WWF

BRIEFING

NOVEMBER 2013


# REFORM IN FISHERIES SUBSIDIES

Summary of dialogues on fishing subsidies in Mexico

WWF is one of the world's leading conservation organizations, working in 100 countries for over half a century. With the support of almost 5 million members worldwide, WWF is dedicated to delivering science-based solutions to preserve the diversity and abundance of life on Earth, halt the degradation of the environment and combat climate change.

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# PREFACE

Lifestyle and food security of millions of people worldwide still depends on fisheries. Governments around the world allocate public funds to encourage fisheries, however sometimes outcomes can be contrary to what expected. The academic literature shows that a redirection of public expenditure can result in great benefits for the industry.

The World Wildlife Fund (WWF) proposal consists in analyzing public spending towards a reform that contributes to sustainable fisheries. To do this, WWF promotes scientific research and active participation of stakeholders in order to create a constructive dialogue as the basis for reorienting public spending on fishing. It has also joined forces with multilateral institutions, national governments and non-governmental organizations to achieve the necessary reforms.

Currently, WWF is conducting dialogues and executing projects that led to the reform of fisheries subsidies in Brazil, China, Indonesia, South Africa, Mexico and some other countries of the western Indian Ocean (Kenya, Tanzania, Mozambique, Madagascar, Mauritius, Seychelles Islands and Comoros).

In 2011, WWF highlighted the results of the Indian Ocean and created a group of partners that analyzed the impact of subsidies on foreign fleets operating in the area, thereby supporting international negotiations.

That same year, WWF initiated the work towards fisheries subsidies in Mexico. In 2012 a multiplayer dialogue that involved academics, non-governmental organizations, government institutions and representatives of the fishing industry began. The work was enriched by research, consulting and key partnerships that allowed the quantitative and analytical foundation that fostered a profound and diverse dialogue.

This four-chapter document reviews much of the studies, data and discussions of various stakeholders during 2012. The first chapter describes the general issue of fisheries subsidies; the second examines the situation of fisheries subsidies in Mexico; the third explores specific case studies that provide insight into the impacts of subsidizing industrial vessels and cooperatives; and finally, in the fourth chapter, the challenges and opportunities that exist in Mexico to re-orient public expenditure fisheries are identified.

Each chapter includes an introduction and assertions of academic research partners, consultants and guests speakers that shared their thoughts during the dialogues. The information contained in these summaries is an accomplishment of each speaker, however omissions and interpretations are the sole responsibility of the team of reporters and editors who supported WWF during this process. WWF profusely thanks all participants who built these dialogues and made possible the publication of this report.

*Enrique Sanjurjo Rivera*
*Gulf of California Program*
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# I. FISHERIES SUBSIDIES

Productive fisheries are vital to preserve the way of life and food security of billions of people around the world. However, the ability of fisheries to provide stable jobs and ensure nutritional security is threatened by a crisis of unprecedented overfishing and improper resource management. Developing countries are more exposed to these risks. Fortunately many governments, as well as citizens, have realized that it is possible, and necessary, to do something. An important step is to ensure that when governments decide to invest public resources in their fisheries, they do so in ways that promote healthy and profitable fisheries.

Currently, governments around the world pay large amounts of money in support of their fisheries. Some of these expenditures are shaped by budget transfers directed to fisheries management, port infrastructure and other public goods. But many governments also spend big money in direct subsidies to their fishing industry. At times, both in developed and developing countries, these transfers - subsidies - are not well coordinated with resource management policies, or even planning for economic and/or social development of fisheries. As a result, fishing subsidies are often an unjustified waste and even counterproductive to the original intentions of the development. These subsidies can create excess capacity and, therefore, overexploitation of resources, instead of strengthening the long-term economic performance of the sector.

**"IN 1996, THE GLOBAL MARINE CATCH WAS FIVE TIMES GREATER THAN IN 1950"**

In the global market for seafood, subsidies can significantly distort competitive advantages, with the danger of causing unfair trade practices. In the past, these distortions tended to favor developed countries, however these practices are already affecting trade between developing countries. This is the result of the appearance of "emerging" fishing powers fully immersed in the race for fishing and export markets. Subsidies can reduce the ability of coastal developing countries to compete with subsidized foreign fleets, often making it economically unviable for these countries to build up their own fishing industry. These impacts are particularly sensitive in cases where offshore foreign fleets have access to national waters under bilateral agreements; displacing domestic fishermen and over-exploiting local resources, often in the absence of adequate monitoring and enforcement, infrastructure and procedures.

Several studies establish that governments may see a benefit from a comprehensive review of public policy and its support programs oriented towards fisheries. A tax reform should not pursue the elimination of subsidies, but ensure real benefits that are long term for fishing communities. In cases of developing countries looking to consolidate their domestic fisheries sector, it is of particular importance to link support programs with sustainable resource management strategies as well as long-term economic development for communities.

A growing number of governments are initiating the review and changing their systems of fisheries subsidies. In this context, the World Wildlife Fund (WWF) has launched a global outreach project promoting scientific research and open and transparent multi-stakeholder discussion. Working with national governments, industry and local experts, WWF seeks to create and disseminate the hard data to support dialogue and improve the effectiveness of government spending directed to the fisheries sector.

### Integration of public policies: the solution

Reforming subsidies is not just cutting government transfers. Subsidies, when properly designed, can play an important role in the transition to healthy and economically viable fisheries. However, this requires a review of the programs as well as the economic and resource management in which they are immersed. This is particularly true when viewing innovative management systems - such Right Based Fisheries management systems (RBFM). Subsidy reform in this broad context can be part of a comprehensive solution based on science, good governance and strong social policy.

## FACTS AND FIGURES

### The global fisheries crisis

- The global marine catch reached a record high in 1996, reaching five times what was captured in 1950.

- Fish stocks have declined since 1974 and the Food and Agriculture Organization of the United Nations (FAO) estimates that up to 85% of global stocks may be fully exploited, overexploited or depleted[1].

- The amount of large fish of high commercial value at the top of the food chain has decreased by 90% since the advent of industrial fishing[2].

### Production and global marketing

- The fish trade is a major source of employment, income, food security and foreign currency for many coastal communities, particularly in developing countries.

- Fish exports generate more revenue in developing countries than exports of coffee, bananas, rubber, tea and rice together.

- China is by far the largest producer of fishery products with a catch of 14.8 million tons and aquaculture production of 32.7 million tons in 2008[3].

- Other major producers have reported increasing catches in the last decade despite having well-documented cases of local overfishing and natural disasters[4].

- Aquaculture is increasingly meeting the demand for fish protein and humans now eat more farmed than wild seafood[5].

- 44.9 million workers are employed in the fisheries sector globally. 95% of these are located in developing countries[6].

### Fisheries subsidies

- Global fishing capacity is above sustainable levels, yet subsidies are widely recognized to promote larger powerful fleets and to maintain fishing effort when otherwise it would be unprofitable.

- Some subsidies may have beneficial effects, such as financial support to improve management systems or fisheries research.

- Subsidies with negative effects include financial assistance for the construction of boats and fuel subsidies. These promote over-capitalization and overexploitation.

- Among the countries that subsidize their fishing sectors are Japan, China, the European Union and the United States. Developing countries are increasing their support programs, often as a strategy to access fisheries far from their already overfished shores.

### The importance of better fisheries management

- The World Bank estimates that the world's fisheries could provide additional USD 50,000 million[7], if they were better managed.

- The combination of inadequate fisheries management, with over-capitalization of the sector, is triggering losses in fishing stocks worldwide. This seriously threatens the health, employment and prosperity of billions of people around the world.

- Management is essential to transform the current state of the fishing sector where exploitation prevails short term, to a management that encourages long-term sustainability. Without this, the economic and social viability of fishing communities in the world is not guaranteed.

- Innovative tools such as fisheries management based on well-defined rights and fleet reduction schemes can solve this problem.

- The key is to transform subsidies that encourage over-capitalization into subsidies that promote the effective management of fisheries.

