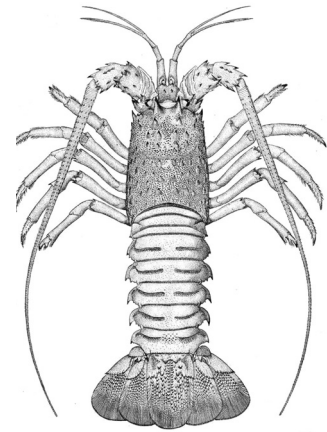


CATCH SHARES IN ACTION

**Mexican Vigía Chico Cooperative
Spiny Lobster Territorial Use Rights
for Fishing Program**



AUTHOR

Erica Cunningham

CONTRIBUTORS

Ashley Apel, Pam Ruiter and Tonya Van Leuvan

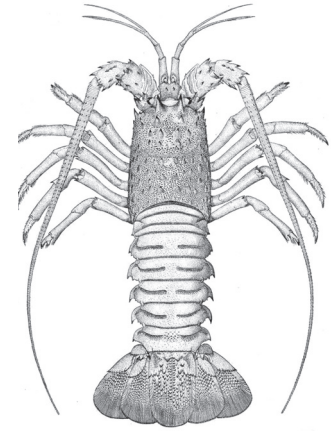
Copyright © 2013 Environmental Defense Fund. All rights reserved.

Cunningham, E. (2013). Catch Shares in Action: Mexican Vigía Chico Cooperative Spiny Lobster Territorial Use Rights for Fishing Program. Environmental Defense Fund.



SEASALT

- Secure
- Exclusive
- All sources
- Scaled
- Accountable
- Limited



CATCH SHARES IN ACTION

Mexican Vigía Chico Cooperative Spiny Lobster Territorial Use Rights for Fishing Program

SPECIAL DESIGN FEATURES



SINGLE-SPECIES, GROUP-ALLOCATED,
AREA-BASED, NON-TRANSFERABLE

The Mexican Pescadores de Vigía Chico Cooperative is a group-allocated, area-based catch share that manages the Punta Allen spiny lobster fishery. The catch share, or Territorial Use Rights for Fishing (TURF) program, includes a number of special design features to achieve goals set by the Mexican government and the Cooperative, including sustainable harvests and Cooperative self-sufficiency and self-governance. Important design features include a secure tenure length of 20 years with a strong assumption of renewal, clearly defined co-management responsibilities between the federal government and the Cooperative and the use of individual fishing zones developed by the Cooperative to maintain member accountability (Solares-Leal and Alvarez-Gil, 2003).

The Punta Allen fishery is located in the Sian Ka'an Biosphere Reserve in the state of Quintana Roo in southeast Mexico. In 1968, the Mexican National Commission on Aquaculture and Fisheries (CONAPESCA) awarded the Pescadores de Vigía Chico Cooperative a 20-year lobster concession, or TURF. As a result of achieving performance standards set by the Mexican government, the concession has since been renewed twice (Nuñez, n.d.).

Punta Allen is a fishing village of about 500 people. Approximately 80 fishermen using 55 small fishing skiffs, called *pangas*, comprise the Vigía Chico Cooperative. Fishermen harvest lobster (*Panulirus argus*) using *casitas*, underwater concrete structures that aggregate lobster by mimicking their natural reef habitat. Using snorkel gear, fishermen hand-retrieve lobster with nets known as *jamos*. The Vigía Chico Cooperative has established individual fishing zones, or *campos*, with 25-meter, no-take buffer areas between each. Fishermen are sub-allocated campos and coordinate effort to ensure sustainable harvest. Fishermen from the Cooperative land over 100 tons of whole, live lobster annually (Ortiz Moreno, personal communication, 2013).

SYNOPSIS

Road to a Catch Share

For more than 60 years, fishermen from Punta Allen have been harvesting spiny lobster in traditional fishing areas inside two large bays, Ascension Bay and Espiritu Santo Bay, on the remote Caribbean coast of Quintana Roo, located on the Yucatán Peninsula in Mexico.

