

2025 WA-BC Conference Symposia

As of November 7, 2024

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1. Adaptive Management: What works, what doesn't and what we have learned

Moderators

- Alf Leake, Alf.Leake@bchydro.com
- Murdoch McAllister, m.mcallister@oceans.ubc.ca

Abstract

Adaptive management in fisheries is a dynamic and systematic approach to managing fishery resources that allows for flexibility and learning from outcomes to improve decision-making processes. This approach is crucial in addressing the complexities and uncertainties inherent in understanding the outcomes of fishery policy choices, and ideally involves planned experiments to compare and evaluate policy choices. This idea is conceptually simple but very difficult to implement and there are very few examples of successful projects. The purpose of this symposium is to identify historical applications of adaptive management to see what worked, what didn't work, and what lessons were learned. Key areas of interest include hydro-fish interactions, hatcheries, and how time-frames for adaptive management projects align or conflict with policy objectives.

2. Angling Ecological Knowledge in the Pacific Northwest

Moderators

- Steve Johnston, stephendanijohnston@gmail.com
- Scott Hinch, scott.hinch@ubc.ca

Abstract

Globally, anglers represent the fastest growing sector within many fisheries and collectively represent millions of hours per year observing and accumulating knowledge related to their local ecosystems. This local ecological knowledge has been shown to improve fisheries management when a pathway for information flow and data development exists between fishers and the scientific and management communities. Anglers represent a knowledge holding community that extends back to the 18th century on the Pacific coast of North America which has grown significantly since that time and represents one of the largest user groups of ecologically significant species. This angler's ecological knowledge (AEK) represents an under-utilized resource. AEK has a limited platform for dissemination, and communication between anglers and researchers lack a framework for how this information can be directly shared and included within the scientific literature. Further, knowledge-sharing generally occurs in a unidirectional manner with the scientific community providing information that is consumed and used by anglers. Co-development of a framework for knowledge sharing requires an understanding of both perspectives, yet, there are limited opportunities for anglers to formally share their experience. A first step in

co-development is providing a platform where scientists and managers can learn from anglers and the AEK they have within local ecosystems.

3. Changing estuaries and their functions: climate change, cumulative effects, and conservation

Moderators

- Phoebe Gross, phoebe_gross@sfu.ca
- Jon Moore, jwmoore@sfu.ca

Abstract

Estuaries are ecologically and culturally important, yet are under ongoing pressures from the cumulative effects of human activities and climate change. In this time of change, there is a need for applied science that clarifies how these stressors are impacting these complex ecosystems and their functions, such as providing important nursery habitat for young salmon and other fishes. There are also many exciting initiatives aimed to restore or protect estuaries given past, present, and future stressors. Here we aim to bring together speakers that are working on illuminating the dynamics of estuaries and their fishes, and the application of this knowledge to guide and catalyze restoration and management activities of diverse groups and rightsholders.

4. Collaborative Science through Angler-Researcher Partnerships

Moderators

- Sean Simmons, sean@anglersatlas.com
- Larry Phillips, lphillips@asafishing.org

Abstract

Anglers have a wealth of knowledge and experience from their time spent on the water. Fisheries science is often enhanced by including this fishing community in data collection and research. It is important to continue to empower and equip anglers with tools and opportunities to participate in the scientific process. Many successful projects have shown that this collaboration can result in stronger trust between the fishing, science and management communities due to increased confidence in data collection methodologies, a greater understanding of research results, and increased buy-in to resultant management decisions. This session showcases how partnerships with the fishing community leads to more robust science and improved data quality to inform management.

