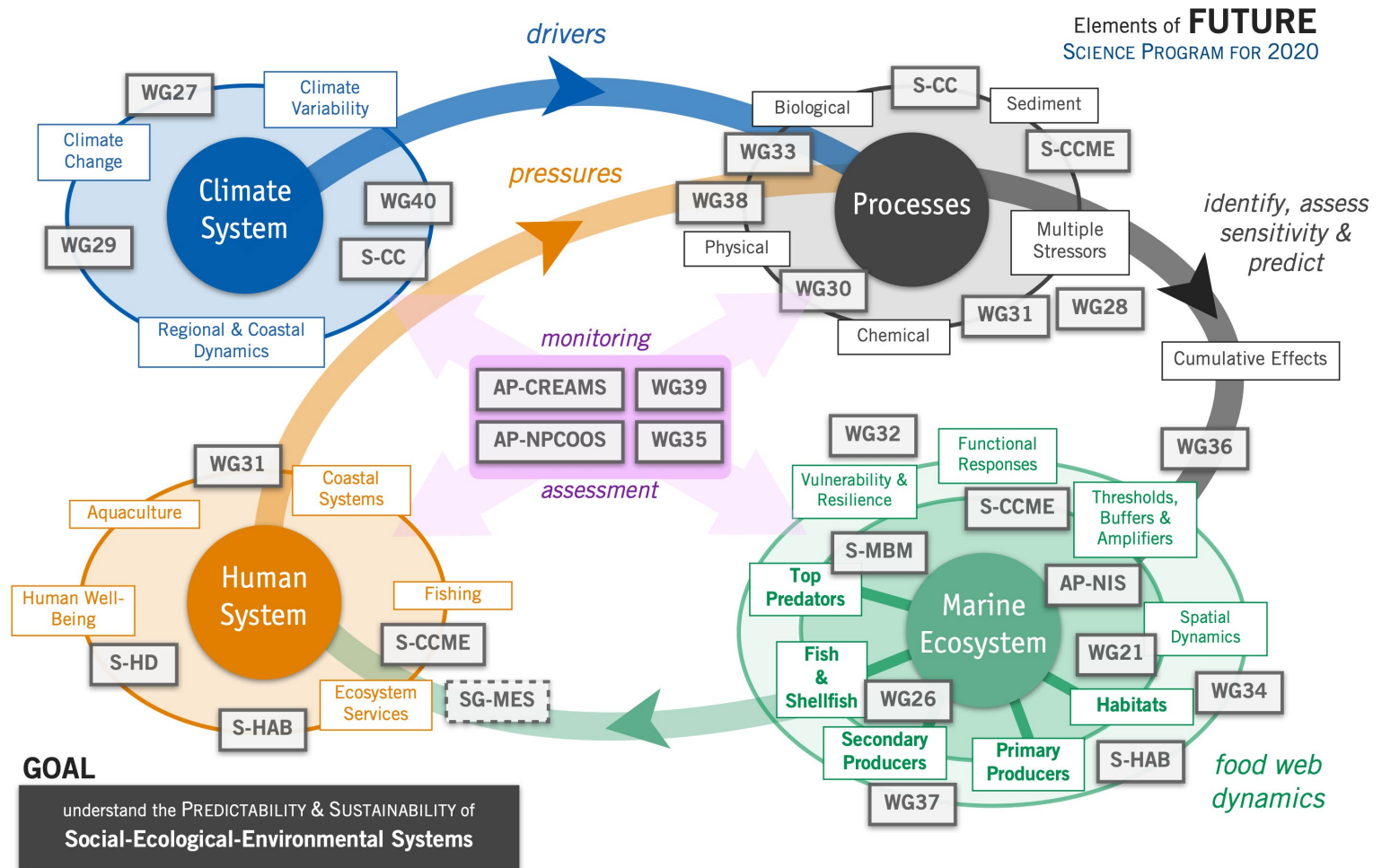
*Specialty Section:*  
Marine Conservation and Sustainability

