Rockfish Indigenous Knowledge Project: 2015-2016

Diving back in time: Extending historical baselines for Yelloweye rockfish with Indigenous knowledge

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The Rockfish Indigenous Knowledge Project **was initiated and conducted in partnership with the Kitasoo/Xai'xais, Wuikinuxv, Nuxalk, and Heiltsuk Nations. The goal of the project was to explore and consolidate Indigenous knowledge regarding changes to Yelloweye rockfish, to compliment and extend ecological data that the Nations have been collecting since 2006.**

Understanding historical changes to Yelloweye rockfish is important for framing management goals for the species; prior to 2003, little data exists to help us establish baselines for Yelloweye.

The project's core questions were:

- ***Has Yelloweye rockfish size changed over time?***
- ***Has Yelloweye rockfish abundance changed over time?***
- ***If population abundance and size of Yelloweye rockfish has changed, what have been the potential drivers for this change?***
- ***How do ecological data and Indigenous knowledge align to help us better understand and manage Yelloweye Rockfish?***

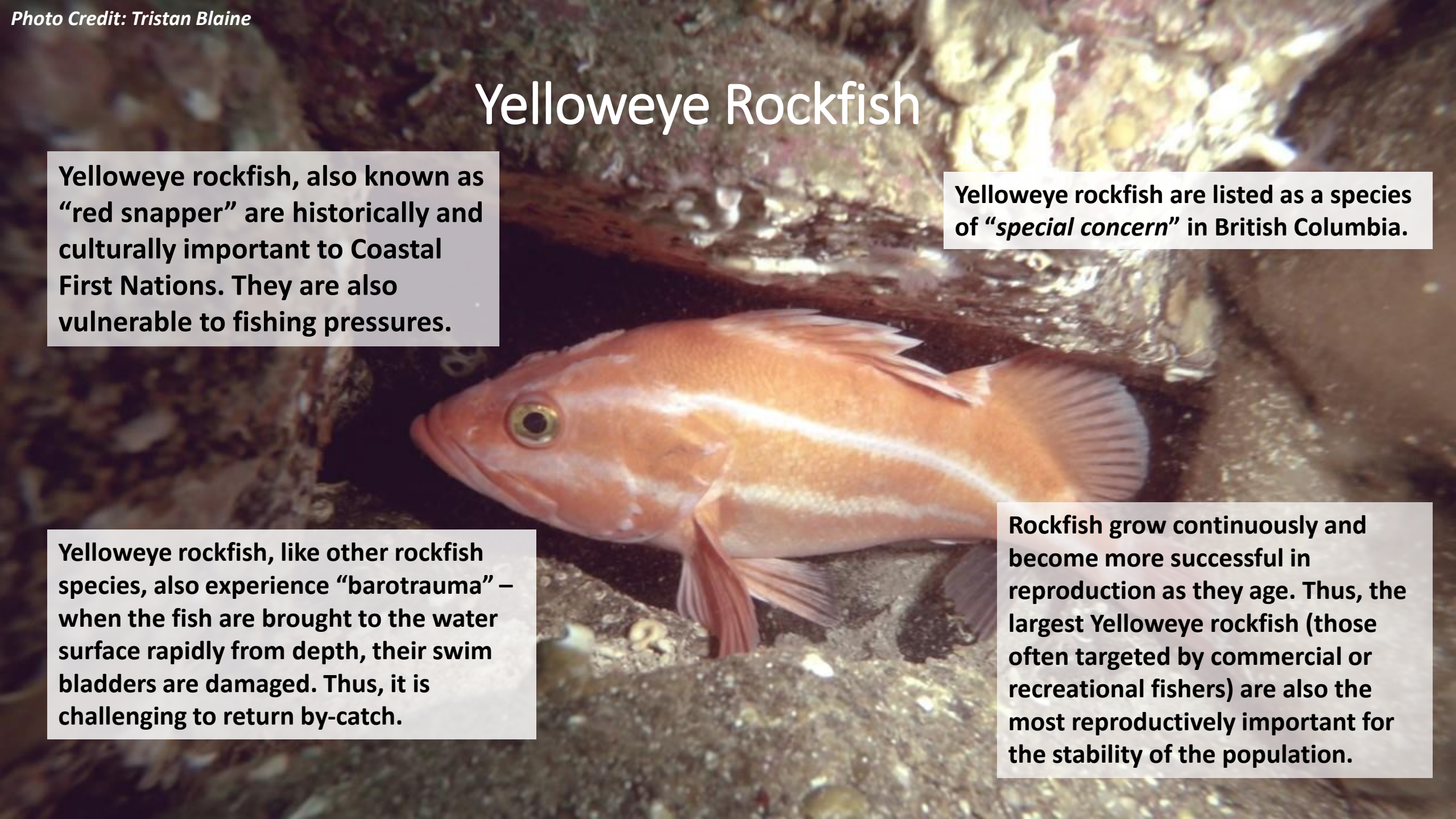


Photo Credit: Tristan Blaine

Yelloweye Rockfish

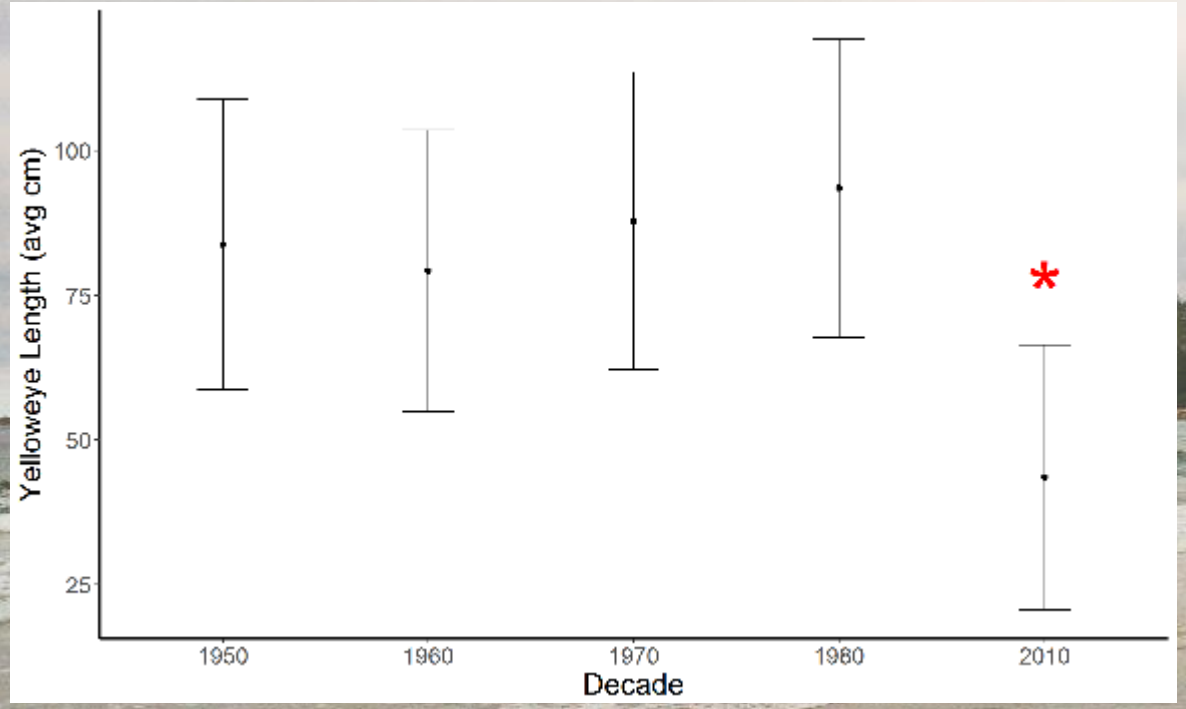
Yelloweye rockfish, also known as "red snapper" are historically and culturally important to Coastal First Nations. They are also vulnerable to fishing pressures.

