

A wide-angle photograph of an Arctic sea ice landscape. The foreground and middle ground are filled with numerous ice floes of various sizes, from small chunks to large, jagged icebergs. The water is a deep, dark blue-grey. The sky is a pale, clear blue with a few wispy clouds near the horizon. The overall scene is desolate and cold.

Offshore Oil and Gas Development in the Russian Arctic:

A moratorium is required!

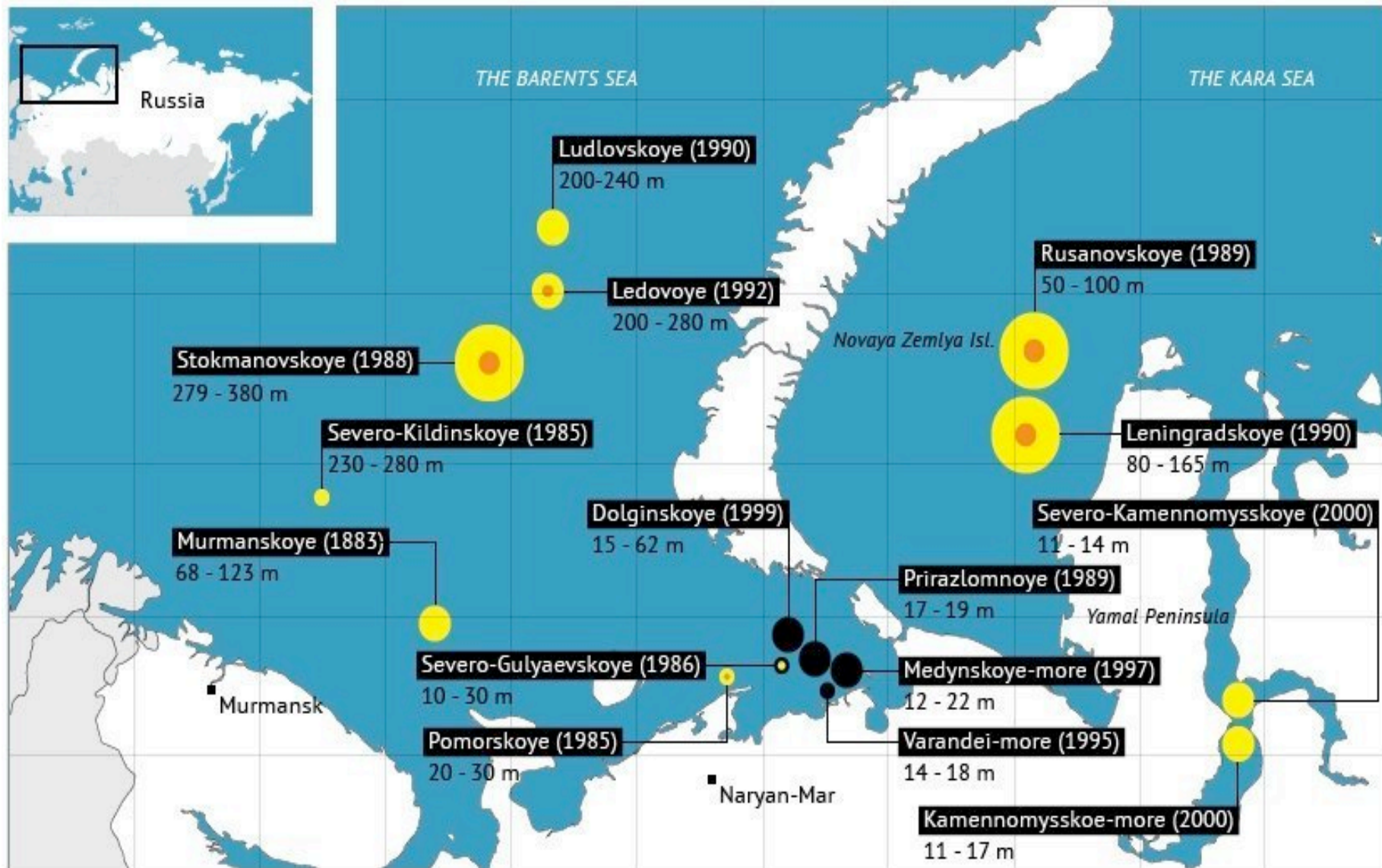
Nina Lesikhina

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70 bln toe: Gazprom & Rosneft + ?



