

Overview of Regulation 43A of MARPOL Annex I

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Outline

- Overview of Regulation 43A of MARPOL Annex I
- Three Challenges to the Effectiveness of Regulation 43A
- Clean Arctic Alliance Recommendations

Overview of Regulation 43A of MARPOL Annex I

- Timeline

- June 2021 – adoption of Regulation 43A of MARPOL Annex I.
- July 2024 – initial implementation date.
- July 2029 – expiration date for exemptions and waivers.

- Stated Purpose

- To develop measures to reduce environmental risks of use and carriage of HFO as fuel by ships in Arctic waters, particularly with respect to environmental damage associated with potential spills of that fuel.

- Limitations

- *Limited Geographic Scope*
- *Fuel Tank Exemption*
- *Arctic Coastal Nation Waiver*

What is Heavy Fuel Oil?

Technical Definition

Oils, other than crude oils, with a density at 15°C higher than 900 kg/m³ or a kinematic viscosity at 50°C higher than 180 mm²/s.

Very Dense

Very Thick

What does that actually mean?

Heavy fuel oil is a tar-like residual waste from the oil refining process that:

- Produces high levels of pollutants such as sulphur oxide, nitrogen oxide, and particulate matter, which includes black carbon.
- Presents a severe risk to marine life and indigenous communities in the event of a spill.

Limitation 1: Limited Geographic Scope of “Arctic Waters”

- International Maritime Organizations Definition of “Arctic Waters” encompasses waters in the Arctic that pose the greatest *safety risk to ships*.

