Citizen Science with Mexican Artisanal Fishers in Community Marine Reserves
(CLP ID: 02321817)

FINAL REPORT

Mexico / Gulf of California / Mexico

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Project partners and collaborators.

Comunidad y Biodiversidad AC (COBI)
- Arturo Hernández Velasco – PADI instructor, who trained and certified fishers in SCUBA diving and underwater monitoring techniques.
- Raziel Hernández Pimienta – supported our team during fisher training and monitoring in PL and ISPN.
- Bernardo Sánchez Cota – helped coordinate the fisheries monitoring training, captured and analyzed fisheries landings data.
- Stuart Fulton – Marines Reserves Coordinator, advised our team during the project implementation and revised reports.

Fishing cooperatives – helped select fishers for monitoring teams and help implement logbook programs.
- SCPP 29 de Agosto
- SCPP Los Sazanes
- SCPP La Manga Restaurante Doña Rosita
- SCPP Mojarras del Arrecife

Partner organizations and researchers
- Grupo de Monitoreo Submarino y Análisis de Cambio Climático (BK team) – participated in the ISPN underwater monitoring and mentored PL and Guaymas fishers.
- Instituto Nacional de Pesca (INAPESCA) – feedback on fisheries logbook program and data analysis.
- INCA Rural – conducted fisheries monitoring training.
- Comité de Apoyo a Isla San Pedro Nolasco (ISPN Committee) and Comité de Pesca y Acuacultura de Puerto Libertad (PL Committee) – helped design MR outreach campaign and materials.
- Héctor Reyes Bonilla – gave advice on MR monitoring methodology.
- Gaspar Soria – provided technical advice on clam fishery monitoring.

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SECTION 1

1a. Summary.

By January 2018 two teams of five fishers from Puerto Libertad (PL) and San Pedro Nolasco Island (ISPN) were trained in SCUBA diving and in underwater visual census biodiversity monitoring. Both groups helped conduct the annual monitoring of marine reserves in PL (October 24-25, 2017) and ISPN (May 14-20, 2018). The latter also served as an experience exchange between these two teams and the Kino Bay (BK) group (eight fishers with 12 years of experience in rocky reef monitoring). In June 2018 our team and fishers from PL collected data to obtain a bathymetric profile of the marine reserve and its surroundings. As a complementary strategy for marine reserve monitoring, since 2016 some fishing cooperatives began keeping logbooks but needed additional training. In December 2017, fourteen fishers were trained in registering fisheries landings, and achieved a small-scale fishing monitoring certificate from the government. The information collected from underwater census in both marine reserves and fisheries landings has been analyzed, and has been presented to our partners in fishing communities.

1b. Introduction.

In 2016, proposals to create four fully-protected MR (2.16 km^2) and a Marine Protected Area (MPA) (40.7 km^2) where submitted to the Mexican government by two management committees[1] (led by local fishers) from ISPN and PL in the Gulf of California (GC). The GC is recognized worldwide for its outstanding marine productivity (account for 70% of Mexico's fisheries catches), terrestrial and marine biodiversity, high number of endemics in several taxonomic groups, distributed in the pelagic and coastal (continental and insular) zones, including rocky reefs (UNESCO 2005, Spalding et al 2016). Rocky reefs (as those protected by the MR in PL and ISPN) are important habitats for reproduction, shelter, recruitment and development of commercial and endangered species, also providing numerous provisioning and cultural services to coastal communities (e.g. tourism, small-scale fisheries, livelihoods). PL (pop. 2,700) is an isolated fishing village in the Midriff Islands where almost 200 fishers catch fin-fish and benthonic species (Espinosa-Romero et al 2014). ISPN is a 3.45 km^2 island in Guaymas, used by small-scale fishers (approx. 250) from various economic conditions and tourists (sport fishers and scuba divers). In particular, MR in PL and ISPN help protect 10 species of threatened or endangered fish and invertebrate species (IUCN RedList: four, Mexican law[2]: six) and ISPN is home to a California Sea Lion (*Zalophus californianus*) colony of 700 individuals (Protected by Mexican law). The rocky reef enclosed in these MR protect at least 21 fish and 12 invertebrate species of regional commercial importance. In July 2017, these four coastal MR were established as temporary (5 years) no-take zones. The MPA (in process of establishment) in ISPN will aid in the conservation of several marine taxonomic groups such as macro-invertebrates (44 species), fish (87), reptiles (2), birds (55), and mammals (11). Citizen science monitoring programs need to be implemented to evaluate these MR and to promote adaptive management. Involving the fishers directly creates awareness as they can see ecosystem recovery directly. For this reason, our project aimed to train local fishers in biological and fisheries landings data collection as an initial step towards the participatory management of MR and sustainable fisheries. In this past year, we have trained two teams of five fishers in underwater biological monitoring, conducted the annual monitoring of MR, and trained 14 fishers (four women and ten men) in registering small-scale fisheries landings data. Continuous work with these teams of