In 1968, local fishermen formed the Vigía Chico Cooperative in order to fish spiny lobster and gain exclusive access inside Ascension Bay through a government-granted concession, or TURF (Nuñez, n.d.). The Vigía Chico Cooperative and TURF were established to achieve a number of goals, including promoting a high degree of self-sufficiency and maintaining a healthy spiny lobster population, which provides the basis for the local economy. Given its isolated location, it was also important for the community to achieve a high degree of self-governance.

The government supplied financing to help the Cooperative in its early years, issuing loans for capital equipment such as a truck and an icing container, and in-kind donations of panga boats, motors and equipment. The government also provided the community with basic infrastructure such as roads, a power plant, a potable water system and a small fish processing plant, as well as technical assistance and training programs. Coupled with strong and adaptable self-governance, the TURF has helped the Punta Allen fishing village maintain its historical livelihood and a strong economy from 1968 to today.

Performance

The Vigía Chico Cooperative is a model for sustainable management. The Cooperative continually meets its biological and economic goals, including maintaining a stable stock, sustainable landings and high catch-per-unit-effort. In addition, the Cooperative structure and TURF system have improved access to financial resources, boosting the economic prosperity of the local community.

Since the 1980s, the Cooperative has seen higher landings by weight than any other lobster cooperative in the Yucatán (Ojeda, 2005) and has sustainably increased spiny lobster landings since 2000. Most other areas of the Caribbean have seen declines. In recognition of its successful and sustainable fishery management, the fishery recently received Marine Stewardship Council (MSC) certification.

The program has fostered economic and social prosperity as well. Many members of the community are involved in the fishery, and a variety of jobs have been created for both men and women. Although fishing remains a traditionally male activity, women assist by building casitas and acting as representatives for marketing and management. Women also assist in the processing phase, handling the cleaning and packaging of lobster, while men do most of the receiving and freezing (Solares-Leal and Alvarez-Gil, 2003). According to national poverty statistics from Mexican census data, the community of Punta Allen fares better economically than other fishing communities, and current wages place residents well above the poverty line (Ortiz Moreno, personal communication, 2013).

STEP 1 IN ACTION

Define Program Goals

The Vigía Chico Cooperative was formed to meet a number of biological, social and economic goals. Goals for the fishery were developed by the Mexican government and the Vigía Chico Cooperative. Because the Punta Allen village and TURF are within the boundaries of the Sian Ka'an Biosphere Reserve, reserve goals established by the Mexican government apply to the activities of the Cooperative members. These include ensuring low ecosystem impacts from harvesting within the reserve.

The Vigía Chico Cooperative also specified a number of additional goals. Echoing the goals of the Mexican government, the primary biological goal established by the Cooperative is to manage resources sustainably. Economic and social goals of self-sufficiency and self-governance were also extremely important in the development of the Cooperative and TURF given the remote location of Punta Allen. To help meet these goals, federal agencies such as CONAPESCA established complimentary public policies that make co-management feasible (Ojeda, 2005; Sosa-Cordero et al., 2008).

STEP 2 IN ACTION

Define and Quantify the Available Resource

The catch share is a single-species program managing all harvests of the Punta Allen spiny lobster (*Panulirus argus*). The stock is an independent population, confined to the geographical limits of Ascension Bay and separate from spiny lobster stocks in other locations in the Caribbean (Ojeda, 2005). The TURF covers the entire range of the Punta Allen spiny lobster stock.

Fishing mortality is controlled through federal regulations and Cooperative rules designed to ensure sustainable harvests. Federal regulations include an annual four-month closed season, restrictions on the type of fishing gear, a minimum size limit and zero retention of female lobsters carrying eggs.

Internally, the Cooperative controls fishing mortality through the use of no-take zones and selective gear placement. Campos, or individual fishing areas, must be at least 25-meters apart, creating no-take buffer zones between fishing areas that help control fishing mortality and minimize conflicts between fishermen. Additionally, casitas, concrete aggregating structures, may not be placed in areas known for high productivity and/or in sensitive reef locations (Sosa-Cordero et al., 2008). Undersized lobsters and egg-bearing female lobsters must be discarded, and both the fishing methods and gentle handling practices ensure a low discard mortality rate.

