

Chinook Salmon Bycatch in the Gulf of Alaska (GOA) Trawl Fisheries

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Gulf Trawl Industry

- **Trawl Catcher Vessels** deliver their catch to shorebased processors in Alaska coastal communities – predominately to the communities of Kodiak, Sand Point and King Cove. Typically, vessels are not owner operated. The majority of the vessel operators live in the communities that they deliver to.
- The Kodiak trawl fleet participates in the directed Pollock, rockfish, cod and flatfish fisheries. The trawl fleet typically delivers around 60-70% of the total Kodiak port landings (by volume).
- The Sand Point / King Cove fleet participates in the directed Pollock and Pacific cod fisheries.
- **Trawl Catcher Processors** catch and process at sea. They fish flatfish and rockfish and catch incidental amounts of Pacific cod and Pollock.



Typical Kodiak trawler is about 80 feet long: fishes pollock, cod, rockfish, and flatfish in the Central Gulf.



Typical Sand Point, King Cove trawler is 58 feet or less and trawls for pollock and cod in the Western Gulf.

Pacific Coast Trawl Fishery Management structures:

- Virtually all trawl fisheries in British Columbia, Pacific NW, and BSAI operate under a catch share fishery management structure.
- These programs include allocations of target species and bycatch to either individual vessels or harvesting cooperatives.
- Catch share programs create individual vessel accountability for each vessel's harvesting activities.

GOA Trawl Fishery Management structure:

- Still operating under limited access system (race for fish) (similar to the State limited entry system)

GOA Trawl Limited Access Management System

*Where fishermen and processors compete for a common quota pool
-- creates a number of problems –*

- Catch and bycatch is managed at the fleet level
- No individual processor or vessel accountability
- Is a competitive fishery where participants race to catch and process as much fish as fast as possible which leads to overcapitalization for both vessels and processors
- Limited ability to address bycatch – no individual vessel accountability
- Limited ability of processors to vary product types to maximize product value
- Stresses on Community infrastructure (water/electricity)
- Fishermen go fishing in unsafe condition

The North Pacific Fishery Management Council (NPFMC) has implemented Chinook salmon bycatch limits for the GOA trawl industry even though the industry continues to operate in this arcane management structure.

GOA Pollock Fishery Chinook Hard Caps

- ❑ High salmon bycatch in the 2010 pollock fisheries in the Western GOA prompted the Council to act quickly in implementing hard caps in GOA pollock fisheries (Amendment 93). Caps became effective August of 2012.

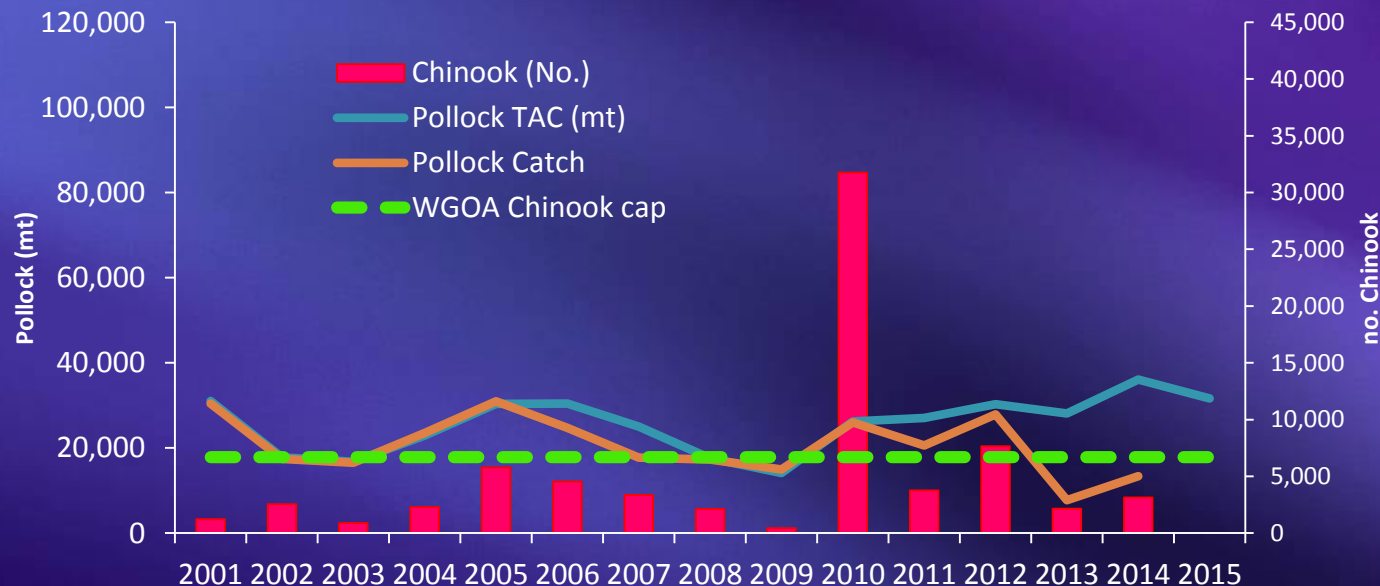
	Western GOA	Central GOA	Total
Chinook Limit	6,684	18,316	25,000

