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Catch Shares Benefit Fishermen and the Environment: A Scientific Compendium

November 21, 2012

ECOLOGICAL BENEFITS

Catch shares prevent, and even reverse, fisheries collapse

[Costello et al., 2008](#) published in *Science*, examined the fate of more than 11,000 fisheries around the world, and found that catch share fisheries remain stable in the long term. Specifically they found that "well-designed catch shares may prevent fishery collapse across diverse taxa and ecosystems", and that catch share management can prevent fisheries collapse.

Catch shares end overfishing by

1. Ensuring compliance with catch limits.

- [Grimm et al., 2012](#) published in *Marine Policy* found that 15 North American Fisheries that switched to catch shares exceeded catch limits 44 percent of the time before the switch, and rarely after. In fact, catch limits actually increased 13% after five years and 19% after ten years of catch share management. Some other highlights from the study can be viewed [here](#).
- Commercial fishermen voted to switch to catch shares in the Gulf red snapper fishery in 2007. Since then, there's been 100% compliance with catch limits, which has helped the red snapper population rebound. As a result, the catch limit has increased three years in a row with a total increase of 60% (Source: [NOAA 2012](#) and [NOAA report on the 2011 fishing year](#)). The season is year-round, compared to as low as just 52 days before ([SEDAR Stock Assessment, Red Snapper](#)).

2. Incentivizing stewardship among fishermen

- [Griffith, 2008](#) in *Frontiers in Ecology and the Environment* also finds that catch shares encourage stewardship, as well as a slower pace of fishing and cooperation. Catch shares "can realign fundamental incentives and thereby help to address the immediate threat of overfishing... IFQs create a management environment in which all stakeholders, including fishers, managers, scientists, and the public, have long-term interests in mind." There are examples of catch share fishermen advocating for lower catch limits and funding research into the status of fish stocks. Fishermen in British Columbia's groundfish catch share have insisted on better monitoring and have provided funding for it themselves, illustrating their stake in better compliance with fishing limits.

3. Making fisheries more sustainable

- "The New Zealand Ministry of Fisheries (2002) reports that 80% of the stocks initially placed under IFQ management for which information is available are above sustainable levels. In fact, between 1994 and 2002, the percentage of stocks above target levels grew by 67% (New Zealand Ministry of Fisheries 2002)." (From [Griffith 2008](#)).

- In 2011 seafood landings in US federal waters hit a 17-year high and values have increased. Approximately 65% of seafood caught in US federal waters is in catch share programs ([NOAA 2011 Annual Report](#)).
- [Costello et al., 2012](#), a peer-reviewed, landmark study in *Science* magazine, shed light on the status and solutions for the world's numerous data-poor fisheries. While the authors found that many fisheries are facing collapse, they also found that there are, "large potential conservation and food benefits from improving the management of the world's un-assessed fisheries." They also found that rights based management programs such as catch shares and TURF reserves have been proven to be successful and will be key tools for global fishery rebuilding in the future.

Catch shares reduce waste and discarded fish

- The amount of fish tossed overboard decreases dramatically under catch shares. Fishermen have the time and incentive to fish more selectively, therefore, avoiding catching the wrong species. [The 2012 study in Marine Policy](#) of 15 North American catch shares found that after switching to catch shares, the amount of fish that had to be tossed overboard dropped a whopping 66 percent. Alaskan Pollock, sablefish and halibut fisheries saw discards decline by 50-65% within ten years of catch share management.
- Alaska Pollock catch share fishermen participate in a cooperative and create voluntary no-take zones to avoid high salmon bycatch rates. They also share real-time warnings to others in the fleet when they discover hotspots for salmon ([Griffith 2008](#)).
- Catch share fishermen in the Gulf of Mexico reduced discards of red snapper by 50% in 2010 ([NOAA, 2010](#)).
- Catch share fishermen in the US Pacific shoreside non-whiting fishery increased retention rates from an average of 82% during the five years prior to catch shares to 95% in the first year under catch shares. ([NOAA Fisheries](#)) and ([NMFS Groundfish Report 2011](#))

Catch shares reduce "ghost fishing"

- [Branch, 2008](#) found several environmental benefits of catch shares when the catch limits are set at sustainable levels and are enforced. The benefits include increased compliance with catch limits and reduced mortality from "ghost fishing" (the fish that die in lost or tangled gear). Negative impacts can typically be avoided through careful design of catch share programs.
- In the Alaska halibut fishery, "ghost fishing was reduced by 80% in the first year under catch shares from 1,289,000 pounds in 1994 to 257,000 pounds in 1995. With more time, fishermen could recover tangled gear rather than cutting it loose ([Griffith, 2008](#) from [Gilroy, 2004](#)).

Catch Shares Stabilize Landings and Exploitation Rates

- Catch shares improve a fishery's predictability by stabilizing landings and exploitation rates ([Essington, 2010](#) and [Essington et. al, 2012](#)). These factors make fishery management more certain and improve the ability of fishermen to plan their businesses. "When management targets were specified, exploitation rates were always below the target levels following catch share implementation, and population biomass tended to move toward target level" (Essington, 2010).

BENEFITS FOR FISHERMEN

Fishermen have more freedom over when to fish and can plan their businesses

- Traditional fisheries management frequently attempts to address overfishing through strictly limiting when fishermen can be on the water. Fisheries in the U.S. and British Columbia that switched to catch shares saw an average increase in fishing days from 63 to 245 days in five years. ([Grimm et al., 2012](#))

Fishermen benefit economically

- Under catch shares, fleet-wide revenues in the U.S. and British Columbia increased 27% after five years, and 68% after ten years. Crew wages in the Alaska crab fishery increased 66%: ([Abbott et al., 2010](#))
- Revenues for the West Coast IFQ (catch share) for trawl fishermen reached \$54 million in 2011, compared to the 2006-2010 historical average of \$38 million ([NOAA, 2012](#)).
- The race to fish offers limited full-time employment, but more short-term, part-time work. “There is a marked shift from shorter-term, part-time jobs in the years prior to catch shares to greater full-time employment after catch share implementation.” Full-time equivalents increased an average of 2% in U.S. and British Columbian fisheries in the first five years of catch shares, contrasted with a 51% decline in the last five years of traditional management. ([Grimm et al., 2012](#))

The nation’s deadliest occupation becomes safer

- Fishing safety in the US and British Columbia nearly tripled on average in fisheries that switched to catch shares ([Grimm et al., 2012](#))
- The number of search and rescue mission in the Alaska halibut fishery declined from 26 and 33 in the last years of traditional management (1993 and 1994) to 2 in 2010 and 4 2011. ([NOAA, 2012](#))
- Alaska crabbing seen on Discovery’s “Deadliest Catch” has become much less deadly with catch shares. Before, seasons were as short as a few days and many crabbers perished in the intense race: eight in the last five years before catch shares. In the first five years of catch share management there has been one fatality ([National Institute for Occupational Safety and Health, and the US Coast Guard, 2010](#)). A captain on the “Deadliest Catch” said catch shares have “saved lives” and “there’s no way I’d choose to go back to the old derby days.” ([Wall Street Journal op-ed, 2011](#))