*[1]FAO (2010). The State of the World Fisheries and Aquaculture (SOFIA). Roma. [2] Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers and R. Watson. (2003). The future for fisheries. Science 302: 1359-1361 [3]FAO (2010). The State of the World Fisheries and Aquaculture (SOFIA). Roma. [4]FAO (2010). Op. cit. [5]Monterrey Bay Aquarium (2009). Turning the tide: The State of Seafood. California. [6]FAO (2010). Op. cit. [7]World Bank (2009). The Sunken Billions: Economic Justification for Fisheries Reform. Washington DC.*

## "SUBSIDIES ACCOUNT BETWEEN 25,000 AND 30,000 MILION USD ANNUALLY"

### WORKSHOP SESSIONS

As part of the dialogues on fishing fiscal policy, government officials and academics described and analyzed fisheries subsidies in Mexico and proposed solutions to make public spending more efficient and optimal use of fisheries resources. In this section there are two analysis: the first, Gordon Munro and Sumaila Rashid Ussif stress that even if the subsidies are not the source of overfishing and poor management of the sector, they often generate direct and negative consequences contrary to the social purposes. They suggest the examination of models that pose threath such as uncoupling, similar to the ones applied in agriculture. In the second study, Juan Carlos Seijo notes that subsidies that cause more harm are those that lead to overfishing, and he also warns that subsidies applies towards fuels are the most common worldwide. He suggests that - to examine the impact of subsidies – is necessary the use of limit reference points (LRP).

### A) SUBSIDIES AND SUSTAINABILITY IN HEIGHT FISHERIES: AN ECONOMIC PERSPECTIVE

*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Gordon Munro & Ussif Rashid Sumaila, Department of Economics & Fisheries Research Centre, University of British Columbia, Vancouver, Canada.*

Fisheries subsidies worldwide represent around 25,000 to 30,000 million USD annually, while the value of the catch reaches almost 100,000 million USD. An estimated 80% of these subsidies have a negative impact on the world's fish stocks.

Subsidies are not the cause of overexploitation; however they can contribute to make this situation worse. To justify this claim it is necessary to assess the situation, define the role of subsidies and revise management objectives of the catch.

The World Bank and the World Trade Organization (WTO) define a subsidy as "a financial contribution by the public sector that provides benefits to the sector". These

*Workshop discussions on fisheries subsidies in Mexico, 2012. ©WWF/Gustavo Ybarra*

subsidies are typically used for management, research and monitoring, development of fisheries infrastructure, tax breaks, support for the construction of ships, direct income support, unemployment insurance and retirement of vessels.

Subsidies are made primarily for two reasons or a combination of both. The first is to convey incentives to recipients to carry out certain actions. The second has the purpose of increasing the income of beneficiaries to a minimum socially acceptable level. This latter purpose often has direct negative and contrary consequences to social objectives.

The objective of fisheries management from the economic point of view is to manage the natural capital stocks that can provide the maximum sustainable yield to society in the long term. However there are some barriers to achieve this goal. In the past, the main obstacle was the inadequate allocation of property rights for the capture of fish stocks, which caused fisheries to become free access resources. This situation led to economic loss and overfishing.

Under the scheme of free access, fisheries subsidies can increase problems of overfishing and long-term economic loss. Whether subsidies reduce capture costs or increase the benefits of catches, in any case they will increase exploitation and generate more pressure on resources, which leads to more exploitation and less revenue in the long term.

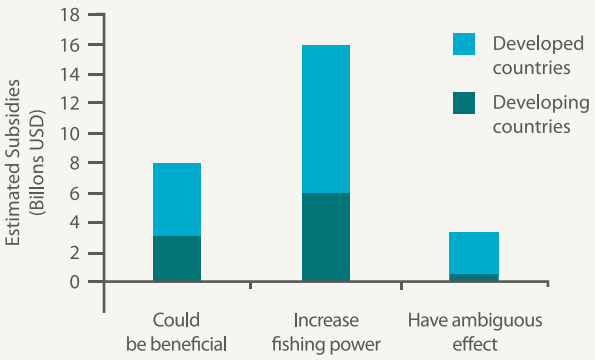
The WTO and FAO agree that fisheries subsidies have played an important role in promoting excessive disinvestment in natural capital. However, not all fisheries subsidies are harmful, some are even beneficial as those used for the management, research and strengthening of the law. Sumaila and collaborators (2010) estimate that between

20-30% of global subsidies fall into this category, 15% are of ambiguous nature, and the remaining 55-65% are harmful, as they encourage overcapacity of the fishing sector.

An example of non-harmful subsidies is the case of public expenditure for the implementation of fishing rights in British Columbia, Canada. These subsidies are less harmful but still can cause negative effects.

Another type of harmless subsidy is the "decoupling" scheme that is generally applied in agriculture. Decoupling means the act of granting an unlabeled subsidy cash transfer rather than a subsidy designed to increase fishing capacity. This concept became important during the WTO negotiations in the Uruguay Round, implying a major reform in agricultural policy of the European Union in 2003. The way to achieve decoupling in fisheries is not yet clear, but the first step is learning from the agricultural sector.

SUBSIDIES BY CATEGORY




## B) SUBSIDIES, BENCHMARKS, RESTRICTIONS AND FISHERIES MANAGEMENT

*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Juan Carlos Seijo, Marist University.*

There are several categories of subsidies, but those that directly increase fishing capacity are related to:

1) support for the construction and purchase of new vessels,

2) modernization of fishing fleets (increased fishing capacity),

3) preferential loans and tax breaks for 1 and 2,

4) payments to countries to have access to their fisheries (usually in countries that do not have the ability to extract their fishing resources),

5) fuel subsidies and other inputs (e.g. bait and ice),

6) public investments in infrastructure and services used by the fishing industry and

7) guarantee prices.

One of the fisheries subsidies that currently persist in most countries is fuel. About 20% of the incentives to fisheries globally (about 6,300 million USD) are intended for this kind of support. The 89% of the fuel used annually to capture species is consumed by industrial fleets and the remaining 11% for small-scale fleets in the world. However small-scale fishermen captured 4 times more per liter of fuel than industrial fleets.

In a fishing structure with controlled access there are profits, while in an open access scheme they are equal to zero. The absence of profits justifies industry to ask for subsidies to lower costs. In finding profits it is viable to return to increasing the fishing effort, reducing benefits and causing a vicious cycle.

The relationship between subsidies and fisheries management can be understood as follows: among the possible causes of overfishing and overcapacity in the fisheries are the absence of defined and allocated property rights (individual, community, group, transferable or based on land use), where there is a right and a responsibility for the proper use of fishing exploitation. Inadequate incentives through government transfers (subsidies) to the fishing industry, designed to increase the fishing power and catchability, contribute to the problem but in general are not the root cause.

There are several types of subsidies and some of them may have the opposite effects to those intended. In general, harmful subsidies are those that increase fishing capacity. One of the most controversial subsidies is buy backs. In principle, this type of subsidy reduces over-capitalization, but when this type of program recurs, the effects may be counterproductive. According to statistical models, the probability of a fleet of over-capitalizing is significatively greater in the presence of buy back expectations.

GLOBAL FISHING SUBSIDIES

| Type of Subsidy | Billion USD | % |
|---|---|---|
| Construction and renovation of fishing ports | 8.0 | 25 |
| Fuel | 6.3 | 20 |
| Fisheries management programs and services | 5.8 | 18 |
| Fisheries development programs | 2.5 | 8 |
| Construction, renovation and modernization of vessels | 1.9 | 6 |
| Assistance programs for fishermen | 1.7 | 5 |
| Infrastructure processing, storage and marketing support | 1.6 | 5 |
| Fisheries access agreements | 1 | 3 |
| Fisheries Research and Development | 0.9 | 3 |
| Development of rural fishing communities | 0.9 | 3 |
| Voluntary fleet retirement compensation | 0.9 | 3 |
| Tax Exemptions | 0.7 | 2 |

## LIMIT REFERENCE POINTS FOR ANALYZING SUBSIDIES

One way to analyze the impact of subsidies on the health of fisheries is by studying limit reference points (LRP) (Seijo and Caddy, 2000). According to the study of LRP, to understand the risk of subsidies it is necessary to understand three concepts:

- *Fishing indicators.* Variables resulting from the monitoring of fisheries, whose fluctuations reflect differences in ecosystem components, the resource or the sector.

- *Target reference points.* Discrete values of fishery indicators representing situations that require pre-negotiated management action.

- *Limit Reference Points (LRP).* Help prevent dangerous situations for the resource, ecosystem and thus to the sustainability of the fishery, in which it is necessary to specify management actions.

