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No Sea, no Flood Risk: How Importance Granted to the Sea Influences Flood Risk Perception in the particular case of the Guadeloupe Island, Caribbean Sea

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1
2 **No Sea, no Flood Risk:**

3 **How Importance Granted to the Sea Influences Flood Risk Perception**
4 **in the particular case of the Guadeloupe Island, Caribbean Sea**
5

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8

9 **Abstract:** This article focuses on the importance of the coastal dimension of the living area,
10 assuming that even if individuals have a risk culture, flooding by the sea is not always considered as
11 a risk. Starting from the premise that, even if they have a risk culture, not everyone on the coastline
12 considers his/her living area as a coastal one, we expect that those who do will more easily talk
13 about flood risk perception on it. Indeed, through interviews analysis made in Guadeloupe Island in
14 the Caribbean Sea, we highlighted the fact that having a risk culture is not enough for perceiving
15 flood risk. If respondents have actually a risk culture, most of them don't consider flooding
16 phenomenon as a real risk. It is not a priority for them. We demonstrate here that flood risk
17 perception requires to perceive the coastal dimension of the living area, which is not the case of the
18 most part of respondents. Those who perceive it are those with activities directly linked with the
19 sea. They consider the sea as a part of their living area and not only its delimitation. Therefore, in
20 areas where the sea is too current for being visible, risk culture is not focused on the sea except for
21 people with activities linked with it.
22

23 **Key words:** risk perception, relation to the sea, identity, risk culture, qualitative study
24

25 **Introduction**

26 Caribbean tourism has really grown since only few decades (Wong, 2015). Hence uninhabited
27 coastal areas are building up to answer this growing pressure. This anthropisation on coastal areas
28 considerably increases stakes on such places exposed to natural hazards relating to the presence of
29 the sea. During a long time, managers tried to contain hazards seeking to fix the coastline.
30 Considered as safe, even places the nearest to the sea has been urbanized. Protecting works can
31 eventually reduce coastal hazards consequences. But, at the same time, urbanization increases

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32 stakes on concerned areas more and more exposed to the sea because of the rising sea level (Church
33 and White, 2006) and the increase of storms' frequency (Meur-Ferec, 2006; Miossec, 1998). The
34 importance of humans and properties exposed to coastal hazards has never been so important.
35 Coastal areas have never been so vulnerable, so risky.

36

37 *Flood risk perception*

38 Risk is a subjective construction about damages probability of occurrence (Terpstra, Gutteling,
39 Geldof, & Kappe, 2006). Here we are interested in the specific risk of flooding by the sea on coastal
40 areas and most especially in how risky is the situation according to concerned people (Lopez-
41 Vazquez and Marvan, 2003; Lupton, 1999). In other words, we are interested in how they perceive
42 flood risk (Chauvin, 2014; Slovic, 1987): how dangerous such phenomenon could be, according to
43 individuals exposed to it. To perceive flood risk or not, depends on a wide range of elements. In
44 particular it depends on what constitutes a risk to individuals. In this way it depends on their risk
45 culture. Furthermore risk perception depends on the importance granted to potentially risky factors
46 in the way an area is perceived.

47

48 *Risk culture and flood risk perception*

49 For a part, risk perception is influenced by cultural markers that allows to indicate what is a risk and
50 what is not for individuals in concerned area. It evolves according to the risky dimension granted by
51 people and community to phenomena. We can talk about “risk culture” when the concerned
52 population agreed to consider some phenomena existence in its living area as risks (Castro and
53 Batel, 2007; Douglas and Wildavsky, 2010; González-Riancho et al., 2017; Pidgeon et al., 2003).
54 However, each culture does not consider the same phenomena as the risky ones (Adams, 2013). It
55 depends on the importance granted by individuals to each potentially risky phenomenon they are
56 exposed to, and how they assess the seriousness and the occurrence probability of these phenomena
57 on the concerned area.

