

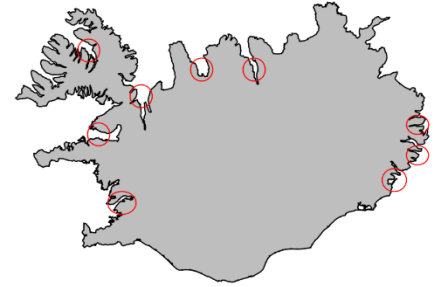


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Sea urchin harvesting industry in Iceland, management and legislations

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Harvesting periods



1983-1989: Start of harvesting. By divers in Breidafjörður

1993-1997: Maximal landings. By dragging widely around
Overfishing and market factors resulted in stop

1998-2003: No harvesting

2004-2016: By dragging 95% in Breidafjörður, mostly only one
boat fishing
Catches 40 -340t.

Harvest from 2004-2016

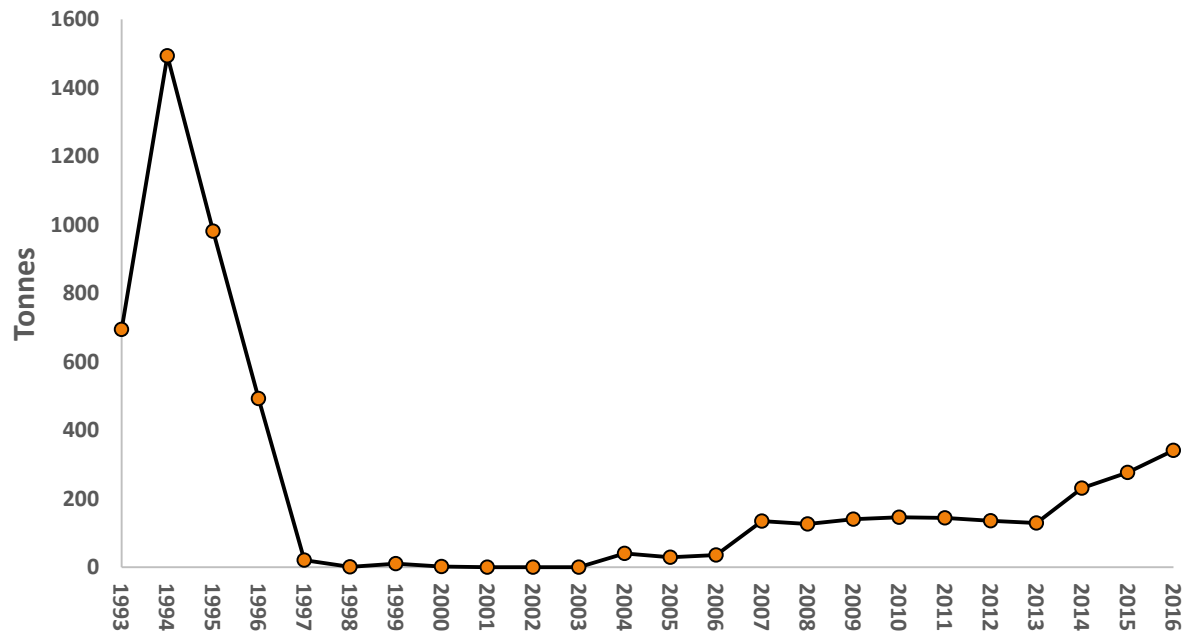
Only one small boat operating
2004-2014
Minor landings by others
2015-2017

