

# Pearl farming and coral bleaching in French Polynesia

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# Outline of Presentation

French Polynesia

Coral reef in French Polynesia (state and threats)

Coral reef : parameters needed

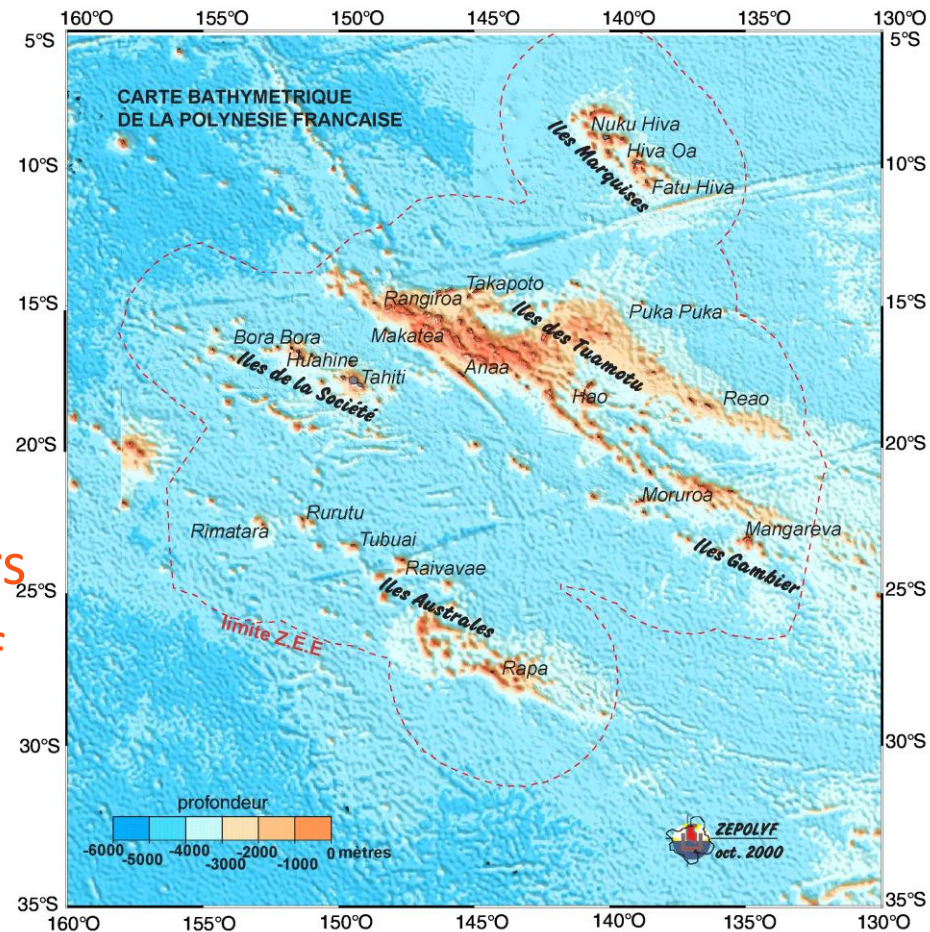
Pearl farming in French Polynesia (state and threats)

Pearl farming : parameters needed



# French Polynesia

- Population : 299,079
- EEZ : 5 millions de km<sup>2</sup>
- 118 islands
  - 34 high volcanic islands
  - 84 atolls (most in the Tuamotu)
- 4,000 km<sup>2</sup> of emergent land
- Over 7,000 km<sup>2</sup> of lagoon waters
- 12,800 km<sup>2</sup> of coral reefs (5% of worldwide cover)
- Weather: wind, waves and Ocean current



# Coral reef in French Polynesia

- The contribution of coral reefs to the economy is not known
- Coral reefs are important for :  
Tourism  
Recreation (snorkel & scuba diving)  
Fisheries (subsistence or commercial)
- Coral reef is :  
Biodiversity hotspot (> 25% of marine life)  
Natural barriers against disasters (tsunami)



