

1.1 Abundance-based PSC limits in Alaska fisheries

The Council has established crab and herring PSC limits in the BSAI groundfish fisheries that are abundance-based. In all cases, these PSC limits are apportioned to specific sectors or target fisheries, and their attainment triggers the closure of specified area(s) to groundfish fishing by that sector or target fishery (Figure 1). The Council uses the calculations established in the FMP and regulations (Table 1) to set PSC limits on an annual basis as part of the harvest specifications process.

The Council has designed the abundance-based limit differently for herring versus crab. For herring, the Council has established the PSC limit as a flat percentage of the annual biomass for herring in the eastern Bering Sea. The biomass is established annually by ADFG, using surveys and an age-structured model. Attainment of the herring PSC limits, which are apportioned to target fisheries, closes summer or winter herring savings areas in the Bering Sea to that target fishery.

For crab, the Council has designed stairstep measures to reduce the PSC limits at low stock sizes. Stairsteps are intended to address possible biases caused by rate-based limits, and smooth year-to-year variability, while still providing a correlation between the PSC limit and abundance. Abundance is determined through surveys and age-structured models for crab stocks. The Council employs three different types of stairstep measure, depending on the crab species:

- Red king crab: this PSC limit is a straight stairstep, with three different PSC limit levels based on the abundance of mature female red king crab.
- Tanner crab: separate PSC limits for Zones 1 and 2 each provide a hybrid PSC limit with four levels, the highest three stairsteps based on abundance, and for the lowest level, a flat percentage of the stock size.
- Snow crab: this PSC limit is a flat percentage of abundance except at high and low stock sizes, for which minimum and maximum PSC limit levels are established.

All the crab PSC limits are apportioned among CDQ groups and Amendment 80, and to the BSAI trawl limited access fisheries. For the latter, the limits can be apportioned among target fishery categories, and have generally been allocated among the pollock/mackerel/other species, Pacific cod, rock sole, and yellowfin sole fisheries. Attainment of the PSC limit triggers defined closure areas for specific sectors.

Table 1 Summary of BSAI crab and herring PSC limits

Stock	Calculation of limit			Bycatch that accrues to limit	Consequence of limit	
	Area	Calculation	Adjustment ¹			
Pacific herring	BSAI	1% of the annual biomass of herring			All herring bycatch in BSAI by trawl fisheries	Closure of summer or winter herring savings areas
Red king crab	Zone 1	If the abundance of mature female crab is...			All red king crab bycatch in Zone 1 by trawl fisheries (except that there is an additional stipulation that only 25% of the limit may accrue from a designated subarea)	Closure of Zone 1 to sector or target fishery
		At or below State's threshold to open the directed fishery (8.4 million crab), or below 14.5 million lb of effective spawning biomass (ESB):	32,000 crabs			
		Above State's threshold, but below 55 million lb of ESB: Above 55 million lb of ESB:	97,000 crabs 197,000 crabs			
Tanner crab	Zone 1	If the total abundance of crab is...		Minus 20,000 crabs	All tanner crab bycatch in Zone 1 by trawl fisheries	Closure of Zone 1 to sector or target fishery
		0-150 million crabs: 150-270 million crabs: 270-400 million crabs: Over 400 million crabs:	0.5% of abundance 750,000 850,000 1,000,000			
	Zone 2	If the total abundance of crab is...		Minus 30,000 crabs	All tanner crab bycatch in Zone 2 by trawl fisheries	Closure of Zone 2 to sector or target fishery
		0-175 million crabs: 175-290 million crabs: 290-400 million crabs: Over 400 million crabs:	1.2% of abundance 2,100,000 2,550,000 3,000,000			
Snow crab	<i>C. opilio</i> Bycatch Limitation Zone (COBLZ)	0.1133% of snow crab abundance	Minimum limit: 4.5 million crabs Maximum limit: 13 million crabs	Minus 150,000 crabs	All snow crab bycatch in COBLZ by trawl fisheries	Closure of COBLZ to sector or target fishery

¹ Under BSAI Amendment 57, which prohibited non-pelagic trawling for pollock, PSC limits for halibut and crab were reduced. The reduction for red king crab has been reflected in the PSC limit levels, but for species where the PSC limit is based on a percentage rate, an adjustment is made after the calculation.

Figure 1 Closure areas associated with BSAI crab and herring PSC Limits