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[1] The Puerto Libertad Fishing and Aquaculture Committee (2012) and the San Pedro Nolasco Island Committee (2013) were formed due to growing concern regarding declining catches and ecosystem degradation. The voluntary committees represent different user sectors and aim to promote sustainable practices, good governance and work towards the common good.

[2] NOM-059-SEMARNAT-2010: http://bit.ly/nom059mx

fishers, government agencies (INAPESCA[3], CONAPESCA[4], CONANP[5]) and local management committees in PL and ISPN will help strengthen governance, promote sustainability of the MR and conservation efforts in the long term.

1c. Project members.

During the project development, all team members were employed by Comunidad y Biodiversidad, A.C. (COBI). Fernanda Pérez Alarcón (B.S. in Biology, University of Sonora, 2012) has five years of experience developing marine conservation projects with multi-stakeholder committees. As team leader, her role was to coordinate the team and make sure all objectives are met. Ernesto Gastelum Nava (B.S. in Aquaculture Engineering, Guaymas Technological Institute, 2014) has three years of experience in implementing sustainable fisheries projects, particularly with bivalves, in coastal communities in the Midriff Island region. His responsibility was to help train fishers and follow-up fisheries capture monitoring. Imelda Amador Castro (B.S. in Fisheries Engineering, Guaymas Technological Institute, 2014) has three years of experience in database management and data analysis. She helped analyse and prepare reports for project stakeholders.

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[3] The National Fisheries Institute coordinates scientific and technological research regarding fisheries and aquaculture.

[4] The National Fisheries Commission designs and implements fisheries and aquaculture policies.

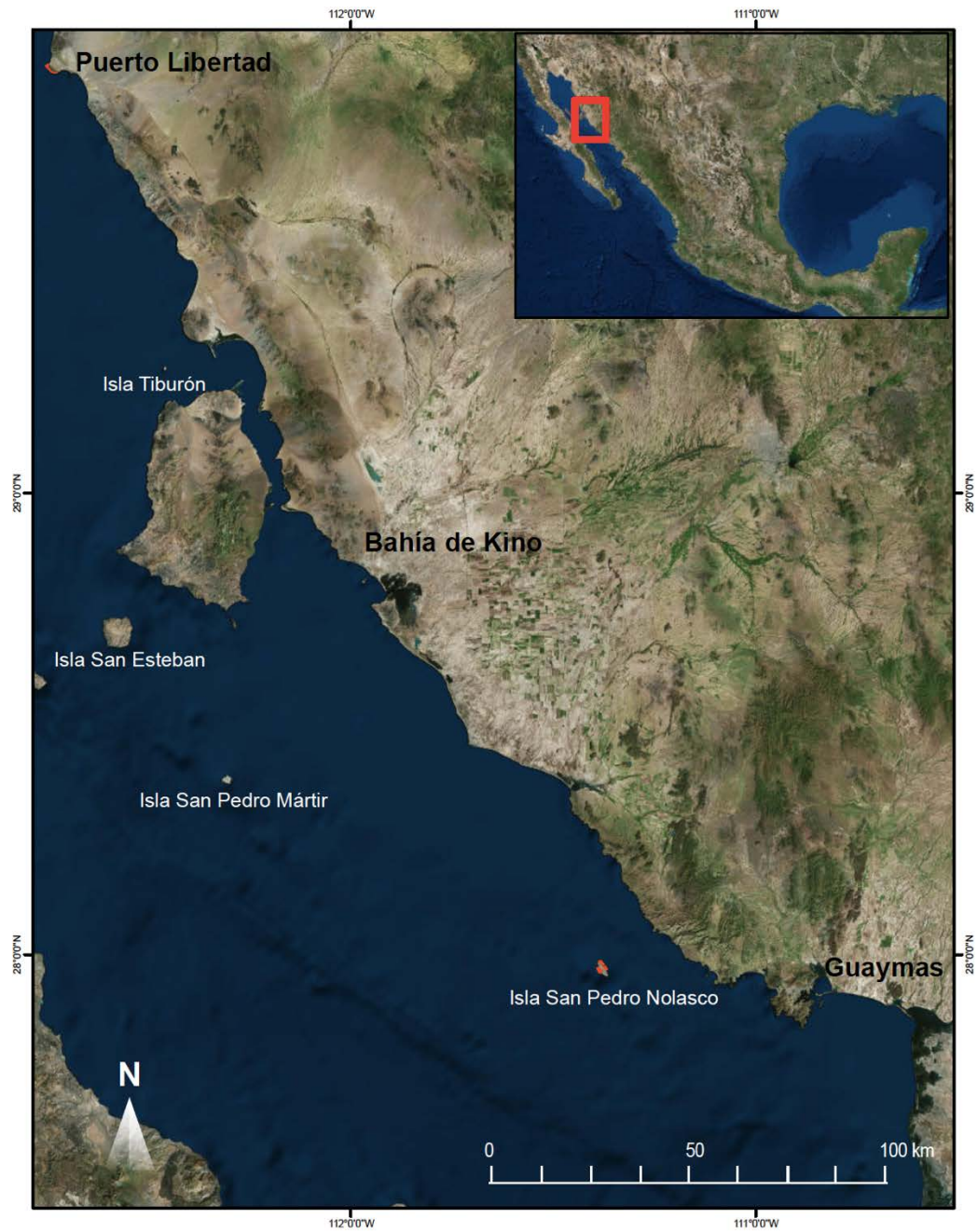[5] The National Commission of Natural Protected Areas manages natural protected areas in Mexico.

