

Pearls & the Environment



PERLAS DEL MAR
DE CORTEZ



Presented by
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Pearl Farmer & Researcher

Introduction

- Mexico was the World's Main Producer of Pearls for only 380 years.
- 480 years of continuous production.
- The 1st True South Sea Pearls (Mares del Sur).



The Pearl Fisheries in the Gulf of California

- Slave Labor: the Yaqui Indians were the best divers.
- The pearl beds were incredibly abundant.
- But were fished out by 1940.



The *Pinctada* Pearl Oysters

- 4 Native species in the American Continent's coasts:
- *Pinctada mazatlanica*: from the Gulf of California to Costa Rica
- *Pinctada imbricata*: from Florida (US) to Brazil.



The *Pteria* Pearl Oysters

- *Pteria sterna*: from Baja California (invasive in California, USA) to Peru.
- *Pteria colymbus*: from North Carolina (USA) to Brazil.
- But the larger, more beautiful species are the Pacific MOPs.



Causes of Local Extinction

- Many causes:
 - Overfishing
 - Natural environmental changes
 - Disease/Epidemic
 - **Hoover Dam** – 1939 : great environmental change.



Pearls disappeared
in the 1940's

Cortez Pearls

- Natural & Cultured Pearls are once again available in the Gulf of California.
- The only commercial saltwater pearl farm in the Americas.



Pearl Farming in Mexico/America

- **Rainbow Lip Oyster**
– *Pteria sterna*
- 200,000 pearl oysters
- 15 employees
- Limited Production:
1.2 to 3.8 kilos per year.
- Fair Trade Gems –
Only pearl in this list.



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bejss.com.mx

Research Stage

- Research team led by Sergio Farell, Enrique Arizmendi, Manuel Nava & Myself.
- Research in: survival rates, culture system, reproduction, growth rates & pearl culture.

