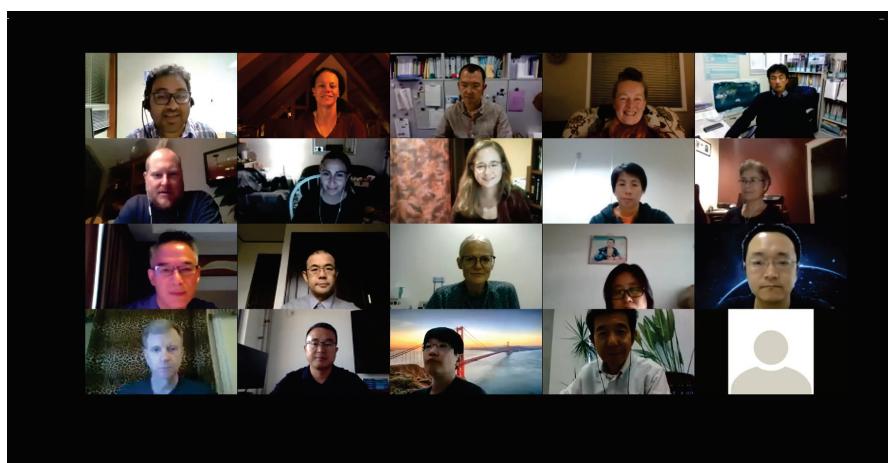


Report of the Biological Oceanography Committee

The meeting of the Biological Oceanography Committee (BIO) took place from 19:00–21:00 h on Wednesday, September 23, 2020 and 19:00–21:00 h on Thursday, September 24, 2020, by Zoom. The Chair, Dr. Akash Sastri, called the meeting to order and welcomed members and observers (*BIO Endnote 1*). All members in attendance introduced themselves and absent members were noted. The Chair reviewed membership changes and noted that there was no official representation from Russia. Members from all other PICES member countries were present. The draft agenda was circulated. There were no changes/additions offered and the agenda was adopted. Dr. Wongyu Park agreed to act as a rapporteur.



Day 1 participants (pictured only) at PICES-2020, Top row from left : Akash Sastri, Hal Batchelder, Tusneo Ono, Janelle Curtis; Second row from left: Motomitsu Takahashi, Kaoru Hattori, Wongyu Park, Atsushi Tsuda, Se-Jong Ju; Third row from left: David Kimmel, Jun Nishioka, Linda Stevenson, Julie Keister, Debora Iglesias-Rodriguez; Bottom row from left: Zijun Xu, Angelica Peña, Gen'ichiro Tsukada.



Day 2 participants (pictured only) at PICES-2020, Top row from left: Akash Sastri, Sonia Batten, Motomitsu Takahashi, Janelle Curtis, Jun Nishioka; Second row from left: David Kimmel, Debora Iglesias-Rodriguez, Julie Keister, Kaoru Hattori, Angelica Peña; Third row from left: Nianzhi Jiao, Tsuneo Ono, Linda Stevenson, Zijun Xu, Rui Zhang; Bottom row from left: Hal Batchelder, ???, Taewon Kim, Atsushi Tsuda.

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AGENDA ITEM 2

Membership changes:

- Dr. Xiujuan Shan (China) has been appointed as a new S-CCME Co-Chair, replacing Prof. Shin-ichi Ito (Japan) (November 2019).
- Dr. Alexander Kozyr (USA) is a new S-CC Co-Chair, replacing Dr. James Christian (Canada).
- Dr. Wiley Evans is a new member of S-CC Section representing Canada.
- Dr. Geun-Ha Park is a new S-CC Section member, replacing Dr. Dong-Jin Kang and representing Korea.
- Dr. Xianghui Guo (China) is a new S-CC member replacing Prof. Minhan Dai.
- Prof. Samantha Siedlecki is a new member of S-CC representing USA.