Figure 1 Location of San Pedro Nolasco Island (ISPN), Bahía de Kino (BK) and Puerto Libertad (PL)
in the coast of Sonora (México).

SECTION 2

2a. Aim and objectives.

As our overall goal or outcome, we intend for local stakeholders (principally small-scale fishers) to create a model of community participation in the evaluation and operation of the marine reserves that they helped to establish, ensuring the long-term sustainability of the reserves and conservation efforts. Our CLP project aimed to train local fishers in biological monitoring techniques to ensure the long-term sustainability of the MR. To achieve this, we focused on three objectives: 1) Ten local small-scale fishers are trained in SCUBA and underwater visual census biodiversity monitoring, forming one team of five fishers per community, 2) conduct the annual monitoring of four marine reserves (in collaboration with the aforementioned fisher teams and partners in other coastal communities) and share results with the community, 3) Train twenty fishers in collecting fisheries data and continue the fishery logbook program established in 2016.

2b. Changes to the original project plan.

Our project was carried out according to our original planned objectives and particular activities, nonetheless we encountered some issues beyond our control. In relation to Objective 1, we selected and trained five fishers from Guaymas (ISPN team) but three of them were unavailable for monitoring due to other priorities (personal and work related). In order to have a complete team for ISPN monitoring in May (14-20), the best solution was to bring together the BK, PL and ISPN teams for monitoring and fisher exchange simultaneously, a successful and productive strategy. Regarding Objective 3, there is practically no interest amongst sport fishers in keeping logbooks, as they have not been involved in the project in the same way as the artisanal fishers (whose cooperatives are part of a Fisheries Improvement Plan –FIP-[6,7] and must keep logbooks for evaluations). Sport fishers on the other hand perceive it as a "favor" and not as a direct benefit (unless they start noticing a positive impact form the MR).

2c. Methodology.

Objective 1: Ten local small-scale fishers trained in SCUBA and underwater visual census biodiversity monitoring.	
Activity	Methodology
1a. Selection of ten fishers from two communities.	1a. Invitations were sent to partner fishing cooperatives and ads were distributed in strategic sites (fishing ports, marinas and fish markets).
1b. Train fishers in SCUBA diving.	1b. The Open Water Diver training was given indoors and in practical sessions on the following: equipment use and maintenance, pressure effects, buoyancy, dive planning and management and safety as required by PADI.
1c. Fisher exchange with Bahia de Kino (KB) monitoring group.	1c. During the ISPN monitoring (May 14-20), fishers PL and ISPN were paired up with experienced fish refuge divers from BK (as mentors) to carry out the underwater visual census for invertebrates, fish and benthic monitoring.
1d. Training in underwater visual census for rocky reefs.	1d. Ten fishers were trained and certified as Fish Refuge Research Divers (PADI Specialty) for rocky reef biological monitoring in the following techniques: 1) fish, 2) invertebrates, 3) benthic monitoring. They were taught how to capture data in Excel database.