5. Communicating the Biology, Ecology, and Conservation Needs of Native Char

Moderators

- Judy Neibauer, jneibauer9395@gmail.com

Abstract

Across the native range of Char, populations have been considered at risk and listed under state, provincial, and federal authorities for over 30 years. Scientific data greatly facilitates an understanding of the species and their threats. The diversity of life history and migration patterns of Native Char results in a broad range of freshwater and marine habitats used, which face natural and anthropogenic challenges. Populations have benefited from conservation in some areas, but remain disconnected, in low abundance, and subjected to numerous threats. Native Char continue to be misunderstood or unknown by the general public. Meanwhile, climate change is expected to exacerbate threats across their range. Findings from new research inform species status assessments. Involving people and communities in science, sharing successes, and discussing problems, leads to development of new pathways or mechanisms for conservation. Within the human landscape, Native Char are an indicator for clean water and watershed health. Clearly communicating this idea may lead to further conservation across communities and watershed or international boundaries. This symposium provides the opportunity to share science across boundaries. Presentations may be organized to address the following topics: 1) current species status, 2) new information, 3) management and conservation actions, and 4) communication efforts. Developing clear science and conservation goals, in partnership with people and communities, may alleviate misunderstandings and provide for a more holistic approach for conservation and management of our Native Char across boundaries.

6. Community Engagement Through Volunteer Fish Operations

Moderators

- Natasha Kacoroski, nkacoroski@gmail.com

Abstract

How do you work with volunteers and non-profits as a fisheries professional? There are benefits and challenges. Learn what works well from a volunteer and coordinator perspective, while hearing about long term community partnerships to support salmon in the greater Lake Washington basin area.

7. Cross Border Collaborations of Sturgeon Research and Management

Moderators

- Laura Heironimus, Laura.Heironimus@dfw.wa.gov
- Sarah Schreier, sarahjschreier@gmail.com

Abstract

Sturgeon are long-lived native fish that migrate beyond international borders and spawn in freshwater rivers along the West Coast of North America. The objective of this symposium is to foster the international collaboration of researchers, scientists, managers, and policy-makers across the Canada and United States border, working towards the common goal of advancing sturgeon conservation. All aspects of sturgeon biology and life history, as it pertains to sturgeon in Washington or British Columbia waters, are relevant to this working group, and we are especially interested in work that explores the cross-regional relevance of their research and data.

8. Current Trends & Knowledge of Aquatic Organism Passage Through Culverts.

Moderators

- Shane Scott, shane@ssaenvironmental.com

Abstract

Culverts, bridges, and similar in-water structures rank second only to dams in their obstruction of fish and other aquatic organisms. These structures have a detrimental impact on habitat connectivity for numerous species, as they restrict access to crucial spawning and rearing habitats. Significant efforts have been devoted to the removal and replacement of culverts to enhance aquatic organism passage (AOP). These projects are resource-intensive and may take years to complete. In addition, the number of AOP barriers is so numerous that many will not be addressed in a timely manner, if at all. However, there are many opportunities to improve AOP through barrier modification where removal or replacement is not feasible or timely. This symposium will present information on the current knowledge of aquatic organism passage (AOP) through culverts. Presenters will discuss methods of identifying and characterizing the adverse effects of culverts on AOP. They will present information on potential mitigation measures. Case studies will be presented to demonstrate the array of potential mitigation measures. They will also discuss what can be done to rehabilitate a culvert when replacement is not practicable. Potential methods used to quantify the benefits of corrective actions will also be discussed.

9. Enhancing Fisheries Management and Research: Innovations and Applications of Passive Integrated Transponder (PIT) Technology

Moderators

- Brian Beckley, brian.beckley@vodaiq.com
- Warren Leach, warren@oregonrfid.com

Abstract

Passive Integrated Transponder (PIT) tags are crucial in fisheries research and management, enabling tracking and study of aquatic organisms. This proposed symposium at the WA BC American Fisheries Society meeting in Vancouver, BC, will convene experts to discuss the latest applications, technological advancements, and future directions of PIT tags. Topics will include: 1. Current Applications: Utilizing PIT tags for stock assessments, migration studies, and survival rates across diverse aquatic environments 2. Technological Advancements: Innovations in PIT tag functionality, such as enhanced data accuracy and integration with other monitoring technologies like acoustic telemetry. 3. Data Management: Approaches for managing the extensive data from PIT systems, including software that supports real-time analysis. 4. Conservation Efforts: The role of PIT tags in endangered species recovery and habitat restoration projects. 5. Policy and Implementation: Challenges and opportunities in standardizing tagging protocols worldwide. The symposium aims to showcase PIT tags as pivotal tools in fisheries science, fostering knowledge exchange and collaboration to improve sustainable management practices. Participants will gain insights into overcoming research challenges and enhancing the effectiveness of conservation efforts through advanced technology.