When there is uncertainty in the variables of the fishery, it is possible to analyze the probability that some action brings the fishery closer to a reference point from which the fishery is considered risky. Empirical studies under LRP methodology indicate that the probability of taking a fishery to a point of risk increases with the presence of subsidies.

The responsible management of fisheries requires careful analysis of the subsidies that are currently used, mainly in Latin America. Those subsidies that artificially increase profits substantially increase the risk of exceeding biological and economic LRP.

It is necessary to establish access rights and the promotion of co-management, which involves challenges for the management and regulation of artisanal and small-scale fisheries (about 90% of the vessels in the world). To achieve this, it is required:

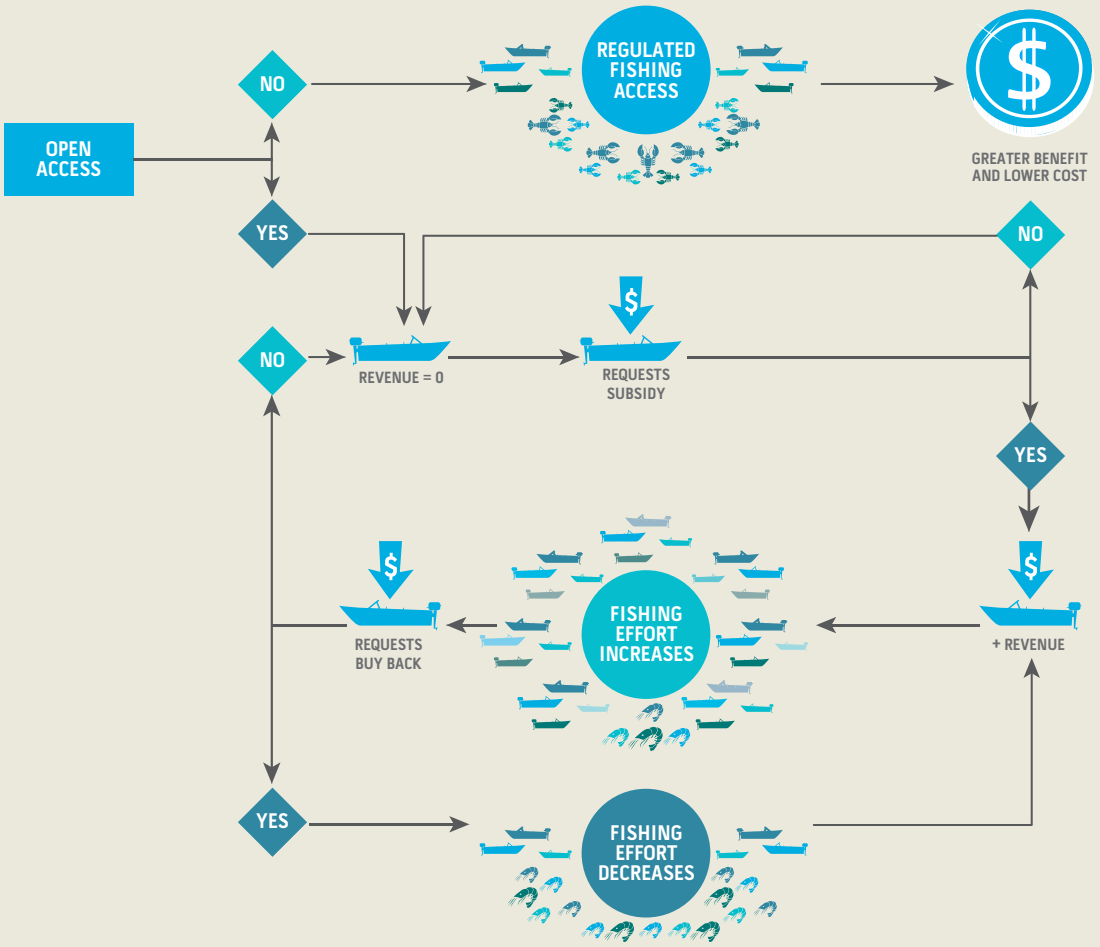
1) building local capacity for self-regulation and self-monitoring,

2) strengthening the organizational capacity of artisanal fishing communities, and

3) establish access and equal rights between users of fishery stocks in a transparent and agreed manner.

It is also necessary to use incentives to encourage technological development, the adoption of selective fishing gear and responsible exploitation of coastal ecosystems. Similarly, it is important to combat poverty in coastal areas. The same subsidies to fishing (e.g. fuel) can be channeled to improve the living conditions of fishing communities (housing, sanitation), build capacity to access opportunities and opportunities for conservation on-site and add value to the catch.

FIGURE 1, OPEN ACCESS FISHERY



# II. FISHING SUBSIDIES IN MEXICO

Since the nineties, Mexico has seen significant institutional changes that have defined the current state of fishery resources, as well as the income that the sector generates. The main challenges in public policies towards the sector were the lack of institutional stability, prevailing legal uncertainty, industry polarization and conflicts arising from the use of natural resources. The reforms have been successful in terms of improving the institutional structure, coordination between government agencies and the strengthening of the legal framework that rules on the access to the resources by commercial users. Additionally, the Mexican government has made an effort to address subsidy programs more efficiently, in order to better support the sector reform process. "Although some programs, such as the retirement of vessels, have not solved the ongoing conflict over access to fishery resources between industrial and artisan fishermen, they have managed to generate a momentum toward a broader reform process" (OECD, Fisheries Policy Reform: National Experiences, 2011).

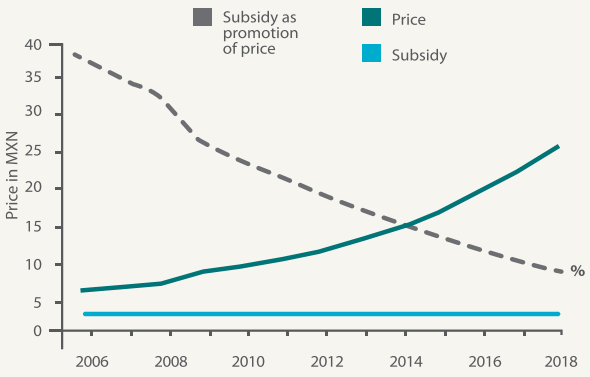
**"IN MEXICO, SEVEN OUT OF TEN PESOS APPLIED TO FISHERIES ARE GRANTED AS SUBSIDIES"**

As part of the institutional changes mentioned, in 2006 the Mexican government established the subsidy for diesel at two MXN per liter. As a result of the increase in fuel price, subsidy grew from 33% of its value in 2006 to only 18% for 2012, and will continue to decline. Nevertheless fisheries subsidies remain high. In 2011, seven out of ten MXN allocated by the federal government to fishing were granted in the form of subsidies. Mexico's seafood production increased 20% between 200 and 2010. The government offers transfers both for aquaculture as well as marine capture fishing where subsidies intended to the latter category account for two thirds of total transfers to the sector. The volume of these, as a percentage of the value of production, decreased from 19% in 2003 to 8% in 2007, well below the 22% average among Organization for Economic Cooperation and Development (OECD) members.

Tax exemptions, fuel subsidies and "buy back" programs represent the main uses of governmental transfers in Mexico. In 2007, this support represented 8% of the value of landings, well above the OECD average of 3% (OECD, 2006, OECD, 2010b, OECD, 2011d). Subsidies earmarked for the purchase of engines and modernizations of vessels are harmful to the environment since they promote the increase of the fishing effort.

Fisheries are governed only by access limits with few restrictions on expansion efforts or inputs for fishing. Therefore, most of the direct payments and cost reduction programs should be reduced, as they cause an increase in fishing intensity. Additionally, financial transfers should be accompanied by changes in management to ensure that fishing effort does not expand (OECD 2013)[8].

### EVOLUTION OF DIESEL SUBSIDY AS PROMOTION DIESEL PRICE




## FACTS AND FIGURES IN MEXICO

**Data in federal government official reports**

• Between 2007 and July 2012, the marine diesel program had given 3.784 million MXN as a subsidy for consumption of 3 billion liters of marine diesel (SAGARPA 2012).

• Between 2007 and July 2012, the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) paid 853 million MXN to promote the consumption of 467 million liters of gasoline in the coastal sector thus supported an average of 19,000 fishermen per year (SAGARPA, 2012).

