

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)

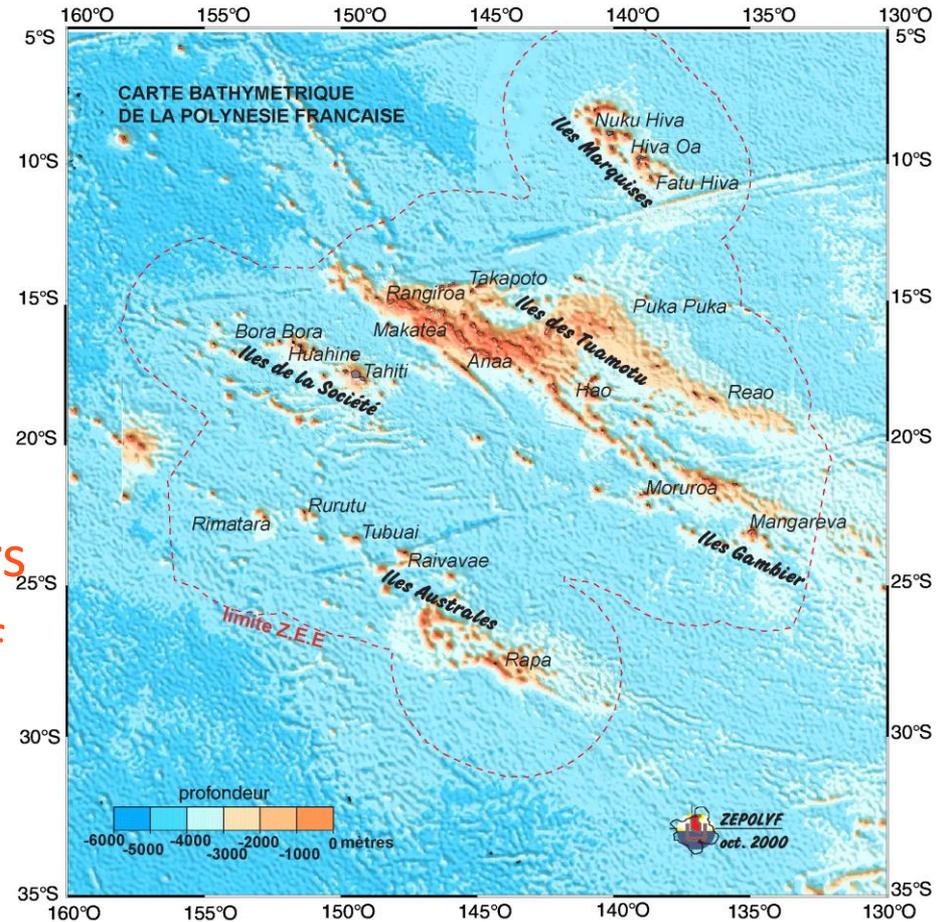
Coral reef : parameters needed

Pearl farming in French Polynesia (state and threats)

Pearl farming : parameters needed

French Polynesia

- Population : 299,079
- EEZ : 5 millions de km²
- 118 islands
 - 34 high volcanic islands
 - 84 atolls (most in the Tuamotu)
- 4,000 km² of emergent land
- Over 7,000 km² of lagoon waters
- 12,800 km² 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

