

# TRANSPORT CANADA

Taking Action on the Environment



Transport  
Canada

Transports  
Canada

Canada



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# EXECUTIVE SUMMARY

Canada's transportation system connects us to the world, supporting our supply chains and driving our economy. This report illustrates how Transport Canada is becoming a leader in addressing climate change while promoting reliable, affordable, and sustainable transportation, on course to achieve our 2030 climate commitments and equally on track to achieving net-zero emissions by 2050.

Transport Canada is working collaboratively with federal partners and other levels of government, industry, private-sector organizations, researchers, and international associates to undertake sustainable action in reducing these impacts. Managing climate risks is a key component of Transport Canada initiatives in supporting trade and transportation networks, both at home and abroad.

**"Canada is taking action to confront the climate emergency and achieve our environmental goals, while ensuring our transportation system continues to be the backbone of a thriving economy."**

**The Honourable Pablo Rodriguez**

# TAKING ACTION ON OUR WATERS, ON OUR LAND AND IN OUR AIR

Canada's 2030 Emissions Reduction Plan is a road-map for Canada in achieving 40-45% emissions reductions below 2005 levels by 2030. The transportation sector accounts for 22% of Canada's emissions, making it a key sector of focus.

## ACTION ON OUR WATERS

Canada has more coastline than any other country. It is urgent that we mitigate environmental impacts while ensuring supply chain resiliency.

- As part of its nine-year, \$2 billion investment, Canada's Oceans Protection Plan is introducing a ban on heavy fuel oil and an emissions control initiative to promote the use of cleaner fuels and pollution-limiting technology.
- Transport Canada is working with government at all levels to develop a Marine Climate Action Plan. This series of collaborative actions will drive down emissions in the entire marine eco-system, as a result of incentives associated with both marine vessels and port operations.
- The 2022 Canadian Green Shipping Corridors Framework was supported in the 2023 federal budget with \$165.4 million for Transport Canada in establishing this program. This will support the development of green shipping corridors by offering funding to incentivize the launch of the next generation of clean ships, deploy green technology at our ports, and assist ports in attracting low-emission, low-noise vessels.
- Transport Canada's Clean Marine Research, Deployment and Development Program, is funding clean vessel research and demonstration projects, including Canada's first electric tug design.
- Canada is moving to designate an Emissions Control Area (ECA) in Canadian Arctic waters to protect this unique eco-system.

## ACTION ON OUR LANDS

Canada's 2030 Emissions Reduction Plan includes making significant investments in transit and supporting the transition to zero-emission vehicles (ZEVs). Sales targets and requirements are aimed at ZEVs making up 100% of new light-duty vehicle sales by 2035, and 100% of new medium and heavy-duty vehicle sales by 2040.

Related initiatives include:

- Ensuring ZEV's are more affordable and available across Canada, supported by a country-wide network of charging and refueling stations.
- Building public confidence in ZEV's through purchase incentives such as Transport Canada's \$547.5M *Incentives for Medium and Heavy-Duty Zero-Emission Vehicles (iMHZEV) Program*.
- Transport Canada's *Clean Rail RD&D Program* provides funding to support the reduction of greenhouse gas (GHG), and/or the criteria for air contaminants (CAC) emissions from Canada's rail sector.

## ACTION ON OUR AIR

Canada's 2022 Aviation Climate Action Plan, sets a vision of net-zero Greenhouse Gas emissions by 2050 for Canada's aviation sector. It includes a goal of 10 percent sustainable aviation fuel (SAF) use by 2030. In conjunction with government and private sector stakeholders, Transport Canada is assisting in the development of a SAF blueprint for Canada to meet targets for 2030, 2040 and 2050.

- Many Canadian airports are participating in the Net-Zero Challenge of Environment and Climate Change Canada, which encourages businesses to develop and implement plans to transition facilities and operations to net-zero emissions by 2050.
- Transport Canada is working with Government to improve accountability in Canada's air sector through Bill C-52, Enhancing Transparency and Accountability in the *Transportation System Act*.



## THE PATH WE'RE ON — CANADA LEADING THE WORLD

In addition to driving down emissions domestically, it is also essential that strategic partnerships are established internationally, with both governments and the private sector in reaching our climate objectives.

- Canada joined more than 150 other countries in 2023 to endorse the adoption of a new IMO Greenhouse Gas (GHG) Strategy, which includes a goal of net-zero GHG emissions from international shipping around 2050.
- In 2023, Transport Canada hosted the first meeting of the Canada-U.S. ZEV Task Force with a vision to "accelerate the achievement of 100% ZEV sales for light-duty vehicles and increase the supply of and demand for zero emission medium and heavy-duty vehicles".
- Transport Canada also co-chairs several initiatives of the Clean Energy Ministerial, such as *The Electric Vehicle Initiative*, which brings together international expertise to accelerate the transition to zero emission.

Transport Canada will continue to deliver on the commitments made in the Emissions Reduction Plan, to develop and implement sustainable and significant climate action plans for the marine, rail and aviation sectors.

# MESSAGE FROM THE MINISTER OF TRANSPORT

Canada's transportation system connects our communities to the world, supports our supply chains, and drives our economy.

Tackling environmental challenges means significantly reducing the impacts of transportation on our land, air, and water, even as the demand for transportation increases. In response, Canada is taking action to confront the climate emergency and achieve our environmental goals, while ensuring our transportation system continues to be the backbone of a thriving economy.

Transport Canada leads efforts across the Federal Government to address the environmental impact of our transportation system in all areas – roads, air, marine and rail, in collaboration with other federal departments, provincial and territorial governments, Indigenous communities, academia and the private sector.

We have achieved this by introducing purchase incentives for light, medium and heavy-duty zero-emission vehicles and launched a new Zero-Emission Vehicle Council to coordinate efforts with industry and governments across Canada to accelerate the adoption of ZEVs. We're also developing climate action plans set the course for reducing emissions from aviation, marine and rail transport.

And we're working hard to deliver the new \$165.4 million dollar Green Shipping Corridors Program to tackle marine emissions.

We're also working with our international partners on green transportation measures, such as the Canada-U.S. Zero-Emission Vehicle Task Force and the International Aviation Climate Ambition Coalition.

Finally, we're taking important steps to protect our oceans, the Arctic, and marine mammals, as well as protect and conserve environmentally critical areas. This includes providing \$3.5 billion to keep our coasts and waterways safe and clean for future generations, and protective measures to reduce threats to endangered whales from disturbances, including vessel strikes and underwater noise.

As Minister of Transport, reducing the impacts of transportation on the environment is one of my highest priorities. The efforts outlined in this report demonstrate how we are ensuring that Canada remains on course to achieve our climate commitments for 2030 and put us on the road to achieving net-zero emissions by 2050.

