



International Atlantic Salmon Research Board

ICR(20)09

*Report on Pacific Projects and Workshops during the International Year of
the Salmon*



Activities and Actions Related to IYS in the North Pacific in 2019-2022

Preamble

The International Year of the Salmon (IYS) is a five-year outreach and research initiative of the North Pacific Anadromous Fish Commission (NPAFC) and the North Atlantic Salmon Conservation Organization (NASCO). The IYS goal is to inspire/motivate/activate a new hemispheric-wide partnership of government, academia, NGOs, Indigenous Peoples, and industry that will drive an intense burst of outreach and research to create a well-informed community of decision-makers who can establish the conditions necessary for the resilience of salmon and people in an uncertain future.

Establishing the conditions necessary for resilience of salmon and people by the end of 2022 is a bold objective, requiring rigor to establish programs, projects, workshops and symposia that will make this possible. A suite of six objectives stated as **OUTCOMES** describe the conditions that when considered collectively will allow us to achieve our **VISION**.

IYS OUTCOMES

Status of salmon	The present status of salmon and their environments is understood
Salmon in a changing salmosphere	The effects of natural environmental variability and human factors affecting salmon distribution and abundance are understood and quantified
New frontiers	New technologies and analytical methods are advanced and applied to salmon research. Research is carried out to fill gaps in poorly studied regions of the salmosphere
Human dimensions	Communities, Indigenous Peoples, youth, harvesters, scientists and resource managers across the Northern Hemisphere share knowledge and collaborate in the development of new tools and approaches to restoring, managing and sustaining salmon
Information systems	Freely available information systems contain historic and current data about salmon and their environment
Salmon outreach and communication	People understand the value of healthy salmon populations and engage to ensure salmon and their varied habitats are conserved and restored against the backdrop of increasing environmental change

Review of Activities since January 2019

As the focal year of the IYS, 2019 unsurprisingly saw and numerous programs, projects, workshops and symposia held throughout the Northern Hemisphere. During this busy and productive year, IYS workshops and symposia were held to develop priorities and plans for high-impact projects to address research outcomes as well as further the understanding associated with outcomes. Significant strides were made in raise awareness concerning the Year of the Salmon and building our on-line presence

After the launch of the IYS website in 2018, there was a significant amount of activity with registering events and promotions on social media. There were 182 events registered and 56 projects at the end of the 2019 focal year. Our Twitter account had an over 50% growth rate in 2019, with an increase in followers from approximately 300 at the start of the year to over 757 followers currently. Not only did our followers more than double, but our audience had increased levels of engagement with our posts on Instagram and Facebook. There were 4,073 engagements on Twitter and 1,798 on Facebook over the course of 2019. This means that the people viewing our information were also interacting with it, clicking the links and being directed to our profile etc. These accounts will now be managed by a dedicated Public Relations and Communications Coordinator, who will further develop these networks and use the established platforms to their fullest potential as we reach and interact with larger audiences. These platforms are an effective means of communication with the public and scientific experts alike.

In 2019, there were over 96 meetings between IYS partners and potential partners. Partnerships crossing cultures and great distances unquestionably take time to develop. Thus far, IYS has been successful at establishing collaborations with over 35 partners in the North Pacific representing government science from five countries, academia, First Nations, NGO's and industry, who are participating in the development and implementation of IYS on a broad scale. In the Atlantic basin, we continue to work with our main IYS partner although they will be less active now that the focal year is over and they have a lower priority on research. The workshops, symposia, and events for the IYS focal year and 2019 Gulf of Alaska Expedition had a large presence on social media, which in turn has resulted in a larger online following for the announcement of future IYS-related events, ongoing projects, and meetings.

The document is divided into Pacific IYS Workshops and Symposia, Partner Meetings and IYS Highlighted Outreach Activities and Events, Signature Projects, Publications, and Positional Changes.

Pacific IYS Workshops and Symposia

Title: Status of Salmon Workshop #1

When: January 23-24, 2019

Where: Morris J. Wosk Centre for Dialogue, 580 W Hasting St., Vancouver BC

Expertise Required: Salmon ecologists with experience categorizing temporal and spatial status and trends of salmon; individuals experienced in developing scientific databases; salmon ecologists

Objectives:

- Overview case studies used in Pacific and Atlantic basins to categorize temporal and spatial status and trends of salmon. Data sets need not be thoroughly analyzed or detailed but should be examples where data are being used or have the potential to be used to represent status and where there is the potential to learn from further analysis. Case studies should encompass have a range of data quality/quantity examples.
- Propose requirements and standards for different categories of data ranging from poor to excellent that are consistent across species/regions/agencies. These may be linked to spatial and temporal scales for comparisons among species and populations, including levels of aggregation.
- Begin a catalog of salmon data sets, their availability, and the gaps needed to fill in order to achieve specific scientific and management goals.
- Document the requirements for future data assembly projects: data structures (inclusion of metadata), management issues (resourcing, ownership, publication rights), timelines, standards
- Develop plans for a subsequent series of workshops. For instance:
 - describe how targeted data sets might be analyzed;
 - next steps to developing data standards;
 - discuss how we could share analytical methods to test hypotheses arising from these workshops;
 - discuss how new analytical approaches could be more easily and safely applied by biologists who are not professional statisticians or programmers; and
 - identify additional data sets required to address hypotheses about cause and effect.
- Document of workshop details and findings are in NPAFC Technical Report 13.

Title: Information Systems Workshop #1

When: January 25, 2019

Where: Pacific Salmon Commission, 600-1155 Robson St., Vancouver BC

Expertise Required: individuals with experience in information flow and knowledge management; salmon ecologists with experience in data management; experts in graph database technology

Objectives: This workshop will focus on the International Salmon Data Laboratory (ISDL) (previously Salmosphere Net) project. IDSL intends to:

- develop tools and workflows for better information flow and knowledge management which will aid in the creation of new best practices.
- Allow for easy sharing of salmon data and metadata, in turn allowing for increased complex analyses
- Deliver examples of workflows from field data to decision support products
- Help salmon biologists take advantage of emerging technology by leveraging the power of new graph-database technology, specifically neo4j – who is a sponsor – and new tools built on neo4j\

Outcome: Document of workshop details and findings are in NPAFC Technical Report 13.

Title: 75th Annual Northeast Fish and Wildlife Conference: *Special Symposia on Salmon and People in a Changing World*

When: April 14 - 16, 2019

Where: Groton, CT, USA

Objective: This symposium focused on the International Year of the Salmon initiative to manage wild Atlantic salmon and to raise awareness of what humans can do better to ensure salmon and their varied habitat are conserved and restored against the backdrop of increasing environmental variability.