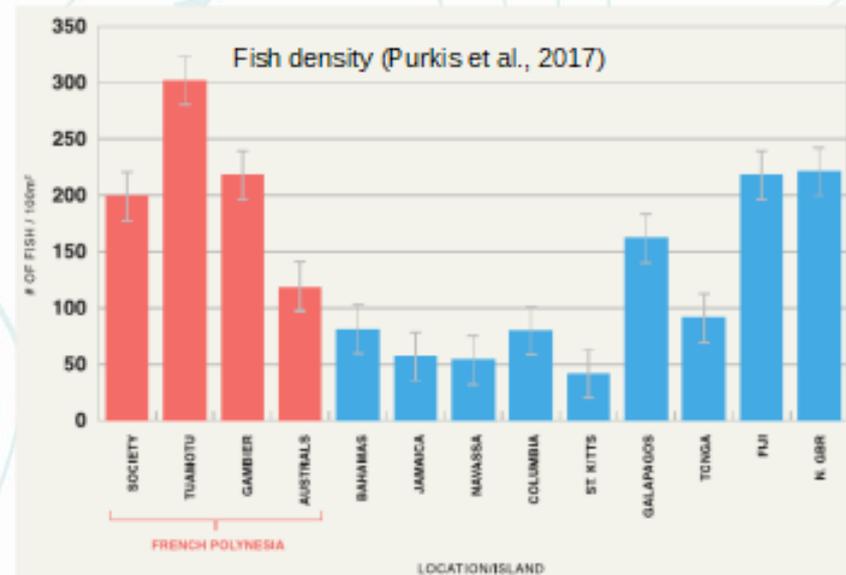
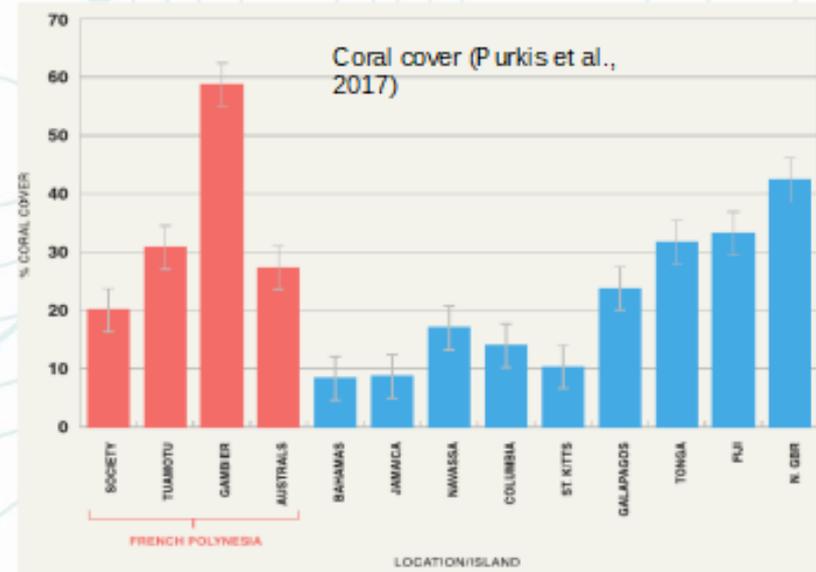
Most common corals : pocillopora, porites, acropora

Coral reefs are in better shape on less populated islands

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

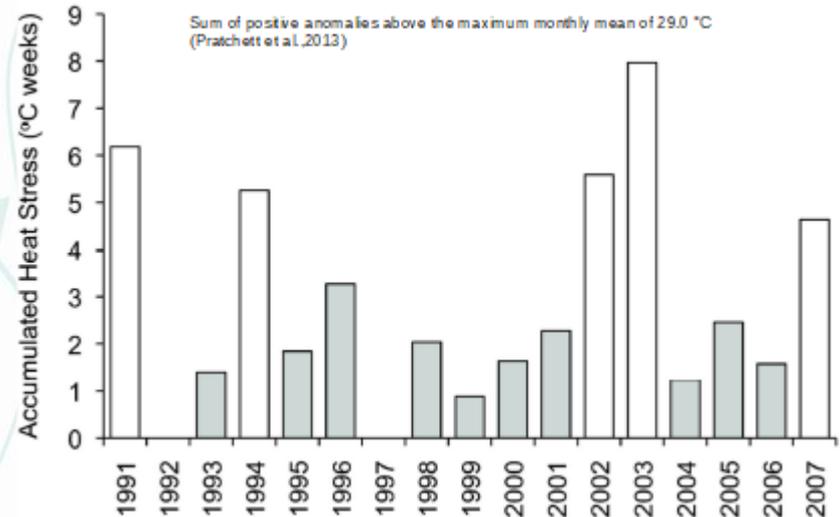
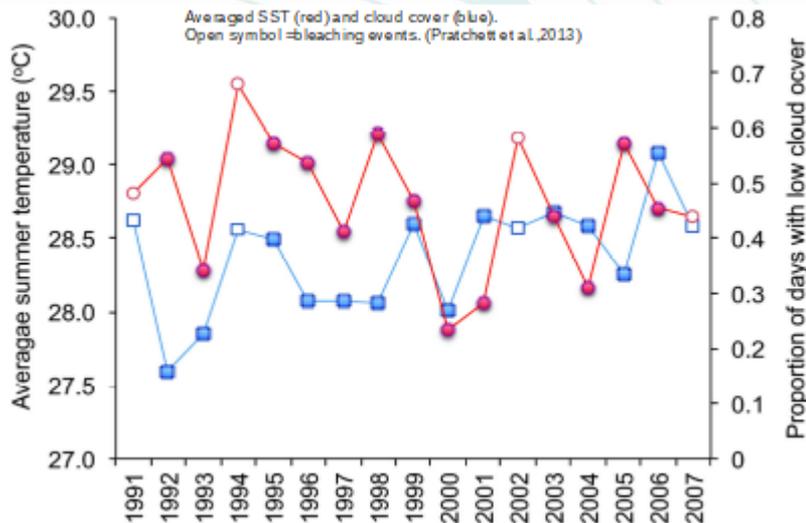


