# MARKET INITIATIVE

## Curvina Golfina, 2014

EDF
ENVIRONMENTAL DEFENSE FUND™ DE MEXICO
Encontrando soluciones que funcionan

# Curvina Golfina

*Cynoscion othonopterus*

Endemic fish from the Upper Gulf of California, with tasty meat and few fish-bone. Unique for its fishing season and fishing technique.

# Summary

As part of its on-going commitment to advance sustainable fisheries, EDF de Mexico supported a pilot to test market demand for improved fishing practices and better seafood handling during the most recent curvina golfina season in the Golfo de Santa Clara (GSC) fishery. Ultimately, EDF's goal was to determine if investments in market initiatives could support the adoption of catch shares in Mexican fisheries.

Working alongside the CapLog Group, a consultancy with expertise in understanding the market forces behind sustainable fisheries, EDF developed and implemented a 'Quality Catch Contract' market initiative for the 2014 curvina golfina season. The approach was to:

1. Identify a US seafood buyer willing to pay a premium for sustainably caught fish;
2. Work with that buyer and select members of the GSC fishing community to develop fishing criteria and processing practices that improve product quality; and
3. Develop monitored responsible fishing behavior requirements that advance sustainable fishing practices and ultimately promote catch shares management in the fishery.

**This document provides an overview of the development and execution of the Quality Catch Contract, describes perceived successes and shortcomings from the 2014 season, and comments on the replicability of the model in other fisheries in Mexico.**

# Background

Inicio 2011 2012 2013 2014

Since EDF began working with the curvina golfina in 2011, it has witnessed significant advances in the management of the fishery, including the introduction of scientifically-based annual catch limits, community-level and individual fishing quotas and increased monitoring.

However, volatile ex-vessel prices continue to add uncertainty to the fishery and incentivize a 'race-to-fish.' This 'race-to-fish' has historically created volatile incomes that work directly against the transition to new fishery regulations. As such, the initiative aimed to test methods for both increasing and stabilizing income in the fishery.

# Planning the initiative

## Mapping the Supply Chain, Understanding the Market and Estimating Profitability in the Fishery.

CAPLOG

To better understand the contributing factors to the price volatility, EDF contracted with CapLog Group to gather data and profile the market for the curvina golfina fishery in Golfo Santa Clara in the state of Sonora, Mexico. Detailed information on the trip-level costs of curvina fishing, the behavior of ex-vessel and retail curvina prices and the value chain for the fishery provided EDF and its partners with a new level of insight into the trends and profitability of curvina fishing.[1]

Based on this information, EDF and CapLog determined that there were several inefficiencies that were contributing to a loss of potential return in the fishery. Chief among these were:

- Overreliance on domestic (Mexican) consumption, where fish demand is closely tied to the timing of Lent, after which prices tend to crash;
- Reliance on the distant Nueva Viga fish market in Mexico City, which often sold curvina under other names (e.g., red snapper);
- A surfeit of fish landed early in the season, resulting in price collapse;
- Improper post-harvest handling resulting in spoilage and suboptimal prices;
- Lack of product differentiation, resulting in depressed prices.

[1] Several of these studies are made publically available at www.caploggroup.com/projects, including:
- Economic Overview of the 2014 Curvina Golfina Season: http://caploggroup.com/wp-content/uploads/2014/07/CapLog-Report-Economic-Overview-of-the-2014-Curvina-Golfina-Season-7_22_14.pdf
- Economic Overview of the 2013 Curvina Golfina Season: http://caploggroup.com/wp-content/uploads/2014/06/CapLog-Report-Economic-Overview-of-the-2013-Curvina-Golfina-Season_public-final.pdf
- Overview of the Market for Swim Bladders from Mexico's Curvina Golfina Fishery: http://caploggroup.com/wp-content/uploads/2013/05/CapLog-Report-Curvina-Buche-Markets- PUBLIC_FINAL-July-11-Update.pdf

# Developing Different Market Initiative Models.

In consultation with CapLog, EDF commissioned a study of potential market interventions that could address one or more of the market inefficiencies. CapLog considered projects that would:

1. Demonstrate EDF-Mexico's commitment to follow through on promises made to the community, funders, government and other stakeholders in the curvina golfina fishery;
2. Test and improve a market incentive model that in the future could:
   - a. Build support from diverse segments of the community;
   - b. Generate revenue to cover a substantial portion of the costs of the initiative;
   - c. Be adapted for replication in other fisheries.
   - d. Be summarized in a "marketable" case study (for the GSC fishing community) on how progressive fishing practices generate higher value for fishermen and distributors.
3. Generate additional data on the costs and benefits of fishing curvina in the GSC.

# Identifying the End Market

CapLog's study of market interventions determined that:

**a** There was interest in the curvina golfina product in US markets; and that

**b** The curvina golfina fishery should reach out to US seafood distributors that were interested in 'sustainable' or 'local' product. CapLog's analysis revealed that the US market had two main advantages that made it the best choice for the focus of the 2014 pilot project. These were:


**Proximity**
Mexico City is over 1,500 miles from Golfo Santa Clara. In contrast there are several major metropolitan areas in the US much closer than Mexico City, (e.g., Phoenix, San Diego, Los Angeles, San Francisco, Las Vegas, Denver, Portland, Seattle, Houston, Dallas – represented by red stars on the map to the right). Sending fish to those cities could potentially reduce transport costs and spoilage.

**Presumed Price Premiums for 'Sustainable' and 'Local' Fish**
US seafood restaurants and retail outlets are increasingly seeking out sources of sustainably harvested and local fish.

**From Golfo Santa Clara to:**
- Mexico City: 1,580 Mi. / 29 hrs.
- Omaha, Nebraska: 1,620 Mi. / 27 hrs.
- Vancouver, Canada: 1,608 Mi. / 28 hrs.
- More than 10 major markets are closed to GSC than Mexico City

**IMAGE 1.**
Value Chain Mapping Reveals and Opportunity

## Brainstorming Solutions to Address Identified Issues.

In order to sell curvina effectively to the US market, the fishery would have to address some serious issues (identified above) in the handling, processing and storage of fish. Experience in similar fisheries and conversations with US seafood industry contacts led CapLog to select several different techniques for improving the handling of freshly caught curvina golfina, including taking coolers of ice on board, experimenting with hand lines and smaller gill nets and reducing per trip catch, among others.

