

Prawn and Shrimp Fisheries: no trend evident in spot prawn catch

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What's happening?

2015 was a good year for the commercial spot prawn (*Pandalus platyceros*) fishery in Howe Sound, with a total catch of 64 metric tonnes, certainly better than the last couple of years (Figure 1). In 2011 prawn catch by trap peaked for the decade with a catch of 118 metric tonnes. The pattern of annual catch is similar B.C. coast wide, with a high catch in 2011 followed by a declining trend to a fifteen-year-low in 2014 and an increase in 2015.¹ (Data were not yet available for the 2016 season, as of the writing of this article.) Spot prawns caught by trap in B.C. are ranked a “Best Choice” by the Seafood Watch program,² and are recommended by the Vancouver Aquarium’s Ocean Wise program.³

A fishery for shrimp and prawn by bottom trawl gear also operates in Howe Sound, harvesting between 11 and 30 metric tonnes of pink and sidestripe shrimp each year (Figure 1). (For 2016, the pre-season pink shrimp biomass forecast for areas off the West Coast of Vancouver Island was only about 20 percent of estimates for the 2015 season. Further, 2016 in-season survey results suggested even lower biomass and catch ceilings were reduced ac-

cordingly.⁴) These shrimp are also recommended by Ocean Wise, but ranked slightly lower, as “Good Alternatives,” by the Seafood Watch program because of the additional impact of bottom trawl gear.

Recreational shellfish trapping is popular in Howe Sound. In fact, the area including Howe Sound, Indian Arm, and Burrard Inlet (i.e., Pacific Fishery Management Area 28) sees the highest recreational effort for shellfish trapping by boat on the B.C. coast.⁵ July, August, and September see the highest effort.



Recreational fishing for spot prawns in Howe Sound is popular. (Photo: Steph Hughes)

COMMERCIAL LANDINGS OF PRAWN AND SHRIMP BY TRAP AND TRAWL FROM HOWE SOUND

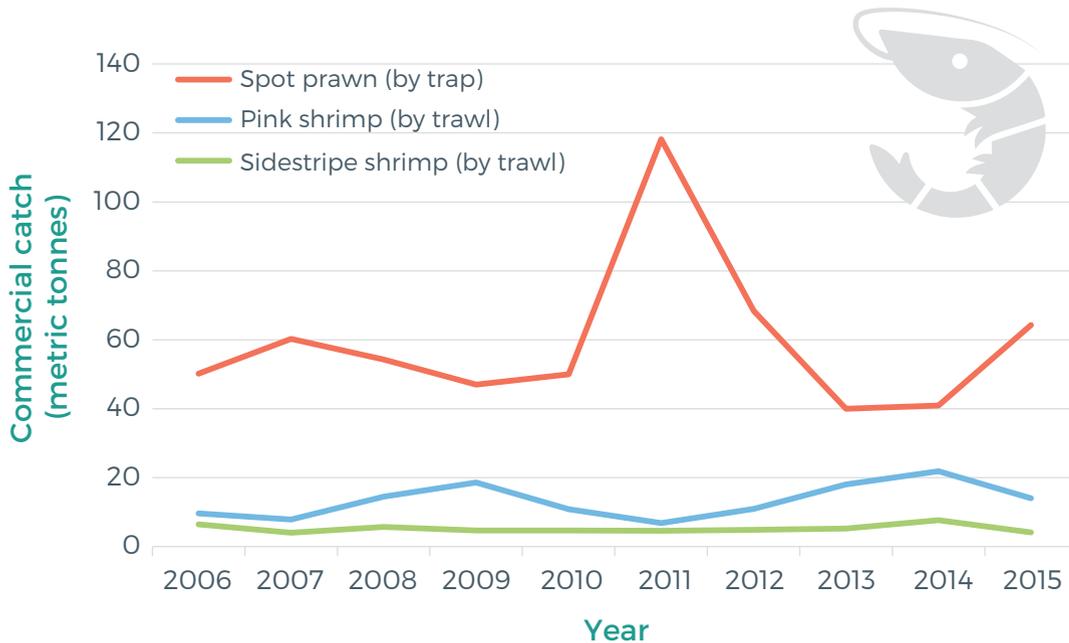


Figure 1. Commercial landings of prawn and shrimp by trap and trawl from Howe Sound.⁶

Why is it important?