I invite you to read this report and learn how Transport Canada is leading the way to addressing climate change while promoting reliable, affordable, and sustainable transportation.

**The Honourable Pablo Rodriguez**



# TACKLING EMISSIONS: WHY WE MUST TAKE ACTION

Transportation is a major contributor to the economy and plays an important role in the wellness of Canadians. It moves finished Canadian goods to domestic and international markets and moves the materials and goods that Canadian businesses need. Transportation also connects people within and between different communities, major urban centres, provinces, territories, and countries.

Canada's vast and sparsely populated territory and extreme weather conditions can make it challenging to ensure the safe, secure and efficient movement of goods and passengers. Transportation has significant environmental impacts on our land, air, water and ecosystems. A growing population and increased trade will increase these environmental pressures.

However, our changing climate is also affecting our transportation networks. Canada is warming twice as fast as the global average and three times faster in the North. We are facing more frequent and more intense extreme weather events. Wildfires, extreme heat waves, flooding, thawing permafrost in our North and other climate impacts are affecting all transportation modes and as such, the very foundations of our communities.

That is why Transport Canada is working collaboratively with federal partners, other levels of government, industry, non-governmental organizations, researchers, and international partners to taking concrete action to reduce these impacts. For example, Canada also developed a National Adaptation Strategy by working with provincial, territorial and municipal governments, Indigenous Peoples, and other key partners to establish a common vision for adaptation in Canada. Adaptation means planning for and creating safe and secure communities for generations to come. It means managing the climate risks to our health, well-being, and livelihoods. Transport Canada has been working to ensure climate resilience is a key component of departmental programming, particularly as it relates to supporting trade and transportation networks.

## **2030 Emissions Reduction Plan Commitments**

In March 2022, the Government of Canada introduced Canada's 2030 Emissions Reduction Plan, which provides a roadmap for the Canadian economy to achieve 40-45% emissions reductions below 2005 levels by 2030, building upon the actions outlined in Canada's previous climate plans. The transportation sector accounts for 22% of Canada's emissions, making it a key sector of focus – there is no path to net-zero without addressing emissions from the entire transportation eco-system.



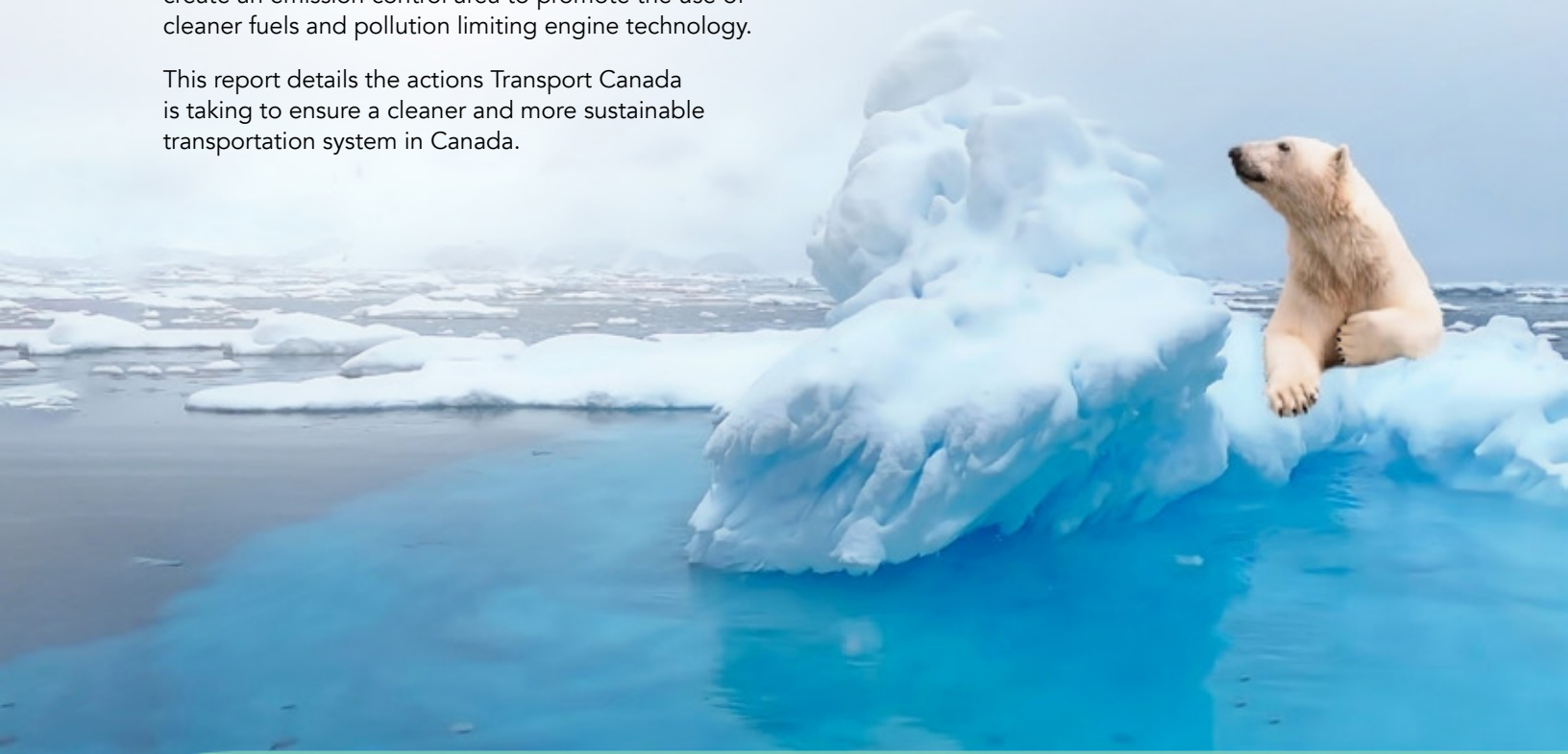
Canada has more coastline than any other country. Canada's marine transportation system connects it with the world – fundamentally underpinning the supply chain. As the world recovers from COVID-19, marine transportation is resurging, creating more of an urgency to mitigate impacts while ensuring supply chain resiliency.



Canada has more coastline than any other country. Canada's marine transportation system connects it with the world – fundamentally underpinning the supply chain.

In order to protect the marine eco-system, Canada has created a robust marine safety and environmental protection regime. Through its Oceans Protection Plan the government works with its Indigenous partners, coastal communities, environmental groups and the marine sector to protect these fragile ecosystems from vessel discharges and oil spills. In the Arctic, where marine incidents and pollution can have a far greater effect, Canada is introducing a ban on heavy fuel oil aligned with international regulations while moving to create an emission control area to promote the use of cleaner fuels and pollution limiting engine technology.