**IMAGE 2.**
Fishermen Meet to Discuss Market Initiatives.

## Ground-Truthing Solutions

EDF convened a group of interested fishermen in the offices of Alto Golfo Sustentable (AGS), a local organization dedicated to providing meeting space and other resources to GSC's fishermen.[2] At the meeting CapLog presented several of the proposed solutions to the fishermen, inviting their honest assessment of the feasibility of each innovation.

As part of their assessment, fishermen were asked to estimate both how the change in behavior or gear would impact their catch and the costs of purchasing the new gear. Fishermen assessments made it clear that several of the options were untenable. For example, fishermen noted that spawning curvina are not typically interested in feeding, making hand line fishing an unrealistic option. Fishermen also provided several valuable refinements to solutions proposed by CapLog. For example, fishermen suggested that they use the custom built fiberglass coolers that they used for the shrimp fishery, rather than bring bulky insulated drums on board.

[2] AGS is supported by the La Paz-based non-profit Noroeste Sustentable (NOS).

# Calculating ROI

Armed with a pared down list of feasible solutions, CapLog developed a model that estimated the potential costs and return of each possible solution. The model took into account several assumptions, including the costs of inputs, the changes in per-trip catch, number of catch per season and duration of fishing trips. The output of the model provided a target 'break-even' price for each of the potential combinations of behavior changes and gear adoptions. In some cases the required break-even price was so high as to rule out the particular solution. CapLog presented the model in an interactive session with the fishermen, testing out the outcomes of various sets of assumptions.

| USER DECISIONS | |
|---|---|
| Gear Swich? | Hook and Line? |
| Use Tambas? | Tambas? |
| Use Ice on Board? | Ice? |
| Percentage of Quota to CCC Program? | **50%** |

| QUALITY CATCH ASSUMPTIONS | |
|---|---|
| CCC trips pes Seasson | 4 Trips |
| Non CCC Trips per Seasson | 3 Trips |
| Reduction of Catch per Trip as Result of Gear Switch | 45% |
| Reduction of Catch per Trip as Result of Tamba Use | 25% |
| Reduction of Catch per Trip as Result of Ice Use | 20% |
| Aditional time on water as Result of Gear Switch | 25% |
| Cost of Board Modifications (per seasson) | $ 5,000 pesos |
| Cost of Tambas (per seasson) | $ 2,500 pesos |
| Number of Ice Blocks 20kg. (per trip) | 7 blocks |
| Cost of Ice per Ice Blocks of 20Kg. | $ 50 pesos |
| New Basse Price (flesh) | $ 16 pesos / Kg. |
| Hook and Line Price Premium | 50% |
| Tamba Premium | 25% |
| Ice Premium | 50% |
| Cost of Guting (per kilo) | $ 2 pesos / Kg. |

| CCC HARVEST | TRIP | SEASSON |
|---|---|---|
| Catch (whole) | 676 Kg. | 2702 Kg. |
| Flesh equivalent | 574 Kg. | 2297 Kg. |
| Buche equivalent | 14 Kg. | 58 Kg. |
| Revenue (flesh) | $ 13,512 pesos | $ 54,047 pesos |
| Revenue (buche) | $ 2,511pesos | $ 10,043 pesos |
| **TOTAL REVENUE** | **$ 16,022 pesos** | **$ 64,090 pesos** |
| Variable Costs | $ 2,380 pesos | $ 9,519 pesos |
| Fixed Costs | NO | $ 30,081 pesos |
| **PROFIT (pesos)** | **$ 13,843 pesos** | **$ 24,489 pesos** |

| NO-CCC HARVEST | VIAJE | TEMPORADA |
|---|---|---|
| Catch (whole) | 896 Kg. | 2598 Kg. |
| Flesh equivalent | 761 Kg. | 2208 Kg. |
| Buche equivalent | 19 Kg. | 55 Kg. |
| Revenue (flesh) | $ 14,030 pesos | $ 40,688 pesos |
| Revenue (buche) | $ 3,329 pesos | $ 9,654 pesos |
| **TOTAL REVENUE** | **$ 17,359 pesos** | **$ 50,342 pesos** |
| Variable Costs | $ 3,079 pesos | $ 8,928 pesos |
| Fixed Costs | N/A | |
| **PROFIT (pesos)** | **$ 14,281 pesos** | **$ 41,414 pesos** |

| CHANGES IN KEY OUTCOMES FROM 2013-2014 UNDER THE QUALITY CATCH CONTRACT | | | |
|---|---|---|---|
| **METRIC** | **2013** | **2014** | **%** |
| Catch | 5454 Kg. | 5300 Kg. | -3% |
| Quota | 5270 Kg. | 5300 Kg. | 1% |
| % Quota Utilized | 103% | 100% | -3% |
| Price | $ 16 pesos Kg. | $ 20 pesos Kg. | 28% |
| **PANGA REVENUE** | **$ 104,742 pesos** | **$ 114,432 pesos** | **9%** |
| Variable Costs | $ 18,641 pesos | $ 18,448 pesos | -1% |
| Fixed Costs | $ 22,581 pesos | $ 30,081 pesos | 33% |
| **PROFIT PER PANGA (SEASSON)** | **$ 63,520 pesos** | **$ 85,903 pesos** | **4%** |
| Time on Water (hours) | 35 hours | 39.3 horas | 14% |
| Profit per Fisherman | $ 6,987 pesos | $ 7,249 pesos | 4% |
| **PROFIT PER FISHERMAN PER TIME ON WATER (pesos/Hr.)** | $ 200 pesos / Hr. | $ 182 pesos / Hr. | -9% |

| OPORTUNITY COSTS | | | |
|---|---|---|---|
| Hours no Fishing for Chano | | 4.9 Hr. | |
| Hourly Opportunity Cost of no Fishing Chano | | $ 150 pesos / Hr. | |
| Opportunity Cost of no Fishing Chano | | $ 732 pesos | |
| **PROFIT PER FISHERMAN LESS OPPORTUNITY COST** | **$ 6,987 pesos** | **$ 6,517 pesos** | **-7%** |

The CapLog ROI model examines the impact of changes in fishing behavior (e.g., switching to hook and line, the use insulated drums, bringing ice on board, etc.) on key outcomes, including harvest per-trip, costs per trip, profit per-trip and profit per hour on water. Cost, effort and harvest assumptions were developed in coordination with the fishing community; price premium assumptions were developed in consultation with US seafood buyers.

