



WWF

REPORT
SUMMARY


2018

A photograph of an Arctic landscape. In the foreground, a wooden structure, possibly a pier or walkway, is heavily encrusted with thick, white ice. The background shows a vast, flat expanse of snow and ice leading to a range of snow-capped mountains under a clear blue sky with some light clouds. The overall scene is bright and cold.

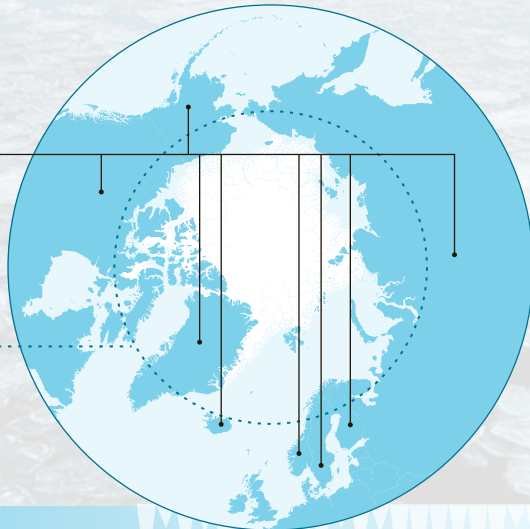
**GETTING IT RIGHT IN A NEW OCEAN:
BRINGING SUSTAINABLE
BLUE ECONOMY
PRINCIPLES TO THE ARCTIC**

QUICK FACTS ABOUT THE ARCTIC

POPULATION

 **530**
MILLION
IN EIGHT ARCTIC STATES

 **4**
MILLION
INSIDE THE ARCTIC CIRCLE



GROSS REGIONAL PRODUCT
\$443 BILLION

34 SPECIES OF MARINE MAMMALS **633** SPECIES OF FISH

26 WHALES, 7 SEALS INCLUDING WALRUS, AND POLAR BEARS



LARGER THAN AFRICA
THE ARCTIC REGION
TOTAL SIZE
32.2 MILLION KM²



2-3 METERS AVERAGE THICKNESS OF ARCTIC OCEAN SEA ICE IN WINTER

LARGEST ECONOMIC SECTORS



MINING AND PETROLEUM



PUBLIC SECTOR



SERVICES



CONSTRUCTION



FISHING



RESOURCE PROCESSING

WHAT ARE THE ARCTIC'S UNIQUE SUSTAINABLE DEVELOPMENT CHALLENGES?

- Its rapid rate of change
- Higher levels of risk due to ice and extreme cold
- A mix of traditional/subsistence and modern economies
- Its size and span – a vast area that includes the northern regions of eight countries
- A lack of integrated, regional marine governance



Photo p. 2 and 12: Brutus Östling
Design, Graphics, Illustrations and Production:
Odelius & Co – In A Box AB. www.odelius.se #18-5758
Printed at: Normalmstryckeriet, 2018



EXECUTIVE SUMMARY

How Can Development of the Arctic “Blue Economy” Happen in a Sustainable Way?

Increasingly, the world is looking to the seas as a new source of economic opportunity. Climate change is revealing a “new ocean” in the Arctic – and along with it, keen interest in exploring and exploiting the valuable resources it contains.

**UP TO US\$
1 TRILLION**

MAY BE INVESTED IN
THE ARCTIC IN THE
COMING DECADES

It is estimated that up to US\$ 1 trillion could be invested in the Arctic in the coming decades. Such large-scale investment could have an enormous impact on the region’s vulnerable ecosystems. Without proper policies in place, marine species such as fish, seals and whales will increasingly come into conflict with industrial activities – such as shipping and seismic exploration – and may be harmed by underwater noise and oil spills.

If future development takes a science-based approach to cooperatively managing the region, life in the Arctic – and on the rest of the planet – will benefit. This is our chance to get it right from the outset.