This report details the actions Transport Canada is taking to ensure a cleaner and more sustainable transportation system in Canada.





# ACCELERATING THE SWITCH TO ON-ROAD ZEVS



## Canada's 2030 Emissions Reduction Plan

Canada's 2030 Emissions Reduction Plan, outlined an ambitious and achievable path for Canada to meet its targets, catalyzing action across the transportation sector, including making significant investments in public and active transit, supporting the transition to zero-emission vehicles (ZEVs), deploying ZEV charging and refuelling stations, investing in clean fuels, and reducing pollution from heavy-duty vehicles.

Canada set out new ZEV sales targets and requirements that would see:

- ZEVs making up 100% of new light-duty vehicle sales by 2035, and
- 100% of new medium- and heavy-duty vehicle sales being ZEVs by 2040 for a subset of vehicle types based on feasibility.

Meeting these ambitious targets is key to reaching our goal of net-zero emissions by 2050, but Canadians and Canadian businesses continue to face many barriers to using zero-emission vehicles - which is why the Government of Canada is taking a comprehensive approach to support this transition.

As outlined in Canada's Action Plan for Clean On-Road Transportation, the following actions are underway:

**1)** Ensuring that ZEVs are available across Canada

**2)** Making ZEVs more affordable

**4)** Building public awareness and confidence in ZEVs so Canadians can feel confident driving, recharging and maintaining them

**6)** Leading by example so that vehicles owned and operated by the federal government are ZEVs, to the extent possible

**3)** Building charging and refueling stations across Canada

**5)** Supporting research, development, and demonstration to increase confidence and performance of zero emission vehicles in Canadian winters and harsh operating conditions

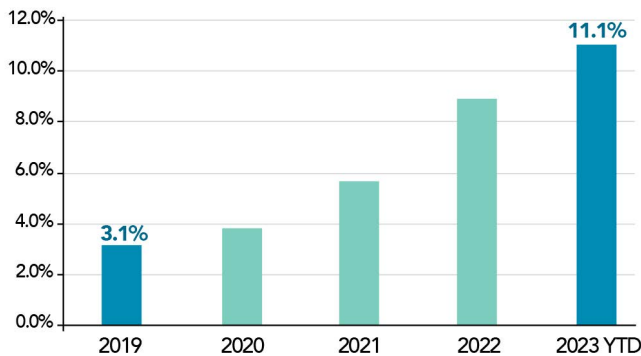
**7)** Acting on clean growth opportunities to realize future economic benefits

## Making ZEVs More Affordable & Available – Purchase Incentives

Focusing on efforts to make ZEVs more affordable, the Government of Canada offers incentives for purchase and/or lease to help reduce the purchase price gap between these cleaner vehicles and internal combustion engine vehicles.

Transport Canada's **Incentives for Zero-Emission Vehicles (iZEV) Program** offers purchase incentives of up to \$5,000 for eligible light-duty ZEVs. The iZEV Program has vehicle price caps in place to help ensure that funding is prioritized for more affordable ZEV models. Uptake of the \$2 billion program has been enormously successful, as over 260,000 ZEVs have been incented as of September 2023.

Transport Canada's \$547.5M **Incentives for Medium- and Heavy-Duty Zero-Emission Vehicles (iMHZEV) Program** has been lowering the upfront purchase or lease costs of eligible commercial ZEVs since its launch in July 2022. Available to Canadian organizations and businesses, the iMHZEV incentives cover various vehicle types such as delivery vans, shuttle buses, refuse trucks, coach buses, semi-tractors, and more.



Source: S&P Global Mobility, Canadian Automotive Insights, Q3 2023

Since 2019, new market share of light-duty zero-emission vehicles sales has increased from around 3% to over 11% in the first three quarters of 2023.



## Fast Tracking the Deployment of ZEV Trucks

The **Zero Emission Trucking Program (ZETP)** complements the suite of Emission Reduction Plan initiatives by supporting research and deployments to advance the state of knowledge and readiness for the safe integration of medium- and heavy-duty zero emission vehicles (MHZEV) on Canadian roads. Launched last year, the Program has already: co-hosted three widely attended workshops with industry and other orders of government to identify priority work areas; facilitated a workshop on hydrogen safety for federal laboratories; and has commissioned a **report on the future of battery technologies for electric long-haul trucking**.

The ZETP has also provided contribution funding to the provinces of British Columbia and Nova Scotia to support zero emission trucking and has recently announced a \$1.5 million project with Forest Product Innovations to establish a Zero-Emission Trucking Testbed in the Montréal area. The Testbed will study five battery-electric vehicles operated across three fleets, ending in 2025, to collect real-world MHZEV performance data in Canadian conditions to speed up the reduction of pollution from medium- and heavy-duty on-road transportation. Going forward, the Program will continue to support capacity, research and safety testing to lay the groundwork for accelerating the safe integration of MHZEVs across Canada.

## Addressing Challenges through Strategic Partnerships

Canada proudly collaborates in domestic and international fora to signal our ZEV ambition and learn from other leaders. In March of this year, the Government of Canada launched a new **ZEV Council** aimed at bringing together federal-provincial-territorial governments, industry, and non-government organizations to identify, discuss, and work on solutions to further accelerate the transition to ZEVs. This Council will help to assess progress towards Canada's ZEV sales targets and will examine evidence to better identify and enable additional measures that could be pursued. Three focus areas for this year include: affordability; charging and refueling; and public and industry confidence. A fourth area on grid readiness will be covered by the Canada Electricity Advisory Council, with Natural Resources Canada liaising between both councils, to ensure that information and progress is shared across both fora.

While the majority of efforts to date have focussed on driving down emissions from the on-road sector, given the fact that that sector alone accounts for almost 85% of all transportation related emissions, to meet our 2030 climate commitments and to ensure we are on a path to being net zero in 2050, emissions from the entire transportation ecosystem must be addressed.





# CLEARING THE RUNWAY TO DECARBONIZING AVIATION

## Piloting Efforts – Aviation Climate Action Plan

**Canada’s 2022 Aviation Climate Action Plan**, sets a vision of net-zero GHGs – in both domestic and international air operations – by 2050 for Canada’s aviation sector. Importantly, it includes an aspirational goal of 10 percent sustainable aviation fuels (SAF) use by 2030, sending a clear signal that Canada recognizes the essential role this fuel must play.

We are working with Governments at all levels, the industry, academia, Indigenous groups, and non-government organizations to implement the 2022 Action plan. This includes the development of a SAF Blueprint for Canada, which will identify key actions for government and industry to ensure Canada has sufficient availability of SAF to meet the ambitious goal of 10% SAF use by 2030, while also including SAF targets for 2040 and 2050.

