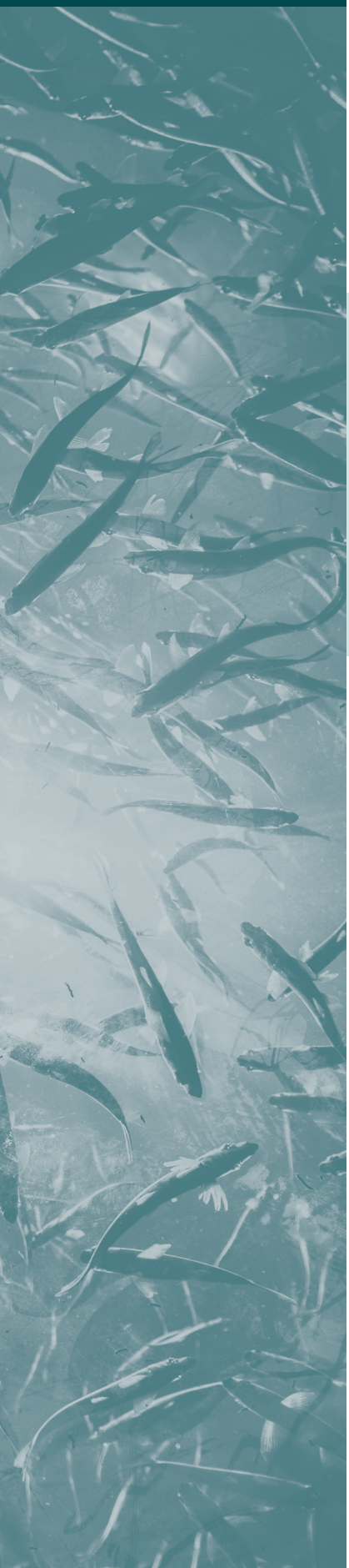
Future Fisheries Management Issue Brief



Paying People Not to Fish

Using Buyback Programs to Curb Overfishing

Nick Loris, C3 Solutions

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SUMMARY The commercial fishing industry provides consumers with a fresh, healthy food source and contributes significantly to the economies of many coastal communities. Overfishing, however, causes environmental, economic, and social harm. Buyback programs, paying fishers *not* to fish, have emerged as a crucial tool in combating overfishing. By purchasing and retiring fishing permits or vessels, these programs decrease the overall fishing capacity, allowing fish stocks to recover and replenish, thereby preserving biodiversity and promoting the long-term health of marine ecosystems. If designed to avoid perverse incentives and moral hazard issues, buyback programs could facilitate a transition to a more sustainable fishing industry with fewer subsidies and more reliance on property rights.

Overfishing is a textbook example of the tragedy of the commons. Fish are a *common resource*: Property rights in the ocean are either vague or nonexistent, and consequently fishers are incentivized to retrieve as many fish as possible. If they do not, other fishers will retrieve them. That is, even if fishers have a common economic interest in preserving the long-term health of the fish stocks, they are apt to engage in a race for the biggest catch at the expense of permanently depleting the resource.

Many national governments subsidize the fishing industry with policies such as direct payments, low-interest loans for vessels and equipment, and cheaper fuel. Such subsidies exacerbate the overfishing problem. They also entrench a greedy constituency that lobbies to keep and expand these profitable but unsustainable policies. One country's subsidies often encourage other countries to enact similar policies, making it more difficult for any single country to back down—even if the policies impose more economic harm than good.

The environmental, economic, and social harms of overfishing are well documented, but so are the difficulties of resolving the problem. For instance, after 20 years of negotiations, in June 2022 members of the World Trade Organization (WTO) finally reached an agreement to tackle subsidies that enable illegal, unreported, and unregulated fishing

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in the high seas. The agreement will enter into force once two-thirds of the WTO's membership accept it (109 out of the 164 members). To date, only 16 of the 164 members have done so. Despite recent progress toward reducing subsidies and defining and protecting property rights, clearly greater action is necessary.

