SAANICH INLET PROTECTION SOCIETY

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Submission to Marine Conservation Caucus and DFO, September 20th 2023

Integrated Fisheries Management Plan (IFMP) for Pacific Herring 2023 – 2024

Our concern is with Area 191, Saanich Inlet, where at present no herring fishery is permitted and no herring spawn currently occurs. SIPS seeks to recreate ecological balance in Saanich Inlet by restoring the fundamental role of herring to the Inlet's ecosystem. As only a few herring are now seen in the Inlet we have sought advice on why there has been no spawn for the last ten years. Suitable spawning habitat is available.

Our submission focuses on two aspects of the IFMP for Pacific Herring. They are:

1. Failure of mathematical models used by DFO to adequately assess and forecast the status of Pacific Herring, and
2. The consequent failure to protect Species at Risk (marine and shore birds) and the inadequate assessment of these species in previous IFMPs for Pacific Herring.

Saanich Inlet Protection Society wishes to acknowledge the assistance of Jim Shortreed, Herring Advocate, in preparing this submission.

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1. Status and Ecological Significance of Pacific Herring[1]

Within living memory herring spawn has taken place at numerous sites within Saanich Inlet, including Goldstream, Tod Inlet, Brentwood Bay, Coles Bay, Pat Bay, and Deep Cove. The last recorded herring spawn occurred in 2012 at Deep Cove and the last spawn recorded at multiple locations was in 2009. Indigenous people used cedar branches to collect roe in Tod Inlet up to 1972 when the last recorded spawn occurred there.

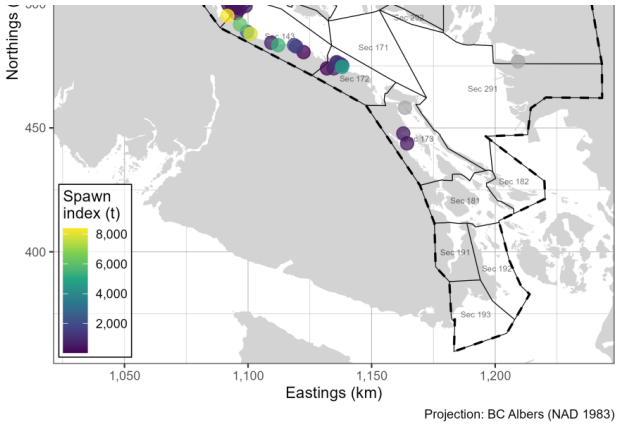


Figure 10. Pacific Herring spawn survey locations, and spawn index in metric tonnes (t) in 2023 in the Strait of Georgia major stock assessment region (SAR; thick dashed lines), and associated Sections (Sec; thin solid lines). The 'spawn index' is not scaled by the spawn survey scaling parameter, q. Missing spawn index values indicate incomplete surveys (grey circles). Units: kilometres (km).

In 2023 DFO herring spawn surveys, after calculation of the DFO spawn index, showed only one spawn location area south of Nanaimo. Note that this location is at the lowest DFO spawn index category. The spawn that occurred in Esquimalt the previous year did not recur in 2023. There is nothing in the southern Gulf Islands, nor around Victoria nor along the east coast of Vancouver Island.

The Food and Bait fishery operated south of Nanaimo until the fishery was closed for lack of spawning herring in 2020. Since 2020 the Food and Bait Fishery has operated north of Nanaimo and now there is no spawn in those areas. This fishery is roundly condemned by both the David Suzuki Foundation and UBC. Amongst other reasons there is evidence from SFU and the State of Washington that there are resident herring that do not migrate offshore. Everywhere the Food and Bait Fishery has been permitted is now lacking spawn.

Similarly, the roe fishery in the Strait of Georgia is fishing the last remaining stocks of herring. If the roe fishery continues, we can expect the same loss of stocks that has occurred in Haida Gwaii.