58

59 *Living area perception and risk*

60 With regards to the flood risk perception, previous research highlighted the influence of distance to
61 the sea on it. The most people consider they live near the sea, the more they consider their living
62 area as exposed to flooding phenomenon. (Afanador Franco et al., 2006; Lopez Vazquez et al.,
63 2008; Michel-Guillou et al., 2016; O’Neill et al., 2016; Yang Zhang et al., 2010). To a lesser extent,
64 the importance of the coastal dimension of the living area has also been approached. In a
65 quantitative survey, researchers have shown that the more individuals considered their living area as

66 terrestrial rather than coastal, the less they considered the existence of coastal phenomena such as
67 marine erosion/flooding by the sea (N. Krien & Michel-Guillou, 2015). Thus, floods by sea
68 perception seems to be correlated with the importance of the coastal dimension of living area.
69 Beyond the dichotomy coastal/terrestrial of living area, the importance granted to the sea by
70 individuals (to identify that particular space as their personal use of it) influences the importance
71 granted to every element associate with the sea, including flooding phenomenon.

72

73 *Aims of the study*

74 According to research regarding the relation between risk culture and flood risk perception, the
75 more some phenomenon can have disastrous consequences and the more frequently it can happen,
76 the more it should be considered as a risky one. It has already been acknowledged that previous
77 experiences of the phenomenon can considerably influence risk perception (Barnett and Breakwell,
78 2001; Ohman, 2017; Sun and Han, 2018). According to this, we can suppose that phenomena
79 considered as risky ones would be the most dangerous ones in the past and would have a great
80 probability of occurrence. Then, our first aim will be to determine if people living in a particular
81 coastal area exposed to flooding by the sea have a risk culture and, if it's the case, what they
82 consider as risks, and finally, if they consider flooding by the sea as a risk.

83 Furthermore, based on previous works about the links between living area perception and risk
84 perception, it seems that the more the people give importance to the coastal dimension of their
85 living area, the more they consider flooding by sea as an important phenomenon on this area (a
86 phenomenon they have to take into account and to deal with) and a risky one. But why some people
87 grant a great importance to the coastal dimension when some people don't? According to
88 Proshansky, Fabian, and Kaminoff (Proshansky et al., 1983), the meaning given to an area depends
89 on the identity of who has given it. Thus the more individuals give importance to the sea when they
90 describe themselves (as sea or coastal people), the more they should give importance to the coastal
91 dimension of their living area description and so the more they should give some credit and some
92 importance to the existence of flood risk in this area. Our second aim will be to determine if
93 everyone on the coastline considers his/her living area as a coastal one. We expect that if some
94 don't, those who do will describe their living area mentioning the coast and/or reporting activities
95 related to the sea, and they will more consider flood by the sea on this area as important and risky
96 phenomenon. Such findings would demonstrate the existence of different profiles of individuals
97 exposed to the risk of flooding by the sea, depending on the relationship they maintain with the
98 coastal dimension of their living environment. This would highlight a new vulnerability factor.

99

100

101 To perceive flooding by sea as a risk involves first to be in a place where such phenomenon could
102 be relevant. That means to be in a place potentially exposed to such phenomenon. That's why we
103 decided to locate this study on coastal areas considered by scientists as exposed to flooding by the
104 sea. In some coastal spaces most people attach great importance to the coastal dimension of their
105 living area (Michel-Guillou et al., 2016). In such places it could be difficult to verify our second
106 assumption. But it might not be the case everywhere. Identity is built through similarities and
107 differences (Kuhn and McPartland, 1954). For people living in a place where sea is everywhere,
108 like in a small Island, everyone in their direct environment lives "near the sea". In this context we
109 expect that people will give less consideration to the coastal dimension of their living area,
110 especially those who have never left this place.

111

112 **Method**

113 *Participants*

114 For our survey, we had an interest in a place surrounded by the sea: the Guadeloupe Island named
115 "Grande-Terre" (Caribbean Sea). It is only 586 km² in circumference. This place is often exposed to
116 hurricanes and affected by floods (Krien et al., 2015; Zahibo et al., 2007). Furthermore, in 2013,
117 agriculture, marine and fishing sectors represented 5% of the guadeloupean employment (INSEE⁴),
118 which is very low for a coastal area. Because of the volcanic island topography, most important
119 cities are on the coastline. We focused on two particular municipalities considered by scientists as
120 exposed to flood risk (according to historical and cartographic data about flood risk): Pointe à Pitre
121 and Sainte Anne. On the one hand Pointe à Pitre consists in the economic center of the island, it is
122 built in the very south-west of Grande-Terre at the mouth of the Rivière Salée. It is built for a part
123 on a polder and includes many building and social housing. In the other hand, Sainte Anne consists
124 in a touristic area in the south coast of Grande-Terre. It includes mostly single-storey houses or with
125 one floor. In this municipality activities focuses mainly on the down-town beach or near it.

