Are Transboundary Fisheries Management Arrangements in the North Pacific Seaworthy in Changing Oceans?

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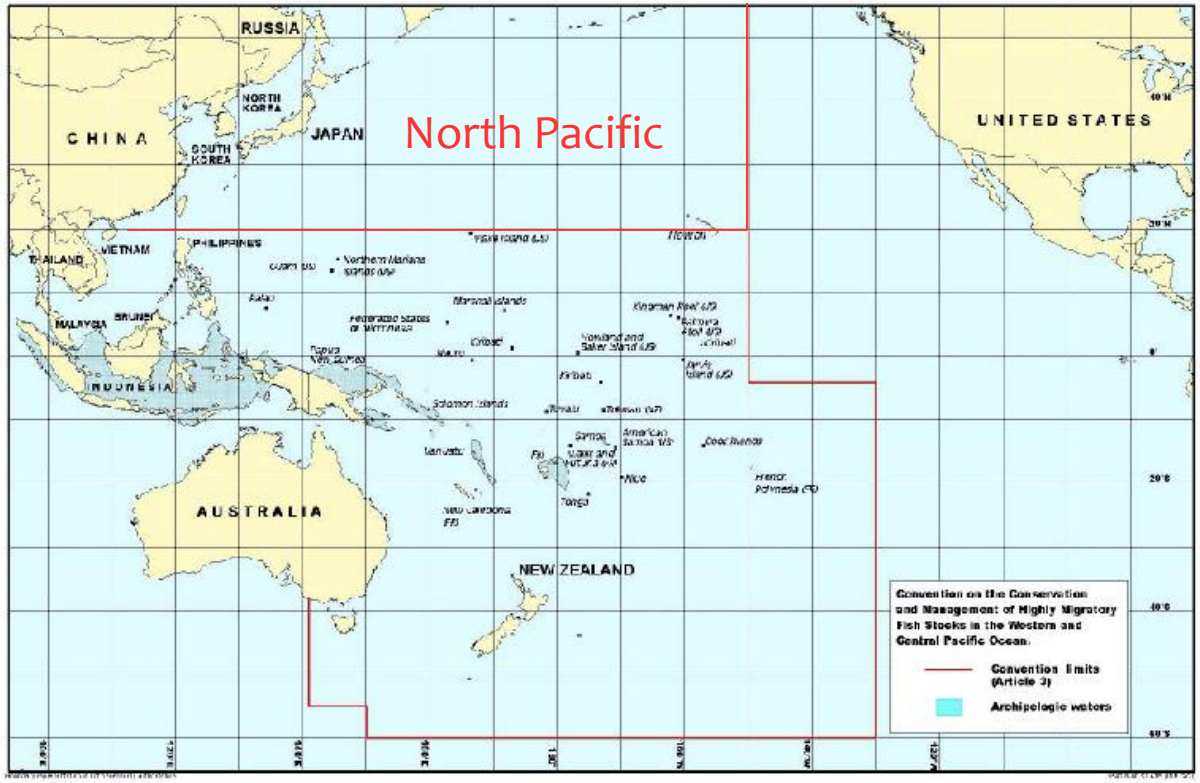
OceanCanada Conference 2018, Aug 27-30, Halifax, Nova Scotia

- Western & Central Pacific Fisheries Commission (WCPFC)
- International Pacific Halibut Commission (IPHC)
- North Pacific Fisheries Commission (NPFC)
- Pacific Salmon Commission (PSC)

WCPFC Treaty

- Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
  - Entered into force in 2004
  - Incorporates modern principles of fisheries management such as the precautionary and ecosystem approaches
  - 26 members, 7 participating territories, 10 cooperating non-members

WCPFC Area


RUSSIA
CHINA
NORTH KOREA
SOUTH KOREA
JAPAN
North Pacific
UNITED STATES
PHILIPPINES
VIETNAM
THAILAND
MALAYSIA
BRUNEI
INDONESIA
AUSTRALIA
NEW ZEALAND
Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean:
Convention limits (Article 3)
Archipelagic waters

Northern Species

Stocks which mostly occur north of 20° N (Art. 11(7))

- Pacific Bluefin Tuna
- North Pacific Albacore
- North Pacific Swordfish
- Debated: striped marlin and blue shark

