

A case for the commons: C-0240 Snow Crab in the Barents Sea



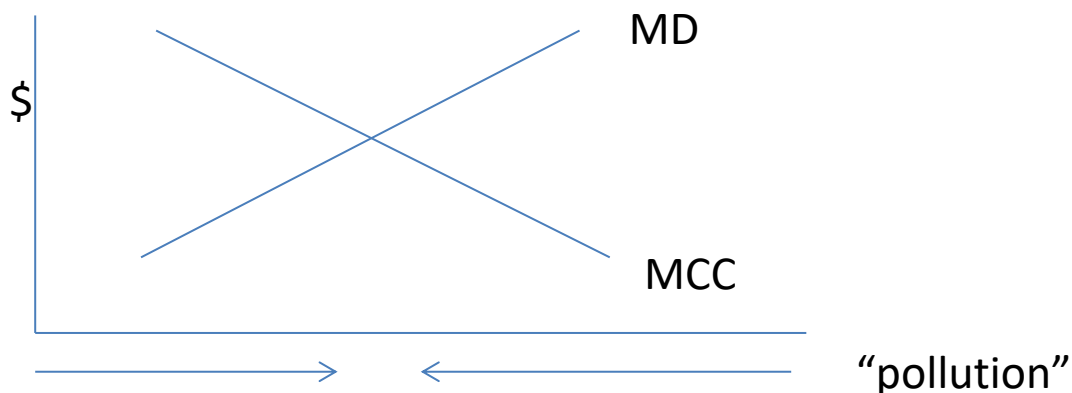
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Standard Economic Dogma (1)

- Private property rights (including common property solutions) solve open access high seas problems
- For fisheries, closing the commons promotes dynamically efficient resource use
 - Reduces current harvest, allows growth for continued harvest across time

Standard Economic Dogma (2)

- Private property rights can solve externality problems (Coase)



- Barriers to efficiency stem from transactions costs and information problems:
 - too many parties involved,
 - appropriate parties missing from the negotiations,
 - Missing or imperfect information

Snow Crab in the Barents

- A Profitable Invasive species presenting a joint Commons + Externality problem
- What impacts will stronger property rights to the crab have on welfare outcomes for
 - Russia,
 - Norway,
 - Rest of World?

Commons Problem

- Snow Crab can be very profitable.
- Open access fishery will reduce this profitability in the long run
- Barents: EEZs and Joint Russian-Norwegian Fisheries Commission Usually sorts these problems out
- But: cannot agree on management of the Snow Crab (SC) after the precedents set by the Red King Crab (RKC)
- And there is an international waters “loophole”

Externality problem:

- Damages to the benthos and other marine life may be significant though the extent is unknown
- The spatial spread matters: there is a potential externality from the spread of the species to a neighbor.
- Well-assigned property rights could determine liability and can promote incentives that intercept spread – here e.g. CBD COP6 Decision VI/23
- BUT what if the invader is profitable as well as damaging?

A profitable invasion?

- Snow Crab in the Barents:
- A replication of the RKC story in the basic facts:
 - Invasive species appears in Barents in 1990s
 - Russians and Norwegians slow to open fisheries for the species; cooperation only on the research front
 - Russians have existing SC fishery in East.
- But some important distinctions!