126

127 *Material*

128 To verify our assumptions, we decided to explore the people's point of view with a qualitative
129 approach. So we established an individual interview guide covering several themes: where they
130 lived in the past, description of their actual home, of their actual neighborhood and municipality of

4 <https://www.insee.fr/fr/statistiques/3294491?sommaire=3294516&q=Activit%C3%A9%20Guadeloupe>

131 residence (general aspects, the advantages and disadvantages), activities practised on the
132 municipality and the risk perception of flooding by the sea.

133

134 *Procedure*

135 Using our interview guide, we conducted semi-structured interviews with people living in the
136 municipality of Pointe à Pitre and Sainte Anne during the spring 2017. In Pointe à Pitre 14
137 interviews were conducted (these were 3 women and 11 men, with an average age of 50 years). In
138 Sainte Anne 16 interviews were conducted (these were 7 women and 9 men, with an average age of
139 61 years). All in all, we met 30 people for an average duration of 40 minutes.

140

141 *Data analysis*

142 Those interviews were recorded and transcribed literally. Transcriptions were then submitted to a
143 manual analysis through a single category matrix. This matrix was built from the themes developed
144 during the interviews. To meet our expectations particular attention has been drawn to three
145 elements: 1/risks mentioned by people (what are these), 2/the coastal dimension of the living area
146 (if this spontaneously mentioned the area or activities related to the sea), and 3/flooding by sea
147 phenomena on the living area (is it considered as a possibility and as a risk or not). Then all
148 speeches were fragmented and classified according to that matrix, finally they were analysed in
149 order to answer our objectives and comparisons were made between interviews⁵. In this article all
150 speeches, in French, were translated in English⁶.

151

152 **Results**

153 *Risk culture on studied place*

154 When people describe their living area, in Sainte Anne as in Pointe à Pitre, several phenomena are
155 spontaneously mentioned, presented as dangerous and described as such. They are then associated
156 with some dramatic experiences. The most mentioned phenomena are the cyclones. In Guadeloupe,
157 special importance is given to the cyclone Hugo which happened in 1989: “ I saw cyclone Hugo,
158 you can't do anything against that! You can't do anything ” (E.19), often associated with the wind:
159 “ Even in buildings there are people they hid in their bathtub! It remained that... the roof left, there
160 only remained the bathroom. ” (E.27), and with the rains:

5 Made by Nathalie Krien

6 Made by Nathalie Krien

161 A few years ago, in 2011, (...) It had rained, it had rained ! So she asked her husband and
162 brother-in-law to come and get them (...). The husband and brother-in-law went to get the lady
163 but the lady wanted her car back and the water was so high they all drowned. (E.21).

164 Reference is also made to coastal erosion:

165 I used to go to the beach of Sainte Anne when I was young, to park I could walk on ten meters
166 of sand before having access to water. Now I'm parking just two meters of sand, I'm already in
167 the water. (E.06),

168 to the earthquake: “ ...I estimate 100,000 victims. And if it's night, half of the population is down. ”

169 (E.16), or insecurity: “ Difficult life. Very difficult life. (...) Difficult and dangerous: lack of
170 education, lack of many things. It's a world of survival. ” (E.05). There seems therefore to be a
171 certain culture of risk in Guadeloupe that concerns phenomena that have already caused human
172 losses in the past such as wind during cyclones, heavy rains, earthquakes and insecurity, or
173 phenomena whose damage remains visible and continues as is the case for beach erosion.

174 With regard to flooding by the sea, if everyone is talking about it, the subject seems more induced
175 by our questions than spontaneously mentioned by the interviewees. Some report having
176 experienced a similar phenomenon, but it is only associated with material damage: “ Boats were
177 found in Victory Place during the cyclone. ” (E.11). There is never any question of human losses
178 linked with this phenomenon. When asked about the existence of a risk of flooding by the sea, most
179 individuals express doubt:

180 Honestly, I never thought about that. Then... it never occurred to me. Honestly, I don't know.

181 That depends. Now I'm not a mind reader, so... Ah, frankly, I... it never occurred to me. But
182 then you never know, with nature. (E.01),

183 Or a total rejection of this idea: “ The water will drain. But there won't be a water surge. (...) No, we
184 don't have that risk there. Guadeloupe is a blessed country. ” (E.07).

