Nature-based Solutions for Coastal Flooding Workshop Series: Monitoring Efficacy of Nature-based Solutions (NBS) Workshop

How to Integrate Monitoring into the Project Life Cycle and Funding

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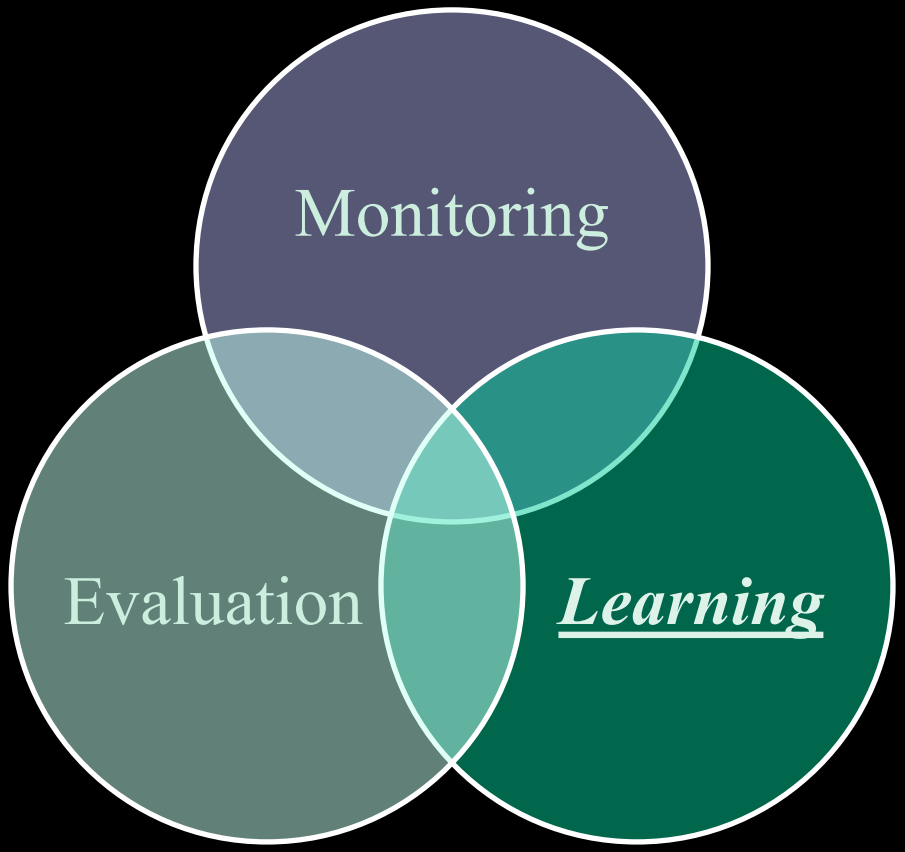
Outline

- **M**onitoring, **E**valuation, and **L**earning (MEL): A Three-Pronged Approach as Part of Project Design
- Distinguishing Between Results-Based and Implementation-Based Approaches: A Fundamental Distinction to be Made in a Project's MEL Efforts
- Key Elements Forming Part of a Solid MEL Program
- Bringing Some of These Key Elements to Light Through a NbS Example in Mexico: *Community-Based Marine Reserves (Refugios Pesqueros)*

The Importance of a Three-Pronged Approach to Project Assessment



Investing $ in Monitoring and Evaluation is useless unless clear mechanisms and elements of ***learning*** are incorporated into project/program design and implementation

Implementation vs Results-Based Project Assessments

Implementation

- Designed to address compliance (the "Did they do it?" question)
- Focuses more on execution
- Clear benchmarks for activities and immediate outputs
- Data collection on indicators for *activities*, *inputs* and immediate *outputs*

Results

- Designed to address the "So What?" question
- Provides feedback on actual outcomes of an intervention
- It necessarily incorporates *Learning*
- Baseline data are defined before the intervention
- Indicators defined for *outcomes*

The Power of Measuring Results

- If you do not measure results, you cannot tell *success* from *failure*.
- If you cannot see success, you cannot *reward* it.
- If you cannot reward success, you are probably *rewarding failure*.
- If you cannot see success, you cannot *learn* from it.
- If you cannot recognize failure, you cannot *correct* it.
- If you can demonstrate results, you can *win public support*… ***and get additional FUNDING!***

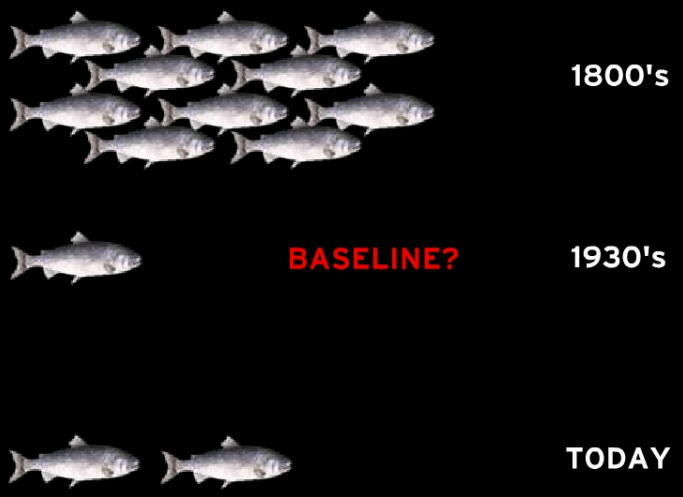
Source: Adapted from Osborne & Gaebler 1992