STEP 3 IN ACTION

Define Eligible Participants

The Mexican government allocates the TURF, in the form of a concession, to a group, the Vigía Chico Cooperative, which is then responsible for ensuring sustainability of the resource. Under Mexican Fisheries Law, only fishing cooperatives are eligible to receive area-based concessions for select marine species. The Vigía Chico Cooperative was allocated the TURF based on existing fishing grounds of fishermen in Ascension Bay.

The Vigía Chico Cooperative includes general members and fishing members. Any member who wishes to participate in fishing activities is required to have a fishing license provided by the government. In addition, the Cooperative has identified its own eligibility requirements for membership and fishery access in order to ensure sustainable management of the fishery. Only Cooperative members are permitted to harvest spiny lobster in the TURF. Any member of the Cooperative is eligible to own or access a casita and/or a campo.

The Cooperative defines its fishing members as either a *dueño* (owner) or a *chalan* (assistant). Dueños are men and women who manage campos, invest in casitas and have their own boats. Chalanes do not manage campos or own casitas or boats, but often do own fishing and snorkel gear. Typically, dueños are senior fishermen, and several hold key positions in the Cooperative's administrative structure. Chalanes tend to be younger and less wealthy, but can also hold official positions in the Cooperative (Solares-Leal and Alvarez-Gil, 2003). New entrants are allowed, but must be children of current fishermen within the community.

Fishermen must be Cooperative members to either own a casita or have access to one. If a fisherman is unable to own a casita due to the cost, they can gain access to one by negotiating with an owner and giving him a percentage of the catch revenue. There are no limits on the number of casitas that can be used, but Cooperative members are obligated to abide by management rules and scientific biological studies to ensure sustainability (Ortiz Moreno, personal communication, 2013).

STEP 4 IN ACTION

Define the Privilege

The Vigía Chico Cooperative is an area-based catch share, or TURF. The long-term share—the concession permitting harvest of spiny lobster—is granted for 20 years by CONAPESCA to the Vigía Chico Cooperative, and there is a strong assumption of renewal if the program meets its stated goals. As of 2013, the concession has been renewed twice, in 1988 and again in 2008.

The Cooperative is responsible for ensuring sustainable harvest within the concession. To accomplish this, the Cooperative ensures compliance with federal fishing regulations and imposes internal harvesting rules. The Cooperative also voluntarily subdivides its concession into individual fishing zones, called campos, and allocates them to Cooperative members (Figure 1).

FIGURE 1 | *Individual fishing zones of the Vigía Chico Cooperative*



Campos within the Cooperative's concession are identified through geospatial planning and based on population dynamics of lobster and topographical information of the seafloor. In 2001, researchers supported by the United Nations Development Program helped Punta Allen fishermen use global positioning systems (GPS) satellites to mark the borders of their campos. These boundaries are used to collect data on catch and movement of lobster during the season (Ojeda, 2005). The size of each campo also minimizes competition for additional zones, and the strategic placement of the campos makes it easy to detect any attempt to move lobsters from one area to another (Ojeda, 2005).

Campos are granted to Cooperative members in perpetuity, but the zones are transferable among Cooperative members on both a temporary and permanent basis. Cooperative members can freely trade campo access and ownership through a bargaining process at the beginning of each season during Cooperative assembly meetings (Cochran, 1998). Members must be rule-abiding (of both internal Cooperative regulations and federal laws) in order to access or trade campos (Ortiz Moreno, personal communication, 2013).

There are 128 delineated campos in Ascension Bay (Ortiz Moreno, personal communication, 2013). The Cooperative harvests lobster in teams of two to four fishermen per panga. There are currently 29 teams. The number of casitas in each campo varies depending on the location of the campo, composition of the seafloor and surrounding habitat (Ortiz Moreno, personal communication, 2013).

STEP 5 IN ACTION

Assign the Privilege

CONAPESCA awarded the lobster concession in Ascension Bay to the Vigía Chico Cooperative in 1968. The concession was granted for 20 years and has since been renewed twice (Nuñez, n.d.). Ascension Bay and the village of Punta Allen are located in remote areas of Mexico, and historical fishing activity was mainly conducted by Vigía Chico Cooperative members, resulting in few conflicting claims to the area. As such, allocation did not require an extensive data collection or appeals process.