**IMAGE 3**
CapLog's Return on Investment (ROI) Tool, Used to Evaluate Several Market Initives.

## Communicating Risk and Securing Final Buy-in

In presenting the concept for the market initiative and the potential return for the fishermen, EDF and CapLog emphasized that any initiative would require an investment of time and money from the fishermen. Furthermore, fishermen would be required to reserve a portion of their quota until the end of the season, when the prices for curvina had traditionally been the lowest. It was essential that fishermen participants understood that they could potentially lose out by participating in this project, both to manage expectations and to ensure that fishermen participants felt that they had ownership in the idea and outcome.

After reiterating the risks and reviewing the model, fishermen were asked directly if they wanted to participate; they unanimously agreed that they wanted to proceed.

## Developing a Brand

Based on the results of informal surveys, CapLog and EDF worked with the community to develop a logo and website for the 'Gulf of California Responsible Fishermen's Association' that conveyed attributes and values that the Association identified as important.

**See Appendix A for actual marketing materials, or visit www.responsiblegulf.org/]**

# Buyer Outreach and Engagement

Once it was clear that there was fishermen buy-in, CapLog and EDF began reaching out to several US buyers, describing the product and the concept of the initiative. Based on those conversations, CapLog and EDF invited two buyers to visit the fishery, meet the fishermen and take a look at the processing infrastructure. EDF and CapLog co-hosted meetings with the fishermen and tours of various processing facilities.

Based on this visit, one buyer realized that they would not be able to participate as the primary processer did not have vendor insurance.[3] However a second buyer, who owned and operated a processing plant in Tijuana, agreed to move forward. This buyer – who ultimately became a partner in the initiative - had purchased curvina in the past and had observed significant inconsistencies in the quality of the product. Their president recognized the opportunity to provide his clients with higher quality curvina and a marketable story.

[3] An insurance policy that protects the buyer from any liability associated with working with a particular vendor.

Ultimately the buyer partner became an active and indispensable participant in thinking through the logistical complexities of the delivery. For example, the buyer partner decided to purchase curvina in three different forms:

1 

Iced on the boat, whole round (not gutted)

2 

Iced on the boat, whole and gutted;

3 

Not iced on the boat, gutted (traditional processing techniques).

By purchasing these three forms of curvina, the buyer partner would be able to observe variations in quality, shelf life and organoleptic characteristics.

# Executing the initiative

## Securing Buyer Commitment

CapLog worked with the buyer partner to draft a written commitment to purchase fish from cooperatives participating in the initiative. This was an iterative process, incorporating interests and concerns of the fishermen's association. In the end, the buyer committed to:

- Purchase between 3-4 MT of curvina golfina;
- Purchase this curvina during the final legal tide of the season;
- Provide coolers to fishermen to bring on board their vessels;
- Provide ice for the fishermen to bring on board;
- Pay an ex-vessel price based on the prevailing price plus a premium and finalized prior to fishing activity (final prices were negotiated between the buyer's agent in Mexico and the fishermen several days prior to delivery);
- Pay fishermen upon delivery (no payment terms);
- Arrange for and cover all shipping costs between Tijuana (location of the processing plant) and GSC;
- Store the curvina swim bladder until fishing cooperatives could arrange to pick it up in Tijuana;
- Pass along information about the end market for the curvina (e.g., end price, type of buyer, location of buyer, buyer feedback).

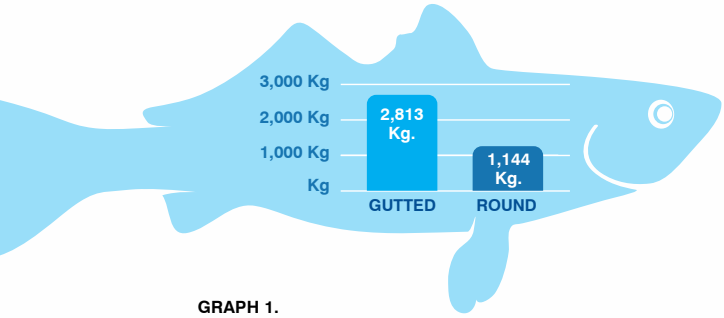
**This up-front commitment in writing provided the fishing cooperative with the assurance they needed to reserve a percentage of their quota for the final tide of the season, when historically prices have dropped significantly. This written buyer commitment was essential to the success of the market initiative.**

# Securing the Fishermen Association's Commitment

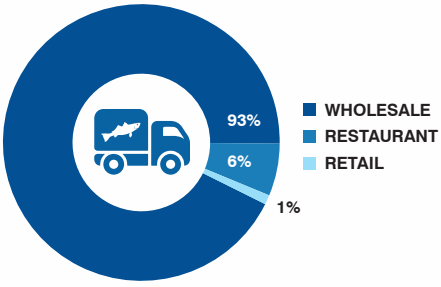
In exchange, EDF worked with the fishing cooperatives to develop a MOU defining roles and by-laws of the group. The Responsible Fishermen's Association agreed to:

- Reserve between 3-4 MT of quota for the final tide (April 22-24);
- Obtain necessary authorization from CONAPESCA to fish the final tide;
- Fish outside of the No Take Zone (NTZ) (more detail below);
- Communicate the timing of their fishing with buyer;
- Bring GPS equipment on board all fishing trips and taking coordinates each time they deployed their nets;
- Observe all standard fishing regulations.
- Deliver fish round (whole) curvina directly to the buyer's truck;
- Pack the fish in bins with ice;
- Arrange to have the buche picked up in Tijuana;
- Provide EDF and CapLog with all information about the costs of the fishing trip.

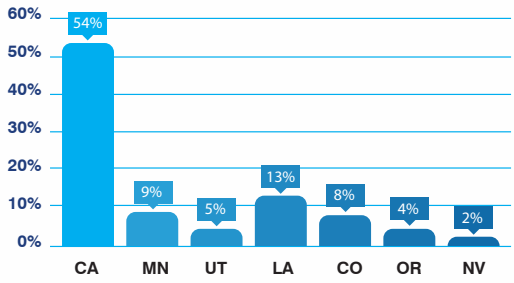

Requiring participating fishermen to geo-tag all of their fishing locations was an important feature of this initiative, as EDF has been closely monitoring the extensive curvina fishing that takes place within the Zona Nucleo, a NTZ whose boundaries begin, more or less, a kilometer north of the GSC beach. Historically curvina golfina aggregations are highest within the NTZ. While a certain subset of the fishermen knowingly enter far within the NTZ's borders, it is not always easy for fishermen to discern where the NTZ begins when on the water. There is no permanent line and fishermen typically lack the GPS technology required to alert them to the location of the NTZ. Some participating fishermen expressed concerns that they would not be able to catch a sufficient volume outside of the NTZ, they agreed that they would take coordinates at each fishing location.