Chinook bycatch Pollock Fisheries

Central GOA



Western GOA



Non-pollock Fisheries Chinook Hard Caps

Cod, flatfish, and rockfish Fisheries

	GOA CP (cod, flatfish, rockfish)	W/CGOA CV Cod and flatfish	CGOA CV Rockfish Only	Total
Chinook Limit	3,600	2,700	1,200	7,500

CP = Catcher Processor (offshore)

CV = Catcher Vessel (delivers to shoreside plant)

Non-Pollock Chinook bycatch cap *Challenges*

Chinook salmon bycatch accounting

- Bycatch estimates are from observer data, not fish ticket counts.
- The Observer bycatch rate is calculated from a “basket sample”, a random sample of about 600 pounds from the catch at sea.
- In comparison, for the pollock fishery, the salmon are censused at the plant by the observer to determine the amount of bycatch where each salmon is counted at the dock.

Basket sampling is much less precise than census counts

Non-Pollock Chinook bycatch cap

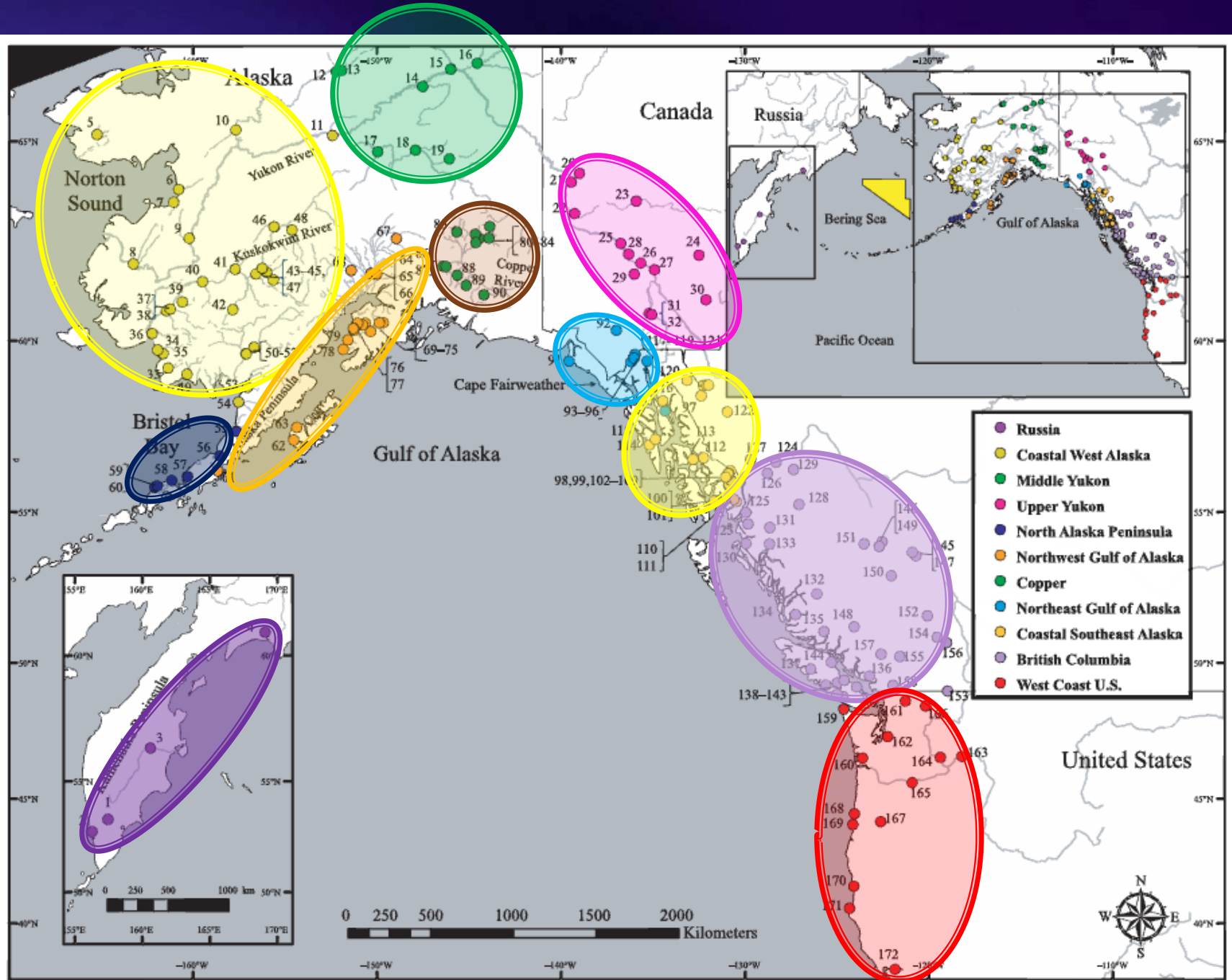
Challenges

- ❑ 2015 is the first year of the new non-pollock Chinook hard cap
- ❑ The C/WGOA CV non-pollock non-rockfish cap has already become problematic for the CV fleets, only two months into the fishery.
- ❑ As of March 14, 1,056 Chinook have been taken in the W/C non-pollock, non-rockfish shoreside fisheries (39% of the 2,700 Chinook cap). All Chinook bycatch is being attributed to the Western Gulf cod fishery (Sand Point/King Cove).
- ❑ Historically, the WGOA cod fishery has accounted for around 100 Chinook per year.
- ❑ Their higher bycatch could affect the CGOA CV fleet. Once the cap of 2,700 fish is reached, all non-pollock fishing will stop for the rest of year.

GOA Chinook Bycatch Genetics (all trawl fisheries)