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[6] https://fisheryprogress.org/fip-profile/mexico-puerto-libertad-clams-hookah

[7] https://fisheryprogress.org/fip-profile/mexico-sonora-yellowtail-handline-0

Objective 2: Conduct the annual monitoring of four marine reserves and share results with the community.	
2a. Monitoring of ISPN and PL marine reserves.	2a. Biological monitoring was carried out in PL (3 sites) and ISPN (7 sites) on October 24-25th and May 14-20th respectively. Fish and invertebrates were sampled from georeferenced band transects that are 30 m long with a sampling window of 2 x 2 m for fish and a 30 x 2 m transects for invertebrates. Divers must record species richness, abundance of each species, estimated total length (per individual or school). For invertebrate surveys, divers only record richness and abundance. For benthic monitoring divers follow a 30 meter transect, doing 1 meter fixed intervals, to register substrate type, coverage and relief. In each site, a total of 24 transects were done for fish census, 12 for invertebrates and 12 transects, at three depths (5, 12 and 18 m)[8].
2b. Data analysis and preparation of reports.	2b. Data analysis was carried out as follows: 1) field data capture, 2) database review using R Studio, 3) apply basic statistical analysis using Excel and Tableau Public, 4) estimation of diversity indices (biomass, density, richness and Shannon) in Past Software and Excel.[9] Monitoring reports and data visualization were created using Tableau Public (analysis) and Adobe CC (graphic design).
2c. Presentation of monitoring results in communities.	2c. We gathered with ISPN and PL Committees, and monitoring groups (July 16-20th) where we presented results using Tableau Public and PowerPoint presentations. The activity was also posted in COBI's Facebook page (

Objective 3: Continue the fishery logbook program established in 2016.	
3a. Two workshops with fishers to train 20 fishers in collecting fisheries data.	3a. In December 2017, 14 fishers were trained and achieved a small-scale fishing monitoring certificate (issued by the Mexican Government through CONOCER[10]).
3b. Follow-up with fishers to ensure effective data collection.	3b. We met with fishing cooperatives involved every three months to collect logbooks and give feedback.
3c. Landings data analysis.	3c. Landings information was captured and analyzed in Excel Office to generate a basic fishery description and contribute to the fisheries management.
3d. Workshops in two communities to present data	3d. We met with fishing cooperatives in Guaymas (July 6th) and PL (July 10th) to present data analysis from 2017 and 2018. We designed infographics and PowerPoint presentations.

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[8] For more information on methods applied: http://bit.ly/BioMonitoringCOBI

[9] Data analysis was based on: http://bit.ly/MRinMex

[10] https://conocer.gob.mx/

2d. Outputs and results.

Objective 1: Ten local small-scale fishers trained in SCUBA and underwater visual census biodiversity monitoring.	
Activities	Results
1a. Selection of ten fishers from two communities. 1b. Train fishers in SCUBA diving. 1c. Fisher exchange with Bahia de Kino (KB) monitoring group. 1d. Training in underwater visual census for rocky reefs.	1a. Two teams of fishers in PL (6 fishers) and ISPN (4) were formed. 1b. Eight fishers from PL (August 3-11th) and ISPN (October 26-31st) were certified as Open Water Divers (two were already certified). 1c. Five experienced fishers from BK met with both teams during ISPN monitoring (PL 3, ISPN 2), and shared their experience in monitoring and conservation. 1d. Ten fishers from PL (August 3-11th) and ISPN (January 26-30th) were trained and certified in underwater visual monitoring.
Objective 2: Conduct the annual monitoring of four marine reserves and share results with the community.	
2a. Monitoring of ISPN and PL marine reserves. 2b. Data analysis and preparation of reports. 2c. Presentation of monitoring results in communities.	2a. A participatory monitoring (BK, PL and ISPN teams) was conducted to evaluate one MR in PL (Oct 24-25) and three in ISPN (May 14-20). Ten sites were surveyed (PL 3, ISPN 7). A bathymetric study of PL bay was done (June 6-10) to help define new control sites for MR monitoring. 2b. In 325 transects (246 in ISPN and 79 in PL) we registered 74 fish species (65 in ISPN, 37 in PL) and 45 invertebrate species (37 in ISPN and 27 in PL). 2c. Four workshops took place to present monitoring results to 31 stakeholders in PL and Guaymas (date, stakeholders reached): 1) ISPN Management Committee (July 17th, 15), 2) ISPN Monitoring group (July 16th, 2), 3) PL Monitoring group (July 18th, 6) and 4) PL Fisheries and Aquaculture Committee (July 19th, 8).
Objective 3: Continue the fishery logbook program established in 2016.	
3a. Two workshops with fishers to train 20 fishers in collecting fisheries data. 3b. Follow-up with fishers to ensure effective data collection. 3c. Landings data analysis. 3d. Workshops in two communities to present data.	3a. Fourteen fishers were trained in one workshop and obtained a small-scale fishing monitoring certificate. 3b. Cooperatives from PL (1) and ISPN (3) keeping fisheries logbooks to support MR evaluation. We held meetings once a month (12) with PL and ISPN cooperatives involved. 3c. A total of 1,005 finfish landings (Guaymas basin and ISPN) and 138 for clam fisheries (PL) we collected by fishers in one year. 3d. We held three workshops: two with the PL (January and April 2018) and one with ISPN (July 2018) cooperatives to present data analysis.