Key Elements of a MEL Program

- Have an articulated *Theory of Change* (TOC) in place
- Clearly defined and salient *learning questions* (for both project/program managers as well as stakeholders)
- System in place to draw *causality* to the best degree possible
- Avoid being too siloed so you can capture *unintended consequences* (+ and/or -) of interventions
- Ensure elements are in place to *increase credibility* of results
- Assign appropriate *$$* to MEL efforts… *do not wait* to secure MEL funding after project has begun
- Develop a *MEL Plan*: The “who”, “what”, “how”, “how much ($$)”, and “when” of data collection (tied to outcomes and learning) and dissemination
- *Time evaluations* well. Consider a *mid-term evaluation* process
- Establish *clear baselines!*

The Importance of Baselines

"In the absence of concrete baselines, our measuring stick is only as good as our collective memory"



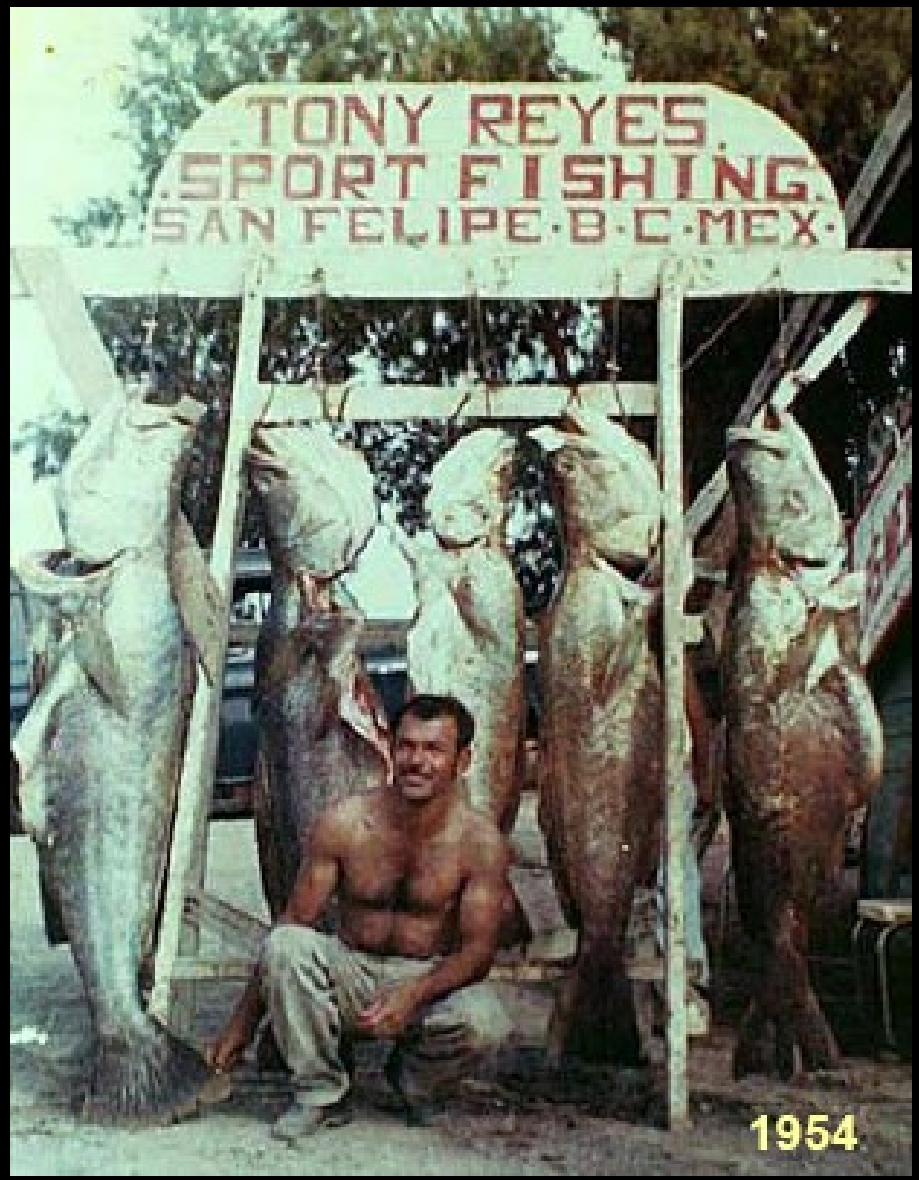
- Having clear baselines allows us to measure success of our TOC
- Baselines are difficult and sometimes tricky to define
- They should be realistic/attainable
- They sometimes need to be reconstructed (through oral histories or other means)
- Keep in mind inter-generational declines in expectations – *Shifting Baselines*

The past Gulf of California for the old fisher (1940's).