[1] All Data, Graphs, Maps and Quotations are from the DFO IFMP Pacific Herring Nov 2022 – Nov 2023 and related documents.

The most recent IFMP for 2022 – 2023 includes this description of the ecological significance of Pacific Herring:

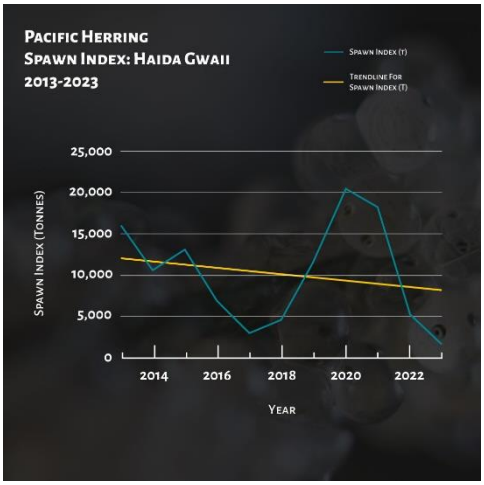
> "Herring are the foundation of the marine ecosystem which coastal Indigenous people have respected and honoured since time immemorial. This is illustrated by the significant role that herring play in the culture and society of coastal communities. Traditional Ecological Knowledge (TEK) shared by elders indicates that as children they were taught to have the deepest respect for herring because it was a *"gift from the creator"*. "*Herring is the basis of the food chain. If we kill all of the herring we kill all of the salmon, we kill all of the halibut, and we kill all of the whales and so on.*" The value of herring for Indigenous people goes much deeper than an economic or monetary value, instead the value of herring is looked at as a part of a much larger picture in which "*everything is one and connected"*. This is the earliest form of what is referred to today as, Ecosystem Based Management."

The Situation in Haida Gwaii and its Significance to the Strait of Georgia (SOG)

We ask why have Pacific Herring largely disappeared from the southern Strait of Georgia (SOG)?

To find answers we examine the situation elsewhere on the BC coast. In Haida Gwaii Pacific Herring have also largely disappeared. The Executive Summary of the recovery plan for Haida Gwaii states,

> "many of the herring populations around Haida Gwaii have significantly declined over the past three decades and remain at low levels today. This decline is having cascading effects on the ecological, cultural, social, and economic systems that depend on *linang* (herring) triggering the need for a plan to rebuild these populations."



<u>Even though the herring fishery in Haida Gwaii is paused there is, at present, no evidence of recovery. The spawn index for 2013 – 2023 shows a continued decline with the current year spawn index almost zero.</u>

Council of Haida Nation, DFO and Parks Canada all agree that the cause of the decline is overfishing.

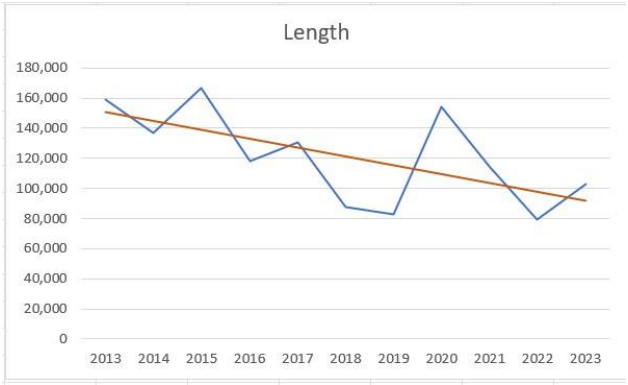
The first overfishing was the reduction fisheries, herring was ground up for fertilizer. The second overfishing was the Sac Roe Fishery.

All this has resulted in the Allee Effect which occurs when a fish stock is so low that the stock cannot rebuild. This results in inefficiencies due to external fertilization and continued natural predation hindering a potential rebuild.