Lessons learned from applying Blue Economy principles in other parts of the world demonstrate that sustainable growth in the Arctic must be built upon:

- Long-term social and economic benefits
- Valuing and protecting nature
- Circular and renewable technologies
- Ecosystem-based management
- Inclusive governance processes

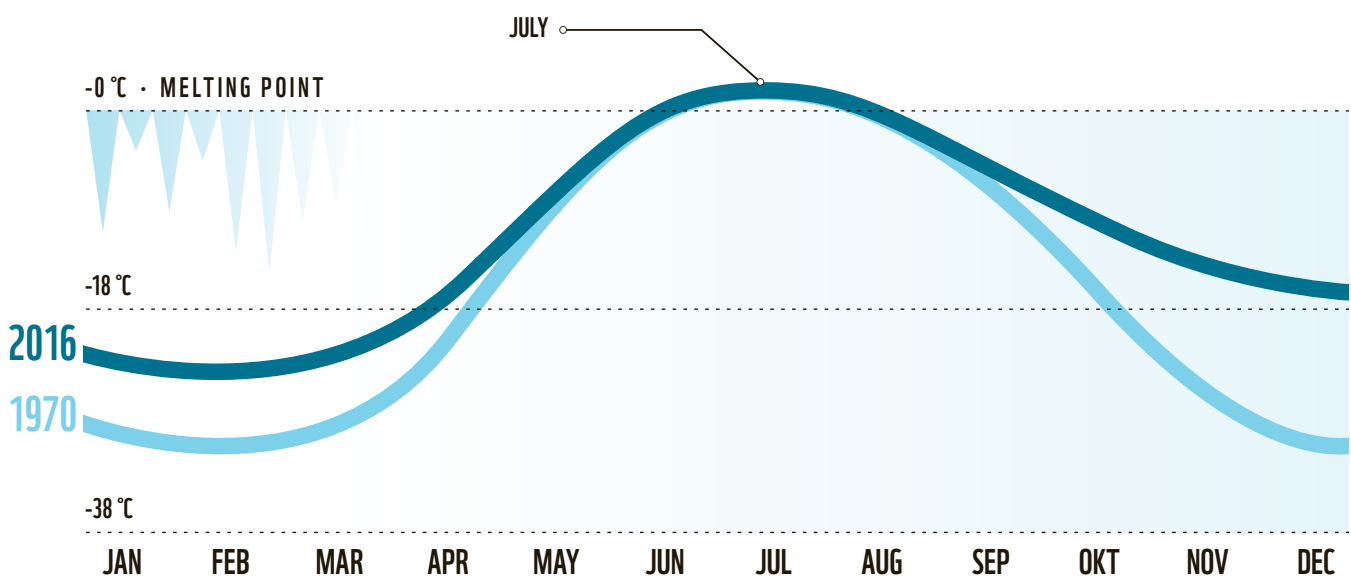
THE ARCTIC IS WARMING

MORE THAN TWICE AS
QUICKLY AS THE REST OF
THE PLANET. SUCH RAPID
CHANGE COMES WITH
INHERENT RISKS.

The full report describes what we know about the current Blue Economy in the Arctic – that is, the economic resources, issues and trends associated with the Arctic Ocean. It explores how the principles of a Blue Economy apply to the unique circumstances of the Arctic, especially given its state of rapid change.

A copy of the full report can be found at: arcticwwf.org.

Daily Temperatures in the Arctic



WWF has six recommendations for investors, financial institutions, governments, Indigenous Peoples and Arctic communities to achieve a sustainable Arctic Blue Economy



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To deliver a truly sustainable Blue Economy, off- and onshore oil and gas activities will need to be phased out and decommissioned. Hydrocarbon resources are fast becoming “stranded assets” because of their contribution to climate change and the need to leave them in the ground.