The commercial prawn and shrimp by trap fishery is one of the most economically valuable fisheries in the Pacific Region. Coast wide value in 2014 was \$32.6 million, which made it the fourth most valuable commercial fishery after halibut, geoduck, and crab fisheries,⁷ of which only the crab fishery was active recently in Howe Sound. The catch, and presumably value, of the commercial prawn trap fishery in Howe Sound hovers at between two percent and four percent of the B.C. coast-wide total.⁸ The relative importance

of the recreational fishery is even greater. Two thirds of B.C. prawn and shrimp sport fishing effort in 2010 was focused on the Strait of Georgia.⁹ As noted above, Area 28, which includes Howe Sound, has the highest recreational effort in B.C. for shellfish trapping by boat. Recreational fishing activity not only provides food for personal use, it connects people to the natural world. Roughly 75 percent of recreational fishing licenses in B.C. are held by B.C. residents.

History

Howe Sound is the birthplace of the commercial prawn and shrimp by trap fishery in B.C. going back to about 1914. The fishery expanded up the coast and by the mid-1970s, Knight and Kingcome Inlets led production.¹⁰ It wasn't until 1990 that the number of commercial licenses available to fish prawn and shrimp by trap was limited in order to make the fishery more sustainable. The trawl fishery for shrimp dates back to 1930s in B.C., but wasn't significant until the 1960s when salmon and halibut were both in short supply.¹¹ Management first implemented trawl net catch limits for most of the coast as recently as 1997, and precautionary management has resulted in increased regulation and monitoring since then.

Due to industrial contamination of the marine environment, specifically dioxins and furans from pulp mills, parts of Howe Sound were first closed to the harvest of prawn, shrimp, and crab in 1988 and the commercial closure was expanded to all of Howe Sound in June 1989.¹² Some of these contamination closures were removed in 1995, after pulp mills cleaned up processing and discharge.¹³ Currently, there are no permanent closures for contamination in Howe Sound, but Canadian Food Inspection Agency guidelines recommend avoiding fishing near sewage outfalls, discharge pipes, or other contamination sources.

How does this relate to First Nations heritage?

At a 2015 Howe Sound Science and Knowledge Workshop held at the Vancouver Aquarium, Chief Bill Williams of the Squamish Nation reported that First Nations were pushed out of the prawn fishing industry in the 1960s but that their youth were now re-entering the fishery. He said they have a steep learning curve without role models because of the lack of participation in the fishery for such a long time. At the same workshop we heard anecdotally that Musqueam Na-

tion Elders prefer shellfish from Howe Sound over anywhere else in the region because they taste better.¹⁴

In terms of fishery management, First Nations' fishing for food, social and ceremonial (FSC) purposes is the first priority after conservation and FSC fishing for prawn and shrimp by trap is currently open coast-wide throughout the year.

What is the current state?

Spot prawns have become the darling of a local sustainable seafood movement after they became a recommended sustainable seafood choice by the Vancouver Aquarium's Ocean Wise program in 2014, following an assessment done by the Monterey Bay Aquarium's (MBA) Seafood Watch program.¹⁵ Sustainability rankings mean that the fisheries are generally well managed and sustainable, though with potential

for improvement. Concerns about potential adverse effects of trap and trawl gear types on sensitive bottom habitat, especially sponge reefs and bioherms have been repeatedly raised in Howe Sound and elsewhere. This applies to recreational prawn traps as well.

Additional concerns about potential impacts of commercial and recreational fishing gear include bycatch and entanglement. Entanglement of marine mammals, sea turtles and basking sharks is possible, but has not been noted as an issue in Howe Sound. Juvenile rockfish are sometimes unwanted catch, or bycatch, in prawn trap gear and even if released at the surface are presumed not to survive due to their unique physiology. Quillback rockfish, a species quite common in Howe Sound and listed as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), are the most frequently encoun-



Commercial prawn boat in Howe Sound. (Photo: Bob Turner)

tered in the prawn fishery.¹⁶ However, research from 2002 to 2008 showed that estimated rockfish bycatch is lower in Howe Sound than many other Fishery Management Areas.¹⁷ Bycatch in the trawl fishery can include eulachon, an energy rich forage fish with significant First Nations cultural importance, and listed as endangered by COSEWIC. Eulachon are being considered for listing as Endangered under the Species at Risk Act (SARA)¹⁸ and the viability of eulachon in the Squamish river watershed is currently being studied.¹⁹

According to the MBA Seafood Watch assessment, B.C.'s trawl fishery is at risk because it is primarily a small boat fleet harvesting modest volumes during day trips and the fleet can no longer compete with lower priced coldwater shrimp from the U.S. West Coast and Eastern Canada, let alone a huge surge in aquaculture production of warm water shrimp in tropical coun-

tries.²⁰ However, large trawl vessels were active in the B.C. shrimp fishery starting March 2015,²¹ when high pink shrimp biomass off West Coast Vancouver Island made larger vessels viable.