• The budget of the National Fisheries Commission (CONAPESCA) for 2011 was 3,200 million MXN, of which 2.358 million MXN was allocated to transfers and subsidies (SHCP, 2006-2012). This implies that seven out of ten pesos MXN for fishing in Mexico are delivered in the form of subsidies.

• In 2011, USD 740 million was allocated to marine diesel program, USD 163 million for riparian gasoline (SHCP, 2006-2012).

• In 2011, the five West Coast states (Baja California, Baja California Sur, Sonora, Sinaloa and Nayarit) received 73% of the budget in marine diesel and gasoline 45% of riparian (CONAPESCA, 2012).

**Some relevant data presented at the dialogue table:**

• According to studies based on federal public accounts, which include financing subsidies, it is estimated that 82% of fisheries subsidies in Mexico elevate fishing capacity.

• It is estimated that 8% of the greenhouse gas emissions generated by the fisheries sector are attributable to the subsidy.

• 52% of agricultural subsidies in Mexico (including fishing) is received by the 20% of the richest population, so it is considered regressive, i.e. gives support to those who have more.

• Fisheries subsidies account for 20% of value added produced by the industry.

• 7% of the profits of a typical sardine vessel are government transfers; the majorities of these transfers are marine diesel subsidy and tax refund.

• 25% of the profits of a typical shrimp boat are due to government transfers, 14% of these transfers are marine diesel subsidy and 11% tax rebate.

[8]*OCDE, 2013. Evaluaciones de la OCDE sobre el desempeño ambiental: México 2013, OECD Publishing.*

## WORKSHOP SESSIONS

As part of the dialogues, participants discussed about fisheries subsidies in Mexico and proposed solutions to streamline public spending and the optimal use of fisheries resources. According to Flavio Alberto Arguello, it is possible to apply to the fisheries sector the structure that the Mexican government has applied in agriculture, consisting in redirecting subsidies fuel subsidies towards the modernization of machinery.

Meanwhile, Alejandro Guevara and Jose Alberto Lara Sanginés examined the different types of subsidies granted to the Mexican fishing industry and the impacts they produce. They conclude that most of the subsidies tend to increase fishing capacity. Also, José Alberto Lara argued that a proper analysis of the overexploitation that fisheries subsidies cause is necessary, how they are allocated and how to modify the behavior of fishermen. Finally, Carlos Muñoz Piña and Celeste Meza proposed decoupling condition and energy subsidies in order to promote other reforms sequentially or simultaneously.

## SUPPORT PROGRAM FOR THE FISHERIES SECTOR IN MEXICO

*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Alejandro Guevara Sanginés and José Alberto Lara. Universidad Iberoamericana.*

When many individuals, in pursuit of personal gain, can access a common good that has no rules for its use, it can cause deterioration or depletion of the resource. In economics, this situation is known as the "tragedy of the

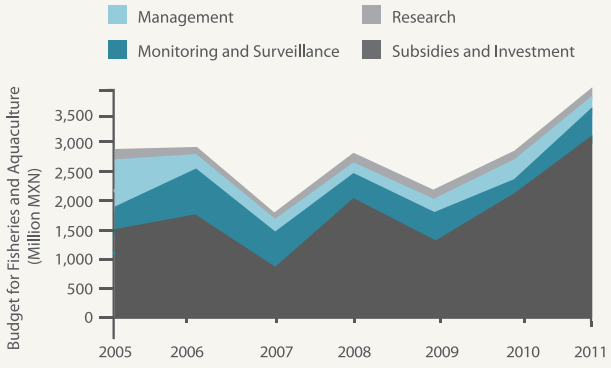

*Shrimp vessels in Guaymas, Sonora, Mexico.*
*©WWF/Gustavo Ybarra*

commons", which is observed in most of the fisheries sector in Mexico.

Between the 1940s and the 1970s, public investment in fisheries and seafood production grew steadily. In the 1970s production stopped growing and investment continued to rise, a situation that prevails to this day. This indicates that the productivity of investment is decreasing.

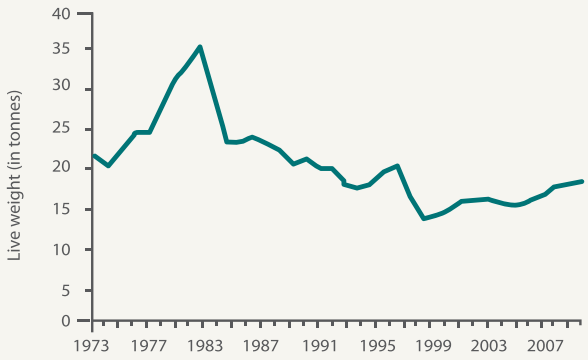
The growth of the budget allocated to CONAPESCA, the National Fisheries Institute (INAPESCA) and state offices has grown by 50% in the last three decades. However subsidy programs in the fisheries sector have more than doubled. For example, in 2011 the fisheries subsidies accounted for 70% of the federal budget to the sector.

### NATIONAL BUDGET FOR FISHERIES AND AQUACULTURE IN MEXICO (MILLION MXN).




About 82% of the subsidy programs are aimed toward increasing fishing capacity. This situation is not desirable in environmental terms as this can generate overexploitation of the resource and thus diminish the profits intended to be generated with the subsidy. Even those subsidies considered beneficial to the ecosystem, such as payments to compensate for temporary closures or area, have adverse effects as the money received as compensation may be used for provisioning of fishing activities.

### PRODUCTION PER BOAT 1973-2010




The subsidy on marine diesel and small-scale fisheries gasoline has an additional negative impact on the environment: greenhouse gases emissions (GHG). When calculating GHG carbon equivalent, it is estimated that 8% of the sector's emissions are directly attributable to the subsidy. In fact, emissions from fishing vessels account for 5% of total emissions that the federal government planned to reduce in 2012, according to the Climate Change Special Plan.

In addition to fishing impacts and emissions there is a negative economic impact besides of the environmental impacts. In economics this impact is called deadweight loss and is defined as the lost of economic efficiency by market and policy failures. In most of the tax collection processes, provision of subsidies or price controls there is a deadweight loss.

In the case of fisheries subsidies is estimated that the loss is 33 cents for every MXN given. That is to say, the amount spent on subsidies would have generated more wealth if it had been left in the hands of taxpayers, for investment or consumption, instead of being delivered to the fishing sector in the form of subsidy.

## SUBSIDY IMPACT ON MARINE DIESEL AND SMALL-SCALE FISHERIES GASOLINE

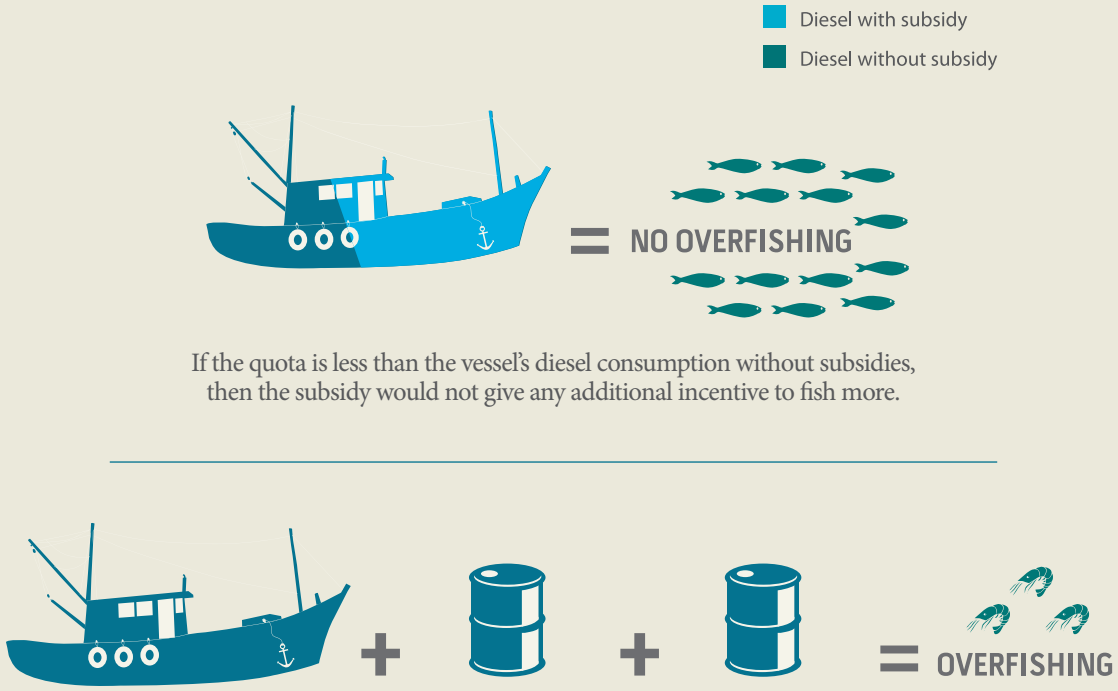
*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by José Alberto Lara Domínguez, Universidad Iberoamericana.*

In general terms, it can be said that a transfer of subsidy that increases revenues or reduces operating costs of an economic activity encourages such activity. In the case of fisheries, subsidies can encourage increased fishing effort in the short term due to more hours of travel and in the long run to over-capitalization. To understand the magnitude of overexploitation that subsidies cause, it is necessary to know how they are composed, how they are assigned and how they modify the behavior of fishermen.

