



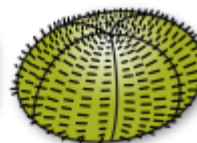
Northern Periphery and
Arctic Programme
2014–2020



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URCHIN
Utilising the Arctic Urchin Resource



URCHIN newsletter (18 Month)

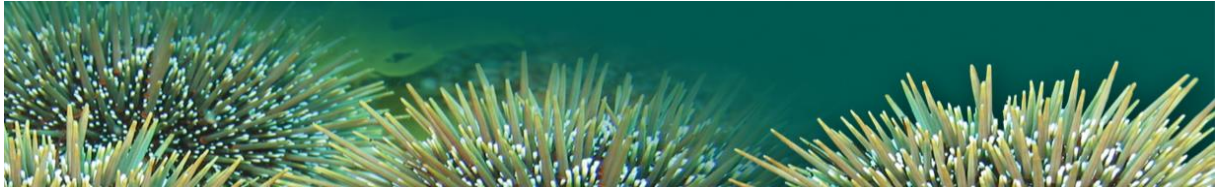
Welcome to the 18 Month URCHIN newsletter describing our project activities between May 2016 and October 2016. The contents of the newsletter include; a summary of the project meeting and associated meetings held in Reykjavik in October 2016, the activities of the various project partners over the last 6 months and a brief summary of what to expect in the URCHIN project over the next 6-12 months.

We hope you enjoy the newsletter and as always please do not hesitate to contact the project coordinator and/or the project partners in each of the participating NPA countries for further information regarding the URCHIN project (contact details are listed at the end of the newsletter).

Best regards,

Phil James (Nofima)

URCHIN Project Coordinator



Summary of meetings held during the URCHIN Project Meeting in Reyjavik, Iceland in October 2016

1. Iceland Open Seminar: Mon 3rd April

Agenda:

- Welcome and introduction to the Northern Periphery and Arctic program and the URCHIN Project (Phil James, Nofima, Norway)
- Sea urchin hatchery production and reseedling (Colin Hannon, Galway Mayo Institute of Technology, Ireland)
- Sea urchin roe enhancement (Phil James, Nofima, Nofima)
- Canada's framework for providing scientific advice for the management of new and developing invertebrate fisheries (case study: sea cucumbers in British Columbia (Janet Lochead, Fisheries and Oceans Canada)
- Open discussion of the sea urchin industry in the NPA, issues related to reseedling, hatchery production, roe enhancement and fisheries management.

The open seminar was a very successful meeting with 35 participants representing 23 different countries. This allowed for a wide-ranging and interesting discussion at the conclusion of the formal presentations.



Philip James from Nofima (Norway) introduces the URCHIN project at the Open Seminar held in Reykjavik.

2. Project meeting: Tuesday 4th October

Agenda from the meeting:

- Welcome, overview and introduction by Project Coordinator.
- An overview of the NPA conference and lead partner meeting held in Akureyri the previous week.
- Project reporting
- Update and current status for each Project partner:
 - Nofima (Norway)
 - MRI and Thorsholmi (Iceland)
 - GMIT (Ireland)
 - Arctic Caviar (Norway)
 - Matis (Iceland)
 - Royal Greenland (Greenland)
- Work Package 1-6 discussion and overview
- The next project meeting was discussed with Janet Lohead from Fisheries and Oceans Canada inviting the Project to hold the next meeting in Vancouver, Canada. Other alternatives would be Norway or Galway.

3. Iceland Ministry Meeting: Wed 5th October

On Wednesday 5th Oct the Project Partners met with representatives from the Icelandic Ministry of Industries and Innovation, Department of resource management to discuss the current situation and potential of the Icelandic sea urchin fisheries.