185 The only allusion to a human drama associated with flooding by the sea is through the reference to
186 the tsunami. The speeches then show that this phenomenon is considered as the ultimate danger,
187 almost fantasized: “ Because for me personally, the day when there will be a tsunami in
188 Guadeloupe, Guadeloupe will no longer exist. ” (E.06). However, if some believe that this could
189 happen, then they are more fatalistic than concerned:

190 We have that in our heads, but we don't think about that. I make my life! We're done to die.

191 We're done to live and die. Well, I live my life. Maybe I'll see this and maybe I won't see this.

192 I don't know, I don't know. That's it. Only the good Lord knows that. Anything is possible! We
193 don't know. We don't decide either, we don't know. It's God's decision. When I say God, it's...

194 how to say... it can happen. We don't know that. (E08)

195 Others even consider that this risk is inconceivable: “ No because it is really, it will really be, let say
196 an accident, if you will. Yes, not only exceptional but that will leave no trace behind. ” (E.16). Thus,
197 even if there does seem to be a culture of risk in Guadeloupe, the phenomena considered as risky
198 are those which have already, in the past, led to serious consequences (human losses), lasting
199 consequences (disappearance of the beach) and with a high probability of occurrence. Flooding by
200 the sea, on the other hand, has not yet had such serious repercussions. To date, it has not resulted in
201 any loss of life and the water has always ended up being evacuated. This phenomenon is therefore
202 not considered as a risk for most of the interviewees, except in its extreme version: the tsunami.
203 Nevertheless some people consider flooding by the sea as a phenomenon likely to happen in their
204 living area, but few consider it as a risk, except in its most extreme and therefore most dangerous
205 form. But similar phenomenon having never been lived yet by the population of Guadeloupe, it
206 remains hardly conceivable.

207

208 *The key role of living area's coastal dimension on flood risk perception*

209 These results demonstrate, once again, the link between the experience of a dramatic phenomenon
210 and the perception of this phenomenon as a risky one. With regard to the flooding by the sea on
211 Pointe à Pitre and Sainte Anne, only a few are considering it. Those who are considering it less as a
212 risk than as a fate to which they have to resign to live with when you live by the sea: “ So whether I
213 like it or not I am often enough exposed since across the street it is the sea. ” (E.06). When we
214 compare these speeches with the relationship of individuals to the sea, we see that those who
215 consider flooding by the sea attach a certain importance to the coastal dimension of their living
216 area: “ Because I like it, I like living by the sea. ” (E.28). When these individuals describe their
217 living area they spontaneously refer to its coastal dimension: “ Well, Sainte Anne, compared to
218 other municipalities that I know, it is that we have a beach that is really, that is really in the town. it
219 is the only municipality that I know that is like this. ”(E.29), or to activities linking them to the
220 coast and the sea: “ We're a family of sailors. It means that we live the sea. The sea is our everyday
221 activity. It is... today not working on the coastline, for me it's something that... unthinkable. ”
222 (E.13). Some of these people are fishermen or ship-owners. Otherwise, they are people who have
223 lived, in the past, far from the sea, on the continent, and who have come, among other things, to
224 enjoy the coastal advantages of this new living area (swimming, beach, surfing, etc.). Nevertheless,
225 in most of our interviews, very little reference is made to the coastal dimension of the municipalities
226 studied. Those who speak least about it are people who have always lived on the island and whose
227 work is not directly related to the sea. Among them, some even declare openly: “ We don't even use
228 it [The sea], we don't even realize it. She's here, but given the fact that she's so close we don't care. ”

