

catch_reconstruction

Markus Min

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TO DO

- Track down Canadian data - sent email to Dana

The data

Data is available for catches dating back to 1889, but is spotty and with many caveats/drawbacks. The catch is usually aggregated to rockfishes; reliable species composition data is only available for 1970-present.

There is data from the U.S. portion of the DPS and the Canadian side of the DPS. Need to track down sources for Canadian data (perhaps start with stock assessments for yelloweye?). I don't think there are Bocaccio on the Canadian side of the DPS

Data periods

Commercial Data

Time Period	Data source	Species composition	Data file(s)
1889-1892	US Commission of Fish and Fisheries		
1899	US Commission of Fish and Fisheries		
1921-1934; 1943- 1969	Yellow/green book	?	ROCKHIS_Palsson.xls

Time Period	Data source	Species composition	Data file(s)
1935-1940	Bound Volumes	?	BoundVol_1935_1940_RkFsh.xlsx
1970-1988	Schmitt 1991	Schmitt 1991	1991_Schmitt_table_8.csv - 1991_Schmitt_table_7.csv OR COMBCATCH2011
1989-2003	Palsson	Palsson	COMBCATCH2011
2004 - 2020	Fish receiving ticket database (LiFT)	?	Puget Sound commercial landings_1970-2020.xlsx

Notes:

- For the 1921-1972 period covered by the YellowBook data, it is broken down by gear type. If we can find any composition data for the different gear types, we will have much more confidence in trying to estimate species compositions.
- There are differences between Wayne's data and the data Theresa supplied for the period 1989 - present
- For the period 1889-1892, the data in Rockfish0.xlsx are for all counties - have to subtract out the coastal counties, not from the sound
 - This mostly concerns Clallam County (see page 157 of "1895_XIX_RptUSFishComm_WillcoxPCst_1889_1892.pdf" for documentation), where the three largest ports are Neah Bay, Port Angeles, and Dungeness. Dungeness and Port Angeles are technically within the DPS while Neah Bay is not, but hard to say if fish landed at these ports were caught in the immediate vicinity of these ports. Catch is broken down by port in 1891 and sometimes 1892, but not for other years.
- For 1899, the value in Rockfish0 matches the value on page 29 of "1902_Notes on the fisheries of the Pacific1889.pdf", which corresponds to the total yield of the shore fisheries for rockfish for WA

Compositional data for commercial catches**General notes:**

- Yelloweye and bocaccio are very rare in the trawl catches; this is unsurprising given that they are strongly associated with rocky habitat (can cite the recent ROV surveys)
- Cyreis Schmitt's work from 1991 is easily the best catch composition data, but only covers the years 1970-1988. It has species by gear type/region - could we use this for earlier time periods, or is there reason to believe that the composition by gear has changed over time? E.g. due to changes due to extractions by fishing, changes in areas, changes in gear/mesh, etc.

1944_DescripWaTrawlFish.pdf: "The Washington otter trawl fleet operates in water that is from 10 to 100 fathoms deep, along the Washington coast up to Barkley Sound on Vancouver Island, and inside Puget Sound. The gear is dragged over sand or mud bottoms. With the gear now in use, rocky bottoms are unfishable." \ "The rockfish landed are largely"canaries", a mixtures of *S. pinniger* and *S. caurinus*. Considerable quantities of *S. flavidus* and *S. columbianus*, commonly called"bass", are also landed. Small quantities of twenty other species, mostly *S. maliger* are marketed." \ **Takeaways:** - This data comes from both the WA coast and Puget Sound - Yelloweye and bocaccio are not commonly landed by otter trawls (responsible for the vast majority of rockfish landings)

PSndRkFish_Trawl Fishery.pdf “Within Puget Sound waters the principal species taken by trawling are *S. caurinus* (copper rockfish), *S. maliger* (quillback rockfish), and *S. pinnger* (orange rockfish). Populations are scattered throughout Puget Sound. The central area is most productive followed by the southern area and western area.” \ **Takeaways:** - This data, which covers the period 1955-1964, makes no mention of yelloweye or bocaccio in the trawl fishery.

Groundfish RF samples 1966-1968_SH11.W2791 Page 13: Across two samples in 1967 - “Area: 4A; Month: March; Depth of catch (fathoms): 50-65; Landed weight (lbs.): 9,700; Percent composition by species: *S. flavidus* 98-99%, *S. pinniger* 2%, mixed species 1%.” \ Page 17: One sample in 1968 - “Area: 4A; Month: January; Depth of catch (fathoms): 15-25; Landed weight (lbs.): 700; Percent composition by species: *S. caurinus* 93%, *S. flavidus* 1%, *S. melanops* 5%, *S. paucispinis* 1%.” \ **Takeaways:** - One sample from 1968 had bocaccio as 1% of landings; never any mention of yelloweye - Covers rockfish samples in 1966-1968 - Doesn’t indicate gear type, but I’m pretty sure it’s trawl data - *S. ruberrimus* isn’t listed as a species in the composition ever (not even as column header) - Areas from CA to BC are described; the only areas of interest are statistical areas 4A and 4B: - 4A: “United States inside waters from the Bonilla Pt.-Tatoosh Island line at the entrance to Juan de Fuca Strait including Puget Sound” - 4B: “Canadian inside waters from the Bonilla Pt.-Tatoosh Island line at the entrance to Juan de Fuca Strait to a line drawn north and south through Pine Island at the upper end of Queen Charlotte Strait.”

RFs Trawl Samples 1969_SH11.W2791 \ Page 15: Four samples in 1969 in area 4A, 57-62 fathoms, about 16,000 lbs sampled, 98-99% *S. flavidus*, 1-2% *S. pinniger*.

Takeaways: - No yelloweye or bocaccio

Recreational Data

Time Period	Data source	Data file(s)
1921-1969	Yellow/green book	ROCKHIS_Palsson.xls
1975-2002	?	PugetSound_SportLanding.xlsx
1970-1998		
2003 - 2019	?	PSP Sport Estimates 2003-2019.xlsx

WDFW Marine Areas vs. Groundfish management regions (Rickey) For regions in Puget Sound: \

WDFW Marine Area	Groundfish management region (Rickey)
Seki and Pillar Point - Marine Area 5	3 Strait of Juan de Fuca
East Juan de Fuca Strait - Marine Area 6	3 Strait of Juan de Fuca
San Juan Islands - Marine Area 7	1 Gulf - Bellingham, 2 San Juan Islands, 3 Strait of Juan de Fuca
Deception Pass, Hope Island, and Skagit Bay - Marine Area 8-1	5 Central Puget Sound
Ports Susan and Gardner - Marine Area 8-2	5 Central Puget Sound
Admiralty Inlet - Marine Area 9	5 Central Puget Sound
Seattle-Bremerton Area - Marine Area 10	5 Central Puget Sound
Tacoma-Vashon Island - Marine Area 11	6 Southern Puget Sound
Hood Canal - Marine Area 12	4 Hood Canal
South Puget Sound - Marine Area 13	6 Southern Puget Sound

Notes:

- Bargman tables in “old fishery records and analysis” on Google Drive has recreational catch for 1968-1973.
 - “Combined tables.xls” in same folder have 1965-1973
 - These tables have data from many locations; the following are coastal areas and thus most likely represent catches outside of the DPS: Ilwaco, Westport, La Push, Neah Bay, Sekiu and Pillar Point
- Values used by Wayne Palsson definitely don’t match up with these values

1970-1989

\ Primary source: Schmidt 1991