

Science, Service, Stewardship



Data Collection Alternatives for the Salmon Bycatch Program in the Pollock Fishery

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Why is Salmon Bycatch a Concern in the Pollock Fishery?

- Chinook and chum salmon co-mingle with pollock
- Salmon are prohibited from being retained in the pollock fishery
- From 1992 – 2001, Chinook salmon bycatch averaged 32,482 per year
- From 2003 – 2007 this average jumped to 74,067
 - In 2007 approximately 122,000 Chinook were caught
- Historically there has been no limit on salmon bycatch in the pollock fishery



Why is Salmon Bycatch a Concern in the Pollock Fishery? (cont.)

- More than half of the Chinook caught as bycatch may be destined for western Alaskan rivers, supporting subsistence, recreational, and commercial fisheries
- Salmon runs in several of these rivers have been declining; some fisheries have been closed in recent years
- Questions regarding relationship between trends in salmon bycatch in pollock fishery and returns in AK rivers
 - Do changes in salmon bycatch in pollock fishery reflect increased abundance of salmon on pollock grounds or decreased avoidance?
 - To what extent do bycatch rates in pollock affects salmon runs?



Why is Salmon Bycatch a Concern in the Pollock Fishery (cont.)

- Vessel owners claim they have been avoiding salmon but it's unclear whether behavior or salmon abundance drives bycatch levels
 - There is persistent heterogeneity in bycatch rates among vessels and between inshore and offshore sectors
 - Some vessels use more fuel/hour so it's more expensive for them to travel further to avoid salmon
 - CPs and Motherships can travel further north, which can be cleaner.
 - The value offshore products is higher than inshore, so the costs of moving away from prime fishing areas due to bycatch differs.



Incentive Plan Agreement (IPA) Requirements from the North Pacific Fishery Management Council

- Incentive programs must provide incentives for each vessel to avoid salmon bycatch under any condition of pollock and salmon abundance in all years, including at levels below a hard cap
- Programs should promote reductions in actual individual vessel bycatch rates relative to what would have occurred in absence of the incentive program (just a hard cap)
- An analysis will be conducted to see if the incentives in the IPA appear to be sufficient to generate these conditions.
 - Better data needed to do so



The Need for a Hybrid Bycatch System

A hybrid program combines

1) a cap and trade (quota) system defining the maximum amount of salmon that can be caught

—But will not encourage fishermen to stay below the cap if they can sell the salmon credits or use them to marginally increase pollock catch or catch rates

2) Incentive Plan Agreements (IPAs) which provide additional incentives to avoid salmon at all levels of abundance

—IPAs allow fishermen to save the salmon credits for future years when their value may be higher (periods of high abundance) or to receive a bonus in current year

—Will this incentives be large enough to encourage salmon savings?



Description of Financial Incentive Plan (FIP) of Offshore Sector

- Hard cap enforces upper bound of bycatch; the goal (performance standard) is to remain below 47K salmon
- FIP mechanism provides per-salmon bycatch reduction incentive that increases in price as vessels approach the cap
 - Each vessel contributes a \$22.05/ton of pollock “ante” to a pool that is divided according to relative bycatch
 - Pool of contributions is divided based on relative “undercatch” of salmon.
- Ante to pool increases by \$11.03/ton per year when 3-year average bycatch is above 47K performance standard.



Description of Salmon Savings Incentive Plan (SSIP) of Inshore Sector

- The first year of the program allows vessels to go up to their share of the hard cap, but if they do they must conserve over the next two years so that the 3-year average bycatch will be under 47K.
- After first year of the program, vessels can only exceed their share of the 47K “performance standard” by
 - Using savings that was achieved over the previous 3 years (1 unit of salmon savings uses up 2.29 of the “banked” salmon from previous years)
 - Buying salmon from another vessel that is saving below 47K for the year, in which case the buyer will be forced to conserve or transfer in that amount the following year



Proposed Action

- The Council's plan is to implement a hard cap of 47K Chinook per year, beginning in 2011
- If incentive plan agreements are in place that meet the Council standards, industry can catch up to 60K Chinook per year in any 2 of 7 years
- The 2-in-7 year “Performance Standard” applies at the sector rather than individual level
 - Some of the core principles of internalizing the externality weren’t realized (incentive to save might be undercut)
 - May be some problems with coordination
 - Incentive plans are being re-drafted to reflect these rules



Data Collection Options: Still not Decided

1. Salmon Credit Transaction Reporting

- Date
- Name of entities trading salmon credits
- Volume and value of credits traded
- Classification of fair-market trade or not
- Classification of relationship/affiliation between entities

2. Salmon and Pollock Transaction Reporting

- Would also include pollock

There is also a sub-option to only record transactions that are based on monetary compensation



Data Collection Options

3. Information for Moves Caused by Salmon Bycatch Avoidance

This approach was developed by industry

- Collect estimated gallons of fuel burned in moving to the next fishing location when moving to avoid salmon bycatch
 - Record information in logbooks and have observers merge this with other information they collect
 - Ambiguity regarding whether a move is truly an avoidance event or jointly determined.
 - Incentives to over- and under-report salmon avoidance



Data Collection Options

- 4. Annual Fuel Consumption and Bycatch Avoidance Gear Expenditure Survey**
 - Collect average hourly fuel consumption in two modes (fishing and steaming) and annual fuel consumption and costs.
 - Descriptions and costs of gear and equipment purchases and modifications to reduce salmon bycatch (including whether the expense is exclusively for salmon bycatch avoidance).
 - Information can be used in spatial behavioral models to estimate costs of salmon bycatch avoidance



Data Collection Options

5. Annual Skipper Survey

Would pose a series of questions to elicit vessel operator input on important factors that impacted the vessel's performance during the year

- How did your Incentive Plan Agreement (IPA) affect your pollock fishing?
- Did the amount and cost of salmon bycatch credits available to the vessel lead you to make changes in pollock fishing operations?
- How would you compare the salmon bycatch conditions during the A and B seasons this year relative to the last two years?
- Did you cease pollock fishing for some period during the past A and/or B season because of Chinook salmon bycatch conditions?



Data Collection Options (skipper survey cont.)

- Did you ever end a trip and return to port early because of salmon bycatch conditions?
- Number of trips suspended due to bycatch
- Other than Rolling Hotspot Closures, what new/special area closure(s) or restrictions were imposed this season that affected where you fished for pollock? Please describe the restrictions and how you readjusted your fishing in response.
- Compared to a typical year, did weather have more, less, or about the same impact on fishing as usual?



Data Collection Options (skipper survey cont.)

- Were there special conditions other than weather that affected your vessel's fishing operations this year (e.g. extra maintenance, exceptional personnel or health conditions, special contracts in other fisheries, etc.)? Please describe.
- Other than your cooperative's Incentive Plan Agreement, do you have any agreements or contracts with processors, vessel owners, or other parties that provides financial incentives to you to reduce Chinook salmon bycatch?
- Did actual or potential bycatch of species other than Chinook salmon cause you to change your harvesting decisions during the pollock season?



Data Collection Options

At outset of program design, two other options were on the table:

- 1) Collect additional spatial information on roe recovery rates and grades to improve spatial models
 - Differentials in spatial returns due to roe value and thus opportunity costs of moving may be as important as travel costs
- 2) Collect information on full set of variable costs (beyond fuel) to better understand net benefits earned to compare with IPA incentives
 - How costly is salmon avoidance relative to industry profits?

Industry and Council staff expressed that these collections were too burdensome and complicated to yield worthwhile information; they have since been dropped