Please visit http://arcg.is/5yeD8 to view more detailed results on MR biological monitoring and fisheries logbook program.

2e. Communication and application of results.

To communicate results to partner stakeholders (monitoring groups, committees, cooperatives, government representatives) in PL and Guaymas (for ISPN), we shared the information using Tableau platform (for biological monitoring) and infographics (fisheries landings data). Project results have been shared in international conferences such as the Latin American FIPs Community Workshop (Viña del Mar, Chile, December 2017), International Conference on Sustainable use and Conservation of Fisheries (La Paz, Baja California Sur), and national forums like the Chiapas State Sustainable Fisheries Forum[11] (Chiapas, Mexico, November 13-14th), Bivalve Fishers Workshop (23-24th July 2018, La Paz, Baja California Sur) where our team and partners presented their experience with the clam (PL) and yellowtail jack (ISPN) FIPs in Sonora. Biodiversity monitoring results (fish and invertebrates) were published in the UC San Diego Library Digital Collections[12]. On August 2018 we published an article about the growth and mortality of three clam species in PL[13], and presented a poster at the Bivalve Fishers Workshop. We have also shared project activities nationwide on COBI's Facebook Page[14]. Outside the scope of this project (but aligned to our overall goal) we launched an outreach campaign with local management committees to inform fishers and tourists about the establishment of MR in PL and ISPN[15]. These outreach efforts are helping to raise awareness about conservation, sustainability and relevance of community-based management, contributing to our goal of replicating successful strategies in other coastal communities in Mexico.

2f. Monitoring and evaluation.

To measure the effectiveness and impact of our project activities we conducted a social monitoring program with two approaches: 1) applying surveys to the PL and Guaymas community in general, and 2) interviewing our project partners. Firstly, we measured socioeconomical and governance indicators by applying a semi-structured survey, to evaluate the impact of MR establishment in PL (n=64) and Guaymas (n=42) in the long term. At least 50% know about the MR in question, 74% are aware of MR benefits but only 34% agree to establish more (limit fishing areas). Most fishers (62%) agree they must be co-responsible in the management (monitoring and surveillance) of MR and marine resources in general. When interviewing fisher monitoring teams and stakeholder committees individually, we also measured their perception regarding MR success, failure and co-responsibility. They agree that involving fishers in MR management and decision making, can enhance the community's acceptance of this and other conservation efforts. At a meeting with our partners in PL and Guaymas, we also obtained valuable feedback on how to best transmit biological monitoring results, monitoring teams follow-up and fisher selection (for further citizen science programs).

2g. Achievements and impacts.