Courtesy: Pratchett et al., 2013



Coral reef : threats

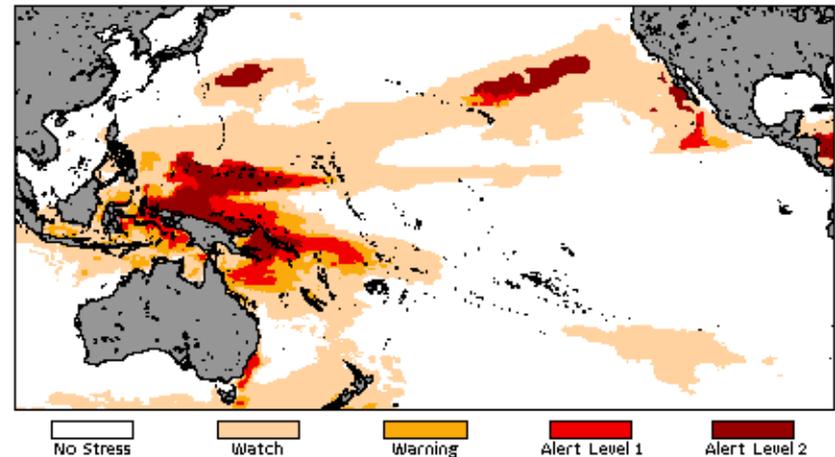
- Predators : crown of thorns
- Human : land management
- Bleaching
- Intense storms
- Rain on high islands