Only dredging conducted

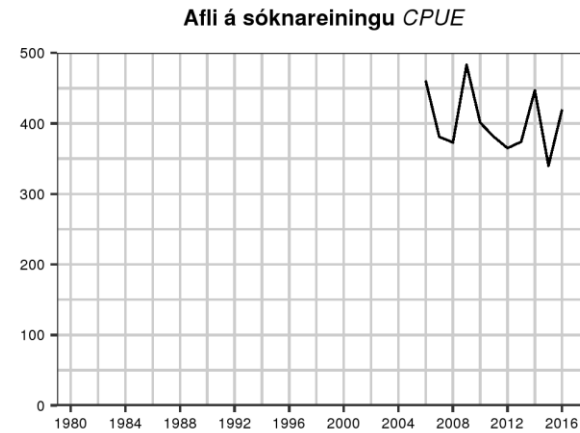
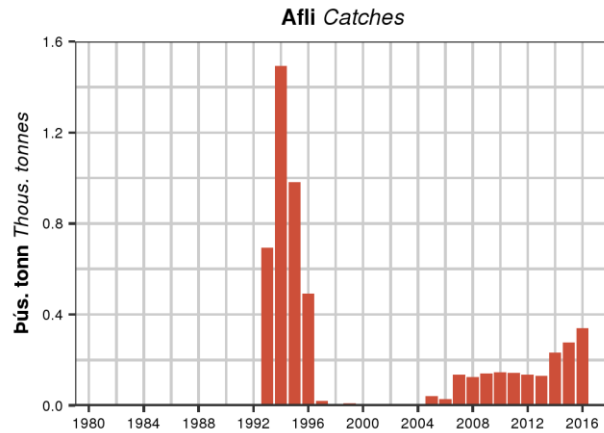
The dredge used:
With: 250 cm
Mask size: 10 cm
Bag length: 150 cm