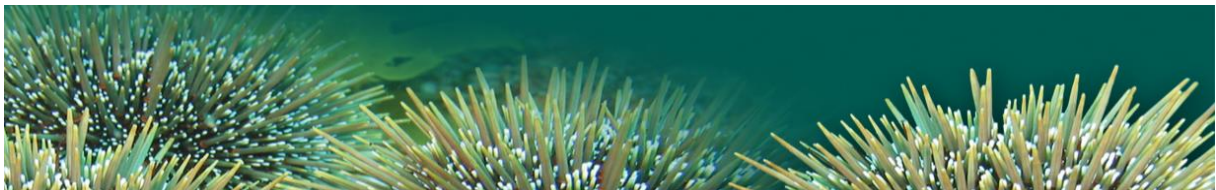
The following case studies and discussion points were presented:

- Welcome by Guðrún Þórarinsdóttir from Marine Research Institute and a review of the Icelandic sea urchin experience (delivered by Guðmundur Stefánsson)
- Introduction to the Northern Periphery and Arctic program and the URCHIN Project (Phil James, Nofima, Norway)
- The sea urchin fishery in Ireland (Colin Hannon, Galway Mayo Institute of Technology, Ireland)
- Sea urchin fisheries management in NZ, a short review (Phil James, Nofima, Norway)
- A framework for providing scientific advice for the management of new and developing invertebrate fisheries (Janet Lohead, Fisheries and Oceans Canada)

This was followed by an open discussion around the issues faced in Iceland and how some of the lessons learnt in other sea urchin fisheries from around the world could be applied in Iceland. This will enable fisheries managers to avoid over-exploitation of existing sea urchin fisheries, protect the rights of fishermen that have developed the current fishery and to enable the exploration and development of the fishery in other areas of Iceland. The meeting concluded with the agreement to continue the discussion between Government representatives, Research Institutes and Fishermen to provide an action plan for future sea urchin fishery management. The meeting concluded with a presentation and taste testing of urchins harvested by Ólafur Ásmundsson (Thorisholmi ehf).



From left to right: Hinrik Greipsson (Expert on Fisheries Management) from the Icelandic Ministry of Industries and Innovation, Department of Resource Management, Ólafur Ásmundsson from Thorisholmi ehf, Iceland and Sten Siikavuopio from Nofima, Norway enjoy sea urchin taste testing at the conclusion of the meeting.



Summary of project partner activities during the last six months:

Nofima, Norway:

As the Project Coordinator Nofima continued to liaise with NPA Secretariat regarding project reporting and logistics. They also attended both the NPA Annual Conference and Lead Partner meetings in Arkureyri, Iceland in October 2016.

In Norway Nofima have continued their fieldwork investigating monitoring populations of sea urchins both to discover new fishing populations and also as a basis for scientific monitoring of sea urchin populations. One interesting new and novel technique investigated was the use of a drone to undertake fine scale aerial surveying. This is a continuation of the fixed wing aerial surveys conducted in conjunction with Arctic Caviar in the Bodø area (reported in the previous newsletter).

A drone (Phantom 3 Advanced model) was used to make both shore based and boat based flights to survey small areas of coastline (approximately 0.5km²). In the first trial, the drone was launched from shore and an aerial video survey of approximately 500m of coastline was made. For the second trial,

the drone was launched from a 5m boat and an area that had been previously surveyed using fixed frame camera and divers was surveyed from the air.

The drone flights produced video of excellent quality that clarified the reef structure and provided excellent information for locating possible fishing locations within the area. The second day of testing which was conducted from a relatively small boat proved that the drone is easily launched and retrieved from a small moving platform and that it was a very effective technique for fast aerial surveys of a relatively small area. This technique could be used by fishers to rapidly identify parts of extended reef systems that are most likely to produce sea urchins. This would eliminate some of the need for extensive in water surveying and enable the fisher to go straight to the sites with the greatest potential (see further details in 'Sea Urchin surveying techniques', Nofima Internal Report 35/2016).