229 (E.01). What is then highlighted in particular with regard to the advantages of their living area is the
230 proximity of services: “ It is a city where... really organized, where you can find everything. We
231 have everything carried by hand. ” (E.02), attachment to the living area: “ I like it here. I liked it
232 here at home. It's where I was born, where I grew up. ” (E.30), or human relations: “ The
233 advantages are that there is conviviality. That means people have an approach that means we live in
234 a community, in solidarity. And that there is mutual aid, there is listening, there is proximity. ”
235 (E.07). When it comes to the disadvantages, in addition to the dangers, the people interviewed talk
236 mainly about the unhealthy: “ The disadvantages are that there is no lift and I have trouble getting
237 around so it's not easy and for my husband either. And then there's no hot water. ” (E.03), or traffic
238 problems: “ Traffic problems in Sainte Anne, it blocks every day! Morning and night! ” (E.18). The
239 sea seems to be a secondary element of the environment for most respondents, especially those who
240 have always lived by the sea and who do not have a job directly related to this element. Many of
241 them don't even go swimming: “ When you're in Guadeloupe, that's it. We don't even care about the
242 sea. Because we're not even going swimming! We're not going swimming! No. Even going to the
243 beaches, we're not going at all. ” (E.09). Among those who go, many do not know how to swim:
244 “ It's not in the culture of the locals that... they'll teach their children to float and be in the water,
245 yes. Swim, swim 10 feet, no. No, no, it's rare. It's very rare. ” (E.06). With regard to flooding by the
246 sea, these people do not allude to it and, when asked, do not see it as a risk:

247 The water will not rise ! it is that the water will take over, which means that there will be a
248 flush, the water will go down, the water will circulate. But the water will be drained. She'll
249 evacuate. Because it's good soil. The water will drain. But there won't be a water surge. Who
250 means so that people can swim in the water, there is no dog, there is no cat, there is no beef,
251 there is no pig that will drown. No, we don't have that risk right now. Guadeloupe is a blessed
252 country. (E.07).

253 Thus flooding by the sea is only considered by people who attach a certain importance to the coastal
254 dimension of their living area in the way they conceive and use it.

255

256 **Discussion**

257 Our first objective concerned risk culture. We assumed that if there is a risk culture on our land, it
258 does not necessarily imply that the phenomenon of flooding by the sea is considered a risky one by
259 the people. Considering the results, it seems that even if the term "risk" seems to be used only to
260 echo the interviewers or the discourse of scientists, there does exist a culture of risk in Guadeloupe
261 (Castro and Batel, 2007). This is based in particular on experiences of past phenomena (Kellens et
262 al., 2013; van der Linden, 2014). Indeed phenomena such as cyclones and their violent winds,

263 heavy rains, earthquakes or even insecurity refer to the idea of human losses and are spontaneously
264 associated with the idea of potential threat and therefore risk. However, this risk culture does not
265 concern flooding by the sea phenomenon. According to our results, it seems that, until then,
266 flooding by the sea have never caused human losses and have had little impact on the communes of
267 Pointe à Pitre and Sainte Anne. The sources of dangers envisaged are little, if any, associated with
268 the coastal dimension of the municipalities: they “ do not think about it ”. Thus, the phenomenon of
269 flooding by the sea is rarely mentioned spontaneously as a phenomenon existing on Pointe à Pitre
270 or Sainte Anne. When this is the case, the speeches are more anecdotal than about human drama.
271 Moreover, our second objective concerned the relationship between the perception of the coastal
272 dimension of the living area and the perception of the risk of flooding by the sea. The interviews
273 conducted in Pointe à Pitre and Sainte Anne highlighted the fact that the sea is rarely mentioned by
274 respondents to describe their living area. The few individuals who describe their living area as
275 coastal are those who work in contact with the sea or those who have already lived far from it. The
276 sea is thus considered as an integral part of their living environment and not as the limit of it. Thus
277 the populations of Pointe à Pitre and Sainte Anne are divided between those who are turned towards
278 the sea (whose living area integrates the coastal dimension of the municipality) and those who are
279 turned towards the land (whose living area does not integrate this coastal dimension). When it
280 comes to the risk of flooding by the sea, these two groups have quite distinct discourses. Individuals
281 facing the sea recognize it as a source of danger and consider themselves exposed to the
282 phenomenon of flooding by the sea. Nevertheless, they remain more fatalistic than concerned about
283 this. People facing the land, on the other hand, have the impression that a tsunami only would have
284 the strength to flood their living place. Then, flood by the sea is seen as possible according to some
285 people and highly improbable according to others, the tsunami being considered as an ultimate
286 catastrophe against which nothing can be done. Thus, the fact that living on the seashore does not
287 necessarily imply to imagine this space as a coastal one. But those for whom it is the case are more
288 inclined than others to consider the possibility of flooding by the sea on this space.
289 The relationship between men and their environment is both physical (“ objective ”) and social
290 (“ subjective ”) (Berger and Luckmann, 1966). How a space is described largely depends on who
291 describes it (Breakwell, 2001; Stedman, 2002). Identity is constructed through social relationships
292 and social comparison: by similarization and differentiation (Kuhn and McPartland, 1954). But it is
293 also elaborated through the relationship maintained by individuals with their living environment
294 (lived, uses, etc.) (Hauge, 2007; Proshansky et al., 1983).