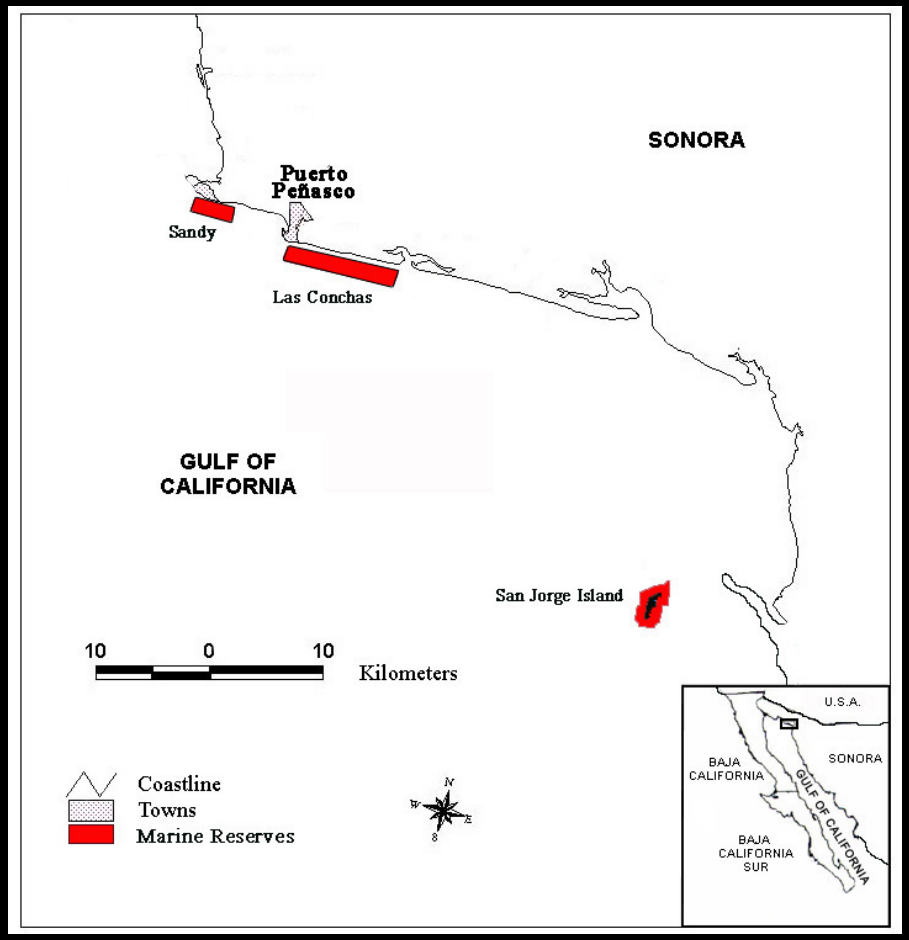
The past Gulf of California for the middle-aged fisher (1970's).

The past Gulf of California for the young fisher (1990's).