# FUTURE Phase II (2014-2020)



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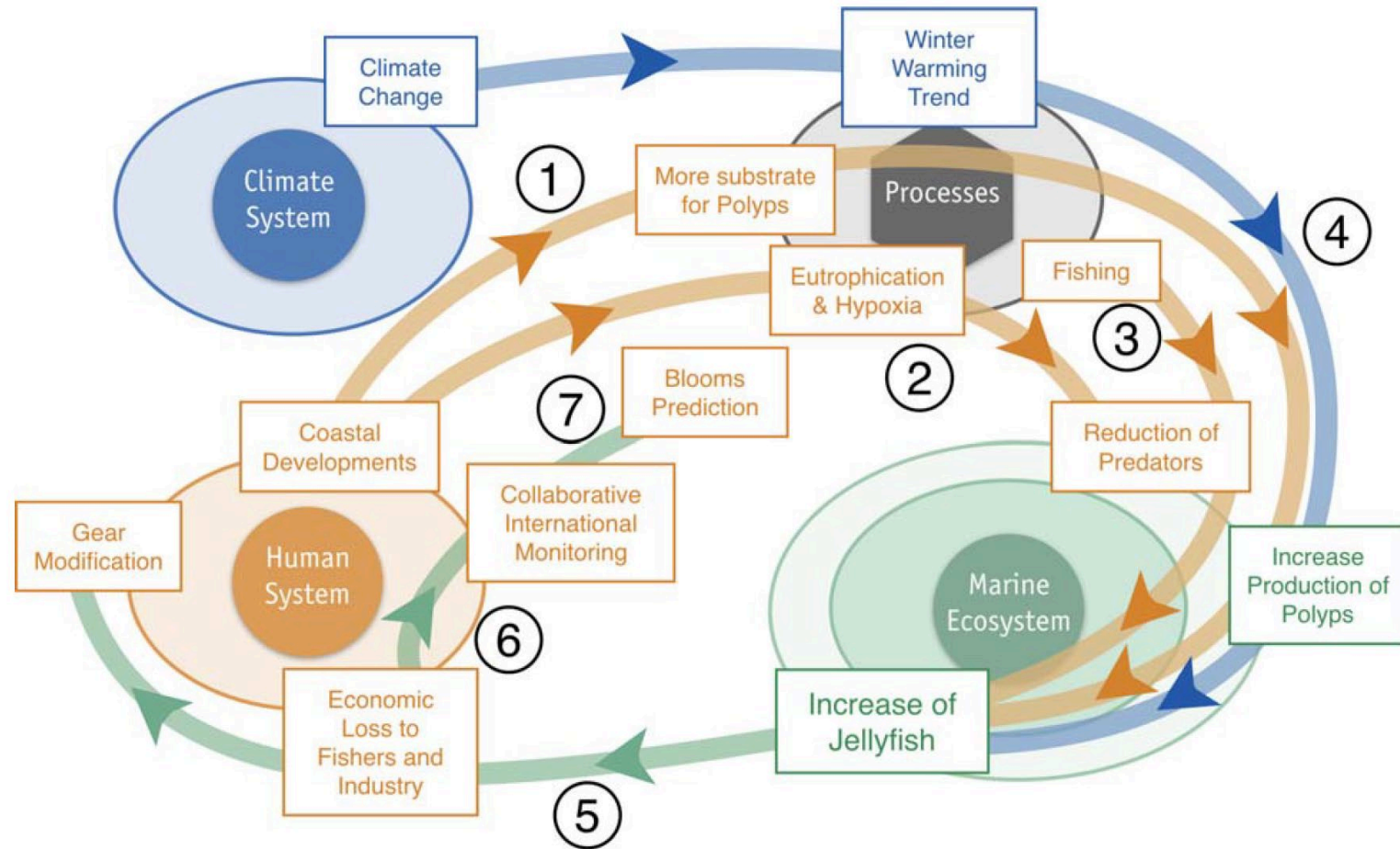
## Facilitating Trans-Disciplinary Interactions in PICES





# FUTURE Phase II (2014-2020)

## Case Study: Jellyfish Blooms in the Western Pacific





# Forecasting and **U**nderstanding **T**rends, **U**ncertainty and **R**esponses of North Pacific Marine **E**cosystems



# FUTURE Phase III (2020-2025)

- Implementation of Social-Ecological-Environmental Systems Approach
- Trans-disciplinary, solution-oriented
- Engagement with UN Decade of Ocean Science for Sustainable Development
- Enhanced Communication & Early Career Ocean Professional involvement

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**2021**  
**2030** United Nations Decade  
of Ocean Science  
for Sustainable Development