Title: 2019 Hokkaido Salmon Conference

When: May 25th, 2019

Where: Sapporo, Hokkaido, Japan

Objective:

Title: The Second NPAFC-IYS Workshop: Salmon Ocean Ecology in a Changing Climate

When: May 2019

Where: Portland OR, USA

Host: The North Pacific Anadromous Fish Commission (NPAFC) in partnership with The Salmon Ocean Ecology Meeting (SOEM)

Objectives:

- Improve current knowledge of the migration, distribution, growth and survival of salmon and their environment in the ocean;
- Increase understanding of the causes of variations in salmon production in a changing climate;
- Anticipate future changes in the distribution and abundance of salmon and their marine ecosystems;
- Develop and apply new technologies and analytical methods to research and management of salmon; and
- Invent integrated information/management systems to support research, sustainable management, and public understanding for the conservation of salmon

Topics Sessions

- Current status of salmon and their environments
 - Biological traits of key salmon populations
 - Migration and distribution
- Growth and Survival
 - Salmon in changing ocean conditions
 - Linkage between salmon production, climate and ocean changes
 - Modeling the future for salmon
- New technologies/integrated information systems for salmon research and management
 - New technologies
 - Integrated information and management systems

Organizing Committee: Richard Brodeur (SOEM; Northwest Fisheries Science Center, NOAA, USA; Organizing Committee vice-chairperson); Ed Farley, Jr. (Auke Bay Laboratories, Ted Stevens Marine Research Institute, NMFS, USA; Organizing Committee chairperson); Jim Irvine (Pacific Biological Station, DFO, Canada); Ju Kyoung Kim (Inland Life Resources Center, FIRA, Korea); Svetlana Naydenko (Pacific Scientific Research Fisheries Center; TINRO-Center, Russia); Mark Saunders (International Year of the Salmon (IYS) North Pacific Steering Committee, Canada; Organizing Committee vice-chairperson);

Michael Schmidt (SOEM; Long Live the Kings, USA); Shigehiko Urawa (Hokkaido National Fisheries Research Institute, FRA, Japan; Organizing Committee vice-chairperson); Brian Wells (SOEM; Southwest Fisheries Science Center, NOAA, USA; Organizing Committee vice-chairperson); Jeongseok Park (NPAFC Secretariat, Canada)

Atlantic Activity: ICES Likely Suspects Workshop, Copenhagen Denmark

Title: Workshop for North Atlantic Salmon At-Sea Mortality (WKSsalmon)

When: June 2019

Overview: The IYS Director attended this workshop. Addressing the common issues and high degree of overlap organizations across the world face concerning declining salmon productivity experienced since the early 1990's. Workshop for North Atlantic Salmon At-Sea Mortality met at ICES HQ, Copenhagen, Denmark on 24–28 June 2019 for a 5-day scoping meeting; then in autumn 2020 for a 3-day data evaluation meeting; and then for a 5-day modelling meeting in 2020/2021.

Objectives:

- Identify data sources that could inform estimates of at-sea salmon mortality and the associated available data, including data from North Atlantic salmon as well as ecosystem data (such as oceanographic time-series, plankton surveys, International Ecosystem Summer Survey in the Nordic Seas (IESSNS), pelagic or demersal fish surveys);
- Develop a data call that will integrate these sources with existing ICES databases;
- Evaluate the appropriateness of data and methods used to estimate at-sea salmon mortality;
- Identify data gaps and develop recommendations for future data acquisition.
- Evaluate modelling approaches to integrate marine data fully to cover the whole life cycle of Atlantic salmon in the context of the 'Likely Suspects' Framework (see http://www.nasco.int/sas/pdf/archive/papers/2018/SAG_18_04_AST%20Likely%20Suspects%20Framework%20Update.pdf)

Atlantic Activity

Title: NASCO Symposium 2019: Managing the Atlantic salmon in a Rapidly Changing Environment – Management Challenges and Possible Responses, Tromsø, Norway

When: June 2019

Overview: To mark the International Year of the Salmon, a two-day Symposium was held ahead of the North Atlantic Salmon Conservation Organization's (NASCO) Annual Meeting, which in 2019 was hosted by Norway in Tromsø. Attendance was open to all, and people connected with, inspired by or passionate about wild Atlantic salmon are encouraged to register. The focus was on challenges facing the Atlantic salmon and possible responses that can help conserve this precious resource in a rapidly changing environment.

Themes:

- Climate change and state of the salmon, with scientific overviews being provided on these subjects; and
- Management challenges and solutions.

Outcomes: Perspectives were provided from a number of different viewpoints, including managers, scientists, NGOs and Indigenous People. Participation in finding solutions to the many challenges facing this iconic species is encouraged through discussion, the provision of posters and networking during the event's social activities. The Symposium Steering Committee drew together the conclusions from the two days to take forward as recommendations to the North Atlantic Salmon Conservation Organization's (NASCO) Annual Meeting.

Draft Programme:

<http://www.nasco.int/pdf/2019%20papers/DRAFT%20Tromso%20Symposium%20Programme%20v2.1.pdf>

Title: World Salmon Forum

When: August 21st-23rd, 2019

Where: Seattle, WA, USA

Convenor(s): Bruce McNae, World Salmon Forum

Objectives: The World Salmon Forum is designed to bring together wild salmon conservation groups from around the world to share new policies and measures that will provide for the survival of Atlantic and Pacific salmon, seatrout, and steelhead populations.

Overview:

The IYS Director attended this event. Wild salmon populations in both the Atlantic and Pacific basins began declining at the onset of the Industrial Revolution and more dramatically in recent decades. As a result, many populations are at imminent risk of extinction. The World Salmon Forum (WSF) aims to bring together a coalition of scientists, advocates, and foundations dedicated to sustaining wild salmon. WSF will challenge the way in which salmon are managed and investigate the science required to underpin effective management.

The WSF's mission is to sustain wild Atlantic and Pacific salmon, seatrout, and steelhead populations for the future. Salmon diversity and abundance are a gift from the past through millions of years of evolution and adaptation. Our collective stewardship should ensure that wild salmon remain a legacy for future generations.

The WSF is designed to bring together wild salmon conservation groups from around the world to share new policies and measures that will provide for the survival of these magnificent animals.

The WSF event is pleased to be associated with the International Year of the Salmon in our mutual efforts to preserve wild salmon around the world. The WSF website will serve as a conduit and resource tool for WSF Coalition members and the public to share ideas and resources that can bring about positive change in wild salmon management and policy.

