

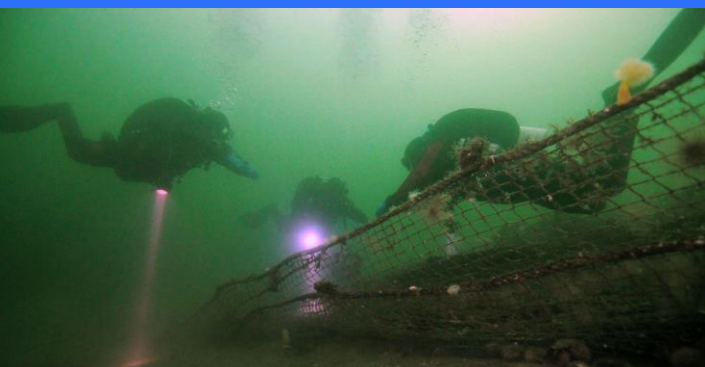
# Retrieval of lost fishing gear – reducing the impact on the marine environment



DIRECTORATE OF FISHERIES

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Ålesund 01.09.2016





# Content

- Definitions of waste and marine litter
- Background
- Organization of our clean up system and experience over the years
- Who's responsibility?
- Measures for reducing lost fishing gear





# General information



- Garbage is waste that is not handled in a proper manner. To leave waste at a suitable location is called littering
- It is necessary both to prevent and clean up in order to reduce marine littering. Littering of beaches and the ocean is increasing
- Marine littering includes both waste in the beach zone and the ocean. It can be anything from plastic bottles, cigarette butts and Q-tips, to rope and fish nets
- The waste we see on the beach is just a small part of the total quantity. About 70 % sinks to the bottom. In certain ocean areas waste from land based sources are dominant, and in other areas waste from activities at sea dominates. Along the Norwegian coast we find a large part of fisheries related waste
- Marine litter is spread by the large ocean currents across country borders. Plastic is the largest problem
- It takes 450 years for a plastic bottle to break down to small micro plastic particles. Plastic is gathered where the ocean currents form gigantic gyres. A report from the World Economic Forum has estimated that in 2050 there will be more plastic than fish in the ocean.



# Marine littering or a natural downside from the industry, where do we cross the line and does it matter?



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# The Norwegian fishing fleet

