Bring Voices from the Coast into the Fukushima Treated Water Debate

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More than a decade has passed since the accident at the Fukushima Dai-ichi nuclear power plant in Japan—but the most contentious aspect of bringing the site under control is only just beginning. The Japanese Government has approved plant operator TEPCO’s plan to release treated water into the Pacific Ocean. That water is currently being stored onsite and retains some radioactive substances after treatment. The decision to release this water has provoked political contention and societal concern. South Korea, China, and Taiwan, as well as international environmental nongovernmental organizations, have expressed strong concern; and fisheries cooperatives in Japan remain opposed to the releases for fear of possible reputational impacts on Fukushima seafood. TEPCO are confirming specific details of the release process, and an International Atomic Energy Agency (IAEA) task force has made multiple visits to the Fukushima Dai-ichi site at the behest of the Japanese Government and TEPCO. The releases are scheduled to start in 2023 and run for many years.

A technical committee within Japan, formed by the Ministry of Economy, Trade, and Industry, made the recommendation to release the treated water; it’s unlikely that the Japanese Government or TEPCO will revisit their decision. And so, a key role for technical and policy communities, both within Japan and internationally, is to ensure that the concerns of affected stakeholders are identified and addressed as the releases proceed. However, despite significant global science-policy interest in the treated water situation at Fukushima Dai-ichi (1, 2), the concerns of local fishers and coastal communities in Fukushima, key stakeholders living in the shadow of the nuclear site who will live with the consequences of the releases on a daily basis, have had only limited visibility in the science-policy discourse surrounding the aftermath of the Fukushima disaster.

Proposals from researchers and institutions working at the science-policy interface for Fukushima treated water must be responsive to the concerns of local stakeholders. Image credit: Shutterstock/KOHUKU.

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Even if TEPCO and the government minimize environmental impacts through careful management of the process, as some international experts believe possible (3), the indirect socioeconomic impacts of the treated water releases on Fukushima’s coastal fishing communities are likely to be experienced over the long term. Proposals made by the community of researchers and institutions working at the science-policy interface for Fukushima treated water must be informed by a deep understanding of the local community context—and they must be responsive to the concerns of local stakeholders. We believe local community concerns can be more fully incorporated into decision making for treated water at Fukushima Dai’ichi.

Local Influence

Within Japan, the government expert committees advising the management of treated water are dominated largely—albeit not exclusively—by engineering and physical science expertise (4). Despite fisheries cooperatives’ long-standing and vocal opposition to the releases, plant operator TEPCO explained in August 2021 that they had not at that point had direct consultations with fisheries representatives regarding the discharges (5). Formal dialogue between the operator and the fisheries sector in Fukushima on the topic of releases did not start until TEPCO and the Japanese Government had determined most of the technical details. This left little room for the plans to be adjusted in response to any concerns from Fukushima’s fishers or coastal residents.

Decisions over treated water at Fukushima Dai’ichi rest with the Japanese authorities and plant operator. However, the global community of researchers and organizations working at the interface of science and policy can influence local community engagement at Fukushima in at least three ways. The first is participation as experts in intergovernmental forums, such as the IAEA and United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), which provide actors such as the Japanese Government with evidence-based guidelines and oversight on the management of environmental radioactivity. The second is peer-reviewed research into the marine environment in Fukushima and potential impacts of treated water releases (e.g., 6, 7), which often contains policy recommendations and forms part of the scientific record that’s drawn on to justify decisions taken about management of treated water. The third is reports and opinion pieces, grounded in scholarly evidence, on an individual or organizational basis with the intention of influencing government actions within Japan or initiating broader civil society action towards specific outcomes for the management of treated water (e.g., 8).

Both within Japan and internationally, Fukushima’s fishers and coastal residents, although not completely absent, have received limited consideration as stakeholders. Fishers and residents tend to be caricatured as being concerned over rumors and reputational damage to Fukushima seafood owing to the treated water releases (9, 10)—or as harboring “irrational” safety fears over the relatively small amounts of radioactivity from pollutants such as tritium that are contained in the tanks currently storing treated water onsite (e.g., 3). Many suggest that fishers and coastal residents can eventually be appeased with the right compensation strategies along with judicious use of language. This, they argue, would promote a precise understanding of the science behind the releases and avoid potentially stigmatizing or misleading language around radioactivity.

Missing Local Context

The Japanese Government is unlikely to reverse their decision to release treated water. Even so, it’s important to recognize that fishing is both an economic activity and the subject of deep emotional investment on the Fukushima coast. When issues of value are at stake, the social sciences have long argued (11) that providing “more and better” technical information or economic compensation alone is unlikely to be an effective risk governance approach. The resilience of Fukushima’s fishing communities during the treated water releases depends on careful engagement with and deep understanding of fishers’ and residents’ concerns.

