

Do we know enough to ensure safe Arctic drilling?

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FOR the oil and gas industry, the Arctic Ocean is the final frontier. Beneath the ocean floor lies an estimated [90 billion barrels of recoverable oil](#) - about 13 per cent of the global total. As the sea ice retreats and traditional sources of hydrocarbons dwindle, the pressure to drill is becoming irresistible.

It now seems inevitable that this harsh environment will be opened up to oil and gas production, which poses a big question: how much scientific research is "enough" to ensure safe drilling in the Arctic Ocean?

It is true that hundreds of millions of dollars have been spent on marine science in US Arctic waters. But that doesn't mean the right questions have been asked, or that we have the results necessary to inform responsible management.

Unfortunately it turns out that we simply don't know enough about Arctic Ocean ecosystems to ensure our actions won't inadvertently stress species to the point of affecting animal populations and the indigenous peoples who depend on them.



(Image: Andrzej Krauze)

Take walrus, an important species in the food web and a key indicator of the health of the ecosystem. The [US Marine Mammal Protection Act](#) requires careful protection of walrus, both for their own sake and in recognition of their importance to native Alaskans who rely on them as a source of food, fat, animal skins and bone.

Walrus feed on the sea floor, migrating north from the Bering Sea to the Chukchi Sea in spring as sea ice melts and returning in the autumn as ice forms again. They are hunted by Yupik and Inupiaq people, most often when the animals haul themselves out onto sea ice to rest after feeding.

Until five years ago, few walrus hauled out onto land in northern Alaska. When summer sea ice retreated to [record low levels in 2007](#), however, the ice was too far to the north of the shallow waters where walrus feed. So instead of hauling out onto ice far from accessible food, the animals came ashore in large numbers. They did so again in 2009, 2010 and 2011. As ice continues to recede in summers, it is likely that walrus will keep returning to the coast.

How this will affect the animals and their prey remains to be seen. If walrus are concentrated on shore, they may eat most of the clams and other bottom-dwelling invertebrates in the area, making it necessary for them to haul out elsewhere in subsequent years or to swim ever farther out to sea for food. For hunters, the presence of walrus on nearby land may seem a boon, but the animals can be aggressive, especially in large herds. They can also panic, causing stampedes which injure and kill young. And large herds may be more susceptible to disease transmission. This is not good for walrus or for the people who depend on them.

In short, no one knows where the walrus will be, what they will be doing or how healthy they will be in the years to come. This uncertainty complicates plans to locate offshore oil rigs or port facilities that will operate for decades. Taking a guess and hoping for the best does not meet the requirements of the US Marine Mammal Protection Act.

To safeguard walrus, the Arctic marine ecosystem and the people who depend on it, we need a comprehensive, science-based plan to determine when, where and how offshore drilling should take place. Such an approach must identify and protect areas of known or potential ecological and cultural significance.

It should also demand that the industry does everything it can to prevent spills, as well as demonstrate that it knows how to clean them up in Arctic waters, a much bigger challenge than at regular offshore sites. Also necessary is a hard look at the cumulative impacts of development, including the total infrastructure, transportation, personnel and support requirements.

The blueprint for such a plan already exists, at least in the US. In March 2010, Secretary of the Interior Ken Salazar instructed the US Geological Survey (USGS) to prepare an assessment of the state of Arctic marine science to guide decisions on oil and gas activity in Alaska's Arctic Ocean.

In June 2011, the USGS delivered its [report](#) on gaps in what we know, addressing four basic topics: climate change, oil spills, the effect of noise on marine mammals, and cumulative impacts. The USGS found that, although there is a great deal of scientific information on many aspects of these topics, it "is not synthesized and is not

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integrated". In other words, we still need to put all the pieces together to understand how things really work in Arctic waters.

The Pew Environment Group and the Ocean Conservancy asked a dozen experienced Arctic marine scientists to review the USGS report soon after it came out. Their assessment identified 14 specific actions to address the identified gaps. These included supporting basic ecosystem research, determining areas for enhanced protection and implementing better monitoring.

Now that the shortcomings of current knowledge have been identified, the US Department of the Interior and other federal agencies responsible for offshore drilling in the Arctic must take them into account in all further policy decisions.

Top scientists in the US and worldwide agree. In an [open letter](#), more than 500 of them called on the administration of US president Barack Obama to act on the USGS recommendations before authorising new oil and gas activity in the Arctic Ocean. Doing so is vital lest oil and gas development continues in the absence of full scientific understanding.

Without this approach, walrus and other species crucial to a healthy Arctic ecosystem will be at the mercy of chance. That's not the kind of scientifically sound plan we were promised.

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