1 - CAREFULLY CONSIDER AND PRIORITIZE CLIMATE CHANGE RISKS WHEN INVESTING

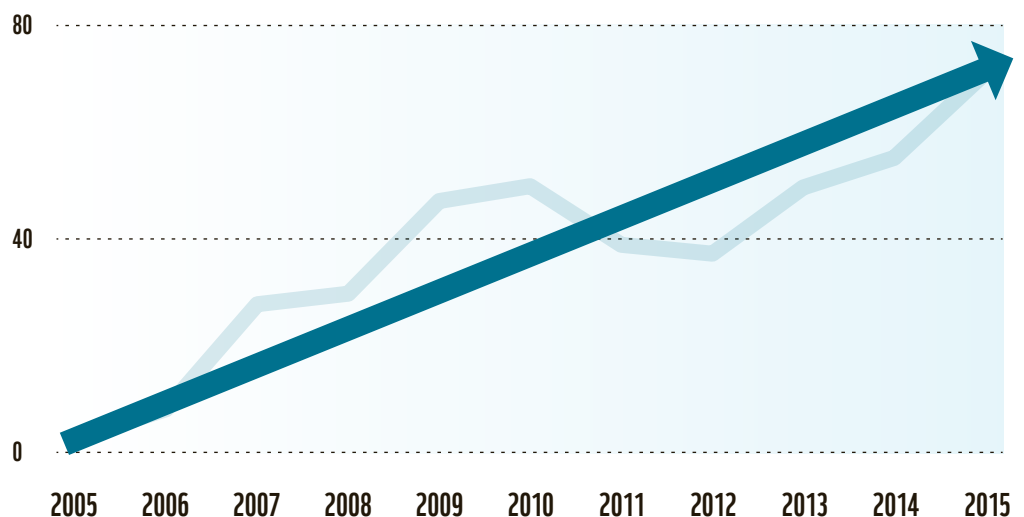
Investors should only consider projects that will benefit the Arctic's long-term prospects for sustainability and prosperity. That means prioritizing responsible investments that develop renewable resources, since these have the potential to reduce greenhouse gas emissions and create strong and resilient Arctic economies.

Actions to support this recommendation:

- **Consider all types of climate-related risks** when supporting activities in the Arctic, and only back projects that prepare for and anticipate the impacts of climate change and minimize the carbon footprint.
- **Apply the Sustainable Blue Economy Finance Principles** developed by the European Investment Bank, European Commission, Prince of Wales International Sustainability Unit and WWF.
- **Create a transparent process** to help investors consider the risks associated with climate change when making investment decisions.
- **Invest in effectively communicating** how rapid change in the Arctic affects the rest of the planet.

Shipping Casualties in Arctic Waters

“Reported ship casualties in Arctic waters increased 10 times between 2005 and 2014, according to global insurance giant Allianz. The increase from 2015 to 2016 alone was 29%.”



2 - PRESERVE BIODIVERSITY IN A WARMER ARCTIC

We can't afford to wait until the effects of climate change are further felt. We need to anticipate them.

Actions to support this recommendation:

- **Proactively devise precautionary adaptation measures** to promote a healthy, biodiverse Arctic in the face of rapid climate change.
- **Protect unique sea-ice ecosystems** that are expected to survive global warming to ensure a resilient, representative Arctic ecosystem.

Actions that build on the resilience and biodiversity of the Arctic should be the focus of conservation and sustainable development activities, leading to long-term prosperity. Protecting the Arctic's unique ecosystems, such as the "Last Ice Area," should be a priority. This image shows narwhal swimming in the Last Ice Area between Canada and Greenland.



© Paul Nicklen/National Geographic Stock / WWF-Canada

As Arctic ice melts, industry is increasingly encroaching on critical habitats. Here's a look at the places where wildlife and humans are colliding.