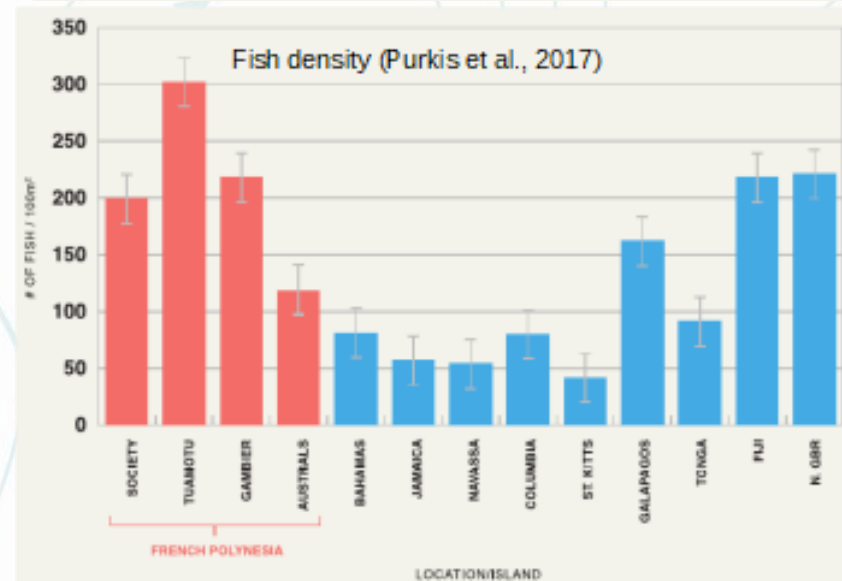
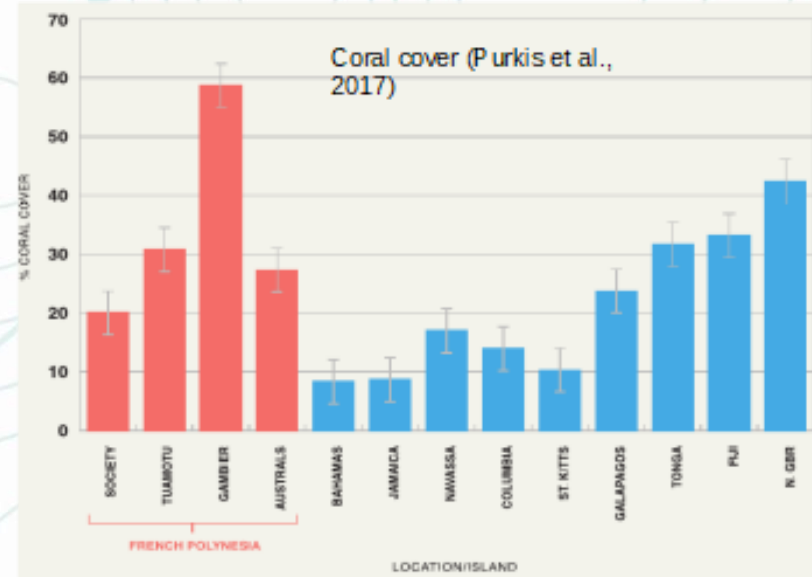