**2021** United Nations Decade  
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for Sustainable Development

# The Science We Need for the Ocean We Want



The United Nations  
Decade of Ocean Science  
for Sustainable Development  
**(2021-2030)**



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for Sustainable Development

# Moving from the ocean we have to the ocean we want

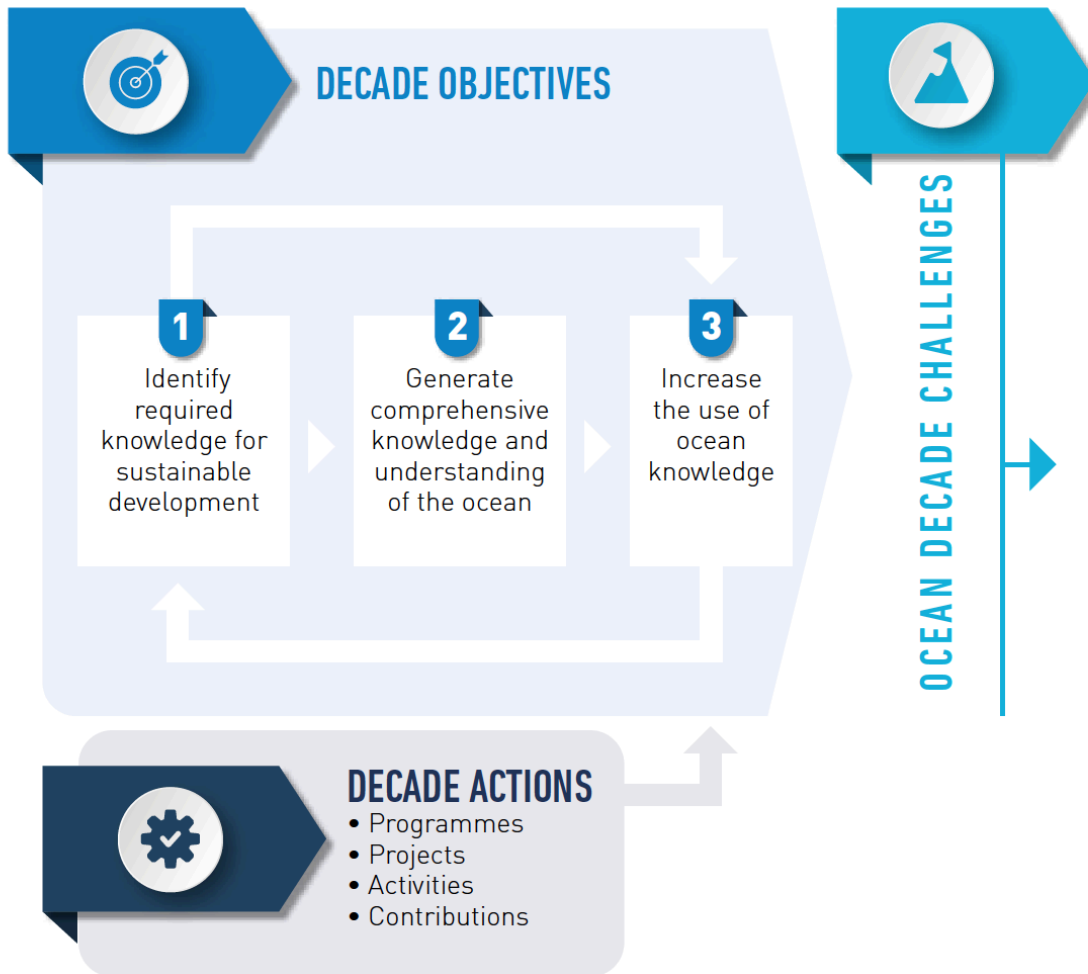


“THE SCIENCE WE NEED”

UN Decade of Ocean Science for Sustainable Development










“THE OCEAN WE HAVE”



## DECADE OUTCOMES

“THE OCEAN WE WANT”

-  A clean ocean
-  A healthy & resilient ocean
-  A productive ocean
-  A predicted ocean
-  A safe ocean
-  An accessible ocean
-  An inspiring & engaging ocean



2021 United Nations Decade  
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## Decade Challenges



Address land and sea-based sources of pollutants and contaminants.