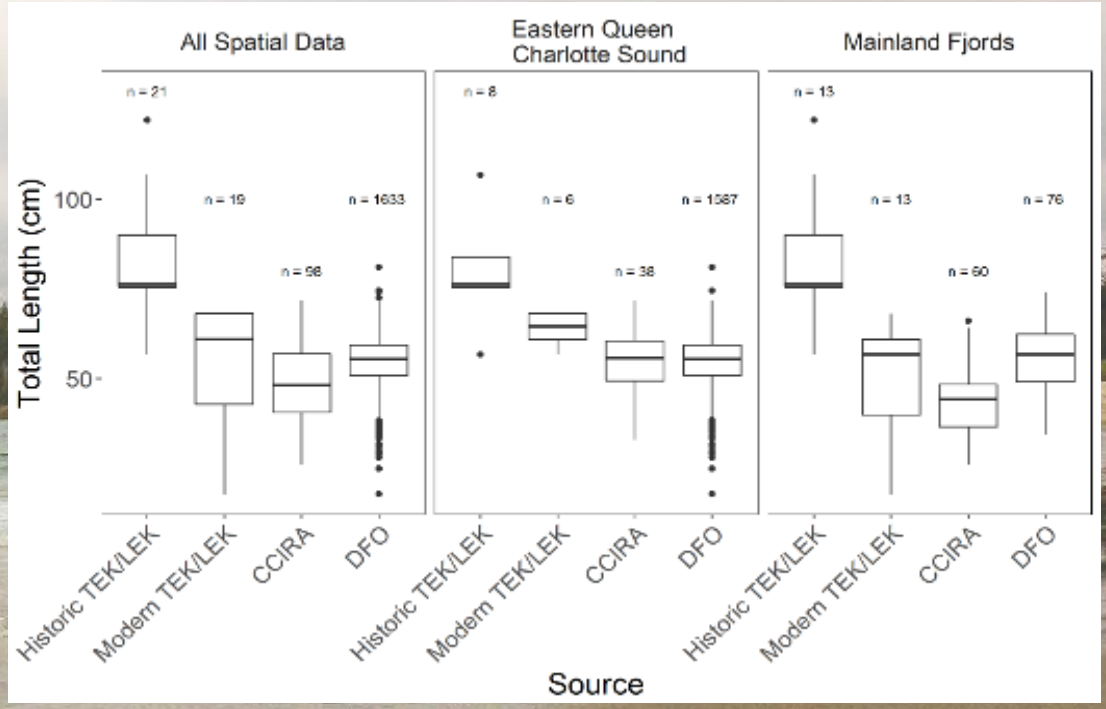
Yelloweye rockfish are listed as a species of "*special concern*" in British Columbia.

Yelloweye rockfish, like other rockfish species, also experience "barotrauma" – when the fish are brought to the water surface rapidly from depth, their swim bladders are damaged. Thus, it is challenging to return by-catch.

Rockfish grow continuously and become more successful in reproduction as they age. Thus, the largest Yelloweye rockfish (those often targeted by commercial or recreational fishers) are also the most reproductively important for the stability of the population.

Forty-two knowledge-holders, elders, and fishers were asked about their experiences harvesting Yelloweye rockfish. Project participants possessed a depth of knowledge about changes to Yelloweye rockfish, that complimented pre-existing ecological data and allowed us to extend our understanding of how commercial, recreational, and other environmental factors have affected this species.