The Cooperative manages the concession by creating and allocating campos to members. Allocation decisions are based on consensus of Cooperative members (Sosa-Cordero et al., 2008). These decisions are generally related to an individual's seniority in the fishery, his trustworthiness and reputation and the degree of member support for his allocation. Not all members own a campo, but all members' opinions are taken into consideration when fishing teams are formed (Defeo and Castilla, 2005).

STEP 6 IN ACTION

Develop Administrative Systems

Developing administration systems for the TURF program was important in meeting program goals, including co-management and effective self-governance. Currently, the Vigía Chico Cooperative works with multiple government agencies including CONAPESCA and the Mexican National Commission for Natural Protected Areas, academic institutions, such as the Colegio de Frontera Sur and the Universidad de Quintana Roo, and local non-governmental organizations, such as Razonatura, to manage and administer the Punta Allen spiny lobster fishery. Important administrative activities include Cooperative governance, monitoring, catch accounting, marketing and collection of biological information.

The Cooperative is governed by a member assembly that establishes rules in an organized and democratic process. Federal government authorities recognize the right of the Cooperative to develop and apply its own policies and regulations as part of the co-management agreement (Sosa-Cordero et al., 2008). Rules cover everything from member responsibilities, to basis for fines, to expulsion from the Cooperative. Cooperative

members have both the right and obligation to participate in meetings and incur fines for not attending. Vigía Chico has its own “vigilance committee” that enforces Cooperative regulations; violators face financial sanctions or possible expulsion (Cochran, 1998), and internal rules have been used as evidence in court cases as part of the formal justice system.

Dockside monitoring and catch accounting are performed by the Cooperative at the Cooperative-owned processing facility. All catch from Cooperative members must be processed through this facility, reducing the complexity of monitoring and catch accounting. Upon landing at the processing plant’s storage facility, lobsters are weighed and catch per member is recorded. A refrigerated truck delivers the catch to marketing sites, where it is sold live to buyers and restaurant owners (Calderón, 2011). The Vigía Chico Cooperative covers all monitoring costs dealing with monitoring and catch accounting.

An important feature of the Cooperative is joint marketing and sales of Cooperative members’ catch. While fishermen harvest their catch individually, the Cooperative has hired managers that specialize in marketing to increase the effectiveness and price received. This marketing approach has also helped eliminate competition between members to increase landings or race to market, both of which have led to overexploitation in other cooperatives in Mexico (Ojeda, 2005). The cost of marketing is covered by a regional marketing association, Chakay, which is comprised of six cooperatives, including Vigía Chico.

The Cooperative works with a number of partner organizations to collect information on the Punta Allen spiny lobster fishery. Scientific data is collected by academic centers such as Instituto del Mar of UNAM (Ocean Institute from National Autonomous University of Mexico), CINESTAV (The Center for Research and Advanced Studies of the National Polytechnic Institute) and Colegio de Frontera Sur. These organizations assist in conducting annual stock assessments and larval recruitment surveys to determine the biological status of the spiny lobster population.

STEP 7 IN ACTION

Assess Performance and Innovate

The Vigía Chico Cooperative has achieved a high level of success in meeting goals established by the Mexican government and the Cooperative itself. The program has contributed to a highly productive and sustainable lobster fishery for the village of Punta Allen through self-governance and co-management. While many areas of the Caribbean have seen a decline in lobster catch, Vigía Chico has been the most productive fishing cooperative in the Mexican Caribbean since 1982, and lobster landings in Punta Allen have been increasing since 2000 (Sosa-Cordero et al., 2008). Due to this success, the Mexican government has renewed the concession twice, first in 1988 and again in 2008.

In addition, the Cooperative’s high level of organization and governance structure allows it to effectively adapt to changing conditions and innovate on the design of the program. Through partnerships with scientific organizations, the Cooperative and Mexican government have improved the understanding of the Punta Allen spiny lobster resource, which has led to better controls on fishing mortality. More recently, Cooperative members have worked with researchers and academics to conduct studies on critical spiny lobster habitat in order to minimize damage when placing casitas. The results combine biological data with local fishermen

knowledge to indicate optimal casita locations: namely, areas of solid bottom seafloor containing vegetation (such as sea grass), low sedimentation and gentle currents (Zapata-Araujo et al., 2008). These improvements in understanding the resource, coupled with an adaptive governance structure, allow the program to continually evolve to meet program goals.