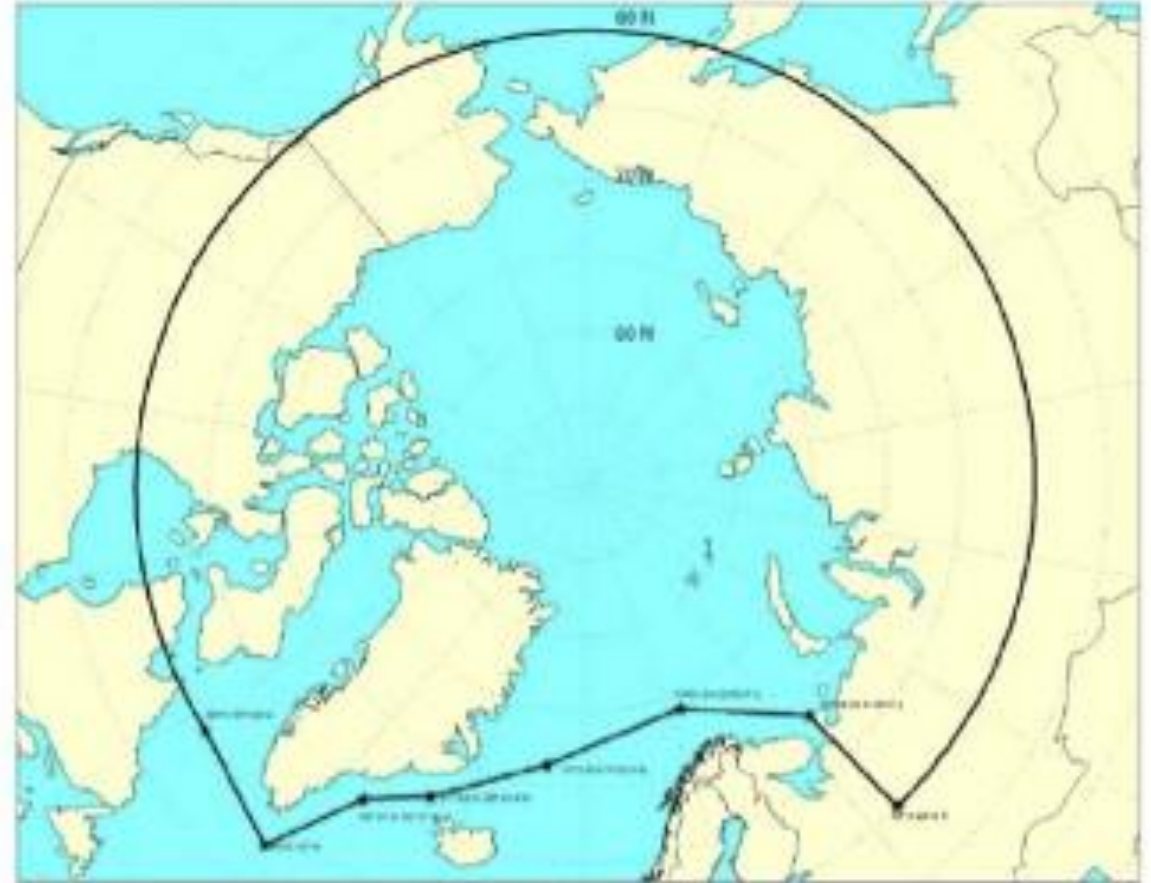
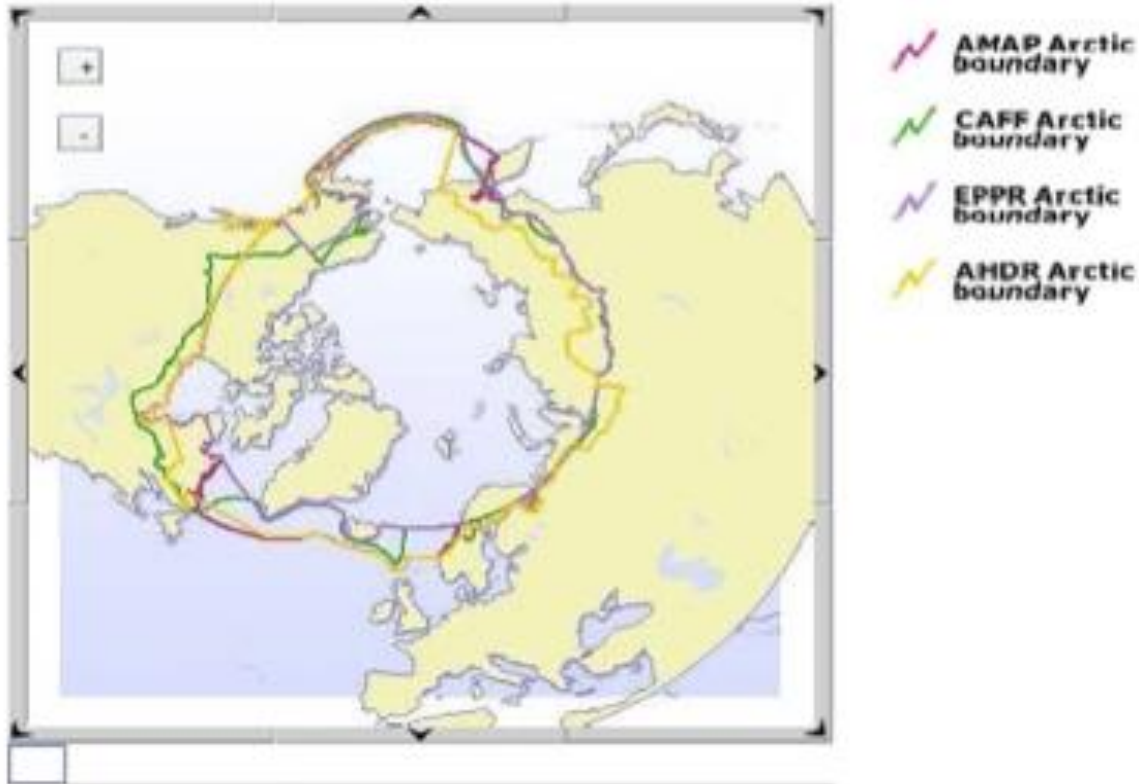


