

EVALUATION OF THE EFFECTIVENESS OF THE CURRENT GROUND FISH MANAGEMENT SYSTEM TO PREVENT OVERFISHING IN CONSIDERATION OF THE ANNUAL CATCH TARGET SPECIFICATION UNDER AMENDMENT 23

The Magnuson Stevens Act (MSA) reauthorization of 2006 mandated an end to overfishing. The National Standard 1 (NS1) guidelines were amended earlier this year to recommend procedures and considerations for achieving that objective. The new NS1 guidelines define an Overfishing Limit (OFL) as “the annual amount of catch that corresponds to the estimate of MFMT (maximum fishing mortality threshold or the level of fishing mortality estimated to produce maximum sustainable yield (F_{MSY}), on an annual basis, above which overfishing is occurring) applied to a stock or stock complex’s abundance”, which is analogous to the acceptable biological catch (ABC) in the current Groundfish Fishery Management Plan (FMP).

Amendment 23 to the FMP contemplates incorporation of the terms and concepts recommended in the new NS1 guidelines designed to prevent overfishing. Precautionary thresholds below the OFL are recommended to consider scientific uncertainty (the new ABC specification), and other considerations, such as socioeconomic impacts and conservation objectives, to set a lower annual catch limit (ACL), which is analogous to the current optimum yield (OY) specification, which has been used as an annual total catch limit in west coast groundfish management since 1999.

The new NS1 guidelines also recommend effective accountability measures (AMs) to keep from exceeding specified ACLs. The guidelines recommend consideration for a further yield buffer, termed the annual catch target (ACT), which can be set below the ACL if there is great uncertainty in the ability of the management system to effectively keep total fishing mortality below the prescribed ACL. The NS1 guidelines recommend an ACT does not need to be specified in the FMP if there are effective AMs, such as an inseason monitoring program, that can be demonstrated to keep harvest below the ACL. The performance standard recommended in the new NS1 guidelines for AMs is ACLs cannot be exceeded more often than once in four years.

The performance of the current management system was evaluated to determine if there are stocks and/or instances where an ACT may need to be specified. The current management system has evolved since 2002 with the advent of the West Coast Groundfish Observer Program (WCGOP) and better tracking of discard mortality. The Groundfish Management Team (GMT) has been using a report provided by the Pacific Fisheries Information Network (PacFIN) called the Quota Species Monitoring (QSM) report to track commercial landings of stocks and stock complexes managed under OYs or harvest guidelines. The GMT and the states track discard mortality of these species which are also posted on the QSM report based on impact projection models developed by the GMT and the NMFS Northwest Fisheries Science Center that associates species’ discards with landings of target species using bycatch rates obtained from the WCGOP. The QSM is updated every two weeks and a program within PacFIN tracks total catches (landings plus discard mortalities) for monitored species relative to past years’ catches. A companion program that tracks recreational catches is maintained on the Recreational Fisheries Information Network (RecFIN) and is used by the GMT and the states to track that

catch component, ensuring that all catches are counted against annual harvest specifications to better ensure these catch limits are not exceeded.

Total catch estimates of stocks and stock complexes with specified OYs were compared with the specified OY during 1999-2007 to evaluate the effectiveness of the current management system to stay within specified OYs. This period was used since total catch OYs, where all sources of fishing related mortality are counted against the OY, were specified beginning in 1999¹. The analysis extends through 2007 since this is the most recent year with an available total mortality report from the NMFS Northwest Fisheries Science Center. Table 1 depicts those instances when the annual total catch of a species has exceeded the specified OY.

Table 1. Instances when groundfish OYs have been exceeded in the recent management period, 1999-2007.

Species	Year OY was exceeded	Specified total catch OY (mt)	Estimated total catch (mt)	Percent of OY overage
Bocaccio	2000	100	112.0	12.0%
	2001	100	109.0	9.0%
Cabezon (CA)	2004	69	101.8	47.5%
	2005	69	85.4	23.8%
Canary	2001	93	133.0	43.0%
	2002	93	98.1	5.5%
	2003	44	59.9	36.1%
	2004	47	50.3	6.3%
	2005	47	60.4	29.1%
	2006	47	62.0	31.9%
	2007	44	44.7	1.6%
Darkblotched	2001	130	274.0	110.8%
	2002	168	179.0	6.5%
	2004	240	252.0	5.0%
Dover sole	2005	7,476	7,507.0	0.4%
	2006	7,564	7,730.0	2.2%
Petrale sole	2005	2,762	2,960.0	7.2%
POP	2001	303	307.0	1.3%
	2007	150	156.0	4.0%
Shortspine	1999	805	1,001.0	24.3%
	2000	970	1,037.0	6.9%
	2002	955	960.0	0.5%
	2003	955	1,014.0	6.2%

