2023 Report of the Section on Marine Birds and Mammals

The Section on Marine Birds and Mammals (S-MBM; under the auspices of the BIO Committee) held two meetings. The first meeting was held virtually on September 18, 2023, from 17:00-20:00 (PDT) via Zoom, hosted by the PICES Secretariat. The second meeting was held as a hybrid meeting on October 21, 2023, in Seattle, USA. The current activities and next project associated with S-MBM Terms of Reference were discussed.

Dr. Patrick O'Hara (Co-chair, Canada) and Dr. Miran Kim (Co-chair, Korea) called the meeting to order and welcomed members and observers. Members from Canada, Korea, Japan, China, and the USA (*S-MBM Endnote 1*; S-MBM members from Russia did not attend) attended.

1st meeting in virtual, September 18, 2023. Zoom screen capture during virtual pre-meeting.

Second meeting in hybrid, October 21, 2023, in Seattle, USA

AGENDA ITEM 1
Adoption of agenda

The agenda was reviewed by members and approved (*S-MBM Endnote 2*)

AGENDA ITEM 2
Membership changes

Dr. Yutaka Watanuki (Japan) will no longer be a member next year due to his retirement.

AGENDA ITEM 3
Reports from participants

1. Dr. Tsutomu Tamura, as an observer from PICES, provided a report on the 2023 International Whaling Commission Scientific Committee (IWC/SC) meeting (*S-MBM Endnote 3*).

2. Participants reported past and future meetings related to S-MBM activities
   a. Pacific Seabird Group meeting was held February 2023.
   b. Dr. William Sydeman received a Lifetime Achievement Award.

3. S-MBM involvement with other PICES groups
   a. Dr. K. Hattori – BIO Committee member
   b. Dr. Y. Watanuki – WG 44 member
   c. Dr. P. O'Hara/K. Morgan – WG 46 observers, at-sea survey expertise

4. W5 Workshop: *Bio-indicators of meso to global scale marine pollution: techniques for integration and standardization*
   a. Workshop/session in support of Activity Plan 2022-2026
   b. 6 presentations from Canada, Japan, Korea, and USA
   c. Discussion of standardization of sampling and analytical techniques, choice of sample types and bioindicator species, effects of pollutants in marine ecosystems and consider biasing factors.

AGENDA ITEM 4
Discussion

1. S-MBM Activity Plan, 2022-2026: Interaction between MBMs and other ecosystem components and stressors.
   a. Refinement of sub-themes, confirmation of phases
   b. Submitted workshop/session proposals for PICES-2024
      i. S-MBM/FIS/BIO Topic session (1 day): *Social, economic and ecological implications of recoveries, range expansions and shifting distributions of marine birds, mammals and fish (S-MBM Endnote 4)*
      ii. S-MBM Workshop (0.5 day): *Puffin diet samples as indicators of forage nekton availability and community structure in the Aleutian marine ecosystem (S-MBM Endnote 5)*
2. Requests to BIO/SB:
   a. Full day business meeting for PICES 2024
      i. virtual pre-meeting
      ii. in-person business meeting during PICES annual meeting
   b.travel support for invited speakers.

S-MBM Endnote 1

S-MBM participation list

Members

Patrick O'Hara (Canada, Co-Chair)
Miran Kim (Korea, Co-Chair)
Ken Morgan (Canada)
Andrew W. Trites (Canada)
Liyuan Zhao (China)
Kaoru Hattori (Japan)
Tstomu Tamura (Japan)
Yutaka Watanuki (Japan)
Elliott Lee Hazen (USA)
William Sydeman (USA)
Rolf R. Ream (USA)

Members unable to attend

Canada: Douglas F. Bertam
China: Shuai Chen, Wei Lei, Xuelei Zhang
Korea: Young-Rok An, Kyunglee Lee
Russia: Alexander Boltnev, Vjatcheslav P. Shuntov, Andrey Vinnikov

Observers

Soojin Jang (Korea)
Yu Kanaji (Japan)
Hikari Meada (Japan)

S-MBM Endnote 2

S-MBM Meeting Agenda

(On-line)
17:00 September 18, 2023 (PDT; UTC-07:00)
09:00 September 19, 2023 (KST/JST; UTC+09:00)