Illustration by Anne Randall and Pier Thiret

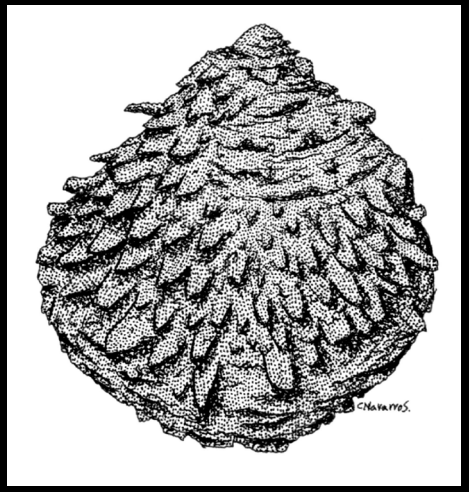


Puerto Peñasco Community-Based Network of Marine Reserves

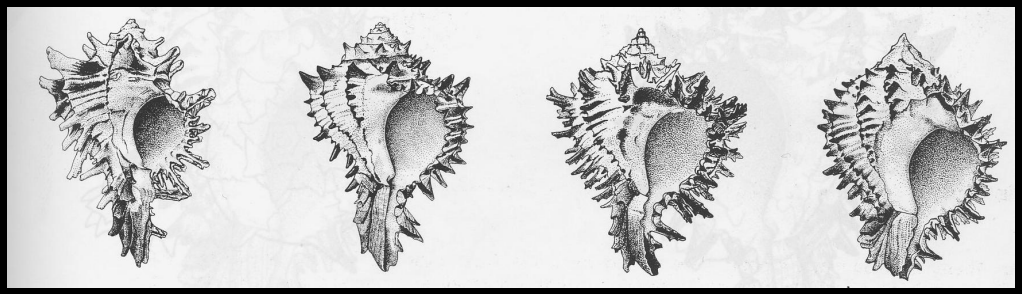


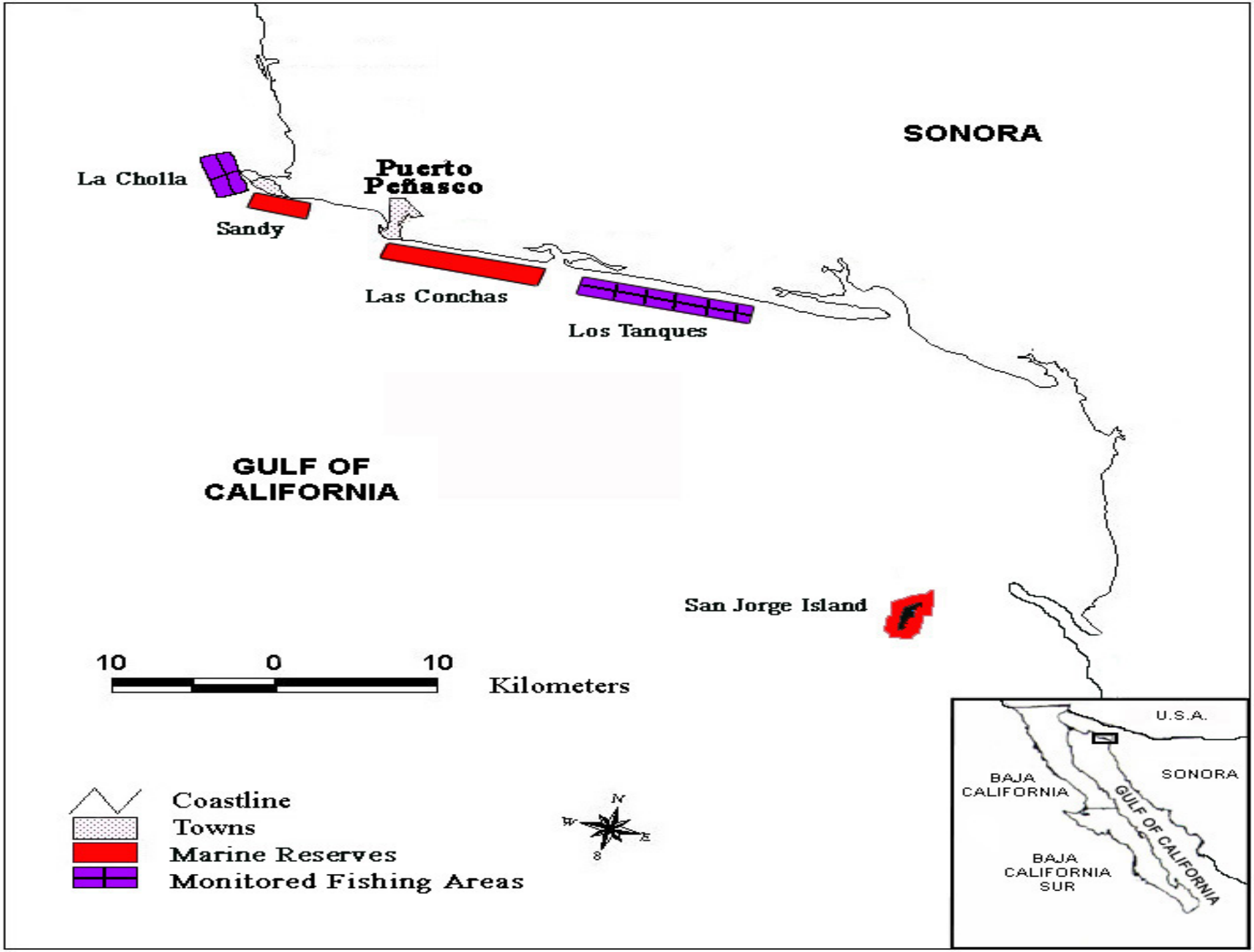
- Established in 2002
- First ***network*** of marine reserves in Mexico
- 18 km coastline
- 30% of fishing grounds
- Strong stakeholder participation in monitoring