AGENDA ITEM 5

Publications

PICES Scientific Reports published by BIO-sponsored Working Groups since last Annual Meeting:

- Report of WG 32 on Biodiversity of Biogenic Habitats (Janelle Curtis and Masashi Kiyota, Eds.) PICES Scientific Report [No. 57](#);
- Report of Working Group 28 on Development of Ecosystem Indicators to Characterize Ecosystem Response to Multiple Stressors (Momomitsu Takahashi and R. Ian Perry, Eds.) PICES Scientific Report [No. 55](#).

AGENDA ITEM 6

Selection of Best ECS presentations for BIO

Best Early Career Scientist presentations will not be judged and awarded for PICES-2020.

AGENDA ITEM 7

Progressive reports and future plans of BIO active groups (S-CCME, S-CC, S-MBM, WG 37, SEAturtle special project)

S-CCME: Joint PICES/ICES Section on *Climate Change Effects on Marine Ecosystems*

Dr. Angelica Peña presented an update on the new Implementation Plan for the PICES/ICES Section on *Climate Change Effects on Marine Ecosystems* (S-CCME) 2020 activities and accomplishments. Dr. Jackie King (Canada) completed her 3-year term and Dr. Kirsten Holsman (USA), was elected Co-Chair at the S-CCME meeting. S-CCME is chaired by 2 PICES representatives, Drs. Kirstin Holsman and Xiujuan Shan, and 2 ICES representatives, Dr. Christian Möllmann and Dr. Mark Payne. The IPCC WG II AR6 Lead Authors' third meeting was held at Faro, Portugal from January 26 to February 1, 2020. S-CCME members, Dr. Möllmann (ICES, Germany: lead author – 'Europe'), Dr. John Pinnegar (ICES, UK: lead author – 'Small Islands'), Dr. Kirstin Holsman (PICES, USA: lead author – 'North America') and Dr. Shin-ichi Ito (PICES, Japan: lead author – 'Ocean and coastal ecosystems and their services'), confirmed extension for a cut-off date for submitted papers to November 1, 2020 and also an extension for a second order draft submitted to the Technical Support Unit (TSU) to November 6, 2020.

PICES/ICES WG 45: *Impacts of Warming on Growth Rates and Fisheries Yields* was co-chaired by Dr. Tara Marshall (UK, ICES), Dr. Paul Spencer (US, PICES), Dr. Alan Baudron (UK, ICES), John Morrongiello

(Australia) and Dr. Shin-ichi Ito (Japan, PICES, S-CCME member). At the kick off meeting on September 7–10, 2020, 28 investigators, including 4 early career scientists, from 13 countries were in attendance and 6-month “Implementation Plans” were developed for each of the 4 main Terms of Reference. To date, metadata on “Long-term” datasets from fish size-at-age have been obtained for 121 stocks, with expectation of future additions.

A new EU H2020 Project – FutureMARES was initiated in September 2020. The Project will run for 4 years, has 32 partners from 15 nations and is coordinated by Dr. Myron Peck (The Netherlands, SICCME member). The Project pursues advancing knowledge on ‘Climate change impacts to marine and transitional waters’ and ‘the Effectiveness of nature-based solutions’. There are three case studies in the Project: habitat restoration, habitat conservation and sustainable harvesting.

IPCC WGII AR6 Lead Authors’ Fourth Meeting to prepare its final draft report is tentatively scheduled for March 1-7, 2021 in Guatemala, but may be held virtually due to COVID-19. Several stages of AR6 meetings and preparations have been extended in response to COVID-19 pandemic: see https://www.ipcc.ch/site/assets/uploads/2020/06/WG2AR6_Timeline_update.pdf.

MSEAS 2020 on “*Managing for sustainable use of the earth’s marine and coastal systems*” was originally scheduled for May 25–29, 2020 in Yokohama, Japan, but has been postponed to May 2021. Dr. Alan Haynie (S-CCME, USA) is a member of the MSEAS Scientific Steering Committee.

Another 2020 S-CCME activity was Science for Nature and People Partnership (SNAPP): Climate Resilient Fisheries Working Group. The WG members and advisors are Dr. Anne Hollowed (PICES), Dr. William Cheung (ICES), Myron Peck (ICES), and Manuel Barange (ICES).