A WTO agreement that reduces subsidies would be welcome, but minimizing overfishing demands a suite of solutions. Some could be applied globally; others may be more site- and situation-specific. To reduce environmentally unsustainable practices, it will be necessary to end subsidies, embrace technological fixes, and crack down on illegal fishing. Well-defined and legally enforceable property rights will also be instrumental in combatting overfishing. To this end, recent policy approaches to overfishing have refocused on establishing property rights, borrowing from Elinor Ostrom's work on collective property rights and regulating the commons.[1]

This paper explores a solution that could help governments transition from the current regime of fishing subsidies to a model based on property rights: paying people not to fish by supercharging and sustaining buyback programs. Granted, buyback programs alone will not solve overfishing, and they could introduce other problems into the industry. Policymakers must certainly be mindful of such programs' drawbacks or unintended consequences. If buyback programs are implemented properly, however, they could serve as a useful complement to phasing out subsidies and instituting property rights.

MARINE BIODIVERSITY AS A PRIVATE AND PUBLIC GOOD

Healthy, diverse marine life provides many economic and environmental benefits. Ocean life is the primary source of protein to more than three billion people.[2] The National Oceanic and Atmospheric Administration estimated that, in 2020, domestic commercial and recreational fisheries supported 1.7 million jobs and produced $253 billion in sales.[3]

Ingredients from ocean algae can be found in peanut butter, toothpaste, and cosmetic products.[4] Aquatic organisms contribute to a wide range of health benefits by producing chemicals that include antimicrobials, antibacterials, anticancer chemicals, antimalarials, and analgesics.[5] Considering that the majority of the ocean remains unexplored and unknown, the marine environment has the potential to propel groundbreaking medicinal innovations.[6]

Diverse marine life also supports a robust ecotourism industry as people travel to visit coastal communities that provide unique opportunities for scuba diving, snorkeling, and sport fishing. One study found that coral reefs alone generate $36 billion in GDP worldwide, with "on-reef" activities such as "diving, snorkeling, glass-bottom boating and wildlife watching on reefs themselves" accounting for more than half that amount ($19 billion).[7] In the United States, coastal and offshore tourism and recreation produced $237.6 billion in real gross output in 2019.[8]

Marine biodiversity also contributes to positive environmental spillover effects. The United Nations reports, "The ocean, and the life therein, are critical to the healthy functioning of the planet, supplying half of the oxygen we breathe and absorbing annually about 26 per cent of the anthropogenic carbon

dioxide emitted into the atmosphere."[9] Other studies have shown that marine biodiversity can help clean water by removing nutrient pollution.[10] Bradley Cardinale, an aquatic ecologist at the University of Michigan, said, "Nature is much like a sports team. Each member has a different, but complementary, role to play. And, as each of the players becomes better, they make for a more efficient team."[11] Healthy ocean ecosystems provide a net public benefit to future generations in the form of protecting species and biodiversity.[12] However, placing a value on the existence of biodiversity as a global public good is a challenging task, as is protecting biodiversity.

The loss of marine life driven by overfishing will create adverse economic and environmental effects. Economic costs include reduced sales from commercial and recreational fishing, fewer opportunities for supporting industries, and job losses. Overfishing also results in poorer air and water quality and higher greenhouse gas emissions.[13] Significant or permanent loss of some species could have harmful ripple effects throughout the ocean ecosystem, including threats to coral reef health,[14] marine food supply chains,[15] and natural ocean fertilizers.[16] In addition to the social losses of biodiversity, subsidized overfishing results in greater environmental degradation from marine debris (lost traps, nets, and lines) and vessel pollution.

TO COMBAT OVERFISHING, ELIMINATE SUBSIDIES AND ESTABLISH PROPERTY RIGHTS

According to the United Nations, the fishing industry is exploiting more than one-third of global fish stocks beyond sustainable levels. Arguably the two biggest challenges where overfishing is threatening biodiversity are global subsidies and ill-defined property rights.

A 2019 article in *Marine Policy* calculated fishing subsidies to be over $35 billion in 2018. China, the European Union, the United States, South Korea, and Japan account for 58 percent of this amount.[17] Nearly two-thirds ($22.2 billion) are capacity-enhancing subsidies that reduce costs and enable fishers to catch more. These include subsidies for fuel and preferential tax treatment for vessel construction, repair, and gear.[18] Different observers disagree about what should be classified as a subsidy. For instance, one tax subsidy included in the *Marine Policy* estimate entails accelerated depreciation for vessels and gear. Economists and tax analysts would classify accelerated depreciation as good tax policy that encourages investment in new equipment,[19] but others may suggest that accelerated depreciation favors investments in capital over other investments.