295 Let us recall that our sample comes from a population mainly made up of islanders all living not far
296 from the sea and having, for some of them, never lived elsewhere than in Guadeloupe. On this small

297 island of Grande-Terre very far from the French-speaking continent, important cities are all coastal.
298 Thus those who reside in those cities differentiate themselves primarily from those who reside in
299 the countryside. Even though our study areas are seaside municipalities, most of the people build
300 their identity around this “ urban ”/“ rural ” comparison. They attach little importance to the coastal
301 dimension of their living area in the way they describe it. They put more emphasis on its urban
302 dimension. Only few identify themselves as living by the sea and even fewer describe themselves as
303 “ living the sea ” (E.13). This expression is only relevant in opposition to those who do not integrate
304 the sea into their lives. But for people who live on a space where the sea is everywhere, nobody is
305 really far from it. Hence the coastal dimension concerns everyone at first sight. In this context, the
306 coastal dimension of the living environment is only highlighted by professionals specializing in
307 activities directly linked to the sea. Among the others, many do not even use the sea, not even to
308 swim: “ It's not in the culture of the locals. ” (E.06).

309 Indeed, if there is a risk culture in Guadeloupe, it does not concern the sea because, for most
310 individuals, the coastal dimension of the living environment is too present to be visible. This
311 element no longer makes sense in the way individuals compare their environment to that of others
312 and, by extension, in the way they compare themselves to others. When we look more closely at the
313 question of the phenomenon of flooding by the sea, the same observation comes back. In most
314 interviews this topic is only developed after the interviewer has guided the discussion on this topic.
315 Even then, for most of the people interviewed, the idea of flood risk from the sea does not make
316 sense. However, there seems to be a difference in the way in which individuals who lives in these
317 coastal areas perceive their living environment as at risk of flooding by the sea or not. In particular,
318 this is due to the fact that the use that is made of this space is not the same for everyone, so the way
319 of understanding it is not the same. Those who make use of the coastal dimension of their living
320 area are more inclined than others to attach some importance to this dimension in the way they
321 describe this space and themselves. They are also more inclined to recognize the advantages and
322 disadvantages associated with this dimension and thus to recognize the existence of the risk of
323 flooding by the sea. Nevertheless, past experience also plays an important role in risk perception. So
324 far, floods by the sea have only caused material damages, while other phenomena have caused
325 human losses. Thus, if the importance given to the sea makes possible to perceive the risk of
326 flooding by the sea, the importance given to this risk will depend essentially on the assessment of
327 its potential gravity in comparison with the other risks envisaged.

328 To conclude, these results allow us to identify two profiles of individuals living in Guadeloupe in
329 areas considered by scientists to be at risk of flooding by the sea: the individuals we will describe as
330 “ facing the sea ” and those “ back to the sea ”. Back to sea individuals represent the majority of the

331 population. For them the sea is not included in the delimitation of their living environment. By
332 extension, the associated dangers are not included in their living environment either. Flooding by
333 the sea does not make sense as a phenomenon likely to impact their environment because it has no
334 place there. Individuals turned towards the sea, for their part, attach great importance to the coastal
335 dimension of the island, they integrate the sea into the delimitation of their living space. At the same
336 time, they recognize the dangers of the sea, including flooding, but seem to accept them in
337 sometimes fatalistic ways.

338 This distinction between individuals facing the sea Vs. individuals back to the sea explains, in part,
339 why so many individuals in Guadeloupe, exposed to flooding by the sea according to scientists do
340 not even consider the occurrence of this phenomenon in their living area. It also demonstrates the
341 importance granted to the coastal dimension of an area for the recognition of the latter's exposure to
342 the phenomenon of flooding by the sea. Thus, in these areas if we wish to assess the vulnerability of
343 populations to flooding by the sea or if we want to understand why individuals continue to live in
344 areas exposed to flooding by the sea and if we want to adapt policies and prevention campaigns to
345 the populations to whom they are addressed, the relationship to the sea is therefore a factor that
346 must be taken into account by the authorities in charge of risk management.

