TITLE: Eating fish in the age of anthropogenic climate change: imaginaries and sociogenesis of representations of changes in fish quality

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Supplemental material 1. Demographic data and food profiles of the interviewees

Pseudonym	Age	Gender	Professional occupation	Location	Food diet*	Fish eater profile*
P1	41	Woman	Executive	Coast	Pesco-vegetarian	*Ecology/nutrient-oriented*
P2	22	Man	Student	Inland	Vegetarian	*Ecology-oriented*
P3	22	Woman	Student	Coast	Flexitarian	*Traditional/nutrient-oriented*
P4	22	Woman	Student	Inland	Vegetarian	*Ecology-oriented*
P5	51	Man	Executive	Inland	Omnivorous	*Traditional*
P6	78	Man	Retired	Coast	Omnivorous	*Traditional*
P7	21	Man	Student	Inland	Vegan	*Ecology-oriented*
P8	51	Woman	Executive	Inland	Flexitarian	*Ecology/nutrient-oriented*
P9	21	Woman	Student	Inland	Vegan	*Ecology-oriented*
P10	18	Woman	Student	Inland	Vegetarian	*Ecology-oriented*
P11	22	Woman	Student	Inland	Vegan	*Ecology-oriented*
P12	20	Woman	Student	Coast	Vegan	*Ecology-oriented*
P13	52	Man	Retired	Inland	Omnivorous	*Traditional/nutrient-oriented*
P14	26	Woman	Nonexecutive	Coast	Omnivorous	*Traditional*
P15	25	Woman	Nonexecutive	Coast	Flexitarian	*Traditional*
P16	25	Man	Nonexecutive	Coast	Pesco-vegetarian	*Ecology-oriented*
P17	56	Woman	Executive	Coast	Omnivorous	*Traditional*
P18	26	Man	Executive	Inland	Omnivorous	*Nutrient-oriented*
P19	59	Man	Executive	Inland	Pesco-vegetarian	*Traditional*
P20	22	Man	Student	Coast	Flexitarian	*Traditional*
P21	54	Man	Nonexecutive	Inland	Omnivorous	*Traditional*
P22	56	Woman	Nonexecutive	Inland	Pesco-vegetarian	*Nutrient-oriented*
P23	48	Woman	Nonexecutive	Inland	Omnivorous	*Ecology/nutrient-oriented*
P24	85	Man	Retired	Inland	Omnivorous	*Traditional*
P25	79	Woman	Retired	Inland	Omnivorous	*Traditional*
P26	46	Woman	Nonexecutive	Coast	Omnivorous	*Traditional*
P27	30	Woman	Nonexecutive	Coast	Omnivorous	*Traditional*
P28	55	Man	Executive	Inland	Omnivorous	*Traditional*
P29	50	Woman	Executive	Inland	Omnivorous	*Traditional*
P30	50	Woman	Nonexecutive	Coast	Omnivorous	*Traditional*
P31	41	Woman	Executive	Coast	Omnivorous	*Traditional*
P32	55	Man	Nonexecutive	Coast	Omnivorous	*Traditional*
P33	45	Woman	Executive	Coast	Flexitarian	*Traditional/nutrient-oriented*

Note: *The food diet and fish-related profile of each respondent were defined ex post through the interview analysis, notably food habits (the selected and avoided foods as declared by the respondent) and motives to consume – or not – fish in particular. As regards the fish eater profile, some respondents were clearly positioned as traditional, ecology-oriented or nutrient-oriented eaters, while the motives of others revealed two orientations (here represented by the '/' symbol).

Supplemental material 2. MARINE CHANGE IMAGINARIES: Additional supporting quotes from interviews