The ICES 2020 Annual Science Conference has been postponed to September 6–9, 2021, Copenhagen, Denmark. All theme sessions and workshops have been carried over from 2020. Several theme sessions submitted for consideration are sponsored by SICCME/S-CCME.

The S-CCME Phase 4 Implementation Plan has been finalized. If approved, Phase 4 will run from 2021 to 2025 and will be a continuation of Phase 3 initiatives including advancing new science focused on climate change effects on marine ecosystems through theme/topic sessions and workshops, updating and improving predictions with IPCC AR6 scenarios, global synthesis of climate change impacts on marine ecosystems for sustaining the delivery of ecosystem goods and services, developing regional synthesis reports, and contributing to the 5th International Symposium on “*The effects of climate change on the World’s oceans*” in 2023. The following activities will be advanced: Synthesizing SEES climate change modelling efforts to inform climate-resilient development pathways across UN Sustainable Development Goals; exploring cultural and social impacts of climate changes on fisheries and communities; supporting training for scientists; including early career ocean professionals through workshops and training programs; and developing a S-CCME communication strategy (internal and external).

S-CCME requests:

- Science Board/Governing Council approval of Phase 4 Implementation Plan;
- A 1-day meeting at PICES-2021;
- A Russian member from BIO, FIS, and/or POC to be appointed to S-CCME;

S-CC: Section on *Carbon and Climate*

Dr. Tsuneo Ono (S-CC Co-Chair) gave an update on S-CC activities. Dr. Geun-Ha Park (Korea), Dr. Xianghui Guo (China), Dr. Wiley Evans (Canada), and Dr. Samantha Siedlecki (USA) became new members. Dr. Dong-Jin Kang (Korea) and Dr. Minhan Dai (China) stepped down. The ICES/PICES Theme Session, “*Taking stock on ocean acidification research for provision of future efforts*” originally scheduled for ICES 2020 ASC was postponed to 2021. A related session, co-sponsored by SOLAS for PICES-2020 (VS5: *Atmospheric nutrient deposition and microbial community responses, and predictions for the future in the North Pacific Ocean*) was summarized by session co-convenor, Dr. Jun Nishioka. Dr. Ono outlined several activities planned for 2021:

- 1) Inter-comparison experiments for pH sensors for OA monitoring among PICES member countries (in an effort to get funding);
- 2) A new program to assemble “data inventories of coastal pH and oxygen monitoring” carried among PICES member countries;
- 3) new proposal for a PICES2021 session entitled, “*Connecting knowledge of Ocean Deoxygenation in Coastal and Offshore regions of the North Pacific*” as the kick-off for the above program; and
- 4) PACIFICA data update.

S-CC requests:

- A 1-day Topic Session proposal for PICES-2021 entitled, “*Connecting knowledge of Ocean Deoxygenation in Coastal and Offshore regions of the North Pacific*”;
- Travel support for early career scientists (10k) to participate in the 2021 SOLAS Summer School.

S-MBM: Section on *Marine Birds and Mammals*

Dr. Kaoru Hattori (S-MBM Co-Chair) updated meeting participants on annual activities for the Section on *Marine Birds and Mammals*. The S-MBM meetings were held on 16:00–18:00 September 15, 2020 (PDT; UTC-07:00) and 16:00–18:00 September 16, 2020 (PDT; UTC-07:00). Twelve scientists representing membership from Canada, China, Japan, Korea, and USA participated while Russian scientists were absent. Dr. Tsutomu Tamura represented PICES as an observer at the 2020 International Whaling Commission (IWC) Scientific Committee meeting, which was held in May 2020. The Scientific Committee endorsed the 2020 POWER cruise conducted in the western North Pacific from July to September. There were no international symposia related to S-MBM activities leading up to PICES-2020. The World Seabird Conference was re-scheduled to October 4–8, 2021 due to the COVID-19 pandemic.