Rock Scallop, *Spondylus calcifer*



Black Murex, *Hexaplex nigritus*

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La Cholla
Puerto Peñasco
Sandy
Las Conchas
Los Tanques
GULF OF CALIFORNIA
San Jorge Island
10 0 10
Kilometers
Coastline
Towns
Marine Reserves
Monitored Fishing Areas
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SONORA
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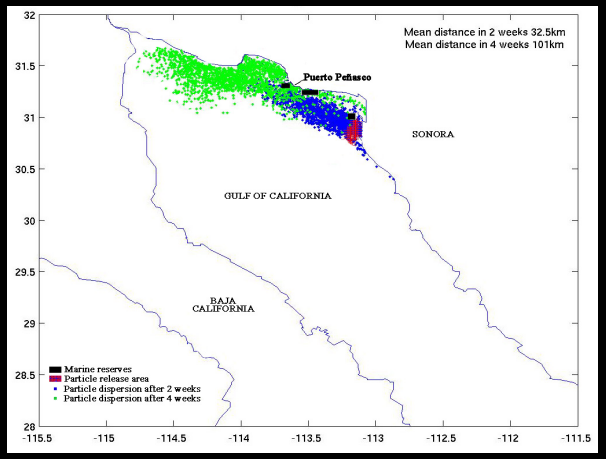
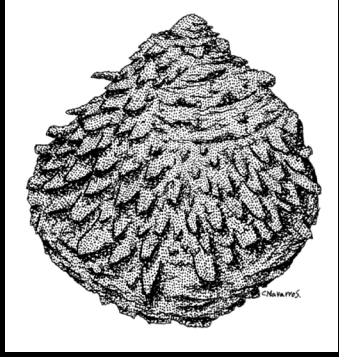
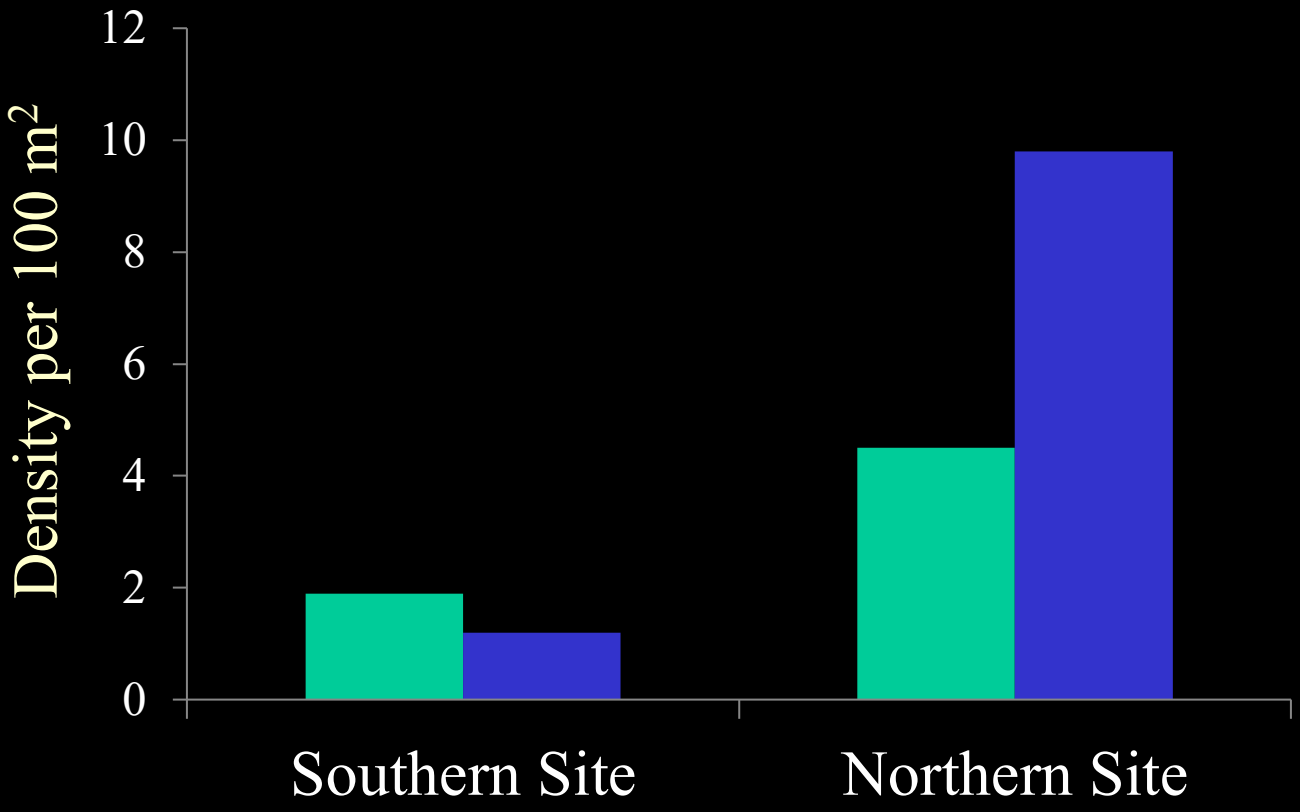

Mean distance in 2 weeks 32.5km
Mean distance in 4 weeks 101km
Puerto Peñasco
SONORA
GULF OF CALIFORNIA
BAJA CALIFORNIA
Marine reserves
Particle release area
Particle dispersion after 2 weeks
Particle dispersion after 4 weeks
32
31.5
31
30.5
30
29.5
29
28.5
28
-115.5
-115
-114.5
-114
-113.5
-113
-112.5
-112
-111.5