Under Canada’s Aviation Climate Action Plan, Transport Canada and Environment and Climate Change Canada are working with airports, airlines and third-party equipment owners and operators on an approach to support the adoption of electric/ low-carbon ground support equipment and green infrastructure, and to develop an inventory of ground support equipment and infrastructure to better understand the landscape.

While we are implementing the 2022 Action plan, we are also working to inform the development of and updated and expanded 2024 Aviation Climate Action Plan, which will go further by addressing emissions from the entire aviation eco-system including both airplanes and airport operations.



Several of Canada's airports are already leading the way in climate ambition. For example, in 2021 Vancouver Airport (YVR) announced its commitment to achieving net-zero emissions by 2030. Major Canadian airports are also participating in the Net-Zero Challenge launched by Environment and Climate Change Canada, which encourages businesses to develop and implement credible and effective plans to transition their facilities and operations to net-zero emissions by 2050. Airports participating in the challenge include; Edmonton Regional Airports Authority, Greater Toronto Airports Authority, Ottawa International Airport Authority, and Vancouver Airport Authority.

# GREENING AVIATION IN CANADA

[www.tc.gc.ca](http://www.tc.gc.ca)



From 2008 to 2018, the aviation industry in Canada improved its fuel efficiency by **18%**.

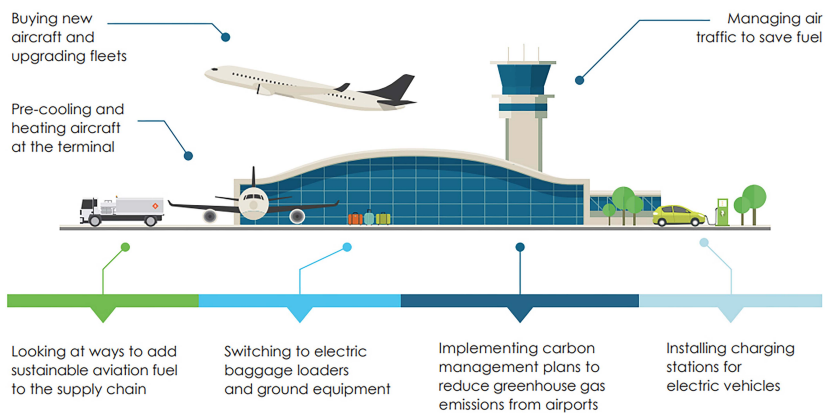


Without this improvement, the industry would have emitted an additional **5 Megatonnes** of greenhouse gas in 2018.



This is equal to emissions from **1,250,000** cars driven in one year.

## THE AVIATION INDUSTRY IS BECOMING GREENER IN CANADA BY:



Government of Canada / Gouvernement du Canada

## Improving Accountability at Airports - Bill C-52

The Government is working to improve accountability in Canada's air sector through Bill C-52, the *Enhancing Transparency and Accountability in the Transportation System Act*. This proposed legislation would require certain airport authorities to develop and publish climate change mitigation and adaptation action plans, including their greenhouse gas emission reduction targets. Future regulations would set out, among other things, what information should be included in the climate plans, what role public participation should play in the development of the plans, and what climate change adaptation actions an airport authority must undertake.



# NAVIGATING MARINE DECARBONIZATION

## Driving action through a Marine Climate Action Plan

Reducing emissions from the Canadian marine sector requires sector-wide collaboration on the solutions to decarbonize vessels as well as port operations. Transport Canada is working with governments at all levels, the private sector, academia, as well as Indigenous businesses and communities, to develop a Marine Climate Action plan. This plan will outline a series of collaborative actions sequenced over time, for both the public and private sector, to drive down emissions from the entire marine eco-system, including marine vessels as well as from port operations.



## Enabling The Establishment of Green Shipping Corridors

Green shipping corridors are an important part of the Government's efforts to tackle climate change in the marine sector. Defined as zero-emission maritime routes between two or more ports, green shipping corridors will help speed up how we develop, test and use scalable net-zero fuels and technologies.

At COP26 in 2021, Canada signed the Clydebank Declaration, an international declaration whose signatory nations agreed to support the establishment of at least six zero-emission green shipping corridors by the mid-2020s. In June 2023, the transport ministers of G7 countries (including Canada) agreed to a higher target of at least 14 green shipping corridors on the same timeline.

To help guide Canadian stakeholders, the Government published the **Canadian Green Shipping Corridors Framework** in 2022. Further, the 2023 federal budget provided Transport Canada with \$165.4 million to establish a Green Shipping Corridor Program. This new program will support the development of green shipping corridors by offering funding to spur the launch of the next generation of clean ships, deploy green technology at ports, and help ports attract low-emission, low-noise vessels.



## Fostering innovation – TC’s Clean Marine RD&D

While policies are essential to setting goal posts for the industry to strive toward, it is also important to support the fundamental innovation needed to develop the next generation of clean marine technologies. To that end Transport Canada’s **Clean Marine – Research, Deployment and Development Program**, is funding clean vessel research and demonstration across Canada projects, including Canada’s first electric tug design, low carbon fuel demon on the laker fleet, and battery electric fishing vessels, among other projects.

## Introducing Climate Change Planning & Reporting at Ports – Bill C33

Canada Port Authorities, which operate at arm’s length from the federal government, are already undertaking efforts to address the environmental impacts of port operations and reduce emissions through the implementation of technologies such as shore power. Building upon these efforts, the Government introduced legislation that would amend the *Canada Marine Act* to bring added consistency and transparency to how Canada Port Authorities integrate environmental considerations into their planning and decision-making.

...including Canada’s first electric tug design, low carbon fuel demon on the laker fleet, and battery electric fishing vessels, among other projects.





# TRACKING PROGRESS – DECARBONIZATION OF THE RAIL SECTOR

Transport Canada has been collaborating with the rail industry to reduce locomotive emissions since 1995, through a series of Memorandum of Understandings with the Railway Association of Canada. Work is currently underway to renew the Memorandum of Understanding, with the goal of setting a vision of how the Canadian rail sector can work towards net-zero emissions by 2050, while identifying key areas of collaboration to support this transition. Under this Memorandum of Understanding, Transport Canada and railway representatives agree to pursue possible short-term emission reduction opportunities until 2030, advance the development of zero-emission locomotive technologies, increase use of renewable fuels, improve fuel efficiency, and explore other decarbonization strategies to support the rail sector in transitioning towards net-zero by 2050.

Work carried out through the MOU, as well as more targeted engagement with governments at all levels, the private sector, Indigenous communities and academia, to inform the development of a climate action plan for the rail sector. This plan will address emissions from the entire rail eco-system, including passenger and freight locomotives, as well as operations in rail yards.

