

Effects of the halibut avoidance plan

Assessing the future effects of the halibut avoidance plan is difficult for several reasons. Conditions on the grounds change both within and across years. Vessels also have developed their use of halibut avoidance measures over time. This year in particular, the fleet has utilized all available measures and has developed tools (particularly excluders and deck sorting). These developments arose from a number of factors including the impending implementation of the avoidance plan and the cooperative's development of a halibut bycatch goal that it presented to the International Pacific Halibut Commission.

Effects of the annual outlier test

The annual outlier test is intended to create a strong incentive for each vessel to maintain a reasonable halibut mortality rate in the fisheries that are prone to halibut bycatch – yellowfin sole, rock sole, and arrowtooth flounder/flathead sole. This incentive is driven by a fine that is applied to each vessel that fails to meet an acceptable annual mortality rate (in kg of halibut mortality per metric ton of groundfish catch). Mortality test rates decline over a three year period to one and one-half the fleet average mortality from 2012 to 2014. The decreasing rate standards are intended to provide vessels that would currently be non-compliant with an opportunity to develop halibut avoidance proficiency.

The table below shows the annual fines that would have been applied had the program been in place from 2008 to 2015 (through December 1, 2015). Fines are shown for each defined target and in the aggregate in the last table.

Fines in the fisheries follow no particular pattern when compared to overall fleet performance. In a few cases, more fines are imposed in years of relatively high mortality rates; however, in some years of low mortality rates, both the number of vessels subject to fines and the amount of fines are large. Such a result suggests that the test will be useful for identifying outlier vessels, rather than just fining vessels when halibut mortality rates are relatively high overall. The final table shows aggregate projected annual fines under the test. The table shows that fines would have which averaged over \$250,000 annually under the highest (or most lenient) rate standards and would have averaged over \$600,000 under the lowest (most stringent) rate standard. Even under the most lenient standard, the year with the highest fines reached almost \$500,000.

Projected annual fines by target under the annual outlier test (2008-2015) (through December 1, 2015).

Target	Year	Number of vessels	Number of vessel fines and fines paid at the					
			2016 rates	2016 fine amounts	2017 rates	2017 fine amounts	2018 rates	2018 fine amounts
Yellowfin sole	Average	19	2	103,750	3	176,875	4	188,125
	Maximum	21	4	260,000	4	320,000	6	320,000
Rocksole	Average	19	1	88,125	2	165,000	4	308,750
	Maximum	21	3	235,000	5	370,000	8	585,000
Arrowtooth flounder /flathead sole	Average	17	1	70,000	1	88,125	2	112,500
	Maximum	18	4	320,000	5	395,000	6	445,000
Total	Average	55	4	261,875	6	430,000	10	609,375
	Maximum	59	6	460,000	9	610,000	14	845,000

Note: total vessel counts includes double counting of vessels in multiple targets.

In considering these results, it is important to keep in mind that the objective of the avoidance plan is not to collect fines, but to change incentives in a manner that induces all vessels to meet the rate standards.

In other words, success in the future should be measured not in the amount of money paid in fines, but rather by the absence of fines. The retrospective analysis provides a reasonable baseline for assessing that future performance. Fewer fines than those suggested by the retrospective analysis would suggest changes in halibut mortality rates intended to arise from the program have occurred.

Effects of the fourth quarter test

In the fourth quarter, all vessels are subject to a rate standard equal to the mean rate in the fourth quarter from 2012 through 2014. Vessels that fail to meet the standard are subject to a penalty of approximately one half of the annual penalty. The rate standard is applied to all flatfish targets monitored under the program (i.e., yellowfin sole, rock sole, arrowtooth flounder/flathead sole in the aggregate). Yellowfin sole is the primary target in the fourth quarter; however, all targets are included to ensure that vessels cannot avoid the program through target selection.

The table below shows a retrospective analysis of the fourth quarter test from 2008 through 2015 (through December 1, 2015). The test shows that fines would have averaged almost \$150,000 annually, with 5 vessels failing to meet the rate standard on average. At most 10 vessels would have been fined for exceeding the standard and over \$320,000 would have been paid by substandard vessels in one year.

Projected annual fines under the fourth quarter test (2008-2015) (through December 1, 2015).

	Number of vessels	Number of fined vessels	Fine amounts
average	15	5	142,500
maximum	18	10	320,000

Effects of the quarterly outlier test

The quarterly outlier test is applied to a vessel in the year after that vessel fails to meet the rate standard of the annual outlier test. So, if a vessel that fails to meet the annual outlier test in the yellowfin sole fishery in 2016, that vessel will be subject to quarterly monitoring under the quarterly outlier test in 2017. Under this aspect of the program, vessels forfeit an amount of halibut equal to the halibut use of the vessel in excess of the applicable rate standard. In other words, a vessel will forfeit the amount of halibut it used minus its groundfish harvests in the target times the rate standard. In the fourth quarter, vessels that are subject to quarterly outlier monitoring are subject to the same rate standard applied to all other vessels and are also subject to a monetary fine in addition to the halibut penalty under the quarterly outlier test. This section shows only the halibut penalties, as the monetary penalties are shown above.

The table below shows a retrospective analysis that includes all vessels in the sector from 2008 to 2015 (through December 1, 2015). The table considers all vessels without regard to whether a vessel might have failed an annual test in the preceding year. The analysis examines only the two more stringent rate standards, as the more lenient standard will never apply to the quarterly test.

The table shows that substantial halibut penalties would be incurred by a significant number of vessels under the test. Under the more lenient standard annual penalties average more than 125 metric tons, while under the more stringent threshold the aggregate of annual penalties would have averaged more than 150 metric tons and exceeded 250 metric tons in one year. Since halibut mortality rates vary across the fisheries and years, each target fishery is subject to relatively large penalties in some year but years of high penalties in target fisheries do not coincide making the maximum penalty across the various targets less than the sum of the maximums. In other words, by setting separate and independent rate standards in the different targets, the program has the effect of regulating the different targets as needed to effectively control halibut mortality.

Projected annual halibut penalties by target under the quarterly outlier test (2008-2015) (through December 1, 2015).

Target		Penalties under 2017 rate standard			Penalties under 2018 rate standard		
		Number of vessel penalties	Total halibut penalty	Individual annual penalty	Number of vessel penalties	Total halibut penalty	Individual annual penalty
Yellowfin sole	average	4	28		4	39	
	maximum	9	117	42	10	145	51
Rocksole	average	3	15		5	27	
	maximum	4	35	22	9	49	25
Arrowtooth flounder/ flathead sole	average	2	19		3	23	
	maximum	10	96	23	10	114	24
4th quarter	average	5	66		5	66	
	maximum	10	154	67	10	154	67
Total	average	13	128		17	155	
	maximum	20	200		23	250	

Note: To realize immediate halibut savings, fourth quarter rates start at the 2012-2014 mean fleet rate without a multiplier.

Conclusion

The Amendment 80 sector has developed three aspects or tests under its halibut avoidance plan. The retrospective analysis in this document shows that vessels in the sector cannot maintain their historical halibut avoidance practices. All of the tests would have resulted in substantial numbers of penalized vessels and substantial penalties. The annual and quarterly tests are a staged process that provide and effective incentive for outlier vessels to meet acceptable annual halibut mortality rates. The fourth quarter test will ensure that vessels face a strong incentive to continue halibut avoidance practices in the fourth quarter when rates naturally climb and vessels may otherwise face a decreased incentive. Overall, the program fully addresses the Council's request of the sector to develop an effective halibut avoidance plan.