MANAGEMENT OF SENSITIVE MARINE ECOSYSTEMS:
LESSONS FROM CASE STUDIES TO IDENTIFY SOLUTIONS FOR BAYNES SOUND

An Invitational Workshop
April 3 - 4, 2014, Simon Fraser University, Burnaby Campus
April 5th – Fieldtrip to Baynes Sound

Background and Objectives

In February of 2013, Fisheries and Oceans Canada published a science advisory report on the evaluation of proposed ecologically and biologically significant areas (EBSA’s) in marine waters of British Columbia (BC) \(^1\). The premise of the report was that Canada’s Oceans Act states that “conservation, based on an ecosystem approach, is of fundamental importance to maintaining biological diversity and productivity in the marine environment”.

Throughout coastal BC many of the ecosystems identified in this report experience multiple pressures including increased shipping, expanding shellfish and finfish aquaculture, commercial fisheries, seaweed harvesting, and the primary resource industries of forestry and mining. Overarching all these pressures is ocean acidification. Marine waters off the west coast of BC are particularly vulnerable due to the upwelling of cold CO\(_2\) enriched waters. Recent massive die offs of scallops and oysters have been attributed to declining oceanic pH.

Baynes Sound is an example of one of these sensitive ecosystems experiencing multiple stressors. It is an important bird area supporting globally important populations of threatened and endangered species; a stellar sea lion haul out; and together with the adjacent Lambert Channel, it is an important herring spawning region. It is also a key tourist destination offering world-class aquatic activities such as kayaking and boating. Effective management is paramount to protect biodiversity and productivity in this area.

**Steering Committee**
Dr. Leah Bendell Young, Professor, Biological Sciences, Simon Fraser University (SFU)
Dr. Ian Birtwell, Retired Scientist, Fisheries and Oceans Canada
Dr. Patricia Gallaugher, Director, Centre for Coastal Science and Management, SFU
Ms. Shelley McKeachie, Co-Chair/Director, Association for Denman Island Marine Stewardship Society

**Sponsors**
The Pacific Salmon Foundation
Simon Fraser University
- Faculty of Environment
- Faculty of Science

**Workshop Facilitators**
Patricia Gallaugher, Director, Centre for Coastal Science & Management, SFU
Joan Sharp, Senior Lecturer, Biological Sciences, SFU

**Guidelines for Dialogue**
These guidelines are designed to create opportunities to maximize participation, foster a safe place for dialogue, enable vigorous differences to surface without disrespecting anyone, promote an open and full exchange of information/ideas and generate an environment of shared learning.

- Presenters respect time by keeping to their allotted timeframe
- Participants respect time through concise comments and questions
- Participants identify themselves when speaking
- Participants listen and speak with respect
- Participants try to find a good way to say difficult things
- Let there be humour, where we explore tough issues, with a spirit of learning, creating a healthy and constructive learning environment
- If there are any questions or concerns please bring them to the facilitators

**Workshop Outcomes**
- Conveners report
- Website with resource and workshop materials
AGENDA
Hosted by the Centre for Coastal Science and Management, SFU

Day One - Thursday, April 3, 2014, Halpern Centre, Room 126, Simon Fraser University, Burnaby

9:00 am Breakfast (hosted)

9:30 am Registration

9:45 am Welcome and Introduction
    Leah Bendell, Professor, Biological Sciences, SFU

10:15  Sensitive Ecosystems in BC, Baynes Sound: What is there and why is it unique?
      (10 minute presentations followed by dialogue)
      1) Herring spawning region
         Doug Hay, Retired Scientist, Fisheries and Oceans Canada
      2) Beach spawning forage fish habitats: surf smelt and Pacific sand lance
         Ramona deGraaf, Executive Director, Sea Watch Society
      3) Important salmonid habitat
         Colin Levings, Retired Research Scientist, Fisheries and Oceans Canada

11:15 Break

   4) Marine mammal habitat
      Juan Jose Alava Saltos, Adjunct Prof/Postdoctoral Fellow, Resource and Environmental Management, SFU
   5) Important Bird Area (IBA)
      Ron Ydenberg, Professor, Biological Sciences, SFU
   6) Tourism
      Peter Karsten, Denman Island Parks

Dialogue Questions
   • What are the ecological services that Baynes Sound provides that makes it unique?
   • What are the data gaps in our knowledge of Baynes Sound within the context of a “sensitive marine ecosystem”?
   • What are the research priorities?

Notes:
12:15 pm  Lunch (hosted)

1:15-4:30  Case Studies: Examples of other sensitive ecosystems
          (15 minute presentations followed by dialogue)

1) Narragansett Bay
   Carrie Bryon, Research Assistant Prof., Univ. of New England, Portland, Maine

2) Wadden Sea
   Jens Enemark, Secretary General, Common Wadden Sea Secretariat

3) Isle de Magdalen
   Lucie d’Amours, Biologist and Educational Advisor, Cégep de la Gaspésie et des Îles &
   Magdalen Islands Committee ZIP

Dialogue Questions
- What are the common stressors and what are the solutions to manage them?
- How is Baynes Sound similar to and different from these national and international examples?