1. Call to Order- Review agenda for upcoming S-MBM
2. Review S-MBM achievements with respect to TOR (including publications)
3. Updates on S-MBM workshop (BIO-indicators of meso to global scale marine pollution: techniques for integration and standardization) and topic session (Anticipated and realized effects of climate change on predatory fish, birds, and mammals of the North Pacific) including list of talks, and discussion outcomes
4. Finalized "Report/Requests to SB"
   a. New EG proposals for PICES 2024 (including travel support for invited speakers)
   b. Capacity building event proposal
   c. Travel support requests (independent of EG proposals for PICES 2024)

(In-person)
09:00 October 21, 2023 (PDT; UTC-07:00) at Seattle, USA

1. S-MBM updates from online pre-PICES meeting
2. Discussion
   a. Dr. Charles Hannah presented: ENSO and Climate Change: what does this mean for MBMs
   b. NACES (North Atlantic Current and Evlanov Basin MPA) and PICES: explore opportunities
3. Review and update S-MBM requests to BIO and Science Board
   a. travel support for invited speakers

S-MBM Endnote 3

PICES Observer Report of the 2023 IWC (69A) Scientific Committee Meeting

Tsutomu Tamura

Institute of Cetacean Research, 4-5 Toyomi-cho, Chuo-ku, Tokyo 104-0055, Japan

Meeting place: Rikli Balance hotel, Bled, Slovenia
Meeting date: From 24 April to 6 May 2023
Chair: Dr. Alexandre Zerbini (Brazil)

Participants:
National delegates: 91, Invited Participants (IP): 116, Observers: 8, Local Scientist: 1; Inter-governmental organizations: 5, Non-governmental organizations: 9, and IWC Secretariat: 25

The following sub-committees, working groups and *ad hoc* working group were established.

- Sub-Committees
  1. Implementation Reviews and Simulation Trials (IST)
  2. In-depth Assessment (IA)
  3. Other Northern Hemisphere whale stocks (NH)
  4. Other Southern Hemisphere whale stocks (SH)
  5. Small Cetaceans (SM)
  6. Whale Watching (WW)
  7. Aboriginal Subsistence Whaling (ASW)
  8. Conservations Management Plans (CMP)
  9. Non-Deliberate Human-Induced Mortality of Cetaceans (HIM)
  10. Environmental Concerns (E)

- Working Groups
  1. Stock Definition/DNA Testing (SD/DNA)
  2. Ecosystem Modelling Approaches (EM)
  3. Abundance Estimates, Stock Status and International Cruises (ASI)

- *Ad hoc* Working Groups
  1. Photo-ID (PH)*
  2. Sanctuaries (SAN)
  3. Databases and Related Issues (GDR)

  *: PH did not hold any sessions during SC69A. Its Agenda items were dealt with in other sub-groups.

This was the first in-person Committee meeting since 2019 (SC68A) after the global coronavirus pandemic (COVID-19). The following topics related to North Pacific whales and ecosystem were discussed at the meeting.

- In-depth assessment (IA): Sub-Committee

  This Sub-Committee continued the in-depth assessment of common minke, humpback, and sei whales in the North Pacific. An in-depth assessment includes the examination of current stock size, population trends, carrying capacity, and productivity.

1. *Comprehensive Assessment of North Pacific sei whales*: A multi-area age-structured population model has been developed, based on two stock structure hypotheses: (1) a single stock is distributed throughout the North Pacific; (2) five stocks are distributed throughout the North Pacific (see *Figure 1*). There was no consensus on the relative plausibility of the stock structure hypotheses. The Committee failed to find a population model which consistently integrated all available information; this was due to fundamental conflicts in the data. The Committee recommended an intersessional WG to develop a document summarizing all available information, alongside a summary of attempts to fit a population model.

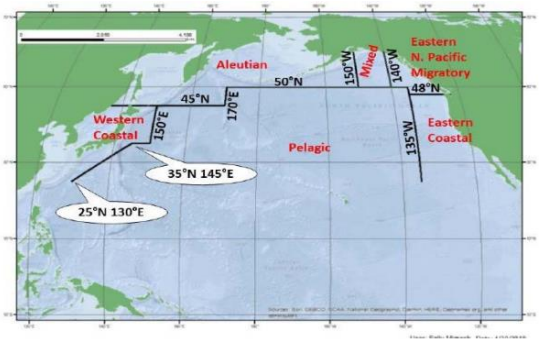

Figure 1. The multi-stock hypothesis, one of the two hypotheses used in the Comprehensive Assessment for North Pacific sei whales.