Figure 1 – Maximum extent of Arctic waters application (see paragraph G-3.3)²

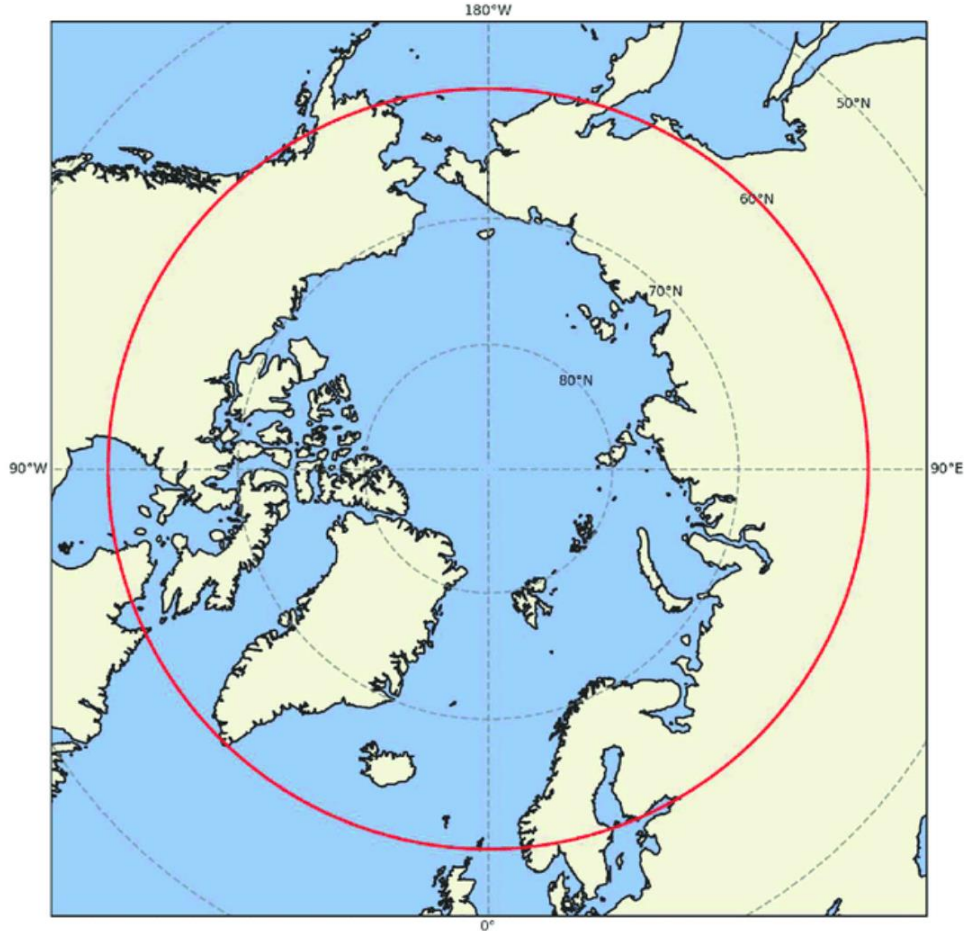
Arctic Council Definitions



Arctic Council definitions focus on a variety of considerations, including vegetation boundaries, permafrost limits, the location of various flora and fauna, emergency preparedness and response issues, and major oceanographic features.

Figure 2 – Four maps of the Arctic used by the Arctic Council

Clean Arctic Alliance Recommendation



All Arctic waters north of 60°N

Limitation 2: Fuel Tank Exemption

Applies to all ships that comply with specific fuel tank design requirements, which require that the fuel tank be separated from the outer shell of the ship.

When are protected fuel tanks most effective?

- In low energy collisions when vessels are travelling at slower speeds, such as ports and restricted waterways.

When are protected fuel tanks least effective?

- In higher speed collisions, groundings on hard substrates or rocks, or collisions with sharp objects (e.g. icebergs, and chunks of ice in the water).

Limitation 3: Waivers

Regulation 43A will allow Arctic coastal nations to issue waivers for ships flying the flag of that nation while operating in waters subject to the sovereignty or jurisdiction of that nation.

Example

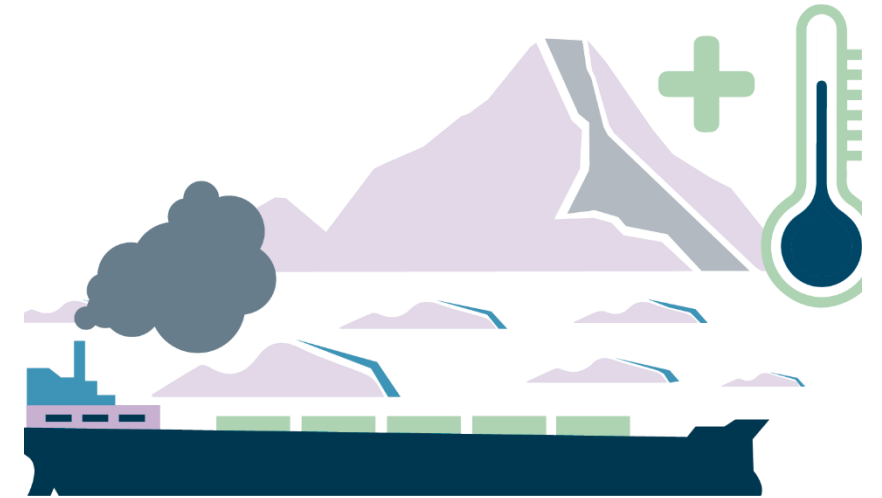
- The United States could grant a waiver for a U.S. flagged vessel to continue using heavy fuel oil in “U.S. waters.”

Will Regulation 43A reduce the amount of HFO in the Arctic?

Yes. But not by much.

Impact on the 2019 Arctic Fleet:

- ~ 22% of the Arctic *fleet* qualify for *fuel tank exemption*.
- ~ 53% of the Arctic *fleet* qualify for a *waiver*.
- > 74% of the Arctic *fleet* could continue burning HFO until 1 July 2029.