Topics:

- a. Aquaculture—Open water or land-based?
- b. Harvest—Mixed Stock or Terminal – Nonselective or Selective?
- c. Hatcheries—Problem or Solution?
- d. Management—Status quo or New Place-based Conceptual Foundation?
- e. Research—Likely Suspects Framework
- f. International Year of the Salmon—Working together

Title: The Science of Pacific Salmon Conservation: Foundations, Myths, and Emerging Insights

When: September 29 - October 3, 2019

Where: Reno, Nevada, USA

Convenor(s): American Fisheries Society/The Wildlife Society

Expertise Required: Experts in the applied salmon sciences, including: genetics, evolution, ecology, geomorphology, hydrology, oceanography, and climate science.

Objectives:

- To distill historical and emerging science to inform salmon conservation and management
- To highlight key foundations and advances in applied Pacific salmon science that are

- relevant to their conservation and management
- To discuss emerging tools and their application, such as genomics
- To examine emerging evidence for impacts of pressures such as:
 - Ocean competition
 - Climate change
 - Hatcheries
 - Rise of marine predators
- To address common misperceptions in salmon conservation and management
- Collectively synthesis the big ideas in salmon science relevant to their conservation and effective management

Title: Local Advocacy to Hemispheric Outreach through the International Year of the Salmon

When: September 29 - October 3, 2019

Where: Reno, Nevada, USA

Convenor(s): American Fisheries Society/The Wildlife Society

Expertise Required: Experts in communications, outreach, international collaboration, and management.

Objectives: This presentation will focus on the successes and lessons learned around the outreach approach for the International Year of the Salmon initiative (IYS).

- Discussion of challenges in bringing such an ambitious research driven initiative to the grassroots level in a way that galvanizes support and mobilizes local interest towards positive change.
- Discussion of current IYS outreach tactics, which involve leveraging the IYS brand through social media, website, signature events and projects, presentations, celebrities, stewardship activities, and global strategic partnerships.
- The goal is to align these tactics across every scale and throughout various networks in order to #signupforsalmon and realize benefits at the local level.

Salmon in A Changing Salmosphere - High Seas Expeditions (2019-2021) Workshop #1

Title: North Pacific Marine Science Organization (PICES) 2019 Annual Meeting

When: October 19 - 20, 2019

Where: Victoria BC

Convenor(s): PICES/NPAFC

Expertise Required: Oceanographers with experience in complex ocean models; salmon ecologists with knowledge / experience in ocean mechanisms affecting salmon productivity and climate change; researchers with expertise in climatic modelling.

Objectives: Co-sponsored with PICES, this workshop will convene salmon/fish specialists, oceanographers, climatologists and resource managers to review the progress made during the March 2019 survey and recommend the core elements of a pan-Pacific high seas ecosystem research survey program that would be implemented through 2022 to assess the ocean/climate mechanisms affecting salmon distribution and productivity

Overview: Two-days of talks were presented at special session (W16) allowing researchers from the 2019 Gulf of Alaska Expedition to share their preliminary findings. One-day workshop at Oceans Network Canada gathered ocean experts to provide input on 2021 Pan-Pacific Expedition planning. Participants assisted hypothesis development and survey design

Deliverables:

- PICES Press release by the Assistant IYS Coordinator (See IYS Secretariat Publications)

- NPAFC article by the Assistant IYS Coordinator (See IYS Secretariat Publications)
Two commissioned news articles within the National Observer:
 - Investigating salmon mysteries on the high sea:
<https://www.nationalobserver.com/2019/12/16/features/investigating-salmon-mysteries-high-seas>
 - Researchers tap salmon DNA to decode marine mysteries:
<https://www.nationalobserver.com/2020/01/20/features/researchers-tap-salmon-dna-decode-marine-mysteries>

Atlantic Activity

Title: Missing Salmon Alliance Forum, London, United Kingdom

When: November 2019

- IYS Director attended and gave a presentation on the IYS Initiative
- The Missing Salmon Alliance (MSA) is fighting to reverse the devastating collapse in wild salmon around the UK. By combining expertise, coordinating activities and advocating effective management solutions we can help the wild Atlantic salmon survive and thrive in our rivers and seas for the next generation. This 1st Missing Salmon Alliance Forum launched the joint plan for action and addressed the need for key NGOs to take a collaborative approach to conserving wild Atlantic salmon.
- The IYS Director met with the Principal Investigator of the Likely Suspects Framework (LSF), Dr. Colin Bull. The LSF proposal for the Pacific basin was discussed and a partnership was formed. The IYS is continuing to work with Dr. Bull on the LSF Signature Project.
- The overarching goal of the Missing Salmon Alliance is to reverse the collapse of wild salmon in the UK by combining expertise, coordinating activities and advocating effective management solutions for wild Atlantic Salmon.

Overview: The Missing Salmon Alliance (MSA) is fighting to reverse the devastating collapse in wild salmon around the UK. By combining expertise, coordinating activities and advocating effective management solutions we can help the wild Atlantic salmon survive and thrive in our rivers and seas for the next generation. This 1st Missing Salmon Alliance Forum launched the joint plan for action and addressed the need for key NGOs to take a collaborative approach to conserving wild Atlantic salmon.

Title: IYS North Pacific Steering Committee Meeting

When: February 26 - 27, 2020

Where: Blue Horizon Hotel, 1225 Robson St., Vancouver BC

Description: Annual meeting of IYS partners to provide guidance on IYS plans and activities.

Objectives:

- Review progress on IYS implementation
 - Success of the focal year
 - Provide updates on signature projects: High Seas Expedition, Likely Suspects, and Data Mobilization
- Continuing the engagement of the NPSC with current and upcoming activities and determining the next steps for the IYS through 2021

Deliverables: NPAFC Document 1914

Title: IYS Working Group Meeting

When: February 25, 27 and 28, 2020

Where: Blue Horizon Hotel, 1225 Robson St., Vancouver BC

Description: Annual meeting of NPAFC working group which oversees the IYS, member consist of representatives from all 5 member countries.

Objectives:

- Review progress on IYS implementation
 - Success of the focal year
 - Provide updates on signature projects: High Seas Expedition, Likely Suspects, and Data Mobilization
- Continuing the engagement of the IYS-WG with current and upcoming activities and determining the next steps for the IYS through 2021
- Develop IYS workplan and budget for the 2020/21 fiscal year

Deliverable: NPAFC Document 1913

Likely Suspects Framework – NE Pacific Scoping Meeting #1

Title: Salmonscape

When: Fall 2020

Where: TBD

Convenor(s): NPAFC with funding from the Pacific Salmon Commission Southern Endowment Funds

Expertise Required: Salmon ecologists with knowledge / experience with threat assessment, western scientific and indigenous knowledge of salmon interactions in freshwater, coastal, and marine environments. Experts in data synthesis.