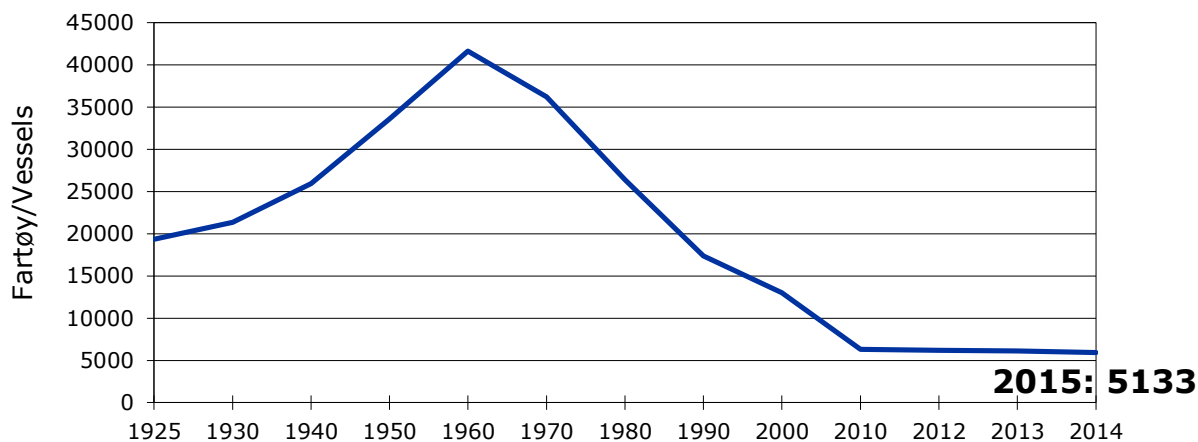
Shorter than 15 m: 4626



Between 15 – 28 m: 264



Fishing vessels 1925 - 2014



Longer than 28 m: 243

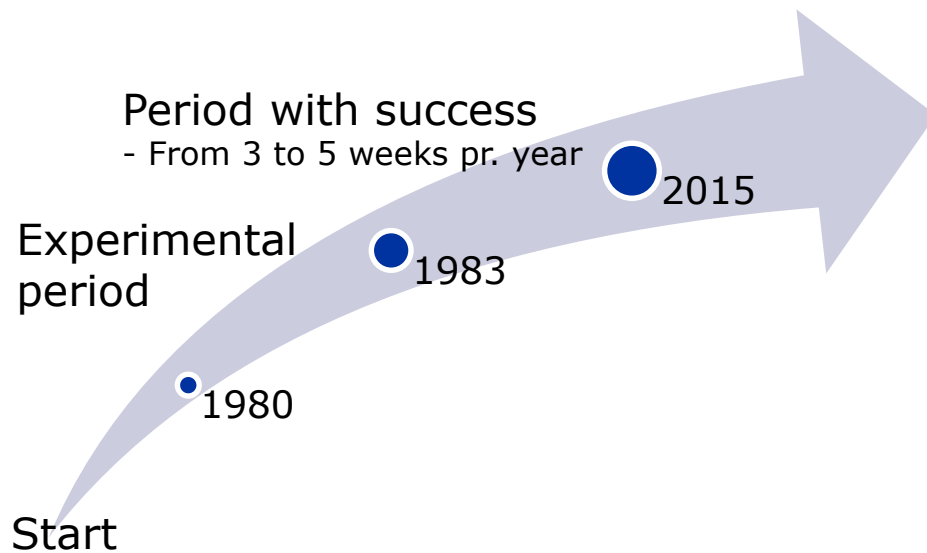




# Development of retrieval operations



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**Result: 19 000 gillnets**

Equals to the distance from  
Lisbon to Madrid



# Challenges

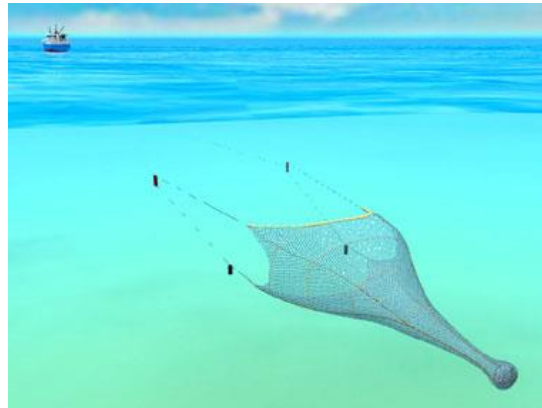
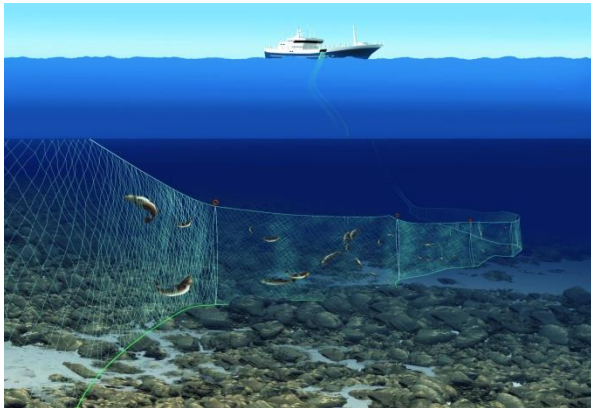
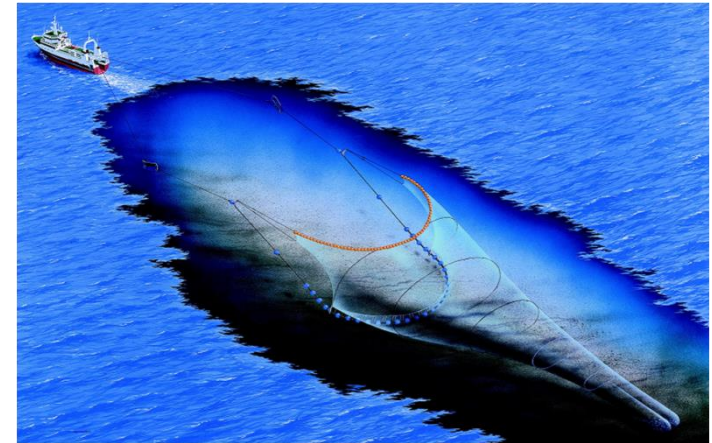
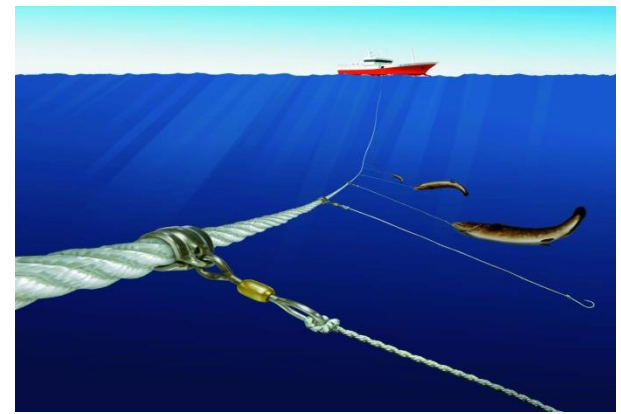
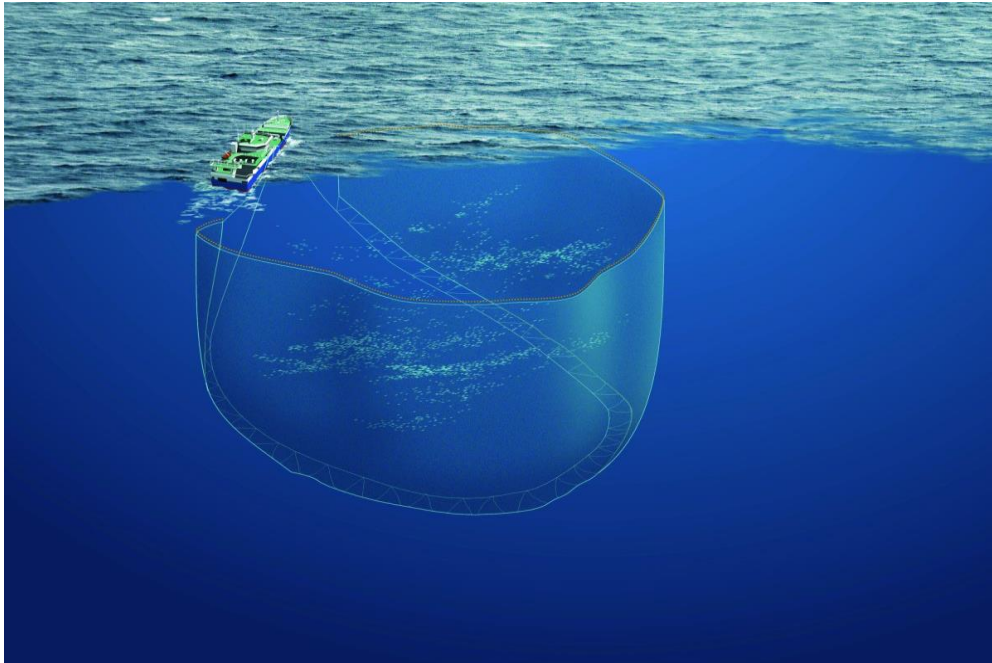