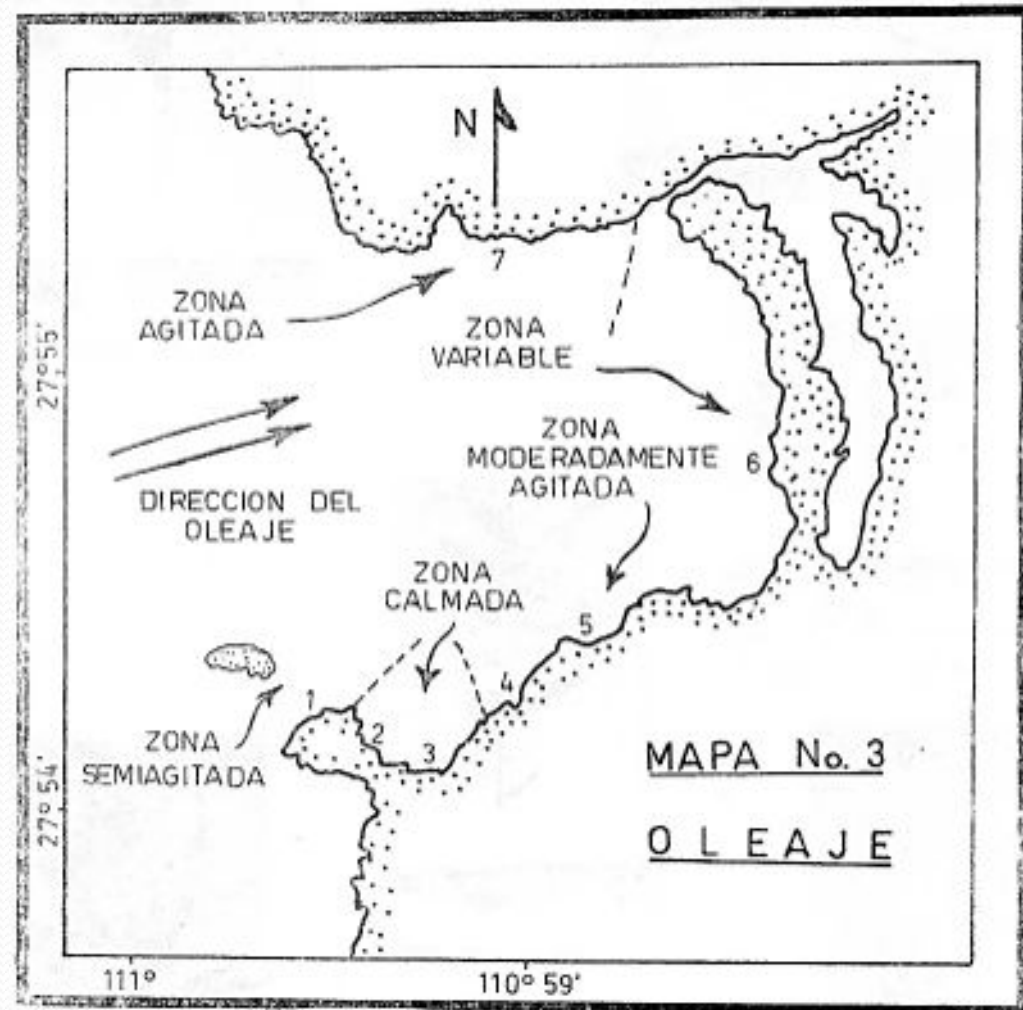


ITESM - Guaymas



1993: Pearl Oyster Census

- Pearl “beds” were evaluated in Bacochibampo Bay:
 - 88 Black-Lips
 - 54 Rainbow Lips
- At least 10 oyster/ m^2 needed for effective reproduction.



Bacochibampo Bay



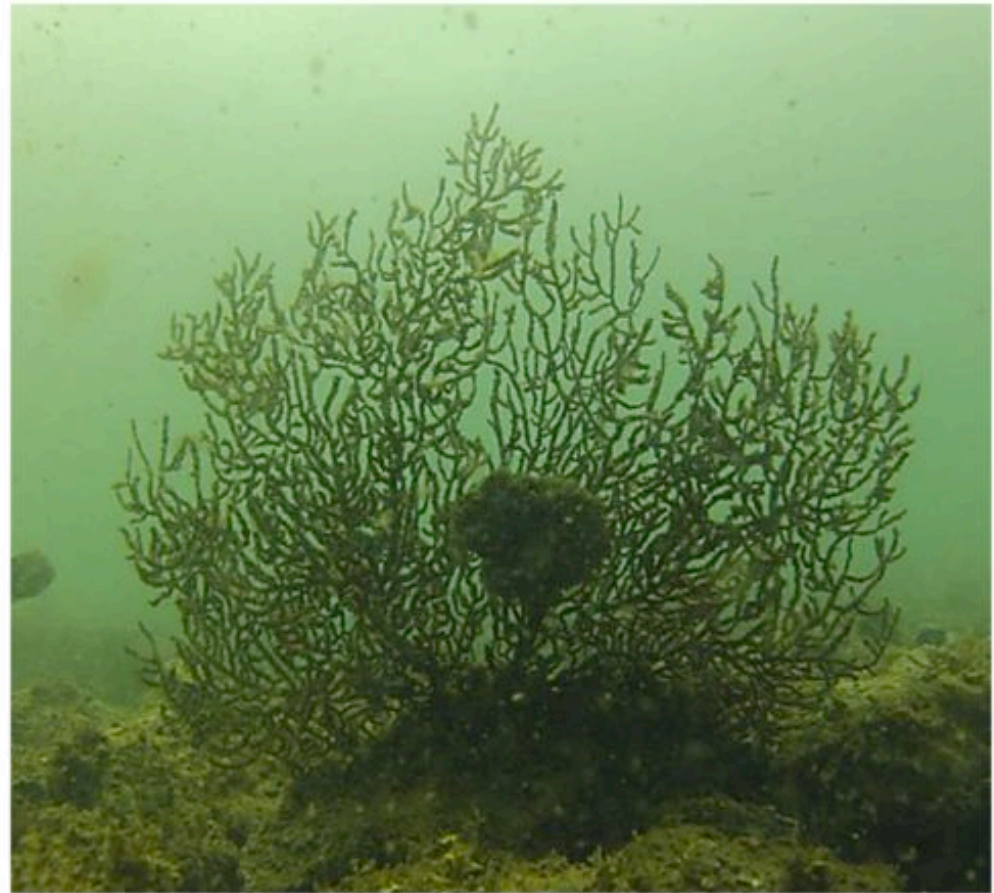
Area: 400 Ha/4 Km²
We use only 2 Ha or 0.5%

Pearl Oyster Beds

Pteria sterna = 0.0135
oysters/m²



Pinctada mazatlanica =
0.022 oysters/m²



Positive Farm Effects

- Few negatives, many positives:
 - Oysters are housed at between 40-300/m²
 - This means EFFECTIVE reproduction, leading to:
 - Pearl Bed replenishment, species recovery.
 - Floating Reef effect: cages protect many other species and attracts fish.
 - No Fishing Zone.