— Route of the USCGC *Healy*, July 2015

Critical Bird and Mammal Habitat

- Audubon and BirdLife International Circumpolar Global Important Bird Areas/Alaska State and Continental Important Bird Areas
- Areas identified as being of heightened ecological significance to birds by the Arctic Monitoring and Assessment Programme and the Institute of Marine Research
- Marine mammal migration corridors

Human Activity

Shipping

- Northern Sea Route
- Northwest Passage*
- Potential trans-Arctic route

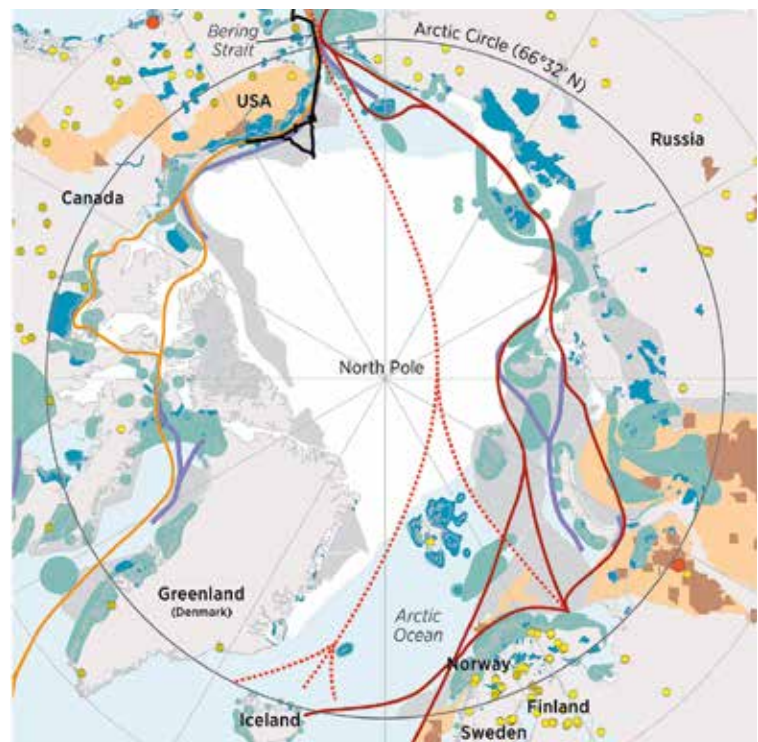
Oil and Gas

- Production areas
- Petroleum basins/provinces in which production is occurring
- Major oil spills
- Areas with a 50% or greater chance of holding significant reserves of undiscovered oil and gas

