

Facing climate challenges in coastal areas: the evolving nature of acceptability of adaptation.

The case study of a French subarctic archipelago.

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Research Context

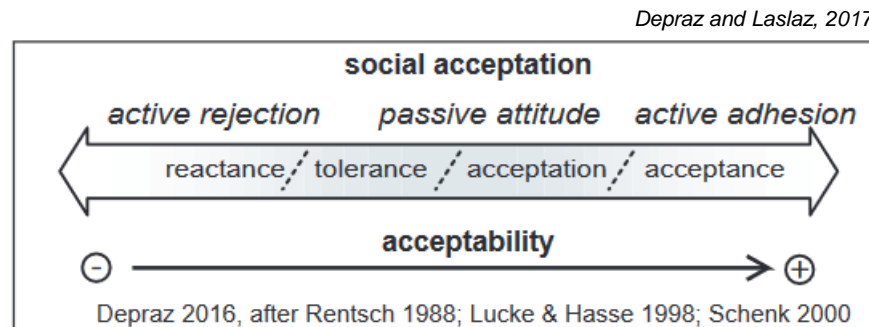
- Increasing coastal risks due to climate change
- Cascading effects, varying levels of vulnerability



Adaptation is needed but faces numerous challenges

Social acceptability of adaptation is one of the issue

Acceptability : process during which a social group admits the existence of restrictions or modifications in its environment (Fournis and Fortin, 2015)