10. Fish Passage in the Pacific Northwest

Moderators

- Adam Crispin, adam.crispin@shanwil.com
- Zach Sherker, sherkerz@mac.com

Abstract

Rivers and streams are amongst the most fragmented systems globally. From large-scale hydroelectric dams to small-scale barriers, such as culverts, floodgates, tidegates, and dykes, in-stream structures have culminated to form an intricate, and poorly quantified, matrix of barriers to movement in salmon-bearing streams. Until recently, there was very little work done to quantify the totality of these barriers and effectively remediate them. In 2022, NOAA awarded \$39.8 million dollars to Tribes, communities, and local governments to remove fish barriers and restore salmonid habitat across Washington state. This recognition and allocation has been touted as a major success in the salmon

community, and with hundreds of thousands of barriers remaining along the North American range of Pacific salmon, we now need to maximize coordination amongst fish passage agencies and researchers to streamline further restoration of habitat connectivity for Pacific salmon. As federal, state, and provincial governments continue to prioritize fish passage and habitat, fisheries scientists, managers, and advocates play key roles in planning and implementing these projects across our region. This broad symposium would focus on four areas associated with fish passage restoration: Prioritization, Laws and Regulatory Frameworks, Barrier Remediation Works, and Effectiveness Monitoring.

11. Frontiers in forage fish research—novel methods and emerging topics

Moderators

- Anna McLaskey, a.mclaskey@oceans.ubc.ca
- Brian Hunt
- Jacob Lerner
- Matt Baker

Abstract

Forage fish are a key link in marine ecosystems that connect plankton food webs to higher trophic levels. In addition to being primary prey for many species, forage fish are culturally and economically important to many Indigenous communities and regional fisheries. Yet despite their important ecosystem roles, forage fish remain understudied due to most research effort being focused on the predatory species that they support. Forage fish are sensitive to environmental fluctuations and both top down and bottom up forcings. There is a critical need to understand these dynamics in the northeast Pacific and elucidate the mechanisms through which forage fish will impact other food web components and human communities in a changing climate, e.g., through energy provision and thiamine transfer (vitamin B1, an essential micronutrient). This session aims to advance the leading edge of forage fish research in the northeast Pacific by bringing researchers together across borders to identify data gaps and research needs, and the tools required to address these. We invite presentations using a variety of methods and approaches to investigate climate and top predator effects on forage fish; and the effect of these forcings on forage fish roles within ecosystems, including food web production and nutrition.

12. Hatchery Evaluations Across Borders

Moderators

- Hayley Nuetzel, hnuetzel@critfc.org
- Brian Beckman, brian.beckman@noaa.gov
- Phil Sandstrom, Philip.Sandstrom@dfw.wa.gov

Abstract

As a follow-up to 2024, WA-BC AFS will again host a session focused on Hatchery Evaluations at the 2025 Annual Meeting on March 11-13 in Vancouver, BC. Our chapter is home to hundreds of hatchery programs throughout Washington and British Columbia managed by various entities, and we want to hear about yours! Monitoring and evaluation programs for hatchery production inform and enable best practices to achieve programmatic goals. Of particular interest for this session will be talks highlighting results of hatchery evaluations that intend to or have informed adaptive management at various scales (from single program to regional). This session will provide the opportunity to compare goals, methods and results identified by different agencies, species, and regions. We invite those active in hatchery program management/evaluation to contribute abstracts for inclusion as presentations in this symposium. Examples of topics might include: Implementation of adaptive management strategies considering costs and benefits of hatchery programs; Case studies or novel approaches to characterize hatchery program outcomes and impacts; Discussion of non-conventional roles for hatcheries in the recovery of species, mitigating environmental degradation, sustaining fish dependent communities, or improving the resilience of salmon populations to climate change; Illustrating gaps in current knowledge and identifying research priorities.