Subsidies on fuel (marine diesel and small-scale fisheries gasoline) are formed of (1) the targeted subsidy that is given to the fishermen to carry out the activities and (2) the generalized subsidy on fuel in Mexico.

***Targeted subsidy for fisheries.*** It is two MXN per liter of fuel and is limited to a maximum quota of subsidized liters. The quota is determined by considering the maximum liters per day (depending on potency and consumption of the machine), days per cycle (as coastal and fisheries) and an adjustment factor. The key to understanding the targeted subsidy to fishermen is in how the share and volume of subsidized fuel is defined. If the quota is higher than consumption that the boat would have if facing unsubsidized prices, then the subsidy would encourage fisherman to fish more. Conversely, if the quota is lower than fuel consumption that a boat would have without subsidy, then the subsidy would give no additional incentive to fish more.

FIGURE 2. FOCALIZED FISHING SUBSIDY



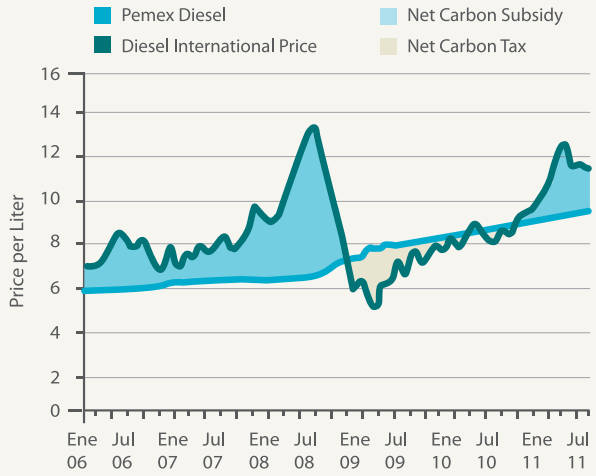

If the quota is less than the vessel's diesel consumption without subsidies, then the subsidy would not give any additional incentive to fish more.

If the quota is higher than the vessel's diesel consumption if facing prices without subsidies, then the subsidy would encourage to fish more.

In this second case, the subsidy would not generate overfishing. In most diesel-powered crafts, the quota of fuel is less than the consumption they would utilize in the absence of subsidies. In the case of small-scale fisheries gasoline, results were inconclusive. In general, subsidies focused on fishing fuel are merely cash transfers that have no impact on productivity or overfishing. As such it would be advisable to deliver them as such and not linked to fuel consumption.

***Generalized subsidy on fuel.*** The way to calculate the prices for the domestic fuel market in Mexico makes the domestic price unresponsive to changes in international prices. In Mexico there are net taxes on fuels in times when international prices are very low (like 2009 and 2010), while when international prices are at normal levels there is a net subsidy to fuels, including fishing. The impacts of these subsidies in fleet behavior depend on the flexibilities, i.e. how sensitive fuel consumption is to changes in price. While it is possible to calculate the impacts using flexibilities reported in the literature, it is advisable to conduct studies to calculate the price elasticity of demand for artisanal gasoline and marine diesel for the main fishing fleets in Mexico.

GENERAL FUEL SUBSIDIES BEHAVIOR IN MEXICO




## DECOUPLING SUBSIDIES POLICIES FOR FISHERIES IN MEXICO

*Interpretation of the group of rapporteurs on the working paper submitted to WWF, by Carlos Muñoz Piña and Celeste Meza, Universidad del Medio Ambiente.*

In Mexico, 71 of the 203 commercial-targeted species under management are overexploited. In these fisheries catches are higher than the maximum sustainable yield (INAPESCA, 2012). This means that eventually catches will start to drop despite having more fishing boats. The causes of overexploitation are several, but the root cause is a combination of geographical and biological characteristics of the resource with institutional arrangements for access and property that have formed around it. There are also other causes such as subsidies. Fishing subsidies are thought as a way to strengthen fisheries, but usually have the opposite effect.

*Artisanal shrimp production.*
*©WWF*

Energy subsidies for fishing in Mexico are embedded in an institutional framework with regulatory failures. Decoupling subsidies could be done regardless of the state of regulation. A policy for decoupling subsidies could be implemented successfully even under situations with Illegal, Unreported and Unregulated (IUU) fisheries.

### Policy Options

The recommendations for solving the problem of subsidies can be summarized in three main ideas: (1) reduce the subsidy to disincentive overfishing, (2) decouple subsidies and (3) condition the support for strengthening regulatory measures.

*Reduction or elimination of the subsidy.* - Would raise the price of fuel up to international prices. The fishermen reaction to the price increase would move towards economic efficiency through key behavior modification. In the short term a percentage of fishermen would reduce some of their fishing days per season; in the long term, some would change the type of engine or boat, and in some cases the decision may be to run out of business. The political cost of this option is high and could be rejected immediately.

*Decoupling of the subsidy.* It also raises the price of fuel, but in this case is compensated with a new transfer which can be:

*a. Freely assignable.* Where any use of the transfer is valid. This includes purchasing fuel (at a higher price), capital goods, inputs for fishing, or any other consumption and investment decision.

*b. Tied equipment investment.* It is similar to the previous case, but instead of letting the beneficiaries to use the subsidy in whatever they decide; the decisions would be constrained by a list of things considered beneficial for ecosystems and fisheries

*Conditioning the subsidy.* By conditioning subsidy systems it is feasible to achieve subsidies that have a positive effect on the protection of fish stocks and ecosystems. Options include: (A) conditioning the subsidy for regulatory compliance, (b) conditioning of fisheries subsidies for fisheries management improvements, (c) voluntary replacement fuel subsidies for retirement of fleet and (d) exclusion (temporary) of sanctioned fishermen from subsidy programs.

# III. CASE STUDY ON FISHERIES SUBSIDIES IN MEXICO

To better understand the impacts of public spending in the fisheries sector it is important to know specific case studies to analyze the effects of different fisheries subsidies with different cost structures. As part of the discussions on fishing fiscal policy in Mexico, there were some cases presented.

First, an analysis of the cost structure of the industrial shrimp fleet in Puerto Peñasco, located in Sonora was presented. Additionally, case studies for sardine and shrimp were presented. These two studies yielded data based on the Representative Aquaculture and Fisheries Units Report, conducted by the Mexican Network of Agricultural Food Policy Research (Agroprospecta). The report shows the revenue and cost structure of some fleets and is extremely useful to understand the impacts that would have a change in the amount or structure of fisheries subsidies.

**"GOOD FISHERIES MANAGEMENT ELIMINATES THE NEED FOR FISHERIES SUBSIDIES"**

The study analyzes the costs and benefits of fish production under a methodology of a Representative Production Unit (RPU). The focus of the RPU is developed through the identification of units to define a unit type that reasonably represents a group. For the studies that were presented (shrimp and sardines) the RPU was the vessel. To examine information from producers and simulate its behavior, a financial and economic risk analysis was used to study the information, to emulate the effects of risk and present results transparently. Besides the fisheries presented during the dialogues, the Agroprospecta study includes analysis of other two fisheries: lobster-abalone and squid.

In general, the case studies indicate that there is heterogeneity in fisheries and the effects of subsidies on fleet behavior differs by fishery and region. It is worth highlighting the most extreme cases. On one side is the lobster-abalone production in northern Baja California Sur where there are organizational skills, proper fisheries management and where no subsidies are needed to achieve economic efficiency and create jobs. Then there is the shrimp fishery (both Sinaloa and Sonora) in which subsidies are essential for the average RPU to have some profits.

