

5.0 SUMMARY OF IMPACTS OF THE ALTERNATIVES

5.1. Bycatch Parameter Estimates (Issue 2)

Evaluation of the bycatch and discard rate assumptions used to manage groundfish in the West Coast groundfish fishery yielded more conservative management measures for 2002 fisheries than were implemented in 2001 to further reduce incidental catch and discard mortality of overfished species. Council decisions regarding bycatch and discard were decidedly risk averse. In addition to estimating the amount and percentage of discard that would occur for each of the five species considered, target fishery limits were adjusted so that their expected total catch was less than their total catch OYs. This provides an additional layer of protection for these species, in that even if realized discard rates are somewhat higher than estimated, the total mortalities of these species should not exceed their OYs. Seasonal and geographic variations in bycatch or coincident catch rates of overfished species became apparent in the analysis, which contributes to the temporal and area variations in adopted trip and cumulative landing limits for target species in 2002. Although some of this variation is undoubtedly an artifact of "noise" in the data sources used in the evaluation, it is clear that healthy and depleted groundfish species do have varying associations in time and space. The Council took advantage of the best available informative data by structuring the 2002 fishery to maximize opportunities to harvest healthy stocks while minimizing potential bycatch and discard mortality of depleted stocks. The Council also committed to further evaluation of bycatch and discard assumptions. These data sources and estimation models will be important in the next few years until a sufficient set of at-sea observations across all sectors of the groundfish fishery is available.

5.2 Net Benefit Analysis for Management Actions (Issues 1 and 3)

Net benefit analysis takes costs and benefits into account from a national perspective. Net benefit analysis uses measures of real costs and benefits to all entities affected by an action in order to assess the net effect on the nation. The minimum standard for a cost-benefit analysis is a qualitative listing of positive and negative impacts. From there, an attempt is made to quantify or provide some indicators of the scale of the impacts and, if possible, to assign a monetary value to those changes.

The choice of harvest levels for 2002 involves a tradeoff between levels of risk to the resources and severe short term negative economic impacts to the users. On one side is the need to reduce human impacts (harvest) in order to achieve a timely recovery of overfished stocks (to ensure long term benefits related to production, ecosystem services, and existence values). On the other side, the imposition of severe short term negative economic effects on commercial and recreational fisheries, along with the businesses and communities that depend on those fisheries, must be considered. The risks of overfishing and the consequent reduction of long term benefits from the fishery are greatest under the "No Action" alternatives (2001 ABCs and OYs, 2001 assumed bycatch rates, and 2001 trip limits) and Alternative 1.2 (High ABCs and OYs). The opposite is true of Harvest Level Alternative 1.1 (Low ABCs and OYs) and the Issue 3 management regimes that would be expected to achieve Alternative 1.1 target harvest levels. The Council-proposed alternative (Alternative 1.3) is, for the most part, intermediate between the no action alternatives and the Low ABC/OY alternative. Issue 2, assumed bycatch rates, is an issue of selection of parameter estimates needed for harvest models. Selection of such parameter estimates are usually based on the best scientific information available rather than a balancing of costs and benefits, though some appraisal of the risk of selecting different parameter estimates is appropriate (see Section 4.2). The following is a summary of the costs and benefits associated with the proposed actions given the Issue 2 decisions on parameter estimates for bycatch, which are compared to a no action alternative that would continue 2001 management measures and harvest targets for the 2002 fishery. More detailed discussion of the impacts of the proposed action is provided in Section 4. The proposed action will reduce harvest as compared to the no action alternative.

COSTS OF REDUCED HARVEST**BENEFITS AND MITIGATING FACTORS FOR REDUCED HARVEST**

General

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Long term sustainability of the fish resource and natural and human communities that rely on the resource.

Commercial Harvest and Processing (Short Term)

Reduced exvessel revenue plus loss of processor mark-up. For the proposed alternative, exvessel value is projected to decline 21%, about \$10 million.

(Note: exvessel prices do not reflect any other compensations the fishers may receive such as financing, food, fuel, boat storage, or any other non-price benefits. The extent of these non-price benefits for West Coast fisheries are unknown.)

Reduction in lifestyle benefits to the degree that fishing is valued as a lifestyle over other types of employment and nonfishing work activities are substituted for fishing activities.

Loss to consumers of their first choice protein purchase (in this case, groundfish).

Reduced harvest and processing costs.