Objectives: This workshop will be convened to bring together experts with knowledge of threat assessment; knowledge of salmon interactions in freshwater, coastal and marine environments and knowledge of life history modelling and knowledge of integrated data systems. The experts will consider methods for bottleneck/threat assessments and recommend case studies with associated teams. They will also consider an experimental approach to data synthesis.

Title: 28th North Pacific Anadromous Fish Commission Annual Meeting

When: May 18-22, 2020 (face to face meeting was cancelled, planned to be held as a virtual meeting)

Where: Hakodate, Japan – *face-to-face meeting was canceled, this event will be held as a virtual meeting due to COVID-19*

Description: Annual meeting of the NPAFC, will include a meeting of the IYS Working Group.

Objectives:

- Progress on the IYS implementation will be presented as part of this meeting
- IYS workplan and budget for 2020/21 fiscal year will be approved

Title: Third NPAFC-IYS Workshop on Salmon Ocean Ecology in a Changing Climate: Linkages between Pacific Salmon Production and Environmental Changes

When: 2020 – *postponed due to COVID-19*

Where: Hakodate, Japan

Convenor(s): NPAFC

Objectives:

- Improve knowledge of the migration, growth and survival of salmon and their environments;
- Increase understanding of the causes of variations in salmon production in changing

- environments;
- Anticipate future changes in salmon ecosystems and resulting changes in the distribution, survival,
- and abundance of salmon;
- Discuss application of new and developing technologies and analytical methods to research and
- manage of salmon;
- Demonstrate integrated information/data management systems to support research, sustainable
- management, and understanding for the conservation of salmon; and
- Describe policies designed to ensure the resilience of salmon and people in changing environments.

Major Topics:

- Salmon production in changing environments
- New technologies/integrated information systems for salmon research and management
- Resilience for salmon and people: lessons from the Great East Japan Earthquake in 2011

Title: Workshop on Winter Ecology of Pacific Salmon IYS 2020 Gulf of Alaska Expedition
Workshop – TBC

When: September 2020

Where: St. Petersburg, Russia

Description: Workshop to present preliminary results of the 2020 Gulf of Alaska Expedition.

Objectives:

- Present further results from the 2019 expedition
- Present preliminary results of the 2020 expedition

Title: North Pacific Marine Science Organization (PICES) Annual Meeting

When: October 21 – November 1, 2020

Where: Qingdao, China

Description: Annual meeting of PICES, will include a symposium on the IYS High Seas Expeditions organized by IYS staff.

S14: Implementing a collaborative, integrated ecosystem high seas survey program to determine climate/ocean mechanisms affecting the productivity and distribution of salmon and associated pelagic fishes across the North Pacific Ocean

Objectives:

- Present results from the 2020 and 2019 expeditions
- Strengthen connections between IYS and members of the PICES communities
- Discuss the upcoming 2021 High Seas Expedition

More information: <https://meetings.pices.int/meetings/annual/2020/pices/Program>

Title: Human Dimension Workshop #1

When: *Postponed until funding is approved*

Where: TBD

Expertise Required: Salmon ecologists with community connections; Indigenous peoples; managers; recreational and commercial salmon harvesters; individuals with experience in collaboration and knowledge sharing between diverse groups.

Objectives: Small group meeting to plan opportunities for collaboration and knowledge sharing between communities, Indigenous Peoples, youth, harvesters, scientists, and research managers across the Northern Hemisphere. The group will also discuss potential new tools that could be developed to achieve this goal. Approaches to restoring, managing, and sustaining salmon will also be discussed.

Title: New Frontiers #1 – eDNA and Genomics Workshop

When: *Postponed until funding is approved*

Where: TBD

Expertise Required: Salmon ecologists with knowledge / experience with eDNA and genomics; geneticists; microbiologists.

Objectives: New Frontiers will be the main focus of the Second NPAFC-IYS Workshop on Salmon Ocean Ecology in a Changing Climate. This workshop will build off the eDNA and genomics related outcomes of that workshop. Leading experts in salmon ocean ecology and eDNA will come together to discuss the potential for eDNA to be used to track salmon when at sea. During the high seas research cruise in March 2019, eDNA samples will be collected, the efficacy and results of these samples will also be discussed.

Title: New Frontiers #2 – Otolith Microchemistry Workshop

When: *Postponed until funding is approved*

Where: TBD

Expertise Required: Salmon ecologists with knowledge / experience with otolith microchemistry; microbiologists.

Objectives: New Frontiers will be the main focus of the Second NPAFC-IYS Workshop on Salmon Ocean Ecology in a Changing Climate. This workshop will build off the otolith microchemistry related outcomes of that workshop. Leading experts in salmon ocean ecology and otolith microchemistry will come together to discuss the potential for otolith microchemistry as a salmon management tool.

Title: New Frontiers #2 – CSI Salmon - Otolith Microchemistry Scoping Meeting

When: *Postponed until funding is approved*

Where: TBD

Convenor(s): NPAFC

Expertise Required: Salmon ecologists with knowledge / experience with otolith microchemistry; microbiologists.

Objectives: Review the potential for otolith microchemistry to determine stock specific migration routes and scope high impact project(s) to remove barriers to implementation. New Frontiers was the main focus of the Second NPAFC-IYS Workshop on Salmon Ocean Ecology in a Changing Climate and a Symposia will take place in the UK this summer. The information from those workshops will inform the planning for this workshop..

Title: New Frontiers #3 – Salmon CSI – Genomics eDNA/Fish health – Scoping Meeting

When: *Postponed until funding is approved*

Where: TBD

Convenor(s): NPAFC

Expertise Required: Salmon ecologists with knowledge / experience with eDNA and genomics; geneticists; microbiologists, fish health experts-epidemiologists-veterinarians.

Objectives: Leading experts in salmon ecology, eDNA, fish health and genomics will come together to discuss:

- the potential for eDNA to be used to determine the distribution and abundance of salmon in aquatic environments and to identify project(s) to provide definitive proof of concept and/or requirements for broad application. Note link to High Seas Expeditions. During the high seas research cruise in March 2019, eDNA samples were collected.
- The application of genomic technology to assess the impact of pathogens across life history stages.