**GRAPH 1.**
Curvina Delivered by Product Type




**GRAPH 2.**
Destination of Initiative Curvina, by Customer Type




**GRAPH 3.**
Destination of initiative Curvina, by State

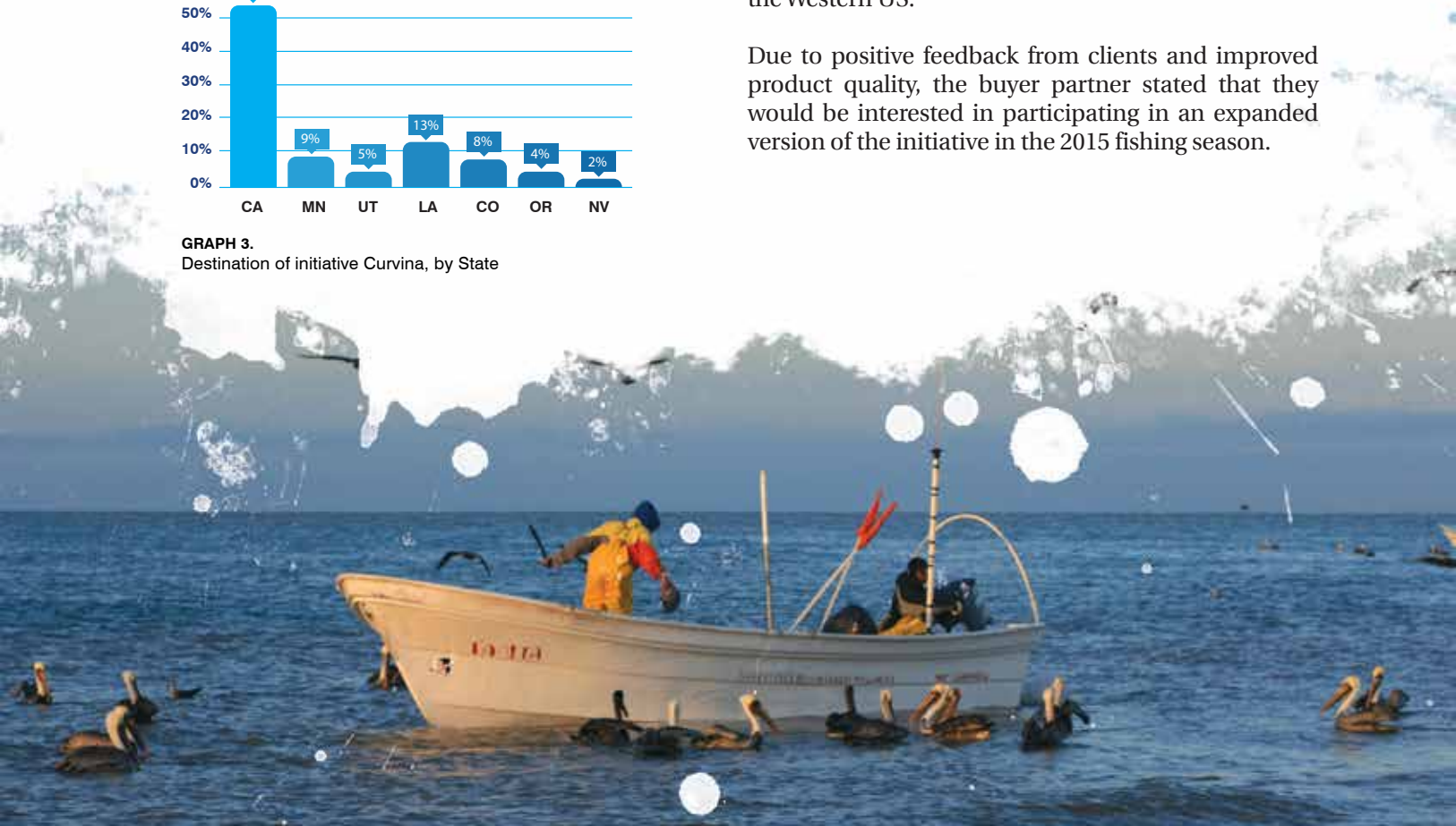
# The Delivery

As the final tide approached, it became clear that the majority of the fishermen that had expressed interest in the initiative had fished their full quota during the first four tides of the season. However, one cooperative reserved approximately 4 MT of curvina for the final tide. The buyer sent two employees from their Tijuana plant, along with a refrigerated truck loaded with bins, coolers and ice from their Tijuana plant. The leader of the coop met the truck, installed fiberglass coolers, typically used for the shrimp harvest, loaded those coolers with ice and set off to fish.

By the time the buyer's truck left, it was loaded with four tons of curvina (30% round, 70% gutted – see Graph 1) destined for the US market. The price this cooperative received was roughly 40% higher than the average price for the season.

Curvina caught through the initiative was processed in the buyer's Tijuana plant and shipped into San Diego in the several days following the delivery. They then shipped the curvina to distributors, restaurants and retailers in nine states across the Western US.

Due to positive feedback from clients and improved product quality, the buyer partner stated that they would be interested in participating in an expanded version of the initiative in the 2015 fishing season.



