

Americas: Mexico

Buy-outs and buy-in: Saving the vaquita in the Gulf of California

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Abstract

A joint TNC/WWF Gulf of California team is exploring several options for private marine and coastal conservation to complement and augment existing protection strategies. Those include coastal zone concessions, coastal land acquisition, kelp concessions, water rights acquisitions, incentive-based fisheries management tools, and fishing buy-outs. This case study focuses on the vaquita initiative, which is a collaborative effort by several government agencies and non-governmental organizations. A public-private buyout effort, the leasing of gillnets, and gear swaps are being used in a strategy to protect the vaquita harbor porpoise from extinction. This paper highlights the importance of obtaining governmental collaboration for creating the enabling conditions for a buy out

Context

The vaquita

The vaquita (*Phocoena sinus*) is the smallest cetacean in the world and one of only four *Phocoena* species. It was not described scientifically until 1958. The species is endemic to Mexican waters. Its historical range is not known, but the existing evidence suggests that it was never widely distributed. The core area of its present distribution is in the northern Gulf of California. Vaquitas are cryptic and elusive in behavior, they occur in small groups (an average of two), spend little time at the surface where they are inconspicuous (i.e., do not splash or jump), do not vocalize extensively, and generally avoid contact with humans. They are shallow water, generalist feeders, consuming a wide variety of benthic fishes and squids. The maximum population growth rate is not likely to exceed four percent annually. Their present age distribution appears to be bimodal, with a paucity of younger adults. Existing evidence suggests that females reach maturity between ages three and six and are able to produce a calf once every two years.

The vaquita is threatened

Historical abundance of the vaquita is not known, but genetic evidence indicates that the vaquita population was never large. A survey suggested that in 1997—after five decades of by-catch in fisheries—abundance was about 600 individuals. Continued by-catch since then, combined with the species' naturally low rate of population growth, indicates a present abundance of about 150 individuals, only a portion of which are mature and contributing to recovery through reproduction. The available survey data (visual and acoustic) indicate that the population is declining rapidly. Refining this information could take a decade or more and cost millions of dollars, but would not change the fundamental dilemma or alleviate the severe risk of extinction. The limited number of breeding vaquitas may lead to inbreeding, increasing the expression of deleterious, recessive genes and increasing mortality or decreasing reproduction. Such inbreeding depression can be resolved only by increasing population size. Existing evidence does not indicate that inbreeding is a problem now, but the risk will increase if recovery is delayed.

The primary cause of vaquita mortality, and thus the primary threat to the vaquita population, is entanglement in gillnets. Historically, gillnets were set for totoaba, which was overfished and is now endangered. Currently, gillnets (large- and small-mesh) are set for shrimp, chano, corvina, mackerels,

sharks, and rays by fishermen from San Felipe, Puerto Peñasco (Rocky Point) and Santa Clara. Surveys in 1993-1995 indicated that 39 vaquita were killed each year by fishermen from Santa Clara alone.

Social and economic context

Fishing resources of the Upper Gulf of California have been the basis of economic and demographic growth in the upper Gulf of California since the beginning of the 20th century. Totoaba fisheries were the basic reason for human settling at Santa Clara and San Felipe, but in the 1940s the captures decreased drastically. Meanwhile, the shrimp capture grew and currently is the most important fishery of the region. Due to its size and quality, the shrimp from the Upper Gulf is highly demanded for export and domestic consumption.

Given the physical characteristics of the Upper Gulf, agricultural/livestock and mining activities are practically nonexistent. Population employed in the primary sector is engaged on fishing activities. Human communities depend on fisheries and fisheries are declining drastically, therefore the future of fishing villages in the upper gulf is unclear if over-fishing continues.

Institutional context

The last census (in February 2008) revealed that there are about 700 fishing permits and around legal 850 legal vessels in the zone. There is not a clear idea about the number of illegal vessels, but the estimates range from less than 300 (fisheries commission best guess) to nearly a thousand (legal fishermen perception). Some (but not all) of the illegal fishermen are considered legitimate, legal fishermen by their peers as they have been fishermen for years and are part of a local community of fishermen. In addition, “legal” fishermen who are from neighboring villages are considered “non-legitimate” by the locals. This complexity has created a historical tolerance of illegal fisheries and poorly defined property rights for the fishing resources within the zone. These conditions complicate the possibility of implementing successful public policies in the zone.