- Experience and investigations show that lost gillnets can be fishing actively long after they are lost → “ghost fishing”
- Lost gillnets are also contaminating the marine environment. Today, gillnets are made up of different types of synthetic fibres, such material does not break down/decompose in water
- Over the past decades, a pot fishery after the king crab has developed along the coast of Finnmark
- The Directorate of Fisheries is aware of a considerable loss of large amounts of pots. With this increased loss, there is an escalating danger of additional loss of pots and other fishing gear, as a result of hooking in lost gear on the seabed
- Often difficult to coordinate the clean up, due to overlapping fishing season on the most important fishing grounds.



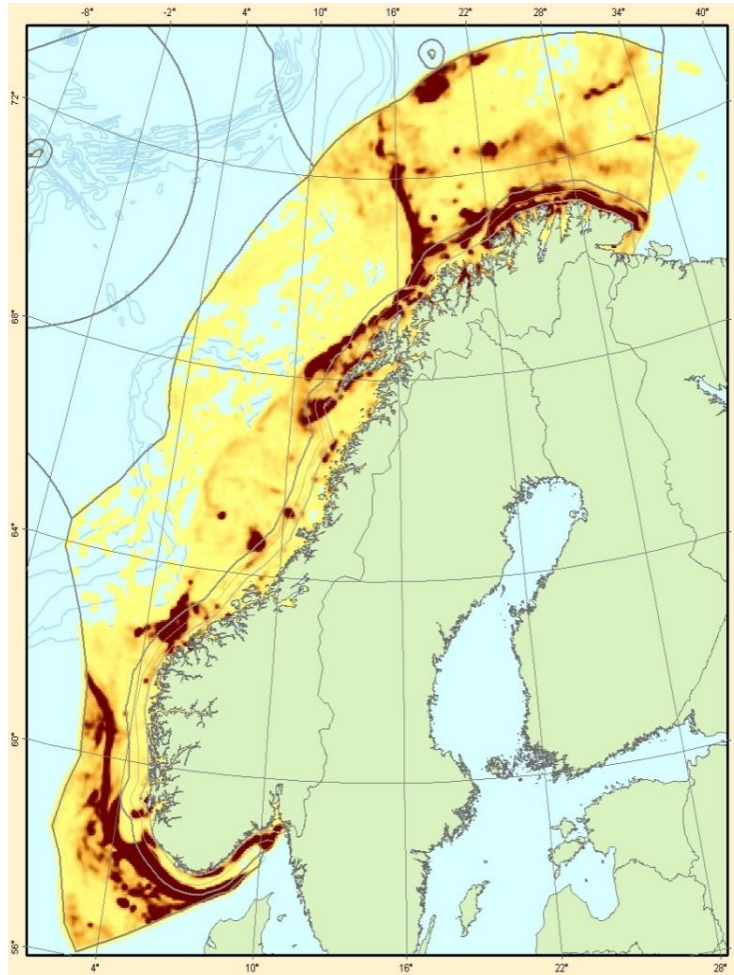


# Different types of fishing gear





# Some gear does not make it back on board





# Why does some gear **NOT** make it back on board?

## **Lost - main causes:**

- Misplaced gear (currents)
- Ship traffic (cutting of float)
- Gear conflict
- Hook in previous lost gear
- Human attitude

## **Abandoned or discarded – main causes:**

- Extreme weather
- Seabed conditions/damaged gear
- Too expensive or missing system for scraping
- Human attitude

