Norway?s New Invaders: The Red King Crab

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“... a red army of monster crustaceans – marshaled by Soviet-era leaders – is threatening to invade Western Europe ...”

- James Owen, National Geographic, 2004

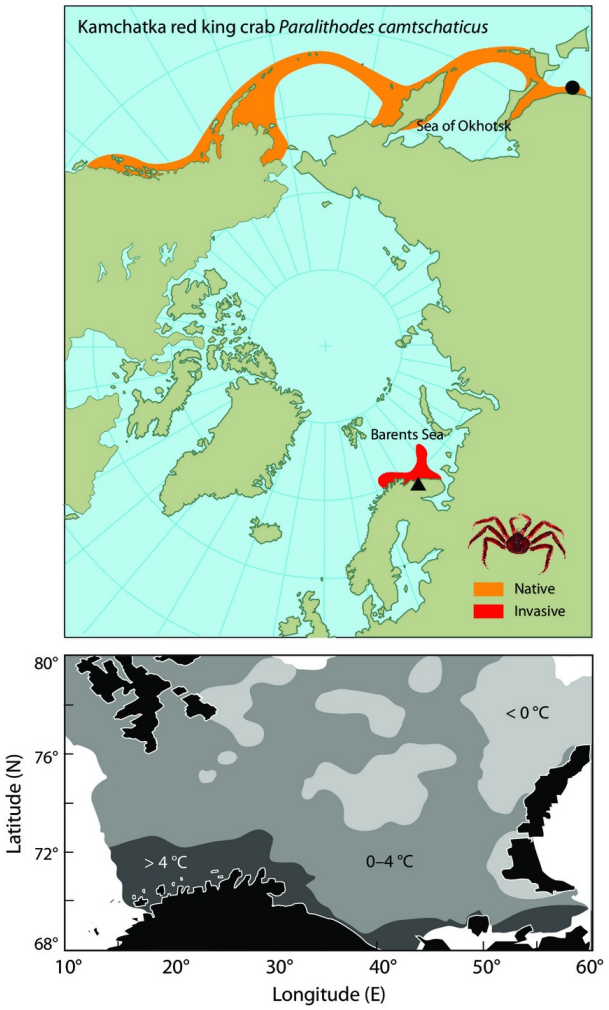
Ominous. That’s the thing, isn’t it. Some invasive species look harmless. You can’t be scared of a baby Canada Goose, can you? Or a nice purple garden flower. Such florescence.

You can, however, be scared of a spiny, alien-looking 10 kilo mass of spines and pincers that has been shuffling its way into Norwegian waters over the last half-century.

What are they?

Paralithodes camtschaticus, the Red King Crab, is the most heavily fished crustacean in Russian seas. They fetch a high price at the market, and over 50 million USD was made in exports in Norway alone in 2016. A common trait amongst invasive species, they are a generalist predator, and will eat anything, from small invertebrates to large echinoderms and bivalves.

They are among the largest arthropods living, with 8 legs, 2 pincers, a carapace of around 22cm, and an unholy mass of mandibles and spines to go with it. They are also quick movers, and can relocate based on available food quickly. Basically, if I were a sea urchin, were it not for the sea urchin’s general lack of the concept of fear or any other emotion, I’d be terrified.



The current distribution of the crab (top) and the area it will likely spread to in the Barents Sea over the coming years, demarcated by the 0-4 degree zone (bottom) (Image Credit: Christiansen et al., 2015)

How did they get here?

The crab is native to the northern Pacific Ocean, but like the Pink Salmon, they were deliberately stocked into the Murman coast by Russian scientists for commercial fishery. Since the 60s the crab has spread into Norwegian waters, and was well established in Northern Norway by the 90s. Soon after this the population skyrocketed, and the majority of fjords in Northern Norway are now occupied by the crab. Whilst the crabs prefer colder temperatures, increased temperature doesn't seem to be a barrier for migration, and the fact that there are also reports of human introductions as far south as Bergen should be worrying.

What do they do?

Their role as a large predator of pretty much anything, combined with the fact that they migrate between different depths and are fast movers, mean that they can significantly change the physical structure of the ecosystem that they inhabit very quickly. Their removal of larger bivalves and echinoderms has lead to lower diversity and abundance in Norwegian fjords, particularly among species with low motility, and subsequent changes in the entire community composition of an ecosystem. They can also contribute to a loss in production and nutrient recycling, and subsequent drops in populations of local fish.

How do we stop them?

This is difficult, and marks the point in this series where we need to actually consider the term ‘invasive’. So far, I’ve considered invasive species as alien species which demonstrate a negative effect for the ecosystems they are novel to, or on the economy of a nation, with no pronounced positive effects in any other aspect. However in many international and national laws, invasive species are those which have a negative impact on human health or economy. And here lies the issue. Whilst the Red King Crab has an undeniably negative effect of local biodiversity, it has a undeniably positive effect on the Norwegian economy.

I’ll return to this topic next week, but for now let’s approach the issue as if we want to stop the incursion. The crabs seem to display high site loyalty, which means that they’re theoretically easy to prevent from spreading further down the Norwegian coast, given correct management.

Reducing supply-and-demand lessens the crab’s economic value, so avoiding crab meat is a good step. Yet the Norwegian government's tactics here are more likely to make a difference. Currently the practice is to maintain a certain capacity in some areas, whilst aiming for fishing to eradication in areas further south to prevent spreading. However there is little incentive for fishermen to eradicate a substantial part of their livelihood, so these regulations may need to be more strictly enforced, or the quota regulated areas restricted further.

For more information on the crab, we invite you to read the following articles.

Giant Crab ‘Red Army’ Invades Norway [2] by James Owen for National Geographic News

Invasive Alien Species Fact Sheet [3] – Paralithodes camtschaticus by the Online Database of the North European and Baltic Network on Invasive Alien Species

Current Status of the Red King Crab and Snow Crab Industries [4] in Norway by Lorentzen et al.

Thermal behaviour and the prospect spread of an invasive benthic top predator [5] by Christiansen et al.

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