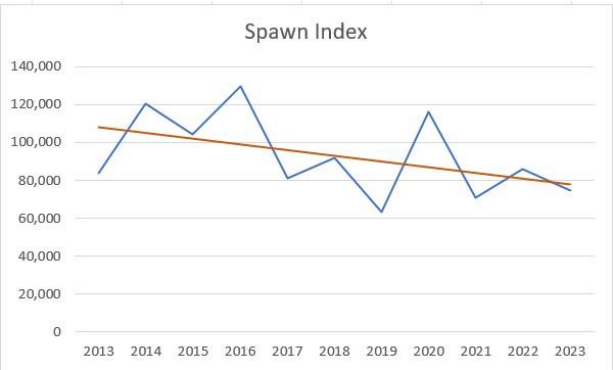
The history of herring fishery in BC is one of a series of stock collapses. In the 150-year BC history since European settlement, the sardine fishery was the first to collapse in the 1940s putting more pressure on the herring fishery which collapsed in 1967. After the 1973 re-opening the food and bait component rapidly increased resulting in a series of changes to management. Four of the five principal management areas are now closed showing a failure of the DFO management program.

Current Situation in Strait of Georgia (SOG)

As DFO is aware, once herring biomass drops below a certain level, recovery becomes very difficult and takes a very long time, if it is still possible. The now closed Haida Gwaii herring fishery is exhibiting no signs of recovery and may not recover. The lack of significant herring spawn south of Nanaimo in the last decade may indicate that the southern Strait of Georgia is at a similar state and may suffer a similar fate if overfishing continues.



This graph shows the spawn distance observed by the flight program for the last 10 years in the Strait of Georgia management area. The downward trend is alarming and potentially disastrous. A collapse seems to be imminent.



The “spawn index” used by DFO shows a similar decline.

The lack of herring is because they are totally intercepted by the DFO permitted herring fishery in the Strait of Georgia (SOG) area.

2. Herring Fishery in the Strait of Georgia, the Species at Risk Act (SARA), and Birds[2]

The current IFMP for Pacific Herring barely mentions birds. Reference is made to the Species at Risk Act but the connection between food availability for marine birds and herring is never mentioned, neither explicitly nor by inference. The plentiful and nutritious food provided by herring spawn allows birds to fatten up before beginning the most arduous time of their life cycle - migration and breeding. It is well known to ornithologists that the timing of herring spawn and bird migration is crucial. Seabirds are a diverse group of species and include not just cormorants and murres, as briefly referenced in the IFMP, but albatrosses, shearwaters, petrels, grebes, mergansers, auklets, murrelets, guillemots, and phalaropes. Migrating shorebirds and others also depend on herring spawn and they include sandpipers, godwits, curlews, yellowlegs, plovers, as well as gulls and geese.

The following are species at risk that depend at some stage of their life cycle on herring spawn and are currently listed under the SARA Act:

Endangered	**Location**	**First Listed**	**Last Review**
Pink-footed Shearwater	BC, Pacific Ocean	2004	2016
Threatened			
Short-tailed Albatross	BC, Pacific Ocean	2003	2013
Hudsonian Godwit	BC		2019
Red Knot	BC		2013
Marbled Murrelet	BC	1990	2012
Lesser Yellowlegs	BC		2020
Special Concern			
Black-footed Albatross	BC, Pacific Ocean		2007
Cassin's Auklet	BC, Pacific Ocean		2014
Long-billed Curlew	BC		2011
Horned Grebe (western)	BC		2009
Western Grebe	BC		2014
Great Blue Heron	BC	1997	2008
Ancient Murrelet	BC, Pacific Ocean	1993	2014
Red Phalarope	BC		2014
Buff-breasted Sandpiper	BC		2012

[2] Assessments of risk are made by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) a committee of government and non-government experts. Schedule 1 of the Act is a List of Wildlife Species at Risk. It can be viewed at www.sararegistry.gc.ca

When herring spawn is exposed by the tides, or blown onshore by the wind, the congregations of birds are exceptional. One of the few places where this spectacle still occurs is from Parksville and Qualicum to Comox. Last winter (2022 -2023) the spawn did not occur, and the birds had to try to find alternative sources of food to fatten up for the northward migration and breeding.

