THE DEATNU TRAP-FENCE SYSTEM AS SPACE FOR ENVIRONMENTAL KNOWLEDGE

Sámi fishers' knowledge, science, and epistemic power asymmetries in salmon fishery management

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ABSTRACT

The Deatnu (Teno/Tana), the most important Atlantic salmon spawning site in Europe, has faced severe ecological challenges in recent decades. Since the 2000s, native salmon stocks have declined sharply while invasive pink salmon populations have surged, prompting the Norwegian Environmental Agency to implement a large-scale trap-fence system in 2023 and again in 2025. Designed to intercept pink salmon while allowing native salmonids to pass, the system reflects technoscientific approaches to fisheries management that prioritize fish as quantifiable resources. The effectiveness and ecological consequences of the trap-fence system remain highly contested. It failed to meet its objectives, raising critical questions about its impact on Atlantic salmon and its disconnect from local ecological knowledge.

This research situates the trap-fence within broader debates on multi-ontological objects and more-than-human contact zones. While previous studies emphasize trap materiality and political landscapes, they often neglect the dynamic qualities of the environment including water and fish. We argue that the trap-fence enacts ownership relations and reinforces state-centric governance, marginalizing Indigenous Sámi knowledge systems and traditional practices such as the *buođđu* weir, which embody sophisticated human-fish-environment relations. The system's rigidity contrasts with the fluidity of river ecologies, hindering knowledge pluralism essential for adaptive governance. Moreover, its design and placement disregarded local expertise, generating cultural, social, and economic losses for Sámi

communities whose livelihoods depend on the river. However, the uncontrolled leaking qualities of the trap-fence give some hope for the local Sámi community to pursue their traditional fishing practices to catch pink salmon. By examining the trap-fence system as a site of knowledge production and the leakage, we highlight how the system mobilises knowledges in competing sides and how the elusive character of river landscape challenges fisheries governance. This study contributes to ongoing discussions on relational approaches to environmental management and caring for more-than-human worlds.

THE TRAP-FENCE SYSTEM AS SPACE FOR EPISTEMIC POWER ASYMMETRIES

The subarctic river Deatnu (Teno in Finnish, Tana in Norwegian) is one of the most important Atlantic salmon spawning rivers in Europe. In the 2000s, the Atlantic salmon stocks in the Deatnu watershed have been in a strong decline. Along with this trend the population of invasive pink salmon has significantly increased which is considered a severe threat for the local ecosystem and, thus, defined as harmful alien species by Norwegian state. In Finland pink salmon is defined as alien species. Therefore, the Norwegian Environmental Agency (Miljødirektoratet) was authorised to install a large trap-fence system in Deatnu to eliminate as much pink salmon as possible whilst letting native salmonids through to continue their spawning run. The trap-fence system was installed in the summer of 2023 for the first time and once again in the summer of 2025. The success of these projects has been highly disputed (e.g. Domaas et al., 2024).

Within literature on traps there has been a focus on them as multi-ontological objects that emerge out of the intersection of the worlds of the hunter and the hunted (Gell, 1996; Spriggs, 2019). The focus on the materiality of trap design has largely neglected the important part of the life of traps, which is their use by those who have not engaged in trap design. The same salmon traps have multiple world-making effects depending on the different set of relations they are pulled into. Swanson (2019) aptly reveals how traps may sit at the junctures of the lifeworlds of different interest groups, including Indigenous people, who may have not participated in trap design and making, but whose worlds became bound up with them. By focusing on the meaning and material form of traps and their effects, previous research has focused on the surrounding political landscape (e.g. Swanson, 2019) and has somewhat ignored the qualities of the fish and particularly the medium within which the trap is deployed – namely the water.