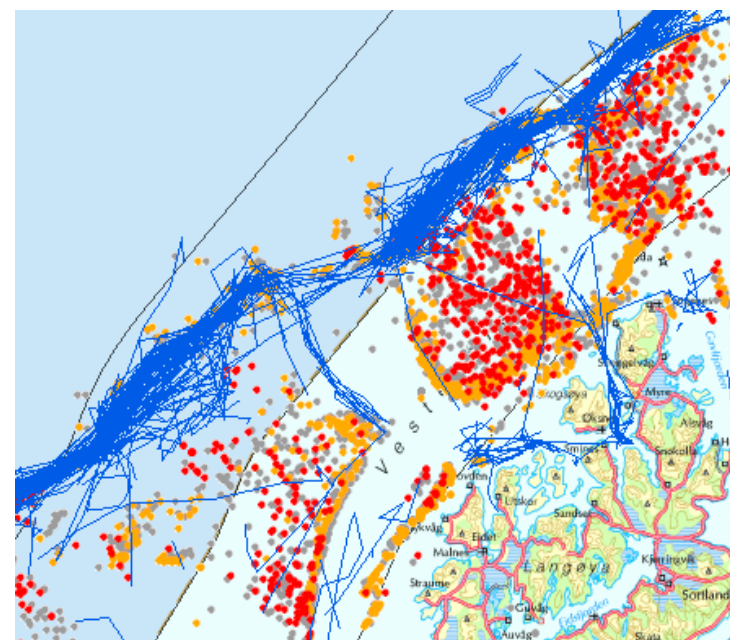
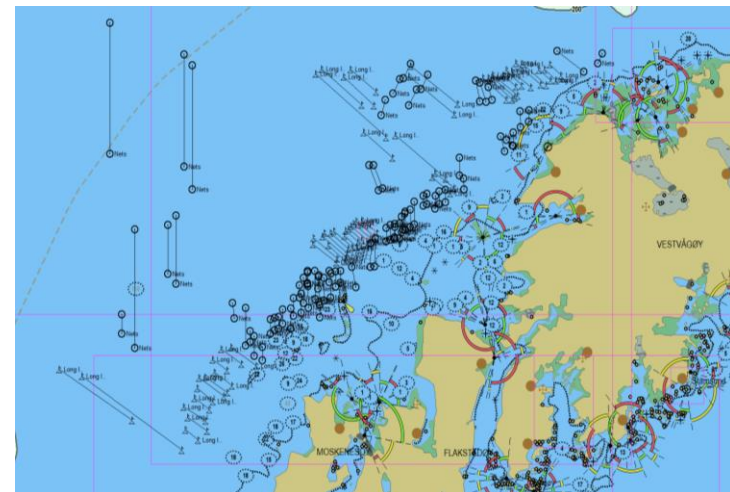


# Important information



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- Requirement for reporting the loss of fishing gear to the Coast Guard Central, if unsuccessful retrieval of the gear by own efforts
- Regulations related to seawater fisheries (Utøvelsesforskriften §78)
- Other forms of dialog between management and the industry on different arenas:
  - prior to the cruises a direct inquiry to the different organisations in the industry is made
  - contacts in local fishing organisations etc.
  - throughout the year other media “channels” remind the fishermen of the importance of reporting loss of gear.
- Each report is thoroughly gone through. Based on this information a priority is made based on area and a tentative plan for the cruise is made.





# Loss of gear - regulations and demand to report

## CHAPTER XVII. LOSS OF GEAR AND ORDER ON HARVESTING GROUNDS

### Section 78. Reporting and retrieval of lost gear

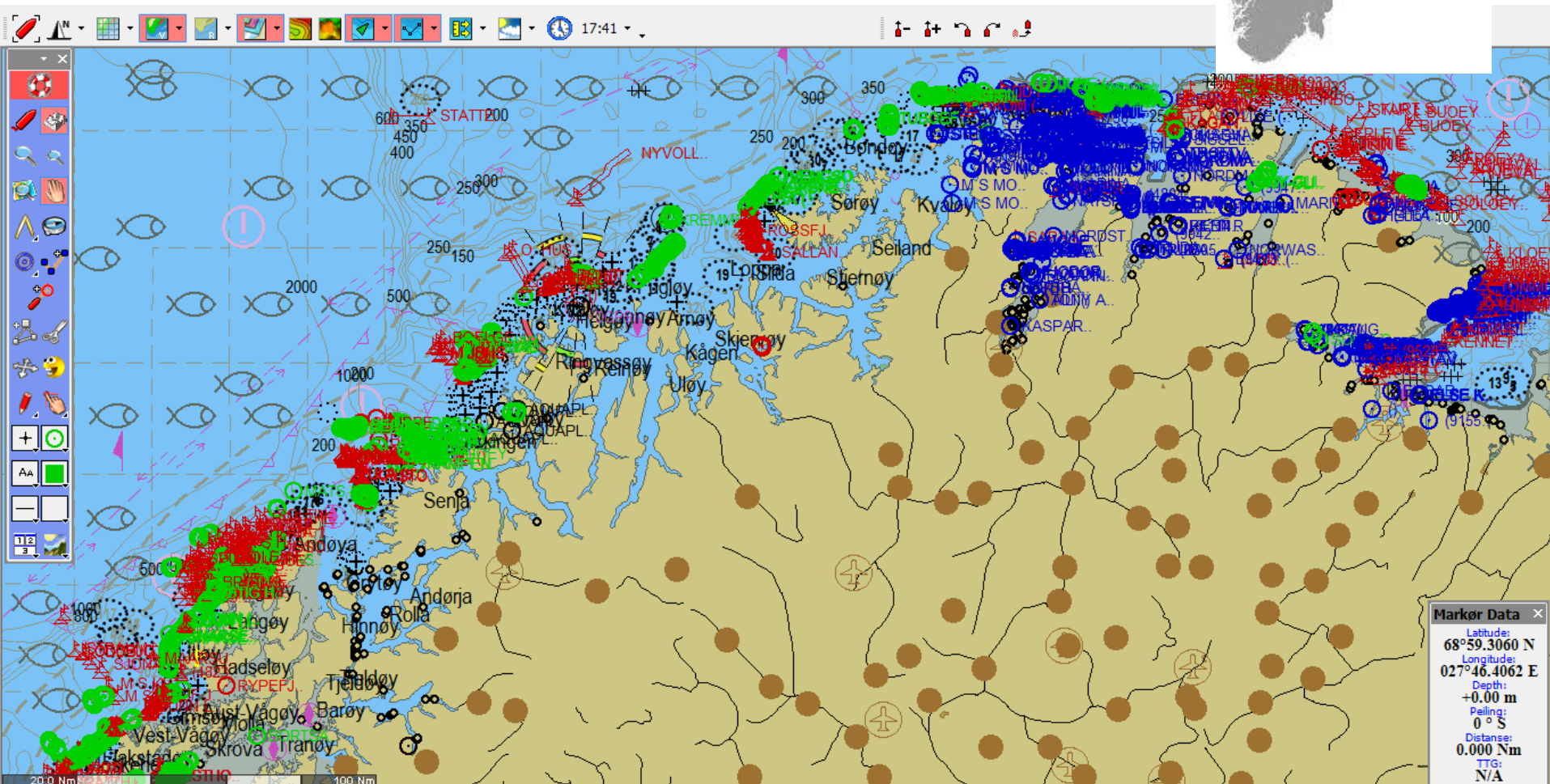
Any person that loses gear or cuts it adrift has a duty to search for the gear. If it is not possible to retrieve lost gear, the following shall be reported to the Coast Guard Central (tel. 07611) immediately:

- a) the name and call sign of the vessel
- b) the type of gear
- c) the quantity of gear
- d) the time when the gear was lost
- e) the position where the gear was lost

Finds of lost gear shall be reported to the Coast Guard Central



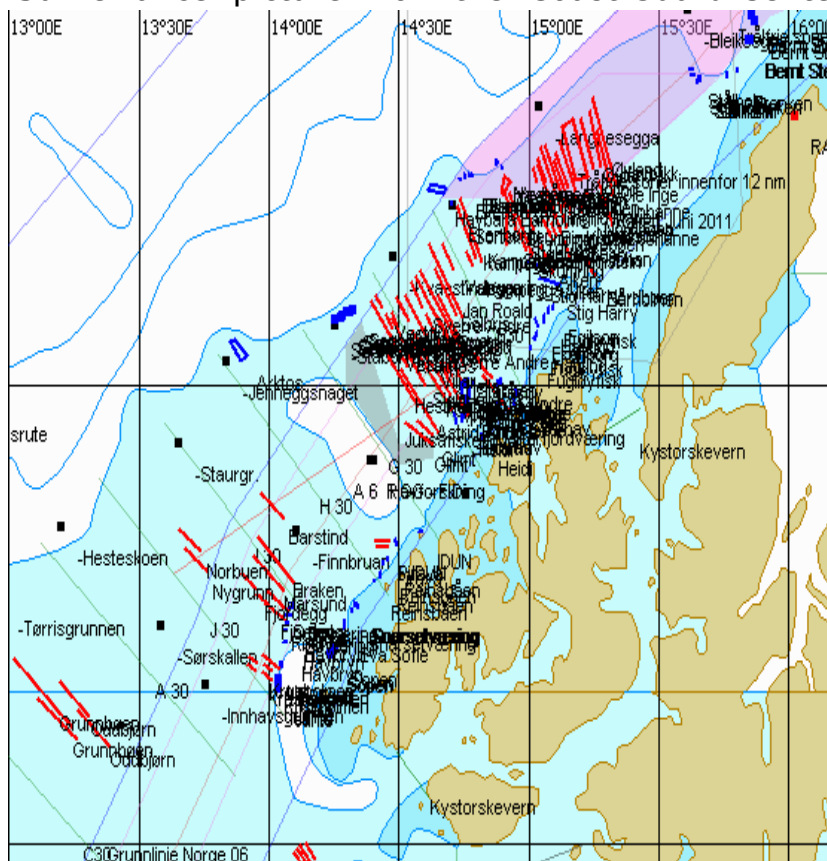
# Fishing activity – status at the moment