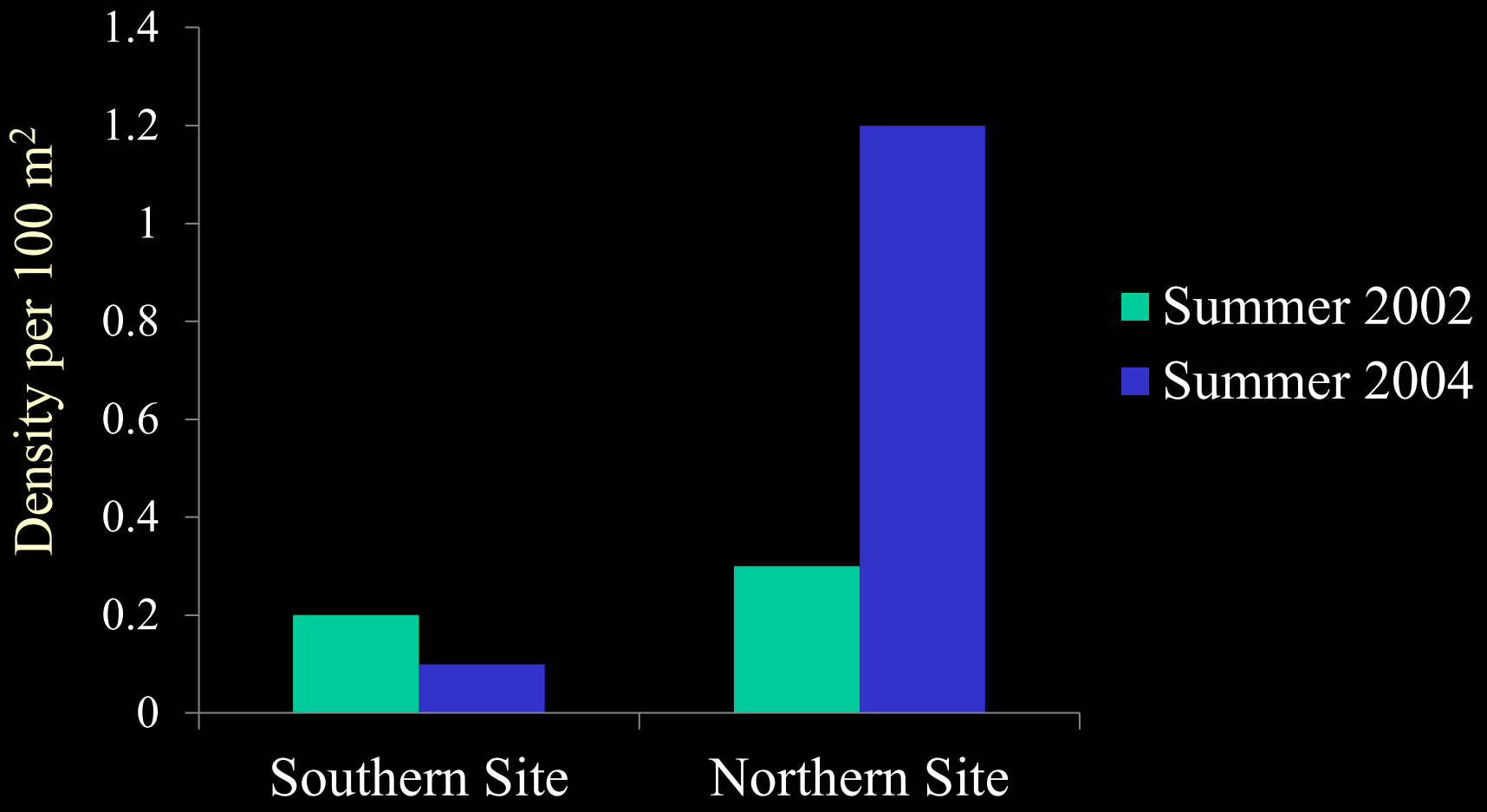
Relative Densities of Juvenile Rock Scallops





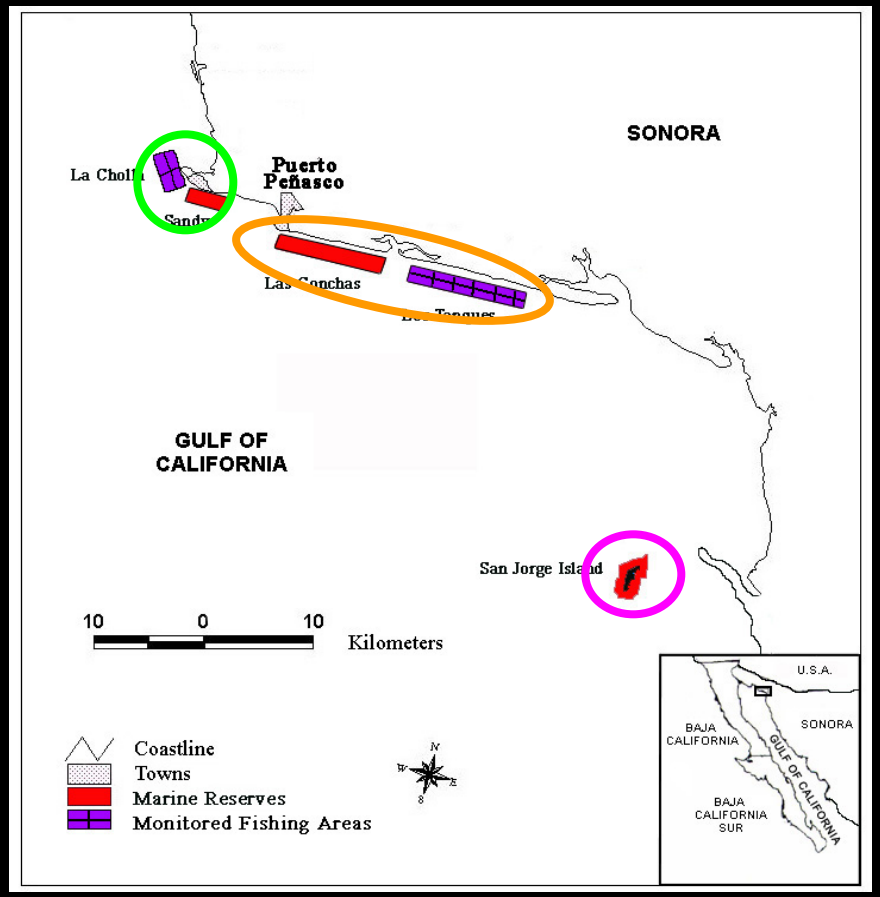
Cudney-Bueno et al. 2009, PLoS One

Relative Densities of Juvenile Black Murex



Cudney-Bueno et al. 2009, PLoS One

Were these reserve effects?