Many subsidies have disproportionately favored industrial operations at the expense of small-scale fishers. Indeed, some of these industrial operations would not be profitable without the help of subsidies.[20]

Case studies demonstrate how subsidy reform would benefit fishers, assist their local communities, and improve the long-term health of the industry.[21] A tool developed by University of California marine scientists estimate that, as of 2021, eliminating all fishing subsidies would increase fish biomass by 12.5 percent worldwide—the equivalent of 35 million metric tons of fish.[22] Even shifting subsidies away from fuel, gear, and bait and allocating them to fishers (through worker training, insurance, or disaster pay)

can improve the sustainability of fishing stocks, increase fishers' income, and result in greater fishing harvests in the long run.[23] In June 2022, the United States accepted a WTO agreement to prohibit subsidies for illegal, unreported, and unregulated fishing, for fishing overfished stocks, and for fishing in the unregulated high seas.[24]

Furthermore, a strong positive correlation exists between private property rights and cleaner environments.[25] Establishing well-defined and legally protected property rights has been key to creating more sustainable fish stocks while improving outcomes for local fishers and communities. A lack of property rights makes fishing a zero-sum game, incentivizing the fishing industry to extract the resource as quickly as possible. Clear property rights, on the other hand, incentivize a sustainable consumption of fish so that the resource continues to be a productive asset in the future.

The creation of tradable catch shares for certain fisheries has resulted in fish recovery, greater profit margins, and increased value in bycatch.[26] The introduction of property-rights-based policies such as quotas and catch-share programs that use tradable property rights for noncommercial fish has also helped protect at-risk species.[27] Even so, the necessity of setting quotas and enforcing catch share rules presents challenges. States or countries may disagree about what the appropriate quota is.[28] Fishing vessels continually violate domestic and international laws, and monitoring for violations is expensive, though recent technological advances have lowered costs and improved monitoring capabilities.

Despite these implementation problems, community-based models that apply Nobel Prize–winning economist Elinor Ostrom's research on governance of the commons have had success under the right conditions.[29] Drawing from Ostrom's work, George Mason University economists Paul Dragos Aligica and Ion Sterpan emphasize that "the specifics of the fishery in question, in terms of its social, ecological and institutional environment, should be the main driver" of the design and management of any property rights program. "There is no one-size-fits-all solution in fisheries governance."[30]

HOW TO IMPROVE BUYBACK PROGRAMS

One method to reduce the overexploitation of fish stocks is to implement buyback programs. Buybacks occur when governments purchase vessels, fishing licenses, and permits and then leave those ashore to reduce the number of fishers. This allows marine life the time and space to rebuild stocks, protecting biodiversity. Two of the potential benefits of expanded buyback programs are the relative ease of implementing the proposal (paying people not to fish) and the ability to negotiate a mutually agreed-upon price. The work of economist Ronald Coase helps to underscore how buyback programs could generate efficient, cost-effective outcomes in the attempt to limit overfishing.

In "The Problem of Social Cost," published in 1960, Coase considered disputes over property rights or social costs and argued that settling such disputes (or internalizing the externality) does not necessarily require litigation, regulation, or taxes. Instead, Coase wrote that in a world with zero transaction costs, the affected parties could achieve more efficient outcomes through bargaining or negotiating.[31] Yet part

of Coase's intent was to, in his words, "make clear the role that transaction costs do, and should, play in the fashioning of the institutions that make up the economic system."[32]

Transaction costs to combat overfishing are high, but institutions, knowledge, and technology have lowered them. Information about the parties responsible for overfishing, what fish stocks have been overexploited, and what species are threatened has become more accessible. Negotiating buybacks through voluntary and peaceful cooperation could create a mechanism to repopulate stocks, save species quickly, and help transition the fishing industry off subsidies.