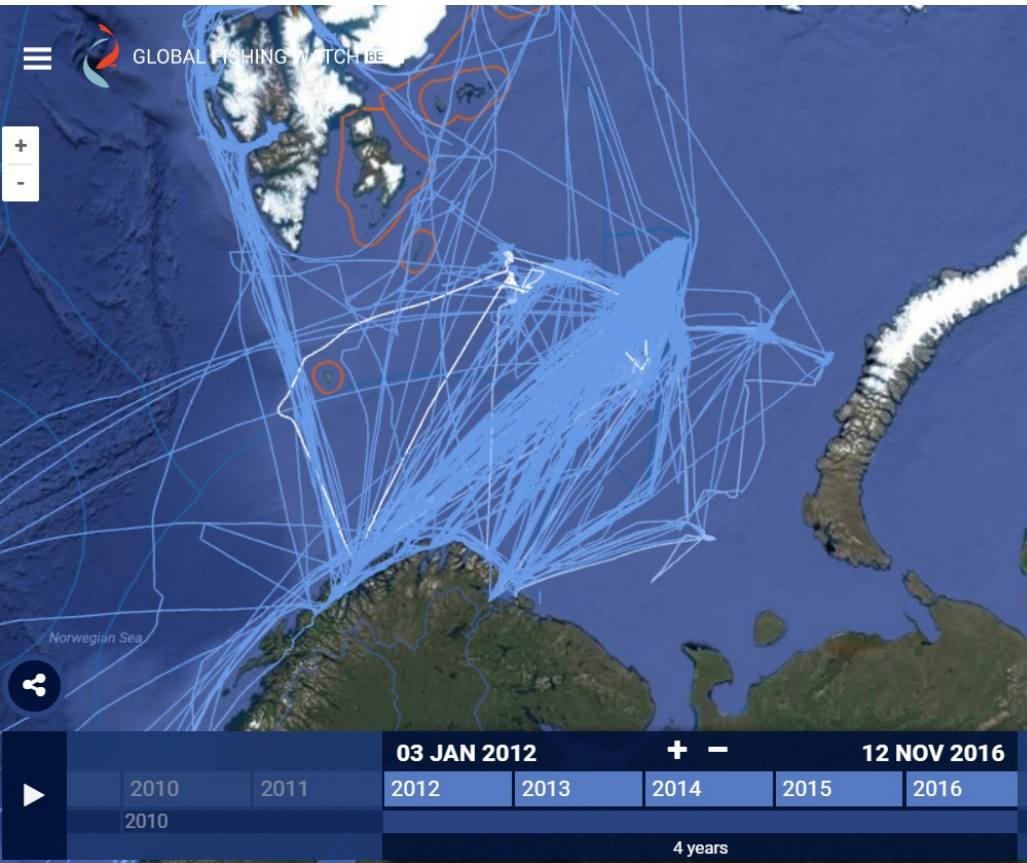
Some Key Differences from the RKC

- Main market for males as opposed to either + higher reproduction => higher population, faster
- Price premium on live crab not high enough for as much live crab (quality issues too), market differentiation less possible
- This + offshore location mean it is not a viable policy tool for supporting Norwegian coastal fleet the way RKC is
- Damages both to benthos, but Svalbard zone possibly more valuable
- More complex property rights issues increase invasive policy choices:
 - International waters
 - Sedentary or mobile species?