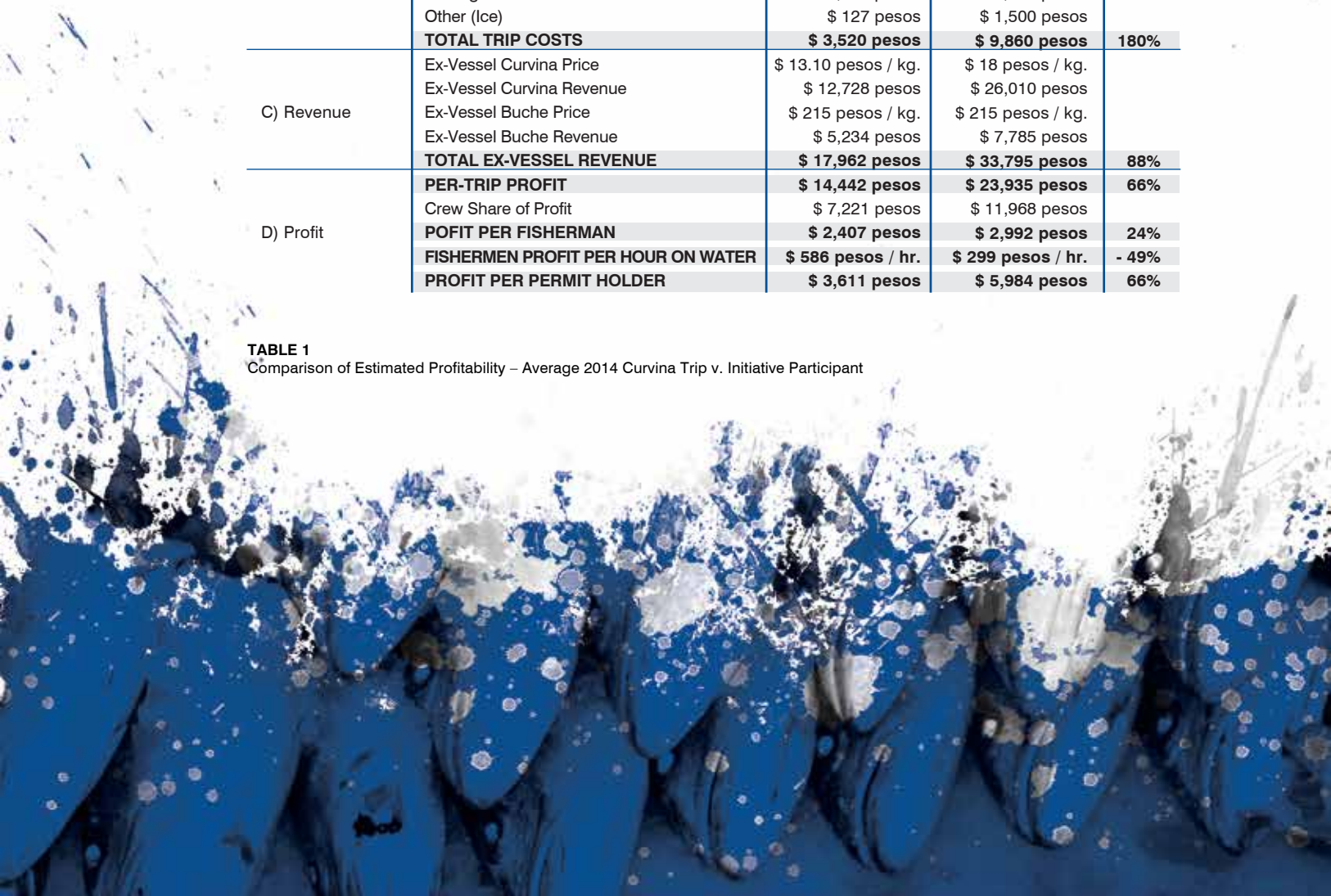
# Post-Initiative Analysis

Upon completion of the 2014 season, EDF gathered cost, effort and GPS data from the participating boats. (GPS Data points can be found in Appendix B) CapLog was able to compare the data from the participating vessel with the average per-trip profile of approximately 90 other vessels fishing for curvina golfina in GSC during the 2014 season. Table 1 below shows the results of this comparison.

**CCC HARVEST**

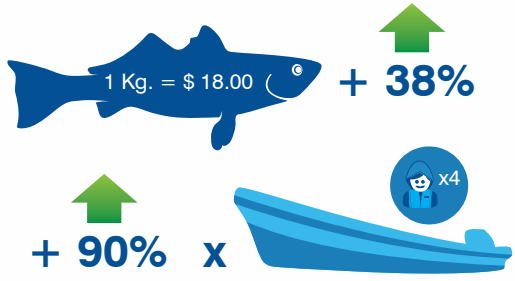
| CATEGORY | DATA | FLEETWIDE PER TRIP AVERAGE | INITIATIVE PARTICIPANT | % |
|---|---|---|---|---|
| A) Effort and Catch | Duration of Net in Water (min.) | 17 min. | 18 min. | |
| | Duration of Fishing Trip (hr.) | 4 hr. | 10 hr. | 143% |
| | Distance to Fishing Location (km.) | 16 km. | 25 km. | 53% |
| | Crew Members | 3 fishermen | 4 fishermen | |
| | **HARVEST PER TRIP** | **1,143 kg.** | **1,700 kg.** | **49%** |
| B) Trip Costs | Fuel | $ 1,197 pesos | $ 4,500 pesos | |
| | Oil | $ 112 pesos | – | |
| | Lunch | $ 277 pesos | $ 500 pesos | |
| | Trailer | $ 269 pesos | $ 300 pesos | |
| | Gutting Cost | $ 1,538 pesos | $ 3,060 pesos | |
| | Other (Ice) | $ 127 pesos | $ 1,500 pesos | |
| | **TOTAL TRIP COSTS** | **$ 3,520 pesos** | **$ 9,860 pesos** | **180%** |
| C) Revenue | Ex-Vessel Curvina Price | $ 13.10 pesos / kg. | $ 18 pesos / kg. | |
| | Ex-Vessel Curvina Revenue | $ 12,728 pesos | $ 26,010 pesos | |
| | Ex-Vessel Buche Price | $ 215 pesos / kg. | $ 215 pesos / kg. | |
| | Ex-Vessel Buche Revenue | $ 5,234 pesos | $ 7,785 pesos | |
| | **TOTAL EX-VESSEL REVENUE** | **$ 17,962 pesos** | **$ 33,795 pesos** | **88%** |
| D) Profit | **PER-TRIP PROFIT** | **$ 14,442 pesos** | **$ 23,935 pesos** | **66%** |
| | Crew Share of Profit | $ 7,221 pesos | $ 11,968 pesos | |
| | **POFIT PER FISHERMAN** | **$ 2,407 pesos** | **$ 2,992 pesos** | **24%** |
| | **FISHERMEN PROFIT PER HOUR ON WATER** | **$ 586 pesos / hr.** | **$ 299 pesos / hr.** | **- 49%** |
| | **PROFIT PER PERMIT HOLDER** | **$ 3,611 pesos** | **$ 5,984 pesos** | **66%** |

**TABLE 1**
Comparison of Estimated Profitability – Average 2014 Curvina Trip v. Initiative Participant



As expected, the initiative participants spent significantly more time on the water, as they were searching for curvina aggregations late in the season and were unwilling to enter the NTZ, where curvina typically congregate. While the average per-trip time on water for the 2014 season was just 4 hours, the initiative participants spent 10 hours looking for fish. This corresponds to a large increase in the cost of fuel and total trip costs. Gutting costs were also higher, as the participating vessel had to rent a loading platform and provide the labor to move the fish from the boat into the buyer's refrigerated truck.