Title: The Fourth NPAFC-IYS Workshop on Salmon Ocean Ecology in a Changing Climate

When: 2021

Where: Republic of Korea - *Due to COVID-19, this may be moved to Japan*

Convenor(s): NPAFC

Expertise Required: TBD

Objectives: TBD

Title: IYS Wrap-Up Symposium

When: 2022

Where: TBD

Convenor(s): NASCO/NPAFC

Expertise Required: TBD

Objectives:

IYS Partner Meetings

Over 105 meetings with partners/potential partners from January 2019 to date.

Title: Informal Salmon Science Confab, Pacific Salmon Commission

Where: Vancouver BC, Canada

When: September 2019, November 2019, January 2020, April 2020

IYS Director, IYS High Seas Coordinator, IYS Coordinator, and Assistant IYS Coordinator attended three meetings

Overview: Quarterly convening of salmon scientists and oceanographer from multiple organizations to address the largest issues facing salmon conservation today. Turning passive behaviour into collaboration between member organizations.

Objective: To transform the way domestic agencies and international organizations see salmon assessment needs and research priorities. Also aim to increase communication about funding appropriation in research management. Improving interface b/w science and management to provide forums that better link the research provided for decisions.

Title: "Salmon Scales - Eats and Feats", North Pacific - International Year of the Salmon Public Bridging Event

Where: Portland, OR, USA

When: May 2019

Overview:

- Continue to raise awareness, build support and facilitate partnerships with the International Year of the Salmon in the Pacific Northwest through an engaging and entertaining evening public reception.
- Build a multi-dimensional program that utilizes the themes - connection - knowledge - action. The program will feature:
 - 1) CONNECTION - Salmon Cuisine in the Kitchen,
 - 2) KNOWLEDGE - IGA Expedition Presentation,
 - 3) ACTION - Salmon stakeholders at various scale highlighting salmon successes
- Featured Ocean Wise Executive Chef and IYS Ambassador Chef Ned Bell

Objectives:

- Highlight the North Pacific Anadromous Fish Commission and the overall International Year of the Salmon vision, outcomes and themes from the initiation in 2019 through to 2022
- Demonstrate the international collaboration at the political, scientific level from Japan, Russia, Korea, Canada, the United States and other hemispheric partners
- Share IYS successes to date through the various signature projects, partnerships, identified "projects" and "events"
- Highlight the importance of salmon and people through a public food and cuisine based event that highlights the connection from the high seas to your dinner plate.

Title: IYS Dignitary Reception, Ecotrust Natural Capitol Center

Where: Portland, OR

When: May 2019

Partners: NPAFC, Wild Salmon Center, Washington Department of Fish and Wildlife, National Marine Fisheries Service

Purpose: Continue to raise awareness, build support and facilitate partnerships with the International Year of the Salmon in the Pacific Northwest through an engaging and entertaining evening reception. **Objectives:**

- Highlight the overall vision, outcomes and themes from the IYS from the focal year 2019 through to 2022
- Demonstrate the international collaboration at the political, scientific level from Japan, Russia, Korea, Canada, the United States and other hemispheric partners
- Share IYS successes to date through the various signature projects, partnerships, identified "projects" and "events"
- Firmly position the value proposition - the "why this matters", "what makes this unique", and "how to get involved" within the Pacific Northwest

Title: 2019 Hokkaido Salmon Conference on International Year of the Salmon: Salmon and Our Life, **Where:** Sapporo, Japan

When: May 18, 2019

Partners: Hokkaido Salmon Network, Hokkaido National Fisheries Research Institute, Hokkaido Research Organization

Overview: The Hokkaido Salmon Conference is an annual event for the public, hosted by the Hokkaido Salmon Network in alliance with various groups interested in salmon and their habitats. The present conference focused on IYS to consider salmon's socio-economic and cultural consequences in human life, following up four keynote presentations on IYS activities, salmon production in changing ocean environments, salmon cultures, and fisheries economics.

Title: Salmon Café 2019: Finding Our Salmon

Where: Morioka, Japan

When: June 15, 2019

Partners: Tohoku Marine Science Project, Iwate Prefecture

Overview: The Salmon Café is annually held in Morioka, Iwate, northern Japan in order to support the recovery from the 2011 earthquake/tunami disaster in the Sanriku coast by the Tohoku Marine Science Project. At the opportunity of the International Year of the Salmon in 2019, the forum aimed that people took looks at various aspects of salmon in the world, Japan and local areas, and conceived our future living with salmon. IYS activities including an outline of the International Gulf of Alaska Expedition 2019 were introduced with ocean migration of Japanese chum salmon and causes of their marine mortalities.

Title: American Fisheries Society Meeting 2019

Where: Reno NV, USA

When: September 2019

Overview:

The IYS Coordinator attended and supported 3 IYS associated sessions:

- Multi-scale Impacts of Climate Change and Human Activities on Salmon Productivity
- The Science of Pacific Salmon Conservation: Foundations, Myths, and Emerging Insights
- From Grassroots to Mainstream: How Informed Advocacy and Social Branding Can Drive Conservation of Fish and Wildlife

The IYS Coordinator also attended a Salmon Science Social organized by SFU, connected with AFS staff to build connections with IYS, and networked with salmon professionals.

Title: JSFS Hokkaido Division Open Symposium on Research Activities for Sustainable Management of Chum Salmon in the International Year of the Salmon

Where: Sapporo, Japan

When: November 3, 2019

Partners: Hokkaido Division of Japanese Society of Fisheries Science, Hokkaido Research Organization, Hokkaido National Fisheries Research Institute

Overview: Following up the IYS Local Symposium on “Sustainable Management of Chum Salmon in Changing Environments” held in Tokyo March 2018, the present symposium was organized by the Hokkaido Division of Japanese Society of Fisheries Science (JSFS). The program included 8 keynote presentations focusing on the growth, migration and survival of juvenile chum salmon in the early ocean life. Extreme seawater temperature changes and growth reduction of juvenile chum salmon in the coastal waters might cause their early marine mortalities, resulting in recent low adult returns in northern Japan.

Title: First Nations Fisheries Council Assembly

Where: Harrison BC, Canada

When: November 2019

Overview: The IYS Director, IYS High Seas Coordinator and IYS Coordinator attended. The theme of this assembly was “Amplifying Voices: Strength in Unity for First Nations Fisheries”.

The IYS Director gave an overview presentation of the IYS Signature Projects and discussed how the FNFC might be involved in the High Seas Expedition and Likely Suspects Project.

