

## Report of the *Third North Pacific Ecosystem Status Report*

The Study Group on the *Third North Pacific Ecosystem Status Report* was convened on November 6, 2016, in San Diego, USA, by Mr. Peter Chandler in the absence of Chair, Dr. Phillip R. Mundy. Mr. Chandler welcomed the participants who introduced themselves (*SG-NPESR3 Endnote 1*).



SG-NPESR3 meeting participants. Back row, from left: Hiroya Sugisaki, Dong-Jin Kang, Tony Koslow, Lisa Eisner, Sonia Batten, Vladimir Kulik, Keith Criddle, Juan José Alava; Front row, from left: Se-Jong Ju, Jennifer Boldt, Peter Chandler, Harold (Hal) Batchelder.

### AGENDA ITEMS 3 AND 4

#### **Review of the Study Group's terms of reference and Sidney inter-sessional meeting**

Mr. Chandler reviewed the meeting agenda (*SG-NPESR3 Endnote 2*), including the SG's five terms of reference, and provided a brief overview of the SG's [inter-sessional meeting](#) (June 28–30, 2016, Sidney, BC, Canada) which was held to review candidate ecosystem time series observations, identify gaps in ETSOs by geographical region and discipline, and discuss methodology to fill the gaps.

SG-NPESR3 submitted a report to Science Board on options for biogeographical classification of data submissions to NPESR3, including a recommendation on a preferred approach (*SG-NPESR3 Endnote 3*). The figure showing the Large Marine Ecosystems and oceanic areas used to categorize and organize locations of the ETSOs was modified to:

- a) Extend the western boundary of the Gulf of Alaska region to connect with the eastern boundary of the East Bering Sea region.
- b) Rename area 50 as Sea.
- c) Define the upper northern boundary of the North Bering/Chukchi Sea region to coincide with the northern limit of PICES area of interest.

[See the [Final Report](#) of SG-NPESR3 for a revised biogeographical classification map.]

AGENDA ITEM 5

**Review of ETSOs and discussion of NPESR3 Sidney meeting outcomes**

The tables of the ETSOs organized by discipline and region were updated to include ETSOs on human dimensions, provided by Dr. Keith Criddle.

AGENDA ITEM 6

**NPESR3 Implementation Plan and budget**

See the [revised version of the Third Ecosystem Status Report Implementation Plan](#).

AGENDA ITEM 7

**Study Group's presentation for morning plenary session**

The SG held a conference call with Phillip Mundy to review PowerPoint presentation (*A reference frame of environmental time series observations for detecting change in North Pacific Ecosystems: the North Pacific Ecosystem Status Report*) planned for the FUTURE Mini-Symposium on November 8.

AGENDA ITEM 8

**NPESR Data Management System Demonstration**

The SG held a conference call with Jeanette Gann (Alaska Fisheries Science Center) who provided an on-line demonstration of the submissions website. Feedback of the site was positive, with the following comments:

- Need a way to return to the submissions landing page without the need to logout and re-login;
- Need a way to upload data (in addition to documents and graphs);
- Recognition that one contributor may submit ETSOs on behalf of several individual scientists, and the distinction between “contributed by” and “contact author”;
- The pull down list of geographic regions needs to reflect the NPESR geographic regions;
- There should be a category “other” on the pull down list for Nation and PICES Committee.

AGENDA ITEM 9

**Schedule presentations to PICES committees**

A series of slides were selected and compiled to use as the basis of a presentation to the PICES committees at their meetings. Briefing will be provided as follows: Se-Jong Ju (BIO), Phillip Mundy (FIS), Hiroya Sugisaki (MEQ), Peter Chandler (POC), Lisa Eisner (MONITOR), Tony Koslow (TCODE), and Keith Criddle (S-HD). Peter Chandler will speak at the FUTURE Mini-Symposium on Sunday.

AGENDA ITEM 10

**Transition from study group to working group**

SG members discussed the use of the term “Editorial Board”, given there is no such defined entity in PICES. It was agreed that the NPESR Board of Editors (consisting of Committee Chairs or their designates) would be members of the Working Group. A list of potential members of the NPESR Working Group (WG NN) was discussed (see *SG-NPESR3 Endnote 4*).

AGENDA ITEM 11

**Other items**

None

***SG-NPESR3 Endnote 1***

**SG-NPESR3 participation list**

Members

Peter Chandler (Canada, acting Chair)  
 Se-Jong Ju (Korea)  
 Vladimir Kulik (Russia)  
 Dong-Jin Kang (Korea)  
 Tony Koslow (USA)  
 Hiroya Sugisaki (Japan)  
 Phillip Mundy (USA, Chair; via electronic communication)

Observers

Lisa Eisner (USA)  
 Jennifer Boldt (MONITOR Chair)  
 Sonia Batten (Canada)  
 Keith Criddle (S-HD Co-Chair)  
 Yury Zuenko (Russia)  
 Harold (Hal) Batchelder (PICES)  
 Vyacheslav Lobanov (AP-CREAMS Co-Chair)  
 Juan José Alava (Canada)  
 Matthew Baker (USA)