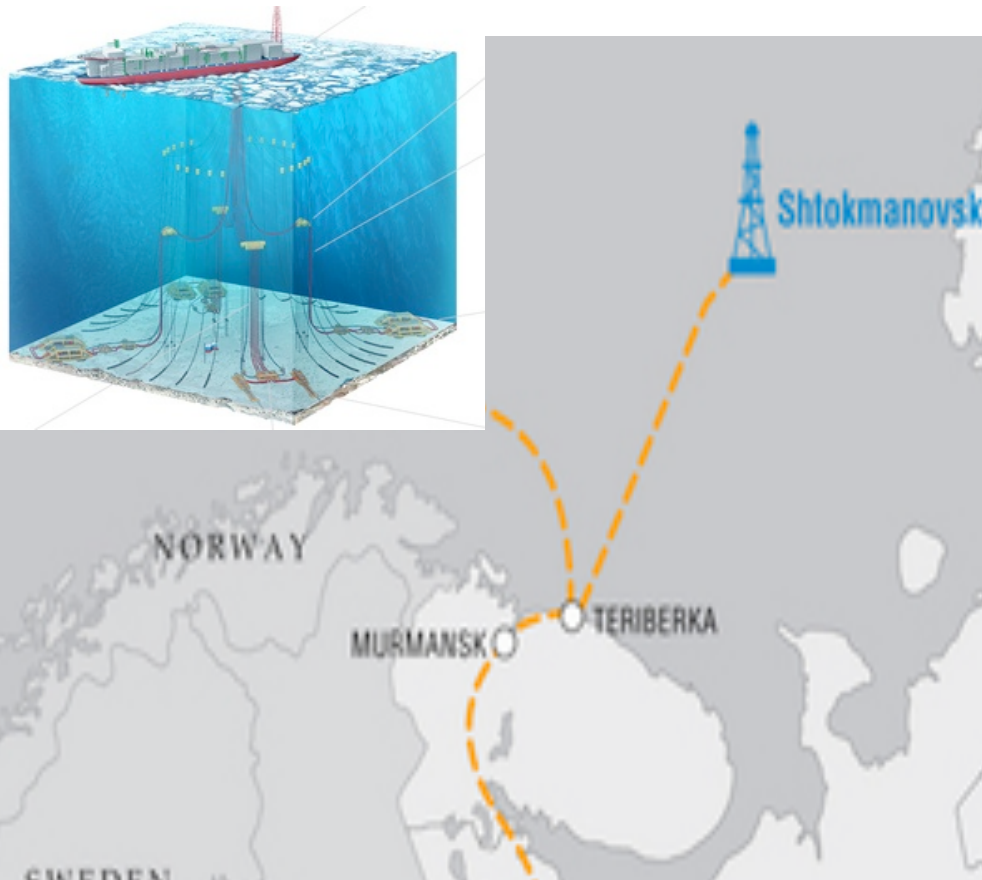
Prirazlomnoye oil field (72 mln tons)



Basic field characteristics:

- field discovered in 1989
- located 60 km from shore (1,025 km from Murmansk)
- Geological reserves: 72 mln tons
- Sea depth: 19-20 m
- Wave height: up to 9 m
- Sea ice duration: 9 months

Shtokman gas & condensate field (3.8 trln cu.m.)