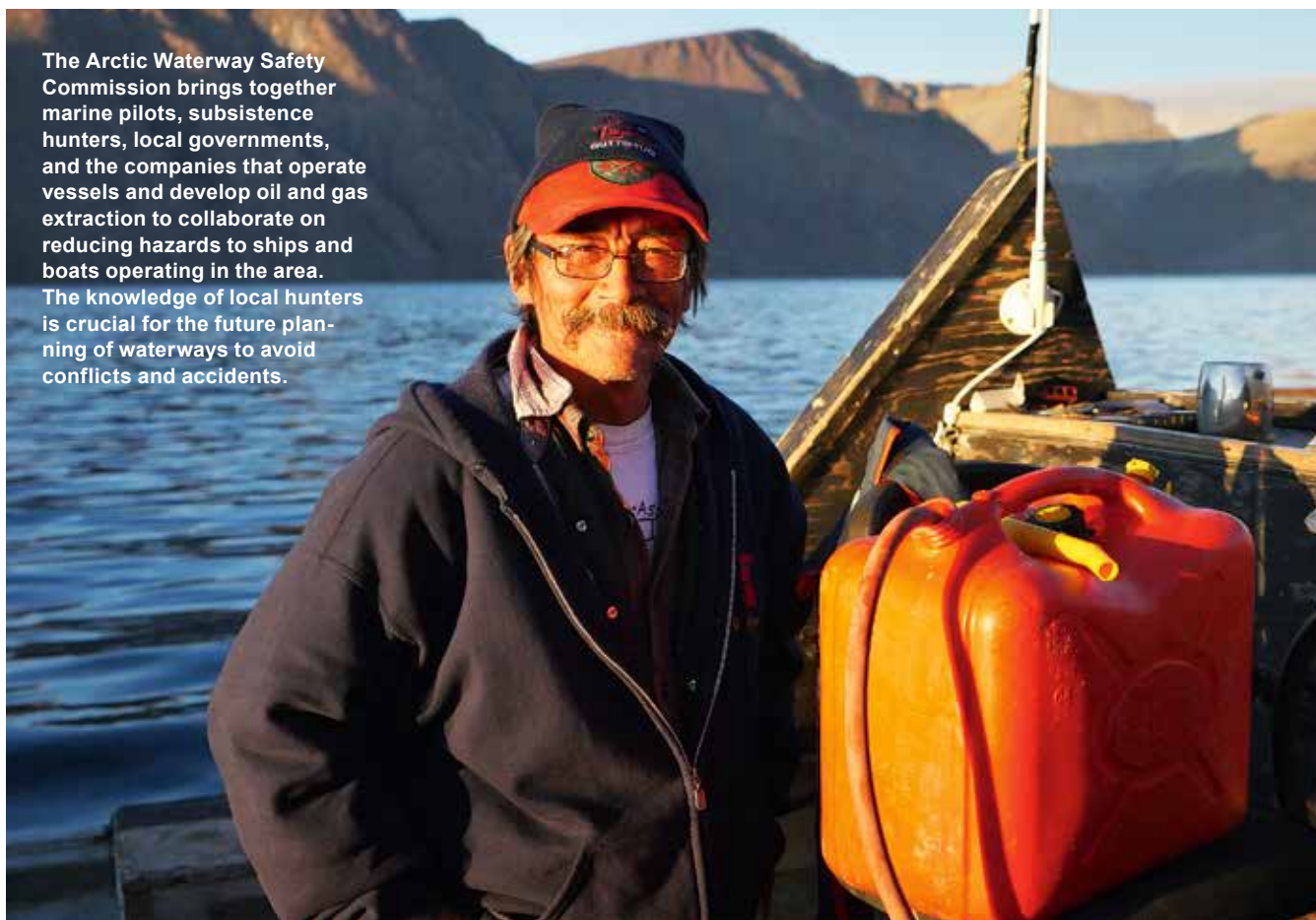
Mineral Mining

- Producing mines
- Potential mines in exploration/development

*The first full transit by an unescorted cargo ship occurred in 2014.



The Arctic Waterway Safety Commission brings together marine pilots, subsistence hunters, local governments, and the companies that operate vessels and develop oil and gas extraction to collaborate on reducing hazards to ships and boats operating in the area. The knowledge of local hunters is crucial for the future planning of waterways to avoid conflicts and accidents.



© Erling Svensen / WWF

3 – FULLY INTEGRATE ARCTIC RESEARCH AND INDIGENOUS KNOWLEDGE IN DECISION-MAKING PROCESSES

Investors, corporations, governments and scientists need to join forces with Indigenous Peoples to develop scientific projects and support decision-making that incorporates Indigenous knowledge.”

There is no comprehensive outlook on ecological and socio-economic trends for the Arctic. High-quality, transparent, interdisciplinary science is needed to understand how management and investment decisions affect ecosystems, and how this environmental change affects human well-being in turn.

Producing this knowledge will require two paradigm shifts in how we conduct decision-making: we need more funding for research on adaptation and mitigation measures in the face of rapid change in the Arctic; and we need to consult and work with Indigenous Peoples in the Arctic to integrate their knowledge. This knowledge is valuable, and Indigenous Peoples are the ones who will be most directly affected by the consequences of any development decisions.

Better science and integration of Indigenous knowledge are critical for future sustainability. Where gaps in knowledge exist, a precautionary approach should prevail.

Actions to support this recommendation:

- **Fund the scientific community** and intentionally design research that integrates Indigenous knowledge to guide policy that develops an Arctic Blue Economy.
- **Investigate the impacts of human activities**, collect baseline data, develop risk assessments and iteratively design measures to avoid unsustainable impacts.