2. *In-depth assessment of western North Pacific common minke whales*: It is based on three primary stock structure hypotheses: Hypothesis 'A' consider two stocks, J and O stocks with mixing; Hypothesis 'B' is similar to Hypothesis A but adds a third stock in the Yellow Sea (Y stock); and Hypothesis 'E' consider the Y, J, O and an additional coastal stock (E). The Committee reiterated the need to continue the in-depth assessment of western North Pacific common minke whales with a focus on bycatch levels and the status of J-stock. The committee agreed to re-establish the intersessional group to work on the conditioning for the most complex model involving Hypothesis 'E', in addition to run the sensitivity tests for all three stock structure hypotheses.

3. *Comprehensive Assessment of North Pacific humpback whales*: Starting in 2016, analyses of abundance and genetic data have been undertaken, the commercial catch series has been updated and an automated photo-ID matching algorithm has been used to facilitate a large-scale worldwide photo-ID matching exercise. Two stock structure hypotheses are considered: B1, in which there are five stocks and B2, in which the whales that winter off Mexico are divided into two breeding stocks, MX-AR and MX-ML. An age-aggregated operating model is being used for the assessment with data from multiple breeding and feeding areas in the North Pacific (*Figure 2*).

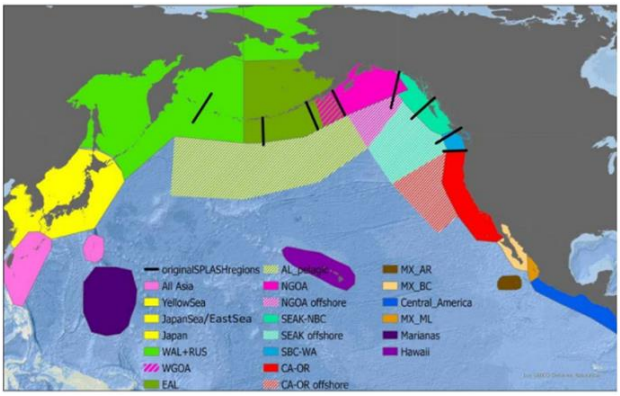

Figure 2. Regions and region boundaries agreed by the WG in 2021; dark lines represent the boundaries from

the original SPLASH project (as shown in Calambokidis *et al*., 2008).

- Abundance Estimates, Stock Status, and International Cruises (ASI): Working Group
  This Working Group was established following discussions within the IWC Scientific Committee to formally review and agree on the status of the abundance estimates submitted to the Scientific Committee across all of the Committee's sub committees and working groups.
  Regarding the North Pacific, this group also deals with the evaluation of abundance estimates of several cetacean species (*e.g.,* Sei whale, Bryde's whale, Eastern North Pacific gray whale and humpback whale). In addition, it deals with evaluation of sighting surveys plan/results in the Okhotsk Sea and the western North Pacific.

1. The IWC-POWER (North Pacific Ocean Whale and Ecosystem Research): This program is an international collaborative effort coordinated by the IWC and Japan. The project includes line transect sighting for estimating population abundance and biopsy skin-sampling and photo ID for stock structure on major large cetaceans. The project contributed to the ongoing assessment work of the Committee. The proposed area for the 2023 survey is shown in *Figure 3*.

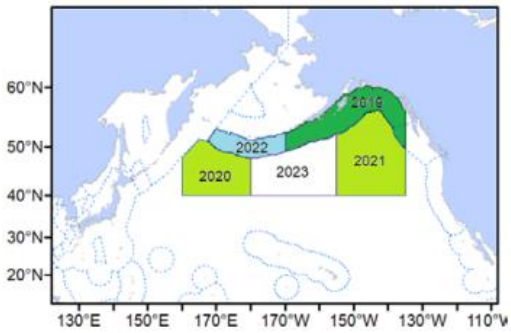

Figure 3. 2023 IWC-POWER survey area (white)

- Other matters
  The SC also covered other topics such as environmental concerns, small cetaceans, whale watching, and by-catch. The Committee noted the unusual mortality of western North Pacific gray whale in the years 2019-2022. The Committee plans to begin an implementation review of gray whales in 2025.

  The 2023 Scientific committee report of IWC can download the following link.
  https://archive.iwc.int/pages/view.php?ref=20108&k=

- 2024 meeting schedule
  The next Scientific Committee (SC/69B) will be held in Bled, Slovenia from April to May. Due to budget constraints, biennial meetings will be scheduled after 2024.