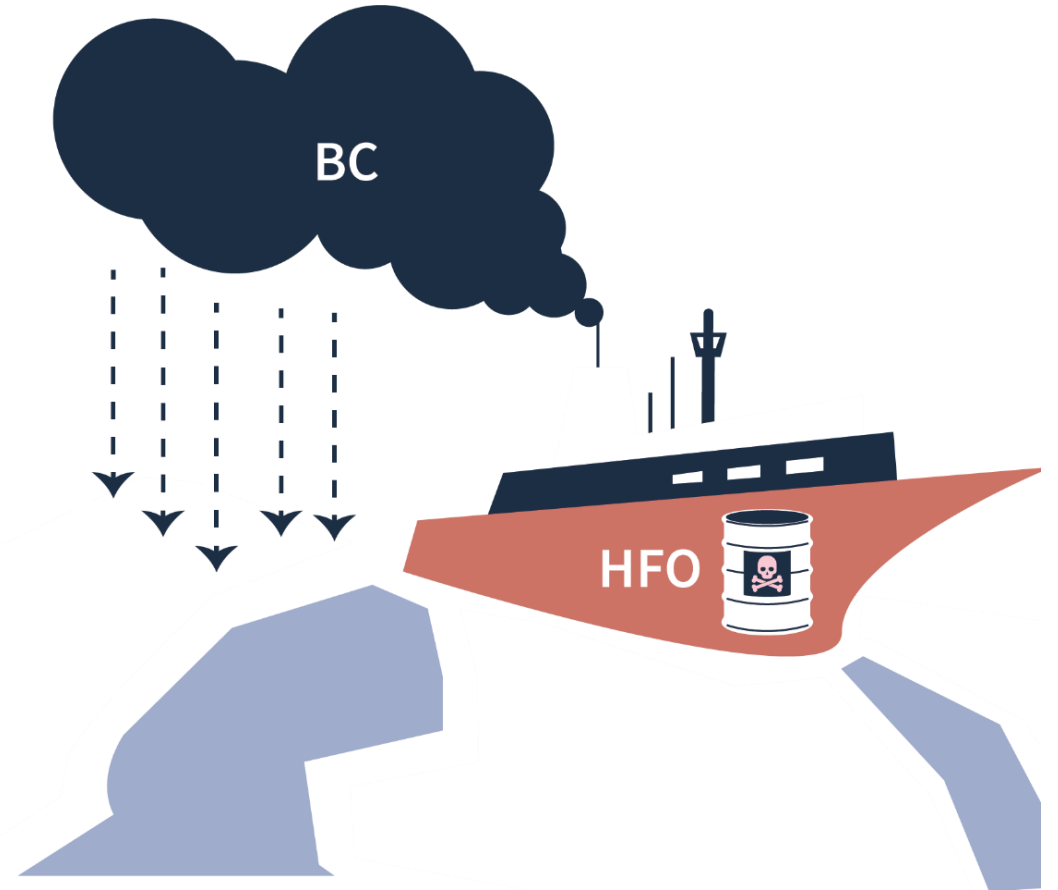
30% of the HFO being *carried* in Arctic waters would be prohibited in 2024.

16% of the HFO being *used* in Arctic waters would be prohibited in 2024.

Will Regulation 43A Significantly Reduce Black Carbon Emissions in the Arctic?

No. But why?

1. Only 16% of the HFO being *used* in Arctic waters will be prohibited in 2024;
2. Shipping in the Arctic is increasing; and
3. Regulation 43A only applies to ships operating in “Arctic waters.”



What are the benefits of distillate fuels compared to heavy fuel oil?



Spill Benefits of Distillate Fuels

- Evaporate and dissolve faster than HFO;
- Spread into a slick over the water surface; and
- Do not emulsify on the ocean surface.

Emission Benefits of Distillate Fuels

- Can reduce black carbon emissions per kilogram of fuel consumed by up to 79% in 2-stroke engines and by up to 48% in four-stroke engines.
- Allow for the installation of diesel particulate filters, which further reduce black carbon emissions by over 90%.

Clean Arctic Alliance Recommendations

For the International Maritime Organization:

- Extend the Regulation 43A to include all Arctic waters north of 60°N; and
- Require ships operating in and near the Arctic to immediately switch to distillate fuels and use diesel particulate filters.

For Individual States

- *All States*: ensure strong enforcement of Regulation 43A;
- *Coastal States*: refrain from issuing waivers; and

For the Shipping Sector:

- Voluntarily switch to alternative forms of propulsion and use of diesel particulate filters.



Clean Arctic Alliance

www.cleanarctic.org

Formed in 2016
23 non-profit
member
organisations

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