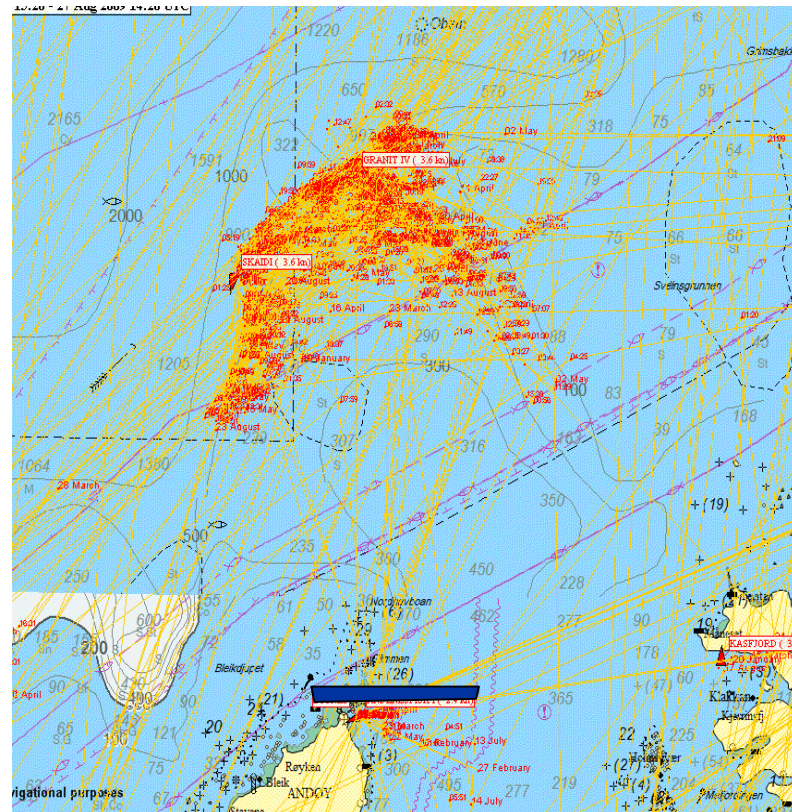


# Survey planning – Research is key

Surveillance picture from the Coast Guard Center



Satellite tracking from the Directorate of Fisheries VMS (Vessel monitoring center)

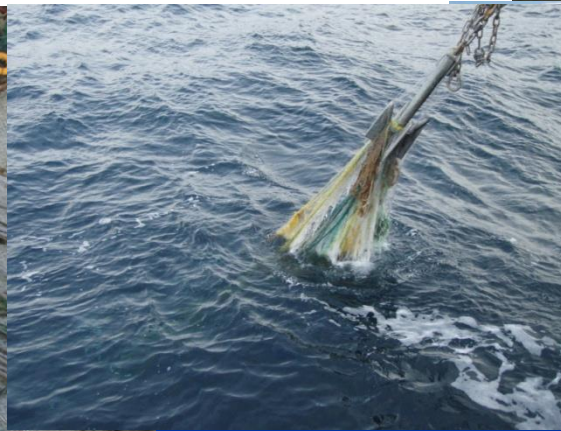


# Retrieval gear



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- The standard retrieval arrangement is 12 m long, 3 m wide with 3 “anchors” which are connected directly to the trawl
- Sweep/drag between 1-2.5 knots speed depending on what we are retrieving and the weather conditions. The duration of each sweep varies between 15 min to 3 h
- Shallow areas and steep edges with rocks is problematic when sweeping with the triple anchor (get stuck). In such areas 1 anchor is used, connected to the trawl wire with a small part of chain.

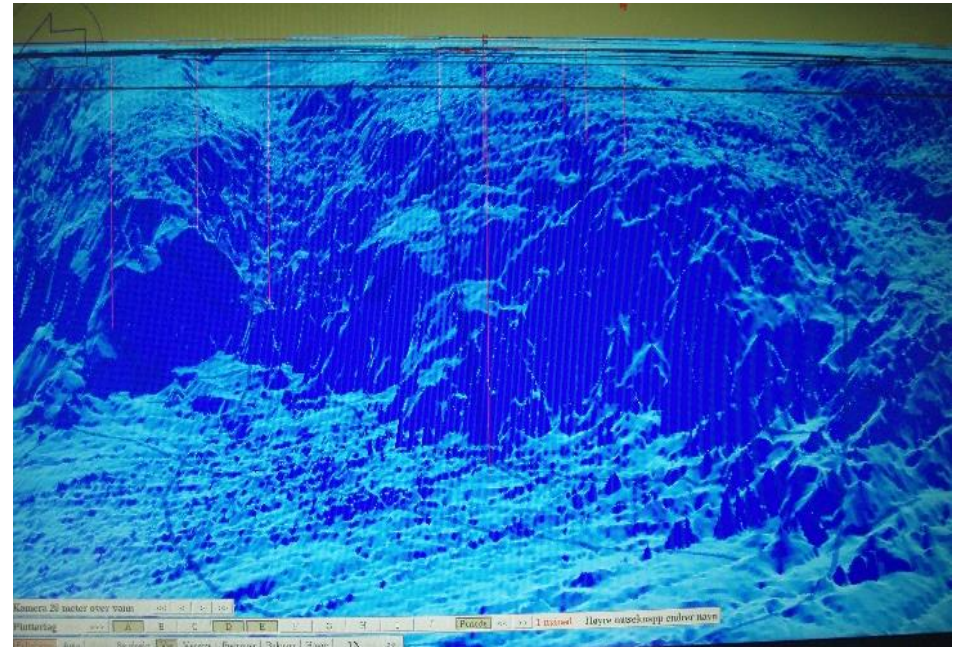




# The cruise itself



- Based on the acquired information during the planning phase and time available for the cruise, a work plan is made
- There are several factors that need to be considered and considerations to be made for the best possible plan to be composed:
  - available information regarding lost gear is the most important, with regard to the repetition frequency of sweeping in the area, active gear in the area and weather conditions
- The planning also has a special focus on gillnets, which can result in severe death of large amounts of fish. Nets at great depths, e.g. Greenland halibut nets are of high priority.