Protect, monitor, manage and restore ecosystems under multiple stressors



Optimise the role of the ocean to sustainably feed the world's population.



Contribute to equitable and sustainable development of the ocean economy.



Understand the ocean-climate nexus, build resilience and improve predictions and forecasts.



Expand multi-hazard warning systems and mainstream community preparedness and resilience.



Ensure a sustainable ocean observing system that delivers timely data and across all ocean basins.



Develop a comprehensive digital representation of the ocean.



Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology.



Identify and overcome barriers to the behaviour change that is required for a step change in humanity's relationship with the ocean.





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## Implementation Plan

2030 AGENDA & REGIONAL  
AND GLOBAL POLICY  
FRAMEWORKS



DECADE OUTCOMES

“THE OCEAN  
WE WANT”



### OCEAN DECADE CHALLENGES

The most immediate and pressing needs of the Decade, Challenges may evolve throughout the Decade and new Challenges will be added. Each Challenge contributes to one or more Decade outcomes.



### DECADE OBJECTIVES

The steps in the process from the ocean we have to the ocean we want. Objectives are relevant to all Challenges. Prioritisation and translation of objectives into Actions will vary depending on context.



### DECADE ACTIONS

The tangible initiatives and endeavours that will be implemented by a wide range of Decade stakeholders to fulfil the objectives and thus achieve the Challenges.



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## *Implementation Plan*

### TRANSFORMATIVE OCEAN SCIENCE

The notion of transformation is central to the Decade. The Decade, both in terms of action and outcomes, needs to move beyond business as usual to a true revolution in ocean science. In the context of the Decade, we need transformative ocean science that:

- ▶ uses the 2030 Agenda as a central framework to identify and address the questions that are most important to society;
- ▶ is co-designed and co-delivered in a multi-stakeholder environment and that involves the generators of knowledge and the users of knowledge;
- ▶ is solutions-focused;
- ▶ where needed, is big, audacious, forward-looking, and spans geographies;
- ▶ reaches across disciplines and actively integrates natural and social science disciplines as well as the arts and humanities;
- ▶ embraces local and indigenous knowledge holders;
- ▶ is transformative because of who is doing it or where it is being done, including in both less developed and developed countries;
- ▶ strives for generational, gender and geographic diversity in all its manifestations;
- ▶ is communicated in forms that are widely understood across society and that trigger behaviour change; and
- ▶ is shared openly and available for re-use.



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## North Pacific Regional Planning Workshop UN Decade of Ocean Science *Tokyo, JAPAN, August 2019*



Overexploitation in some regions, IUU fisheries, different fishery management systems by regions

High fisheries & aquaculture production.  
Increasing demands on seafood

High population density  
High population growth rate

Rapidly growing economy, increasing multisectoral use of ocean, e.g., wind farming, oil, tourism, port, transportation

High biodiversity, understudied ecosystem structure & dynamics in W. Pac marginal seas

Changing ecosystems by global warming and human activities but different processes & speed by regions



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## Executive Planning Group

The Executive Planning Group (EPG) is an expert group composed of 19 members who were selected with due consideration to expertise, gender and geographical balance, who will serve as an advisory body to the IOC governing bodies with the main tasks to provide advice on the form and structure of the Decade, to support the development of the Implementation Plan as well as to engage and consult relevant communities.