The Assembly presentations included updates on the work of the FNFC, a special Indigenous youth-led panel where they presented research projects related to fish, habitat and water, along with presentations from government partners. There were fisheries management discussions which related to operational, policy and legislative issues.

Title: Salmon Ocean Ecology Meeting

When: March 3-5, 2020

Where: Hopkins Marine Station, Monterey, CA, USA

Objectives: Recent decades featured significant trends and variability at multiple dimensions of marine habitat for salmon. Interactions between predator demand, environmental variability, hatchery practices, and salmon population dynamics need to be elucidated, modeled, and ultimately may need to be mitigated. We envision a salmon ocean ecology meeting that focuses on these aspects of the seascape and provides applications of and introductions to relevant survey and modeling tools.

Outcome: The IYS Secretariat sent three of their staff members to present at the symposium. The IYS High Seas Coordinator gave a presentation on the High Seas Expeditions, including some preliminary results from the 2019 GoA survey and some information on the upcoming 2020 GoA survey. The IYS Coordinator gave an overview the IYS including the overall themes of IYS: to connect people and organizations, generate knowledge, advance technology and data systems, and communication and outreach from local to hemispheric scales. She also presented updates on other IYS Signature Projects, such as the Likely Suspects Framework, Data Mobilization and ROAM. The NPAFC Intern gave a presentation about stable isotopes in the High Seas. By characterizing winter phytoplankton carbon 13 and nitrogen 15 isoscapes in the Gulf of Alaska, the NPAFC Intern along with UBC and TINRO-Center researchers aim to: i. (i) provide a GoA isotope baseline for application in ocean productivity and trophic studies, (ii) identify spatial variation in isotope signatures that can be used to trace salmon foraging locations and migration and (iii) validate existing predictive models for GoA isoscapes.

Title: American Fisheries Society Western Division Annual General Meeting

When: April 12-16, 2020 – *cancelled due to COVID-19*

Where: Pinnacle Hotel, Vancouver, BC

Description: For their annual meeting the AFS Western Division is hosting 25 symposia on a variety of topics. Four symposia are being organized by IYS partners, and the IYS Coordinator will be presenting an oral presentation on the progress and implementation of the IYS.

Objectives:

- This meeting will highlight the myriad and successful ways boundaries have been crossed and intersections navigated in fisheries and aquatic sciences to achieve desired outcomes.
- A special focus will be given on generating outcomes from the diversity of symposia presented.
- Outcomes may include publications, proposals, recommendations, agreements, identification or clarification of uncertainties, and other action items

Title: Marine Socio-Ecological Systems: Navigating global change in the marine environment symposium

When: May 25-29, 2020 – *postponed to 2021 due to COVID-19*

Where: Yokohama, Japan

Description: The focus of the symposium is on the integrated assessment of multiple ocean uses across sectors including fisheries, renewable energy, coastal development, oil and gas, transport, and the need for conservation. Emphasis will be on the methodological and empirical challenges involved in the human dimensions in integrated ecosystem assessments. IYS staff will present a poster and give an oral presentation.

Objectives:

- MSEAS 2020 presents a diverse and exciting range of topics to showcase the world's commercial, recreational, and indigenous fisheries.
- It will provide an important forum for identifying the critical developments needed over the coming decades to ensure the world's oceans are managed sustainably for the benefit of current and future generations.

Title: 2020 Hokkaido Salmon Conference on Current and Future Status of Salmon

When: May 30, 2020

Where: Sapporo, Japan

IYS Highlighted Outreach Activities and Events

Title: Salmon and Blueberry Festival

Where: Vancouver BC, Canada

When: July 2019

Overview: Ocean Wise Chef Ned Bell gave a wild salmon cooking demonstration and short aquaculture educational talk at the University of British Columbia (UBC). The IYS Coordinator and Assistant IYS Coordinator attended, and handed out informational brochures and other materials as they and talked to students about IYS.

Title: Coho Festival 2019

Where: Vancouver BC, Canada

When: September 2019

Overview: IYS had an exhibitor's booth which engaged children in salmon cut out colouring activities while parents and adults were given informational brochures and other salmon-related information such as Salmon Safe wine list.

Title: Sapporo Salmon Festival 2019

Where: Sapporo, Japan

When: September 16, 2019

Overview: The Sapporo Salmon Festa is an annual event for citizens to celebrate chum salmon returns in the Toyohira River running through downtown Sapporo. The Sapporo Salmon Museum (host organization) and collaborative organizations/groups exhibited various materials to learn the life history of salmon and their habitat conservation. The Hokkaido National Fisheries Research Institute displayed several posters to promote International Year of the Salmon in Japan.

Title: Fall Salmon Festival

Where: Sapporo, Japan

When: October 5, 2019

Overview: The Fall Salmon Festival was held in the front square of the JR Sapporo Station, downtown Sapporo, Japan, on October 5, 2019. This annual event was hosted by the Hokkaido Set Net Fisheries Association with local fisheries associations to promote the consumption of salmon caught in the coastal areas of Hokkaido. Several hundred participants were treated with traditional salmon egg bowls and salmon soups. Staffs of the Hokkaido National Fisheries Research Institute (HNFRI) set a booth including posters, flags and a computer quiz program, so that people learned the IYS program and associated NPAFC and HNFRI activities for the sustainable conservation of high-seas salmon.

Title: 25th Anniversary of the Chitose Aquarium and IYS Jointed Event: Stories of Fish and Salmon in Hokkaido

Where: Chitose, Japan

When: October 14, 2019

Overview: The Chitose Aquarium celebrated its 25th anniversary on September 10, 2019. This memorial year was also a focal year for International Year of the Salmon (IYS). In conjunction with the Fisheries Agency of Japan and Hokkaido National Fisheries Research Institute, the Chitose Aquarium hosted an Anniversary/IYS event with Sakana-kun, a unique "fish-specific" talent and also a guest associate professor of Tokyo University of Marine Science and Technology. Sakana-kun and the aquarium director Mr. Kikuchi gave informal

lectures for 2,300 participants (mainly kids) by easy to understand and interesting stories of salmon and other local fishes in Hokkaido.

Title: IYS 2020 Gulf of Alaska Expedition

When: March 11 – Apr. 6, 2020

Where: Gulf of Alaska

Description: Charter of the Canadian fishing vessel the *Pacific Legacy* to continue the research conducted in the Gulf of Alaska in 2019 by the scientists aboard the R/V Prof. Kaganovskiy.