The participants did receive a significant price premium for their catch, garnering $18 pesos / kg, compared with the seasonal average of $13 pesos/kg, a 38% premium. This translated into a total per- trip revenue that was nearly 90% higher than the seasonal average. Of course, the initiative boat had four crew members on-board, as opposed to the average of just three, decreasing the share that each fishermen received.




All told, the participant vessel's per-trip profit was close to $24,000, two thirds higher than the seasonal average. Each crew member took home roughly $3000 pesos, a quarter more than the seasonal average. However, when the number of hours on the water is taken into account, the implied earnings per hour dropped significantly, from roughly $590 pesos/hr to just under $300 pesos/hr.


**IMAGE 4.**
BEFORE: Curvina golfina in pick-up truck bed, gutted and washed in ice water and packed tight in a truck.

+ 66%

Not surprisingly, it was the vessel captain that fared the best under these conditions, earning 66% over the seasonal average for the trip associated with the initiative.

The data recovered from the participants' handheld GPS device was also quite revealing. Using the GPS data, EDF was able to pin-point the location of each 'throw' of the participating boat's net. Although the participating fishermen attempted to fish entirely outside of the NTZ, the GPS data reveal that at least one of the net 'throws' from a participating vessel was likely just inside of the NTZ. This underscores how difficult it is for a vessel on the water to comply with the NTZ in the absence of any physical marker. Investments in more sophisticated GPS technology that could alert captains as they approach the NTZ could help prevent unintentional fishing within the NTZ. Of course, this would do nothing to address intentional fishing in the NTZ, which is rampant.

(A graphic timeline of the initiative is available in Appendix C)

**IMAGE 5.**
AFTER: Curvina golfina in on-board ice chests, packed whole in ice bins, and loaded onto a refrigerated truck.

# In retrospect: challenges and shortcomings

## The Role of EDF and CapLog:

The amount of time invested in the initiative by both EDF staff and CapLog's team was significantly higher than original estimates.

Any credible conversation about the return on investment in this project would have to consider the hundreds of man hours that went into planning, communicating, executing and adapting the initiative. It also required entities like CapLog and EDF that had established and trusted networks, willing to participate in the untested pilot. That said, the lessons learned from this initiative can likely be applied more broadly.

## Fishermen Leadership:

No market initiative, no matter how well designed or how high the potential return will succeed in the long term without dedicated leadership from the fishing sector. Throughout the process of setting up and executing this project, CapLog and EDF took primary responsibility for convening fishers and making the case that it was in their best interest to participate in the initiative. The absence of a clear fishermen leader during the 2014 season greatly increased the effort required by CapLog and EDF. Investments in leadership capacity building and actively seeking out fisheries or fishing cooperatives with a strong leadership structure could help ensure that similar efforts are successful in the future.

## GPS Equipment:

An agreement to secure GPS trackers from an organization active in the region fell through at the last minute. Fishermen participants had to instead rely on personal handheld GPS units, which allowed the captain to record the position of the net hauls, but did not provide the captain with real time location indicators. As a result, at least one of the recorded fishing spots was located within the Zona Nucleo. Better technology that could actively alert a boat as it approaches the no-take-zone could help conscientious fishermen remain in legal waters.



## Anticipating Complexity and Costs of Delivery:

The fishing cooperative that ultimately delivered fish through the initiative did not accurately estimate all of the costs associated with delivering the fish. The cooperative underestimated the cost of renting a loading space and the requisite loading equipment (ramps, man-power) for delivering their fish to the buyer on time. Direct communication between the buyer and the participating cooperative would likely have helped ease this challenge.

## Communication:

Establishing direct communication between fishermen participants and the processor was a constant challenge. CapLog and EDF by necessity played the role of intermediary between the two parties, with CapLog developing and advancing the relationship with the buyer and EDF working to organize the fishermen. While future efforts should attempt to establish direct contact between fishermen participants and buyers early on, in retrospect the separation of these lines of work functioned reasonably well for a pilot project. EDF, with its focus on improving harvest behavior and social conditions in the fishery, was a logical partner for the fishermen's association, while CapLog, with its understanding of the market conditions of the fishery and the reality of US seafood distributors, was able to communicate the initiative in terms that were aligned with the buyer's needs.

## Buyer Experience and Expectations:

The success of any project like this one depends on working with the right buyer, one with both an understanding of the local business environment and the end consumer in the US. The buyer was particularly suited for this project given their current facilities and years of experience in the region. Other US firms may have a number of requirements for seafood providers that may not be common in Mexico. For example, certain US firms will only work with seafood suppliers that have vendor insurance policies. Buyers and sellers should seek to coordinate purchase details well in advance of delivery date, in order to identify and address such issues.

# In retrospect: elements for success

## Flexibility:

Situations on the ground evolved rapidly, and EDF and CapLog had to remain nimble to adapt to the changes. For example, one processor that was lined up to receive, process and ship the initiative's fish found out less than a month prior to the final tide that a potential US buyer partner could not accept that processor's fish without a vendor insurance policy, which could have taken weeks to secure. As a result, both the processor and potential buyer backed out of the initiative at the last minute. Fortunately CapLog had already been in conversations with a different buyer partner that owned and operated a processing facility in Tijuana. This second buyer was able to commit to purchasing the entire catch of the initiative, allowing the project to go forward.

## Market Comments:

According to the partner buyer, their customers were universally satisfied with the curvina. Test performed by the buyer revealed that the whole round curvina that was iced on board the fishing vessel had a significantly longer shelf life than the curvina that was processed using the traditional methods. Thanks to these positive results, the buyer partner has expressed interest in continuing and refining the initiative in 2015.