## THE CASE OF THE INDUSTRIAL FLEET OF PUERTO PEÑASCO

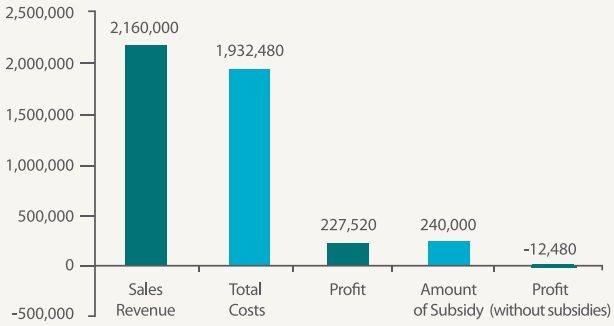
*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Oceanologist Marco Ross, an independent consultant.*

In order to evaluate the operations of the fishing fleet it is necessary to look beyond fisheries subsidies. In the case of the shrimp fleet of Puerto Peñasco there are factors that have a bigger impact than subsidies, both in profits and in behavior. These factors include: the fleet retirement programs, the price of shrimp, the price of diesel and the cost of labor. Regarding these factors it is remarkable that: (A) the government has invested 377 million MXN for the removal of 311 vessels between 2006 and 2011, (b) the price of shrimp fluctuates according to international prices, from 2002 to the date this price has been trending downward, (c)

the increase in the nominal price of diesel has impacted the shrimp fleet, the nominal price has increased 108% from 2006 to 2012, and (d) the payment to the crew represents about 23% of the total costs of a shrimp boat.

When analyzing the revenue and cost structure of a typical boat of the shrimp fleet in Puerto Peñasco in an integrated manner, it is observed: (I) Revenues from sales of shrimp equal to 2,160,000 MXN, (ii) costs 1,932,480 MXN, (iii) 227,520 MXN profits, and (iv) 240,000 MXN total subsidies. The information presented is a sample of the impact the removal of subsidies would have in the operating capacity and employment generation by the shrimp fleet. Considering these results, it was put on the table for discussion the possibility of modifying the structure of public spending in Mexico fishing to strengthen the fleet retirement program.

### REVENUES AND COSTS STRUCTURE OF A TYPICAL SHRIMP BOAT IN THE GULF OF CALIFORNIA

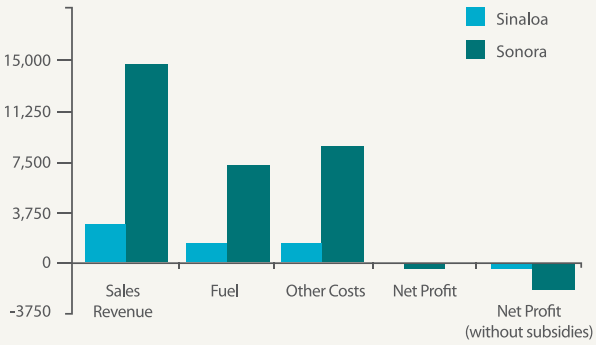



## THE CASE OF THE GULF OF CALIFORNIA INDUSTRIAL SHRIMP FISHERY

*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Luis Armendarez and Victor Hernandez, Universidad Autonoma de Baja California Sur.*

Due to the large volumes and high international prices, shrimp is the highest seafood export in Mexico. The Pacific fleet has 1,326 boats representing 70% of the national fishing fleet. 85% of the fleet is located in the states of Sonora and Sinaloa, while fishing for Pacific wild shrimp represents 20% of the national landings.

### ANALYSIS RESULTS OF SHRIMP RPU (THOUSANDS OF PESOS)




The most important transfers received by the shrimp fleet are the marine diesel subsidy and tax exemption. The offshore shrimp fishery faces significant problems, including over-capitalization due to the excessive number of vessels, which probably affects negatively the yield per boat.

The representative RPU of Sinaloa is a boat located in Mazatlan, 25 meters long, 40 ton storage capacity, 550 HP engine, with an ability to operate in 30-day trips. It makes four trips from September to December on the coast of Sinaloa, Sonora and Baja California Sur. 57% of production is for export and 43% is for the domestic market.

The representative RPU of Sonora is a boat located in Guaymas, Sonora. It is 24 meters long ship with a capacity of 40 tons of storage, 480 HP engine, and the ability to operate in 30-day trips. It makes five trips from September to March on the coast of Sonora, Sinaloa and Baja California. 85% of production is destined for export and 15% is for the domestic market.

> *"Una Unidad Representativa de Producción (URP) no es ninguna unidad productiva en particular, sino es una unidad que no existe pero se parece un poco a todas las existentes; de ahí el nombre de representativa".*

## THE CASE OF THE SARDINE FISHERY IN THE GULF OF CALIFORNIA

*Interpretation of the group of rapporteurs on the statement submitted during the roundtables, by Dr. German Ponce. Centre for Marine Sciences, National Polytechnic Institute.*

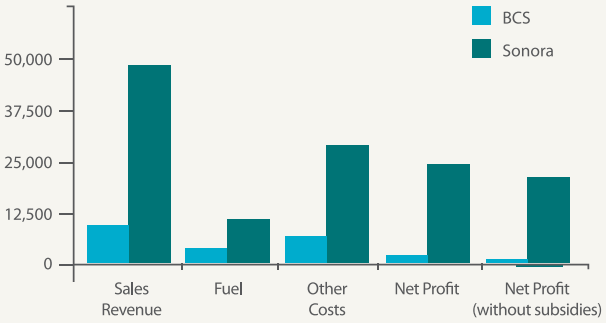
The sardine fishery is the largest volume in Mexico. In 2005 its production reached 600,000 metric tons, but in the nineties catches just reached 100,000 metric tons. In recent years the sardine catch in Mexico has surpassed one million

tons. The sardine is used as input to produce fishmeal and a small portion goes to canning.

The sardine fleet in the Gulf of California began operation in the late sixties, with around 25 boats. The number of boats increased between 1970 and 1980 to reach 77, and maintained this until the nineties. During the nineties the sardine fleet was reduced to no more than 30 vessels, due to the collapse of the sardine biomass during the same period. But it is from the nineties and to date which shows that the number of boat trips has increased, with about 90-100 trips per year, per boat.

The annual productivity per ship has risen from 2,000 tons in 1990 to 12,000 tons in recent years. The catch per unit effort has also increased, with the exception of the sardine crisis of the nineties, from 25 tons per trip in the early seventies to 150 tons per trip for 2005.

### ANALYSIS RESULTS OF SARDINE RPU (THOUSANDS OF PESOS)




## THE CASE OF ABALONE-LOBSTER FISHERIES

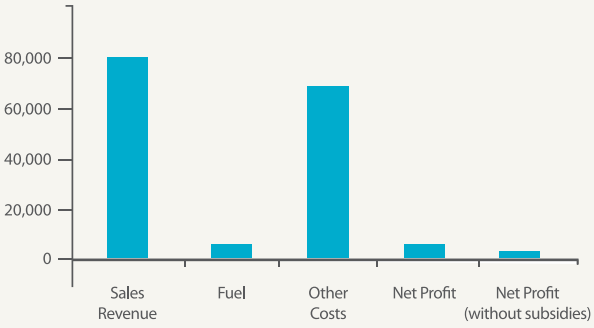
Thanks to the efforts of WWF with local partners in 2004 certification was achieved for the spiny lobster fishery of Baja California, crediting it as sustainable by the Marine Stewardship Council (MSC), having passed the review established under international criteria for sustainable and well managed fisheries.

The MSC label offers consumers in restaurants, cruises or supermarkets the certainty that the marine products come from fisheries that use resources in a responsible way, maintaining the productivity and biodiversity of the oceans and helping to resolve the crisis facing fisheries worldwide.

*Lobster fishery in Baja California, Mexico.*
*©WWF/Gustavo Ybarra*

Due to the certification, this fishery has become a regional referral center and a model guide for other cases of successful fisheries in Central and South America. It also shows how a community enterprise can benefit from global markets while supporting the social development of its people and without requiring subsidies for its activity. 1,500 families that make a living from commercial fishing in ten coastal communities of the Peninsula of Baja California, are benefitedthrough the purchase of certified lobster.