Objectives:

- The major scientific objective is to ultimately discover the fundamental mechanisms that regulate salmon in the North Pacific Ocean
- test the hypothesis that the fish that survive to the end of the first ocean winter are the individuals that grew faster in the first few months in the ocean
- demonstrate international cooperation on research

Deliverables: This event has been picked up by popular media outlets. Some of the articles include:

<https://www.vicnews.com/news/international-salmon-research-expedition-sets-sail-for-alaska-from-victoria/>

<https://www.timescolonist.com/business/on-the-hunt-for-secrets-of-pacific-salmon-1.24095815>

<https://www.timescolonist.com/news/local/scientists-score-salmon-bonanza-on-pacific-expedition-1.24108081>

<https://www.timescolonist.com/news/local/where-oh-where-did-the-salmon-go-expedition-puzzled-1.24112883>

<https://www.timescolonist.com/news/local/ship-returns-after-international-team-spends-month-at-sea-studying-salmon-1.24114627>

More information: <https://yearofthesalmon.org/gulf-of-alaska-expedition2020/>

Title: 2020 High-Seas Salmon Research in the Bering Sea

When: July 15-August 7, 2020

Where: the Bering Sea

Description: Under the agreement of Japanese scientists, the research plan for the Japanese Bering Sea summer survey was sent to the Korean Polar Research Institute. The Japanese survey will cover similar area as the Korean survey, beginning in late July and completing in August 2020. They are currently investigating if it possible to add biological sampling to the survey, such as eDNA and zooplankton, but this is not currently in the cruise plan. Depending on funding availability, the Japanese and Korean scientists could potentially collaborate and the total coverage of the two countries would be quite broad in the summertime. The additional data for zooplankton and phytoplankton from these surveys would be useful for IYS as it would assist to characterizing the environment and prey distribution of salmon.

Title: Sapporo Salmon Festa 2020

When: September 2020 (TBD)

Where: Sapporo, Japan

Title: Fall Salmon Festival

When: October 2020 (TBD)

Where: Sapporo, Japan

Overview of Developed IYS Signature Projects

2019 International Gulf of Alaska Expedition

- International Gulf of Alaska Expedition Launch, Vancouver BC (February 2019)

In February 2019, an International Gulf of Alaska Expedition was completed with 21 scientific personnel from five Pacific Rim countries, Canada, Japan, Korea, Russia and the United States, aboard the chartered 62 m Russian R/V *Professor Kaganovskiy*. The expedition was organized by Richard J. Beamish, the Pacific Salmon Foundation and NPAFC with \$1.2M in funding from private individuals, industry, government agencies and NGOs. Significant funding was provided by the British Columbia Salmon Restoration and Innovation Fund (BC SRIF).

Prior to leaving, the scientific team received a send-off from Richard J. Beamish, the scientist who conceived and planned the expedition, and dignitaries including the Honourable Jonathan Wilkinson the Minister of Fisheries, Oceans and the Canadian Coast Guard, and the Honourable Lana Popham, Minister of Agriculture from the Province of British Columbia. The vessel visited 58 stations in the Gulf of Alaska and returned to Vancouver on March 18, 2019.

The end-of-winter trawl survey provided a comprehensive understanding of the abundance, condition, country of origin and location of stocks from salmon producing countries. This information is needed to understand how climate and the changing ocean environment affect salmon production. As the first in decades to study salmon in the winter high seas, the voyage set a precedent for addressing gaps in our knowledge through survey work of salmon, plankton and physical conditions in the central Gulf of Alaska.

- Deliverables:
 - a. Mini-documentary by Stuart McNish of Oh Boy Productions
 - b. Preliminary results presented at PICES workshop in Victoria, BC (October 2019)

2020 International Gulf of Alaska Expedition

To follow the 2019 GoA Expedition, a second International Gulf of Alaska expedition was officially announced in January 2020. The 2020 GoA Expedition is planned to depart from Vancouver, BC on March 11, 2020 and return on April 5, 2020. The research vessel will be the Canadian commercial trawler known as the *Pacific Legacy*. This vessel will accommodate up to 15 researchers, with participants from all five of NPAFC's member countries: Canada, Japan, Korea, the United States and Russia. A trawl net was custom built to match the specifications of the *Professor Kaganovskiy* from the previous year's expedition as closely as possible. The official cruise plan by Beamish and Riddell (2020) was submitted in January 2020 and accepted as NPAFC Doc. 1870.

Funding for the expedition was available through government organizations, foundations, the commercial fishing industry and private donations, the Pacific Salmon Foundation (PSF), NPAFC (trawl net), and the governments of Canada and the Province of B.C. (BC SRIF). As the supporting financial agency, the PSF will manage the financial aspects. The expedition will be a contribution to the International Year of the Salmon and coordinated with the North Pacific Anadromous Fish Commission. We are confident that the results of both the 2019 and

2020 expeditions will continue to demonstrate the value of this research and the value of continuing these surveys to monitor ocean changes and impacts of rearing Pacific salmon.

- Deliverable:
 - IYS taking the lead on a voyage send-off media event on March 11th (Victoria, BC Point Hope Ship Yards)

Citation

Beamish, R.J., and B.E. Riddell. 2020. Preliminary cruise plan for the second Gulf of Alaska expedition. NPAFC Doc. 1870. 9 pp. Fisheries and Oceans Canada, Pacific Biological Station, and Pacific Salmon Foundation (Available at <https://npafc.org>).

2021 Pan-Pacific High Seas Expedition

- 2021 Pan-Pacific High Seas Expedition Planning Ongoing

Building on the single vessel expedition conducted from February-March 2019 in the Gulf of Alaska, a 2021 International Pan-Pacific Expedition has been proposed. If implemented, it will employ up to five research vessels operating simultaneously to survey the full breadth of the North Pacific Ocean in winter 2021. Similar to the 2019 voyage, these vessels would carry leading scientists from Canada, Japan, Korea, Russia and the United States, all committed to answering questions about the mechanisms affecting the productivity and distribution of salmon. Aside from increasing the area surveyed, the 2021 Expedition would diversify data collection. Three to four vessels would cover a pan-Pacific grid while another would conduct fine scale oceanographic research to provide greater detail for our understanding of how salmon interact with the high seas environment. In conjunction with the tentative 2021 winter surveys, NPAFC member countries would conduct coastal and high seas salmon surveys during the spring, summer and fall of 2020–2021. The 2021 Expedition has the potential to provide a platform for international collaborative ecosystem research to monitor the distribution, abundance and productivity of salmon to directly inform fisheries management and enforcement decisions to be made in an increasingly uncertain future.

