

M/T Paamiut SFW RejeFisk Survey Togat 4 July 19-30, 2012: Nuuk – Qaqortoq

ZSL participants: Dr Kirsty Kemp, Dr Chris Yesson

Summary of work

The benthic survey undertaken on Togat 4 of the Paamiut Rejefisk survey was extremely successful. More than 400 photos of the seafloor from 48 stations covering 700km of continental shelf (Figure 1) were collected in 10 days. Only 2 days were lost to bad weather. Both camera and grab sampling was undertaken (Figure 2).

The benthic camera was again loaned to ZSL by Dr Martin Blicher and Prof Soeren Rysgaard of GCCR and worked very reliably.

Nanette Hammeken and GINR provided shrimp trawl fishing data from 1975 to 2011, and cod trawl fishing data from 1999 to 2011 for the survey region. As halibut and redfish fishing are outside of the current target sampling depths and regions they were not considered at this stage. From this data 8 sites which have been unfished, 13 sites which have had high fishing activity historically and presently, and 11 sites which may be considered potential recovery sites (fished historically but not recently) were targeted for surveying (Table 1).

Grab sampling was undertaken at 21 stations and resulted in the successful collection of a range of benthic samples (Figure 3). The fauna collected shows at first glance some differences to that of the 2011 survey and will be extremely useful for validating identifications of animals in images.

ZSL sourced funds (£5000) to purchase and transport a DayGrab for use during the expedition.

ZSL also sourced funds for travel and accommodation (£1900) and salary (3 weeks, £1500) for Dr Chris Yesson to join Dr Kirsty Kemp on the expedition. Dr Chris Yesson is an expert on habitat suitability modeling and genetics.

Additional work

A student will begin work with Kirsty Kemp on September 1st, to identify and catalogue the fauna collected in the grabs, and to match/associate these animals with their appearance in seafloor images (validating and ground-truthing the images).

In the days prior to the cruise, Dr Chris Yesson visited GINR and assessed the fauna collected as by-catch on previous surveys. He provided identifications of samples and took sub-samples of the corals to enhance the data set for genetic analysis. To date he has collected 162 samples for genetic analysis.

In September 2012 an intern will begin work in the molecular laboratory of ZSL, under the supervision of Dr Chris Yesson, to perform DNA extractions and genetic sequencing of the coral specimens collected (ZSL to source lab fees of c.£1000).

Dr Grigorios Skolidis, an expert in computer learning, has been recruited and will begin a contract with Kirsty Kemp at ZSL (and in association with UCL) in November 2012 to work specifically on developing techniques for the automation of image analysis to generate ecologically useful data.

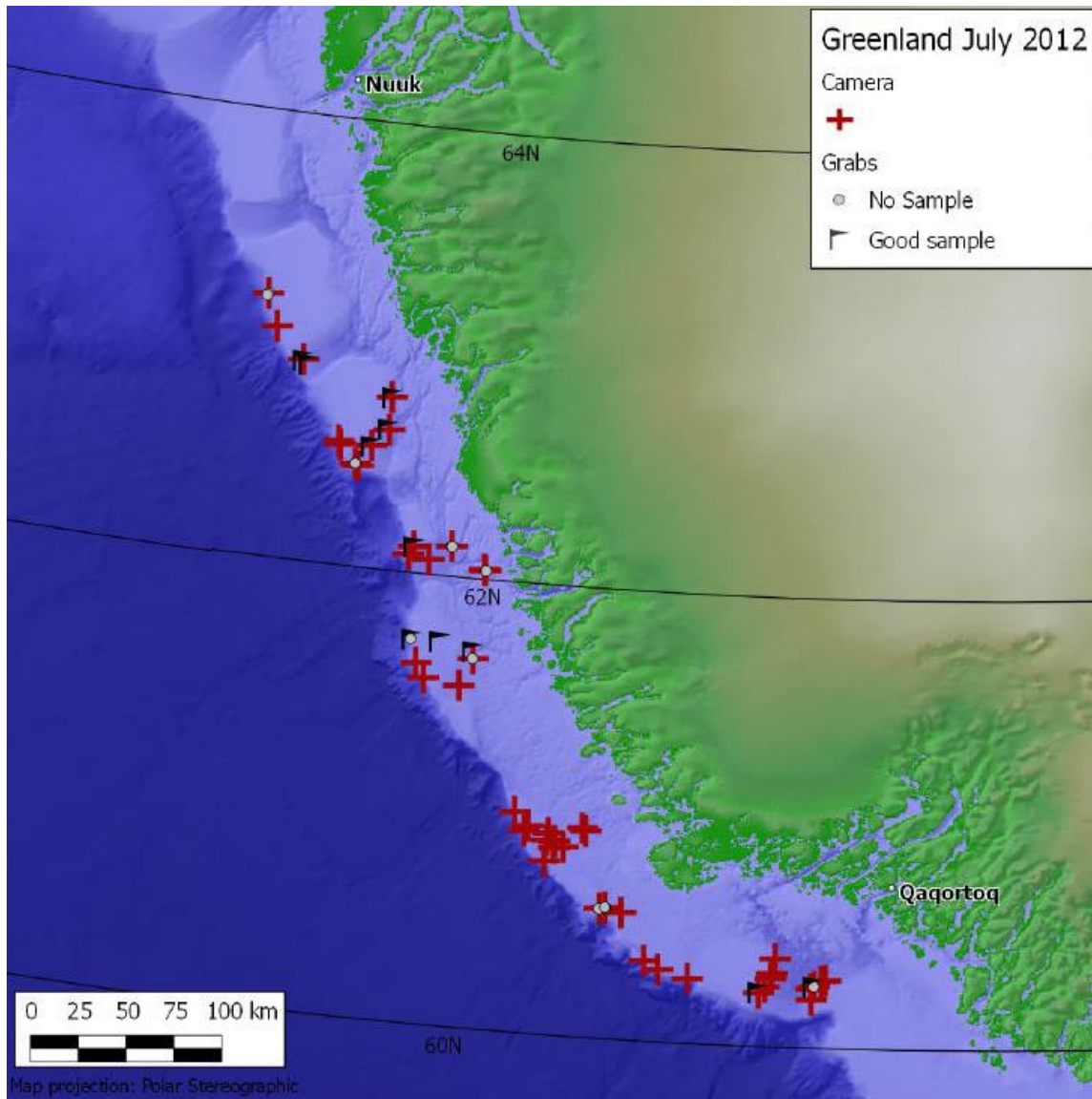


Figure 1. Camera stations and grab stations sampled in 2012



Figure 2. Benthic camera (image taken by Julius Nielsen) and Day grab in use

Table 1. The depth range and fishing history of camera stations surveyed in 2011 and 2012

Year	Fishing Class	Depth Class (m)			Grand Total
		100-200	200-300	300+	
2011	Heavy	1	21	5	27
	Intermediate	4	1		5
	Light	3	1	1	5
	Recovery	2	2	6	10
	Unfished	1			1
2012	Heavy	1	11	1	13
	Recovery	3	6	2	11
	Unfished	3	5		8
Grand Total		18	47	15	80



Figure 3. A subset of benthic samples collected in the Day grab, to be used for taxonomic and genetic analysis and validation of image-based identifications.