# Survey and methods

- A fishing vessel is hired to carry out the retrieval survey
- Project costs: NOK 3.800.000
- Every survey lasts for about 3 weeks, increased to 5 weeks since 2010
- Towing speed during the retrieval is approx. 1.5 knots.



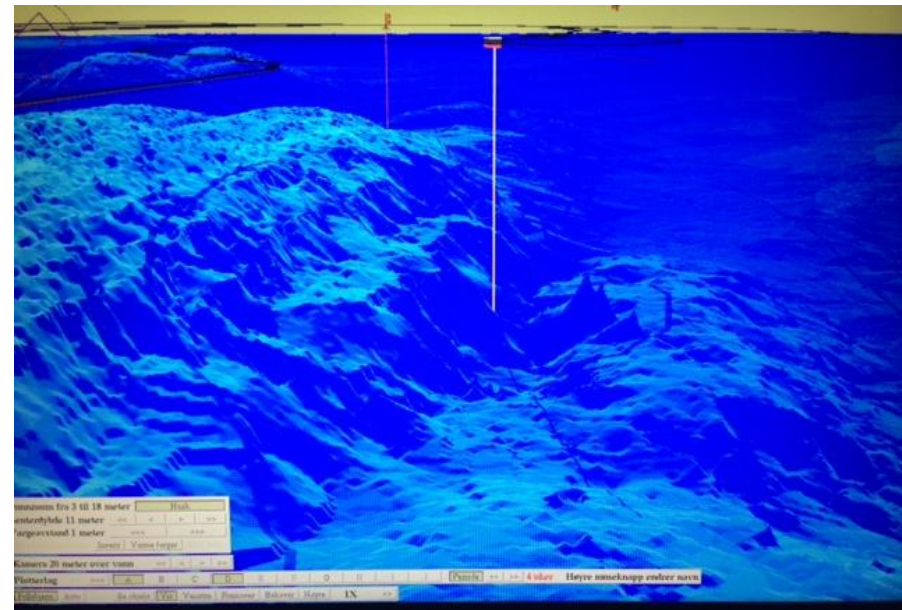
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Survey vessel - 2015



Photo: Sydney Sinclair





# Lost gear and ghost fishing





# Some of the “catch”



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## Results from 2011 - 2015:

- 4 700 gillnets
  - 205 pots
  - 77 000 m longline
  - 51 000 m different types of rope
  - 24 000 m wire/steel cable
  - 2 purse seine nets
  - 4 trawls and different trawl equipment
  - Lots of floats, anchors, steel chains
- 
- Several tonnes of different fish species
  - High number of different crab species
  - 1 Seal
  - 1 Whale
  - 0 Seabirds





# Recycling

- In 2011 the Directorate of Fisheries started a trial project, delivering lost fishing gear, with Norsk Fiskeriretur AS for recycling ([www.nofir.no](http://www.nofir.no))
- In the past, lost fishing gear has been delivered to different waste companies along the coast. The cost of this resulted in reduced sweep effort/time
- The fishing vessel used in 2015 had considerable room for storage of bags on board, only had to unload at the end of the cruise
- The gear was packed in large bags that were most practical for storage on board and for further transport, while wire and other steel materials were stored in containers.