Transport Canada's Clean Rail RD&D program provides funding to advance scientific knowledge, and the development of technologies that reduce greenhouse gas (GHG), and/or criteria air contaminants (CAC) emissions from Canada's rail sector. This includes funding to demonstrate hydrogen rail trials in Canada, and to develop safety standards for battery electric locomotives.

Canada's rail network and supply chains are facing complex risks due to climate change and extreme weather. Transport Canada's Rail Safety Improvement Program and the Rail Climate Change Adaptation Program (R-CCAP) have funded projects that help Canada's rail sector research, develop, and implement innovative technologies, tools, and approaches to address these risks. Under these programs, Transport Canada announced up to \$34.9 million to support projects that identify climate change risks and/or reduce the impacts of extreme weather on Canada's rail sector.



# SHOWCASING CANADIAN LEADERSHIP BEYOND OUR BORDERS

While we work to drive down emissions domestically, given the seamless nature of the global transportation system it is also essential to establish strategic partnerships with governments and the private sector internationally, if we are to truly reach our climate objective.

On February 25, 2021, Canada's Transport Minister and U.S. Secretary of Transportation released the Joint Statement by Transport Canada and the U.S. Department of Transportation on the Nexus between Transportation and Climate Change. As a result of the Joint Statement work plan, in February of this year, Transport Canada hosted the first meeting of the **Canada-U.S. ZEV Task Force** in Ottawa, with a vision to "accelerate the achievement of 100% ZEV sales for light-duty vehicles and increase the supply of and demand for zero emission medium- and heavy-duty vehicles". The Task Force identified five Joint Action Areas where collaboration will help move the ZEV agenda forward in both countries, and developed a work stream plan with short, medium and long-term deliverables in the areas of binational alternative fuels corridors, ZEV charging standards, building user confidence, research, development and demonstration and Indigenous engagement.

The Canada-U.S. ZEV Task Force is on track to deliver its work stream plan, and already announced one official Alternative Fuels Corridor between Kalamazoo, in Michigan, to Québec city, Québec, with others to follow. The task force also launched a **Zero-Emission Bus toolkit**, aimed at helping transit agencies and related organizations better understand the benefits, challenges, considerations, and opportunities inherent in establishing or transitioning to zero-emission buses.

## **Canadian Leadership at the International Civil Aviation Organization (ICAO)**

Emissions from international aviation are difficult to attribute responsibility to an individual country's national target. A consistent approach is necessary to ensure a fair playing field and avoid a patchwork of regulations. Targets and measures for the international aviation sectors are negotiated at ICAO, the UN Agency for aviation, whose headquarters are based in Montreal. Canada is a recognized leader for several initiatives delivered by ICAO, including the Carbon Offsetting and Reduction Scheme for International Aviation, the Long-Term Aspirational Goal of Net Zero by 2050 for international aviation, and Chairperson of the Technical Advisory Body (TAB).

In November 2021 at the 26th Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change, Canada along with nearly 60 other members, signed an International Aviation Climate Ambition Coalition declaration, which includes a commitment to work together, both through ICAO and other complementary cooperative initiatives, to advance ambitious actions to reduce aviation CO<sub>2</sub> emissions.

## Delivering at the International Maritime Organization

Transport Canada leads the Canadian delegation to the International Maritime Organization (IMO), a United Nations organization that leads global action to reduce greenhouse gas (GHG) emissions from international marine shipping, *i.e.*, voyages between countries.

In July 2023 Canada joined more than 150 other countries to endorse the adoption of an ambitious new IMO Greenhouse Gas Strategy, which includes a goal of net-zero GHG emissions from international shipping by or around 2050, as well as ambitious indicative checkpoints for 2030 and 2040 that are within striking distance of the Paris Agreement. It sends a strong signal to shipbuilders and fuel suppliers that at least 5% of the global ship energy system (striving for 10%) must be powered by zero- and near-zero GHG emission technologies, fuels and/or energy sources by 2030.

In order to deliver on the targets in the 2023 GHG Strategy, the IMO also agreed to develop a basket of new regulatory measures, including a goal-based marine fuel standard and a maritime GHG pollution

pricing mechanism, for adoption in 2025. Canada knows from experience that these types of climate measures can reduce emissions, drive innovation and maintain economic growth, all while minimizing adverse impacts on the poorest and most vulnerable. We will continue to work with all maritime countries, particularly our allies in the Shipping High Ambition Coalition, to develop ambitious and feasible new measures that can work for everyone.

## Establishing Strategic Linkages between Transportation and Energy Transition at the Clean Energy Ministerial

In addition to the work already undertaken through the IMO and ICAO mentioned earlier, we co-chair several initiatives of the Clean Energy Ministerial.

**The Electric Vehicle Initiative** brings together experts and governments from around the world to accelerate the transition to zero emission vehicles in all on-road transportation. Through the **Clean Energy Marine Hubs Initiative**, we are working with other like minded countries, and industry to position the maritime sector to seize the opportunity to decarbonize with clean fuels and advanced technologies, while also preparing it to deliver hydrogen, ammonia, and other clean energy commodities, essential to decarbonizing the global economy. At COP 28, Canada launched a multi-port and multi-jurisdiction Memorandum of Understanding with more than 10 private sector entities, to enable the exploration of opportunities to develop a green shipping corridor from Canada's west coast to ports in Asia and the Middle East.





# PROTECTING OUR OCEANS

Canada is a maritime nation with more coastline than any other country in the world. Canadians expect our marine safety system to protect these coasts while also supporting the marine shipping that is critical to our economy. Canada's marine safety system is world-leading—it's built on more than 100 regulations, 30 laws, and international agreements, but it must evolve along with this rapidly changing world.

Transport Canada plays a critical part in administering this regime in Canada, but it cannot do this alone. It works in consultation and partnership with Indigenous peoples and coastal communities, environmental groups, marine industry, other levels of government and the general public. It is precisely through these engagements that the department recognizes more must be done in the face of rising challenges and impacts of marine transportation. This includes responding to a changing climate that is making pristine and fragile marine environments more susceptible to the post-pandemic recovery and growth of the marine transportation sector.

The following section offers a summary of some recent accomplishments and planned initiatives Transport Canada is leading that will further protect that which is so crucial to our communities, our economy and our way of life – our oceans.

## Enabling Major Marine Projects – the Oceans Protection Plan

Since the launch of the **Oceans Protection Plan** in November 2016, the Government of Canada has been working with Canadians and Indigenous Groups to protect our coasts and waterways while growing the economy.

Transport Canada recognizes that the first and best line of defence is preventing accidents and incidents. Under the Plan, more robust, modern rules were adopted and the **Canada Shipping Act, 2001** was amended to provide the Government with additional tools to hold polluters in Canadian waters accountable.