Spat Collection

- Needed to supply the Pearl Farm with “spat”.
- Efficiency in Spat Collection means Reproduction.



| Oyster Variety | 1992 | 1994 | 2010 |
|----------------|------|------|--------|
| Black-Lips | 2 | 35 | NA |
| Rainbow-Lips | 6 | 220 | 10,000 |

Piggy Backing

- We don't collect *Pinctada* spat but it piggy-backs on our *Pteria*.
- Efficiency in Piggybacking means Reproduction.



| Year | 2011 | 2012 | 2013 |
|------------|------|------|------|
| Black-Lips | 553 | 421 | 927 |

2012 Census

- Done by a local NGO (CoBi):
- Official numbers:
 - 6,000 black-lips just in the farm (wild bred).
 - Unknown quantity of Rainbow-Lips (coral-forests destroyed).
 - 23 species of large fish and 22 species of large invertebrates live in the farm.



5 species are in Mexico's
Protected List (NOM-059)

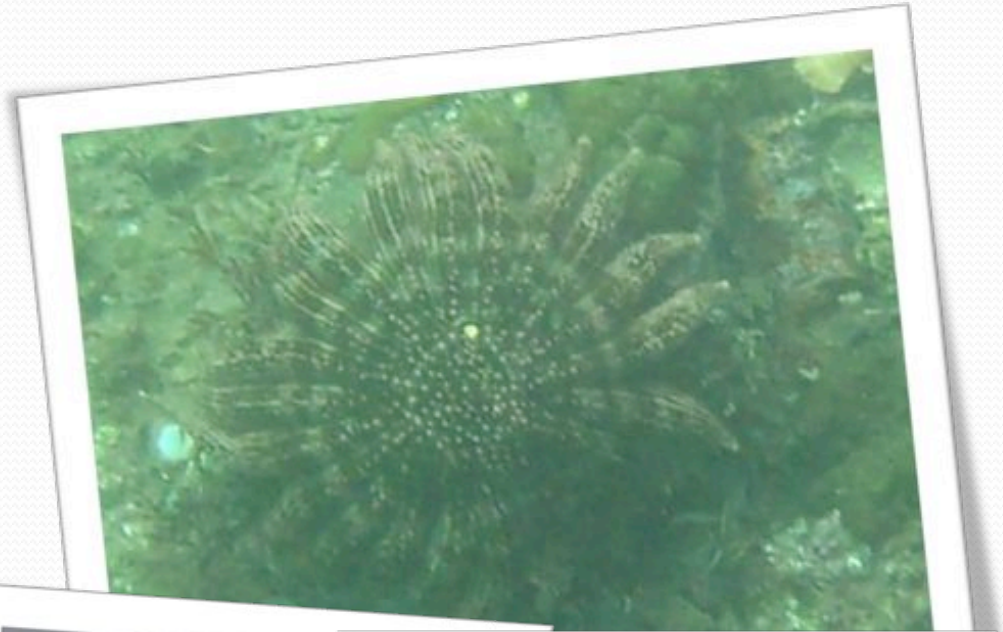
New Pearl Beds

- 2012: Massive Rainbow Lip pearl bed north of Guaymas: 66 Km long (with millions of Rainbow Lips!).
- Larvae may travel up to 170 Km so they may be a product of our farm.