For birds listed as Species at Risk, the lack of food prior to migration may significantly reduce migratory and breeding success. Food provided by abundant herring spawn, which is not mentioned in the IFMP, is more important than the risk of entanglement with fishing gear, which is referenced in the IFMP.

The only references to birds in the current IFMP for Herring are minimal and largely miss the point:

> "Herring plays a critical, foundational role in the ecosystem, supporting numerous economically, ecologically, and culturally significant species. These species include seabirds, especially diving birds such as cormorants and murres, fish, including salmon, perch, and hake, and several marine mammals. The harvest rates are based on mature spawning biomass forecasts, leaving juvenile fish and a significant proportion of the adult population available to support ecosystem processes."
> **Comment:** There are no juvenile fish and no spawn in large areas of the SOG where they formerly existed.
>
> "Encounters with SARA-listed species (e.g. Steller Sea Lion) and other marine mammals and seabirds may occur in herring fisheries. The Department and the fishing industry collect information on these encounters on behalf of the Species at Risk program and Marine Mammal Unit of DFO and Canadian Wildlife Service of Environment Canada".
> **Comment:** These reports are inadequate for protection of species at risk.
>
> "Food and Bait Fishery SOG: Fishers shall take precautions to avoid fishing among seabirds. Fishers are requested to retain all dead birds which are entangled and to release live and unharmed birds by placing them in the water".
> **Comment:** Avoidance of birds is unavoidable as they are strong indicators of where there are herring and spawn. This advice is inadequate.

Appendix 13 of the current IFMP discusses ecosystem risk assessment. The same analysis is presented for the Food and Bait Fishery, and the Roe Herring Seine and Gillnet Fisheries. It states,

"*… the stock status of Pacific Herring is considered to be of moderate concern with a moderate likelihood, herring fisheries are driving the status of the stocks*". Later in the same section we read, "*Further analysis of additional resource management issues not incorporated into the preliminary risk calculations indicate <u>there is a moderate to high potential to over-harvest in this</u>*

fishery, which may pose a risk to the stocks. To account for this additional issue, the overall risk that the fishery poses to the stocks was changed to high".

The Spawn on Kelp Fishery uses totally different fishing methods and has very limited potential for any impact on Wildlife Species at Risk.

While the plan for 2022-2023 provides assurances that "harvest rates will leave sufficient fish to support ecosystem services" we are not convinced. The evidence from a very large number of field observations is to the contrary. There are not sufficient mature fish to provide the spawn previously known to have occurred. **As a result, food for numerous species at risk is no longer available**.

The ecosystem risk assessment in Appendix 13, that is quoted, above seems to support our conclusion that there is a HIGH risk that overfishing will reduce the herring stocks below sustainable levels. There is however nothing in the plan as approved that reflects this revised, HIGH, risk assessment.

Recommendations

While a "precautionary approach" is DFO policy it would seem that the "conservation objective" for the only open Pacific Herring Fishery in BC, that is the Strait of Georgia (SOG), is failing. This is further evidence that the models used to inform DFO's "precautionary approach" and the assumptions which they are based, are flawed, as depletion has been and remains the eventual result in every case where they have been used in BC.

1. **We therefore urgently request an immediate "pause" for all herring fisheries in the Strait of Georgia to allow for recovery before recovery becomes impossible. To be clear for 2023 – 2024 there should be NO food and bait fishery and NO roe fishery. The Maximum Total Allowable Catch should be 0% (zero).**

2. **The "pause" we recommend is also essential for protection of species at risk. To comply with SARA the IFMP for Herring should identify areas in which the species at risk listed above have historically been dependent on herring spawn at any stage in their life cycle, and especially immediately prior to migration. In these areas herring fisheries should be paused indefinitely.**