IMAGINARIES	QUOTES
ABIOTIC SEA ***(APOCALYPSE)***	*Unsuitability for excessively brutal warming and acidification of waters* 'I imagine that the fish will not have time to adapt to this temperature which will rise and it will become catastrophic, the species will be decimated' (P29). 'If our seas start to be acidic, we will never have any more fish because when it is acidic. No one likes it much anyway' (P27). *Theft (usurpation?) of fish food* 'Large trawlers with their fishing techniques send ultrasound to keep certain fish away. We keep them away from their pantry, we don't kill them but the consequences are the same since we steal their habitat. We are in competition with other mammals' (P16). 'These large, very abrasive fishing nets that will scrape the seabed, destroy the few corals we have left, and remove all the plankton, everything that is necessary for the maritime ecology. We are destroying everything that makes up life' (P1). *The undermining of reproduction* 'Not all fishermen necessarily respect the quotas, depending on the size of the fish. So this will endanger the reproduction of the parents. Like people who fish on foot and take everything they find without thinking about the reproduction of the species' (P27). 'The presence of plastic which degrades little by little, enters the flesh of the fish, and then we eat the fish, so we eat the plastic. I think it has an impact on fish reproduction' (P13). *Fish cancers* 'If fish can no longer eat the species they ate before, their food becomes poorer, and this inevitably has consequences for their offspring or themselves. And with pollution which causes genetic mutations, it happens over generations and generations, cancers, a bit like us in the end' (P20). *Dead water* 'In the ocean there are lots of things that make the earth work, the water that comes to the surface and goes into the trees, it creates oxygen, it's good for agriculture. If there are no more animals to maintain the proper functioning of the sea, it will only be water and it will no longer be of any use to us' (P4). 'I see the warming of water as an impoverishment, in terms of resources and quality. We lose fish, we lose plankton, we lose trace elements. The sea is dying like the earth' (P8).
DEREGULATED SEA ***(DISORDER)***	*The upheaval of food chains* 'With the increase in salinity, there are fewer fish, fewer plankton, and the entire food chain is impacted' (P8). 'The balance was previously regulated by natural predators, turtles, tuna, etc. Our tunas didn't eat physalis and now they feast on physalis' (P32). *Disturbances caused by chemical pollution* 'The release of chemicals from factories into waters or all the pollution from tourism has an impact. We see the bleaching of the coral, then it affects the fish, finally the entire food chain, all marine life' (P11). *Coast/high seas, surface/abyss imbalances* 'The reefs or seagrass beds that feed the fish are a whole system that is lost. As a fisherman, we see that there are fewer fish on the coast. You have to go further and further to fish' (P13). 'With overfishing, there are no more resources, no more small fish and therefore no more big ones later. You have to fish deeper and deeper because above they have already fished everything, because we don't give nature time to recover' (P5). *Opportunistic species* 'Man-made overfishing unbalances ecosystems. For example, if we overfish a species that ate another species, well, this other species is no longer regulated, it will no longer have predators, so it will proliferate. Things no longer regulate themselves' (P9). *The deregulations of a great whole*

	‘For me, it seems quite obvious that we are talking about a big whole, that everything is linked and that everything is interdependent. So if the temperature of the water changes, like the salinity, the quality of the water changes, the resources in the water change, and obviously it will have an impact on everything that lives in it. And the fish caught today are not in the same condition as the fish caught 100 or 200 years ago’ (P8). ‘“The sea” or “the ocean” are arbitrary concepts because it’s been a long time since there have been places where human beings have not been present. So there is a sort of co-construction of the sea between what we have done with it by exploiting it and what it even does, which is not a bad thing in itself. All animals also create an environment for themselves. But I think that the relationship between humans and the sea has reached a sort of breaking point, which is overexploitation, overfishing, for example’ (P2).
DUMP SEA ***(ANTHROPISATION)***	*Marine leisure activities* ‘The ocean is frankly degraded by oil ships and cruise ships everywhere. In the ports, it smells of fuel oil, there is no filter like we have on our diesel cars. So all the particles fall into the sea’ (P13). *The sea of plastic and waste* ‘When we see all the waste on the beaches when we walk, we imagine what is in the sea, what these poor animals must be able to ingest. Currently, we are talking about 400,000 tons of masks, we don’t really know where we will find that’ (P22). ‘At the seaside, there is waste of all kinds that the fish inevitably have to eat. We are also talking about places where there are vortices of waste, plastic, it’s a disaster. The sea is as much in danger as the rest of the planet’ (P22).
UNSPOILT SEA ***(SUSTAINABLE CONSUMPTION)***	*Respect natural balances by consuming less but better* ‘I think the idea is to only take what you need and not overconsume anything. Whether land or sea animals. Fish, meat, we don’t need all this quantity. And if you eat fish, and you don't eat the tail and the head, for example, well you reserve it for your cats, for your chickens, etc. Let it not be lost’ (P23). *Respect animals* ‘“Seafood”, “products”, that’s unwelcome. This is how the ideology; the hegemony of big capital created ‘seafood’. Well, all the animals that are in the sea, like all marine life, have a specificity, which means that we might not exploit them the way we would sell vacuum cleaners! A fish and a vacuum cleaner are not the same thing, and we cannot inevitably reduce costs to increase general consumption. We see the species disappearing’ (P2).
RESILIENT SEA ***(RESILIENCE)***	*Acclimatization of fish* ‘Rising water levels will change temperatures. The fish will be forced to adapt to survive changes in temperature and environment and change their diet which may also be adapted to their needs’ (P26). *Adaptation through great migrations* ‘With all these changes, fish breeding grounds need to change. So they will go to more welcoming areas to be able to reproduce, but perhaps have a greater risk of encountering predators’ (P31). ‘With the change in temperatures, either species will have time to get used to it, or they will migrate. If the waters warm up, cold sea species will inevitably be forced to migrate to different places. So it will change the migration systems, certain species will spread to other places, others will get used to it and change in terms of their texture. They will adapt, change their habits because they will have no choice’ (P23). ‘If the salinity changes, for example, I think there will still be an impact, but maybe the fish are not stupid. When there is an environment that is not good for them, they go elsewhere’ (P30).