4 - FOCUS ON RENEWABLE RESOURCES TO DIVERSIFY ARCTIC ECONOMIES

“Sustainably harvesting biological resources can help preserve ecosystem integrity.”

2 PER CENT

OF THE WORLD'S TOTAL ACTIVITY IN THE AQUACULTURE SECTOR IS ACCOUNTED FOR BY ARCTIC AQUACULTURE

To obtain the highest possible level of economic growth in the Arctic over the long term, we need to conserve the natural resources upon which that growth depends. An Arctic Blue Economy focuses on developing renewable resources strategically, incrementally and sustainably in ways that diversify the economy. This is true for both biological and energy resources.

But the exploration and development of Arctic renewable energy projects should go beyond traditional sources like hydropower and geothermal. New sources of renewable energy are needed to provide energy security for the region.

Actions to support this recommendation:

- **Diversify Arctic economies** by sustainably harvesting renewable biological resources, such as fish and marine plants.
- **Create incentives for developing renewable energy resources** with a view to long-term energy security.

THE ARCTIC'S BIOLOGICAL RICHES



Aquaculture is already a significant and growing part of the Blue Economy. Arctic aquaculture accounts for 2 per cent of the world's total aquaculture activity – an amount equal to that of the entire European Union.

© Jo Benn / WWF



© nattan726 / Shutterstock

Biological resources that are not used for food – such as fishing residues and bycatch – are increasingly used for higher-value purposes beyond animal feed or fish oil.



The cultivation of macroalgae as a source of everything from cosmetics to biofuel is being explored and in some cases realized.

© robertharding / Alamy Stock Photo

5 - APPLY ECOSYSTEM-BASED MANAGEMENT IN THE ARCTIC MARINE ENVIRONMENT

Ecosystem-based management considers the overall impacts and interdependence of human activities and the environment. In so doing, it spells out the necessary conditions for healthy ecosystems, sustainable development and human well-being.



© Tom Arnbom / WWF

The residents of some Alaskan islands in the Bering Sea recently required emergency assistance when the weather disrupted walrus hunts, depriving the communities of the walrus meat on which they traditionally relied.

Standardized monitoring is an essential part of ecosystem-based management. It can identify benchmarks, determine current status and help us understand the implications of changes over time. It is a useful tool for tracking the increasing and cumulative impacts of human activities.

To maximize sustainability in the Arctic marine environment, investors should support new types of Arctic infrastructure that can be used for one purpose and then adapted for another later. Planning for facilities that allow for different kinds of activities and act as community and commercial hubs will benefit communities, biodiversity and the sustainability of investments.

To help ecosystems cope with increasing economic activity and allow species to adapt and be resilient as they confront rapid change, we also need to establish a network of marine protected areas. Future development should not go beyond nature's ability to adapt and support life in a healthy Arctic.

Actions to support this recommendation:

- **Develop further Arctic-specific technical guidance** on to how to apply ecosystem-based management.
- **Support new types of physical structures and facilities** designed specifically for the Arctic, and implement best standards and guidelines for industries operating in the region.
- **Create a pan-Arctic, ecologically coherent network** of marine protected areas and other flexible/adaptive area-based measures.

Boundaries of the Arctic

- AMAP (Arctic Monitoring and Assessment Programme)
- Arctic Circle



The Blue Economy of the Arctic encompasses the entirety of the Arctic Ocean and the northernmost points of the Atlantic and Pacific Oceans. The many islands and enormous coastlines mean that much of the land-based economic activity is directly dependent on the sea.

Arctic states need to design effective institutions to support sustainable development before global influence becomes an unchecked driving force.”

6 - IMPROVE ARCTIC GOVERNANCE TO ENSURE SUSTAINABLE DEVELOPMENT

The Arctic Council delivers valuable scientific assessments and recommendations, but Arctic countries are slow to implement them. Consequently, regional governance needs to be strengthened. A cooperative mechanism for the Arctic marine environment can be modelled on existing successful international or regional mechanisms that govern other marine areas of the world.