Over the years, the Vigía Chico Cooperative has also adapted well to outside events, such as hurricanes, that often strongly affect the local lobster population. In 1988, Hurricane Gilbert caused the catch to decline by roughly 80%. During the 1990s, the Cooperative slowly and carefully brought the stock back to high abundance levels. In doing so, the Vigía Chico Cooperative fine-tuned its management efforts and is now seen as one of the most organized cooperatives in Mexico (Cantor Barreiro and Dominguez, 2006). Stocks continued to increase until Hurricane Wilma hit during the 2005-2006 season (Sosa-Cordero et al., 2008).

Despite the strong co-management arrangement, rules and sanctions continue to evolve to address developing challenges. Recent data show around 12% of Vigía Chico's landed lobster are below the minimum legal size (Sosa-Cordero et al., 2008). As a result, Vigía Chico is working with authorities to implement more stringent fishing laws to protect juvenile lobster (Ortiz Moreno, personal communication, 2013). Overall, the Vigía Chico Cooperative is considered exemplary in the region, and serves as a model for co-management and TURF systems (Ortiz Moreno, personal communication, 2013).

REFERENCES

- Calderón, C. (2011). Ficha técnica: langosta espinosa de Punta Allen. Environmental Defense Fund de México.
- Cantor Barreiro, C. B. and Domínguez, J. E. (2006). Los medios de vida sostenibles y la aplicación de la metodología SocMon: estudio de caso de la comunidad pesquera de Punta Allen. Proyecto Especial Desarrollo Socioeconómico y Ambiente en el Grado Académico de Licenciatura, Zamorano, Honduras, 62 pp. Retrieved from <http://bdigital.zamorano.edu/bitstream/11036/990/1/T2340.pdf>
- Cochran, K. A. (1998). Fishery co-management: the case of the Punta Allen spiny lobster fishery. *Annual American Agricultural and Applied Economics Association Meeting*, August 2-5, 1998. Salt Lake City, UT. Retrieved from <http://ageconsearch.umn.edu/bitstream/20940/1/spcoch02.pdf>
- Defeo, O. and Castilla, J. C. (2005). More than one bag for the world fishery crisis and keys for co-management successes in selected artisanal Latin American shellfisheries. *Reviews in Fish Biology and Fisheries*, 15(3), 265-283.
- Núñez, D. (n.d.) Pesca sustentable de langosta en Quintana Roo. Mexiconservación. Retrieved from <http://mexiconservacion.org/files/PuntaAllenWebEsp.pdf>
- Ojeda, J. P. (2005, May 16). Parcelan pescadores el mar. Press Release, World Wildlife Fund.
- Solares-Leal, I. and Alvarez-Gil, O. (2003). Socioeconomic assessment of Punta Allen: a tool for the management of a coastal community. Comisión Nacional de Áreas Naturales Protegidas, UNEP. Retrieved from http://www.icran.org/pdf/Punta_Allen.pdf
- Sosa-Cordero, E., Liceaga-Correa, M. L. A. and Seijo, J. C. (2008). The Punta Allen lobster fishery: current status and recent trends. In R. Townsend, R. Shotton and H. Uchida (Eds.), *Case studies in fisheries self-governance*. FAO Fisheries Technical Paper 504. Food and Agriculture Organization of the United Nations. Retrieved from <ftp://ftp.fao.org/docrep/fao/010/a1497e/a1497e14.pdf>
- Zapata-Araujo, C., Salas, S. and Cabrera, M. A. (2008). Conocimiento local aplicado a la colocación de refugios artificiales en un programa de mejoramiento de la pesquería de langosta en Yucatán, México. *Proceedings of the 60th Gulf and Caribbean Fisheries Institute*, November 5-9, 2007. Punta Cana, Dominican Republic. Retrieved from http://procs.gcfi.org/pdf/gcfi_60-32.pdf