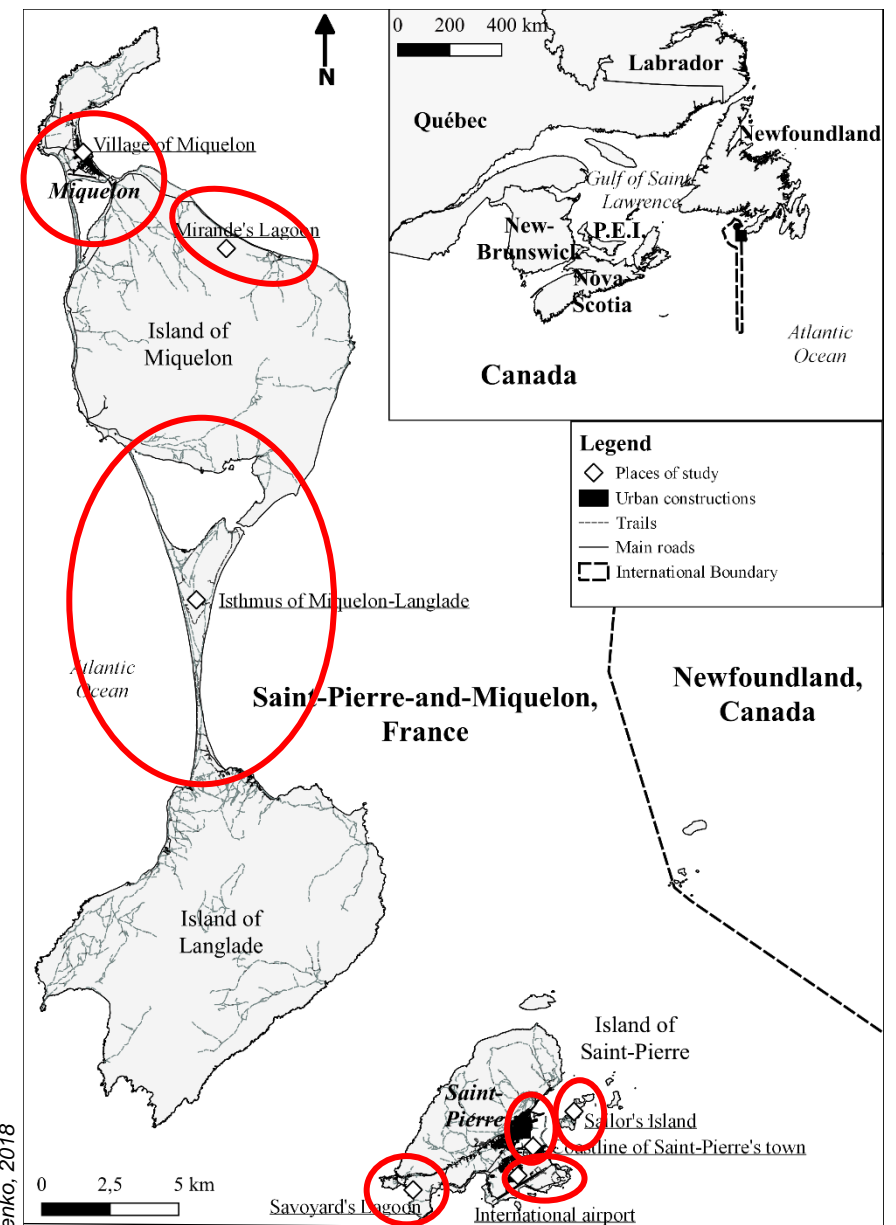


→ this study present four dimensions of acceptability for a better management of adaptation



Place of study : Saint-Pierre-and-Miquelon

- ❑ 242 km² - 4 269 km of Paris - 25 km of Newfoundland
- ❑ 6 294 inhabitants = 25 hab/km²
- ❑ 240 m (highest point) – 28% of accumulation coastline
- ❑ Coastal risks worsened by climate change
- ❑ Seven local sites of study: on the map



Submersion



DTAM

Erosion



Xénia Philippenko, 2021

Sea-level rise



2018

Xénia Philippenko, 2018

Methods

Doctoral research with various methods:

- structured questionnaire : online and face-to-face, 289 people
- 13 focus groups from 3 to 15 people
- Interviews : ~60 people
- Observation and informal discussion



Recherches pour une terre durable **brgm** **CNRS** **LGP** **UNIVERSITÉ PARIS 5 PANTHÉON SORBONNE** SPM Changement climatique

Vécu et expérience des risques naturels

29. Avez-vous déjà vu la mer entrer dans la ville/village au cours de votre vie ?

- Oui Non

36. Avez-vous déjà vu des lieux qui sont touchés par l'érosion ici à Saint-Pierre-et-Miquelon ?

- Oui Non

40. Avez-vous déjà vécu une ou plusieurs tempêtes au cours de votre vie, ici à Saint-Pierre-et-Miquelon ?

- Oui, beaucoup Oui, un peu Non

48. Pensez-vous que le phénomène d'élévation de la mer touche déjà Saint-Pierre-et-Miquelon ?

- Oui Non Je ne sais pas

← Précédent

Suivant →



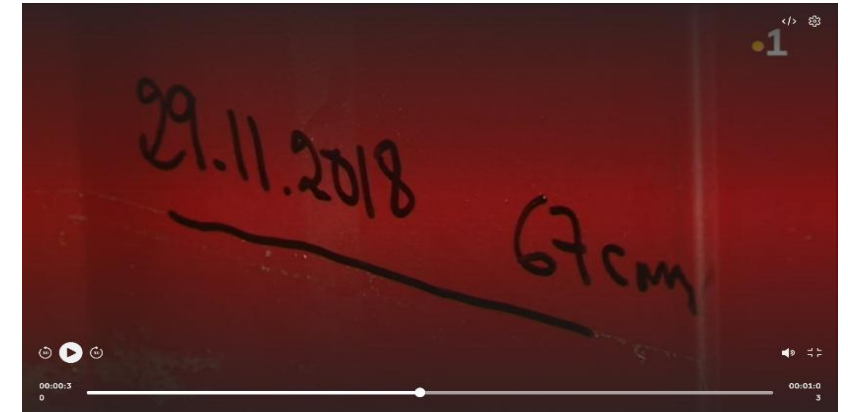
Psycho-social dimension

Psycho-social dimension

- Better educated people = Better acceptance of restrictive solutions
- Personal experience of coastal risks = influences acceptability of solutions
- Strong attachment to the territory = barrier to adaptation → except Miquelon

more details in Philippenko *and al.*, 2021 -
10.1016/j.ocecoaman.2021.105924

Miquelon – The role of experience and attachment



Source: France TV report on the damage caused by the storm of 28 November 2018.

