Recent developments in Arctic shipping
Sovcomflot’s view

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Sovcomflot Group at a glance

- Today Sovcomflot Group is a growing shipping company, expanding its business horizons

- 163 highly sophisticated vessels, ranging from conventional tankers to LNG carriers and seismic exploration vessels are at our clients’ disposal

- Ice class vessels operating within Arctic industrial projects gives us a competitive edge

- SCF Group’s mission – to provide our customers with high quality services in a safe and efficient manner

    ~ 13 million tons DWT
    Average fleet age: < 8 years
    8,000+ seafarers and shore-based personnel

One of the world’s largest shipping companies providing full range of seaborne energy solutions
SCF Group fleet – global leadership

1. Tanker owner by number of vessels
2. Ice-class tanker owner/operator
3. Arctic shuttle tanker owner/operator
4. Aframax tanker owner/operator
5. Product tanker owner/operator
6. Ice class LNG owner/operator

One-third of the vessels are ice class

Source: Clarksons research, ranked by DWT unless otherwise stated
SCF Group – proud inheritors of Arctic navigation experience

- 20+ per cent of Russia’s territory is located north of the Arctic Circle
- Centuries of exploration and economic activities in the region
- First Arctic Icebreaker Yermak – one of the gems of 19th century technological evolution
- Icebreaker Arktika - the first vessel to reach the North Pole (1979)
- SCF Group - an inheritor of and major contributor to Arctic navigational expertise
Why the Arctic?

- Arctic energy development

- Development of Arctic energy is the most likely scenario to support global and regional economic growth

- SCF Group is supporting energy projects (Sakhalin 1-2, Varandey, Prirazlomnaya)

- Prospects to further participation in Arctic Industrial Projects (Yamal LNG, Novoportovskoe, Sea bed exploration)

Growing opportunities for shipping business in Arctic
Climate change – impact on Arctic shipping

- Significant change of ice coverage resulted in growth of NSR transit shipping
- SCF pioneering voyages proved viability of commercial transit shipping
- New deep-water route was opened
- NSR cargo flow analysis
- Need to study ice pilotage for large-capacity tankers

Northern Sea Route transit in 2011-2014 analysis
Number of vessels

NSR transit cargoes – mainly hydrocarbons transported by large-tonnage vessels

National Snow and Ice Data Center; SCF Engineering and Training Center
Global Warming

- Arctic is currently impacted by global warming – but for how long?
- Different points of view exist on the matter…
- Animation of probable climate change scenarios

Climate change – Worst case scenario modeling

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<th>Severe</th>
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<th>Mild</th>
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When working out SCF long-term policy a “Worst Case Scenario” is also considered
NSR Ice Conditions - favorable for navigation 2011–2014

18th Sept 2011

16th Sept 2012

15th Sept 2013

16th Sept 2014
Fleet operations in 2014

In 2014 SCF continues to increase its vessels participation in various energy development and transport projects.

Nine NSR transits – considerable mileage savings
- cabotage voyages with 180,000 tonnes of fuel oil in total between Murmansk and Vladivostok
- average duration – 19 days versus 37 (est.) days via Suez Canal

Marine seismic survey activities in Kara Sea
- 80 productive days
- 3,646 sq km surveyed

Ob Inlet shipping (from Novoportovskoe Oil Field)
- 3 voyages with 83,000 tonnes of crude oil in total
Challenges faced in in Arctic operating environment

- Harsh conditions (year round presence of ice) prevent us of NSR’s geographic advantages
- Insufficient data exists on the depths and sea bottom topography
- Ineffectiveness of emergency response facilities
- Shortage of competent personnel in Arctic shipping
- Lack of experience in ice navigation involving large-tonnage vessels

Arctic shipping environmental impact – well recognized challenge
Ignorance of Arctic challenges might lead to dramatic results:

- Multi-year compressed ice with a high concentration - “Nina Sagaydak”
- Unsafe navigation - “Bryanskles”
Navigational risks mitigation

- Thoroughly planning Arctic voyages
- Ice conditions forecast – factor of crucial importance
- Valuable icebreaker pilotage
- Additional ECDIS layers – consulting status
- Ship’s individual ice passage – for risky operations
- Improvement of Ice navigation tactics

Best practices go beyond regulations
Varandey & Prirazlomnaya projects – effective solutions in response to Arctic challenges

- Shipments began in June 2008
- 3x70K DWT tonnes Panamax shuttle tankers
- Arc 6 Ice-class
- Double acting
- Azipod propulsion 2x10 MW
- 1.5 m ice-breaking capability
- Winterisation package - 45ºC
- Bow loading system with automated cargo operations shutdown system

- 2x70K DWT Panamax shuttle tankers
- Arc 6 Ice-class
- Double acting
- Azipod propulsion 2x8,5 MWt
- 1.2 m ice-breaking capability
- Winterisation package - 40ºC
- Bow loading system with automated cargo operations shutdown system
- Dynamic positioning system with ice mode

By the end of 3Q2014 34 282 640 tonnes of crud oil shipped

First loading of Russian Arctic oil from Prirazlomnaya platform, 18 April 2014
Ship crew’s performance excellency – a key to successful Arctic navigation

- Lack of competent seafarers having Arctic navigation experience
- SCF Group’s Ice Captains League
- Ice Piloting experience exchange
- SCF Engineering Training Centre
- Educational Programs development

Arctic should be entrusted only to those who know it well
Emergency preparedness

- Existing Arctic Emergency Response System
- Is it fit for purpose in the harsh Arctic environment?
- Professional emergency response teams onboard escorting Icebreaker

Highly autonomous nuclear icebreaker – ideal rescue vessel for the Arctic
R&D for maritime and off-shore projects

- R&D – an important element of SCF Group’s strategy
  - Growth of shipping activity in Arctic areas can be expected
  - We need better to know the specifics of the transportation process in ice conditions
  - Joint work with Central Marine Research and Design Institute on studying ice navigation by gas carriers in the period of intense ice formation
  - SCF + Makarov Academy – determining an average operational speed by simulating of Yamal-LNG carrier’s behavior in Arctic conditions
  - SCF Engineering and Training Centre - overall ship performance in Arctic’s harsh environment, determining maneuvering capabilities affecting its safe convoy speeds when escorted by icebreaker or during individual ice passage

Those who know better the specifics of the transportation process in ice conditions, will win the competition in Arctic
Conclusions

- Participation in the development of large-scale Arctic oil and gas production projects – a key strategic goal for SCF Group
- Application of advanced technologies – an effective response to Arctic challenges
- Group’s first Arctic transit shipments since 2010 resulted in considerable mileage savings
- Cargo flow transited along NSR - mostly hydrocarbons carried by relatively large tankers
- Adequate icebreaking support is needed in most cases
Conclusions

- Arctic shipping can be dangerous for non-specialized vessels and unskilled crews
- Arctic should be entrusted only to those who know it well
- High standards of seafaring competency are required to ensure safety and environmental protection in the Arctic
- Emergency preparedness and environmental protection need – further development
- R&D and new technology implementation is needed to ensure further Arctic shipping development
- International Arctic co-operation should be strengthened
Thank you for your Attention!