## Fishermen Professionalism:

When meeting with US seafood buyers, fishermen cooperatives should take care to appear as professional as possible. Punctuality, courtesy and enthusiasm can go a long way to demonstrating to seafood buyers that the cooperative will be a good business partner.

## Communication with Buyer:

Direct communication and a trusting relationship with the president of company was crucial to developing commitments from both parties in advance of the delivery date. Given the exploratory nature of the initiative, any interested buyer would have to assume a level of risk in participating in the project. Transparent and frequent communications with the buyer, that understood the potential risks of working with an untried partner, provided CapLog and EDF the breathing room necessary to adapt to constant changes on the ground.

## Time On-the-Ground:

Combined, EDF and CapLog organized at least a dozen trips to the GSC to gauge fishermen interest in the initiative, test assumptions, introduce buyers, develop community agreements, oversee product delivery and collect and disseminate post-season data. EDF's part-time staff based in GSC was vital to gathering data and keeping the fishermen's association informed, particularly as many fishermen do not have or do not frequently check email accounts. A predictable and consistent on-the- ground presence from qualified and committed staff is required.

# Conclusion

The 2014 EDF-CapLog curvina golfina market initiative tapped into the power of the market to affect behavioral change in the GSC fishery.


The participating permit holder took a chance by reserving quota until late in the season, agreeing to take extra steps to ensure they were fishing outside of the NTZ and committing to careful post-harvest handling; in exchange, they received a higher price per kilo and, ultimately, higher profits.

The US buyer took a risk by sending a truck, filled with ice to pick up an uncertain quantity fish from an untested partner at a guaranteed price; the buyer ended up with higher quality product and a new sourcing partner.


The fishermen had to comply with the project's requirements, and they too (by most measures) earned more per trip then they would have fishing their traditional routes.

More importantly, members of the GSC fishing community saw that new ways of quota banking, fishing, handling and marketing could attract new and well-paying buyers.

**The knowledge gleaned from the successes and shortcomings throughout the planning and execution of the project should serve as an excellent resource for others interested in implementing similar initiatives in other fisheries.**

**Specifically, CapLog identifies the following five components as crucial to developing and executing successful market initiatives in developing country fisheries:**

1. **Develop a thorough understanding of the underlying market conditions and actors in the fishery:** EDF and CapLog spent three years analyzing the value chain, profitability and economic conditions of the curvina golfina fishery before identifying a feasible market initiative. In addition, EDF and CapLog built trusted relationships with local fishermen, buyers and community members. Armed with this understanding of market for curvina and with a hard-earned level of trust, EDF and CapLog were able to make a compelling case to both the fishermen and the buyer for the financial viability of this initiative. A detailed understanding of the key actors in the fishery and their motivations helped the initiative avoid any potential conflict within the fishing community.

2. **Identify self-motivated and well-organized fishermen:** One of the biggest shortcomings in executing the initiative was the erroneous assumption that the allure of higher prices and access to a US market would prove sufficient to coalesce a well-organized group of fishermen. EDF and CapLog spent a considerable amount of time encouraging fishermen to form an association, elect a leader and engage in a collective decision-making process. Future efforts would be much more efficient if there is an effective organized body (or a respected and committed leader) in place prior to the start of the initiative.

3. **Constantly engage fishermen in the planning process:** Market initiatives should be developed in close concert with the fishermen. They are the actors most familiar with the operational aspects of the fishery and will likely be able to easily discern a feasible project from an unfeasible one. Furthermore, by involving the fishermen in the development of the intervention, EDF and CapLog were able to foster an increased sense of ownership in the fishery. Finally, directly communicate to the fishermen the shared risks involved in pursuing an investment in a new way of doing things; any investment requires a level of risk taking and there is always a potential for both gain and loss.

4. **Cultivate a transparent relationship with buyer:** Ultimately an initiative needs a strong champion on the demand side in order to function properly. The 2014 curvina golfina market initiative succeeded in large part thanks to the buyer partner's flexibility, creativity, willingness to take on risk and be transparent about its needs and expectations.

5. **Consider the full costs:** It is extremely important to recognize that this initiative would not have succeeded without the significant investments in EDF's staff and consultant time. Both the end buyer and the permit holders spent hours sitting through meetings and on planning calls, while the fishermen spent much more time on the water than they otherwise would have. When evaluating the ultimate benefit of conducting a market initiative, project implementation partners should carefully consider the hidden overhead costs and ensure that these costs are being incorporated into any cost / benefit analysis.

6. **Strive for 'project independence':** The true measure of a successful market initiative is whether it is able to function independently of the organization that started it. When market incentives are aligned, both producer and buyer will have a stake in ensuring the continuation of a given initiative. NGOs and other project implementing organizations should both develop a phase-out plan and clearly communicate that plan to the initiative's participants. By doing so, the implementing organization can pass along the necessary training and information necessary for the transition to project independence.

# Apendix A: Marketing Materials

## About Us

The Gulf of California Responsible Fishermen's Association is a coalition of third and fourth generation fishermen from the small fishing community of Golfo Santa Clara, Mexico, dedicated to the long-term health of our surrounding ecosystem. Our town is situated on the edge of the Upper Gulf of California and Colorado River Delta Biosphere Reserve, 3 million acres of protected marine sanctuary, recognized by UNESCO. Our unique ecosystem is home to close to 150 species of fish (over 20 of which live nowhere else in the world), over 300 species of birds and 18 species of marine mammals. The fishermen in our association captain small fiberglass 'pangas' and use hand thrown gill nets to harvest curvina golfina, shrimp and other fish in the waters near our town's beaches.

Our captains have witnessed major changes in the health of many of the species that we rely upon over the past several decades. That is why we began partnering with local environmental groups in 2011 to ensure that there is good science behind the management of our valued natural resources. With the support of these environmental partners and leadership from the members of this association and others that care about the fishery, we have succeeded in convincing the government to establish a quota-based management regime for curvina golfina that is adjusted annually based on hard science.

Under the new fishing regime we have already begun to see increased prices. With believe that we have taken the difficult, but necessary steps towards ensuring that our children and grandchildren will be the fifth and sixth generation fishermen in Golfo de Santa Clara.

## Our project

The Curvina Market Initiative is a pilot program that seeks to improve market access of Curvina Golfina landed in the community of Golfo de Santa Clara. The income generated from this initiative will allow us to continue to invest in our fishing methods, helping to improve product quality and ensure overall resource sustainability. Most of all, we are proud of what we do and we want our product to tell our story—a story of a community closely tied to the fish that sustains it.