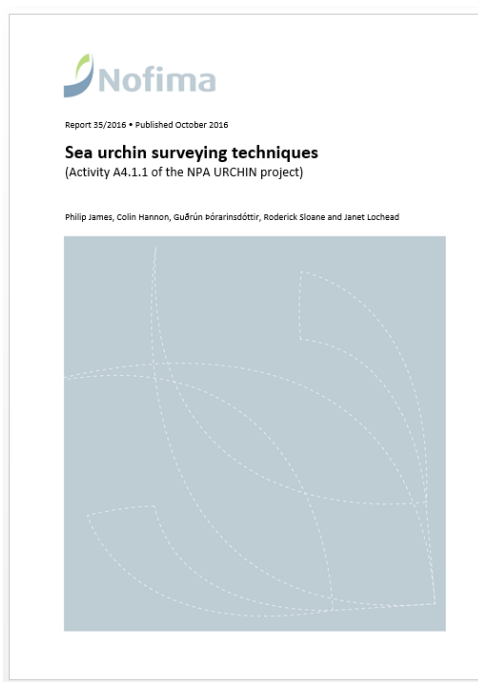
The aerial surveys using the drone model 'the Phantom 3 drone' (top) and aerial shots taken from the drone at a height of approximately 40m showing reef structure along the shoreline (bottom left and right).

Nofima also continued its urchin population survey technique study, comparing the use of a mini dredge, diving, use of a camera on a fixed frame and trapping. The results have been reported in the recently published report 'Sea Urchin surveying techniques' (Nofima Internal Report 35/2016).

Between July and September, Nofima ran a semi-commercial roe enhancement trial in conjunction with the Associated Partner Lyngsskjellan AS in Rotsund, Lyngen (northern Norway). The trial was very successful with the resulting 'enhanced' urchins being distributed to restaurants in Norway as well as 35kgs of urchins being shipped, processed, assessed and sold into the Tsukiji Market in Tokyo, Japan. The details of this trial will be presented in a report that will be released in the next reporting period.

The report titled 'Sea urchin surveying techniques' was also published by Nofima (available on the URCHIN project website) in October 2016. The report introduces the URCHIN project, funded by the

Northern Peripheries and Arctic Programme (NPA). It then describes the main techniques used for stock monitoring in sea urchin fisheries around the world, including techniques used in the NPA. Trials in Norway and Iceland run with the aim to develop cheap, effective and reliable methods of stock monitoring suitable for the environmental conditions found in the NPA are described. These include methods for both surveying new fishing areas as well as scientific monitoring. This report describes suitable sea urchin stock assessment techniques for both scenarios and describes the methodology to all participating NPA countries. It also makes recommendations for the most suitable methods for each of the participating NPA countries (Norway, Iceland, Ireland and Greenland).



The report titled 'Sea urchin surveying techniques' was also published by Nofima (available on the URCHIN project website) in October 2016



Ireland (Marine & Freshwater Research Centre, Galway Mayo Institute of Technology and SME partners):

Juvenile sea urchins

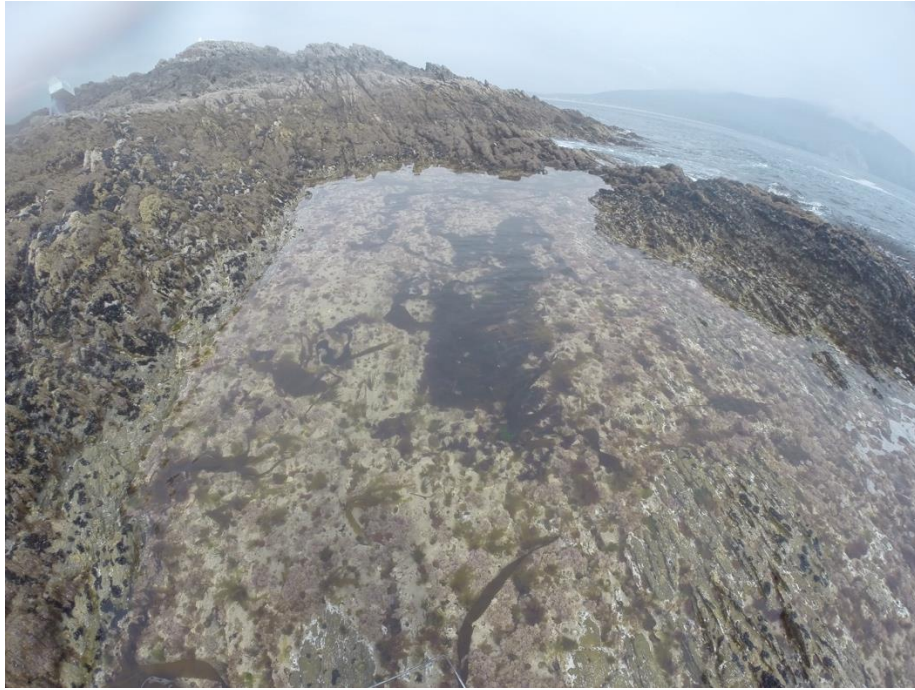
Successful production and on growing of juvenile sea urchins at Dunmanus Seafoods Ltd Co. Cork ended in May 2016 with the final grading of juvenile sea urchins for reseedling at two of the associated partners sites.