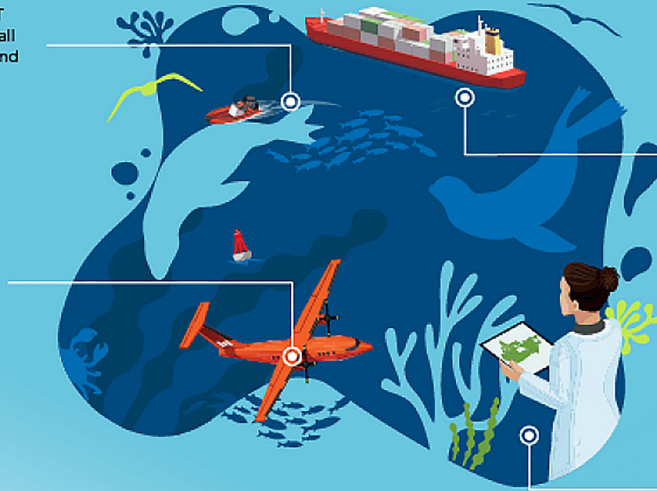
Transport Canada also increased its inspection and oversight activities to address issues before they occur. Likewise, the risks of accidents have been reduced through enhanced services that ensure ships entering Canadian waters are accompanied by experienced pilots that are familiar with the area. The Plan also saw the implementation in 2019 of an **oil tanker moratorium** which prohibits oil tankers from stopping, loading or unloading large quantities of crude or persistent oil products in northern British Columbia.

# INVESTING \$2 BILLION OVER NINE YEARS TO PROTECT OUR OCEANS AND WATERWAYS

Since launching the Oceans Protection Plan in 2016, the Government of Canada has taken steps to protect our coasts and waterways by improving marine safety measures, increasing protections for our marine ecosystems, and strengthening collaboration with Indigenous Peoples. With an investment of \$2 billion over nine years, the Government of Canada's renewal of the Oceans Protection Plan lets us build on past results and expand into new areas. These new areas include:

**ENSURING THE SAFE MOVEMENT AND NAVIGATION** of large and small vessels to improve on-water safety and limit risks to our marine ecosystems.

**EXPANDING CANADA'S MARINE EMERGENCY PREVENTION, preparedness, and response** approaches to handle types of marine pollution beyond oil spills.



**KEEPING CANADA'S SUPPLY CHAINS HEALTHY, STRONG, AND RESILIENT** to bring Canadians the goods they use every day while meeting surging global demand for goods moved by ship.

**STRENGTHENING MARINE TRAFFIC MANAGEMENT** by applying new technologies and partnerships to make marine shipping more efficient and reduce negative impacts on marine ecosystems.

However, even with the best preventative measures, the risk of an incident cannot be eliminated, and so Canada is equally prepared to respond to vessel oil spills in the rare event that they occur. Modernized laws will enable Transport Canada and the Canadian Coast Guard to respond faster. Liability and compensation regimes have been strengthened to make those who pollute more financially responsible, including for damages. Those who suffer damages from a spill may receive unlimited compensation for eligible costs under Canada's **Ship-Based Oil Pollution Fund**.

Wrecked and abandoned vessels also pose significant threats to marine ecosystems and human health and safety. Under the Plan, a comprehensive strategy was launched to reduce the number of these problem vessels in Canadian waters and prevent them from occurring in the first place. A key pillar of the strategy was the **Wrecked, Abandoned or Hazardous Vessels Act**, which among other things, prohibits the act of vessel abandonment.

Aquatic invasive species are primarily introduced into waters by ships through untreated ballast water discharge and hull biofouling. This presents a serious threat to marine biodiversity, the health of our waters and ultimately to our economy. When untreated ballast water, used to ensure vessel stability, is discharged it may accidentally introduce invasive species. Transport Canada recently introduced new **regulations** requiring all ships in Canadian waters to ensure ballast water is treated before discharge. These new rules are expected to prevent the introduction of approximately 35 new species in Canadian waters by 2044.

The department also launched the **Ballast Water Innovation Program**, which will provide up to \$12.5M in funding for industry-led RD&D projects to address technical and operational challenges with BWMS in the Great Lakes and St. Lawrence River (GLSLR) region, whose waters are cold, fresh, and mixed with sediment.

Similarly, untreated build-up of aquatic organisms on ship surfaces' hulls enables non-native aquatic species to spread, which is why the department is launching trials to evaluate the effectiveness of in-water hull cleaning & capture storage systems.

## VESSEL HULL BIOFOULING

Transport Canada works on developing measures to effectively manage and control vessel biofouling and, to this end, introduced **voluntary guidance** for in-water hull cleaning.

These and other measures not only help protect Canadian **waters' biodiversity**, but also **lower vessel fuel consumption, underwater noise** and contribute to **marine decarbonization!**

**Next Steps:** Work with industry and other partners to address knowledge gaps and establish international guidance and standards to manage biofouling.





## Preventing Pollution and Degradation in Marine Environments

Transport Canada is committed to protecting the environment from the risks of marine pollution. Through working with various members of the shipping industry, Canadian ports, and other federal government departments, the department monitors and mitigates the impacts of shipping and associated discharges and emissions. For example, this includes:

- introducing new **mandatory environmental measures** for cruise ship discharges for the 2023 cruise season.
- strengthening the capacity of the **National Aerial Surveillance Program** to monitor shipping activities from above, and continuing vigilant undertaking of inspections, audits, monitoring and enforcement.

## Marine Protected and Conserved Areas

Transport Canada also supports the establishment of marine protected and conserved areas, in keeping with Canada's **commitment to protect 30% of its oceans by 2030** under the Kunming-Montreal Global Biodiversity Framework. The department supports a whole-of-government approach by using several voluntary and mandatory tools to mitigate the potential impacts of marine transportation in designated marine areas. One example is introduction of speed reduction zones to protect vulnerable marine mammals.

A national **Protection Standard for federal Marine Protected Areas** was announced in 2023 that prohibits certain industrial activities. It also includes an intent to enhance restrictions of certain vessel discharges, such as sewage or food waste, which Transport Canada is leading in consultation with the marine industry, coastal communities and other stakeholders.

## Protecting the Arctic

As Transport Canada oversees rules governing the protection of our waters, even more so are there key laws specific to **Arctic Shipping**. Most notably is the *Arctic Waters Pollution Prevention Act* and its regulations, which were far ahead of their time when created to protect the sensitive arctic marine environment. Other complementary rules are in place, and **continue to be updated** to ensure vessels operating in the Arctic are able to handle the conditions, as this ensures safety and protection of life, health, property and the environment.