Training fishers in biological and fisheries data collection, and involving them in monitoring efforts is contributing to building capacity and improving their sense of responsibility in MR and fisheries management. We hope that this experience will keep motivating them and encourage others to become involved and adopt more sustainable practices. There are now four underwater monitoring teams in Sonora (PL, ISPN and two from BK) with a common goal, and we must help strengthen each one and fostering collaboration between them. The biophysical data collected from monitoring efforts

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[11] https://www.facebook.com/FECChiapas/posts/2101468296583864

[12] Fish: https://library.ucsd.edu/dc/object/bb56352142
Invertebrates: https://library.ucsd.edu/dc/object/bb9799074k

[13] http://bit.ly/ClamsPLAug2018

[14] https://www.facebook.com/COBI.mx/posts/1555788764500952
https://www.facebook.com/COBI.mx/posts/1764520996961060
https://www.facebook.com/COBI.mx/posts/1555788764500952

[15] ISPN Committee Facebook page (videos, pictures and news): https://www.facebook.com/IslaSPNolasco/

will contribute with baseline information to evaluate the effectiveness of marine reserves in PL and ISPN in five years. In 325 transects (246 in ISPN and 79 in PL) we registered 74 fish species (65 in ISPN, 37 in PL) and 45 invertebrate species (37 in ISPN and 27 in PL). Since the four marine reserves were established less than a year ago, we will not be able to identify any significant impacts in biological or social indicators at this early date, however the data we have collected will be very important in further evaluations. We have completed the first year of fisheries logbook program with three cooperatives from ISPN and one from PL, collecting 1,005 finfish landings (Guaymas basin and ISPN) and 138 for clam fisheries (PL). We had no specific fisheries information of the areas surrounding MR, so this information is valuable to describe the fishing activity nearby (popular sites, target species, specific volumes, economic impact to each cooperative, etc.), and in the long-term this will help us evaluate MR effectiveness and improve FIP performance status. Keeping updated and detailed clam fisheries logbooks (as a result of fishers training) derived in a successful evaluation (by INAPESCA) which led to a punctual permit renewal and fishing quota. This keeps fishers motivated as they are having tangible results. In addition to this project, COBI colleagues created a mobile App called PescaData[16] looking for a more accessible and efficient strategy for registering and analyzing fisheries landings.

2h. Capacity development and leadership capabilities.

Two team members were certified as Fish Refuge Research Divers, also coordinated and participated in the underwater biodiversity monitoring, having to opportunity to learn from experienced COBI staff and the BK monitoring group. Two team members obtained a small-scale fishing monitoring certificate. We also participated in national and international conferences sharing our results and experience, and attended workshops with fishers, local and federal government (CONAPESCA and INAPESCA), NGOs and academics. As our team gains more experience and knowledge, social relationships with key stakeholders, we will be able to identify and ensure opportunities for our project continuity.

SECTION 3

3a. Conclusions.

This project helped not only to contribute with baseline information for the evaluation of four MR and two fisheries under a FIP program, but to promote participatory management of marine resources with local fishers, academics and government. Four citizen science monitoring groups were formed with local fishers from PL and Guaymas, trained to conduct underwater biological census and register fisheries landings (yellowtail jack and clams). In 325 transects surveyed by fishers, 74 fish species and 45 invertebrate species were registered, and with this data we have evaluated species richness, abundance, biomass and diversity of commercial and noncommercial species of the MR rocky reefs. Two fisher teams completed the first year of fisheries logbook program collecting 1,005 finfish landings (Guaymas basin and ISPN) and 138 for clam fisheries (PL).

3b. Problems encountered and lessons learnt.
a) Which project activities and outcomes went well and why? Two teams of fishers are now trained and have carried out a biodiversity monitoring. Particularly, monitoring in ISPN was conducted successfully (all sites covered in due time) and served as an experience exchange. The BK team shared their knowledge in monitoring with fishers from PL and ISPN, including how it has contributed to their personal growth. The *small-scale fishing monitoring* certificate is an additional output, that adds to the fishers' capacity building and gives certainty that data is being correctly collected. Some fishers involved in this project (specially in PL) are motivated as they are already obtaining benefits (social and economic). The bathymetric profile of PL bay

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[16] https://pescadata.org/

will help us identify study sites for monitoring, contribute to the biophysical information of the area, and other valuable information for MR and local fisheries management.

b) Which project activities and outcomes have been problematic and in what way, and how has this been overcome? Two fishers from the ISPN team couldn't commit long term to the project, so we currently have a team of three. We will continue searching and will train at least two more fishers to complete the team in the next few months. The sport fishing logbook program is where we've had most problems as we need to find another approach to gain this sector's trust and interest. The sport fishing program is not of as high a priority compared to the artisanal fisheries (higher social, economic and ecological impact), so this situation is not of major concern. On the other hand, clam fishers are being affected by illegal fishers (no permit and no records), which affect the clam stock assessment and eventually reduce the annual quota. We've discussed this situation with key government officials. In general, fishers have stated that keeping logbooks on a daily basis and capturing data is complicated due to their heavy workload off and inshore. In the search for a practical, efficient and innovative solution, COBI colleagues have co-created an App called PescaData to help fishers register landings using smartphones that we will be rolling out in the region and throughout Mexico.