Direct payments for conservation are a useful tactic. For instance, a study that examined a program to pay landowners in Uganda to conserve the forests on their land found that the payments curbed deforestation. Encouragingly, it also found no evidence that deforestation shifted to neighboring lands.[33] Similar "cooperation over conflict" approaches have worked in relationships between conservationists and ranchers and in California, where a nonprofit pays farmers not to use water in an effort to protect spawning fish when water levels are low.[34]

In conjunction with quotas and property rights, paying people not to fish could be an effective and relatively immediate solution to the problem of depleted stocks and threatened species. In fact, a case study of Australia's South East Trawl Fishery found its buyback program "useful as a transition strategy because it was needed to address the poor allocation system [of the individual transferable quota], and nudged the existing system toward autonomous adjustment."[35] Similarly, the Bering Sea pollock buyback program included a cooperative catch share where fishers were "able to catch their individual fish allocations at their own pace, at lower capital and operating costs, while increasing product quality."[36]

ADDRESSING CHALLENGES TO SUCCESSFUL BUYBACK PROGRAMS

Many developed countries have used fishing buyback programs, and these have met with varying degrees of success.[37] To craft successful programs, policymakers must consider and address several challenges. One challenge is the durability of the program, also known as effort creep. The usefulness of these programs is threatened if fishers reenter the market once fish stocks improve or if fishers with dormant permits begin putting these to use because other fishers have exited the market. United States buyback programs have experienced this problem. A May 2001 Government Accountability Office report on a New England buyback program found that a "$24.4 million New England buyback removed 79 vessels; however, because of the number of unused fishing permits in the fishery, 62 previously inactive vessels began catching groundfish after the buyback. These fishermen have begun to erode the capacity reductions made by the buyback, replacing fishing capacity by as much as two-thirds of that purchased through the buyback."[38]

Stricter enforcement for monitoring and compliance is necessary to prevent reentry and the use of dormant permits and to reduce information asymmetries. Better access to information will also help authorities understand which vessels to target and how much capacity needs to be bought. Furthermore, what is being bought back and for how long can affect how successful the program will be. Buybacks of fishing

permits can help the population of a specific species in a dedicated area, but if no fishing vessels are permanently discarded, they could simply move to another location and consequently overfish a different species.

Successful buyback programs, such as those that have removed licenses and vessels from crab fishing off the coast of Alaska, condition the buyback on permanent removal. For about $100 million, the Alaska buyback permanently removed 25 vessels and 62 licenses and permits.[39] In addition to ensuring that removed vessels cannot operate anywhere else, it is also important to prohibit the entry of new vessels. If fishers that remain in the market expand operations or invest in a fleet of more productive vessels, buybacks will do little to address the overfishing problem. Prohibition of reentry is essential.

Another major challenge is how to address the perverse incentives created by buyback programs. If fishers know a large sum of money is available from the government, operators may stay in market longer than they otherwise might in the hope of getting bought out. They may hold on to dormant licenses and vessels. If fishers know that the fish population is in rapid decline, they may attempt to use this knowledge to attract a bigger payout.

More money, particularly public money, could also exacerbate the moral hazard problem. Bought-out fishers or unprofitable fishers may hold on to latent permits longer than they otherwise might in the hope of receiving buyback funds or becoming dependent on government payments. Or privately financed buybacks might fail to occur because of an expectation that the government will foot the bill. One research team found that "in Norway, boat owners abandoned a preliminary plan for an industry financed buyback when they learned that government authorities were prepared to use public funds for a buyback."[40]

Greater reliance on financing from private sources and nongovernmental organizations could alleviate the moral hazard problem. Further, introducing competitive and privately financed mechanisms, such as reverse auctions, would likely result in more cost-effective buybacks that help address the problems caused by perverse incentives. In addition to improving economic efficiency, competitive auctions can reduce information asymmetries and alleviate principal-agent problems. Dale Squires at the National Oceanic and Atmospheric Administration writes, "Auctions help achieve (allocative) efficiency with minimal information required from the agency as the better-informed bidders reveal their privately held information, but transaction costs can be higher. Auction prices are more likely to reflect the fishers' true opportunity costs, reduce price uncertainty, create more competition, and reduce information asymmetry."[41] Dormant fishers hoping to secure a buyout risk missing out if others want to quickly exit the market at a lower price.

Crucially, private operators have an intrinsic motivation to make the buyback successful. With intimate knowledge of the resource and with a strong financial incentive to keep resource stocks healthy, the organizers of privately funded buybacks could better align incentives to create more efficient programs. The best design of an auction may depend on the characteristics of the bidders.[42] Additional payments could also be tied to species recovery, though factors (physical and environmental) beyond reducing the number of vessels in the water may determine how effective the rebuild is.