Landings from 1993-2016



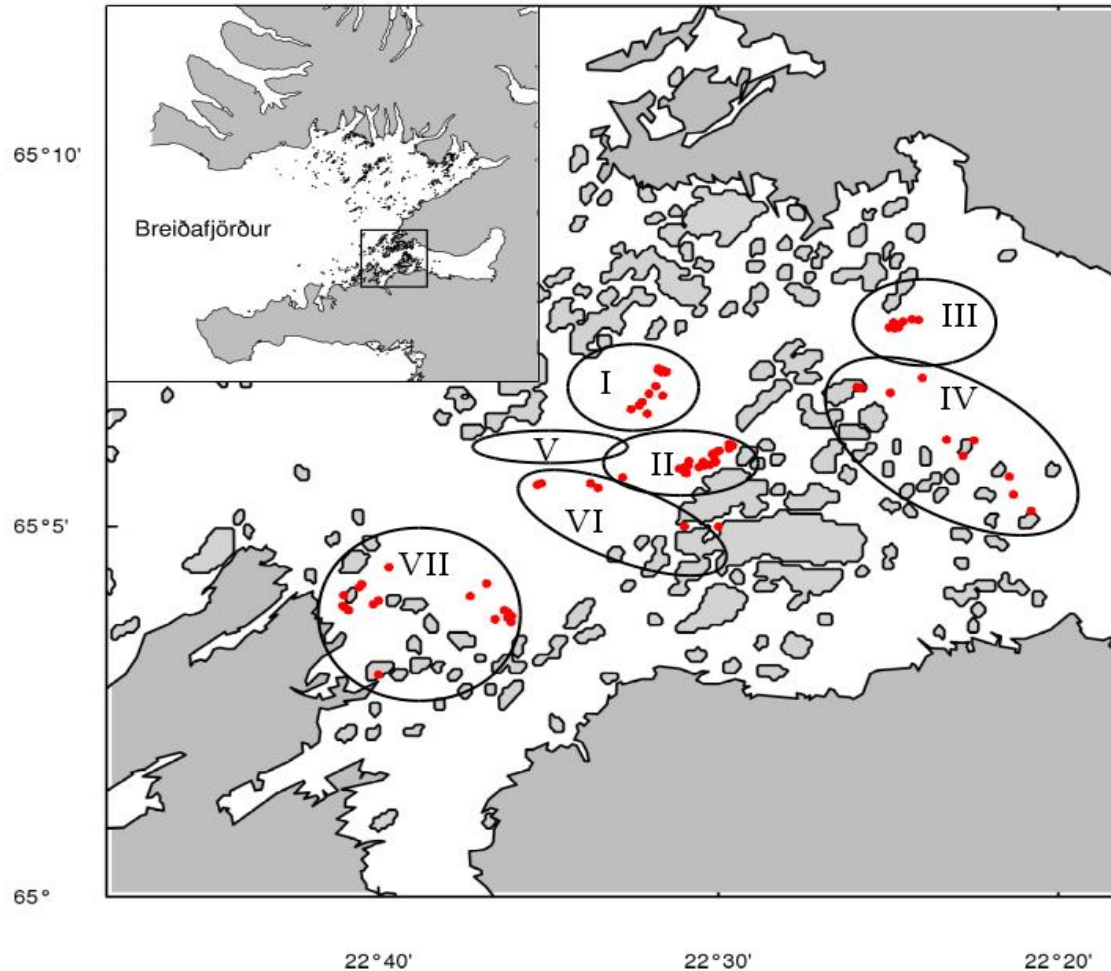
Landings 1993-2016 and CPUE 2005-2016



CPUE and landings



The main fishing areas in Breidafjörður since 2004, mapped in 2015 and divided into 7 smaller areas



Catch and bycatch differ between areas depending on depth (8-60m) and bottom type



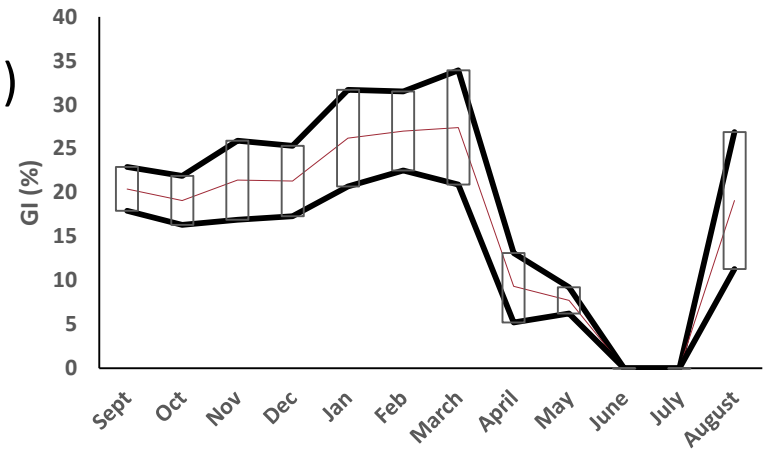
Roe filling (GI) and colour

The fishing season:

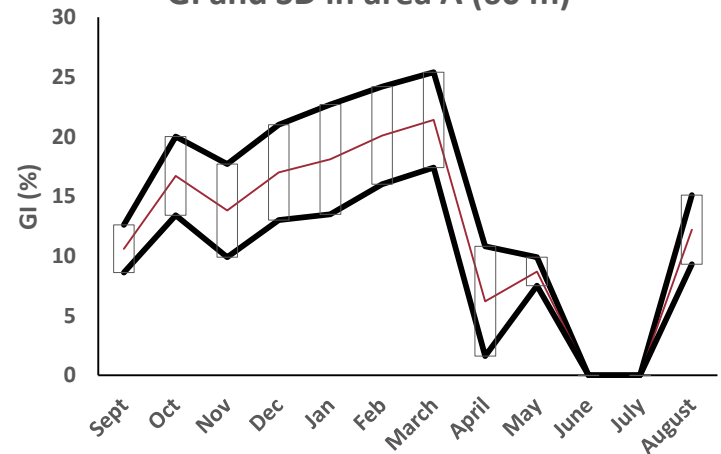
September-April, depending on quality of roes and Gonad Index (GI)



GI and SD in area B (30 m)



GI and SD in area A (60 m)



The future



The known fishing areas in southern Breidifjörður are fully utilized by one boat

Seven small different fishing areas; give advice for each area?

Find new fishing areas elsewhere in the fjord and around Iceland for the Green sea urchin

Is it possible to utilize The common sea urchin (*Echinus esculentus*)?

Regulations

1983-1993: No limits of quantity or catch. The boat had to operate legally with legal fishing permit, using a dredge or a diver.