In our research, we aim to direct more attention to the emergent form of entangled and ecological relations and related knowledges enfolded within traps. To aim attention to cross-species encounters within the trap-fence system, we consider the system as a more-than-human contact zone – a space for the generation of practical and embodied environmental knowledge (Fredriksen, 2019). The system was erected on the spot where it could be

maintained the easiest way – not caring for how the fish, Atlantic salmon particularly, uses the water during migration. As a result, the trap was a failure in terms of catching and the fish. Thus, a large knowledge gap exists particularly on how it affected the native salmonids (Domaas et al., 2024). From the beginning the local Sámi fishers strongly disagreed with the way the system was erected. The design and management of the trap-fence system were based on technoscientific modes of knowing and managing fish as countable, commodifiable and own-able entities (Ween, 2012). Moreover, the remote encounters neglect the mediums, including water (Lien, 2023) and weather (Ingold, 2010) in which the trap operates. Following Swanson (2019) the trap fence is not tightly coupled to the worlds within which it is deployed. As such it is quite far from the traditional *buođđu* weir of the Sámi, which requires sophisticated knowledge of the human-fish-environment relations (see Hansen, 2012; Frandy, 2021).

As a contact zone the trap-fence system is a place "where bodies become irresponsible towards one another, spaces not only unequal power but also of grave bodily and cultural violence" (Fredriksen, 2019, p. 776). However, the irresponsibility, unequal power and violence occur in a different scale. The system is like a terrestrial fence that enacts ownership relations and the fish as resources (Lien, 2023; Ween & Swanson, 2018). The design and management of it is based on abstract technoscientific understanding fish-human-landscape relations that does not consider marine ecologies as offering less possibilities for keeping things, including fish, apart. The design and management of the system generate an unknowable and elusive shadow of 'slippery salmon-possibilities. For people' (Law & Lien, 2012, p. 372; see Lien, 2023). As such, the system has been only loosely coupled to the worlds within which it was deployed (Swanson, 2019) and, thus, epitomizes the nation state endeavours of damming and replacing the local ways of knowing and caring for the river and fish.

The trap-fence system literally is a barrier (as the operators of the system themselves have argued) that is not sensitive to the dynamic changes in the elusive qualities of water, fish and the entire Deatnu landscape (see also Ween & Swanson, 2018). The system is quite the contrary to the demands of knowledge pluralism to enhance decision-making to better address the complexity and change to Sámi livelihoods and cultural practice. It dams knowledge flows and thus hinders knowledge pluralism, which is seen crucial for effective governance that addresses the needs of diverse stakeholders and rights holders (Andrews et al., 2018). In fact, the trap-fence system characterizes and carries forward the progression in which the nation states recognise traditional ecological knowledge and include it in the biological assessments only in theory – in practice it does not happen (Law & Joks, 2019). Hence, the possibility for the local Sámi community to pursue their traditional fishing practices to catch pink salmon and the possible new realities do not unfold. Moreover, the effects of the trap-fence system for the native Atlantic salmon are highly controversial (see Domaas et al.,

2024). Hence, the local Sámi community whose livelihoods directly rely on water flows bears the heaviest economic, social and cultural losses that damming the Deatnu causes.

Through the damming qualities the trap-fence mobilises knowledges in competing sides and thus even strengthens the interface of different knowledge systems. It also leaks not only material and practices but also knowledge to upstream. As a certain number of pink salmon have been able to pass the trap-fence the local Sámi fishers on the Finnish side of the border have been able to apply their knowledge and traditional salmon fishing methods on pink salmon.

With our research on the trap-fence system as space for knowledge production we contribute to the ongoing debate about the multiple ways of knowing and defining fish (Todd, 2014) and interfacing of knowledge systems in management of fisheries (e.g. Law & Joks, 2019). Hence, we want to show that fish enacted by the technoscientific modes of knowing and managing are often decoupled from the worlds within which they are deployed. Thus, scientists and managers should pay closer attention to the human-fish relations, including modes of caring and sharing, that are only partly known (Lien, 2023). They should give value to the leaking quality of the system they have built as things "can exist and persist only because they leak" (Ingold, 2013, p. 95). Leaking is central quality for the for the traditional *buođđu* weir. By examining the contested venue of Deatnu trap-fence system we want to bring new insights to the understanding and acknowledgement of Sámi rights and knowledge in the management of Deatnu (salmon) fishery.

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