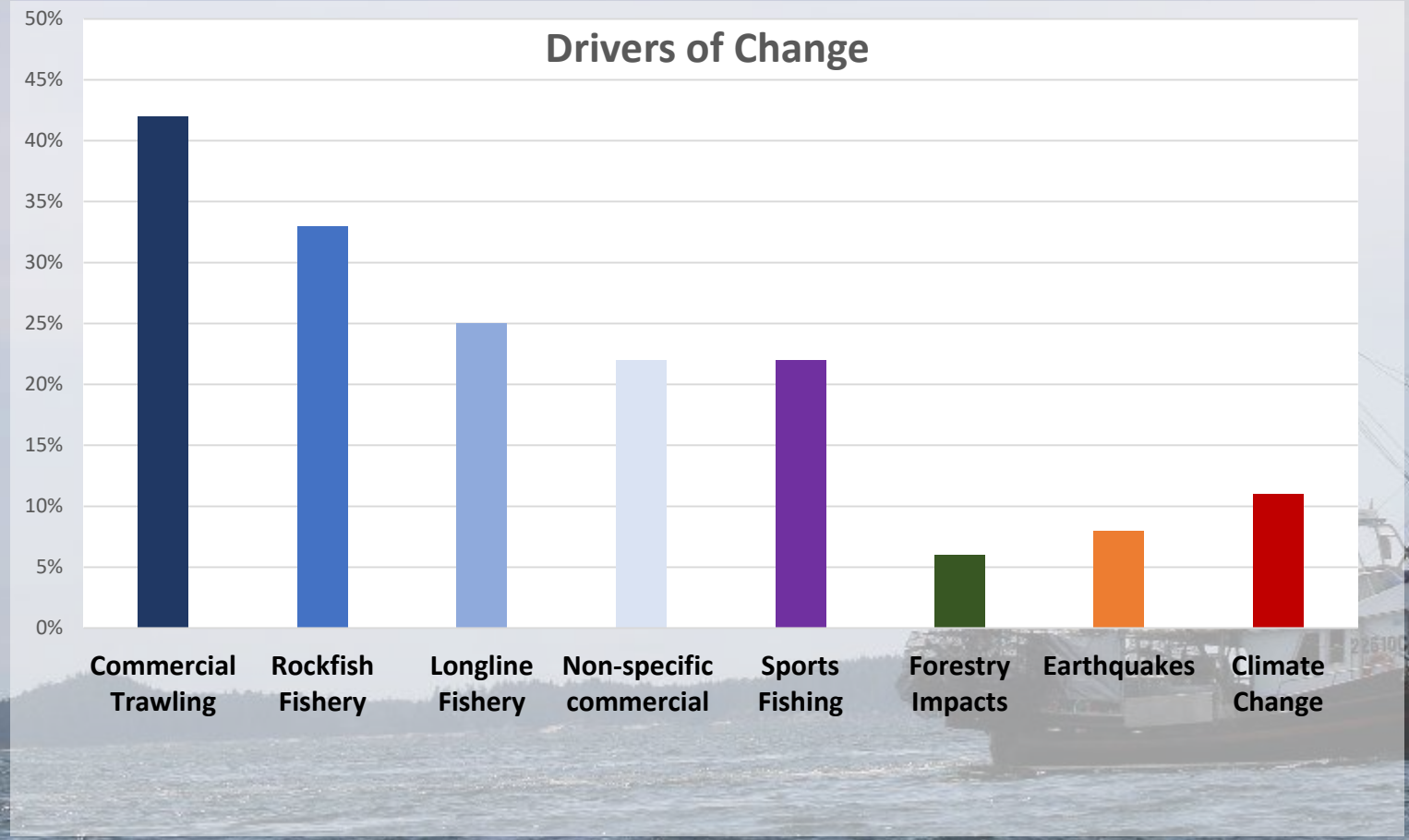




Knowledge-holders provided an estimate of Yelloweye rockfish size from their earliest and most recent years fishing. The average historical length (1950s-1980s) of Yelloweye rockfish reported by participants was 84cm – nearly double the modern (2010-2015) average length of 46 cm.

We compared Indigenous knowledge (TEK) to data collected by CCIRA and the Department of Fisheries and Oceans Canada (DFO). Modern sizes reported by fisherman were similar to those reported by other sources. Historical sizes were much larger.

All but one participant (97.6% of participants) reported a decline in abundance of rockfish over their lifetime spent fishing.



Various drivers were suggested as responsible for the major changes fishers had witnessed to Yelloweye rockfish size and population abundance. Most participants asserted that commercial trawling, in addition to other commercial activities, was responsible for population and size declines.

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This project, initiated by the Wuikinuxv, Nuxalk, Kitasoo/Xai'xais, and Heiltsuk Nations, illustrates the capacity of Indigenous knowledge to extend data baselines in areas where little, or no, scientific data exists. The loss of larger, more successfully-reproductive Yelloweye rockfish witnessed by First Nation fishers is a concern for current population sustainability of the species on the Central Coast. Our findings suggest that fisheries management for Yelloweye rockfish, and other long-lived groundfishes, should recognize the value of interweaving Indigenous knowledge with ecological assessments towards more conservative, and locally relevant, management strategies. Our findings suggest that implementing marine-use plans co-authored by involved First Nations will facilitate improved conservation and management of Yelloweye rockfish on the Central Coast.

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