1993-2012: The boat had to operate legally with legal fishing permit, having a contract with a legal processing company approved by the Directorate of Fisheries. The government could limit the permit if necessary by demanding monthly reports on the fishing, maximum size of boats, size and kind of fishing gear used and the fishing season.

Each license was limited to one big area (7 areas around Iceland) but there were no limitations for number of licenses that could be granted (Regulation no 492/1993).

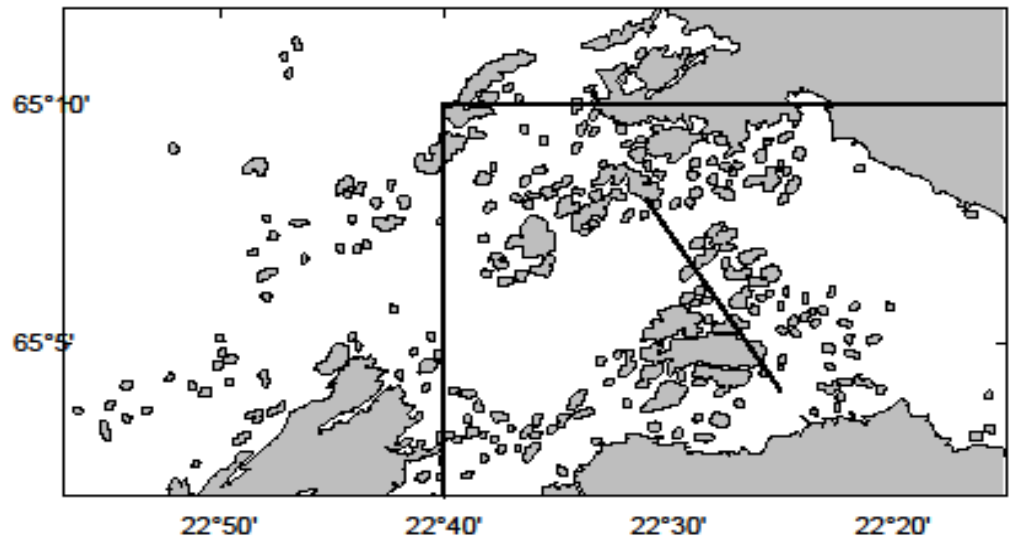
Regulations

2013: No limitations to areas, fishing reports (loogbook) required monthly.

2016: An advise for utilization was given built on results from the NPP project. For the fishing year 2016/2017 the catches should not be more than 250 tonnes in a certain area in southern Breidafjörður.

2017: The same advise as the year before but now the area was divided into two, and the advice was 150 tonnes west for a line and 100 tonnes east for the line.

The fishing area in Breidafjörður



Legislation

Since 2010 the requirements for harvesting sea urchins are the same as for shellfish (European regulations 253 and 254/2004).

Each harvesting area has to be mapped by GPS.

Each harvesting area has to be classified (A,B,C) by the competent authority (Icelandic Food and Veterinary Authority) (Mast)) concerning bacteria, viruses, heavy metals (Pb, Cd, Hg) and poison algae for a year. Opened or closed depending on results.

Once an area has been opened, monitoring in the area is required by the competent authority to keep it open.

The catch has to be monitored by authorities when landed (biotoxin) (Regulation no 1010/2013).

Fishery management plan

- Until 2016 no restrictions on catch existed. In 2016 catch limit was devised in one known area (southern Breidafjörður).
No restrictions on number of boats, dredge constructions or area closure.
- No regulations regarding size limits, but the market demand is 40-50 mm in diameter.
- No limited fishing seasons, but market demands roe of good quality (> 10%, right colour and quality) which is only available September-April in Icelandic waters.
- Logbook information is required monthly, catch, location and effort is reported for every fishing day and the stock status (CPUE) has been determined annually from that information by the MRI.

Fishery management

The Directorate of Fisheries is an Icelandic government institution responsible for implementing government policy on fisheries management and handling of seafood products.

It collects processes and publishes data on fisheries in collaboration with Statistics Iceland.

Information on sea urchin catch (by fishing boats) by area, day and effort is available on the Directorate's web site (<http://fiskistofa.is>).