347

348 **Bibliography**

- 1 Adams, J., 2013. Risk Compensation in Cities at Risk, in: Joffe, H., Rossetto, T., Adams, J. (Eds.),
Cities at Risk. Springer Netherlands, Dordrecht, pp. 25–44. https://doi.org/10.1007/978-94-007-6184-1_3
- 2 Afanador Franco, F., Torres Parra, R.R., Gomez Lopez, J.C., Gutierrez Briceno, J.C., 2006. Lidar
y fotografía aérea digital en la determinación del impacto del aumento en el nivel medio del
mar en el sector de “La Boquilla”, Cartagena de Indias; Caribe Colombiano. Boletín Cient. -
CIOH 94–106.
- 3 Barnett, J., Breakwell, G.M., 2001. Risk Perception and Experience: Hazard Personality Profiles
and Individual Differences. *Risk Anal.* 21, 171–178. <https://doi.org/10.1111/0272-4332.211099>
- 4 Berger, P.L., Luckmann, T., 1966. The social construction of reality. Penguins Books, New York.
- 5 Breakwell, G.M., 2001. Mental models and social representations of hazards: the significance of
identity processes. *J. Risk Res.* 4, 341–351. <https://doi.org/10.1080/13669870110062730>
- 6 Castro, P., Batel, S., 2007. Redesigning Nature and Managing Risk: Social representation, change
and resistance [WWW Document]. M Tolman Soliman Abdel-Hadi Ed. *Environ. Health
Sustain. Dev.* 2007. URL <https://www.escholar.manchester.ac.uk/uk-ac-man-scw:3b3041>
(accessed 4.26.16).
- 7 Chauvin, B., 2014. La perception des risques apports de la psychologie à l’identification des
déterminants du risque perçu. De Boeck Supérieur, Louvain-la-Neuve.
- 8 Church, J.A., White, N.J., 2006. A 20th century acceleration in global sea-level rise: AN
ACCELERATION IN GLOBAL SEA-LEVEL RISE. *Geophys. Res. Lett.* 33, n/a-n/a.
<https://doi.org/10.1029/2005GL024826>