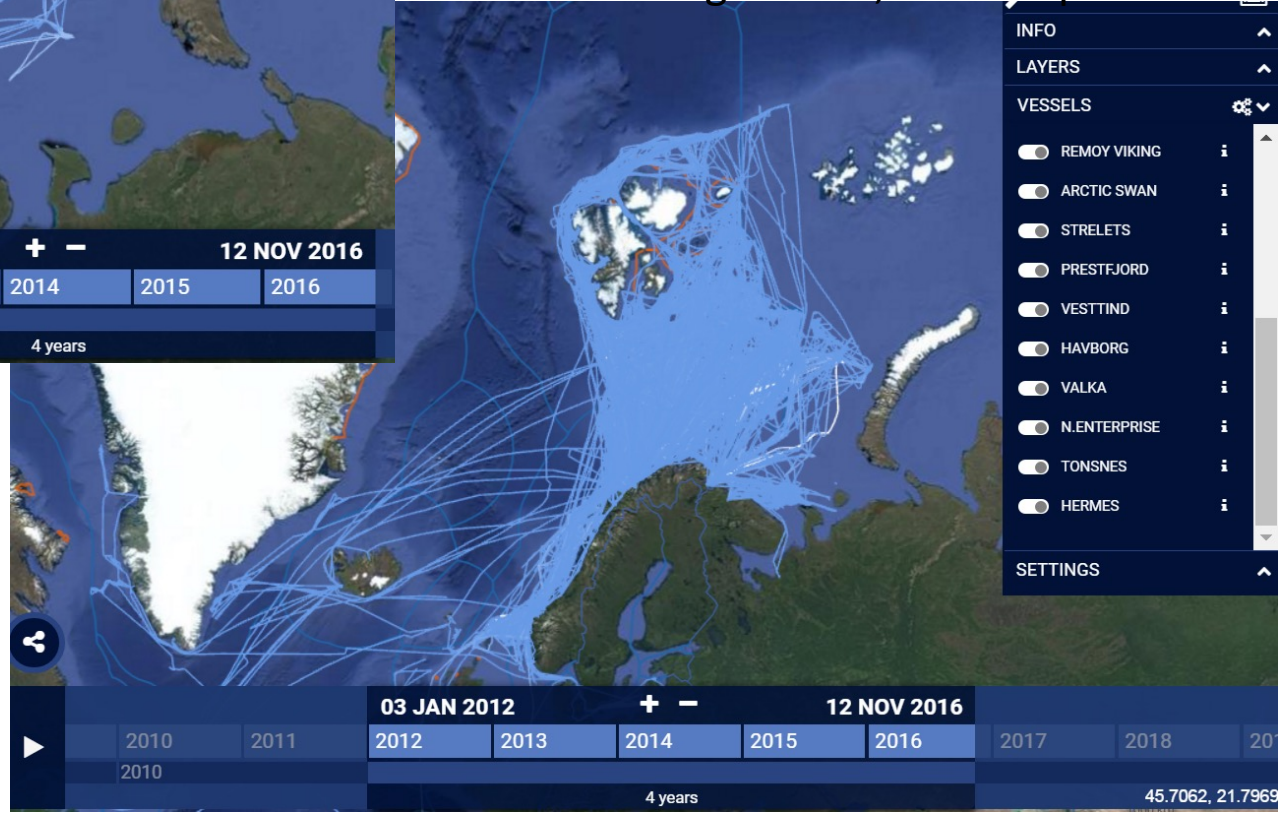
Commons solution

- The open access in international waters coincides to significant extent with the invasion frontier
- The externality problem is reduced by the commons problem.