(Only "Opportunity Costs" are counted as savings. For example, expenditures on harvest such as the cost of labor, do not count as an economic opportunity cost if the labor would otherwise be unemployed. Additionally, if the labor would have been employed but at a lower earning rate, then the difference between the earnings in the fishery and next best alternative employment would not be counted as a cost (i.e., only the next best wage rate would be counted as a cost). The cost of an existing vessel is another cost to the firm that would not be considered a cost from the national viewpoint. If firms cannot make a profit given the capital costs of an existing vessel, the vessel will tend to be resold at lower prices until the vessel price is low enough to make its operation economically viable. The vessel is likely to stay active so long as revenue is sufficient to cover the operation and maintenance costs of the vessel.)

Limited opportunity to recover revenue by expansion into other fisheries.

There are a wide variety of substitute protein products available to consumers. This mitigates the importance of any particular protein source. The result is likely to be relatively small price changes in national markets. However, even very small price changes can mount to more substantial effects when aggregated across all related protein sales.

Recreational Harvest (Short Term)

Charter Vessels—reduced revenue from charter passengers (for the proposed action, a 15% reduction in effort is predicted for California, stable effort is predicted for Washington and Oregon)

Recreational anglers—loss of a first recreational opportunity.

Reduced costs. No estimates are available for net benefits from the charter vessel operation. The above opportunity cost discussion for commercial harvesters would also apply to recreational harvesters.

Possibility of some revenue recovery from other fishing/eco-tourism activities.

None identified (the manner in which the estimate of the average value for a recreational angler is derived takes into account the alternative recreational activities available to the recreational fisher).

Existence, Bequeathal, Option Values

Those who are not currently using the fish resource may experience one or more of the following benefits from a more conservative approach to management 1) existence value derived from knowing a fish population or ecosystem is protected without intent to harvest, observe, or otherwise derive direct benefits from the resource; 2) bequeathal value placed on knowing a fish population, habitat, or ecosystem is protected for the benefit of future generations; and 3) options value placed on knowing a fish population, habitat, or ecosystem has been protected and is available for use, regardless of whether the resources are actually used. These values may be closely related and overlap with values the general public places on wildlife and natural parks.

Government Costs (Short Term)

Smaller and less frequent fishing trips will increase the costs for monitoring catch and obtaining the biological data needed to manage the fishery. Little effect on enforcement and management.

As part of its decision on 2002 management measures (Issue 3), the Council considered whether or not to maintain year round harvest opportunities in the commercial groundfish fishery. Cumulative limit and trip limit management have been used to maintain a year round fishery in the past. The expected benefit of year round fishing is the maintenance of fish harvesting and processing activities. The benefit of maintaining local fishing

industry operations is a social benefit and does not necessarily imply greater efficiency benefit for the nation as a whole. Year round opportunity may be important to the local industry because short term closures during the year make it difficult for local processors to maintain workforces and justify the expenses of waterfront processing plants. When product flow from all fisheries (including groundfish) is not sufficient to maintain local processors, larger more diversified processors gain advantage and product is shipped out of the local communities to centralized sites that draw fish from a variety of fisheries and locations along the coast. Given that product is to be shipped out of the local ports, buyers may potentially gain additional advantage by locating processing facilities in areas where labor and facilities can be shared with other more stable segments of the food processing industry (e.g., agricultural areas). Economic impacts can be severe to some local port communities when processors become more centralized.

Counter to the arguments for maintaining a year round commercial seasonal structure are the theoretical benefits of a shorter seasonal option where trip and landing limits can potentially be increased and discards minimized. There is a potential benefit to fishermen, especially those who can employ their boats and gear to prosecute other fishing opportunities such as crab, shrimp, salmon, or other sectors of the groundfish fishery. It may be possible to logically stagger opportunities to optimize commercial fishing opportunities for individual fishermen. These opportunities vary coastwide necessitating a complex matrix of fishing seasons to maximize economic benefits to fishermen. The ability of commercial fish buyers and processors to flexibly process and market product under a staggered season approach will largely determine the economic effect for that sector of the industry and the associated community effects. The transition to such a fishing structure might be expected to result in reduced active processing capacity, especially in those ports that tend to rely on limited fisheries. Prior to a final Council decision, additional information will be provided to assess the trade-offs made between year round and shorter seasonal management measures.

In conjunction with a new assessment of the status of the yelloweye rockfish resource, substantial restrictions on the recreational groundfish fishery were proposed by the states for consideration in 2002. These will result in shorter fishing seasons and reduced catch allowances for several species, primarily rockfish. The economic impact of these recreational fishery alternatives will largely depend on other recreational opportunities such as salmon, tuna, other target recreational fisheries, and non-fishing activities in the coastal communities. The amount of effort targeted on shelf rockfish and, in the case of Washington and Oregon anglers, Pacific halibut, may dictate the total recreational fishing-induced mortality of yelloweye rockfish and therefore the potential to rebuild the stock.