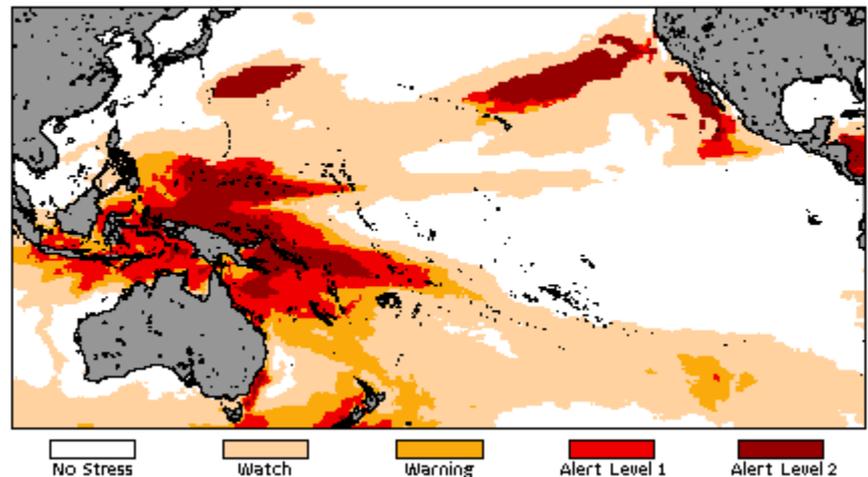
Coral Bleaching Heat stress Outlook

- 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

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

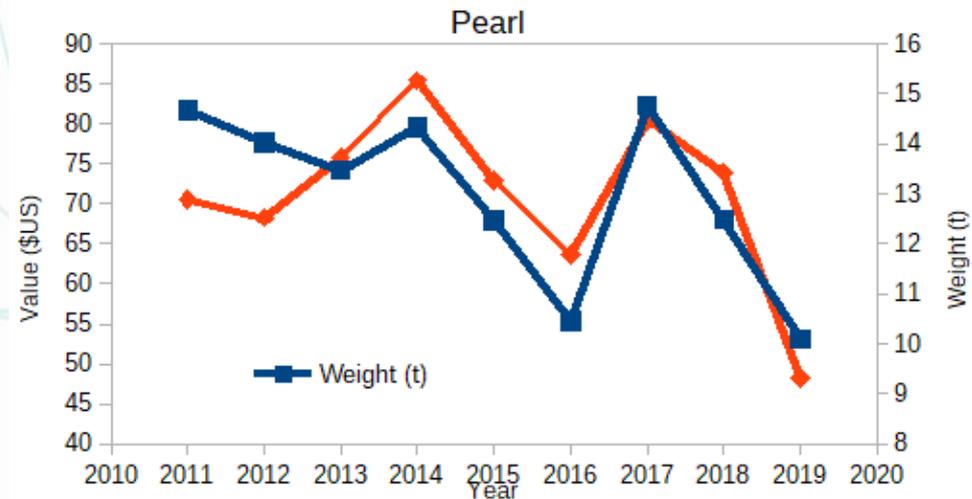


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Pearl farming in French Polynesia

- 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

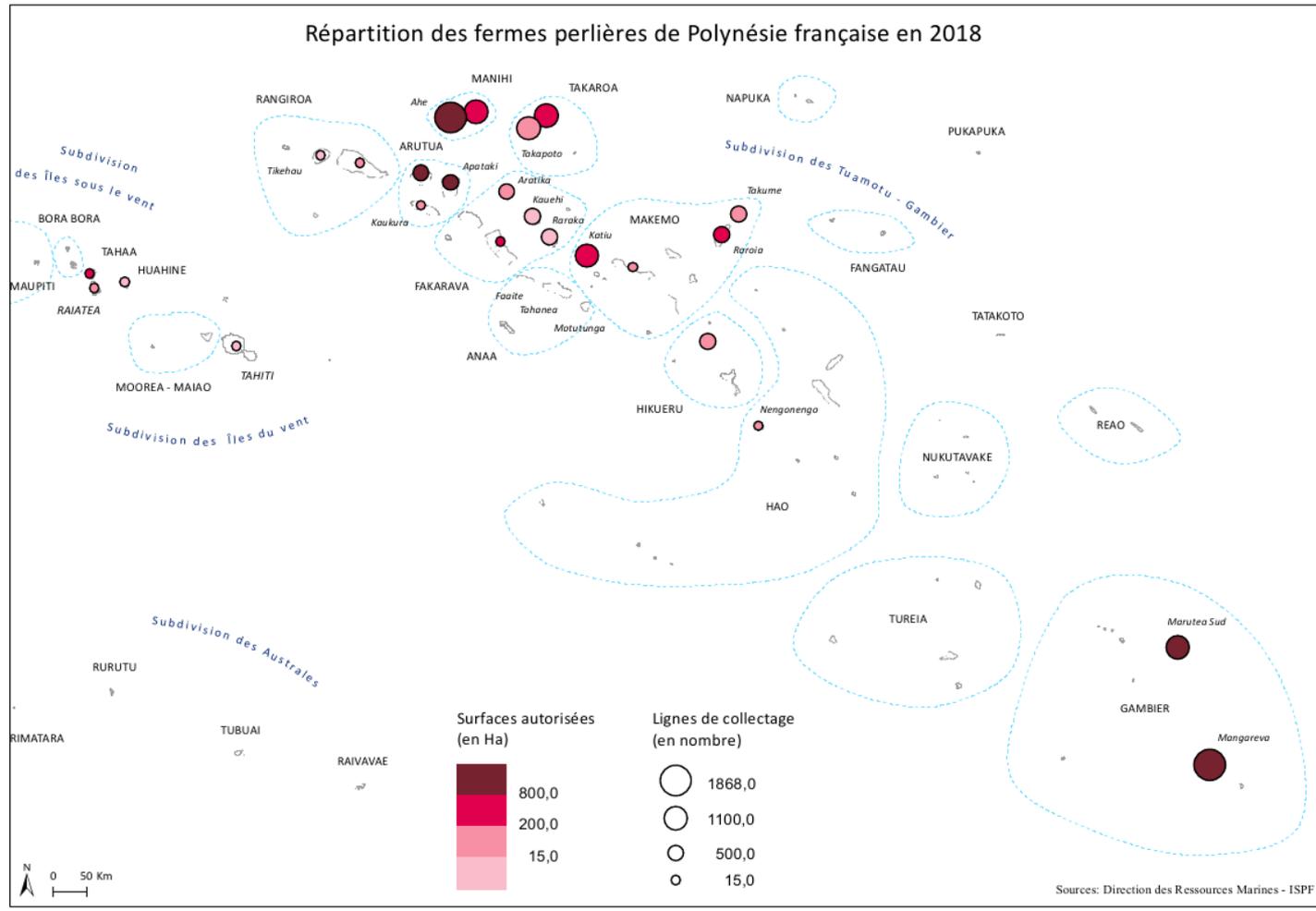


Average over the last ten years
(Data : Institut de la Statistique de la Polynésie française)