2 storms in November 2018:

- impact on householders minds,
- climate change's effects more tangible

Strong attachment to the village :

- At first, causes rejection of relocation
- After the storm, attachment leads to proactive attitude

Spatial dimension

Spatial dimension

- soft solutions are better accepted in recreational areas

Isthmus of Miquelon-Langlade:

Vegetation = 45%
Disappearance = 37%
Rockfills = 29%

Île-aux-Marins:

Abandon = 28%
Rockfills = 27%

- hard solutions are preferred where stakes and risks are high

Saint-Pierre's coastline:

Enhance seawalls = 41%
Enhance houses, walls, docks = 25%
Relocate = 20%

Airport:

Rockfills = 32%
Enhance airport = 25%

Miquelon – a village surrounded by water

Village located on an isthmus,
surrounded by water → Greater exposure



Source: Xénia Philippenko, 2018.

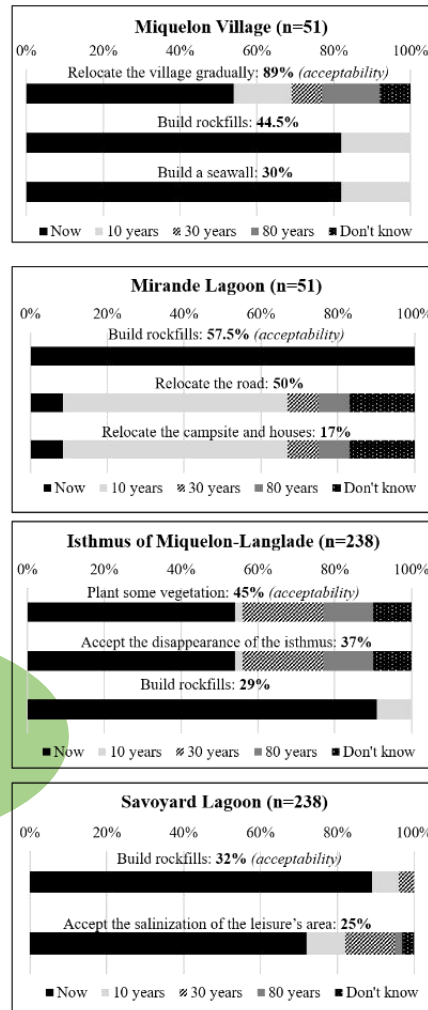
No solution but relocation, due to spatial constraints
→ influences the acceptability

Acceptability:

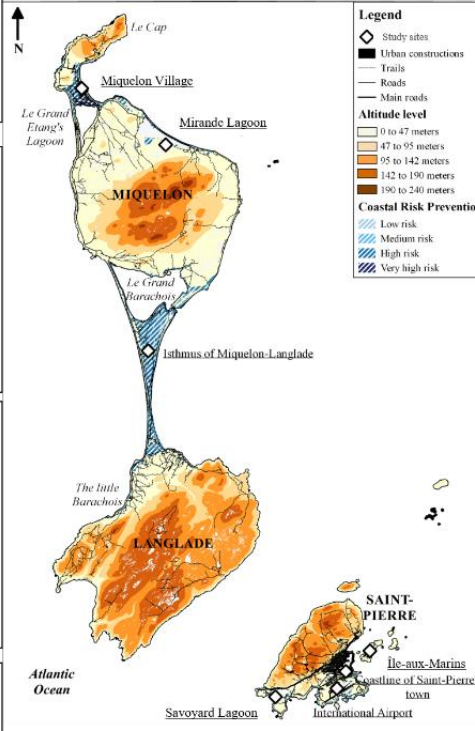
Relocation = 89%
Rockfills = 44%
Seawalls = 30%