13. Hydropower & Fish: Advancing Science and Solutions for a Sustainable Future

Moderators

- Drew Stang, dstang@fourpeaksenv.com

Abstract

Understanding interactions between hydropower operations and fish populations is integral to managing aquatic ecosystems throughout the Pacific Northwest. Evaluating these interactions relies on interdisciplinary approaches, combining fish ecology, physical habitat monitoring and modeling, and engineering, with each system presenting unique challenges. This session will focus on advancements in approaches and technology that have improved our understanding of how hydropower facilities influence fish ecology. Topics may include but are not limited to fish passage and entrainment, innovations in safe passage technologies and designs, quantitative evaluation methods, and habitat considerations both upstream and downstream. By bringing together a broad range of expertise, this session will provide a comprehensive overview of the future of fish passage in hydropower systems and its implications for sustainable fisheries and energy in the Pacific Northwest.

14. Impacts of Pink Salmon Population Growth in the North Pacific

Moderators

- Haley Oleynik, h.oleynik@oceans.ubc.ca
- Neala Kendall, neala.kendall1@dfw.wa.gov
- Eduardo Martins, Eduardo.Martins@unbc.ca

Abstract

Abundance of pink salmon in the North Pacific Ocean has increased steadily since the 1970s, likely due to warming ocean conditions and hatchery supplementation. This increase has coincided with declines in other species' populations, and research indicates strong relationships between pink salmon abundance and growth, size, productivity, and survival of other salmon species, particularly sockeye, and non-salmon species. The assumed underlying mechanism for these relationships is competition for resources in the open ocean, as increased pink salmon populations in the North Pacific likely alter trophic dynamics. Because pink salmon mature and return at age-two, and demonstrate an exaggerated two-year alternation between high and low abundance, they offer an opportunity to directly test hypotheses about top-down interactions by comparing even and odd years. While a proliferation of research has focused on the population growth of pink salmon and its ecological impacts on the food web, including the abundance and growth of other salmon populations, more research on the relative contribution of this population growth to the ecosystem dynamics of the North Pacific is necessary to inform monitoring and management efforts. Our session will focus on the role that pink salmon have played in shaping trophic dynamics and competition, as well as the causes and implications of their population boom. We are seeking presentations that explore impacts of pink salmon on ecosystem dynamics in the North Pacific, both from a mechanistic perspective and at a population scale.

15. Looking Back and Forward at Cooperative Fisheries Research

Moderators

- Keith Bosley, keith.bosley@noaa.gov
- Paul McCluskey, paul.mccluskey@noaa.gov
- Sean Simmons, sean@anglersatlas.com
- Noelle Yochum, nyochum@tridentseafoods.com

Abstract

Sustaining productive fisheries is challenging given the scale and dynamic nature of our ocean ecosystems, combined with decreasing federal and state budgets for fisheries management. This is exacerbated by unprecedented and unpredictable changes that occur due to climate shifts. Commercial fishermen are experiencing these changes in real-time, noting patterns in space and time and then adapting to these changes. Beyond having a practical perspective that can inform the processes and mechanisms influencing fish populations and fisheries production, their maritime expertise is incredibly valuable for scientists conducting at-sea research. Over the last two decades there has been increasing recognition of the value of cooperative research, combining the knowledge and expertise of researchers and fishermen. The aim of this symposium is to reflect on how cooperative (and collaborative) research

has been conducted, including what has been challenging and what has been successful; and to think about industry-science exchange going forward in support of sustainable fisheries.

16. Out of the frying pan and into the fire: the status and future of nearshore fish communities confronted by coastal development and climate change

Moderators

- Grace Melchers, g.melchers@oceans.ubc.ca
- Brian Hunt

Abstract

Coastal nearshore regions are located at the land-sea interface and are among the most productive ecoregions on earth. They provide habitat for many culturally and economically important fish species, which in the Pacific Northwest includes Pacific salmon who depend on the nearshore environment during their vulnerable early marine life stage as they migrate seaward. As coastal population growth and associated urban and industrial development continue to expand in Washington and British Columbia, the nearshore region is often the first and most heavily impacted of marine ocean habitats. Concomitantly, nearshore regions are at the forefront of climate change impacts, exposed to the extremes of ocean warming, loss of habitat-forming species such as kelp and eelgrass, and impacted by sea level rise. There is an urgent need to better understand how fish communities are impacted by anthropogenic actions and the interactive effects of climate change to inform guidelines for coastal development that consider the importance of the nearshore region for diverse fish species. This session welcomes presentations and discussions on all fish species and communities in relation to urban and industrial development and climate change, on topics including but not limited to the importance of the nearshore for the health and survival of fish life stages, populations, and communities; habitat assessment; biodiversity monitoring; restoration actions including indices and thresholds to guide targets; novel impacts and research methodologies.