Responding to Climate Change

International Scientific Committee for Tuna & Tuna-like Species (ISC) – greater collaboration with the North Pacific Marine Science Organization (PICES)

- Assess the impact of climate change on highly migratory species, incorporate climate change into stock assessments and management advice

The Pacific Community – Oceanic Fisheries Programme (SPC-OFP) – further develop the Spatial Ecosystem and Population Dynamics Model (SEAPODYM)

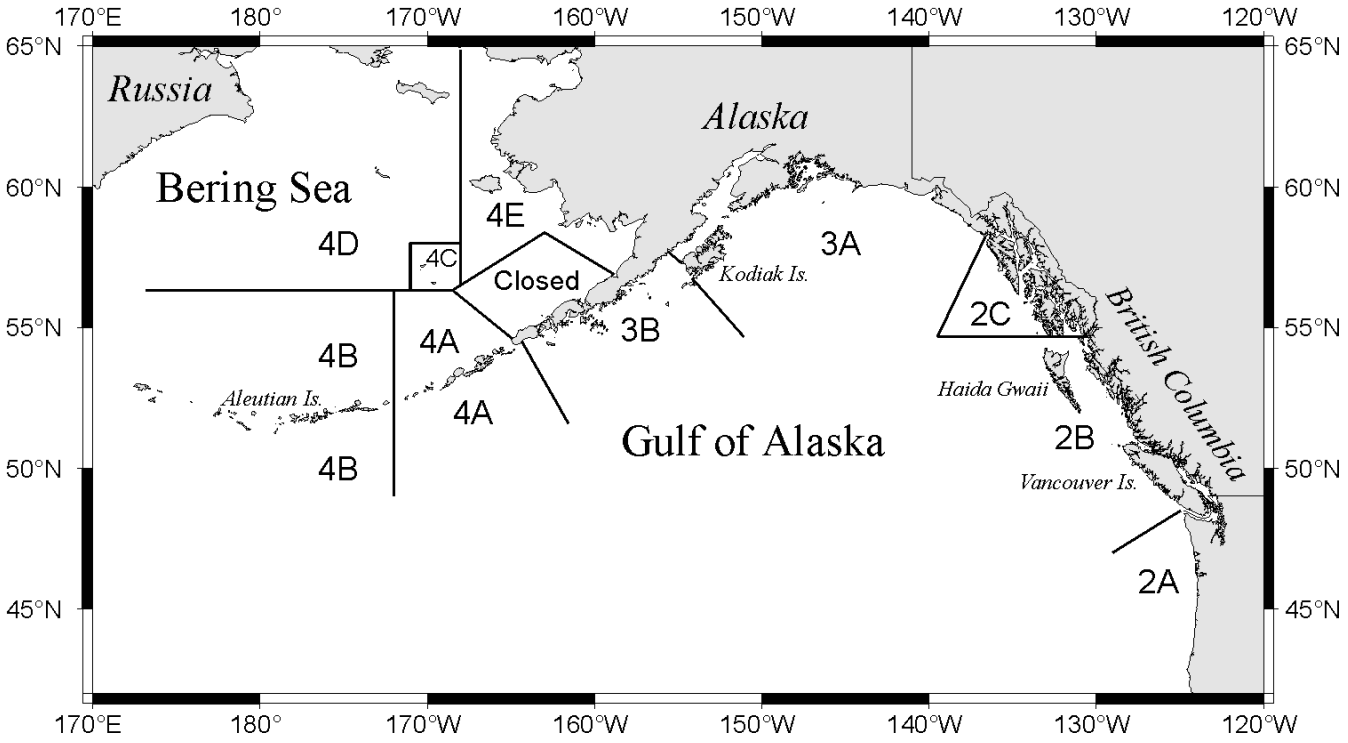
- Help managers make decisions in changing climate

IPHC Treaty

IPHC has been managing the fishery since 1923 under a convention between U.S. and Canada

- Latest amendment came into force in 1979
- Goal is to maintain stock at level that permits optimum yield (art. II (3))

IPHC Area


170°E
180°
170°W
160°W
150°W
140°W
130°W
120°W
65°N
60°N
55°N
50°N
45°N
Russia
Alaska
Bering Sea
4E
4D
4C
Closed
3A
Kodiak Is.
2C
British Columbia
3B
4A
4B
Aleutian Is.
Haida Gwaii
Gulf of Alaska
2B
Vancouver Is.
2A

Catch Allocation

Area 2 is shared between Can. and U.S.