Recognizing the unique and fragile nature of northern ecosystems, and the dire consequences that would arise from an oil spill, Transport Canada is implementing a **ban on heavy fuel oil in Canada's Arctic** to align with international regulations.





With shipping activity increasing significantly in the Arctic in the last decade due in part to longer summers with ice-free waters caused by climate change, harmful air and climate pollution are increasing in the region. Canada is moving to designate an Emissions Control Area (ECA) in Canadian Arctic waters to protect this unique eco-system and human health from shipping air pollution. Designating an Arctic ECA has benefits for ecosystems, health, and the climate. These benefits were all realized following the establishment of the North American ECA by the Government of Canada last decade for non-Arctic waters. Adopting an ECA would require marine vessels travelling in Canada's Arctic to use cleaner fuels and engine technologies that reduce air pollution. Earlier this year, Canada notified the International Maritime Organization (IMO) of its intention to propose to designate an ECA in Canadian Arctic waters.

Domestic consultation and stakeholders' engagement as well as international engagement on the Government of Canada proposal is ongoing and the final proposal is expected to be submitted to the IMO for consideration at its 81st Meeting of the MEPC (April 2024).

## Tackling Marine Plastic Waste from Ships

Transport Canada is engaging with stakeholders domestically and internationally to build a national policy framework to reduce plastic waste from ships that is not already addressed under existing rules. This framework aligns with Canada's **Zero Plastic Waste Agenda**.

Scientific research is being undertaken into the nature of plastics in marine environments, such as microplastic shedding from vessel hull coatings. Transport Canada actively promotes private sector innovation to reduce marine-source plastic pollution by assisting on the development of a **filtration system** for microplastics in ship greywater and helping develop methods for the **recycling of fiberglass** commonly used in recreational vessels.

## Expanding Relationships with Indigenous Partners and Communities

Many of the affected marine and coastal ecosystems are part of Indigenous people's communities. This is why Transport Canada has worked in collaboration with Indigenous and coastal communities and other stakeholders to advance key protection measures that reduce the impacts of marine traffic across the country. Indigenous communities have played an active role in designing and delivering programs that help assess risks and impacts of marine traffic, actively monitor marine traffic in local waters, and participate in the development of voluntary measures to reduce impacts from vessels in their local waters through proactive vessel management programs. Transport Canada has also provided funding to support Indigenous communities' participation in decision-making discussions and further build local capacity.

Transport Canada also works with our federal partners to negotiate impact and benefit agreements with the Inuit who live in Canada's North and whose communities may be impacted by transportation activities. These agreements are intended to empower communities through collaborative decision-making and help build local capacity through several ways including infrastructure projects or vessel monitoring programs.

Indigenous communities have played an active role in designing and delivering programs that help assess risks and impacts of marine traffic...



# THE WHALES INITIATIVE: PROTECTING WHALES FROM THE IMPACTS OF VESSEL TRAFFIC

Shipping is at the heart of today's global economy – ensuring goods flow smoothly to and from overseas destinations is key to Canada's success as a trading nation. With increased shipping, however, there have been unintended consequences on marine ecosystems and severe impacts on marine mammals. These species are not adapted to deal with vast fleets of fast-moving ships that generate massive amounts of underwater noise, resulting in vessel strikes on some species and underwater noise and physical disturbance on others. Through the Whales Initiative, Transport Canada and other federal agencies are taking action to reduce threats to priority at-risk whales, including threats from vessels and marine shipping.

## Reducing Underwater Noise and Physical Disturbance

Off the West Coast of Canada and the United States, the Southern Resident killer whale (SRKW) is an iconic species, beloved by local communities, and sacred to Coastal Salish Indigenous communities. Sadly, this endangered species now numbers only 75 individuals – lack of prey, marine contaminants, underwater noise and other physical disturbances, largely from vessel traffic, are threatening their survival and recovery. Underwater vessel noise disrupts the ability of SRKW to hunt for food, communicate with each other, and understand their surroundings.

Transport Canada is taking action to reduce vessel impacts on this iconic species. Every year since 2019, Transport Canada has developed and implemented laws requiring vessels to stay away from all killer whales in southern BC's coastal waters. These laws also create sanctuary zones that boats may not enter and speed restricted zones where boats must slow down. Measures are assessed and adapted as needed.

Public awareness about the plight of the SRKW is critical. Each year, Transport Canada uses various strategies to educate the public and boaters, including posters and brochures, updated navigational charts and apps, and reaching mariners through official channels such as through Navigational Warnings. Enforcement is done through a collaborative multi-departmental effort that includes Parks Canada, the Department of Fisheries and Oceans, the Royal Canadian Mounted Police, the Canadian Coast Guard, and Transport Canada. Together these agencies use a variety of tools to monitor and enforce regulations including on-water, land, and aerial surveillance patrols, public reporting, and the use of data from Automatic Identification Systems (AIS) and radar.

While these measures apply to all vessels, recognizing the size and impact of large commercial vessels requires additional efforts. Transport Canada is a key partner of the Vancouver Fraser Port Authority's Enhancing Cetacean Habitat and Observation (ECHO) Program. This program works with industry, academia, environmental groups, local marine pilots, and Indigenous advisors to implement vessel slowdowns in key areas of the Salish Sea and move traffic away from important SRKW foraging areas.

ECHO has achieved remarkable success – a participation rate of 86% in 2022 has meant that underwater noise from shipping vessels has been reduced by up to 55%. The ECHO Program and Transport Canada also work to facilitate and support incentive programs both nationally and internationally for cleaner and quieter vessels, with the Port of Vancouver and the Port of Prince Rupert leading the way as two of the first ports in the world that are implementing incentives for quieter vessels through reduced harbour dues.

Developing long-term scientific solutions to vessel quieting is also a priority. In 2020, Transport Canada deployed an underwater listening station below a major shipping lane in the Salish Sea. This provides real-time measurement of underwater noise from vessels along with ambient noise and marine mammal calls. The data gathered supports our understanding of vessel noise and the effectiveness of the measures in place.

Transport Canada's \$26 million, Quiet Vessel Initiative is testing the most promising technologies, vessel designs, retrofits and operational practices to make vessels quieter and more efficient. The Quiet Vessel Initiative is part of the Government of Canada's

commitment to address underwater vessel noise, and protect the marine environment and endangered marine mammals. Through QVI RD&D projects, TC is advancing next generation vessel designs, retrofit and operational practices to make ships quieter. Examples include the deployment of a world-class underwater listening station at **Boundary Pass**, and the **MARS Research station** in the St. Lawrence, which are studying vessel noise, and effective mitigations.