Members unable to attend

China: Hongjun Li, Lin Liu  
 Korea: Jaebong Lee

***SG-NPESR3 Endnote 2***

**SG-NPESR3 meeting agenda**

1. Welcome and introduction of members. (all)
2. Adoption of agenda.
3. Review of Study Group's terms of reference. (Koslow and Chandler)
4. Review of Sidney inter-sessional meeting. (Chandler)
5. Review of ETSOs and discussion of NPESR3 Sidney meeting outcomes and (all).
6. Next Steps: Review of NPESR3 Implementation Plan and budget. (Batchelder)
7. A preview of the Study Group's presentation for Tuesday Nov 8th morning plenary session. A reference frame of environmental time series observations for detecting change in North Pacific Ecosystems; the North Pacific Ecosystem Status Report. (Mundy)
8. NPESR Data Management System Demonstration. (Chandler and Gann)
9. Schedule presentations to PICES committees, review 5-10 slide PowerPoint presentation. (all)
10. Discussion of transition from study group to working group, draft report to Science Board including recommendations for editors and lead authors. (all)
11. Other items.
12. Closing

*SG-NPESR3 Endnote 3*

**Report to Science Board at PICES-2016 on options for biogeographical classification of data for submission to NPESR-3, including a recommendation on a preferred approach**

## Introduction

The terms of reference of SG-NPESR3 called for a report to Science Board at ISB-2016 on options for biogeographical classification of data submitted to NPESR-3, including a recommendation on a preferred approach. For reasons discussed below it was not possible to reach a consensus on a preferred approach in time for ISB 2016. The matter was referred to the inter-sessional NPESR workshop in June 2016 where a consensus recommendation was developed.

## Options for Biogeographical Classification of Data Submitted to NPESR-3

The options considered for biogeographical classification are summarized as follows:

1. Marine Ecosystems of the North Pacific Ocean, 2003-2008, NPESR-2 (McKinnell and Dagg 2010)
2. Large Marine Ecosystems of the World, LME (Sherman 1987)
3. Marine Ecoregions of the World, MEOW (Spalding et al., 2007)
4. Longhurst Biogeographical Provinces, LBR (A. R. Longhurst 2006)

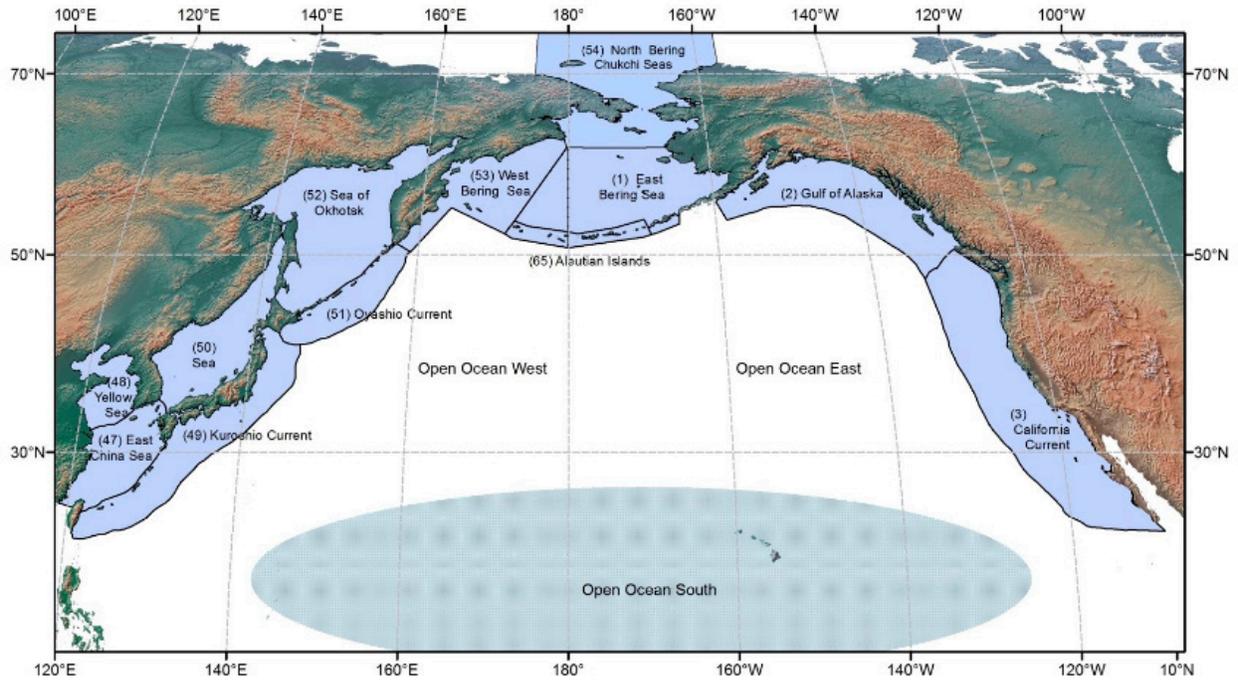
Other schemes were briefly reviewed, but not selected for discussion because they appeared to be variations on the approaches of options 2 – 4.