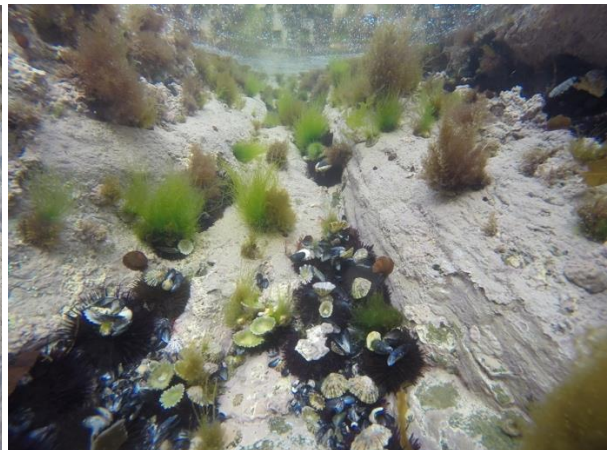
Grading sea urchins below 10mm in diameter out of the stock for reseedling, urchin spat were then packed for transport to the SME partner sites.

Co. Mayo

All site surveys were completed in May with the onset of calm weather. The first site seeded out was Purteen on Achill Island in Co. Mayo which is the most active site, however it has large wild urchins dispersed around the site



Large exposed tidal rockpool Achill island Co. Mayo



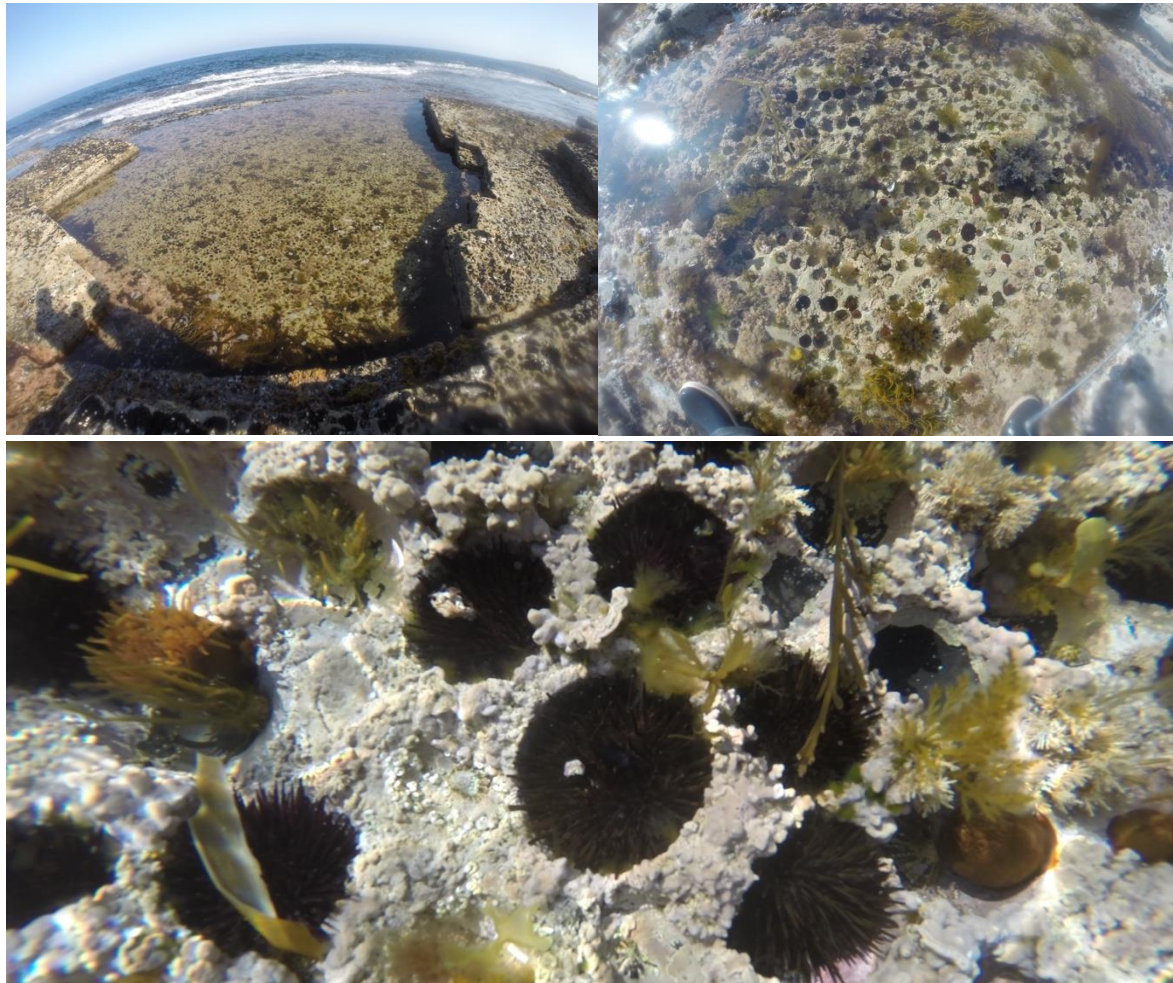
Exposed tidal rock pools on Achill Island, Co. Mayo with stocks of wild market sized urchins.