"Likely Suspects" Framework

In 2017, IYS, led by NPAFC in the Pacific and NASCO in the Atlantic, joined The Atlantic Salmon Trust in developing a framework for conceptualizing survival issues impacting Atlantic salmon during the freshwater migration phase and subsequent marine phases. The approach would take known historical data on salmon abundance and survival and construct a broad-scale model to quantify and partition the losses of salmon in freshwater and at sea. The goal of this will be to identify where and how mortality factors have changed between earlier periods of higher marine survival and the more recent/current low survival phase. It aims to provide coherent guidance on how future research on survival can be identified and prioritized:

- The concept positions candidate mortality factors (Likely Suspects) within an overall spatio-temporal framework (the Likely Suspects Framework) covering the freshwater migration and marine phases of the life cycle. Key geographical areas and periods where mortality factors are known or thought to operate are characterized as ecosystem “domains”.
- Domains can be identified at various locations, ranging from freshwater to overwintering feeding areas, and will be associated with different mortality factors.

Management on the local and regional level can be adapted to reflect the known likely suspects, whether that includes habitat restoration, harvest restrictions, or enhancement opportunities.

Data Mobilization

- Expedition data mobilization to be launched in 2020

One of the goals of the IYS Expeditions is to have all the data collected during the IYS international surveys (2019, 2020, and 2021) openly available to the science community. To achieve this, we have partnered with the Tula Foundation (Victoria, BC) and are currently working with them to develop the methods to standardize and share the data. The science team will have first access to publication of information, but it will be open to all users via a website to be maintained at UBC. Beginning in 2020, and in collaboration with the Tula Foundation, data collected in both the 2019 and 2020 expeditions will be integrated into the Canadian Integrated Ocean Observing System, a component of the Global Ocean Observing System (GOOS) framework. This will allow us to provide the data openly to all users.

IYS Secretariat Publications 2019

NPAFC. 2019a. Report of the Proceedings for the IYS Workshop: *International Year of the Salmon Workshop on Salmon Status and Trends*, Vancouver, BC, Canada, January 23–24, 2019. Edited by J.R. Irvine, K. Chapman, and J. Park. N. Pac. Anadr. Fish Comm. Tech. Rep. 13: 91 p. (Available at <https://npafc.org>)

NPAFC. 2019b. Report of the Proceedings for the IYS Workshop: *First International Year of the Salmon Data Laboratory (ISDL) Workshop*, Vancouver, BC, Canada, January 25, 2019. Edited by S. Akenhead, N. Bendriem, and J. Park. N. Pac. Anadr. Fish Comm. Tech. Rep. 14: 31 p. (Available at <https://npafc.org>)

NPAFC. 2019c. Second NPAFC-IYS Workshop on *Salmon Ocean Ecology in a Changing Climate*. Portland, Oregon, USA, May 18–20, 2019. Edited by J. Park and L. Tessier. N. Pac. Anadr. Fish Comm. Tech. Rep. 15: 204 p. (Available at <https://npafc.org>)

IYS Secretariat Publications 2020

Harris M.K. Proven potential of integrated ecosystem research in expanding human understanding of the high seas environment (January 28, 2020) North Pacific Anadromous Fish Commission (NPAFC) Newsletter. February 2020 No. 47, pp. 12–19 (Available at <https://npafc.org>).

Tessier L.R. The response of Pacific salmon and their prey to changing ocean conditions and acidification (January 28, 2020) North Pacific Anadromous Fish Commission (NPAFC) Newsletter. February 2020 No. 47, pp. 20–27 (Available at <https://npafc.org>).

Tessier L.R., Taylor S. and Saunders M. Progress of The International Year of the Salmon initiative in establishing the conditions for understanding the mechanisms affecting Pacific salmon productivity in a rapidly changing world (January 21, 2020) Book of Abstracts—20th Salmon Ocean Ecology Meeting, Monterey Bay CA, USA, p. 9 (Available at <https://ecosystemoceanography.com/soem2020/>).

Harris M.K., Vazhova A., Mark Saunders M., Radchenko V., Pakhomov E.A. and Hunt B.P.V. Winter phytoplankton isoscapes in the Gulf of Alaska: decoding Pacific salmon ecosystems on the high seas (January 21, 2020) Book of Abstracts – 20th Salmon Ocean Ecology Meeting, Monterey Bay CA, USA, p. 8 (Available at <https://ecosystemoceanography.com/soem2020/>).

Taylor S., Radchenko V., Tessier L.R., Saunders M. and Harris M.K. Investigating factors influencing Pacific salmon in the marine environment: the International Year of the Salmon Pan Pacific High Seas Expedition 2021 (January 21, 2020) Book of Abstracts – 20th Salmon Ocean Ecology Meeting, Monterey Bay CA, USA, p. 7 (Available at <https://ecosystemoceanography.com/soem2020/>).

Harris M.K. The 2019 International Gulf of Alaska Expedition: a pioneering exploration of the overwintering conditions of Pacific salmon (January 16, 2020) PICES Press: Newsletter of the North Pacific Marine Science Organization. Winter 2020 Vol. 28 (No. 1), pp. 27–29 (Available at <https://meetings.pices.int/>).

Tessier, L.R., Saunders, M., and Radchenko V.I. Building Connections for Salmon Resilience and Sustainability in a Changing Climate: The Role of International Year of the Salmon. Regional Fishery Body Secretariats Network (RSN) Newsletter. Our unknown success stories: Unveiling our achievements (In Press).

Taylor S., Radchenko V., Tessier L.R., Saunders M. and Harris M.K. The International Year of the Salmon High Seas Expedition 2021: Towards Effective International Ocean Science Collaboration in a Rapidly Changing World (In Press) Book of Abstracts—2020 Marine Socio-Ecological Systems International Symposium, Yokohama, Japan.

Tessier L.R., Taylor S. and Saunders M. The role of International Year of the Salmon in establishing the conditions to develop the knowledge required for the effective management of Pacific salmon at local and hemispheric scales (In Press) Book of Abstracts—2020 Marine Socio-Ecological Systems International Symposium, Yokohama, Japan.

IYS Secretariat 2019/2020

- Mark Saunders—IYS Director
- Stephanie Taylor—IYS High Seas Expedition Coordinator (November 2019), Former IYS Coordinator (August 2019)
- Laura Tessier—IYS Coordinator (November 2019), Former Assistant IYS Coordinator/NPAFC Intern (July 2019)
- Moronke Harris—Assistant IYS Coordinator/NPAFC Intern (September 2019), IYS Administrative Assistant (April 2020)
- Camille Jasinski—Public Relations and Communications Coordinator (January 2020)