



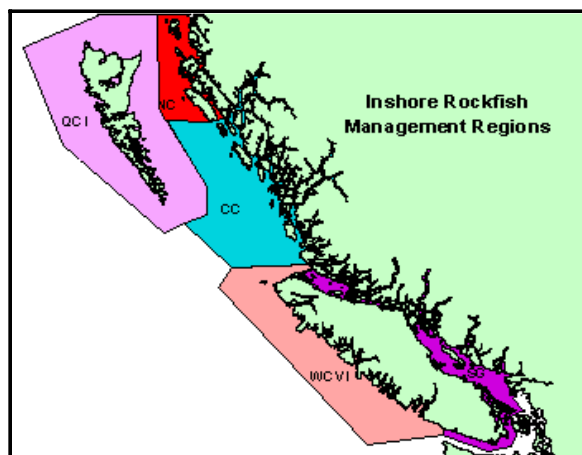
## Inshore Rockfish

### Background

“Inshore rockfish” refers to species of the genus *Sebastes* that are caught by hook and line gear in subsistence, recreational and commercial fisheries. These species include yelloweye (*S. ruberrimus*), quillback (*S. maliger*), copper (*S. caurinus*), china (*S. nebulosus*), black (*S. melanops*) and tiger (*S. nigrocinctus*) rockfish. All are commonly found on rocky reef habitat from Alaska to California.

Inshore rockfish grow slowly and are long-lived. Yelloweye rockfish can reach 90 cm in length and live up to 117 years. At 20 years of age, half of the yelloweye rockfish are sexually mature. Copper and quillback rockfish live up to 45 and 76 years, respectively. Rockfish generally mate in the fall and release free-swimming larvae in the early spring. Once the pelagic juveniles settle in a reef area, most become resident and rarely move.

Coastwide hook and line landings of all rockfish are estimated at 1,780 tonnes (3,924,200 lbs) for the 1998 commercial fishery. An estimated 84,000 rockfish were caught in the 1998 Strait of Georgia recreational fishery. Inshore rockfish are highly regarded as food fish – yelloweye rockfish are marketed as a fresh round product in the United States, while quillback and copper rockfish are marketed as a premium live product in local markets.



### The Fishery

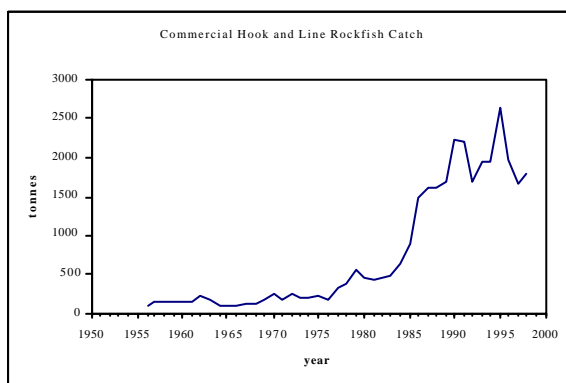
Inshore rockfish are primarily caught in a directed ZN hook and line fishery but are also caught incidentally in all other hook and line fisheries. Small amounts are caught in the groundfish trawl fishery. Creel survey estimates suggest that the recreational catch in the Strait of Georgia may be equal to that of the commercial fishery. Coastwide recreational and First Nations harvest levels are unknown.

A category ZN licence was created for the directed hook and line rockfish fishery in 1986. A variety of seasonal closures and bycatch limits were applied to the ZN fishery in 1987 and TACs were set for the first time in 1991. Limited-entry area licensing was implemented for ‘inside’ the Strait of Georgia in 1992 and for all other ‘outside’ regions in 1993. In 1998, there were 70 licences for ‘inside’ the Strait of Georgia and 191 for ‘outside’.

The commercial fishery is managed in each of five regions through annual total allowable catches (TACs). TAC limits are managed for yelloweye rockfish, and for a species aggregate comprised of quillback, copper, china and tiger rockfish. Fishing options and monthly catch and bycatch limits are additional fishery management measures. The inside ZN fishery targets quillback and copper rockfish for a live fish market. The

outside fishery has three options; quillback and copper rockfish for the live market, yelloweye rockfish for a fresh round market and various other rockfish species for a fillet market. Each option has directed catch and bycatch limits. In the halibut fishery, a portion of incidentally caught rockfish may be retained and landed with their halibut catch. The recreational fishery is limited by daily bag and possession limits with specific restrictions on the retention of yelloweye rockfish.

Landings from the commercial hook and line fishery peaked in 1995 at 2,640 tonnes (5,820,100 lbs). Rockfish landings declined to an estimated 1,780 tonnes (3,924,200 lbs) in 1998. A dockside monitoring program has verified landings from the hook and line rockfish, halibut, dogfish and lingcod fisheries since 1995. Assessment and management of the ZN fishery has focused on the inshore species, although significant quantities of rougheye (*S. aleutianus*), canary (*S. pinniger*), redbanded (*S. babcocki*), silvergray (*S. brevispinus*) and shortraker (*S. borealis*) rockfishes have been landed in recent years. The incidental catch of rockfish in the halibut fishery is significant at about 320 tonnes (705,500 lbs) in 1998. Yelloweye rockfish constitute the majority of these landings, at 247 tonnes (544,500 lbs).



Management of the ZN fishery has been dynamic, encompassing a full range of actions that have accumulated over time. Alternatives to traditional management methods, involving long-term area closures, are under consideration for all portions of the coast.

## Outlook

Traditional assessment and management methods are not appropriate for inshore rockfish because of their longevity, sedentary habit and the lack of information on stock structure. It is unclear whether catch per unit effort indices derived from logbook records are proportional to stock abundance. As adults, inshore rockfish are sedentary on rocky reef habitat and are susceptible to local area depletion. Catch and effort indices summarized over large areas may remain high as successive reefs within the area are harvested. The stability of the stock index ends dramatically once all the reefs within the area are exploited.

Logbook data from some areas suggest progressive fleet movement to fishing grounds further from landing ports, supporting the notion of declining stocks in these areas. Logbook data also indicate a decline in catch per unit effort for quillback rockfish in the Strait of Georgia over the last decade. This decline is exacerbated by increasingly stringent management measures applied over the same period. Inshore rockfish species are thought to be fully utilized coastwide, and are likely over-utilized in the Strait of Georgia.

The lack of a reliable stock index, estimate of abundance and a time series of catch-at-age information hinders stock assessments. Biologists are currently evaluating underwater video technology, in association with remote habitat classification systems, to directly estimate inshore rockfish abundance. Characteristics of yelloweye and redbanded rockfish in heavily and lightly exploited areas are being studied to determine harvest impacts on population biology.

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