Supplemental material 3. Representations of changes in fish quality by TRADITIONAL FISH EATERS: Additional supporting quotes from interviews

Note: Each line of the table gives quotes to highlight the anchoring mechanism described in Columns 1, 3 and 4, respectively, of Table 2 (inserted in the manuscript).

THEMATIC	QUOTES
1. Anchorage themes	*Light food vs. heavy food* 'If we compare it to red meat or pork, it seems healthier and lighter to me. If I'm very hungry I think I'll have a piece of meat more than a fish, which may be stupid but that's how it is for me' (P3). *Fish vs. meat: Absence of blood* "I prefer fish to meat, much by taste. (…) I'm not so comfortable with blood. Red meat, rare meat, isn't bad, but it's not my treat' (P24) *Healthy, tasteful and fresh* 'Farmed fish is not a very positive image. Having tasted farmed salmon and wild salmon, they don't taste the same at all. So I prefer to eat less fish and have great fish, fresh and tasty, know where it comes from, know if it was well caught, when it was caught rather than eating fish regularly and not paying attention. (P14). *Marine food opposed to meat/terrestrial food: Wildness, naturalness vs farming* 'The sardines are free, they go where they want, when they want. It's not like a cow in a meadow. We control his movements. We can't fish. And controlling the movements of a fish, I find it unnatural. For me, that's when it comes to breeding and that's not a guarantee of quality' (P14). "Fish remains a more or less natural product, which is not tampered with like the different meats that are made on earth, with injections and antibiotics' (P6). 'Fish is something that lives in the sea, so it necessarily brings something different from what it lives on land. Finally, I imagine that the minerals are not the same in meat as in fish' (P20). *Fish fat opposed to meat grease* 'In terms of cardiovascular risks, fish is less fatty and healthier than eating meat. There are fatty fish, like salmon or mackerel, but they are not bad fat. Because the fat from line-caught mackerel is good fat and it's healthier than eating a whole pig's leg with all the fat around it, even if it's good!' (P13). 'You can't visually see the fat on the fish! Compared to an entrecote, we will say that it is healthier. The meat is a little too fatty, we say to ourselves, "It's too much for my body"' (P15). *Distinct tropism: Meat nutrients which clog human body vs fish nutrients for brain* 'Sardines provide good fat, rather healthy things, to work better, for brain plasticity' (P31). 'In my imagination, meat provides more strength, more protein for the muscles, for example, for those who want to do sports, while fish for me is more zen, more for the mind' (P5). 'Unlike fish, in meat and particularly red meat, there are fats which are not absorbed, well absorbed by the body' (P28). 'There is good fat and bad fat. Bad fat is what is in meats, the fat from ham which will remain attached to your body and which will not go away, which will remain stagnant. And you have the good fat which will be good for making the arteries work and which will be eliminated' (P15). *Fish for occasional consumption* 'I'm not a big fish eater, so I eat fish more during the holidays. I'm more of a culture for eating meat' (P5).