Prior to implementing rockfish conservation areas (RCAs) in 2003, which closed the core areas to groundfish fishing where overfished species occur, it was more difficult to manage fishery impacts to the low OYs prescribed in rebuilding plans. This led to higher magnitude OY overages prior to RCA management. Also, the precision of impact projection models has improved since 2003 as more WCGOP data became available to inform these models with more representative bycatch rates. These two factors and an adaptive management process where the GMT and Council have learned which management measures (e.g., RCA configurations and

¹ Prior to 1999, landed catch OYs were specified where only landings and not discard mortalities were counted against the OY.

cumulative landing limits) work best under rebuilding regimes has led to improved management performance in recent years. However, there has been a persistent problem in managing the low canary rockfish OYs. Also, there have been instances where OYs for other species were exceeded in more recent years that require further explanation.

The canary rockfish management challenge has been extreme. This species is caught in all groundfish fisheries by a variety of gears and has therefore been one of the most constraining stocks limiting fishing opportunities since it was declared overfished in 2000. It is also apparent that the patterns of canary rockfish distribution, both seasonally and from year to year, are relatively unpredictable. The impact projection model used for the limited entry trawl fishery does a relatively good job of predicting impacts for the overfished species; however, there has always been a problem projecting canary rockfish impacts with relative precision. The lack of real-time reporting of canary discards in the trawl fishery has led to a reliance on the impact projection model. The imprecision of that model has led to a persistent problem of exceeding the specified canary rockfish OY despite increasingly stringent management measures imposed on the trawl fleet (e.g., shelf area closures north of Cape Alava and between Humbug Mt. and Cape Arago). Further, recreational catch projections are also relatively uncertain and canary rockfish are readily caught as bycatch in coastwide recreational fisheries as well. Therefore, current catch monitoring systems and impact projection models have failed to adequately perform in managing fishery impacts within canary rockfish OYs.

Other species' OY overages are a little more easily explained and the result of either human error (e.g., petrale sole in 2005), poor catch monitoring systems that have since been improved (e.g., bocaccio in 2000 and 2001), or a relatively rare and unexpected bycatch event (e.g., POP in 2007).

For example, the petrale sole OY was exceeded in 2005 due to human error. The petrale catch had been higher than normal during the first half of the year; however, managers were not paying adequate attention to this fact and did not react in time. It was realized over the summer that the petrale catch was projected to exceed the OY by a significant amount. In September, the Council reacted by closing the fishery and was able to mitigate this management miscue by minimizing the OY overage.

The bocaccio OY overages in 2000 and 2001 were due to recreational catches exceeding projections due largely to a very imprecise recreational census program called the Marine Recreational Fisheries Statistical Survey (MRFSS). The MRFSS program was designed to gauge gross catch and effort trends in marine recreational fisheries nationwide and it did not have the precision necessary for inseason management. However, MRFSS catch estimates were the best available data, so the Council and NMFS used them for management decision-making. The imprecision of MRFSS for monitoring recreational catch stems from the fact that effort is tracked through a telephone survey of coastal residents nationwide leading to highly uncertain and variable effort estimates that were used in California for estimating recreational catch. This lack of precision and the difficulty managing recreational fishery impacts using MRFSS led to the implementation of the California Recreational Fisheries Survey (CRFS) in 2004, which bolsters catch sampling and surveys effort using the California angler license frame. Since the

implementation of CRFS, estimated catches of recreationally important species in California such as bocaccio have been more certain and recreational impact projections more precise.

The POP OY overage in 2007 was the result of one high landing in the shoreside whiting fishery at the end of the year. There was a hiatus in the whiting fishery that year when the widow total catch limit was attained prior to attaining whiting quotas. The fishery was shut down in July and re-opened in October when available widow yield was added to the total catch limit by the Council and NMFS. However, there was concern that the canary total catch limit would be exceeded that fall without a mitigating management restriction on the fishery. Therefore, the Council and NMFS re-opened the fishery with a 150 fm depth restriction, which forced the fleets to fish in deeper waters than they normally fished to avoid canary. The shoreside whiting vessel that had the high POP catch was consequently operating in waters unfamiliar to the skipper at a time when the shoreside whiting fishery would not normally be open. This bycatch event that led to the POP OY overage was therefore not anticipated and occurred too late in the season to react to with an inseason adjustment to the fishery.