PICES Annual Meeting – Session VS1

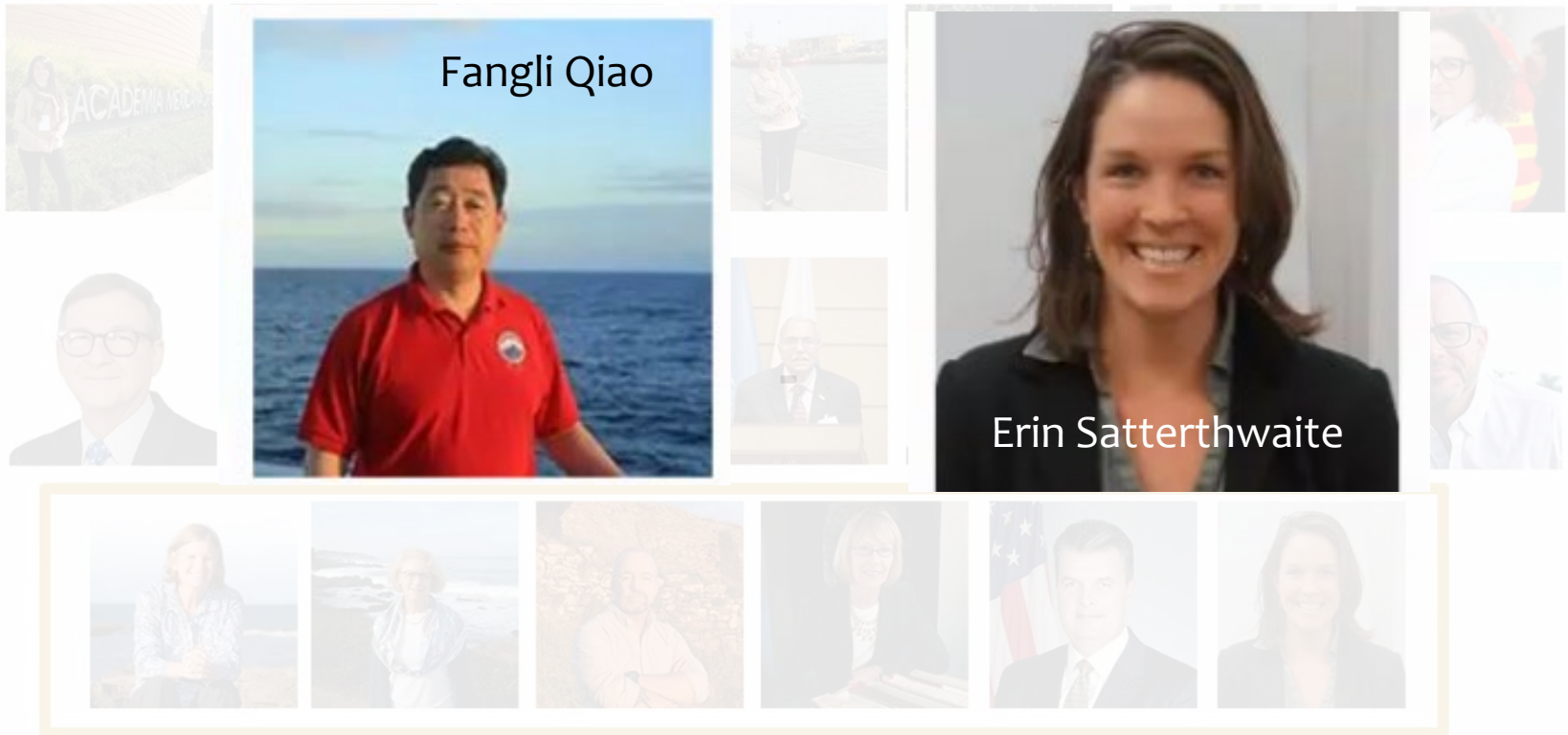
26 October 2020



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# Next steps & key milestones

- **September to December 2020:** Negotiation of omnibus resolution by United Nations General Assembly including Implementation Plan
- **15<sup>th</sup> October 2020:** Launch of first “Call for Action” for Decade programmes and contributions
- **Early December 2020:** High-level supporters event including pre-launch of the Ocean Decade Alliance (possibly in line with Our Ocean Conference)
- **1 January 2021:** Decade starts
- **January – July 2021:** Progressive roll-out of Stakeholder Engagement Mechanisms
- **March – April 2021:** Decisions on first group of endorsed Decade Actions (programmes and contributions)
- **31 May – 2 June 2021:** First International Ocean Decade Conference, Berlin
- **?? 2021:** 2021 UN Ocean Conference, Lisbon

**First call for action  
October, 15<sup>th</sup> 2020!**

**Sign-up on  
[www.oceandecade.org](http://www.oceandecade.org) to  
be on the mailing list for  
updates.**

## Process for Submitting Proposed Action

The link for the online submission system can be found on [oceansdecade.org](https://oceansdecade.org). Via this system you can:

- Register an idea for a Decade Action, and ask to be put in touch with potential partners
- Submit a proposed Decade Action in the form of a:
  1. Major global or regional programme of work
  2. Large scale contribution to Decade Actions or Decade coordination functions







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- Partnership between ICES and PICES
- Ideas for Decade-Aligned PICES Expert Groups
- Ideas for Decade Activities ...?



