



EDF experiences with gulf curvina in the Upper Gulf of California 2011-2016

In 2012, the Mexican fishing authorities established a Total Allowable Catch for the curvina golfina fishery. It was then that EDF de Mexico started to work with fishermen, managers, local partners and federal and state authorities to design and implement a catch share management plan. Since then, catch shares have made a significant difference in conservation and the way fishing is perceived in the Upper Gulf of California.

	Before Catch Shares	With Catch Shares	What changed?
Catch limit	None (open access)	Science based total allowable catch and individual catch limit	Science based total allowable catch and individual catch limit
Landings	5,952 MTon (2002) and 5,926 Mton (2010)	4,463 Mton (2016, CONAPESCA)	From 2007 to 2011 total volumes landings where 25% higher than during the first 5 years after catch shares implementation.
Curvina ex-vessel prices	MX\$10.70 (2011)	MX\$14.71 (2016)	During the first season of catch shares ex-vessel increased 67% going from \$10.70 (2011) to \$17.60 (2012).
Swimming bladder "buche" price	\$100 pesos/kilo (2011)	\$566 pesos/kilo	Buche price is driven by an intense demand from external markets (i.e. China), thanks to a strong catch shares management system in place this strong driver has become an opportunity for higher profitable and not a threat to stock health such is the case for other croakers in the region
Gross Profits	\$104,811 pesos/vessel (2011)	\$129,727 pesos/vessel (2016)	On 2016, incomes for fishermen increase 16% compared to 2015.
Fishing effort	Unknown (open access)	737 curvina specific permits (2016)	Before catch shares, curvina was caught under a fin fish permit. In 2013, a specific permit for curvina was introduced.
Community Monitoring	16 monitors (2011)	52 monitors (2016)	The Community Catch Accounting Program began in 2011 with 16 monitors and only 60% coverage in 1 out of 4 fishing communities. In 2016, the program had coverage of all 4 fishing communities, with a team of 52 monitors with 85% of coverage of all receiving sites
	1 out of 4 fishing communities (2011)	All 4 fishing communities (2016)	
Governance bodies	None	- Multi-stakeholder official committee - Technical Group	
Mareas (fishing cycles)	6 (30 days in the water)	4 (20 days in the water)	

Catch shares, before and after

- ✓ Catch shares have been able to diminish the race to fish and thereby stabilize the curvina population and improve the economic performance of the fishery.
 - *Before catch shares-* Many good fish would go to waste. Fishermen testimonies report that, *because of overfishing, the market oversaturated and prices fell up to 60% in less than 24 hours.* With such low prices, many of them reported often just throwing their catch away instead of selling it at such low prices.
 - *Today prices are still higher than before catch shares and incomes for fishermen have increased 16% on the last year.*

Post-harvest practices before and after catch shares	
Before catch shares	After catch shares
	
<p><i>Before catch shares, fishermen raced to fish, gutted fish in the streets in order to sell it faster and went out on another trip as soon as possible.</i></p> <p><i>Today, with catch shares, there is no need to rush gutting processes, and hence better post-harvest management has been adopted. Now, no fish is gutted on the beach to fish more.</i></p>	

- ✓ Catch shares have helped to increase stewardship among curvina fishing communities, which translates in a more coordinated effort and an increased co-responsibility.
 - *Before catch shares-*the communities that participated in the curvina fishery did not have a sense of common resources, and would fish as much as they could, as long as they could – *record historic landings reached over 5,900 m ton.*
 - Today, with catch shares, fishermen have learned to self-regulate better and improve the administration of their resources. *This year, Federations from Golfo de Santa*

Clara voluntarily stopped the fishing effort and formally requested the early closure of the season to fishing authorities once the TAC was reached.

Community enforcement practices before and after catch shares	
Before catch shares	After catch shares
	
<p><i>Before catch shares, there was not a formal point of landings, so control of catch limits was non-existent.</i></p> <p><i>Today, there are fishing inspectors on arrival points, along with community monitors, allowing the fishery to have more catch accountability.</i></p>	

- ✓ Catch shares have helped to maintain a stable and healthier curvina population.
 - Spawning and aggregation fisheries are likely to collapse with open access and uncontrolled fishing effort. However, since 2012, a limit on catch has been in place to avoid this extreme catch and stock collapse¹.
 - There are continuous specimens showing larger sizes than previous years (up to 2015), despite a century of exploitation of the fishery. Additionally, since gear restrictions were made in 2005, the size has been steady.

Remaining Challenges

Despite the positive results in terms of price, biomass and community engagement, there are admittedly still many challenges in the curvina fishery

- *Lack of enforcement.* One of the most consistent challenges in the region is lack of enforcement. In fact, 3 out of 5 fishermen consider this to be a common threat to

¹ Erisman et al 2014

their fishery and we have also seen an increase in illegal activities in the past couple of years.

- This year the number of unregistered boats on the water for the Gulf of Santa Clara, the major curvina fishing community, was of 80, 12% more than on the last two years and 50% more than three years ago.

- *Uncertain future.* The critical situation of the vaquita marina and the lack of success over the implemented measures has caused rumors of a possible closure of the curvina fishery. These rumors may have actually caused an increase in captures and therefore an increase on the captures registered this year.

- *Increase governance of indigenous communities.* The Cucapa indigenous community has consistently overfished curvina in recent years, refusing to adhere to the legal limits the Mexican government has set because they were not consulted as guardians of the land. The lack of compliance on the Cucapa community is a factor in the exceeded overall catch limit.
 - Having a differentiated management plan could help increase compliance from the Cucapa community and reach common fishery goals.

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