5:30  Dinner (hosted) Club Ilia

Day Two – Friday, April 4, Halpern Centre, Room 126, Simon Fraser University, Burnaby

8:30 am  Breakfast (hosted)

9:00  Potential Stressors in Baynes Sound
       (10 minute presentations followed by dialogue)

1) Ocean Acidification
   Debby Ianson, Research Scientist, Institute of Ocean Science

2) Aquaculture
   Shelley McKeachie, Co-Chair/Director, Association for Denman Island Marine
   Stewardship Society

3) Seaweed Harvesting
   Ian Birtwell, Retired Scientist, Fisheries and Oceans Canada

4) Other stressors including poaching, mining (coal) and others (group discussion)

Dialogue Questions
- What are the most critical stressors for Baynes Sound?
- What solutions can address these stressors?

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12:00 pm  Lunch (hosted)

1:00  Moving Forward
(15 minute Case study presentations followed by dialogue)

1) Japan
Marjo Vierros, Adjunct Senior Fellow, United Nations University

2) Washington
Bill Dewey, Manager, Public Policy and Communications, Taylor Shellfish Farms

3) Integrated Multi-trophic Aquaculture
Duncan Knowler, Associate Professor, Resource and Environmental Management, SFU

4) Shellfish Aquaculture Ecosystem Interactions
Francis Juanes, Professor, Biology, University of Victoria (presenting) and
Sarah Dudas, Canada Research Chair in Shellfish Ecosystems Interactions Research Program, Vancouver Island University (co-author)

Dialogue Questions:
What are the common characteristics that allowed these case studies to move forward? Can these characteristics be applied to regions with multiple demands on resources such as Baynes Sound?

3:00  Synthesis Discussion
Dialogue Questions:
Building on the lessons from the case studies, can we develop a management approach that will ensure the biological and ecological integrity of Baynes Sound while achieving economic benefits in these sensitive ecosystems?

4:30  Program Concludes

Day Three – Saturday, April 5, 2014, Optional Field Trip to Baynes Sound – 10:30 am – 10:00 pm

A maximum of 8 participants will travel to Baynes Sound to view the area and talk with community members. Departing from SFU Burnaby at 9:00 am, we will catch the 10:30 ferry from Horseshoe Bay and drive up the coast of Vancouver Island to Buckley Bay where we will catch the ferry to Denman Island. We will have a late lunch at the Seniors’ Hall where we will be joined by community representatives who will share local knowledge of the area. At 3:00 we will walk the beaches at low tide exploring Henry Bay, McTalfe and Hinton Beaches. We will begin the return trip at 5:00.

Please email (lauriew@sfu.ca) if you would like to participate.

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Participants (confirmed at time of printing)

Juan Jose Alava Saltos, Adjunct Prof/Postdoctoral Fellow, Resource and Environmental Management, SFU
Ken Ashley, Faculty Director, Rivers Institute and Ecological Restoration, BCIT
Leah Bendell, Professor, Biological Sciences, SFU
Ian Birtwell, Retired Scientist, Fisheries and Oceans Canada
Robbie Bourdon, Graduate Student, Biology, University of Victoria
Laura Busheikin, Denman Island Trustee, Islands Trust
Carrie Byron, Research Assistant Professor, University of New England, Portland, Maine (remote participant)
Brenna Collicut, Graduate Student, Biology, University of Victoria
Steven Cross, CEO, SEA-Vision Group
Lucie D'Amours, Member, Cégep de la Gaspésie et des Îles and Magdalen Islands Committee ZIP
Ramon de Graaf, Executive Director, Sea Watch Society
Bill Dewey, Manager Public Policy, Taylor Shellfish Farms
Jens Enemark, Secretary General, Common Wadden Sea Secretariat
Patricia Gallaigher, Director, Centre for Coastal Science and Management, SFU
Doug Hay, Retired Scientist, Fisheries and Oceans Canada
Larry Heisketh, Owner, Summer Breeze Aquaculture
Debby Ianson, Research Scientist, Institute of Ocean Science
Michelle James, Executive Director, Underwater Harvesters' Association
Francis Juanes, Professor, Biology, University of Victoria
Peter Karsten, Denman Island Parks
Duncan Knowler, Associate Professor, Resource and Environmental Management, SFU
Karen Kohfeld, Professor, Resource and Environmental Management, SFU
Dave Lacelle, Chair, Comox Valley Environmental Council
Colin Leving, Retired Research Scientist, Fisheries and Oceans Canada
Shelley McKeachie, Co-Chair/Director, Association for Denman Island Marine Stewardship Society
Barb Mills, Co-Director, Association for Denman Island Marine Stewardship Society
Michele Patterson, Program Lead, Aquatic Foods Initiative, Institute for Coastal Research, Vancouver Island Univ.
Isobell Pearsall, Strait of Georgia Program Coordinator, Salish Sea Marine Survival Project, Pacific Salmon Foundation
Vanessa Scott, Wetland Keeper, Amber Way Biofiltration Wetlands
Joan Sharp, Senior Instructor, Biological Sciences, SFU
Connor Stefanison, Biology Student, SFU/Wildlife Photographer
Terri Sutherland, Research Scientist, Centre for Aquaculture and Environmental Research, Fisheries & Oceans Canada
Greg Thomas, Salmon/Herring Program Coordinator, Resource Management, Fisheries and Oceans Canada
Michelle Tung, Program Operations Manager, BC First Nations Fisheries Council
Marjo Vierros, Adjunct Senior Fellow, United Nations University
John Werring, Senior Science and Policy Advisor, Suzuki Foundation
Laurie Wood, Coordinator, Centre for Coastal Science and Management, SFU
Andy Wright, Co-Founder, Willowgrove Foundation and Member, Save Our Salmon Foundation
Ron Ydenberg, Professor, Biological Sciences, SFU