# Coral reef overall state

Most common corals : pocillopora,  
porites, acropora

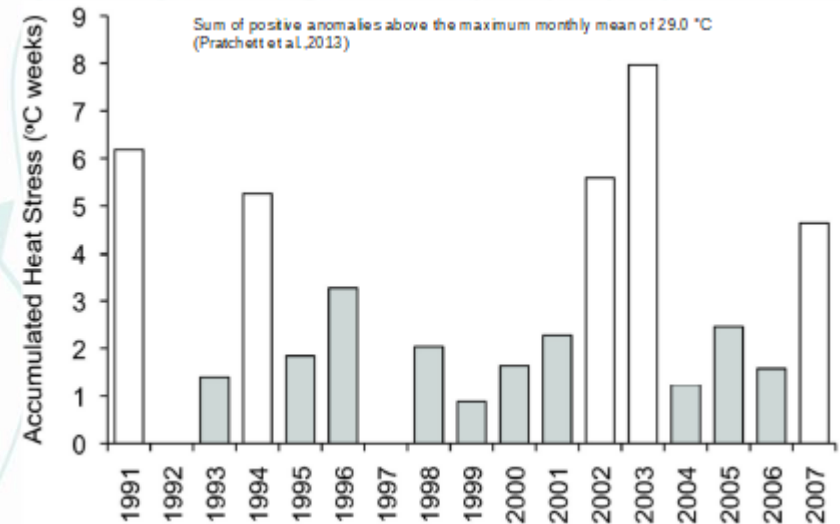
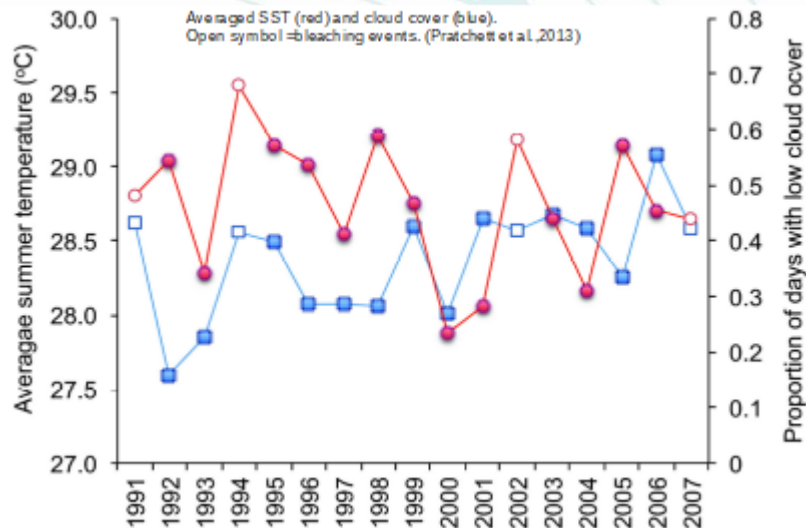
Coral reefs are in better shape on less  
populated islands

Differences due : human impact,  
environmental conditions (predators,  
quality of water, pollution, ...)