- 1979 Protocol - 60% caught in Can. (Area 2B) and 40% in U.S. (Area 2A and 2C)
- By 1985, stock abundance in Area 2C increased substantially and parties departed from the agreement
- 1985 onward – approx. 50/50 split

Pacific Halibut Fishery Regulations

- Annual catch limits
- Regulatory area boundaries and closed areas
- Gear – trawls prohibited
- Release guidelines
- Logbooks
- Licensing requirement
- Etc.

Responding to Climate Change

- Long-term data shows decadal variations in growth rates and recruitment in response to the Pacific Decadal Oscillation

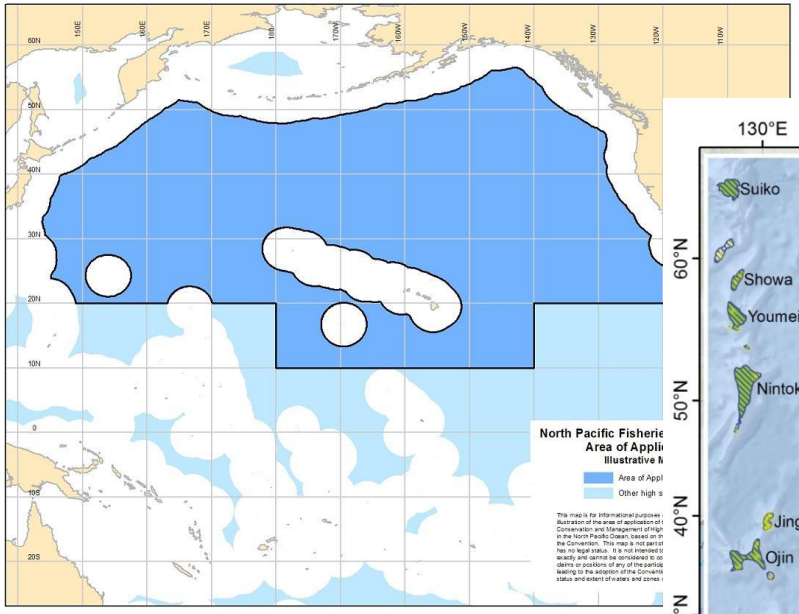
- 5-Year Research Plan includes studies into effects of environmental influences on halibut biology
  - Help reduce uncertainty in stock assessments