- 9 Coppieters, Y., Parent, F., Lagasse, R., Piette, D., 2004. Évaluation des risques, une approche pluridisciplinaire en santé publique. *Environ. Risques Santé* 3, 45–52.
- 10 Douglas, M., Wildavsky, A., 2010. Risk and culture: an essay on the selection of technological and environmental dangers, 1. paperback printing, 1983, [Nachdr.]. ed. Univ. of California Press, Berkeley, Calif.
- 11 Flanquart, H., 2016. Des risques et des hommes. PUF, Paris.
- 12 González-Riancho, P., Gerkenmeier, B., Ratter, B.M.W., 2017. Storm surge resilience and the Sendai Framework: Risk perception, intention to prepare and enhanced collaboration along the German North Sea coast. *Ocean Coast. Manag.* 141, 118–131. <https://doi.org/10.1016/j.ocecoaman.2017.03.006>
- 13 Hauge, Å.L., 2007. Identity and Place: A Critical Comparison of Three Identity Theories¹. *Archit. Sci. Rev.* 50, 44–51. <https://doi.org/10.3763/asre.2007.5007>
- 14 Kellens, W., Terpstra, T., De Maeyer, P., 2013. Perception and Communication of Flood Risks: A Systematic Review of Empirical Research: **Perception and Communication of Flood Risks**. *Risk Anal.* 33, 24–49. <https://doi.org/10.1111/j.1539-6924.2012.01844.x>
- 15 Krien, N., Michel-Guillou, E., 2015. Relationships between representations of living areas and of coastal risks: explanation and mapping.
- 16 Krien, Y., Dudon, B., Roger, J., Zahibo, N., 2015. Probabilistic hurricane-induced storm surge hazard assessment in Guadeloupe, Lesser Antilles. *Nat. Hazards Earth Syst. Sci.* 15, 1711–1720. <https://doi.org/10.5194/nhess-15-1711-2015>
- 17 Kuhn, M.-H., McPartland, T., 1954. An empirical investigation in self-attitudes. *Am. Sociol. Rev.* 19, 68–76.
- 18 Lopez Vazquez, E., Marvan, M.L., Flores-Espino, F., Peyrefitte, A., 2008. Volcanic Risk Exposure, Feelings of Insecurity, Stress, and Coping Strategies in México ¹. *J. Appl. Soc. Psychol.* 38, 2885–2902. <https://doi.org/10.1111/j.1559-1816.2008.00417.x>
- 19 Lopez-Vazquez, E., Marvan, M.L., 2003. Risk perception, stress and coping strategies in two catastrophe risk situations. *Soc. Behav. Personal.* 31, 61–70.
- 20 Lupton, D., 1999. Risk and Sociocultural Theory: New Directions and Perspectives. Cambridge University Press.
- 21 Meur-Ferec, C., 2006. DE LA DYNAMIQUE NATURELLE À LA GESTION INTÉGRÉE DE L'ESPACE LITTORAL : UN ITINÉRAIRE DE GÉOGRAPHE. (Document présenté en vue de l'Habilitation à Diriger des Recherches). Université de Nantes, Nantes (France).
- 22 Michel-Guillou, E., Krien, N., Meur-Ferec, C., 2016. Inhabitants of coastal municipalities facing coastal risks: understanding the desire to stay. *Pap. Soc. Represent.* 25, 8.1-8.21.
- 23 Miossec, A., 1998. Les littoraux entre nature et aménagement: le plus de campus en un seul livre ..., 2e éd. ed, Campus géographie. Sedes, Saint-Just-la-Pendue.
- 24 Ohman, S., 2017. Previous Experiences and Risk Perception: The Role of Transference. *J. Educ. Soc. Behav. Sci.* 23, 1–10. <https://doi.org/10.9734/JESBS/2017/35101>
- 25 O'Neill, E., Brereton, F., Shahumyan, H., Clinch, J.P., 2016. The Impact of Perceived Flood Exposure on Flood-Risk Perception: The Role of Distance: Flood-Risk Perception: The Role of Distance. *Risk Anal.* 36, 2158–2186. <https://doi.org/10.1111/risa.12597>
- 26 Pidgeon, N.F., Kaspersen, R.E., Slovic, P. (Eds.), 2003. The social amplification of risk. Cambridge University Press, Cambridge ; New York.
- 27 Proshansky, H.M., Fabian, A.K., Kaminoff, R., 1983. Place-identity: Physical world socialization of the self. *J. Environ. Psychol.* 3, 57–83. [https://doi.org/10.1016/S0272-4944\(83\)80021-8](https://doi.org/10.1016/S0272-4944(83)80021-8)
- 28 Slovic, P., 1987. Perception of risk. *Science* 236, 280–285.

- 29 Stedman, R.C., 2002. Toward a Social Psychology of Place: Predicting Behavior from Place-Based Cognitions, Attitude, and Identity. *Environ. Behav.* 34, 561–581. <https://doi.org/10.1177/0013916502034005001>
- 30 Sun, Y., Han, Z., 2018. Climate Change Risk Perception in Taiwan: Correlation with Individual and Societal Factors. *Int. J. Environ. Res. Public Health* 15, 91. <https://doi.org/10.3390/ijerph15010091>
- 31 Terpstra, T., Gutteling, J.M., Geldof, G.D., Kappe, L.J., 2006. The perception of flood risk and water nuisance. *Water Sci. Technol.* 54, 431. <https://doi.org/10.2166/wst.2006.573>
- 32 van der Linden, S., 2014. On the relationship between personal experience, affect and risk perception: The case of climate change: Personal experience, affect and risk perception. *Eur. J. Soc. Psychol.* 44, 430–440. <https://doi.org/10.1002/ejsp.2008>
- 33 Wong, A., 2015. Caribbean Island Tourism: Pathway to Continued Colonial Servitude. *Études Caribéennes*. <https://doi.org/10.4000/etudescaribeennes.7524>
- 34 Yang Zhang, Seong Nam Hwang, Lindell, M.K., 2010. Hazard Proximity or Risk Perception? Evaluating Effects of Natural and Technological Hazards on Housing Values. *Environ. Behav.* 42, 597–624. <https://doi.org/10.1177/0013916509334564>
- 35 Zahibo, N., Pelinovsky, E., Talipova, T., Rabinovich, A., Kurkin, A., Nikolkina, I., 2007. Statistical analysis of cyclone hazard for Guadeloupe, Lesser Antilles. *Atmospheric Res.* 84, 13–29. <https://doi.org/10.1016/j.atmosres.2006.03.008>

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350