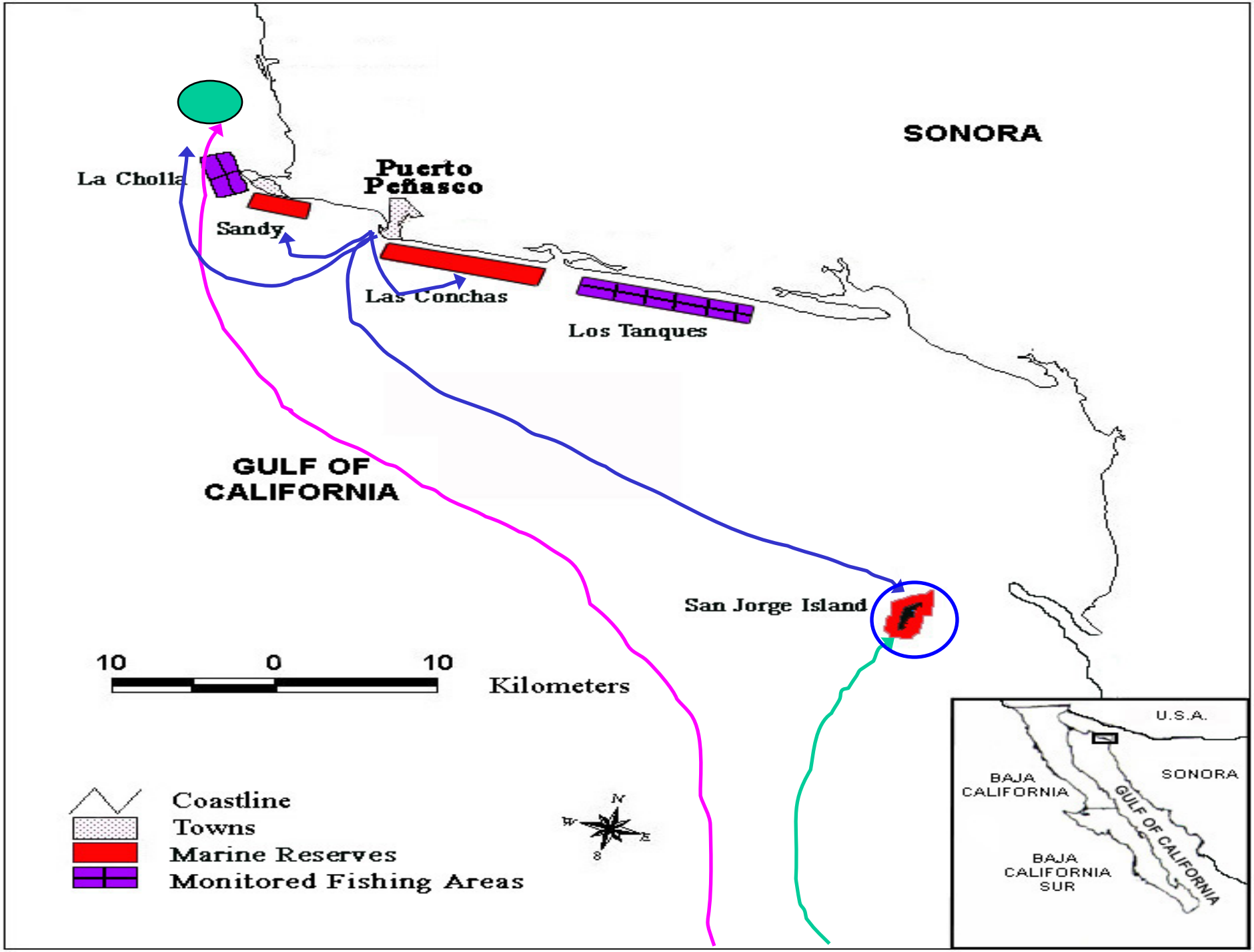
- Before-after effects
- Spatially constricted effects
- No increase in other monitored areas of the Gulf of California
- Results consistent with Coupled Biological Oceanographic Model (CBOMs) predictions

Fishers' Opinions

Opinion on Effects	Yes (%)	No (%)	Don't Know
Positive results	100	0	0
Increase production	89	11	0
Future financial gains	94	6	0
Continue with reserves	94	0	6