“Reliable” data since 2012, analyzed by NMFS Auke Bay Lab: most bycaught Chinook (~97%) are from the Pacific Coast, British Columbia, Southeast Alaska where there are the most hatchery releases. Can infer that most bycaught Chinook in the Gulf of Alaska are hatchery fish, not wild Alaskan fish.





Chinook Salmon Hatchery Production

About 250 million Chinook hatchery releases each year

Chinook hatchery releases by year and region, 2002-2013 (millions of fish)

Year	Canada	Russia	US	Total
2002	52.72	0.30	214.87	267.89
2003	49.93	0.74	220.35	271.03
2004	49.54	1.18	210.78	261.50
2005	43.34	0.84	215.81	259.98
2006	40.78	0.78	211.89	253.44
2007	44.39	0.80	226.90	272.09
2008	38.39	1.54	213.90	253.83
2009	41.60	0.78	214.96	257.34
2010	45.47	0.88	219.25	265.60
2011	40.36	0.82	217.98	259.15
2012	43.09	0.91	212.44	256.44
2013	39.15	0.91	200.29	240.36

North Pacific Anadromous Fish Commission (NPAFC). 2014. NPAFC Pacific salmonid hatchery release statistics (updated 19 December 2014). North Pacific Anadromous Fish Commission, Vancouver. Accessed March 2015. Available: www.npafc.org

Industry Voluntary and Proactive Chinook Bycatch Initiatives

- Voluntary catch share management for pollock fisheries – very fragile - depends on all participating vessels agreeing
- Voluntary Salmon bycatch hot spot reporting
- Salmon bycatch donated to Food Banks via Sea Share
- Working to develop Salmon Excluder technologies
- Industry funding for salmon bycatch Stock of Origin Data Collection

Future NPFMC Initiatives

- Comprehensive trawl bycatch tools similar to other catch share management structures that includes individual vessel accountability. Council initiated this package in June 2012.