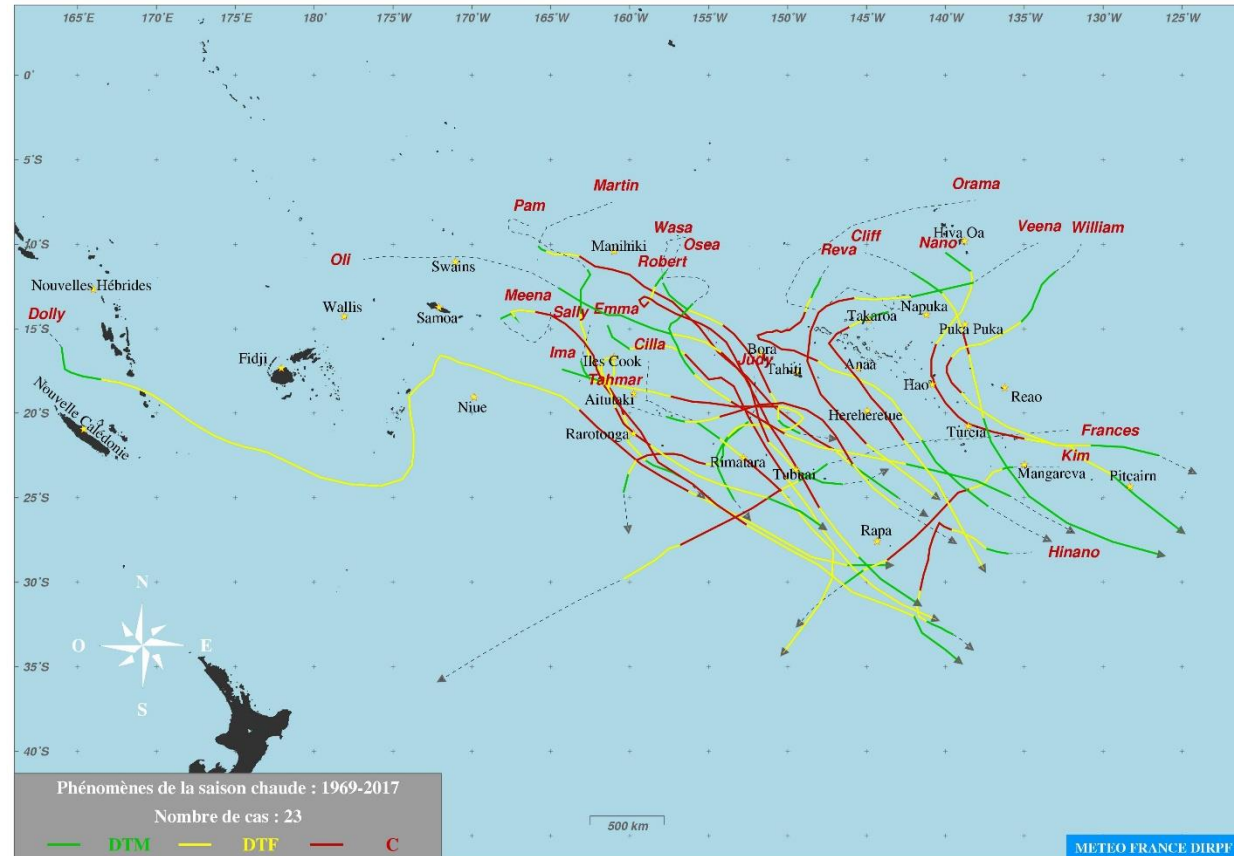
# Coral reef : threats

- Predators : crown of thorns
- Human : land management
- Bleaching
- Intense storms
- Rain on high islands



# Coral reef : parameters needed

- On going study on how the ecosystem is affected by:
  - Increasing sea temperature
  - Irradiance
  - Ocean acidification
  - Frequency of intense tropical storms
  - Altered rainfall