Discussions prior to the intersessional workshop revolved around retaining the biogeographical model of the most recent report NPESR-2 (#1). Although the model served the essential purpose of geographical organization, the selection of the areas was not organized around an identifiable body of consistent biological and physical criteria. In examining the other three models the intention was to find a peer reviewed, published biogeographical classification system that could be applied, or adapted, to the PICES treaty area.

The difficulty in selecting an alternative to the approach of NPESR-2 was that the other three systems, although more or less similar in approach, each fell short of providing a clearly superior approach for the biogeographical classification purposes of NPESR-3. Both LME and MEOW (2007) are inherently coastal and shelf oriented, providing limited rationales for classifying oceanic areas. The LBR approach does address coastal, shelf and oceanic areas with a consistent rationale, however the resulting provinces and subdivisions for the PICES treaty area were overly broad, combining national boundaries and providing limited guidance on geographic boundaries between shelf and oceanic environments.

Intersessional workshop participants considered the question of biogeographical organization in view of the 280 environmental time series observations (ETSOs) submitted for consideration at the workshop. A consensus was reached at the workshop on how best to geographically organize ETSOs for reporting and syntheses. Consensus was reached that the Large Marine Ecosystems used in concert with three additional oceanic areas would best serve to categorize and organize locations of the ETSOs ([Figure 1](#)). The Large Marine Ecosystems of the PICES area were drawn from the currently recognized Large Marine Ecosystems of the World (see [www.lme.noaa.gov](http://www.lme.noaa.gov)).

## Large Marine Ecosystems of PICES



**Figure 1.** Large Marine Ecosystems of the PICES area, adapted from [Large Marine Ecosystems of the World](#) by Peter Chandler. Note that references for original LME and the figure above are hyperlinked to text.

**SG-NPESR3 Endnote 4**

**Proposal for a Working Group on North Pacific Ecosystem Status Report Synthesis**  
(submitted at ISB-2016)

**Parents:** MONITOR and FUTURE SSC

**Term:** May 2016–October 2019

**Motivation**

This Working Group will conduct the synthesis of the foundational Environmental Time Series Observations (ETSOs). According to the schedule and duties described in the NPESR Implementation Plan (Qingdao, October 2015), the WG will coordinate and communicate with the SG-NPESR3, the NPESR Editorial Board, and other concerned parties to effect an orderly transition of duties as the work of the Study Group is concluded after PICES-2016.

Following PICES-2016, the Working Group will work with the Editorial Board and the authors of the individual ETSOs to develop regional syntheses, culminating in a North Pacific synthesis. Following production of the North Pacific synthesis, the WG will serve as editors for the Alaska Fisheries Science Center's Resource Ecology and Ecosystem Modeling project as it produces the regional syntheses and these are combined into a web-published NPESR3. At the pleasure of the Editorial Board, the Science Board and Governing Council, the Working Group may participate in developing and producing NPESR publications in other formats. For definition of items listed in the terms of reference and more precise scheduling information please refer to the Third Ecosystem Status Report Implementation Plan

**Terms of Reference**

1. Consult with the Editorial Board and SG-NPESR3 on the selection of authors to be included in the NPESR3 syntheses;
2. Lead the authors of the NPESR3 in regional synthetic analyses of trends in ETSOs of the individual North Pacific ecosystems as determined by the WG in consultation with the Editorial Board and the Science Board;
3. Convene the North Pacific Synthesis Workshop (2017) to include the working group members and the authors of the ETSOs to develop an overarching synthesis of North Pacific Ecosystems in formats to be determined by WG, the Editorial Board, and the Science Board;
4. Work with the Editorial Board (or its designees) to edit sections of the NPESR3 as they are produced;
5. Lead the production of the Third North Pacific Ecosystem Status Report in cooperation with the Alaska Fisheries Science Center's Resource Ecology and Ecosystem Modeling.

**Proposed Membership**

(submitted to Science Board at PICES-2016)

*Co-Chairs:* Peter Chandler (Canada), Sinjae Yoo (Korea)

*Canada:* Juan José Alava, Jennifer Boldt, Sonia Batten, Ian Perry

*China:* TBD

*Japan:* Kazuaki Tadokoro, Sanae Chiba, Shin-ichi Ito, Masahito Hirota, Joji Ishizaka, Osamu Katoh, Masahito Hirota

*Korea:* Se-Jong Ju, Dong-Jin Kang, Sung-Hyun Nam, Sukyung Kang, Un Hyuk Yim

*Russia:* Vladimir Kulik, Yury Zuenko, Vyacheslav Lobanov,

*USA:* Tony Koslow, Keith Criddle, Steven Bograd, Nicholas Bond, Stephani Zador, Julie Keister, Stephen Kasperski

*PICES:* Harold (Hal) Batchelder