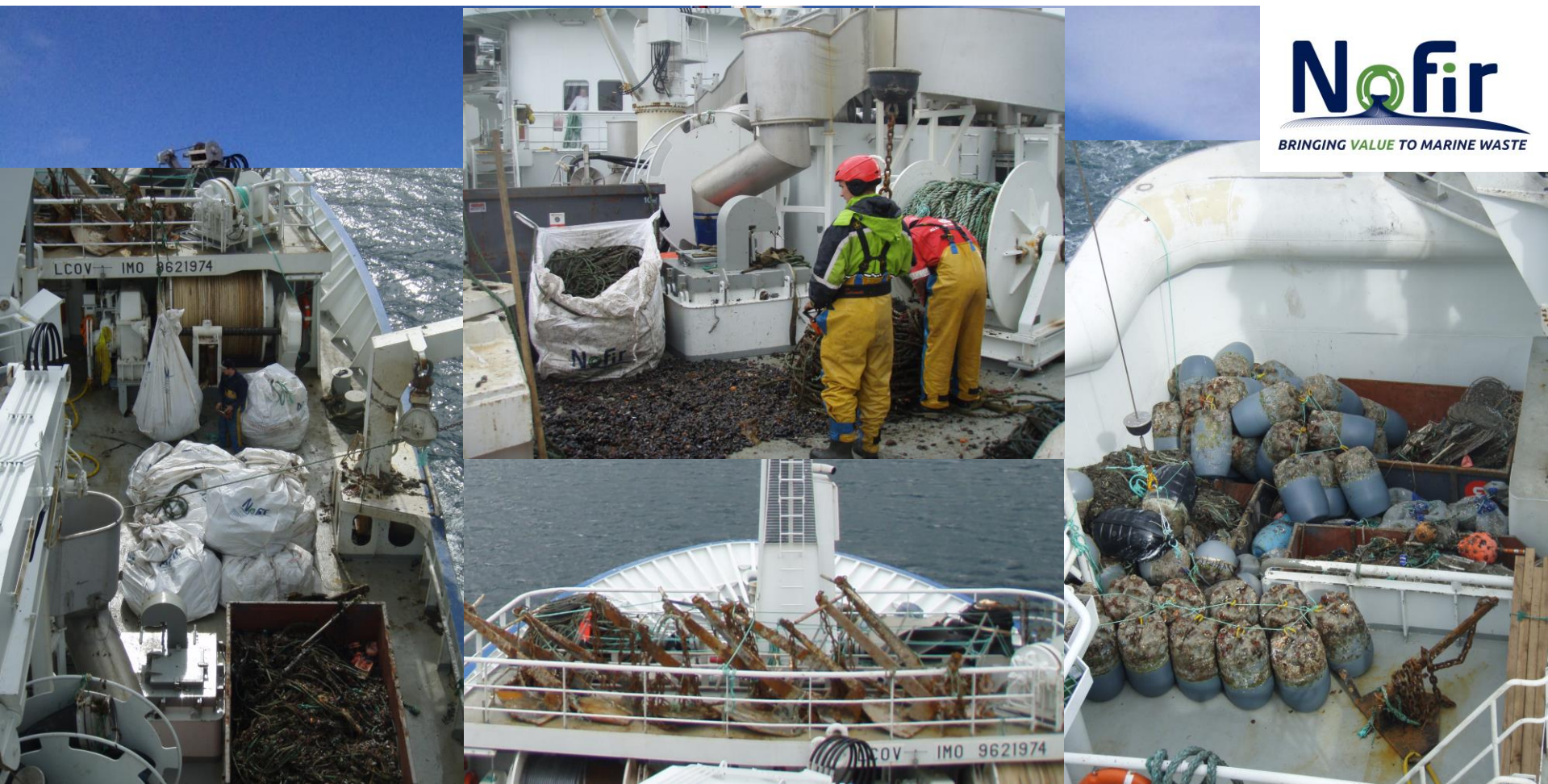


# Focus on recycling

## Sorting of waste



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**Nofir**  
BRINGING VALUE TO MARINE WASTE



# Aquaculture:

- «Fairytale» shellfish farming



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# Abandoned shellfish farm

## Clean up operations in 2015





# Who has the responsibility?



- The Ministry of Trade, Industry and Fisheries has been financing this operation for over 30 years
- The Norwegian Ministry of Climate and Environment has the main responsibility for ensuring integrated governmental climate and environmental policies (incl. marine environment- and waste management and associated regulations)
- The Norwegian Environment Agency and the Norwegian Polar Institute implements measures and provides advice to the Ministry
- The local government has the responsibility to collect and gather domestic waste and sewage sludge. Waste from ships is to be delivered to ports
- The Norwegian Environment Agency provides in their report of 2014, information on the status about measures that are implemented or under evaluation towards marine litter in Norway
- The county administrators, Coastal Service and Norwegian Nature Inspectorate, clean up litter in several outdoor recreational areas and protected areas at sea. The Directorate of Fisheries retrieves around 1000 nets and other fishing gear along the Norwegian coast every year
- In 2015 almost 20 000 people participated in Hold Norge Rents cleaning up the beaches campaign. Over 885 beaches were cleaned.

# International collaboration



- Marine littering is a global problem which requires an international collaboration
- Not all countries have good systems when it comes to waste management
- An international collaboration is necessary in order to reduce the problem of marine littering and micro plastics
- Norway has an extensive collaboration with numerous organizations, and contributes with considerable knowledge and experience
- In 2014 the UNs environmental assembly approved a Norwegian proposal of a global effort against marine littering and micro plastics. Together with Norwegian economic support this has contributed to a higher priority in UNs environmental program (UNEP) in this area
- Measures against marine litter and micro plastics is a high priority in the Nordic collaboration and the EU
- Norway emphasizes the regional marine environmental cooperation between the countries round the northeast Atlantic (OSPAR)
- As a follow-up from OSPARS action plan, the Norwegian Environment Agency has implemented a pilot project called «Fishing for litter». Norwegian fishermen can now deliver marine litter at selected ports.



# Important factors for success with retrieval operations

- Regulations and demand to report
- Any loss messages are quality assured, including conversation with the owner of the fishing gear
- Cooperation with the organization for fishermen and vessels
- Personal network of contacts regarding information of non-reported fishing gear
- Over 30 years of experience of were to find lost gear without any reports of lost gear
- Long experience regarding type of gear and methods to retrieve lost gear
- The best sea map and tools for seabed mapping (Olex)

# Summary and important tasks to reduced the impact

Regulatory requirements regarding longline, gillnets and pots

- Positions report to the Coast Guard Central
- Marking of fishing gear
- Daily tending
- Reporting and retrieval of lost gear

Technical development

- Retrieval sensors for exact position on the seabed → faster retrieval
- Degradable materials in gillnets
- Solutions to reduced the risk of ghost fishing in lost pots
- Recreational fishing – New App (<http://www.fiskeridir.no/Fritidsfiske/App-om-fritidsfiske>)





Thank you for your attention

Any Questions?