Data quantifying recreational catch and effort has been lacking in the past. As of April 2013, Tidal Waters Sport Fishing license holders are required to provide information on their recreational fishing activity when requested.²² Survey participants are randomly selected and are asked to participate in the Internet Recreational Effort and Catch (iREC) Survey. A DFO report on recreational buoy surveys (daytime counts of buoys connected to traps) that have been conducted coast-wide to provide baseline information on relative levels of prawn fishing effort is in preparation. DFO conducted such a survey in Howe Sound in 2015.²³

What is being done?

The annual B.C. spot prawn festival, started in 2007 by a Vancouver chef, increases awareness and local access to a product that had previously been mostly exported.

Management of the prawn and shrimp fisheries is undertaken by DFO in consultation with advisory boards that include representatives from First Nations, commercial and recreational industry representatives, and the Province of B.C. DFO also engages in bilateral processes with First Nations.

Biologically based management measures are used to maintain the viability of the stocks and the fisheries.

The commercial prawn fishery is monitored in-season where trained fisheries observers board commercial vessels and sample the catch. DFO then uses this information to ensure conservation targets are met. Other management measures include restrictions on the number of licences, seasonal and area closures, gear limits, minimum size limits, daily fishing time restrictions, and single haul limits all apply. Separate management plans exist for trap versus trawl fishing and different catch limits are imposed. In the Pacific Region, there are 249 prawn and shrimp by trap licences in total, of which 57 are communal commercial for First Nations participation in the commercial fishery. Eighty percent of the prawn and shrimp by trap

fleet was checked for general compliance on board during the 2015 season, including inspections specifically for trap mesh size, trap tags and product size.²⁴

Closures are one way to limit gear impact on sensitive bottom habitat, such as sponge reefs. As of June 2015, all commercial and recreational bottom contact fishing (both trap and trawl) for prawn, shrimp, crab and groundfish is prohibited in nine glass sponge reef areas in the Strait of Georgia including reefs at Passage Island and Defence Islands in Howe Sound. Closures to bottom contact fishing for FSC purposes applied starting April 2016. That leaves at least 11 areas unprotected where glass sponge reefs or bioherms have been identified and documented in Howe Sound ([see Sponge Reefs article](#)).

Rockfish Conservation Areas (RCAs), of which there are 11 in Howe Sound, are closed to bottom trawl gear, but commercial and recreational prawn trap fishing is permitted within RCAs. Third-party observers in the commercial prawn trap fishery have collected additional information on rockfish bycatch as a condition, coast-wide, since 2002.

Additional measures implemented in the trawl fishery include mandatory gear modifications since 2000 to reduce bycatch, and a bycatch monitoring program supported by industry since 1999. However, the observer program that monitors bycatch has been limited in the past (50 days per year) which means that estimating total annual bycatch by the fishery is impossible.

The recreational fishery has a daily catch and possession limit for prawns and shrimp combined. Gear limits and seasonal area closures also apply. To date, DFO has not specified gear or catch limits in communal licences for First Nations' FSC harvest.

DFO continued its semi-annual survey of Howe Sound prawn stocks in February and November 2015. These surveys began in 1985 and the data represent a unique and invaluable time series data set for understanding prawn recruitment and productivity parameters.²⁵

What can you do?



Individual and Organization Actions:

- Make sure your licence is up to date and comply with catch limits when you are sport fishing. (The daily catch limit is 200 pieces of prawn and shrimp, combined, and the possession limit is 400 pieces.)
- Keep your traps away from sensitive areas including sponge reefs, bioherms, and RCAs.
- Release live catch (i.e., bycatch) in waters where caught.
- Use 'rot cords' (a biodegradable escape mechanism) on your traps to allow bycatch to escape in the event traps are lost.
- Make sure your buoys are clearly identified with your name.
- Report any gear theft and the theft of catch from traps to the police.
- Report accurate fishing activity and catch to DFO when requested to do so.
- Release prawns and shrimp that are carrying eggs under their tails (known as berried prawn and shrimp), as soon as possible and at the fishing location.