Buyback programs that are ongoing will be more effective than one-time buyouts, but to achieve longevity a program will need to rely on a large pool of funds. Additional funding could come from greater participation from the active fishing community that stands to benefit when other vessels and permits are no longer active. After all, commercial fishers still in the market will have higher revenues, and nonprofits and conservationists interested in species recovery could also donate to the program or finance it through industry fees. For instance, Congress authorized $100 million to finance Alaska's crab fisheries buyback program, but the authorization was a loan paid back by operating fishers through fees collected when they harvested the crabs.[43]

Having more money available would lead to questions about which entity could most efficiently distribute those funds and who should receive those funds.[44] To the extent that public funds are available, it may be more prudent for them to be privately administered than publicly administered to address the moral hazard problem that enables government dependence. Since sustainable fish stocks are an environmental public good, it is reasonable to devote public funds to direct payments for ecological protection.[45] Squires writes, "Buybacks increasingly address the under-supply of public goods of ecosystem and biodiversity health and the over-provision of their decline, which can be labeled as public bads. Buybacks can compensate fishers for loss of historical use rights when they are no longer able to fish in marine reserves for example, or they may compensate fishers for methods that reduce bycatch."[46]

Another consideration must be the socioeconomic implications of buybacks. Many local fishing communities have rich cultural histories in the form of smaller operations that date back generations. A buyback program that successfully reduces overfishing, improves long-term financial viability, and lessens environmental impact could have a negative impact by disproportionately squeezing out smaller, family-owned vessels. Removing these vessels will consolidate power in the hands of large corporate fishers. A larger, more consolidated industry is not necessarily problematic—in fact, greater consolidation may be accompanied by gains in efficiency. But it becomes problematic when businesses use their power and influence to achieve regulatory capture, crafting regulations and policies to adversely affect their competition or block would-be competitors from entering the market.

Buybacks may also introduce broader cultural concerns. A 2017 article in *Maritime Studies* observes that buyback programs can devastate small fishing communities, causing adverse economic effects to ripple throughout a town. Displaced workers have struggled to find other work, and towns have lost a major part of their cultural identity.[47] Alternative proposals that could minimize negative cultural effects include exempting indigenous and aboriginal fishers from buyback programs or targeting vessels whose owners do not live in a vulnerable community. Of course, socioeconomic disintegration may be even worse if overfishing depletes the resources available to fishers.

Some historical fishing communities have shifted away from fishing and into tourism or other sectors of the economy, often by making use of financial assistance and retraining programs.[48] The tradeoff may be a less economically efficient buyback program but greater protection of a fishing community's culture. According to the analysis of specific buyback programs published in *Maritime Studies*, better socioeconomic outcomes resulted when there were social assistance programs available for the fishing

communities and when the broader economy of the fishing town was stronger, making it easier for fishers to find another job. It was also important that the buyback program and any assistance or retraining programs were overseen by an entity that had the community's trust.[49]

CONCLUSION

While buybacks provide a method to combat overfishing, it remains important to consider that fishers are a group with interests. Like any other concentrated group, fishers may seek policies that are in their interests rather than in society's best interest. Buybacks should be optimally designed to balance the interests of fishers with the interests of the rest of society and with broader environmental objectives.

Expanding the use of buybacks is not a unilateral solution to overfishing, but it could overcome some of the long-standing political economy challenges that have impeded previous efforts to address this problem. Only buyback programs that follow a property-rights-based model will yield benefits, however. Programs that do not follow such a model do little to reduce the incentives prompting those not targeted by the program to engage in "the race to fish." Supercharging buybacks, in conjunction with technological advances and stronger governance and enforcement, can help countries expeditiously transition to an unsubsidized, property-rights-based fishing economy.

ABOUT THE AUTHOR

Nick Loris is the vice president of public policy at C3 Solutions. He studies and writes about a wide range of energy and climate policies, including natural resource extraction, energy subsidies, nuclear energy, renewable power, and energy efficiency. He also studies ways in which markets will improve the environment, reduce emissions, and adapt to a changing climate. Loris has testified before House and Senate committees on a variety of energy and environment issues. He serves as a senior adviser on energy and environment at Madrus and on policy advisory boards at ConservAmerica and the American Conservation Coalition.

ABOUT THE SERIES

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