17. Pinniped Interactions

Moderators

- Kylie DaCunha, kdacunha@genuswave.com
- Steven Rossi, srossi@lgl.com
- Megan Moore, megan.moore@noaa.gov

Abstract

Seals and sea lions (collectively known as pinnipeds) play a large role in our marine and aquatic ecosystems, acting as predator and prey for various species. Though populations were once severely depleted due to human impact, numbers seem to have generally increased in the past two decades. Given that these animals are sheltered under the Marine Mammal Protection Act (MMPA), negative interactions between humans and pinnipeds are avoided whenever possible. However, this becomes challenging in instances such as: where pinnipeds predate on threatened/endangered fish populations particularly at passage “bottlenecks” in riverine environments, when they are caught as bycatch during fisheries operations, or when they interact with aquaculture facilities leading to escapements and loss of profit. The purpose of this symposium* is to identify the best available research quantifying such interactions, connect those interested in the topic, and gather solutions that prevent conflict. *Note: Though pinnipeds are the main focus of this symposium, relevant presentations referencing other marine mammal species interactions can also be included in this session.

18. Predator-prey dynamics in fishery systems

Moderators

- Haley Oleynik, h.oleynik@oceans.ubc.ca
- Murdoch McAllister, m.mcallister@oceans.ubc.ca

Abstract

A key ecological dynamic in fisheries systems is predation, as fish population dynamics are dominantly regulated by the tradeoff between a fish’s ability to obtain resources and the danger of being eaten. As abundance and productivity of marine species transform under changing ocean conditions and anthropogenic stressors, so too do interactions between predators and prey. A population increase in a predator species can lead to increased mortality on prey species which can impact productivity and growth, among other dynamics. Increases in marine mammal population abundance in the Northeast Pacific, for example, have been correlated with reduced marine survival rates of some economically important fish stocks including Pacific salmon and herring. Similarly, in freshwater environments, fish populations can exhibit ‘predator pits’ where population recovery is inhibited by predation. Our session will focus on the role predation has played in shaping ecosystem dynamics and fishery outcomes. We are seeking presentations that explore predator-prey relationships including research about the impact of predation on fish population dynamics, incorporation of predation mortality into fish stock assessment, implications of depredation for fish populations and fisheries, either directly or indirectly, diet analyses to elucidate predator-prey relationships, predator-driven Allee effects, depensation, and evaluation of past attempts to control predator populations in both marine and freshwater systems. The goal of our session is to further understanding of predation in fishery systems, connect ecological impacts to fishery responses, and elucidate ecosystem level implications of shifting predator-prey dynamics.

19. Salmon Ocean Ecology: Cross-border connections in the Salish Sea & Beyond

Moderators

- Laurie Weitkamp, Laurie.weitkamp@noaa.gov
- Cameron Freshwater, Cameron.Freshwater@dfo-mpo.gc.ca
- Will Duguid
- Nicole Christiansen
- Liz Duffy eduffy@lltk.org

Abstract

This symposium will focus on cross-border marine connections for salmon in local Salish Sea waters and across the Pacific (and Atlantic) Rims. It serves as both the 24th Salmon Ocean Ecology gathering and the 2nd post-Salish Sea Marine Survival Project (SSMSP) gathering. With increasingly frequent marine heat waves and stronger El Niño and La Niña events, some salmon populations have flourished while others floundered. As a result of this “no analog future”, management agencies increasingly struggle to predict the number of salmon that will return each year using ecological relationships and environmental indicators that worked in the past. The SSMSP identified climate-driven changes in the food web – both the availability of food for salmon, and the increasing impacts of salmon predators – as the largest contributors to declining marine survival, with habitat loss, pollution, and disease also having negative impacts. A better understanding of how salmon interact with complex marine ecosystems, and how those interactions change in response to extreme environmental conditions, is necessary to ensure the sustainability of salmon fisheries and inform salmon recovery. This workshop-style symposium will feature themes on all aspects of salmon marine ecology, including: growth; changing habitat use; winter ecology; movement and migratory behavior; ecology, predation, and food webs; and survival, stress, and health. We encourage presentations focused on advances made in the science and implementation of SSMSP findings, as well as presentations identifying opportunities for further research, action, and transboundary collaboration.