### RPU RESULTS FOR THE CASE OF ABALONE-LOBSTER IN BAJA CALIFORNIA SUR (THOUSANDS OF PESOS)



## THE CASE OF SQUID FISHERIES

The squid fishery was not studied during the dialogues, but the Agroprospecta study provides valuable information on the revenue and cost structure that was worth incorporating into the recollections. In the case of squid, the study reports the results of two fisheries at Guaymas and Santa Rosalia. It is noteworthy that the typical RPU for Santa Rosalia does not receive subsidies and operates with positive margins. However, the RPU at Guaymas, which does receive subsidy, operates at the margin, i.e. net profit without subsidies is close to zero. The comparison of these two scenarios is a natural example of how one might adjust a fishery by eliminating subsidies.

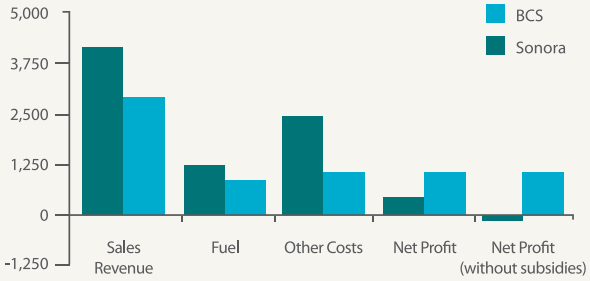
### Results for the squid RPU in Guaymas, Sonora

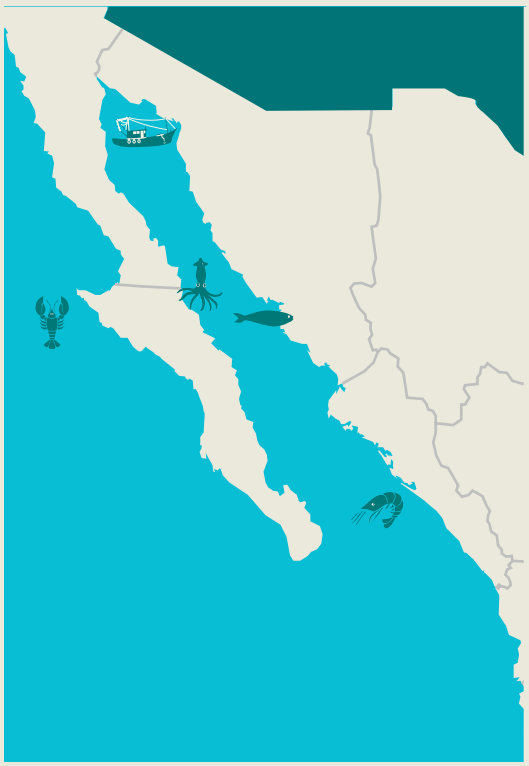
The RPU is located in Guaymas, Sonora. It has five ships, each with length of 24 meters, load capacity of 15 tons of ice and 350 HP engine. 70% of production is exported and the rest is destined for the domestic market.

### Results for squid RPU in Santa Rosalia, Baja California Sur

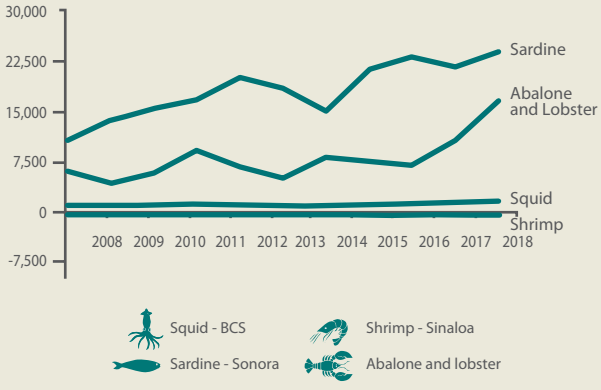
The RPU is located in the Port of Santa Rosalia, Baja California Sur. It has ten panga type boats 22 feet in length, load capacity of one ton and outboard engine. The catch per boat is 100 tons per season. 85% of production is for export.

#### ANALYSIS RESULTS OF THE SQUID RPU (THOUSANDS OF PESOS)



#### ECONOMIC VIABILITY2008-2018 FOR SELECTED RPU (REVENUES WITHOUT SUBSIDIES IN THOUSANDS OF PESOS)




*All results presented under the RPU analysis were taken verbatim from the study: Quote Agroprospecta study, with permission from Agroprospecta.*

# IV. CHALLENGES AND OPPORTUNITIES IN MEXICO

The causes of over-capitalization of the fishing industry and overfishing are diverse. Management problems, lack of supervision, poor governance and poor definition of property rights are just some of the variables that can lead to overfishing. This diversity of factors suggests that fisheries subsidies are not the root cause leading to over-capitalized fisheries. However, any cash transfer involving either an increase in fishing revenues or decrease in the cost of fishing, leads to a possible increase in fishing intensity and thus increases the risk of adversely affecting the fish stocks and compromises the sustainability of fisheries.

During the dialogues, speakers and participants jointly analyzed the situation of fisheries subsidies in Mexico. Among the most important elements of analysis, the discussion highlighted the following:

- Subsidies from CONAPESCA in 2011 accounted to 2.358 million MXN, of which over 38% was delivered as fuel subsidy.

- The total amount of fisheries subsidies should also include subsidies from the local governments, and from public funding agencies. By incorporating these other subsidies the amount would be significantly higher. In 2009 the Trust Funds to Agriculture (FIRA) granted support for 2.742 million MXN for the promotion of fishing.

**"FISHERIES SUBSIDIES ARE NOT THE CAUSE THAT LEADS FISHERIES TO OVER CAPITALIZATION"**

- It is necessary to improve the mechanisms for transparency in the granting of state subsidies (mainly for engines) and from public funding agencies.

- Since 2006, the subsidies for riparian marine diesel and gasoline have been declining as a percentage of total fuel prices.

- The diesel subsidy is not given indiscriminately. Each year quotas for a maximum amount of fuel to subsidize are set.

- According to the analysis of marine diesel demand, made by the Universidad Iberoamericana, fisheries subsidies do not increase fishing effort in the short term. This is because the subsidized quota is below the quantity of fuel demanded that would be in the absence of a subsidy. This makes fishing subsidies to be merely income transfers.

- Not all subsidies are harmful. There are subsidies that can be beneficial because they improve the management and use of natural resources.

- Inadequate fisheries management and poor allocation of property rights are more direct causes of overfishing than subsidies. However, in these situations (poor management and deficient allocation of property rights) subsidies are less efficient and have higher negative impact on fish stocks.

- Good fisheries management eliminates the need for fisheries subsidies. For this reason, the management of investments can be considered beneficial.

• In the case of the shrimp fishing fleet, indicators suggest overcapitalization. In this case the removal of subsidies could lead to a reduction in the size of the fleet.

• In the case of sardines, indicators suggest that, at least in the short term, fisheries are healthy. A reduction in subsidies would lead to an industry hassle by eliminating a cash transfer, but everything indicates there would be no change in the levels of exploitation.

Based on the data presented and the items discussed, during the dialogues there were several opportunities analyzed to redirect fiscal fishing policy in Mexico. The new fiscal policy should be aimed at preventing overfishing and thus improve sustainability and long-term income for human populations in coastal areas. The following opportunities recognized by members of the roundtables stand out:

**Transparency in awarding subsidies.** To properly analyze the effects of subsidies and propose improvements to the way in which governments exercise the budget for fisheries requires knowing exactly these expenses. In Mexico there are clear and precise data on fuel subsidies and complete information on other subsidies from CONAPESCA. However, there are support programs for the fisheries sector by the local governments and by the public funding agencies that are not reported with the same level of detail. It is necessary to have a formal methodology and periodic data that reveal the total universe of fisheries subsidies in total transparency.

**Redirect investment to improvements in fisheries management.** On one hand, fisheries subsidies can contribute to overfishing and overcapitalization and on the other hand, the budget disbursed in subsidies could be better used in policies to improve fisheries management. It is desirable both for industry and for the conservation of the oceans to migrate from a management system that requires subsidies to work towards sustainable management systems that do not require additional support to the revenues generated by the sector. To do this it is necessary to start moving from public spending on subsidies to public investment to improve the management of marine resources.