Internationally, Transport Canada has been taking a leadership role within the International Maritime Organization (IMO) since 2017 to promote long-term action and initiatives on reducing underwater vessel noise. With support from other IMO Member States and Organizations, TC led the work that culminated in the adoption in 2023 of the *Revised Guidelines for the Reduction of Underwater Radiated Noise From Shipping to Address Adverse Impacts on Marine Life*. TC remains dedicated to advancing the work of the IMO to further prevent and reduce impacts of underwater radiated noise from shipping and identify ways to implement the Revised Guidelines and increase their uptake on a global scale.

At home, Transport Canada is working with science and industry partners in developing meaningful and practical Underwater Vessel Noise Reduction Targets (UVNRTs). These targets are a first step towards the development of Underwater Noise Management Plans, which would see fleet owners taking their own underwater noise contributions into consideration and implementing measures that would work best for them to reduce their noise footprint. Initial work would focus on working with domestic fleets and potentially expanding to the international stage over the longer term.



# WHALES INITIATIVE

## PROTECTING ENDANGERED WHALES FROM VESSEL IMPACTS

Between 1990 and 2020, global volume of cargo transported by ships more than doubled – Growth is forecast to continue.

- Vessels impact marine mammals through vessel strikes and physical/noise disturbance

### Physical/Noise Disturbance

- Marine species rely on sound to interpret their world
- Noise and physical disturbance prevents marine life from engaging in basic life functions
  - Foraging/echolocating food
  - Resting
  - Communicating
  - Navigating
- In areas where flow of ships is constant, creates a noise masking effect, effectively “blinding” marine species



### West Coast-Southern Resident killer whale (SRKW)

- Key threats: under water noise, lack of prey, and contaminants
- Population of 75
- Critical habitat overlaps with critical trade corridors, BC ferries routes, recreational boating traffic
- Port of Vancouver (VFPA) Enhancing Cetacean Habitat and Observation (ECHO) Program is a key partner in research/implementing measures for large commercial vessels



### Vessel Strikes

- Marine mammals struck by vessels are often seriously injured or killed
- Collisions involving larger marine animals can damage vessels and cause serious and sometimes fatal injuries to people

### East Coast – North Atlantic right whale (NARW)

- Key threats: vessel strikes and entanglements in fishing gear
- ~340 remaining
- Present in Gulf of St Lawrence in larger numbers April to November



## ACTIONS TO REDUCE VESSEL IMPACTS



- **Slowing vessel traffic** to reduce noise/impact
  - Working with partners to establish multiple slowdowns in the Salish Sea to reduce underwater noise
  - Slowdowns on Canada’s East Coast when NARW are present to reduce the likelihood and severity of a strike



- **Moving vessel traffic** away from known whale locations
  - Establishing sanctuary zones in the Salish Sea where SRKW can communicate and forage without disturbance from vessel traffic
  - Mandatory restricted areas near the Shediac Valley for NARW to engage in feeding and surface activity



- Developing **vessel quieting operations and technology** Several studies have been undertaken including looking into:
  - Quiet propellor design
  - Cavitation monitoring systems
  - Linkages between underwater noise reductions and GHG reductions
  - Quiet vessel standards and notations



- Leadership at the **International Maritime Organization** to reduce vessel impacts
  - Driving the revision and adoption of an updated and stronger *Guidelines for the Reduction of Underwater Noise from Commercial Shipping*
  - Developing a Program of Action at the IMO to further reduce underwater vessel noise



- **Rules/regulations** that reduce the impacts of vessel traffic
  - Adapting annual mandatory measures to protect endangered marine mammals
  - Developing a long-term regulatory approach to marine ecosystem protection



- **Working with the marine industry** to ensure they’re evaluating and addressing the impacts of their own operations
  - Developing of Underwater Vessel Noise Reduction Targets and Underwater Vessel Noise Management

## Minimizing Vessel Strikes

The 2017 year was devastating for the North Atlantic right whale population (NARW): twelve dead whales were found in the Gulf of St. Lawrence, many showing signs of having been struck by vessels or entangled in fishing gear. The species is critically endangered, with some 356 individuals remaining. As a result of warming oceans and changes in the distribution of their food source, NARW are becoming increasingly present in the Gulf from April to November.

Immediate action was required. Since 2017, Transport Canada has implemented a combination of dynamic and static vessel speed reduction measures on more than 72,000 square kilometers in the Gulf of St. Lawrence. Acoustic and aerial technologies are in place to support whale detection efforts.

Measures were developed, reviewed, and implemented through a collaborative process with industry and diverse stakeholders. The goal is to help protect this endangered species while continuing to ensure the safe and efficient movement of people and goods. And we are seeing success: a compliance rate of more than 99% for mandatory speed reduction measures. As a result, there have been no NARW mortalities reported in Canadian waters since 2019.

More can be done. Over the long term, the department is focused on developing stronger monitoring capabilities. For example, TC has commissioned the pilot testing of novel marine mammal detection technologies (e.g., infrared cameras) to improve our ability to automatically detect NARW in and around busy shipping lanes. The department also maintains a vigilant posture with respect to monitoring vessel strikes on other marine mammals and on Canada's other coasts to be better prepared for action as the need to do so emerges.

2017 year was devastating for the North Atlantic right whale population...





# WHAT NEXT

Canada is continuing its important work to protect our oceans. Transport Canada is working with other federal government departments to ensure that the appropriate measures are put in place in new Marine Protected Areas to continue protecting these sensitive ecosystems from the impacts of marine traffic. In addition, Transport Canada is working on developing regulations to establish an owner-financed Vessel Remediation Fund, which will improve the Government of Canada's capacity to remove the nearly 1500 legacy vessels in Canadian waters while implementing preventative strategies to reduce future abandonment.

While the ZEV market is rapidly growing in Canada, Canadians and Canadian businesses continue to face barriers that prevent or delay the widespread adoption of these more environmentally-friendly technologies. Transport Canada is continuing the hard work on bridging the gap to make ZEVs more affordable and will continue to adapt our incentive programming as the ZEV market transforms. Meeting our national ZEV sales targets and paving the way for ZEV regulations will require increased attention to the medium- and heavy-duty vehicle space where ZEV technologies are currently lagging when performance requirements are more demanding and emissions are harder to abate. It will also require continued collaboration with our many stakeholders and federal partners to address

knowledge gaps, deploy supporting infrastructure, accelerate technology readiness, align safety standards, and ultimately make the ZEV future a reality for Canadians from coast to coast to coast.

We will also strive to continue to deliver on the commitments made in the Emissions Reduction Plan, to develop and implement climate action plans for the marine, rail and aviation sectors.

Through these combined efforts, Transport Canada will continue to ensure Canada's transportation system can deliver the goods and people that are essential to maintaining a thriving economy, in a safe, secure, and environmentally conscious way, clearing the runway to be zero emission by 2050.