ACCESS
Arctic Climate Change
Economy and Society

Policy Brief n°1

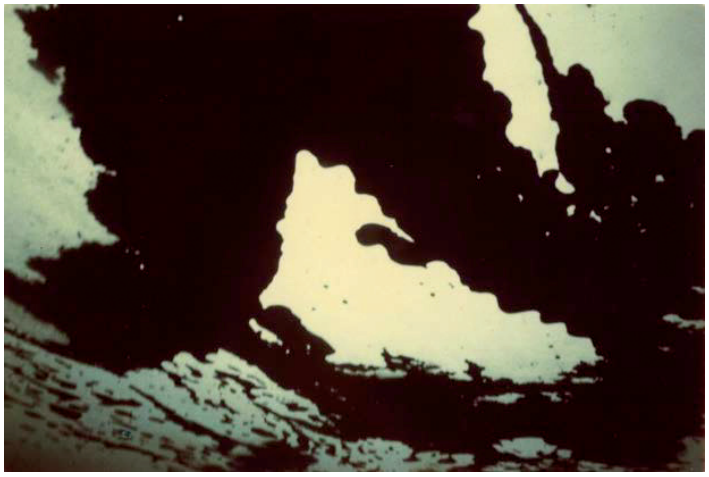
Oil spill response capabilities and technologies in ice-covered waters

This Policy Brief was developed under Work Package 4 of ACCESS. This work package covers a diverse range of topics that encompass many different disciplines and sectors. From the socio-economic impacts of resource extraction on European and world markets, to the technologies and risks involved in the safe extraction of hydrocarbons, through to the environmental pressures on the marine environment due of these developments.

It has long been recognised that the Arctic marine environment is one of the most challenging areas in the world to operate in. Even with this knowledge development in the north has progressed substantially since the 1970s, both on land as well as in some of the shallower regions of the Arctic marine environment. Recently there has been renewed interest in the northern Polar Regions, and consequently the pace of industrial activity in the marine environment has increased substantially.

It is predicted that commercial investment in the Arctic could reach $100bn or more in the coming decade, with oil and gas, mining and the shipping industries being the biggest drivers (Lloyds, 2012). The potential wealth of oil resources in Arctic waters, combined with rapidly changing ice conditions, are expected to increase the areal extent of the Arctic ocean where oil exploration and marine transportation systems are feasible. This 'industrialisation of the Arctic' seems to be driven by a combination of climate change and the ever-increasing demand, and price, for oil and minerals. It will be through natural resource development that the economic connection of the Arctic to global commodities markets will occur.

For the foreseeable future the Arctic Ocean will remain fully or partially ice-covered for the majority of the months each year. Therefore should an accident occur in Arctic waters it is clear that sea ice will add to the difficulty of an Arctic clean-up.



Oil spill under sea ice. Oil forms small rivulets that move from one depression to the next. NORCOR oil under ice recovery tests Beaufort Sea, May 1975.

The impact and consequences of an oil spill in the Arctic marine environment will be immense. Locally it will impact the ecosystem and the livelihoods of the local communities that depend on them for a living. Globally, the impact will be much more substantial. How will citizens, governments, NGOs, industry and policy makers react to an Arctic spill? How will it influence future economic and development activities across the Arctic? How will it effect the reputation of the companies involved? And what will the socio-economic impact of an Arctic oil spill be for Europe? An oil spill in the Arctic will have both environmental and political consequences.

27 participants and 10 European countries involved in ACCESS project

ACCESS is a 4 year European program (2011-2015) supported within the Oceans of Tomorrow call of the European Commission Seventh Framework Programme.
For further information about ACCESS please visit our website at www.access-eu-org

SEVENTH FRAMEWORK PROGRAMME

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The main objective of WP4 is to assess the risks and opportunities associated with the extraction of hydrocarbons from the Arctic Ocean. These assessments will be further considered in view of socio-economic impacts on European and world markets

These are difficult questions to answer, and no one can guarantee an accident cannot happen, but if a State ensures that robust risk management frameworks and best practice processes are in place then the likelihood of an accident will be reduced. In the words of Benjamin Franklin "An ounce of prevention is better than a pound of cure". If we get it wrong the impacts could be severe, financially, environmentally, and reputationally for all involved. The aim of an Arctic oil spill response programme is to reduce the amount of contact, or exposure, to organisms that might be affected by contact with the oil, or concentration of components from the oil. As a result we have to ensure that the correct procedures and systems are in place to prevent the oil from ever reaching the ice in the first place. This can be achieved by having a pre-engineered cap ready for deployment over the well site should a blowout occur. A recent review of the oil spill response capabilities and technologies in ice-covered waters by the EU ACCESS programme revealed that there are gaps in our understanding that need to be addressed urgently. These include:

- Improvements to the detection of oil located under or within sea ice,
- Improvements to our understanding on the behaviour/weathering of oil under different ice types and seasons,
- Improvements to all aspects of Arctic oil spill models,
- Improvements to the tracking of oil spills in ice covered seas,
- Improvements to our knowledge-base on the long term effects on the environment of in situ techniques, such as burning and dispersants,
- Improvements to oil response techniques for the mechanical recovery of oil in ice covered seas,
- Improvements to our ecological knowledge of the biological consequences of an Arctic oil spill.

Many of the proposed solutions need to be thoroughly tested under realistic conditions. Whilst a handful of field-based test spills have occurred in the past a further series of focused field trials are needed (under different conditions) if oil spill response capabilities and technologies are to be evaluated. Dedicated field trials are needed.

As a result of the economic and industrial history of the polar regions there is a wealth of technical expertise, experience and know-how in operating under Arctic conditions. Nevertheless, we need to find solutions so that the above-mentioned challenges can be bridged. However in some cases the challenges may be greater that the expertise in one country, sector or scientific discipline and therefore the combined efforts of a wide variety of international experts will need to brought to bear on these difficult challenges.

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