## Our product

Curvina golfina is a species of croaker endemic to the Upper Gulf of California. Each spring, following the full moon, curvina golfina migrate to the Colorado River Delta to spawn. We catch the fish using hand thrown gill nets and open fiberglass 'pangas'. Because the fish are so concentrated and we use selective fishing gear, there is very little by-catch in our fishery, meaning that there is minimal negative impact on non-target species. These concentrations of fish also mean that on our trips are quite short, which allows us to get the fish to shore within 1-3 hours of being caught. All of the curvina caught for this initiative is processed in a HACCP certified facility in our community, under the strictest quality controls

Curvina Golfina

*Cynoscion othonopterus*

**Avg. Weight:**
6 libs. (whole) / 5 libs. (gutted)

**Presentation:**
Whole, H&G or fileted. Fresh or Frozen. Tailored to the buyers' specifications.

**Location:**
Golfo Santa Clara, Mexico. (70 miles southeast of Yuma, Arizona)

**Date Available:**
~ 1/3/14 - 30/04/14

**Available Product:**
.5 – 18 metric tons

**Taste:** Mild

**Texture:** Flaky

**Color:** Dusky / red. Similar to red snapper

**Similar to:** Cabrilla / sea bass / red snapper

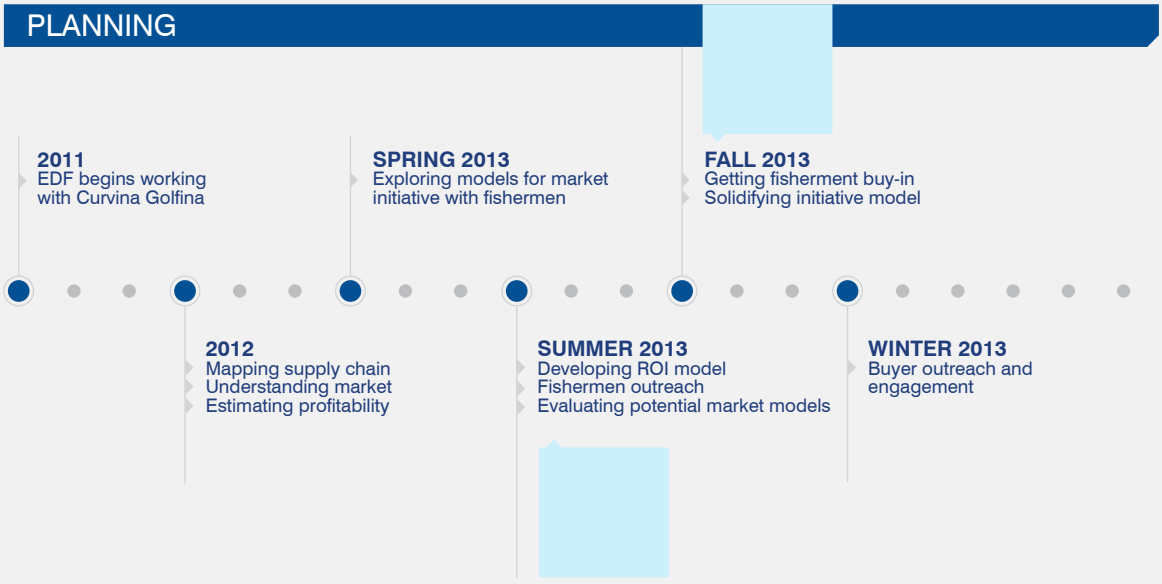
# Apendix B: GPS Locations of Initiative Capture Sites

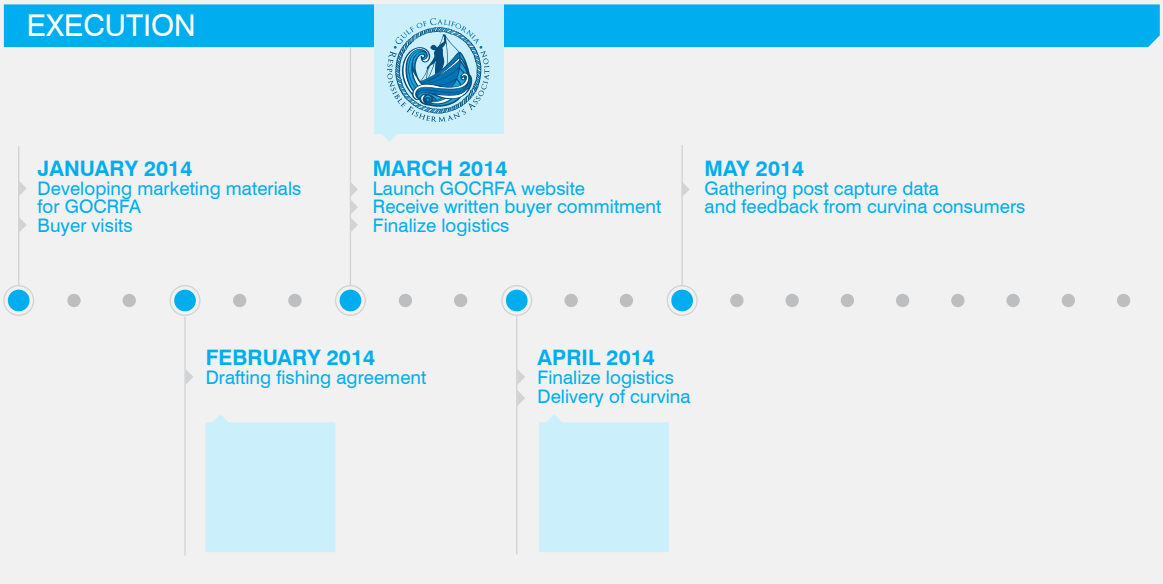
The absence of any physical marker denoting the entrance of the Zona Nucleo presents a challenge to fishermen striving to comply with current fishing regulations.

The extreme tidal range of the Upper Gulf – up to 30 feet near the delta – presents a major environmental obstacle to the introduction of physical markers.

Finally, with the GPS tracking providers pulling support at the last minute, the Initiative's fishermen had to rely on handhelp GPS units that do not provide real-time positioning information. Investments in more modern GPS technology could provide fishermen with a more reliable way to ensure that fishing is limited to legal areas.

# Apendix C: Graphic Timeline of Curvina Initiative



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