Letting the commons do the dirty work



All crab fishing vessels, 2012 to present



Non-Norwegian or Russian
Vessels, 2012-present

Joint PINRO/IMR annual
Trawl survey data suggest
Loophole Fishing has impact

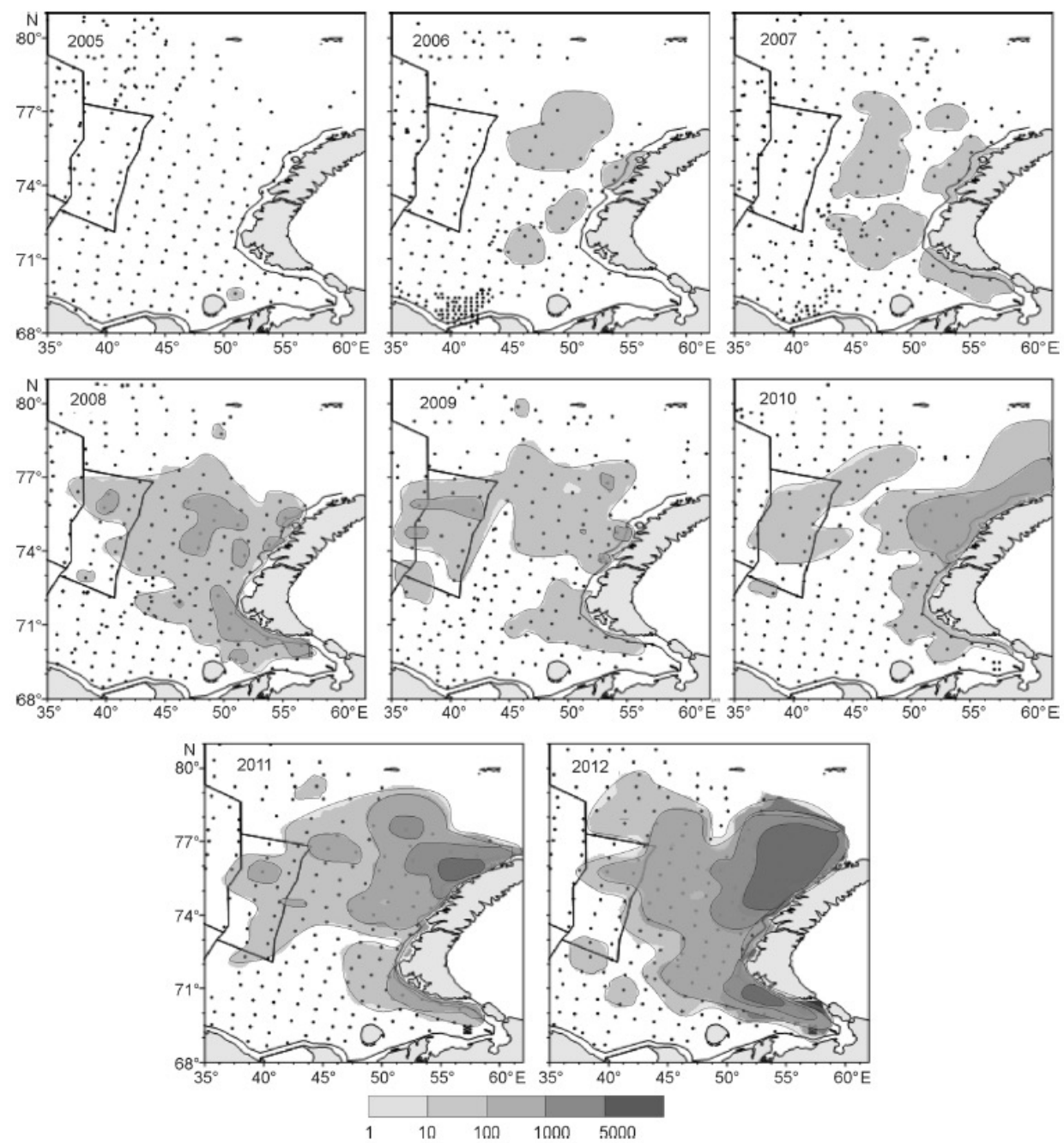
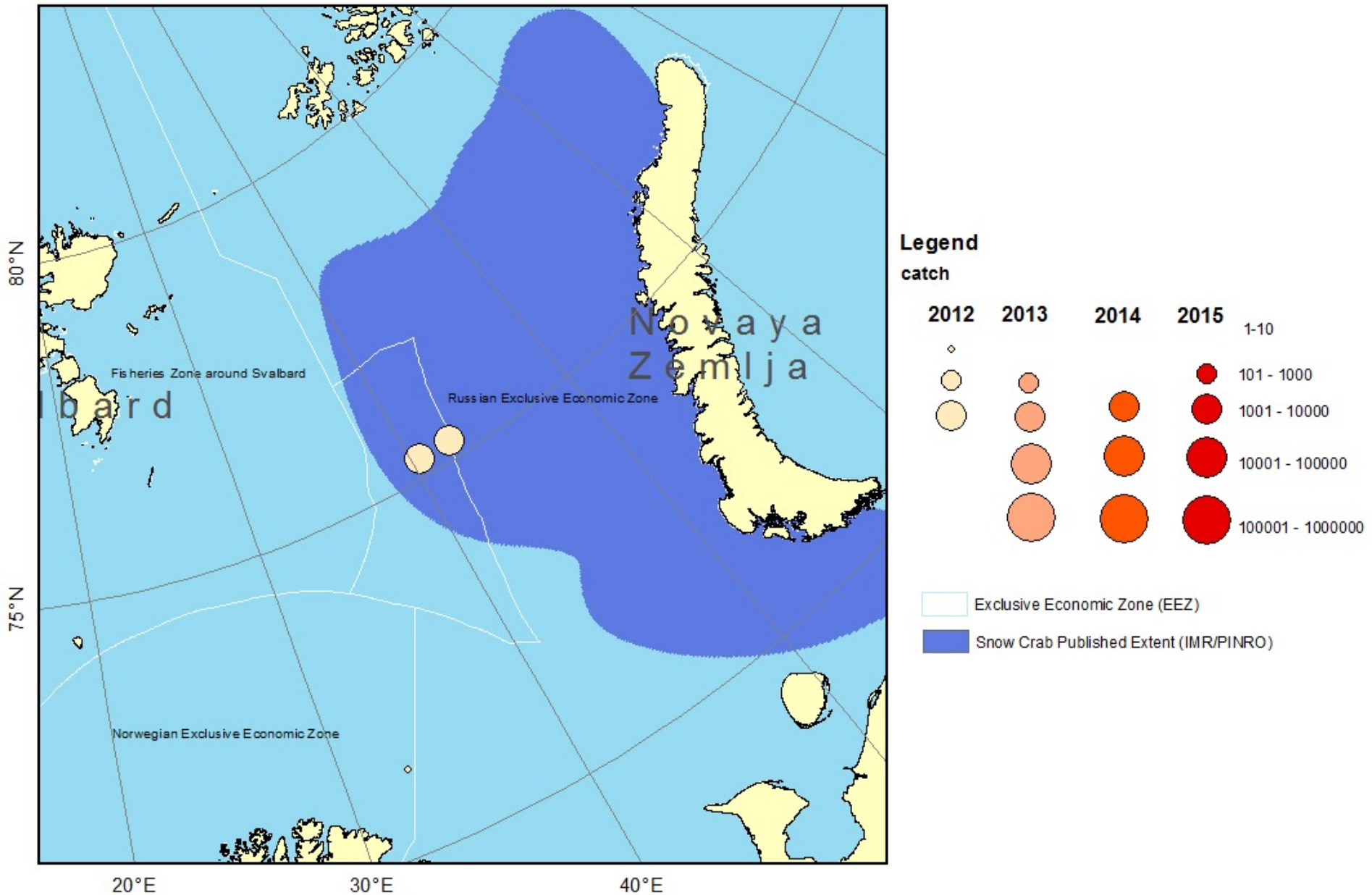
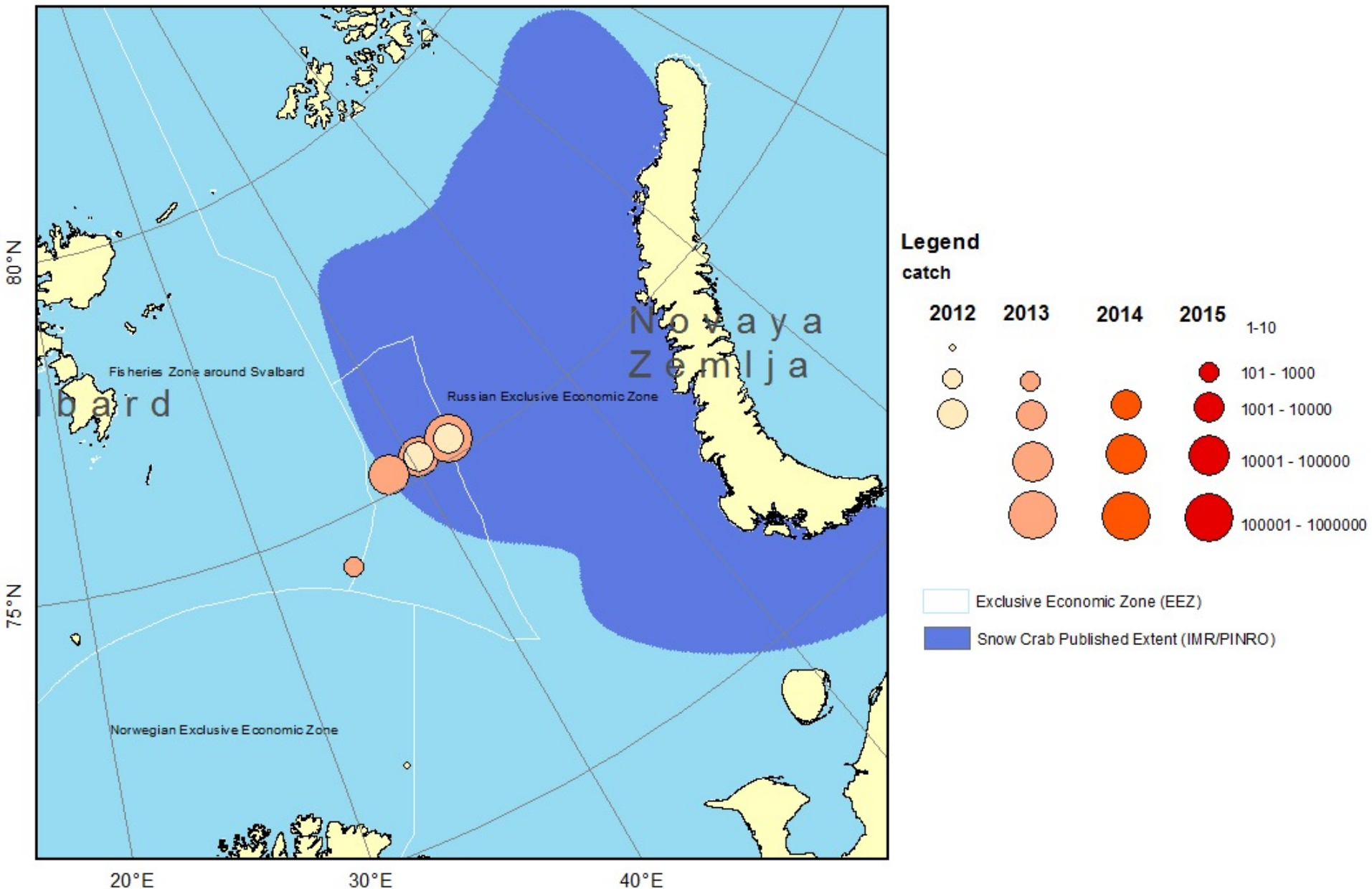