20. Sockeye Salmon in a Changing World

Moderators

- Patrick Zubick, pzubick@syilx.org
- Jeff Fryer, fryj@critfc.org

Abstract

Sockeye salmon are one of the most enigmatic species of Pacific Salmon across their range. Due to their abundance, sockeye in Washington and British Columbia provide vast ecosystem and cultural benefits, by supporting ecosystems, fisheries (subsistence, commercial and recreational) and eco-tourism. These benefits are declining however as sockeye in Washington and BC are demonstrating asynchronous population trends across their range. This is best demonstrated by 2024 when the Columbia River set a

record for escapement since 1938, while the Fraser River is predicted to have its lowest sockeye escapement on record. Due to population decline, sockeye salmon have been the target of restoration and reintroduction efforts to support and increase their resiliency broadly, but these efforts too have not had consistent results across different populations. While there are many factors impacting sockeye populations, like climate change, and habitat loss, these factors are clearly not having the same impact on all populations. These asynchronous trends present an opportunity for research to elucidate beneficial management actions to support sockeye populations. This symposium will focus on past, current and future trends of sockeye populations and the factors driving these trends. We will also explore how these different factors have, and will continue to impact current and potential future sockeye populations from their southern extent through to northern British Columbia.

21. Thermal refugia within freshwater ecosystems: habitat use by Pacific salmon in response to climate change.

Moderators

- John Gray, jgray180@mail.ubc.ca
- Scott Hinch, scott.hinch@ubc.ca

Abstract

Climate change is rapidly warming freshwater ecosystems and thermal tolerance by all life stages of Pacific salmon (*Oncorhynchus* spp.) are being exceeded throughout the year. This is particularly concerning as freshwater habitats are further fragmented and isolated by land-use or hydrological features, increasing their exposure to thermal and other stressors. Species like Chinook (*O. tshawytscha*), Coho (*O. kisutch*), and Sockeye (*O. nerka*) spend significant portions of their life rearing and migrating in riverine and lacustrine habitats, making them particularly susceptible to climate change-driven shifts in thermal freshwater environments. There is good evidence that some populations can seek cooler environments in lakes or stream confluences where preferred or optimal temperatures may exist, or they may simply avoid areas that are thermally stressful. However, little is known of how salmon behaviourally thermoregulate by utilizing smaller-scale in-stream or in-lake thermal variability. Land-use practices resulting in warming freshwater ecosystems and the preponderance of stream barriers to salmon movements means that access to thermal refugia may become more limited, resulting in increased physiological stress, reduced energy reserves, reduced growth, and increased mortality. An improved understanding of salmon thermal habitat-use and selection is needed to inform effective and proactive conservation and management priorities in light of continued climate change. This symposium intends to bring scientists, managers, and practitioners together to share research of how salmon are using thermal refugia, at both small- and large spatial scales, to enhance their survival in this era of climate change. It is hoped that meaningful partnerships which extend beyond borders will be forged, promoting the sharing of knowledge and the advancement of understanding in this critically important issue.

22. The Salmon Prize Symposium — Forecasting Sockeye Salmon Runs in Bristol Bay, Fraser River and Columbia River Systems

Moderators

- Sean Simmons, sean@anglersatlas.com
- Curry Cunningham (TBD)

Abstract

Salmon forecasting is an important part of fisheries management and agencies across the West Coast of North America spend significant efforts developing forecasts for their stocks of Pacific Salmon. Historically, the Ricker model has been used to forecast Salmon returns, however in recent decades a number of other approaches have been proposed to improve the predictive accuracy of Salmon forecasting. In 2024, the new approach was tested, called the Salmon Prize, as a way to encourage teams of scientists to develop and test new hypotheses and models by forecasting the Sockeye runs from 14 different runs from Bristol Bay, Fraser River and Columbia. This symposium will focus on the three areas of forecasting: (i) the official forecasts developed by the management agencies; (ii) the new approaches generated through the Salmon Prize; and (iii) anyone else who wants to share their approach to forecasting Sockeye Salmon. At the end of the symposium, we will hold an open discussion where presenters can discuss their approaches and share their thoughts on how to iterate and further improve the forecasting models. We will also be discussing the 2025 Salmon Prize and how teams can participate in that competition.