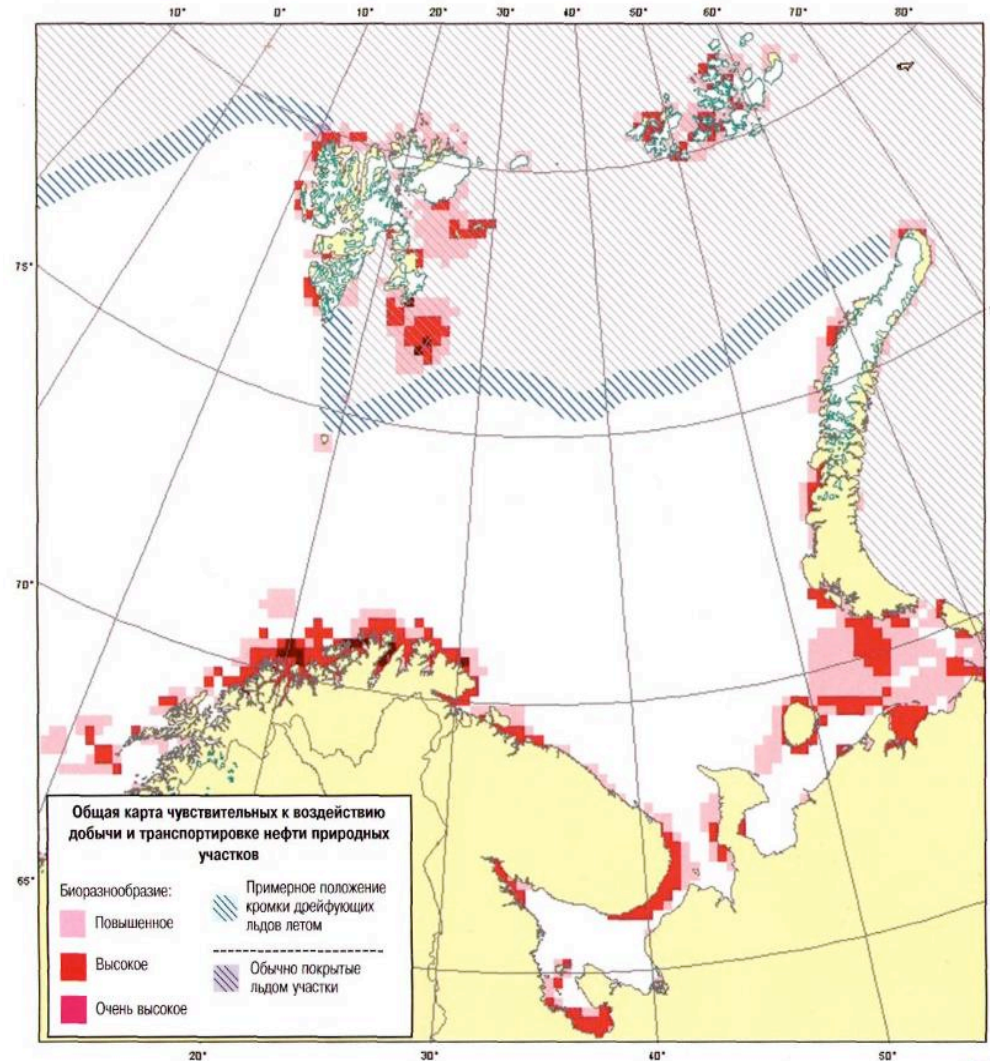
Basic field characteristics:

- Field discovered in 1988
- Located 550 km from shore
- Initial geological reserves estimated at 3.8 trillion cu.m. of gas and 37 million tonnes of gas condensate
- Sea depth is 340 m
- Wave height is up to 27 m
- Annual temperature range from -50°C to +33°C
- Presence of icebergs weighing up to 4 million tonnes



Impact on environment

- Seismic hazard
- Destruction of the sea bottom
- Thermal effects
- Air releases: GHG
- Changes in habitats and migration routes
- Oil\gas condensate pollution in case of accident



Underestimation of environmental risks

Shtokman project: Gas leak intensity could reach 23 mln cu.m. per day

- no plan for cleanup measures or guaranteed cleanup financing

- no comprehensive assessment of environmental impact

including effects on bird life, acoustic effects, effects of gas hydrates on plants and animals

Profitability at the expense of environmental safety!