c) Briefly assess the specific project methodologies and conservation tools used.
Fisher training and biological monitoring was successful, as we relied on COBI's training experience (>300 fishers) and monitoring protocols (adopted from PANGAS[17] and ReefCheck[18]). The fisher selection process needs revision (stricter criteria, better follow-up, sign an agreement, collectively define group guidelines), as we encountered low commitment by three fishers (ISPN). This is likely related to the fact that the ISPN fishers come from larger communities (such as the city of Guaymas) and are not a consolidated group, as in PL. Fisher training on landings data collection was also successful, as 14 fishers obtained a certificate (revised by 12 organizations). Fish refuge zones (as the MR in PL and ISPN) focus on commercial species recovery (more attractive to fishers), and its temporary status allows adaptive management.

d) Please state important lessons which have been learnt through the course of the project and provide recommendations for future enhancement or modification to the project activities and outcomes. Experience exchanges between groups with similar goals are an effective strategy to strengthen the team's purpose and vision, as well as to gain knowledge in a particular area. Periodic training and evaluations to all citizen science programs are a must to guarantee trustworthy information, motivation, project continuity and appropriation. In the future we would like to incorporate women in the monitoring groups to foster gender equality in coastal communities and conservation efforts.

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[17] https://cobi.org.mx/wp-content/uploads/2015/10/A.-Mungu%C3%ADa-2015-PANGAS.pdf
[18] http://www.reefcheck.org/california/ca-overview

3c. In the future.

We will train more fishers for the ISPN underwater monitoring team (ideally including women to promote gender equality) and continue with additional training for both teams on biological and oceanographical monitoring, safety, data interpretation, leadership, etc. We must strengthen our citizen science and surveillance programs, particularly in ISPN, as a 40.2 km^2 MPA is in process of establishment. The establishment of the MPA will provide additional opportunities, both for community involvement and funding, through federal programs. Surveillance programs are also important to ensure that the reserves are respected and we will work with the communities to ensure that the federal agencies responsible provide adequate support to the surveillance programs. Follow up training will also be applied to the teams involved in the fisheries monitoring and FIP efforts. We will also be working with the fishers to evaluate and continuously update the PescaData App to make it a more efficient and accessible tool for fishers. Our goal is to continue replicating our citizen science model in other coastal communities in Mexico. Project continuity with PL and ISPN fishers in the long term, will generate a bold example of community-based management, which will help us demonstrate other stakeholders the importance of participatory science in regional and local management decisions, and the benefits of investing in conservation and sustainability efforts specially facing climate change.

3d. Financial report

Itemized expenses	Total CLP Requested (USD)*	Total CLP Spent (USD)	% Difference	Details & Justification (Justification must be provided if figure in column D is +/- 25%)
PHASE I - PROJECT PREPARATION				
Communications (telephone/internet/postage)				
Field guide books, maps, journal articles and other printed materials				
Insurance	890.00	890.00	0%	
Visas and permits				
Team training				
Reconnaissance				
Other (Phase 1)				
EQUIPMENT				
Scientific/field equipment and supplies	10,500.00	10575.90	1%	we need to purchase additional gear for further monitoring activities in community marine reserves.
Photographic equipment				
Camping equipment				
Boat/engine/truck (including car hire)				
Other (Equipment)				
PHASE II - IMPLEMENTATION				
Accommodation for team members and local guides				
Food for team members and local guides				
Travel and local transportation (including fuel)				
Customs and/or port duties				
Workshops				
Outreach/Education activities and materials (brochures, posters, video, t-shirts, etc.)	650.00	574.15	-12%	change to our budget of our project implementation specifically from PADI dive books and certification cards to

				equipment
Other (Phase 2)				
PHASE III - POST-PROJECT EXPENSES				
Administration				
Report production and results dissemination				
Other (Phase 3)	460.00	460.00	0%	
Total	12,500.00	12,500.05		

4a. Appendices

Additional information that supports and complements results described in the main text is attached to this report in annexes as follows:

Annex 1. CLP M&E measures.
Annex 2. PL and ISPN Fishers Open Water and Fish Refuge Research Diver (PADI) certificates.
Annex 3. Underwater biological monitoring protocols.
Annex 4. Fish and invertebrate species registered during MR monitoring.
Annex 5. Bathymetric study of the PL bay and MR area.
Annex 6. Small scale fisheries monitoring certificates of 14 fishers.
Annex 7. Fisheries monitoring activity certificate description by CONOCER.
Annex 8. ISPN fish and invertebrate monitoring database.
Annex 9. PL fish and invertebrate monitoring database.
Annex 10. Finfish landings database.
Annex 11. Clam fishery landings database.