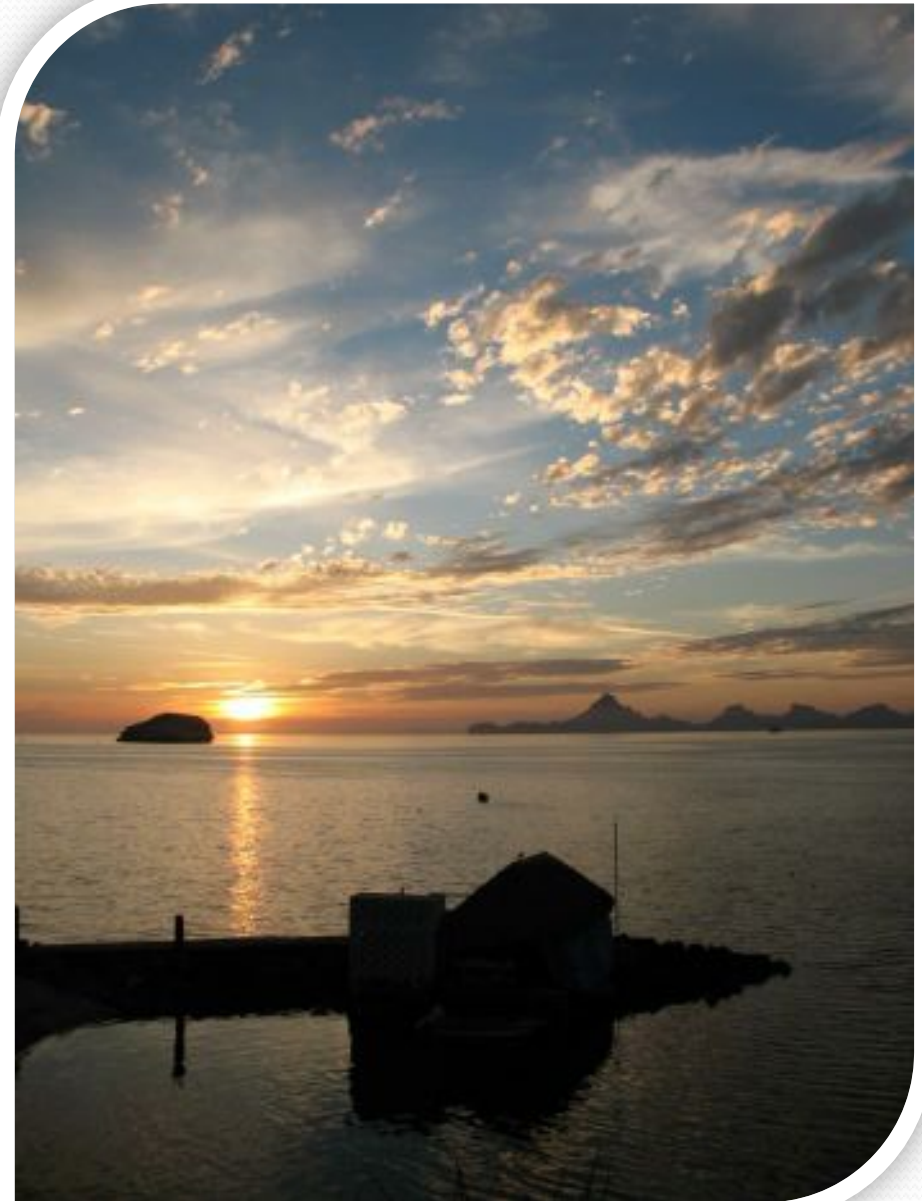
Environmental Findings (CoBi)

- Rainbow-Lip beds stabilize the sea-bottom, allowing for many other sedentary species to grow.
- Acts as a reef, offering fish a place to hide.
- Many other species depend on these oysters to survive.



No Fishing Zone

- This is a new figure in Mexican Laws, but now only used in certain sites (islands).
- If we gain approval we might have a “Special Marine Refuge Area”
- These species will thrive and breed here, ready to replenish the Sea of Cortez.
- We have become “Sea-Shepherds”



How do we do all this???

- We receive no Funding from: Municipal, State nor Federal Governments.
- Funding from Sustainable Pearls/The Tiffany & Co. Foundation.
- Support from international vendors: Raw Pearls (Adelaide), Marc H'arit (Denmark), Pearl-Paradise, Pure Pearls, Columbia Gemhouse (USA).
- 99% of Funding comes from our Pearl & Jewelry Sales.





Thank You

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