Furthermore there is a long history of conflicts among stakeholders in the zone. The upper Gulf of California is an important zone for fisheries and conservation sectors. Conflicts among fisheries as an economic sector and conservation have occurred during the last half century. These conflicts persist even inside the Mexican government as the fisheries commission (part of the agriculture ministry) and natural protected areas commission (part of the environmental ministry) have different mandates, different political clients and have a history of very poor collaboration.

Agreement mechanism: a buy-out

The idea of a buyout first arose in 2005 with a joint document within the Mexican National Institute of Ecology (INE) and some international non-profit organizations (WWF, TNC, CI, and EDF). The idea is simple: if entanglement is the primary cause of vaquita mortality and the quality of life for fishermen is declining along with fish stocks, then compensating fishermen to stop fishing may be a solution for saving vaquita from extinction. The document also recognizes that the enabling conditions for trying to do a buy-out—strengthening the enforcement, clarifying property rights, and promoting inter agency collaboration within Mexican government agencies—are necessary to implement this agreement.

The buy-out as a part of a more comprehensive solution

The buy-out strategy came after years of looking for different solutions. Zoning and technological solutions, market instruments (labeling “vaquita free” shrimp and consumer boycott of Mexican shrimp), micromanagement for helping fishermen to develop alternative livelihoods, as well as banning the use of gillnets, have been part of the discussions. A buy-out provides the financial incentive to reduce mortality

of vaquita in the short-term, hopefully before the population becomes too small to recover. We hope to implement all of the options listed below. The first two options listed below may be implemented as direct and pure buy-outs or as support for developing alternative livelihoods.

- A permanent buy-out - Purchasing gear, boats and permits from fishermen who stop using gillnets.
- A temporary rent-out - Immediately renting gear, boats and permits to reduce mortality while permanent options are explored.
- A technological swap-out - Swapping non-entangling gear (e.g., traps, *suriperas*) for gillnets, in a temporal or permanent basis.
- A geographical buy-out - Compensating (permanent or temporal) fishermen for not fishing in the vaquita refuge.

Creating the enabling conditions

As mentioned above the institutional context is defined by conflicts among stakeholders, weak and un-effective enforcement capacity, limited cooperation among governmental agencies, historical tolerance to illegality and extremely poor defined property rights. Under those conditions the success of a buy-out could hardly be assured. Thus the challenge is assuring that governments, fishermen and civil society work together to create the conditions needed for a buyout.

Some actions undertaken by the Mexican government to create the enabling conditions for the buy-out are listed below. With these pieces in place, it is now possible for conservation agreements to help save the vaquita.

- Creation of the biosphere reserve (1974, 1993) - Since 1974 the upper Gulf of California has been under different conservation categories. In 1993 the upper Gulf was designated a biosphere reserve.
- Creation of the refuge area (2005) - In 2005 a refuge for vaquita was created in their limited area of distribution.
- Program for vaquita protection inside the refuge area (2005) - The program established guidelines for protecting vaquita in the refuge zone. However, there were enforcement problems due to conflicts between the Environment Ministry that had the responsibility for managing the refuge and the Fisheries Ministry that has the only enforcement authority over fishermen.
- First buy-out for alternative livelihoods (2007) - The first buy-out for alternative livelihoods cost approximately \$3 million with the retirement of a few more than 60 fishermen. This buy-out was criticized for several reasons: (i) it was done before the fisheries completed its review of fishing permits that tied each permit to one fishermen, specific fishing equipment and specific boats (the permits that were purchased did not ensure that the boats and motors were not sold to other fisherman and may not have reduced fishing effort); (ii) the buy-out simply retired permits, not vessels or engines and fishing equipment; and (iii) the auction design artificially inflated prices for the permits.
- Management plan of the biosphere reserve (by mid-2008) - The current management plan was published in 1995. A new plan will be completed by mid-2008 that should ban the use of gillnets at the intersection of the refuge and the biosphere reserve. The Environmental Ministry has jurisdiction in the reserve, and could enforce the gillnet ban in accordance with the fisheries agency if and only if this strategy is part of the management plan.