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**ICES**  
**CIEM**

- **ICES-PICES Coordinated Activities for the UN Ocean Decade**
  - Meetings in Victoria, BC (Oct 2019); Multiple calls (Jan-Jul 2020)
  - Draft strategic plan of joint ICES-PICES Decade activities prepared (Jan-Apr 2020)
  - Statement of joint ICES-PICES Decade activities sent to GC & SCICOM (Apr 2020)
  - Joint ICES-PICES comments on Decade Implementation Plan (Apr 2020)
  - Joint Study Group on Decade proposal (Aug 2020)



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ICES  
CIEM

*Joint ICES-PICES Study Group on the UN Decade of Ocean Science (under review at GC)*

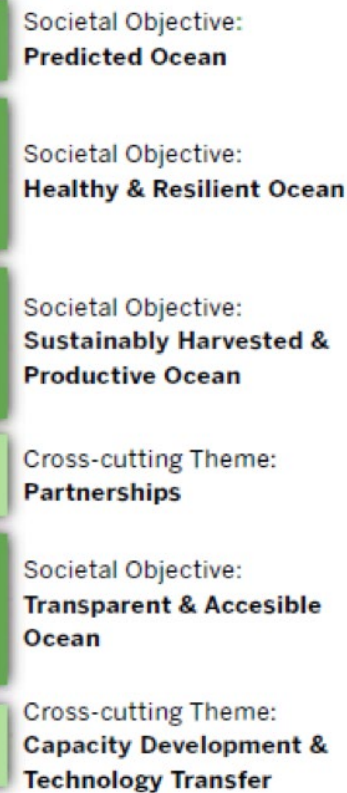
Steven Bograd  
(USA)

Sanae Chiba  
(Japan)

**PICES and ICES Joint Activities**



**UN Ocean Decade Goals**



Arran McPherson  
(Canada)

Sissel Rogne  
(Norway)



# What is 'The Ocean We Want'?



2021 United Nations Decade  
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for Sustainable Development

## FUTURE Scientific Steering Committee:

### Key Themes

- CLIMATE & ECOSYSTEM PREDICTABILITY
- Social-Ecological-Environmental SYSTEMS (SEES)
- RESILIENCE & SUSTAINABILITY
- FOOD SECURITY & HUMAN HEALTH
- HAZARDS & EXTREME EVENTS
- COMMUNICATION
- EQUITY & DIVERSITY

# October 2019 Coordination Meeting: **FUTURE, WG-36 / 40 / 41**

## **Theme:**

Drivers and impacts of extreme events around the North Pacific, with a focus on direct and indirect drivers of HABs

## **FUTURE-sponsored Workshop at PICES-2020 (2021):**

*‘Climate Extremes and Coastal Social-Ecological-Environmental Systems’*

## **Working Group proposal (?):**

Drivers, attribution, predictability, ecosystem & societal impacts of climate extremes (e.g., MHWs, HABs)



# **AN IDEA**

## **Social-Ecological-Environmental Impacts of Climate Extremes in Pacific Coastal Systems**

**Manu Di Lorenzo, FUTURE SSC & POC**

**A FUTURE/PICES INITIATIVE  
ALIGNED WITH UN OCEAN DECADE**

# MOTIVATION 1

**Climate extremes in the North Pacific are rising**

**There are large uncertainties of their impact on the social-ecological-environmental dimensions**

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ALIGNED WITH UN OCEAN DECADE**



## MOTIVATION 2

**Coastal Systems and Communities are most vulnerable to extremes. Yet our understanding is limited and often one-dimensional**

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ALIGNED WITH UN OCEAN DECADE**

## **MOTIVATION 3**

**PICES FUTURE now offers a framework to understand the response of Social-Ecological-Environmental Systems (SEES)**

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ALIGNED WITH UN OCEAN DECADE**

## MOTIVATION 4

**However, there is need to further develop the SEES approach and the quantitative methods that allow integrated SEES understanding, prediction, and solutions**

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ALIGNED WITH UN OCEAN DECADE**