78% report more rock scallop in depleted areas

89% report an increase in juveniles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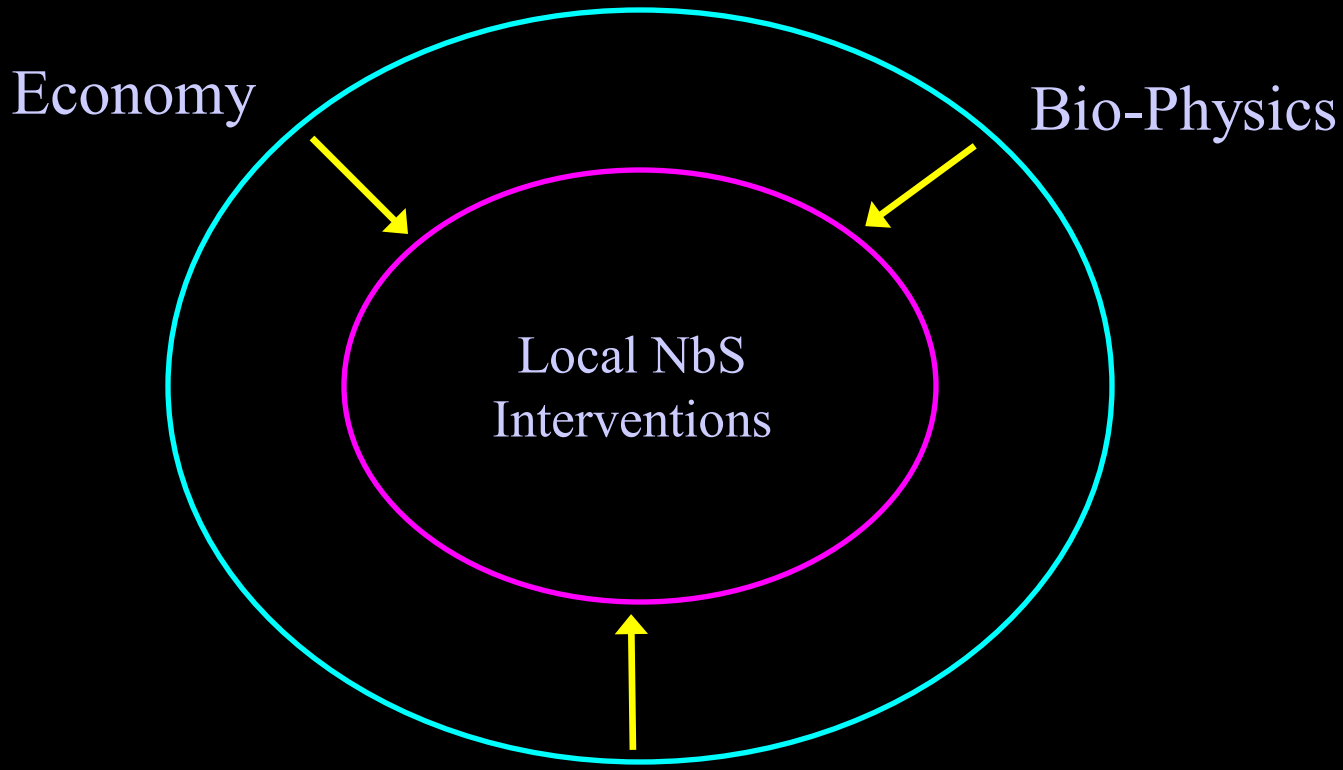
Rule Compliance

Rule Type	Level of Compliance A	Level of Compliance B
Snail fishing banned May-July	5	1
Fishing banned within reserves	5	1
Harvest octopuses of large size	3	2
Participation in monitoring	5	1
Financial support for monitoring	5	1
Participation in all meetings	5	2
Monthly financial contribution	4	1
Provide documents for cooperative	4	4

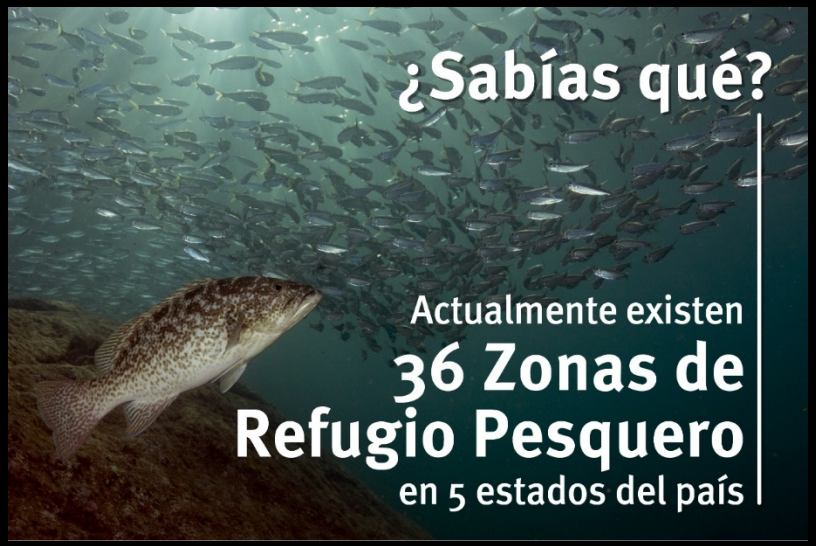
5 = more than 90% respect rule; 1= less than 10% respect rule
A = Before poaching; B = After poaching

Cudney-Bueno and Basurto. 2009. PLoS One

Cross-Scale Linkages



Good MEL Efforts of Local NbS Interventions Can Bring Change at Scale



- What began as isolated community-based efforts has transformed into a *national movement*
- Robust MEL Programs have given way to *learning of both the "good" and the "bad"*
- Results and learning have led to *increased funding* - philanthropy and government
- Learning has been transformed into *policies*