Isopoda (*Isara* sp.)⁴³



Bivalve and gastropod mollusks⁴⁴



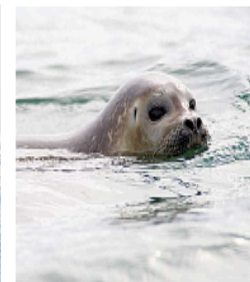
Sea-star (*Clonostiscus crispatus*)⁴⁵



Amphipod on the ice undersurface⁴⁶



Atlantic Walrus (*Odobenus rosmarus rosmarus*)⁴⁷



Ringed Seal (*Phoca hispida*)⁴⁸



Bowhead whale (*Balaena mysticetus*)⁴⁹



Pacific Walrus (*Odobenus rosmarus divergens*)⁵⁰



Kittiwake (*Rissa tridactyla*)⁵¹



Kittiwake (*Rissa tridactyla*)⁵²



Long-tailed Duck (*Clangula hyemalis*)⁵³



Little auk (*Alro alio*)⁵⁴

Source: WWF

Inefficient system of oil spill response

Prirazlomnoye: Oil spill could exceed 120,000 tons, but estimated by Gazprom at 1,500 tons

- oil spill response infrastructure is located in Murmansk (1,250 km away)
- no modern means of oil spill detection, control, and forecast
- no technologies for efficient oil spill response in severe ice conditions

“Godafoss” (February, 2011) – Norway – Out of 110 cu.m. of heavy oil fuel spilled, only half was collected!



Insufficient environmental legislation

2010 – **concept of a law on sea protection from oil pollution** was proposed by Russian NGOs, approved by Duma members, supported by Ministries of Transport and Emergency Situations, 9 coastal regions and major oil companies

It provides for:

- establishment of oil spill liability trust fund
- consideration of Russia's seas for oil spill response
- public participation in decision-making
- special rights for indigenous peoples

BUT

2011 - Ministry of Natural Resources and Environment developed a number of amendments to existing Russian laws

Non-transparency of oil and gas companies

- **Shtokman: 2010** – public EIA – **failed!**
- **Prirazlomnoye: 2011** – public EIA – **failed!**
- **No public access to oil spill response plans!**
- No real dialogue with NGOs



GREENPEACE

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Russian drilling rig capsizes, sinks in the Sea of Okhotsk, killing over 50 on board



Source: REUTERS

Illegal drilling on shelf
Illegal shipping in winter
Illegal transportation of non-crew members on board

47 Russian NGOs call for a revamp of state policies for oil and gas activity in the Arctic:

1. Russian authorities fail to provide proper control over compliance with requirements for technical and environmental safety
2. Existing legislation on the continental shelf is deficient.
3. Strategic decisions on shelf development are taken despite poor economic performance

Thank you for your attention!

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Alternatives:

Oil production in Russian Arctic (Barents and Kara Sea)	44 mln tons	By 2020
Alternative variants:	77 mln tons	Potential is much higher if include energy efficiency in transport and electric cars development
- biobutanol	2 mln tons	By 2030
- increase of oil recovery ratio (from present 0.30 to 0.37)	75 mln tons	Prirazlomnoye oil field would provide 7 mln tons per year
- deeper oil reprocessing	40 mln tons	Decrease of heavy oil fuel production and its use for heating
Gas production in Russian Arctic (Barents and Kara Sea)	167 billion m ³	By 2020
Alternative variants:	135-233 billion m ³	Potential is much higher if include energy efficiency
- biogas	40-90 billion m ³	
- coal methane	40-65 billion m ³	
- associated oil gas	15-38 billion m ³	
- modernization of gas stations	40-50 billion m ³	

Source: Greenpeace Russia