Arctic shipping routes are becoming a matter for governance as they grow more accessible. With an increase in shipping activity comes an increase in the risk of accidents and operational oil spills. Investors, Arctic states and the International Maritime Organization should adopt precautionary measures to reduce stress on important areas of biodiversity, create a new generation of vessels powered by renewable technology, and phase out the carriage and use for fuel of heavy fuel oil to ensure the Arctic Blue Economy is based upon sustainable shipping.

Actions to support this recommendation:

- Arctic states and stakeholders should adopt WWF's Principles for a Sustainable Blue Economy for all activities in the region.
- Arctic states should establish a comprehensive regional instrument for marine cooperation to fulfill their roles as the prime stewards of the region.
- Arctic Council member countries should integrate all relevant decisions and recommendations into their national and sub-national policies.
- Clear parameters should be defined for constant international cooperation when implementing marine spatial planning – including a network of transboundary marine protected areas – in Exclusive Economic Zones and beyond.
- A low-impact, decarbonized marine transport system should be created.

Existing international agreements negotiated under the auspices of the Arctic Council define how states are to cooperate when responding to marine oil spills or training to manage incidents. The same level of constant cooperation should be replicated for other areas of work.



Photo courtesy of the Exxon Valdez Oil Spill Trustee Council.

Almost three decades later, the environmental impacts of the *Exxon Valdez* oil spill are still being felt. As industrial activities increase in the Arctic, the risks of long-term impacts will also multiply. Strong measures need to be put in place to prevent future disasters from occurring.

GLOBAL INTEREST MEANS PRESSURES ON ARCTIC GOVERNANCE

Increased interest from non-Arctic states led to a proactive agreement to not allow commercial fishing in the Central Arctic Ocean until scientific research can be done. The agreement was negotiated outside the Arctic Council framework with non-Arctic countries like China and Korea, that have long-distance fishing fleets.

A global agreement being developed to protect Biodiversity in areas Beyond National Jurisdiction (BBNJ) will also have significant ramifications for the Arctic's high seas.



Xinhua / South China Morning Post



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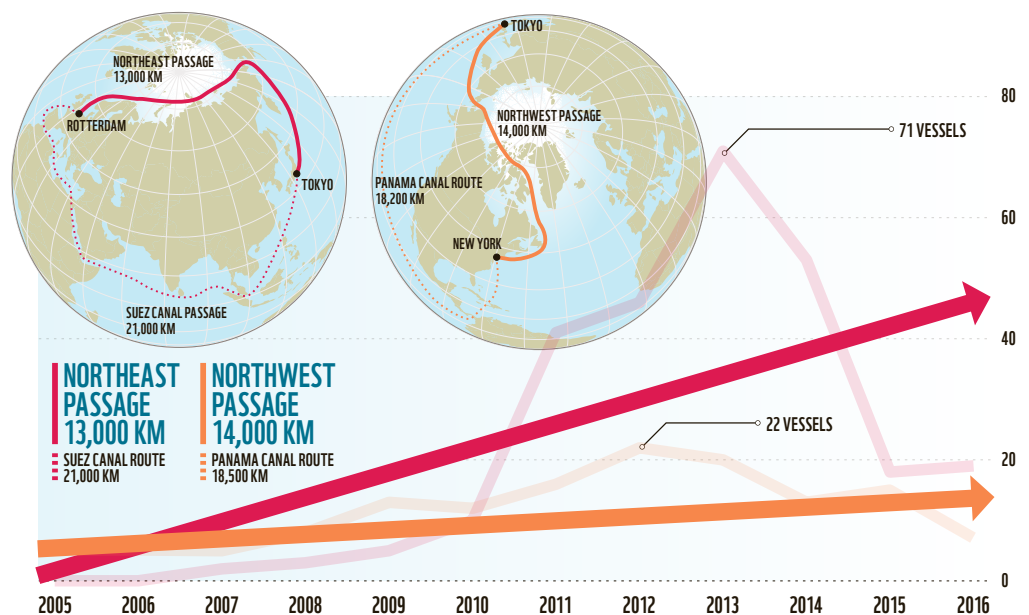
Last year, China unveiled its first Arctic Policy and vision for a "Polar Silk Road" across the Arctic in hopes of expanding global shipping routes.