The 2015–2020 S-MBM project “*Climate and trophic ecology of marine birds and mammals*” will be prepared for PICES-2021. Each chapter will be covered by domain experts: Chapter 1. Introduction (by Dr. Andrew Trites); Chapter 2. Mammals – Diet and consumption (Drs. Trites and Tamura); Chapter 3. Birds – Case study in breeding birds in EEZ Japan (Dr. Yutaka Watanuki). Discussion and appendices will be attached as chapters 4 and 5 at the end of the report. Dr. Hattori also reported on a draft of the 2021–2025 S-MBM Work Plan.

WG 37: Working Group on *Zooplankton Production Methodologies, Applications and Measurements in PICES Regions*

Dr. Akash Sastri (WG 37, co-chaired with Dr. Toru Kobari) provided an update on WG 37 activities. The WG has been active since its establishment at PICES-2016. WG 37 published 2 review publications: “Advances in biochemical indices of zooplankton production” (*Advances Marine Biology* [76: 157–240](#), 2017) and more recently, “Evaluation of trade-offs in traditional methodologies for measuring mesozooplankton growth rates: Assumptions, advantages and disadvantages for field applications” which was published in *Progress in Oceanography* Special Issue [178](#), 2019, commemorating Dr. William Peterson. WG 37 held a zooplankton production practical workshop (phase 2) at Hakai Institute, Canada on October 12–13, 2019. A PICES-2020

Spring School on “*Understanding marine ecosystem responses to climate change*” scheduled for March 4–8, 2020 in Kagoshima, Japan, was cancelled due to COVID-19. WG 37 circulated draft final report, identifying outstanding sections to the responsible authors on February 9, 2020, with a final deadline for completion by November 15. The Co-Chairs and Dr. Yebra will edit the draft and plan to submit to the PICES Secretariat by early December 2020.

PICES Special Project on Sea Turtle Ecology

Dr. Taewon Kim updated the BIO Committee on the Special Project on Sea Turtle Ecology (SEAturtle). SEAturtle members consist of Dr. George Balazs and Dr. Taewon Kim as Co-Chairs, and Jibim Im, Soojin Jang, Byung-Yeob Kim (Korea), Martine Haulena (Canada), Michelle Maria Early Capistran (Mexico), Mi Yeon Kim, Hirosh Minami, Hideaki Nishizawa, Nobuaki Suzuki (Japan), Connie Ka Yan NG (China), and George Shillinger (US). The project is looking for more Chinese scientists. SEAturtle has conducted aquarium experiments, a joint necropsy, dive research in the northwest of Jeju Island during August 17 to September 5, 2020, tracking research using 5 Iridium tags (3 tags were successfully tracked), interview research, and information sharing activities with the public via social networking. A paper entitled, “First record of plastic debris ingestion by a fin whale (*Balaenoptera physalus*) in the sea of East Asia” is published in *Marine Pollution Bulletin*: [159](#) (2020). The Project requests a term extension to 2023 due to COVID-related delays.

SEAturtle request:

- A 1-year extension to 2023.

AGENDA ITEM 8

PICES data policy and inventory

Not discussed.

AGENDA ITEM 9

Relation with other international organizations/programs

Dr. Jun Nishioka (SOLAS SSC member) updated the BIO Committee on behalf of SOLAS (Surface Ocean Lower Atmosphere Study). Core themes of SOLAS include greenhouse gases and the oceans, air-sea interface and fluxes of mass and energy, atmospheric deposition and ocean biogeochemistry, interconnections between aerosols, clouds, and marine ecosystems, and ocean biogeochemical controls on atmospheric chemistry. The virtual PICES-2020 SOLAS Topic Session (VS5) on “*Atmospheric nutrient deposition and microbial community responses, and prediction for the future in the North Pacific Ocean*” was convened on October 29 by Drs. Nishioka (Japan), Guiling Zhang and Huiwang Gao (China), Kitack Lee (Korea), Maurice Levasseur (Canada), and Santiago Gasso (USA) and included, 7 oral, 5 recorded oral, and 15 E-Poster presentations. Dr. Nishioka reminded BIO that SOLAS has requested the same session for PICES-2021. A SOLAS Summer School 2021 is planned for June 7–18, 2021 in Cape Verde and SOLAS has submitted a formal request for support to PICES. SOLAS is also planning the Open Science Conference 2022 at the University of Cape Town, South Africa. Conference dates are tentative.