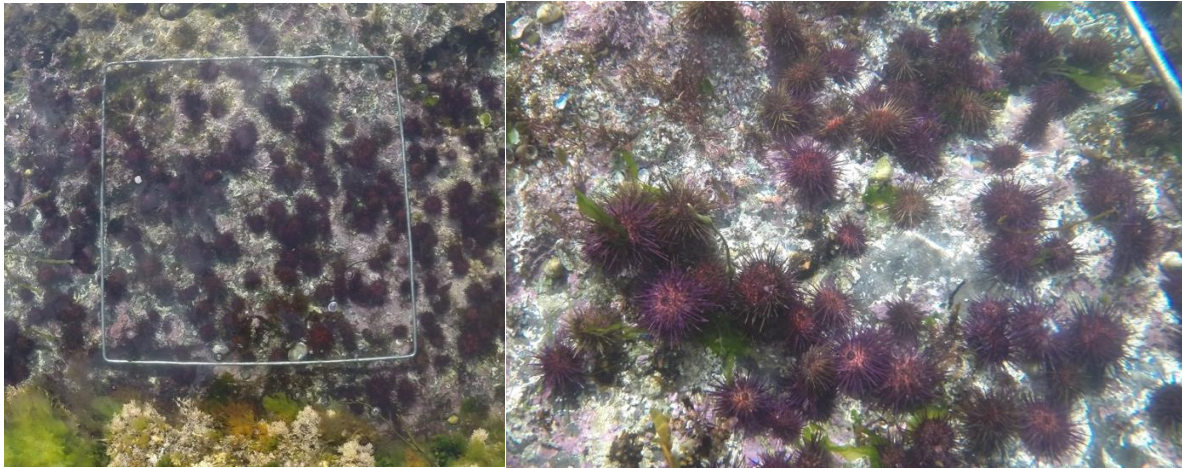
Juvenile urchins been seeded in exposed rockpools on Achill Island.

Co. Sligo

Sites near Mullaghmore in Co. Sligo were surveyed by the end of May and reseeded shortly after. The sites surveyed are less active and are easily surveyed.



Surveyed site at Mullaghmore Co. Sligo. The rock on the floor of the exposed pool and surrounding area is pitted from sea urchins burrowing into the rock. A considerable biomass of sea urchins would have been harvested from this site.