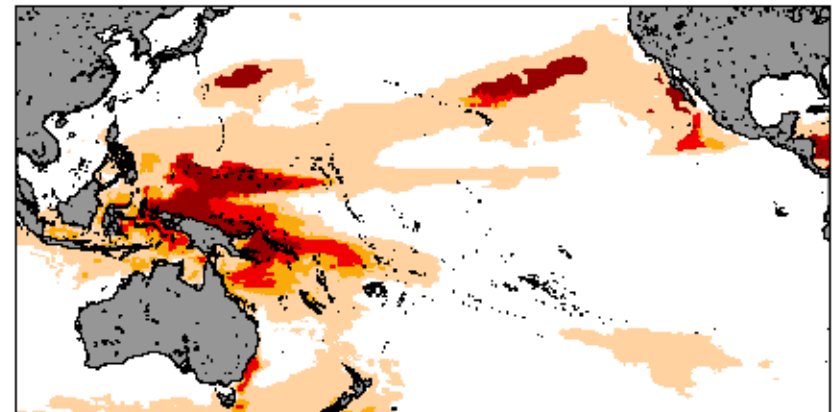




# Coral Bleaching Heat stress Outlook

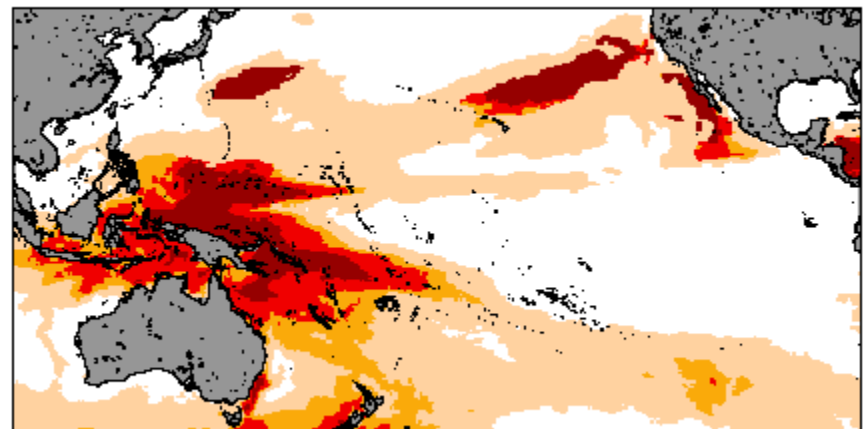
- Oct-Jan 2021  
No stress (90% of chance) in French Polynesia  
Watch and higher (60%) in Australs islands and south-east of Tuamotu, especially in January and february 2021.
- [https://coralreefwatch.noaa.gov/satellite/bleachingoutlook\\_cfs/outlook\\_cfs.php](https://coralreefwatch.noaa.gov/satellite/bleachingoutlook_cfs/outlook_cfs.php)

2020 Oct 13 NOAA 90% Probability Bleaching Heat Stress for Oct-Jan 2021  
Experimental, v5.0, CFSv2-based, 28 to 112 Members



No Stress Watch Warning Alert Level 1 Alert Level 2

2020 Oct 13 NOAA 60% Probability Bleaching Heat Stress for Oct-Jan 2021  
Experimental, v5.0, CFSv2-based, 28 to 112 Members

