Using Hard Caps and Fixed Targets for Managing Bycatch of Alaskan Chinook Salmon in the Bearing Sea Pollock Fishery

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I. HARD CAPS: why they are harmful for chinook

-Hard caps set a fixed upper limit on bycatch (nontargeted/prohibited species catch). They are intended to limit excess mortality of the bycaught species.

-It is believed that unintended Chinook Salmon bycatch by the Bearing Sea Pollock Industry can potentially harm Alaskan Chinook Salmon populations and threaten the fishery. There is outcry for the implementation of hard caps to solve this problem, but is this sensible?

-A hard cap is effective if it protects the bycaught population and saves it from excess mortality that is thought to inhibit production (now and later).

-Fixed hard caps work only when the underlying population level of the bycatch species is pretty much the same from year to year. If salmon populations were steady, with bycatch numbers of say 100,000 every year, then a hard cap of 45,000 would reduce the effect of pollock fishing every year by about 55%. The fixed hard cap could be effective.

-However, what if Chinook salmon are not stable? It is a fact that chinook salmon populations vary widely from year to year. They can exhibit low abundance and low bycatch levels (eg, 4k bycatch in 2000) to high abundance and high bycatch (eg 128k bycatch in 2007).

-This means that a hard cap of say 45,000 that would limit bycatch in 2007 would not have limited bycatch in 2000.

-Hard caps only protect chinook populations when they are abundant (when chinook needs the least protection).

-A hard cap of 45,000 would have a large impact in a year where the normal bycatch might have been 128,000 (it would reduce bycatch by 65%). But this is a time when the Chinook are relatively abundant, and need less protection. This large reduction could have little consequence to current or future productivity of chinook . It is like giving back an extra 10000 gallons of water to Niagara Falls during a flood. (a better analogy would be useful here … any ideas?)

-So what about 2000? What about when Chinook bycatch was about 4,000?

-A hard cap will not protect chinook during a population bottleneck: i.e., when chinook are rare and the populations are closest to extinction and are most vulnerable biologically (eg. lowest genetic diversity).

-A hard cap of 45,000 means there is no penalty for catching salmon below that hard cap.

-A hard cap of 45,000 does not protect chinook populations when they are rare and the normal (unmotivated) bycatch level would otherwise be 4,000. This is like having no penalty for someone siphoning off 10000 gallons from your garden hose during a drought, but penalizing them 10000 gallons during a flood… but much worse.

-In this case, a further (rational) strategy would be to try to maximize bycatch to approach the 45,000 limit. Why? It makes sense to try to deplete Chinook populations when they are most vulnerable. With severely depressed Chinook populations, future hard caps will be less of a problem.

-This strategy follows from the idea that bycatch can effect underlying Chinook populations, and if this is true then the exploitation will be most effective at times of low salmon abundance.

-The hard cap creates an incentive for people to bail water into the boat when it is sinking. If the objective is to reduce the impact of the pollock fishery on chinook Salmon then a fixed hard cap that is not unrealistically low will harm the Chinook fishery.

-To make matters worse, from the standpoint of the pollock industry, hard caps will produce economic hardship as a result of potentially leaving 100’s of millions of dollars in the sea in uncaught Pollock TAC. This will certainly have significant direct repercussions on the people employed by the Industry and indirectly to those people downstream, as well as to State Tax revenues.

-Hard caps and defacto hard caps created by performance target schemes (SSIP) are harmful to everyone in the Alaskan Pollock/Chinook debate. It is a glossy seductive, but palinly misguided approach to this difficult problem.