Annex 1. CLP M&E measures

Output	Number	Additional Information
Number of CLP Partner Staff involved in mentoring the Project		
Number of species assessments contributed to (E.g. IUCN assessments)		
Number of site assessments contributed to (E.g. IBA assessments)		
Number of NGOs established		
Amount of extra funding leveraged ($)	TNC: $35,000 Paul Angel: $10,00 Walton: $10,000	Funding raised for MR ecological and social monitoring during 2017 - 2018
Number of species discovered/rediscovered		
Number of sites designated as important for biodiversity (e.g. IBA/Ramsar designation)		
Number of species/sites legally protected for biodiversity	IUCN listed species: 4	
Number of stakeholders actively engaged in species/site conservation management	Fishers: 21 PL Fisher Committee: 14 ISPN Committee: 15	
Number of species/site management plans/strategies developed	2	Fishery improvement plans: https://fisheryprogress.org/fip-profile/mexico-puerto-libertad-clams-hookah https://fisheryprogress.org/fip-profile/mexico-sonora-yellowtail-handline-0
Number of stakeholders reached	>200	Including project partners and stakeholders surveyed during MR outreach campaign (exact number of fishers reached is uncertain since some were indirectly reached).
Examples of stakeholder behavior change brought about by the project.		
Examples of policy change brought about by the project		
Number of jobs created		
Number of academic papers published	2	ISPN MR design: http://bit.ly/ISPNMRDesign PL Clam growth and mortality: http://bit.ly/ClamsPLAug2018
Number of conferences where project results have been presented.	4	

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Address list and web links.

- ISPN Committee fanpage: https://www.facebook.com/IslaSPNolasco/
- COBI FanPage: https://facebook.com/COBI.mx/
- Paper on ISPN MR design link: http://bit.ly/ISPNMRDesign
- Paper on Clam mortality in PL: http://bit.ly/ClamsPLAug2018
- Fish monitoring database: https://library.ucsd.edu/dc/object/bb56352142
- Invertebrates monitoring database: https://library.ucsd.edu/dc/object/bb9799074k
- http://bit.ly/BioMonitoringCOBI
- Clam FIP progress: https://fisheryprogress.org/fip-profile/mexico-puerto-libertad-clams-hookah
- Yellowtail Jack FIP progress: https://fisheryprogress.org/fip-profile/mexico-sonora-yellowtail-handline-0

Distribution list.
ESRI link where monitoring results are shown: http://arcg.is/5yeD8

4f. Photographic report. We present some pictures that support activities described in the main text.

Figure 1 Fishers from PL being trained in SCUBA diving by Arturo Hernandez (PADI instructor) from COBI.

Figure 2 Four fishers from PL are certified as PADI Open Water Divers.

Figure 3 Alfredo López (PL team) about to dive during PL fish refuge monitoring.

Figure 4 Species (fish and invertebrate) identification test following a 30 meter transect.

Figure 5. Fishers from ISPN during SCUBA diving training with Arturo Hernandez (PADI Instructor) from COBI.

Figure 6 Fishers from BK, ISPN and PL during monitoring and experience exchange at ISPN.

Figure 7 Jose Luis Chavez (ISPN team) during monitoring at ISPN.

Figure 8. Our team and fisher checking the side scan sonar during a bathymetric study of PL bay.

Figure 9 Fishers trained in small-scale fishing monitoring during a workshop in Guaymas (December 2017).

Figure 10. Fisher Rafael López from PL measuring a yellowtail jack during training.

Figure 11. Juan Gabriel Cervantes from PL measuring clams during training (December 2017).

Figure 12. Presenting monitoring results to PL fishers (July 2018).

Figure 13. Presenting finfish logbook program results to stakeholders in Guaymas (July 2018).

Figure 14. Presenting finfish logbook program results to stakeholders in Guaymas (July 2018).