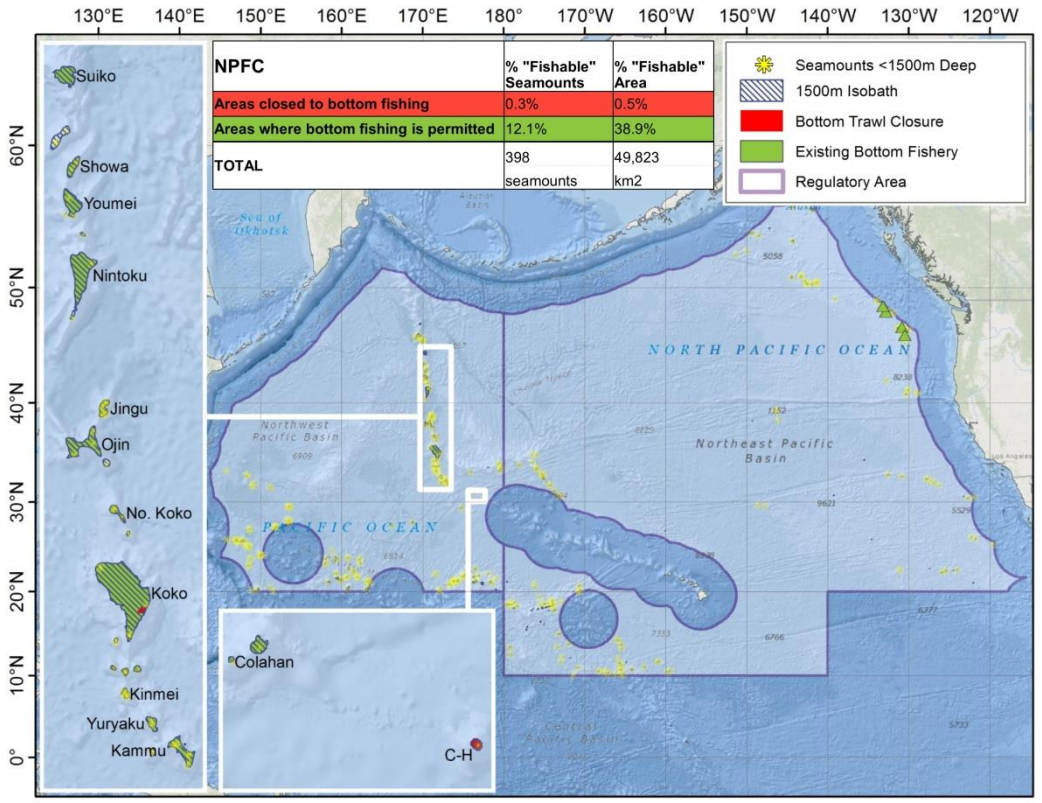
NPFC Treaty

Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean

- Entered into force 2015
- 8 members
- Art. 2 – objective is to ensure long-term conservation and sustainable use of fisheries resources while protecting the ecosystems of the North Pacific
- References the ecosystem and precautionary approaches

NPFC Area





NPFC	% "Fishable" Seamounts	% "Fishable" Area
Areas closed to bottom fishing	0.3%	0.5%
Areas where bottom fishing is permitted	12.1%	38.9%
TOTAL	398 seamounts	49,823 km2

Species

- Pelagics – chub mackerel, pacific saury
- Bottom trawling - primarily for North Pacific armorhead, splendid alfonsino
- Species of concern – deep water corals




Responding to Climate Change

Cooperating with PICES

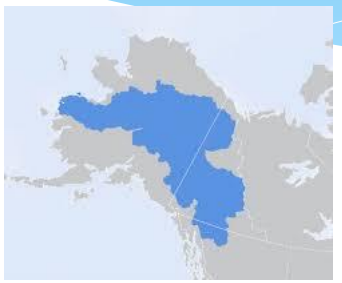
- Agreed to co-sponsor an international symposium on Pacific transition areas; and
- Invite PICES to co-sponsor the NPFC/FAO VME workshop

PSC Treaty

Pacific Salmon Treaty

- Bilateral treaty between Canada and U.S.
- 1985 Pacific Salmon Treaty
  - Amended in 1999 by the Pacific Salmon Agreement
    - From catch ceiling to abundance-based management
  - Periodically re-negotiated Annex IV

PSC Area



Species

Some chinook, coho, chum & sockey runs are listed under ESA

A few chinoook, coho & sockey are threated according to COSEWIC

Annex IV:

- **Ch 1** – Transboundary Rivers
- **Ch 2** – Northern BC and SE Alaska
- **Ch 3** – Chinook
- **Ch 4** – Fraser River Sockey & Pink
- **Ch 5** – Coho
- **Ch 6** – Southern BC & Washington State Chum
- **Ch 8** – Yukon River

Responding to Climate Change

- Recognized as one of the factors affecting chinook in Annex IV, ch. 3. section 1. – recognized as one of the factors that will need to be taken into account in re-negotiations
- Committee on Sci. Cooperation commissioned a report – **Atmospheric and Oceanic Extrema in 2015 and 2016 and their Effect on North American Salmon**
- **A Strategy for Consideration of Annual Variation in Environmental Indicators and Salmon Production and its Implications for Fisheries Management under the PST (2017)**
  - Improve info sharing on env't & bio variability
  - Build capacity to evaluate annual env't variability & incorporate it in forecasts
  - Inform the Commission & sci community on observed variability & its effects on salmon
  - Engage with int'l organization in Year of the Salmon (2018-2020) – incl. NPAFC & PICES
- The need to develop a management framework that responds to rapid changes in the environment identified as an emerging issues in 2018

Are Transboundary Fisheries Arrangements Seaworthy?

Remains questionable:

- Reliance on single-species stock assessment and management
- Socio-economic and political pressures to maximize harvesting
- Allocation mostly based on historic effort
- Limitations of scientific data and understanding
- Limited resources to monitor & research

Improving seaworthiness will require:

- Operational and institutional changes

Outstanding Questions

- Are there best practices for incorporating climate change in fisheries management?
- At what level of an organization should it be incorporated?

Thank you!

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