S-MBM Endnote 4

Proposal for a Session on
"Social, economic and ecological implications of recoveries, range expansions and shifting distributions of marine birds, mammals and fish session"
at PICES-2024

Duration: 1 day

Convenors: Andrew Trites (S-MBM /BIO), University of British Columbia, Vancouver, BC, Canada, email: a.trites@oceans.ubc.ca Elliott Hazen (S-MBM, S-CCME /BIO FIS, POC), Southwest Fisheries Science Center, Monterey, California, USA email: Elliott.hazen@noaa.gov, Patrick O'Hara (S-MBM /BIO), Canadian Wildlife Service, Sidney, BC, Canada, email: Patrick.OHara@ec.gc.ca; Rolf Ream (S-MBM /BIO), Alaska Fisheries Science Center, Seattle, Washington, USA, email: rolf.ream@noaa.gov
Corresponding Convener: Andrew Trites (S-MBM /BIO), University of British Columbia, Vancouver, BC, Canada, email: a.trites@oceans.ubc.ca

Sponsoring PICES Expert Groups: BIO, FIS, POC

Reports of fish, seabirds, and marine mammals occurring in regions of the North Pacific where they infrequently or were not known to previously occur are on the rise. In some cases, the arrival of newcomer-species may reflect re-establishments of historic ranges following protection from overexploitation. In other cases, range expansions and shifting distributions of the newcomer-species may be responses to bottom-up processes related to changing ocean conditions or may reflect top-down behavioral responses to predation. Documenting and understanding the drivers of new appearances of species is needed to assess the ecosystem impacts, including consequences that increasing numbers of new arrivals may have on other species. Similarly, assessments are needed to evaluate the social, economic and ecological benefits and threats that such newcomer-species pose. This type of information is needed to help guide future social and fisheries policies. This topic session invites papers that address 1) decadal changes in the distributions of marine birds, mammals and fish—and their implications and underlying causes, 2) direct and indirect effects that the changes in species distributions are having on other species and community compositions, 3) social and economic consequences that changing distributions and ranges of species have on coastal communities, 4) unique observations of newcomer-species as a result of extreme-events, and 5) how newcomer-species can help inform ecosystem status reports and other management needs. This session contributes to FUTURE, BIO, S-CCME and MBM goals to document ecosystem response to climate-driven (and other) changes. Presenters will be encouraged to link their work to other PICES expert groups. If there is enough interest, we will plan a special issue of such examples of newcomer-species and rapid-range shifts that interested presenters could participate in.

PICES funding requested: Two invited speakers.

S-MBM Endnote 5

Proposal for a Workshop on
"Puffin diet samples as indicators of forage nekton availability and community structure in the Aleutian marine ecosystem"
at PICES-2024

Duration: 1/2 day

Convenors: William Sydeman, Watanuki, O'Hara
Invited Speakers: Mike Harris/Sarah Wanless (puffins as samplers of forage nekton in the North Sea), Jim Thorson (statistics of puffin multivariate prey sampling), Mayumi Arimitsu (use of puffin diet in fisheries), Matt Baker (sandlance and puffins in the NEP)

Marine predators have been put forth as samplers of poorly known forage nekton in remote coastal ecosystems. The Aleutian Archipelago is uniquely situated between sub-tropical and sub-arctic biomes in the Northcentral Pacific and is a "hotspot" of biodiversity for upper-level consumers. Longitudinal variation in water mass characteristics, as well as large-scale current and tidal transport of waters across the archipelago, promotes high levels of primary and secondary productivity, but sampling of secondary production is lacking. Climatic events, including a long-lasting marine heat wave and apparent shifts in the PDO, also suggest substantial recent changes in key forage species, with lagged effects now appearing in the populations of some trophically-dependent predators. Fortunately, several long-term (1970-present) datasets on the diets of seabirds exist for the region, but these data have yet to be fully analysed to understand variability and trends in meso- to epipelagic food webs through space and time. In this workshop, we will examine statistical and other approaches which could be used as indicators of forage availability, data available from coastally-foraging puffins (tufted, horned, and rhinoceros) from the Aleutian marine ecosystem. Puffins return "bill loads" of freshly caught fish and squid to colonies where they may be sampled for species, mass, size, and proximate composition. Sampling using puffins offers opportunities and challenges that must be examined to interpret dietary datasets properly and use them in marine ecosystem ecology and management. We anticipate a report on analytical approaches for the use of puffin diet as indicators of forage nekton will result from this workshop.

PICES funding requested: travel support (NPRB, Audubon, NFWF, Pew); outreach (international puffin congress)