Other upcoming SOLAS events include: The XMAS-V Symposium on “*How multidisciplinary sciences can serve a sustainable and healthy ocean*” planned for January 11–14, 2021 in Xiamen, China; the 8th International Symposium on “*Gas transfer at water surfaces*” on May 18–21, 2021 in Plymouth, UK; a BEPSII (Biogeochemical Exchange Processes at Sea-Ice Interfaces) Winter School in Cambridge Bay, Canada

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in May 2021; and a Sustainability Research and Innovation Congress on June 12–15, 2021 in Brisbane, Australia and online. SOLAS sessions have also been identified for the Ocean Governance and Climate Intervention at the Congress. Finally, a GEOTRACES–SOLAS workshop on “*Iron at the air-sea interface*” planned for July 26–29 or August 2–6, 2021 in Nashville, USA.

Dr. Janelle Curtis updated BIO on behalf of the North Pacific Fisheries Commission (NPFC) presenting the NPFC-PICES [Framework](#) for enhanced scientific collaboration in the North Pacific. NPFC and PICES identified three top priorities: Support for stock assessment of priority species; Vulnerable Marine Ecosystems (VMEs); and developing an ecosystem approach to fisheries management. NPFC plans for joint activities during 2020–2021 are an NPFC-PICES workshop on “*The influence of the environment on Pacific saury*”; the PICES-ICES joint Working Group on *Small Pelagic Fish* (WG 45) Symposium in 2022 in Lisbon, Portugal; and a PICES-NPAFC-NPFC workshop on a pan-Pacific ecosystem survey program. Also, a two-day workshop on “*Distribution of pelagic, demersal, and benthic species associated with seamounts in the North Pacific Ocean and factors influencing their distribution*” has been proposed for PICES-2021. The aim of this workshop is to improve our understanding of factors influencing the diversity and distributions of species associated with seamounts in the North Pacific Ocean, and begin applying models to understand the ecology and distribution of species associated with seamounts, and predict how they are likely to shift in response to natural and anthropogenic forcing, including climate changes. Another joint activity originally planned for 2020 was an NPFC-PICES workshop on “*VME indicator taxa identification*”, coordinated by Dr. Tatiana Dautova (Russia) which is now postponed to 2021.

Dr. Iain Staniland, speaking on behalf of the IWC (International Whaling Commission), presented on recent communication, collaborative activities between the IWC with ICES and PICES, and organization of the IWC. The IWC Scientific Committee (SC) is engaged in a number of international efforts. The IWC SC had a virtual meeting and provided recommendations and information of interest to PICES. The committee works to assess status of species/stocks, particularly with endangered species. The IWC Conservation Committee also works closely with the IWC SC.

AGENDA ITEM 10

North Pacific Ecosystem Status Report

Not discussed.

AGENDA ITEM 11

FUTURE program

Dr. Ryan Rykaczewski, FUTURE liaison to the BIO Committee, presented an update on the program. FUTURE is the integrating activity for PICES (science-wise). FUTURE activities for 2020 were a transition from Phase II to the new Phase III Implementation Plan. Dr. Rykaczewski introduced Phase III which will be implemented to exploit recent accomplishments. The program will also provide leadership to UN Decade for Ocean Science activities. A draft Implementation Plan includes a ‘Decade’ programme, a ‘Decade’ project, a ‘Decade’ activity, and a ‘Decade’ contribution. PICES was part of a [North Pacific Regional Planning workshop](#) towards the UN Decade of Ocean Science for Sustainable Development (2021-2030) in August 2019 in Tokyo, Japan. The UN Decade of the Ocean themes are related/relevant to PICES and ICES WGs.