Government Actions and Policy:

- Expand sponge reef closures to include all sponge reefs and bioherms identified in Howe Sound, in accordance with the Sensitive Benthic Areas Policy.
- Allocate more resources to enforcement of fishing regulations including protected area closures.

Resources

Ocean Wise®

oceanwise.ca is a Vancouver Aquarium conservation program created to educate and empower consumers about the issues surrounding sustainable seafood.

Prawn Fishery – Pacific Region

pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/prawn-gcrevette/index-eng.html

Shrimp Fishery – Pacific Region

pac.dfo-mpo.gc.ca/fm-gp/commercial/shellfish-mollusques/shrimp-pcrevette/index-eng.html

DFO Research Document, 2009, Rockfish Bycatch in the British Columbia Commercial Prawn Trap Fishery
dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2009/2009_109-eng.htm

Footnotes

- ¹ Fisheries and Oceans Canada (DFO). 2016a. Pacific Region, Prawn and Shrimp by Trap Integrated Fisheries Management Plan, May 1, 2016 to April 30, 2017. Accessed Aug 18, 2016. <http://www.dfo-mpo.gc.ca/Library/363240.pdf>
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- ³ Vancouver Aquarium Ocean Wise. Seafood Items Listing. Accessed Aug 30, 2016. <http://www.oceanwise.ca/seafood>
- ⁴ Department of Fisheries and Oceans. 2016. Shrimp Survey Bulletin 16–01. Provided to the author by Ken Fong, Sept 29, 2016. No update on Howe Sound was available at this time.
- ⁵ Fisheries and Oceans Canada. 2016b. “Internet Recreational Effort and Catch (iREC) Survey” Statement based on some results from the survey, Feb 17, 2016. Figure 4. Estimates of total recreational effort for shellfish trapping by boat by month and area (July 2012 through Dec 2014) from DFO’s Internet Recreational Effort and Catch Survey (iREC). Accessed Aug 17, 2016. <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/index-eng.html>
- ⁶ Fisheries and Oceans Canada (DFO). 2016c. Commercial landings of selected invertebrate species in Howe Sound, British Columbia. Unpublished database provided by DFO for Pacific Fishery Management Area 28, sub areas 1 through 5 inclusive. Data compiled on April 4, 2016 for Lions Gate Consulting by Shellfish Data Unit, Marine Ecosystem and Aquaculture Division, Science Branch.
- ⁷ DFO 2016a.
- ⁸ Estimated based on coast-wide values presented in DFO 2016a, p12, and unpublished data provided by DFO 2016b.
- ⁹ Fisheries and Oceans Canada (DFO). 2012. 2010 Survey of Recreational Fishing in Canada. Accessed Aug 31, 2016. www.dfo-mpo.gc.ca/stats/rec/can/2010/index-eng.htm
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- ¹² Nassichuk, M.D. 1992. Dioxin mediated shellfish closures in Howe Sound. In Levings, C.D., R.B. Turner, and B. Ricketts (Editors). 1992. Proceedings of the Howe Sound Environmental Science Workshop, Can. Tech. Rep. Fish. Aquat. Sci. 1879. 270p.
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- ¹⁵ Monterey Bay Aquarium Seafood Watch. 2014. Pink shrimp, Northern shrimp, Sidestripe shrimp, Spot prawn. British Columbia, Bottom Trawl, Trap. Sara Townsend, Consulting Researcher. 56p. Accessed Aug 30, 2016. http://www.seafoodwatch.org/-/m/sfw/pdf/reports/s/mba_seafoodwatch_coldwatershrimp_bc_report.pdf
- ¹⁶ Rutherford, D.T., K. Fong, and H. Nguyen. 2010. Rockfish Bycatch in the British Columbia Commercial Prawn Trap Fishery. DFO Can. Sci. Advis. Sec. Res. Doc. 2009/109. iii + 25 p.
- ¹⁷ Ibid.
- ¹⁸ Fisheries and Oceans Canada. 2016e. Species profile, Eulachon. Accessed August 30, 2016. <http://www.dfo-mpo.gc.ca/species-especies/profiles-profil/eulachon-eulakane-eng.html>
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- ²¹ DFO 2016d.
- ²² <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/index-eng.html>
- ²³ DFO 2016a.
- ²⁴ DFO 2016a.
- ²⁵ DFO 2016a, see references in this management plan for several published papers on prawns that have benefitted from semi-annual survey data.