- Fishermen census (2008) - The Fisheries Commission counted the number of fishing permits (about 700) and boats in the zone (about 850).
- Fishermen re-ordering complete - After re-ordering, fishing permits were tied to one fisherman, specific fishing equipment and specific boats. The new fishing permits are also now tied to a specific zone, in this case the upper Gulf of California. No other fishermen will be allowed to fish in this zone, creating fishing exclusivity for the re-ordered fishermen.
- Coordination agreement (2008) - An agreement between the Environment and Agriculture (Fisheries) Ministries allows for coordination of the vaquita conservation program.
- Enforcement agreement - An enforcement agreement was signed between three agencies: fisheries and the attorney general for enforcement, and the Navy to provide 10 Navy boats for 100 days each year and flights over the zone to enforce compliance of the gillnet ban and the fishing exclusivity zone.
- Creation of an evaluation and monitoring committee for vaquita program (2008) - A committee of NGOs, fishermen, academics and the government will evaluate, certify and recommend annual changes to all aspects of the conservation and enforcement program.
- Second buy-out for alternative livelihoods (2008) - This buy-out cost \$13.5 million, to compensate for the retirement or modification of fishing practices for the total legal artisanal fleet. Two-hundred fishermen opted for the alternative livelihoods compensation, 100 fishermen opted to switch fishing gears, and 548 fishermen opted to stop fishing inside the zone.

Funding

The vaquita effort is being supported by three different sources of funding: the Mexican government, international support, and philanthropic funds. In this situation it is important for the NGOs involved in the process to know how to mobilize international public and private concern while affirming the Mexican government's leadership on this issue.

- Mexican government funding - About \$20 million has been invested by the Mexican government to create the enabling conditions and to carrying out the first two buy-outs. Mexican government funds are conditioned (by Mexican law) to pay for investment in alternative livelihoods (i.e., infrastructure and small businesses). It is not possible for the Mexican government to directly compensate fishermen to stop fishing. As such, all Mexican government buyouts are limited to those fishermen who want risk starting a new small business with the financial and technical support of the government.
- International support - At this moment international aid has been used to improve science, test technology and create public awareness. The window of opportunity is open for the Mexican government and international NGOs to mobilize international aid for reducing fishing effort among the 548 fishermen that still have gillnets and permission to use them outside the vaquita refuge.
- Philanthropic funds - NGOs should not work independently of one another to obtain funds. Building a collaborative, non-competitive NGO coalition is a must for supporting the effort. Very clear rules for the buy-out and the commitment of the Mexican government are key issues for giving certainty to the donors that want their money used in a successful investment. The funding requirements will depend on whether the Mexican government plans to provide funding for alternative livelihoods for the 548 fishermen that still have gillnets. Philanthropic funding may be needed for temporary rent-outs, direct buy-outs or gear switching.

Conclusions

The vaquita initiative was a very messy process with many errors in application. However, the urgency for saving the vaquita did not allow the initiative to reach for perfect solutions. The private agreements (the buy-outs) were first proposed in a very difficult context within which property rights were not clearly defined. The initiative continues to create enabling conditions while acting, almost simultaneously, to reduce vaquita mortality. In general the conclusions of the vaquita experience can be summarized in six points:

- Urgency - We had to significantly reduce mortality immediately or the vaquita would go extinct. Trying to discover the perfect solution may be the enemy of success; the right solutions may be messy.
- Enforcement is key - Success depends on effective enforcement. Without ways to keep retired nets out of the water and new fishing effort from leaking back in, the buy-out efforts will be wasted.
- Social solutions are indispensable - Gillnet elimination, without meaningful compensations and/or transitions to alternative livelihoods, was politically infeasible.
- Durable management solutions must follow short-term fixes - The political will to create and enforce a permanent ban on gillnets is the key to making this investment last and saving the vaquita.
- Without clear property rights private agreements will not stand - An important lesson, applicable to other private agreements, is that without clear property rights there will no certainty of compliance with a private agreement. In this particular case it was not possible to buy the fishing rights of someone who did not have a clear and individual property right.
- Buy-outs require buy-in - Mexican government leaders—from the presidency to local agents—had to buy in to the plan and work hard to implement it. International actors have to play more intelligent, nuanced and less visible supporting roles.