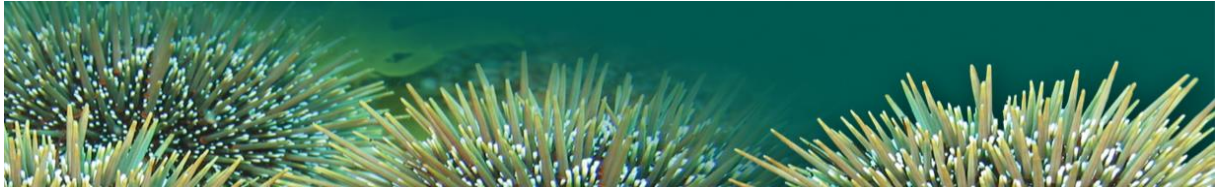
Urchin spat seeded out at Mullaghmore.

Growth rates of sea urchins seeded out at the different partners sites in Co. Mayo and Co. Sligo will be monitored for the duration of the project.

Project update

Roe enhancement trials are set to commence in the coming months as Nofima have provided their roe enhancement diet for large-scale trials in Ireland. These roe enhancement trails are to be conducted on two different sites in Co. Cork with Dunmanus Seafoods and Atlantic Sea Urchins in conjunction with our associated partner BIM. These trials form part of a bigger project transferring knowledge and technology providing proof on concept for companies to grow or expand their production. This will be the first time that roe enhancement will be conducted in Ireland using the Nofima diet on *Paracentrotus lividus* the native purple urchin. The Nofima diet is due in Ireland at the end of October 2016 and trials will begin shortly after.

These trials will be beneficial to the growers and farm operators as the aim is to add value to the urchins before they reach market by enhancing their roe content. Mirroring trials that were conducted in Norway, we will be shipping enhanced urchins to restaurants and chefs in London, Paris and locally in Ireland in the aim to get feed-back on the quality of both roe and live urchins.



Iceland:

Population monitoring for Government Regulation and for fishing efficiency in Iceland

From May until October 2016 work continued on bottom photographs taken earlier in the project. This included identifying species and counting sea urchins. A list of other species identified from the photos was made and compared to bycatch from the dredge.



A bottom photo from Breidafjörður and catch from the same area.

In September, Thorisholmi and MRI carried out a survey where 40 sea urchins from two different fishing areas were sampled. These two areas are different in depth, bottom material and food abundance for the urchins. The quality of roe is also very different. In the laboratory, the urchins were measured (diameter, whole wet weight, roe weight) and roe color was identified. Water content of the animals is also measured. The gonad index (GI) for the month is calculated. Samples were taken for histological preparation and investigation. The reproductive cycle will then be described. Smears from gonads were also made and investigated under a stereoscope. In October Thorisholmi collected the samples and brought them to the laboratory at MRI where this work will be carried out over the course of the next year.



Roe from urchin samples collected in October 2016 from a quality area. The gonad index=19%.

At the end of October a meeting was held where management of the fishery to avoid over-exploitation of the existing stock in Breidafjörður was discussed between Government representatives, MRI, Matis and Thorisholmi. No decisions were made but many alternatives discussed and discussions are ongoing.



Eighteen months– half way!

The project has now reached the half way stage! It has been a busy but rewarding first eighteen months and with the northern winter fast approaching the project participants will concentrate on delivering a number of outputs over the coming months and prepare for the next year. If you have any queries related to the project please contact one of the following national contact points to discuss possible involvement in the URCHIN project and the sea urchin fishery in the Northern Periphery and Arctic area.

Norway:	Phil James	philip.james@nofima.no
Ireland:	Colin Hannon	colin.hannon@gmit.ie
Iceland:	Guðrún Þórarinsdóttir	gutho@hafro.is
	Guðmundur Stefánsson	gudmundur.stefansson@matis.is
Greenland:	Nikoline Ziemer	nikz@royalgreenland.com

(If you are outside of these NPA countries please don't hesitate to contact Phil James at Nofima, Norway for further information regarding associate partners and activities)

The next URCHIN Project meeting

Where: Norway / Ireland or possibly Canada
When: Oct/Nov 2017
Theme: Yet to be decided

Watch out for more details on the URCHIN website, contact Nofima for further details, or check out our next newsletter in six months!