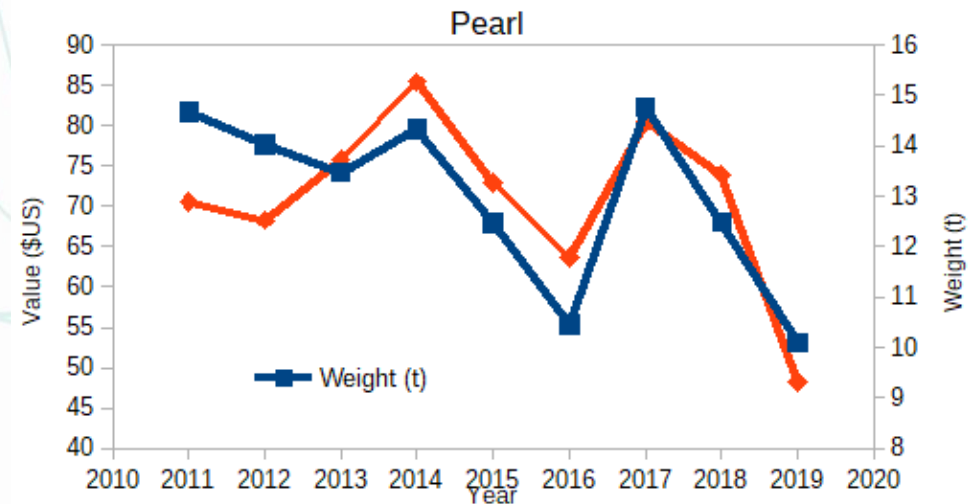


No Stress Watch Warning Alert Level 1 Alert Level 2



# Pearl farming in French Polynesia

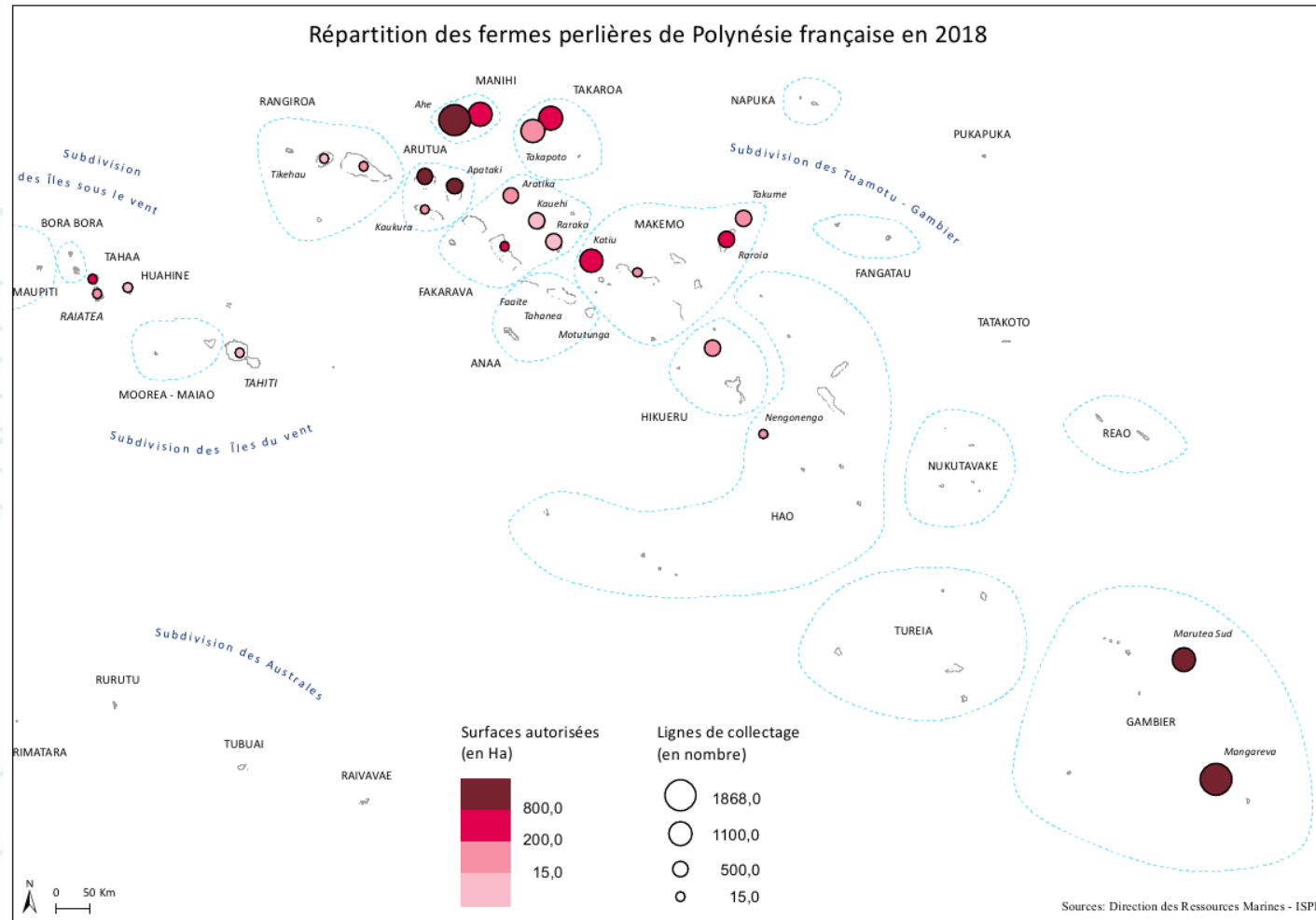
- Economical importance
- The end product of pearl farming includes the pearl, the jewelry work, the mother of pearl and the pearl meat
- The pearl meat is consumed locally
- The pearl, the jewelry work, the mother of pearl are exported but the main income comes from the pearl