AGENDA ITEM 12

Review proposals of new Expert Groups

Dr. Curtis presented a new WG proposal on the “Ecology of Seamounts”. Members of the WG on *Biodiversity of Biogenic Habitats* (WG 32) recommended the establishment of this WG , which will focus on understanding the distribution of benthic, demersal, and pelagic species that are associated with seamounts. The WG will include two Co-Chairs (Drs. Curtis (Canada) and Mai Miyamoto, Japan). WG suggested membership, including the two Co-Chairs, are Drs. Chris Roopers, Anders Knudby, and Chu (ECOP), Ms. Hye-Won Moon, and Dr. Eunjung Kim (Korea), Drs. Tatiana Dautova and Alexei Orlov (Russia), and Drs. Les Watling, Ami Baco-Taylor, Samuel Georgian, and Astrid Leitner (US). The proposed WG would advance the understanding of the ecology and distribution of species associated with seamounts in the North Pacific Ocean. This effort builds on the contributions of WG 32 by mapping the distribution of seamount biodiversity and expands research in some of the unique and abundant ecosystems of the North Pacific Ocean for PICES. WG 32’s focus on biogenic habitats provided a proof of concept on how to undertake collaborative biodiversity research in the North Pacific Ocean.

Dr. Hongsheng Bi presented new WG proposal on “Toward best practices for plankton imaging systems for monitoring plankton”. The proposed WG will focus on assessing the applicability of available imaging systems for monitoring plankton, identifying the advantages and limitations of imaging systems, standardizing image recognition and enumeration methods, and discussing potential new plankton monitoring models. Dr. Bi also presented a proposed membership from five PICES member countries and asked for suggestions for membership from Russia.

AGENDA ITEMS 13–16

PICES-2021, PICES-sponsored symposia, Capacity building, documenting business meetings/topic sessions/workshops

Not discussed due to lack of time.

AGENDA ITEM 17

Other business

None.

AGENDA ITEM 18

Adoption of BIO report and recommendations to Science Board

- Proposed Working Group: Ecology of Seamounts;
- Proposed Working Group: Towards Best Practices Using Imaging Systems for Monitoring Plankton;
- 2021 Workshop/Session proposals:
 - S-MBM WS: “*Anthropogenic stressors, mechanisms and potential impacts on Marine Birds and Mammals*”;
 - Proposed WG Seamounts WS: “*Distributions of pelagic, demersal, and benthic species associated with seamounts in the North Pacific Ocean and factors influencing their distributions*”,
 - AP-NPCOOS WS: “*Monitoring Essential Biodiversity Variables in the coastal zone*”,
 - S-CC: Topic Session proposal “Deoxygenation in coastal and offshore regions” (POC).

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- Request from project SEAturtle to extend (1 yr.) term to 2023;
- Request from WG 37 to extend term (1 yr.) to PICES 2021;
- Request from WG 46 to extend start of term to 2020 (POC).

BIO Endnote 1

BIO participation list

Members

Akash Sastri (Canada, Chair)
Wongyu Park (Korea, Vice-Chair)
Janelle Curtis (Canada)
Angelica Peña (Canada)
Zijun Xu (China)
Kaoru Hattori (Japan)
Motomitsu Takahashi (Japan)
Atsushi Tsuda (Japan)
Se-Jong Ju (Korea)
Taewon Kim (Korea)
Debora Iglesias-Rodriguez (USA)
Julie Keister (USA)
David Kimmel (USA)

Members unable to attend

China: Jinhui Wang, Ping Zhuang
Russia: Alexei Orlov

Observers

HongSheng Bi (Univ. Maryland)
Nianzhi Jiao (WG 46)
Alexander Kozyr (S-CC Co-Chair)
Jun Nishioka (SOLAS)
Patrick O’Hara (S-MBM Co-Chair)
Tsuneo Ono (S-CC Co-Chair)
Ryan Rykaczewski (FUTURE liaison)
Iain Staniland (IWC)
Linda Stevenson (APN)
Gen’ichiro Tsukada (APN)
Rui Zhang (WG 46)

PICES

Sonia Batten (Executive Secretary)
Harold (Hal) Batchelder (Deputy Executive Secretary)

BIO Endnote 2**BIO Committee meeting agenda****PICES-2020, Virtual Meeting**

Wednesday, September 23, 2020, 19:00-22:00 (Sidney, BC, PT)