# Social-Ecological-Environmental Impacts of Climate Extremes in Pacific Coastal Systems

POC

Joint WG  
PICES/CLIVAR

Predictability & Uncertainty of  
Climate Extremes in a **Changing  
Climate**

BIO

Joint WG  
PICES/IMBER

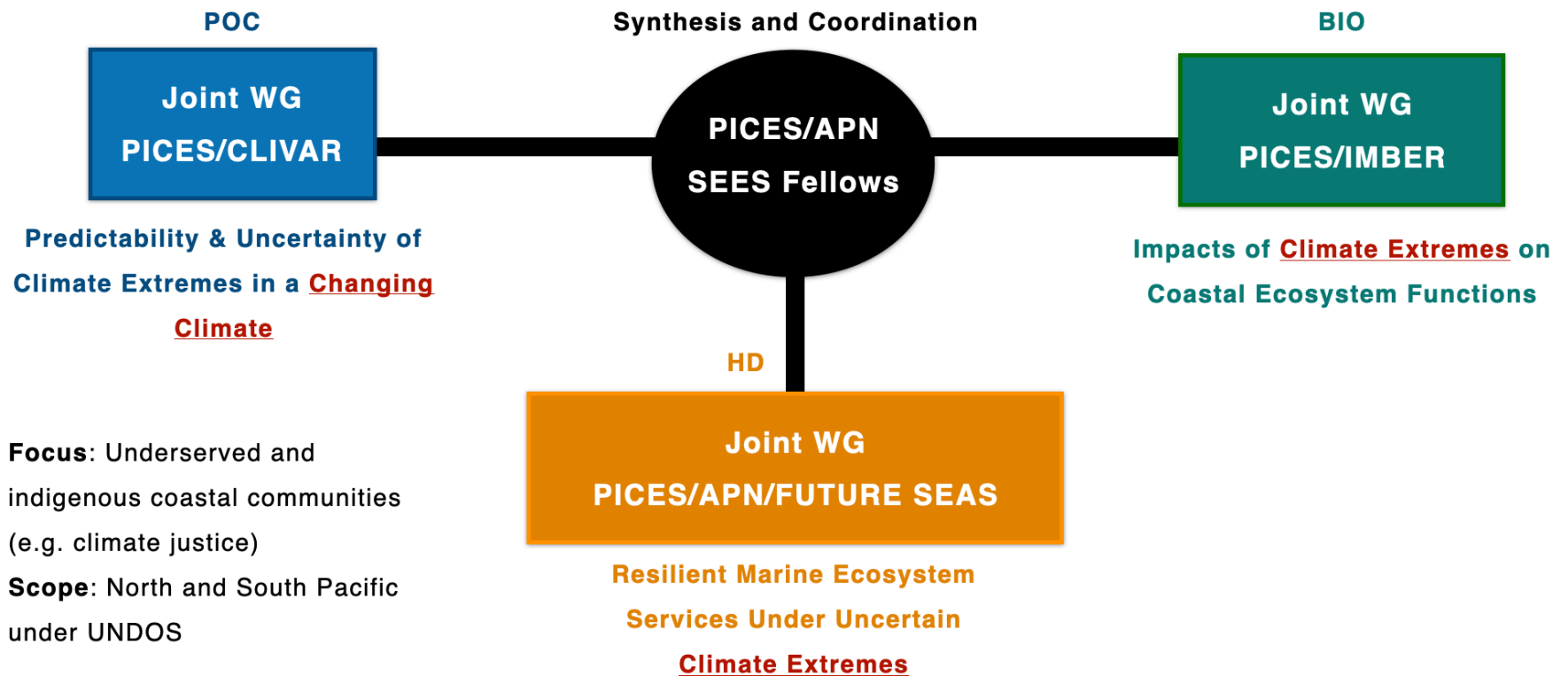
Impacts of **Climate Extremes** on  
Coastal Ecosystem Functions

HD

Joint WG  
PICES/APN/FUTURE SEAS

Resilient Marine Ecosystem  
Services Under Uncertain  
**Climate Extremes**

# Social-Ecological-Environmental Impacts of Climate Extremes in Pacific Coastal Systems



# PICES in the UN Decade of Ocean Science

- How can PICES provide leadership to the Decade?
- Is a Programme the appropriate level of engagement?
- How would a Decade Programme(s) fit within PICES structure?
- What other levels of engagement should PICES pursue?
- What partners and stakeholders should PICES reach out to?
- What science/societal themes should PICES focus on?

**Provide your input!**