Temporal dimension

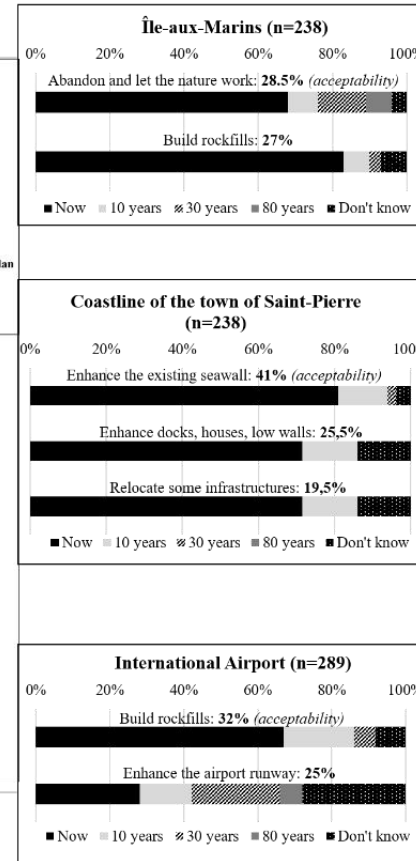
Temporal dimension



Source: Philippenko et al., 2021.



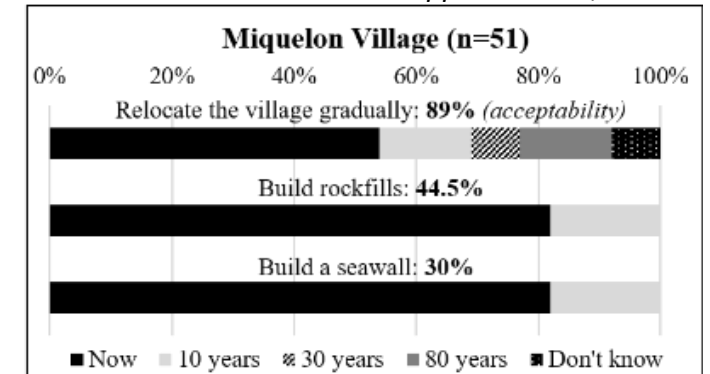
Data: IGN, DIAM, BRGM. Realisation: Xenia Philippenko



Miquelon

- 1) Acceptability evolved through time : active rejection, passive acceptance, active adhesion
- 2) Managed retreat is **better accepted if gradually implemented**

Source: Philippenko et al., 2021.



short term = a desired time scale for both nature-based solutions and hard protections.

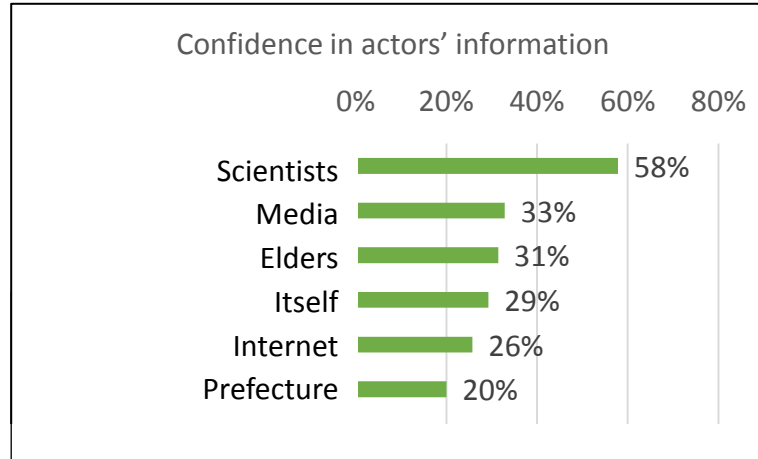
Socio-political dimension



- Adaptation process

Verbatim
“Meetings today are useless. It's consultation, not participation. We want a stronger involvement of population”

- Information



- Stakeholders and governance



Miquelon – the importance of the governance context

- A complex institutional context, but **cooperation** between stakeholders
- **Leading role** of the village's mayor
- **Participation of population** through workshops, surveys, etc



Source: Xénia Philippenko, 2021.