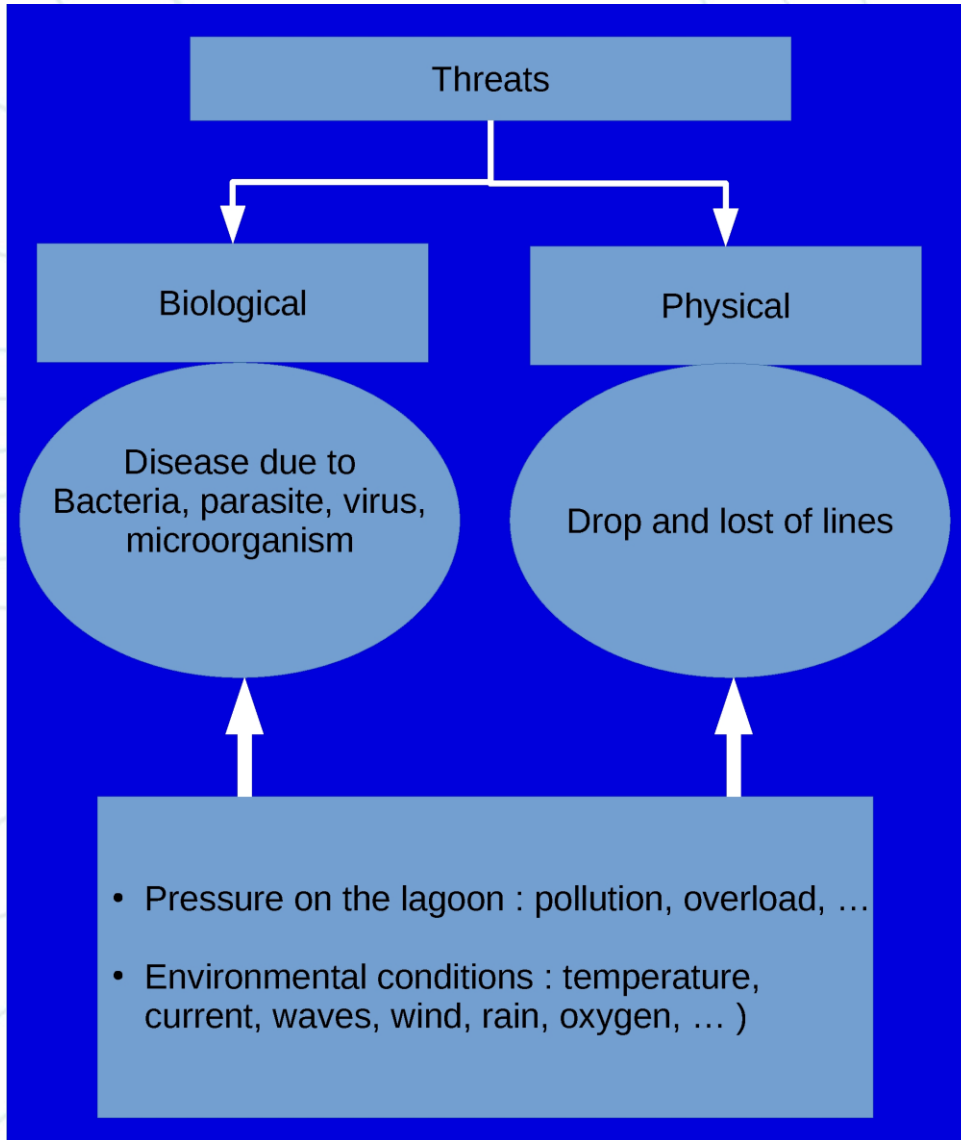
Average over the last ten years (Data : Institut de la Statistique de la Polynésie française)			
	Pearl	Jewelry work	Mother of pearl
Weight (t)	13	0.3	1983
Value (million \$US)	71	1.2	2.2

# Pearl oyster spat collector and harvesting area

- 27 islands : 4 high islands and 21 atolls
- Area exploited 90 km<sup>2</sup> (total lagoon area : 7000 km<sup>2</sup>)
- 12 islands for spat collecting (9409 lines)
- 728 producers
- About 1300 people are working in pearl farms



# Pearl farming : threats





# Conclusion

## Parameters needed

- Temperature
- Ph (acidification)
- Irradiance (cloud cover)
- Frequency of intense tropical storms
- Extreme Rainfall