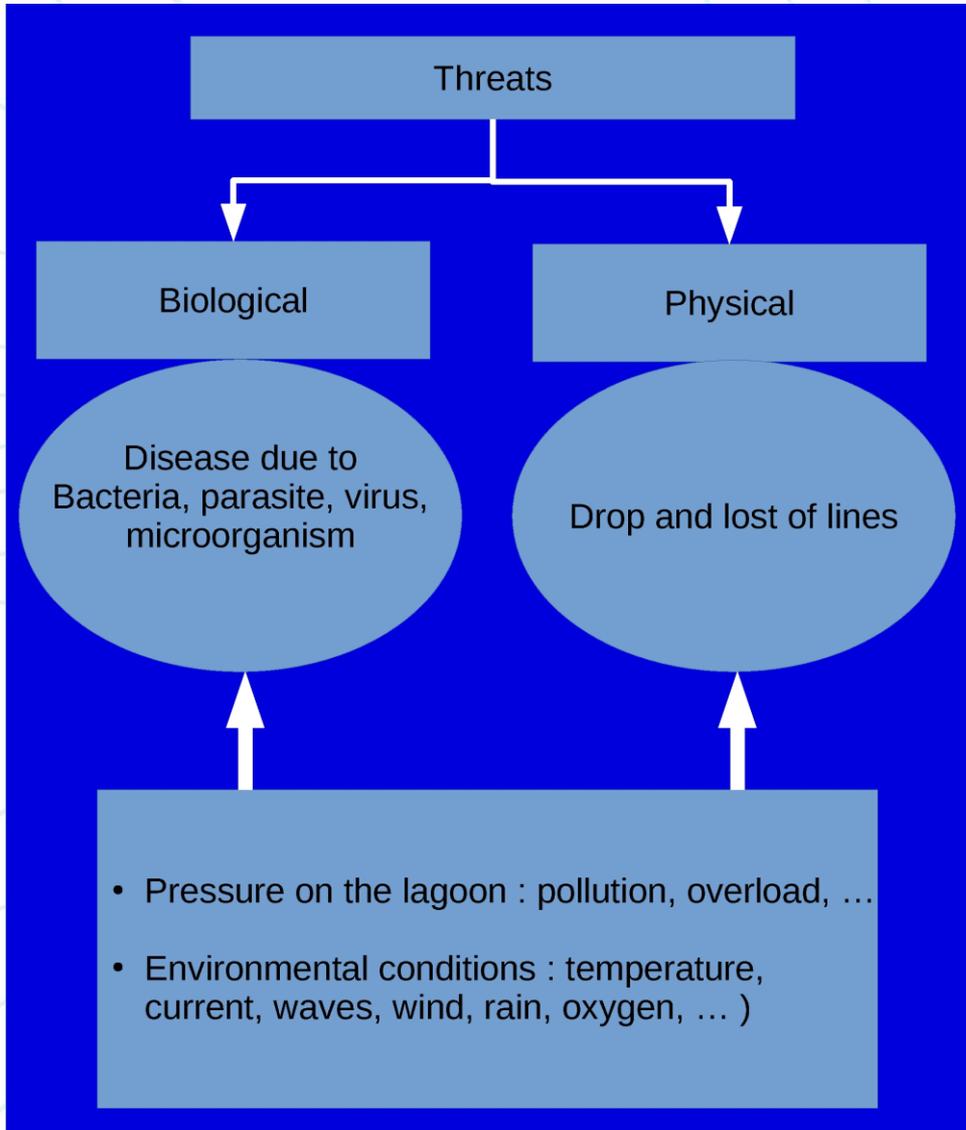
	Pearl	Jewelry work	Mother of pearl
Weight (t)	13	0.3	1983
Value (million \$US)	71	1.2	2.2

Pearl oyster spat collector and harvesting area

- 27 islands : 4 high islands and 21 atolls
- Area exploited 90 km² (total lagoon area : 7000 km²)
- 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