2. Perceived sea changes and consequences in fish quality	*Lower health and lower quality* 'With all these changes and the waters being too acidic, the fish will leave and may not reproduce. It will be in less good health, with indirectly the nutritional qualities which are reduced for humans when they consume it' (P31). *Visible changes: Pollutants and malformations/cancer* 'The evolution of fish will be due to pollution. He can only have one eye, no more tail, you can imagine everything. (…) The taste may not change but it would be less good for your health' (P21). 'Our pollution can cause genetic mutations I imagine. It happens over generations and generations but it's a bit like us in the end, cancers and diseases that perhaps weren't there before' (P20). *Fish becomes inedible food* 'I have the impression that eating fish today is borderline dangerous, between heavy metals, plastic, nanoparticles' (P29). 'We are at the end of the food chain, waste is not dissolved by organisms, so it will persist throughout the food chain. (…) As we are last, once we have ingested that, it is not omega-3 but waste that we ingest' (P28). 'Fish has no limits unlike cattle. So it goes anywhere and if it has been in contact with polluting substances or plastic waste, in the end you may be eating plastic on your plate. This is also why I eat little fish' (P14). *Invisible change and taste* 'We can realize that fish are not necessarily as healthy as we might think. But these are things that are not necessarily visible, and in terms of taste, we don't realize it' (P13). *Weakness of the myth of wildness* 'Over the last few years, I feel like we have more information to say that wild fish look less healthy than they actually look, so it's gotten worse' (P5). *Resilience* 'In the past, it was allowed to fish in ports. These were places where boats circulated and with hydrocarbons in the sea. (…) Despite everything, we ate fish that bathed in this water but it's still water that is renewed. The fish is still a little polluted but perhaps it is no worse than the pigs which are fed with medicines or capsules' (P17).
3. PRESERVATION of preexisting food antinomies	*Low knowledge on omega-3: confusion with can oil* 'Sardines are just because they are bathed in oil when they are in a can, it is the omega-3 in the oil and it is ultimately not the fish itself. I just eat it for fun' (P20). '[Regarding omega-3 in fatty fish] it's very good but that's not why I eat more sardines and I would really like to know what omega-3 is' (P21). *Come back to local fisheries* 'I think it would be good for us to come back to more reasoned ways … to find something more local again, to try to consume things that we find close to home, not always trying to take things that come from elsewhere' (P6). *Eating less fish* 'It is not recommended to eat tuna more than once a week because of the heavy metals in it. So I simply eat less' (P5).

Supplemental material 4. Representations of changes in fish quality by NUTRIENT-ORIENTED FISH EATERS: Additional supporting quotes from interviews

Note: Each line of the table gives quotes to highlight the anchoring mechanism described Columns 1, 3 and 4, respectively, of Table 3 (inserted in the manuscript).