23. Thinking Outside the Crab: Sharing Knowledge to Find Innovative Approaches to European Green Crab Response and Removal

Moderators

- Adrienne Akmajian, marine.ecologist@makah.com
- Dawson Little, dawson.little@makah.com

Abstract

European green crabs are a global invader, impacting the livelihoods and culture of Tribes, First Nations, and coastal communities throughout Washington and British Columbia. Green crabs connect people across vast waterways and landscapes in common goals to understand, manage, and reduce their presence and impact. While we are often separated by our respective borders, communities, agencies, and industries, learning from one another can lead to innovation in our methods and help identify collaborative and complimentary ways to combat this harmful species. We invite presentations from Tribes, First Nations, industries, agencies, and communities doing on-the-ground work to share strategies

and tools used in conducting monitoring, research, and removal of European green crab. Further, we encourage ideas for innovative approaches, sharing observations and lessons learned, and discussion to find commonalities and opportunities for collaborative and complimentary management across waterways and borders that encourage community-led approaches.

24. Using integrated population models (IPM) to identify demographic drivers of population dynamics in fisheries research

Moderators

- Eduardo Martins, Eduardo.Martins@unbc.ca
- Neala Kendall, neala.kendall1@dfw.wa.gov
- Haley Oleynik, holeynik@mail.ubc.ca

Abstract

Integrated population models (IPMs) combine population and individual data within a joint statistical framework. This approach improves the accuracy and precision of vital rates and allow previously unidentifiable parameters to be estimated. IPM results can be used in retrospective analyses (backwards-looking methods to determine how previous variations in population growth relate to variation in demographic rates), and prospective analyses (forwards-looking methods of predicting how population growth rates may respond to future demographic changes). Combined, these techniques help to identify drivers of population change and forecast population dynamics under novel and uncertain environmental conditions. This symposium will highlight the use of IPMs in fisheries research as a valuable tool for identifying critical life stages and vital rates that contribute to population dynamics. While data integration is also used within statistical stock assessment models, this symposium will focus on mechanistic IPMs centered on matrix population models (MPMs). MPMs are increasingly being used to describe fisheries data, particularly for populations of conservation concern where demographic stochasticity can impact population persistence. We also invite presentations from researchers working with MPMs and other mechanistic population models that are the core of IPMs.

25. Using management strategy evaluations to support fishery management of salmon and steelhead

Moderators

- Jan Ohlberger, jan.ohlberger@dfw.wa.gov

Abstract

Management strategy evaluation (MSE) is an application of structured decision-making to fisheries. MSEs use forward simulations to identify which management strategy among a set of candidates is most likely to achieve biological and socio-economic objectives, such as ensuring population persistence while providing harvest opportunities. MSEs are often applied to inform harvest management decisions but have also been applied in a range of contexts including hatchery, habitat, and predator management. MSEs project population dynamics forward based on parameters that are typically estimated from past observations using statistical models such as integrated populations models. In a fishery management context, simulations may be used to quantify long-term impacts of different harvest control rules (e.g., spawner escapement goals or harvest rates). Performance metrics that reflect management objectives can then be used to inform decision-making, which often involves complex trade-offs among competing objectives (e.g., population recovery vs. fishing opportunity). While MSEs are increasingly used for marine species, their application to fishery management of salmon and steelhead is relatively new. This symposium aims to bring together practitioners interested in MSEs to share ideas and approaches, discuss best practices, and facilitate collaboration. Our focus will be on harvest management of salmon and steelhead but talks on other species and structured decision making more broadly are encouraged. We invite speakers to present work on a broad range of topics, including the development of simulation models, accounting for uncertainty in MSEs, types of harvest control rules, the science-policy interface, and existing examples of MSE-informed management, among other topics.