**It is necessary to promote tax reforms that encourage the use of environmentally friendly fishing technology.** One of the proposals with greater acceptance among the participants of the fishery talks was the reorientation of subsidies for technological improvement that lowers environmental and ecological damage of fishing activities. Technological innovation currently is not encouraged properly: in Mexico


*Pangas in San Felipe, Baja California, Mexico.*
*©WWF/Gustavo Ybarra*

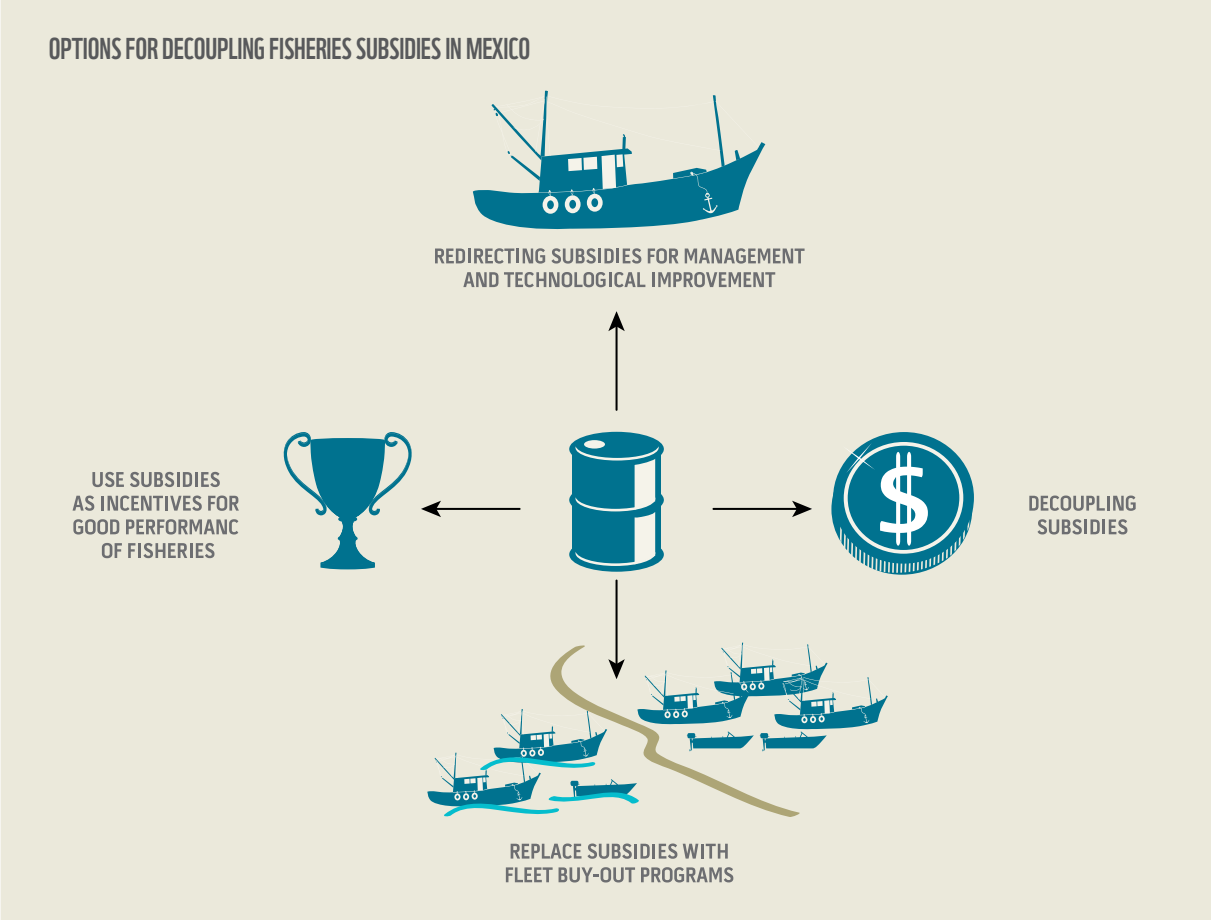
there is a de facto tax on technological innovation and import tariffs on environmentally friendly fishing equipment. A group agreement is to correct these incentives in the short term while long-term options for improving public expenditure on fishing are being analyzed.

**Joint work between national governments and international NGOs**. Joint work should be directed towards establishing commercial disciplines on fisheries subsidies within the WTO member countries. For commercial disciplines we must understand transparency, promote good management and clear criteria for sustainability implementation in public spending.

**Re-engineering of subsidies.** In fiscal policy dialogues there is agreement on the need for more efficient management of public expenditure on fisheries. However, there is strong discussion on how to streamline the reform:

- *Decoupling of the subsidy.* A decoupled subsidy is a transfer of income to the beneficiaries of subsidies without any conditions or specific use. The decoupling of the fuel subsidy was proposed as an efficient option but unlikely in the short term.

- *Redirecting subsidies for management and technological improvement.* A well-managed fishery causes less environmental damage and requires fewer subsidies. A proposal was to replace subsidies with public investment to create change towards sustainable fisheries and environmentally sustainable without government support.




*- Use subsidies as incentives for good performance of fisheries.* Under this plan, only fisheries that meet and demonstrate certain sustainability criteria would be eligible for support, thus subsidies would be an incentive for good environmental performance.

*- Replace subsidies for fleet retirement programs.* One of the most controversial issues was buy back programs. While it is true that in the short term they eliminate over-capitalization, they can have negative effects in the long term. The group agreed on conducting further analyses before moving forward with this discussion.

WWF's commitment to complete this first phase of fiscal fishing policy dialogues is to analyze these options and hold discussions in the decision-making arena. It is necessary to continue with an active and open dialogue between governments, academia, civil society and fisheries leading to real solutions for more efficient and sustainable public spending in the fisheries sector.

## "NOT ALL SUBSIDIES ARE HARMFUL"

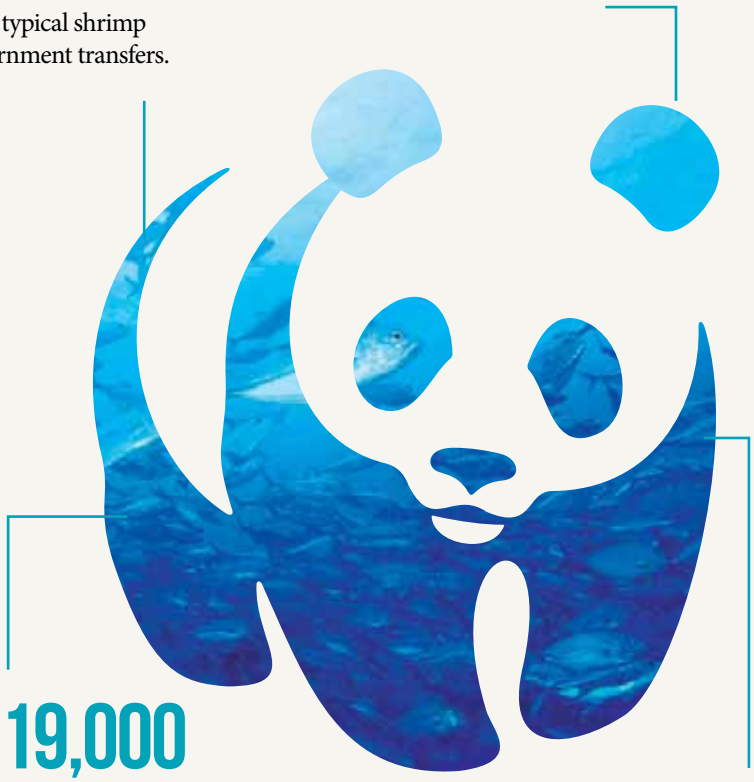
100% RECYCLED

# 3,784 MILLIONS

In Mexico, between 2007 and 2012, 3,784 million MXN were delivered in form of subsidies.

# 25%

Earnings of a typical shrimp boat are government transfers.



# 19,000 FISHERMEN

Were supported by grants applied towards gasoline in the artisanal fishing sector.

# 70%

7 out of 10 pesos of the budget for fisheries in Mexico is given in the form of subsidies.

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To stop the degradation of the planet's natural environment and build a future in which humans live in harmony with nature.

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REFORM IN FISHERIES SUBSIDIES – NOVEMBER 2013

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