Fig. 4 Distribution of the total catch of snow crab (individuals per 15 min of trawling) in the Barents Sea from 2005 to 2012 (Goryanina et al. 2013)

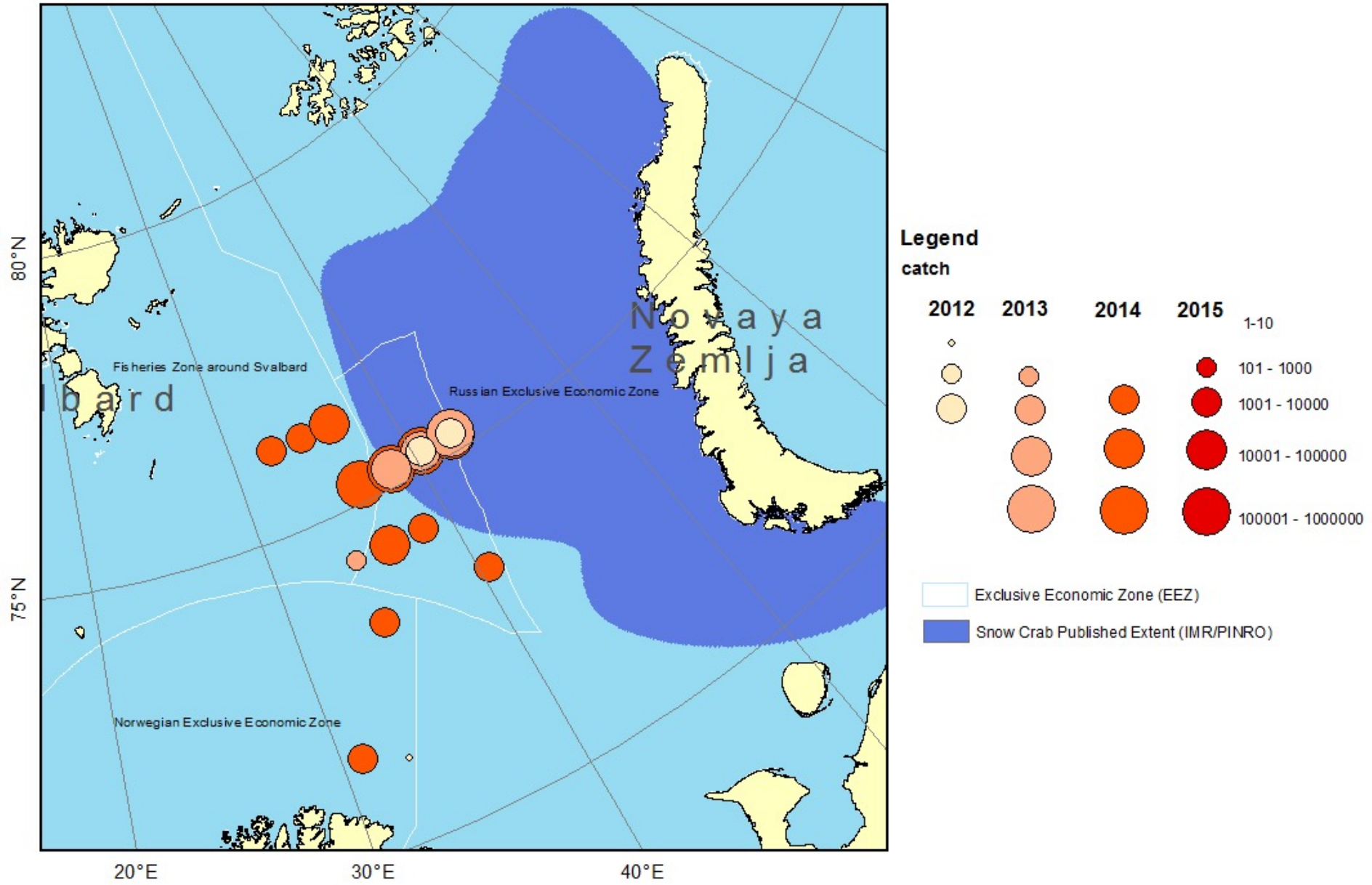
2012 Norwegian Vessels



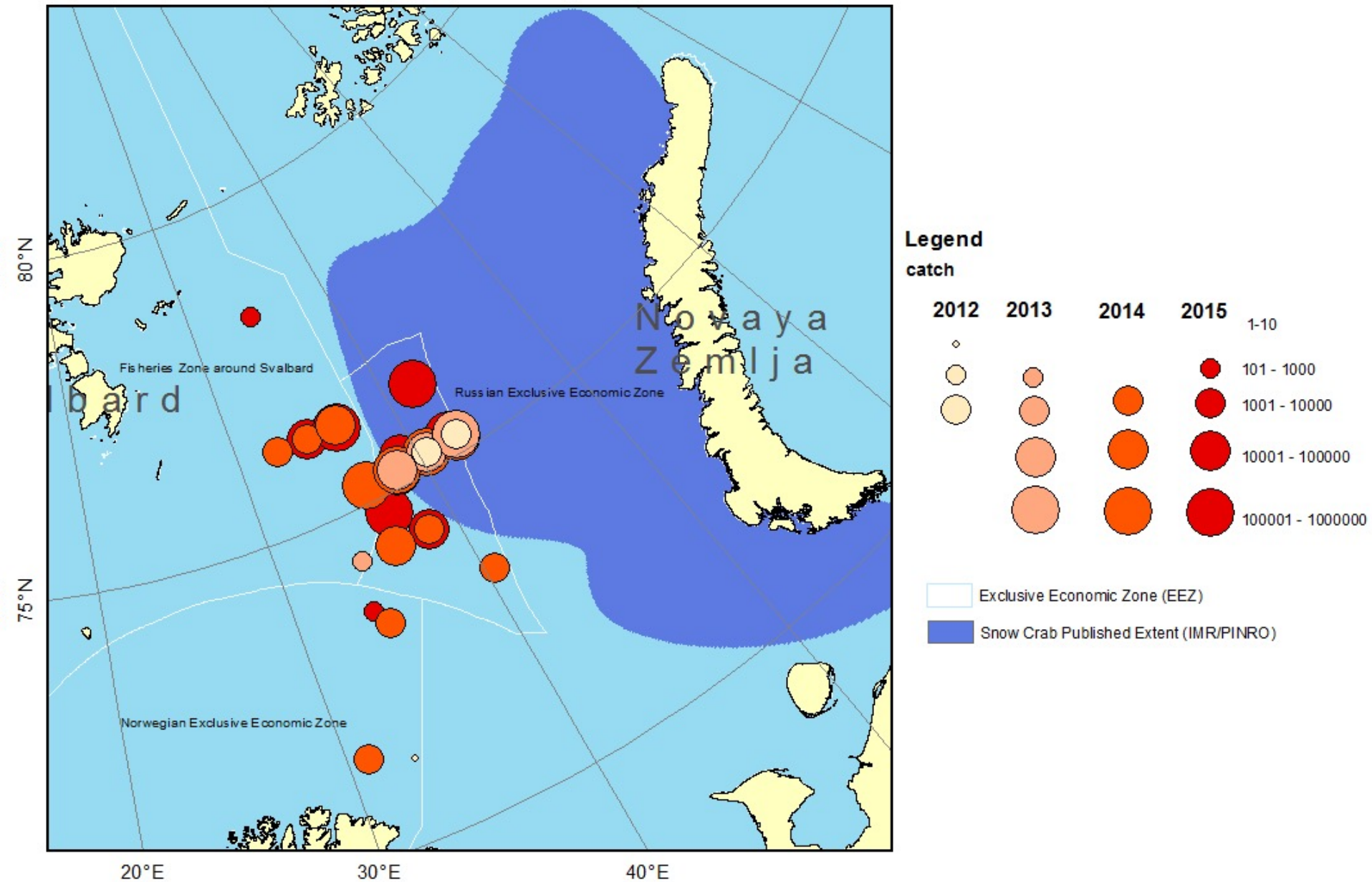
2012-2013 Norwegian Vessels



2012-14 Norwegian Vessels



2012-15 Norwegian Vessels



Closing the commons

- But the commons is being closed
- The loophole is Russian extended continental shelf. The species has been declared a **sedentary species** (summer 2015) – border now follows shelf not EEZ.
- Russians can choose to restrict snow crab harvest (so far have not done much about enforcement)

Conclusions

- Open access is serving as partial control on frontier of spread of a valuable but damaging invasive species
- Conventional wisdom that property rights improve outcomes can be wrong when commons problem coupled with a spatial externality
 - They need to be more comprehensive (e.g. TURFs)
- Welfare for RU (source) can increase, but at expense of ROW + Norway.
- Lack of role of coastal fleet support increases Norwegian opposition to spread of the crab (opposite of RKC)
- Analytical question: do the rents from enforcing property rights to crab outweigh the reduction in benefits from controlling the spread of the invasion?
- Comparative question: How do the differences in asymmetries between countries in payoffs from RKC/SC control matter?