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One aspect is the significant effort that has gone into revitalizing fisheries to date and concerns over these revitalization efforts being jeopardized by the treated water releases. Trial fishing operations commenced off the Fukushima coast in 2012, with the aim of restarting fisheries on a smaller-scale basis (about 10% of pre-disaster levels) once government fisheries scientists failed to detect radioactive cesium in different species.

In spring 2021, the trial phase ended and coastal fisheries moved to a new “expansion” phase, with an aspiration to return to pre-disaster capacity. Fishers have responded positively to the gradual recovery and expansion of fisheries in Fukushima, citing factors such as renewed opportunity for interaction with and mutual support from their peers, a chance to reduce down time spent in the family home with associated tensions, and the return of a sense of pride and purpose in being out fishing and doing “their” work (12).

The revitalization of fisheries has hence brought significant benefit to the Fukushima coast, both for sales of seafood and also fishers’ wellbeing, which cannot be offset through economic compensation alone. Moreover, the amount of effort that has gone into this revitalization, through re-engaging fishers and building trust with consumers and brokers, should not be underestimated, nor should the time taken to reach a stage where local seafood is once again part of daily life (13). When viewed through this lens, any actions that may jeopardize this recovery—such as releases of water perceived as “tainted” into the marine environment—are likely to be met with concern or opposition.

A second aspect receiving little explicit attention in the debates over Fukushima treated water centers around the social and cultural significance of fisheries to the Fukushima
coast. The distinctive environmental characteristics of Fukushima waters—where the warm Kuroshio and cold Oyashio currents meet—have led to particular pride in the uniqueness and quality of Fukushima’s fish (14). Consumers and Fukushima residents have responded positively to the return of Fukushima seafood to menus and supermarket shelves, with events celebrating locally landed and seasonally caught fish. If Fukushima’s waters are again perceived as being degraded, fishers’ and residents’ attitudes towards the releases may stem at least in part from concerns over the implications for their livelihoods and sense of belonging and identity—it’s not simply about their incomes.

There are actions that can be taken to more fully understand coastal communities’ concerns and hence mitigate societal impacts in Fukushima. These action have implications both within Japan and internationally.

We recommend the establishment of a body to independently evaluate the effects of treated water releases on the marine environment and fish stocks. Right now, there are good indications that the Japanese public questions the competence of government and regulatory agencies to manage radioactive waste (15). To ensure that claims of Fukushima seafood remain credible, we must create institutions viewed as trustworthy and independent assessors of marine environmental quality.

A good model may be the Environmental Evaluation Group established to monitor the Waste Isolation Pilot Plant in New Mexico from 1978 to 2004. The group was federally funded, but the state did not control the issues the group researched, the staff it hired, or the reports it published (16). There are already independent groups in Fukushima that invite citizens to collaborate with researchers to assess marine and land-based environmental quality. It’s important that such groups receive long-term core funding to undertake environmental monitoring perceived as independent and trustworthy, while, at the same time, retaining a regulatory firewall to prevent government influence. This will help maintain societal trust in the quality of Fukushima waters and seafood during the releases.

We also recommend that there be a greater diversity of experiences and stakeholders participating in committees responsible for designing and implementing the treated water releases. As outlined earlier, local and experiential knowledge, and to a lesser extent social science and humanities expertise, are under-represented on technical committees that advise on releases have a diversity of opinion among themselves and are able to participate in healthy and constructive disagreement on how the releases ought to proceed. To reduce the risk of “groupthink,” technical committees should also include overseas experts as advisors or observers, individuals who may have relevant experience effectively engaging stakeholders on radioactivity. This could involve government officials who have set up and run stakeholder partnerships for radioactive waste management, scientists who have engaged publics and stakeholders in the aftermath of nuclear accidents such as Chernobyl, or even citizens from other places globally who can share first-hand experience of living with environmental radioactivity.

Last, we believe that international institutions and the science-policy community have an important role to play in informing best practice within Japan. We challenge this community to expand their remits to more explicitly incorporate the societal dimensions of treated water and to engage more fully with local researchers within Japan. At present, social science perspectives have only a marginal role within the IAEA’s work on Fukushima and the sea (18, 19) and indeed lie largely outside the remit of UNSCEAR (20).
From a natural and physical science standpoint, research into the marine environment in the wake of the Fukushima disaster stands as a good example of international collaboration on a complex scientific issue, a collaboration whose activities are meant to inform decision making. This ethos of cooperation in Fukushima’s seas could be further enhanced by more international collaboration with the social sciences, especially with researchers based in Japan who have rich contextual knowledge, spanning research and practice, into how fishers and communities on the Fukushima coast have engaged with the treated water problem (see, e.g., 21, 22).

The treated water issue at Fukushima is a cautionary tale. Investigations into environmental controversies that have international implications and require global scientific cooperation can overlook impacts on local communities. The management of the treated water releases could prove to be an important case study for how local stakeholders, such as fishers, can be embedded into the decision-making for complex marine environmental issues with long-term implications. Yet, for this learning to be realized, local community “on the ground” experiences in Fukushima, related to treated water, need to be better connected to a national and global audience.

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