Thursday, September 24, 2020, 19:00-22:00 (Sidney, BC, PT)

Location/Time Zone	Dates	Local Time
West Coast North America [PDT,UTC-7]	September 23, September 24	1900-2200
Russia [Moscow, MSK, UTC+3]	September 24, September 25	0500-0800
China [CST, UTC+8]	September 24, September 25	1000-1300
Japan [JST, UTC+9]	September 24, September 25	1100-1400
Korea [KST, UTC+9]	September 24, September 25	1100-1400
Russia [Vladivostok, VLAT, UTC+10]	September 24, September 25	1200-1500

1. Welcome, introductions, opening remarks (Day 1)
2. Membership changes
3. Adoption of agenda and appointment of rapporteur (Day 1)
4. Annual review of BIO activities
5. Publications
6. Selection of Best ECS presentations for BIO
7. Progressive reports and future plans of BIO active groups (S-CCME, S-CC, S-MBM, WG 37, SEAturtle special project, WG 46)
 - A. S-CCME: Section on *Climate Change Effects on Marine Ecosystems*, update on new Implementation Plan (A. Pena; Day 1)
 - B. S-CC: Section on *Carbon and Climate*, planned activities and proposals for 2021 (T. Ono; Day 1)
 - C. S-MBM: Section on *Marine Birds and Mammals* (K. Hattori or P. O’Hara, Day 1) :
 - D. WG37: Working Group on *Zooplankton Production Methodologies, Applications and Measurements in PICES Regions*, update on status of final report (A. Sastri, Day 1)
 - E. SEAturtle: Special project on *Sea turtle ecology in relation to environmental stressors in the Northwest Pacific regions* (T. Kim, Day 2)
 - i. Additional related material (see 2018-present related to PICES project):
<https://georgehbalazs.com/korea-explorations/>
 - F. WG46: Joint PICES/ICES Working Group on *Ocean Negative Carbon Emissions* (ONCE) (N. Jiao, Day 2)
8. PICES data policy and inventory (<https://meetings.pices.int/about/PICES-Policy>)
9. Relation with other international organizations/programs.
 - A. ESSAS (F. Mueter, Day 2)
 - B. SOLAS (J. Nishioka, Day 2)
 - C. IWC (I. Staniland, Day 2)
 - i. Scientific Committee Report (<https://archive.iwc.int/pages/view.php?ref=17766&k=>)
 - D. NPFC (J. Curtis, Day 2)
10. Progress report on WG 35 ‘North Pacific Ecosystem Status Report’ (TBD)
11. FUTURE program: Science program update (R. Rykaczewski, Day 2)
12. Review proposals of new Expert Groups (if any proposals submitted)
 - A. WG proposal: Biodiversity of Seamounts (J. Curtis, Day 1, Appendix 1)
 - B. WG proposal: Toward Best Practices for Plankton Imaging Systems (H. Bi, Day 1)

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13. Planning PICES 2021 Annual Meeting (Qingdao, China; Oct., 2021)
 - Most workshops/sessions originally scheduled for 2020 will be pushed to PICES-2021. Additional proposals may be submitted (How/When TBD)
 - Proposed PICES 2021 Workshop: “Distributions of pelagic, demersal, and benthic species associated with seamounts in the North Pacific Ocean and factors influencing their distributions”
14. PICES-sponsored conference/symposia in 2020 and beyond
 - A. MSEAS II, May 2021, Yokohama, Japan (postponed)
 - B. International Symposium on Plastics in the Arctic and Sub-Arctic Regions, March 2-4, 2021 (rescheduled)
15. Capacity Building
16. Documenting business meetings, topic sessions and workshops
 - A. Business meeting summary (S-CCME, S-CC, S-MBM, WG 32, WG 37): Chairs should submit the summary reports to secretariat within a month after the annual meeting.
 - B. Topic Session/workshop summary: Conveners should submit outcome/summaries of their session/workshop to Secretariat (hbatch@pices.int) by late-October.
17. Other business
18. Adoption of BIO report and recommendations to Science Board