Iceland has seen a 400 per cent increase in tourism in just 10 years. Protecting and preserving the Arctic's unique biodiversity – the very thing that draws tourists to the region – is essential.

Trans-Arctic Shipping Routes

FROM 21,000 TO 12,000 KM

THE NORTHEAST PASSAGE WILL REDUCE THE SHIPPING DISTANCE BETWEEN EAST ASIA AND NORTHERN EUROPE BY 9,000 KM



NEXT STEPS on a long journey



WWF is deeply committed to the Arctic. We have worked in the region for more than 25 years and have offices in every Arctic country except Iceland. We firmly believe that effective international stewardship will shield the Arctic from the worst effects of rapid change by promoting healthy, sustainable ecosystems to the benefit of local peoples and all humanity.

We stand ready to engage with governments (national, Indigenous, regional and local), intergovernmental organizations, industry, investors and other civil society organizations to help achieve all the above recommendations.

We hope you will become a partner in the creation of a sustainable Arctic Blue Economy.

To read WWF's full assessment of the challenges and opportunities for building a sustainable Blue Economy in the Arctic, please visit our website at arcticwwf.org.

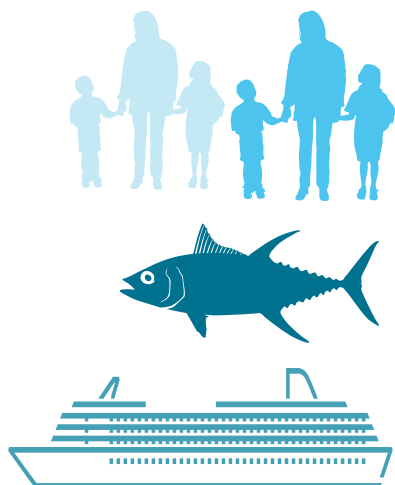


APPLYING UNIVERSAL PRINCIPLES TO A UNIQUE REGION

The **WWF Principles for a Sustainable Blue Economy**, created through a global consultation process, are a framework anchored in best available science, as well as the global policy consensus on Sustainable Development Goals. The Principles help guide decision-makers to create solutions that maximize both the economic value and the ecosystem health of our oceans in the long term.

The Principles define a sustainable Blue Economy as one that:

- **Provides social and economic benefits** for current and future generations by contributing to food security, poverty eradication, livelihoods, income, employment, health, safety, equity and political stability.
- **Restores, protects and maintains** the diversity, productivity, resilience, core functions and intrinsic value of marine ecosystems – the natural capital upon which its prosperity depends.
- **Is based on** clean technologies, renewable energy and circular material flows to secure economic and social stability over time while keeping within the limits of one planet.



The Arctic Blue Economy

Risks and Opportunities for a Sustainable Future

ARCTIC

An ocean touching 3 continents, this polar region is the size of Africa.

A “NEW” OCEAN

As the Arctic Ocean warms, sea ice is decreasing and the waters are becoming more acidic. Warming waters can also put fish populations on the move, changing local economies.



NEW DEVELOPMENTS

With more open water in the Arctic during the summer, investments in tourism, mining, oil and gas exploration and shipping are on the rise.

NEW ROUTES

Scientists predict that by 2040, the Arctic Ocean will be largely ice-free in the summer. Shipping routes north of Canada and Russia could decrease travel and shipping times by 30%.

LIVING ON THE EDGE

Iconic species like bowhead whales, narwhals, polar bears and walrus have evolved over millennia to live in the Arctic's harsh climate. All are culturally and economically important to Indigenous peoples.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.panda.org