

Joint NPFMC / IPHC Meeting

June 7, 2017, Juneau, AK

Agenda Item 4: Progress reports On Council Research and Management Priorities

4e. Halibut discard mortality rates

Discard mortality rates are estimates of the proportion of incidentally captured Pacific halibut that do not survive after being returned to the water. DMRs apply to fisheries in the Gulf of Alaska (GOA) and in the Bering Sea and Aleutian Islands (BSAI) that are subject to the BSAI and GOA Groundfish FMPs. For fishing operations subject to these FMPs, incidentally captured halibut are defined as prohibited species catch (PSC) and “must be returned to the sea with a minimum of injury except when their retention is authorized by other applicable law”. Halibut mortalities, the product of DMR and PSC, accumulate over the course of the season, and once the specified limit is reached for a given fishery, that fishery must be closed. For the in-season application of DMRs by management, DMRs are specified based on projections from historic DMR estimates. The International Pacific Halibut Commission (IPHC) also uses DMRs in halibut stock assessments, however they apply annual estimates of DMRs to account for past discard mortality.

Since the late 1990s, halibut DMRs have been calculated by the IPHC, which then provided the estimates to the National Marine Fisheries Service (NMFS) for application in managing halibut bycatch. DMRs specified through the Council process and applied by NMFS have consisted of long-term averages of annual estimates within target fisheries that are defined by region, gear, and target species. DMRs are also estimated and specified separately for fisheries operating within or outside of community development quota (CDQ) programs. Long-term averages are taken from annual estimates for the most recent ten-year period with the number of years with data to support annual DMR estimates varying among fisheries. Fishery-specific DMRs, once calculated, have generally been put in place for three-year increments. In other words, as part of the specification process, a fishery-specific DMR value is kept constant by management for three years, after which a new DMR is calculated based on the average from an updated time series.

A transition in responsibility for calculating DMRs from IPHC staff to North Pacific Fishery Management Council (Council) support staff occurred in 2015. Associated with the transition, potential improvements in the methodology for calculating DMRs as well as the application of DMRs were identified. Practical, near term, and future, long term improvements in estimation and application of DMRs are examined in a review provided by the Halibut DMR working group at the April 2016 Council meeting (NPFMC 2016). At that meeting, the Council directed the Halibut DMR working group to begin to develop alternative methods for calculating DMRs so as to provide the opportunity to revise the DMRs currently specified for 2017.

The revised methods proceed backwards along the observer sampling hierarchy to allow for estimation of DMRs at the stratum level. Furthermore, within the estimation procedure, the working group defines the unit of estimation in terms of fishing operation groupings that represent meaningful differences linked to variability in DMRs. While previous methods estimated and applied DMRs at the target fishery level

(defined by region/gear/target species), these proposed operational groupings consolidate fisheries across target fisheries which has the added benefit of increasing sample size for more robust DMR estimates.

Following Council approval at the December 2016 meeting, improved DMRs (Table 1) were applied to operational groupings rather than target fisheries. Although DMRs have been specified in the past for three-year periods, the Council recommended that DMRs be applied to a two-year harvest specification period with the potential for further adjustment prior to final harvest specifications for 2018.

Table 1. Halibut DMRs specified by the Council for the 2017 fishing year.

Operational Group				
Sector	Region	Gear	Target	DMR
CP	BSAI	PTR	pollock	100%
			non-pollock	100%
		NPT	all	85%
		HAL	all	8%
		POT	all	6%
	GOA	PTR	pollock	100%
			non-pollock	100%
		NPT ^a	all	85%
		HAL	all	11%
		POT	all	10%
CV	BSAI	PTR	pollock	100%
			non-pollock	100%
		NPT	all	52%
		HAL	all	14%
	GOA	PTR	pollock	100%
			non-pollock	100%
		NPT	Rockfish Program	67%
			non-RP	65%
		HAL	all	12%
		POT	all	10%

CP = Catcher Processor or mothership
 CV = Catcher Vessel
 BSAI = Bering Sea and Aleutian Islands
 GOA = Gulf of Alaska

PTR = pelagic trawl gear
 NPT = non-pelagic trawl gear
 HAL = hook and line (longline) gear
 POT = pot gear

The effort to improve DMR estimates is ongoing. The following are identified as further areas for progress by the DMR working group:

1. Resolve database issues with GOA RPP CVs
2. Seasonal variation in DMRs
3. Variance estimation
4. Respond to IPHC basis review
5. Explore differences based on tow time/size within operational groupings
6. Review viabilities for small GOA CP for possible categorization as CV