THEMATIC	QUOTES
1. Anchorage themes	*Wildness* 'A good fish for me is a fish that grew up in the sea, a wild fish and not a farmed fish' (P22). *Good fat/bad fat* 'Fish is less fatty than meat, well even if there are fatty fish, but in any case, it seems less fatty than meat, there are Omega-3, finally full of vitamins which are specific to seafood products, which we do not necessarily have in meat' (P33). "Good fat is what we find in salmon, nutrients, good fat, good things for the body, you should not overdo it, but fish is a great source of omega-3' (P3). *Fluid fat and cold seas* 'Oily fish contain more omega-3 because they live in cold water. They need it for the fluidization of tissues since they are in cold seas. They need fairly fluid fat. If they really only had saturated fats, the fish would be frozen, their tissues would be too frozen' (P23). *Higher nutritional value of fatty fish* 'Oily fish provides omega-3 and our system really needs it, we are deficient in omega-3' (P23). *Vitamins of marine origin* 'There are plenty of vitamins that are specific to seafood, that we don't necessarily have in meat: vitamins B6, vitamin D, vitamin A. In my opinion, there are vitamins specific to fish' (P33). *Fish protein to replace meat proteins* 'Eating fish is not eating meat already. I'm vegetarian, so for me, fish is a source of protein to compensate for the fact that I don't eat meat' (P22).
2. Perceived sea changes and consequences in fish quality	*Pollutants accumulation* 'If the sardines eat the shit in the sea, I can imagine what they have in their bodies … They will no longer be edible.' (P22) *Changes in fat/grease composition* 'With all these changes, it will change the texture, the quality of the tissues; it will change the tissues of the fish in terms of "fat"' (P23). 'If the changes are too sudden, the sardines will not have time to get used to it, it will change the quality of the tissues at the "fat" level, they will have much less omega-3' (P23). *Nonvisible changes* 'We can realize that fish are not necessarily as healthy as we might think. But these are things that are not necessarily visible, and in terms of taste, we don't realize it' (P13).
3. DISSONANCE with preexisting food antinomies	*Fatty fish can be more risky on human health* 'Like sardines, they are oily fish, they no longer store all this junk, like hydrocarbons, they store it in fat. And we are more impacted when we eat them' (P13). *Selection of species and preference for small fish* 'I no longer eat large fish, like tuna. I only eat small fish like sardines, mackerel, and herring. Compared to mercury, well, it's a belief since they are smaller; I reassure myself that way' (P22).

Supplemental material 5. Representations of changes in fish quality by ECOLOGY-ORIENTED FISH EATERS: Additional supporting quotes from interviews

Note: Each line of the table gives quotes to highlight the anchoring mechanism described Columns 1, 3 and 4, respectively, of Table 4 (inserted in the manuscript).

THEMATIC	QUOTES
1. Anchorage themes	*Operating methods respectful/non-respectful of fish* '[On the subject of industrial vs. artisanal fishing] same thing for breeding – there is a difference between doing industrial breeding where you are really on maximum profitability and then breeding which is more artisanal where you still have respect for the fish and the resources and the purpose of the fish in quotes. (…) The fish still has the right to be a minimum of happy in its environment while it is alive. (…) For our part, it is also up to us to ensure that the reserves do not become exhausted … and this is also true in terms of resources, not to overconsume … and to respect the fish more. I mean it's not owed to us, it's not something that belongs to us, the fish don't belong to us: they're just there and we take what we need to feed ourselves but no more' (P23). *Respect animals* '"Seafood", "products", that's unwelcome. This is the ideology; the hegemony of big capital created 'seafood'. Well, all the animals that are in the sea, like all marine life, have a specificity, which means that we might not exploit them the way we would sell vacuum cleaners! A fish and a vacuum cleaner are not the same thing, and we cannot inevitably reduce costs to increase general consumption. We see the species disappearing' (P2).
2. Perceived sea changes and consequences in fish quality	*Fish' stress leading to lower quality* 'The Kobe beef from Japan, they treat it really well, people give them massages to make them relaxed and happy, the meat would be more tender and the taste would be amazing, because the beef would have been happy. And so as we know that the fish are stressed, that the whales avoid boats, I imagine that perhaps the taste is no longer the same and that they will be in less good health' (P10). 'For the quality of the fish there will surely be places where the fish are stressed and that results in poor quality fish! It's just like meat! If they live in places where they are stressed, obviously the meat is not as good!' (P16). *Overfishing leading to fish depletion and fish eviction from diet* 'I don't have any preconceptions about Bluefin tuna being nutritious (...) but in my head there isn't much of it anymore, so eating it is a bit scary. It's because of overfishing, it's a fragile species and since it was overfished it didn't react well' (P7). *Sea warming leads to lower feed in water for fish* 'The warming of the waters also changes a lot of things in terms of maritime currents, indeed the upheaval is there. it depletes resources, it depletes water, its quality in itself' (P8).
3. CONVERGENCE with preexisting food antinomies	*Eviction of fish consumption* 'I am more and more convinced that we can avoid eating any fish' (P2). *Plant-based food replacing animal-based food* 'Are anchovies rich in omega-3? Honestly, I didn't know at all. Finally, I want to say that it doesn't do me much to know that knowing that I don't consume it. Lentils are also an excellent source of protein for those who don't eat meat or fish!' (P12).