→ A **positive dynamic** to be consolidated: the relocation is seen as a territorial project

Conclusion : acceptability as a challenge in SPM for coastal resilience

1. Acceptability is **constantly evolving** depending on

:

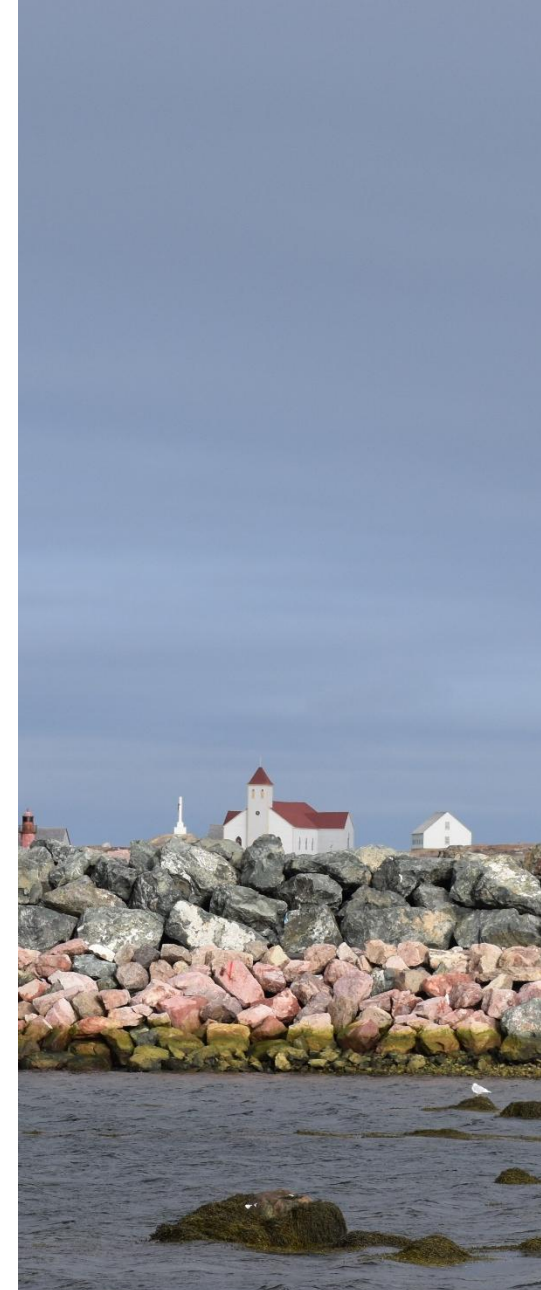
- ✓ Individual context
- ✓ Space
- ✓ Time
- ✓ Governance context

→ Difficulty for managers of Saint-Pierre-and-Miquelon to integrate these elements in their strategies

2. It may either represents a **barrier** to adaptation (rockfills – isthmus of Miquelon-Langlade) or offers **opportunities** to strengthen the resilience of local societies (relocation - village of Miquelon)

Miquelon – towards managed retreat

- Philippenko and al., 2021. Perceptions of climate change and adaptation: A subarctic archipelago perspective (Saint-Pierre-and-Miquelon, North America), *Ocean and Coastal Management*, 215-105924 - 10.1016/j.ocecoaman.2021.105924
- <https://theconversation.com/que-faire-face-a-la-montee-du-niveau-de-la-mer-lexemple-de-miquelon-village-en-cours-de-deplacement-177786>



Thank you for your attention.
Merci de votre attention.

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