The other instances of species OY overages depicted in Table 1 (i.e., those for darkblotched, Dover sole, and shortspine thornyheads) were due to trawl catches that exceeded projections (these are all trawl-dominant species). Some of these overages occurred late in the season from effort that was higher than projected and other overages were due to imprecise trawl bycatch projections from modeling non-representative bycatch rates, especially early in the period depicted in Table 1. Management decisions subsequent to these OY overage instances adapted from these miscues with better understanding of expected catch and effort late in the season under a range of management measures.

The performance standard of not exceeding total catch limits more often than once in four years on average has clearly not been met for all groundfish species. For this reason, the Council may want to add the ACT as another accountability measure to ensure ACLs are not exceeded in the future. While there may be no compelling reason to specify an ACT for most groundfish stocks, it is clear that it may be an important AM for a stock like canary rockfish under our current management system.

There are anticipated improvements to the management system that may make it less necessary to add the ACT to the FMP. The trawl fishery under the preferred alternative for Amendment 20 rationalization will have 100% observer coverage and real-time reporting of all catch, including discard mortality. This is a significant improvement in trawl catch monitoring and will eliminate management reliance on the trawl bycatch model and is a very precise AM for this fishery, which has historically had the highest groundfish bycatch. Trawl allocations of all the species listed in Table 1 will not likely be exceeded and, for the trawl-dominant species in Table 1 (i.e., all species other than bocaccio, cabezon, and canary), total catch limits will not likely be exceeded under the trawl rationalization program. However, the ACT may still be a useful AM for species like bocaccio, cabezon, and canary that are caught significantly in recreational fisheries. Catch estimation and projection in recreational fisheries is relatively uncertain and an ACT may be a reasonable measure for managing recreational impacts given this management uncertainty.

There are also other potential uses for the ACT. Since the ACT is a target and not a total catch limit, the ACT can be exceeded without penalty. Therefore, the ACT could be specified in a rebuilding strategy where the ACL defines the limit of acceptable fishing related mortality under a rebuilding plan and the ACT can be set lower in an attempt to get the fishery to perform better at avoiding the overfished species. For instance, the Council and NMFS have decided rebuilding strategies for bocaccio in the past where OYs were specified according to the adopted rebuilding plan, but the Council and NMFS stated a management intent to do better than that and set a target impact less than the OY. Likewise, the 2009-2010 rebuilding strategy for canary rockfish was to maintain the target harvest rate prescribed in the Amendment 16-4 rebuilding plan (the SPR harvest rate in the rebuilding plan projected a 155 mt OY in 2009 and 2010), but to set OYs under a lower harvest rate (i.e., 105 mt in 2009 and 2010). In both the bocaccio and canary cases, the ACL could be specified according to the rebuilding plan harvest rates and a lower ACT could be specified to attempt a more aggressive rebuilding strategy than prescribed in the adopted rebuilding plan. Given the management uncertainty associated with trying to balance conservation and socioeconomic objectives in a rebuilding plan (i.e., trying to rebuild overfished species in as short a time as possible while considering socioeconomic impacts on fishing communities), the strategic use of the ACT may be helpful.

The ACT may also be a helpful AM for species with relatively high rates of discard. Discard estimates tend to be highly variable from year to year and there is about a year and a half lag before discard mortality is reported in the total mortality reports provided by the NMFS Northwest Fisheries Science Center. Therefore, the uncertainty associated with high rates of discard mortality could be addressed by specifying an ACT. While this uncertainty is expected to be addressed for the trawl sectors under trawl rationalization, there are still some species such as arrowtooth flounder, spiny dogfish, and skates that are discarded at a relatively high rate in some limited entry and open access fixed gear fisheries. Such species may be good candidates for an ACT specification.

Finally, the ACT could be used as a harvest guideline in groundfish management since both specifications are annual catch targets and not limits. The new NS1 guidelines suggest ACTs could also be specified as sector-specific targets, which is analogous to the current use of harvest guidelines in groundfish management. The GMT discussed this aspect of managing with ACTs at their October meeting, including the potential of supplanting the current use of a harvest guideline in the FMP with the ACT. In concept, this was considered a reasonable Amendment 23 consideration. However, one practical impediment to this action is the California statute that says in effect that CDFG can close or modify fishing seasons and/or pursue other management actions to prevent exceeding a federally-specified OY or harvest guideline². Unless the statute is amended to allow such an automatic agency action (i.e., without a decision from the California Fish and Wildlife Commission, which is a more protracted process), redefining the harvest guideline as the ACT in the FMP may be untenable. However, such a change in the California statute may be needed anyway to allow automatic agency action to prevent exceeding a federally-specified ACL.

² The Washington and Oregon Departments of Fish and Wildlife already have relatively broad authority from their respective commissions to automatically close or modify their fisheries.