

BC Ferries

Fleet Maintenance Overview



January 31, 2024

 **BC Ferries**

Agenda

Welcome

Jeff Groot, Executive Director,
Communications and Engagement

Fleet Maintenance and Coastal Class Update

Stephen Jones, Vice President,
Engineering

Fleet Deployment Strategy

Brian Anderson, Vice President,
Strategy & Planning

Questions

Moderated Q&A



Purpose – A Focus on Refits and Repairs

1

Provide insight into how BC Ferries manages the maintenance, repair and required refits of the fleet












2

Update on the Coastal Class and repair plans

3

Preparations in place for summer peak season

Current Status – Age of Major Vessels

15-25 Years	25 – 40 Years	40 – 50 Years	50+ Years
Lifespan for majority of deep sea vessels. (Impacts component design life).	Typical lifespan for RoPax vessel operating in reasonably sheltered waters. Typically requires mid-life conversion	Exceeds vessel design life. Increasing risk of irreparable failures.	Significantly exceeds vessel design life. Increasing risk of irreparable failures.
 <i>Coastal Inspiration (15)</i>  <i>Coastal Celebration (15)</i>  <i>Coastal Renaissance (16)</i>	 <i>Spirit of Vancouver Island (29)</i>  <i>Spirit of British Columbia (30)</i>	 <i>Queen of Alberni (47)</i>  <i>Queen of Coquitlam (47)</i>  <i>Queen of Cowichan (47)</i>  <i>Queen of Oak Bay (42)</i>  <i>Queen of Surrey (42)</i>	 <i>Queen of New West (59)</i>

Maintaining our Fleet

The maintenance activities of our fleet fall under three categories:

1

Major Upgrade
(Capital Plan)

2

Operational
Maintenance

3

Refit

Maintaining our Fleet

Major Upgrades (Capital Plan)

900M

Capital plan allocation over the next 12 years that BC Ferries will invest in lifecycle upgrades, major overhauls and inspections for its entire fleet.

- Asset replacements and upgrades that lengthen the life of the asset, improve functionality, or enhance the customer experience
- Duration is 3-9 months
- Happen approximately every 10-15 years

Examples:

- Replacing entire propulsion system (engines, generators, gearboxes, etc.)
- Major steel replacements on various sections of the hull
- Major upgrades to the navigation equipment and passenger areas

Maintaining our Fleet

Operational Maintenance

Annual routine maintenance costs over past five years

2023	2022	2021	2020	2019
\$36.9M	\$33M	\$29.8M	\$30.3M	\$25.2M

- Regularly scheduled work to ensure all components function at their optimum
- Includes daily maintenance, spare parts, local labour (i.e., non-BC Ferries) and minor regulatory fees/inspections

Maintaining our Fleet

Refits

- Major work is performed with the vessel out of service
- Substantial parts are repaired/replaced with average duration of 30-45 days
- Scheduled at different intervals depending on the size of the vessel and the type of waters in which they sail



Maintaining our Fleet

Why do refits take place?

Passenger ferries need to be refitted regularly to:

- Permit regulatory inspections to ensure they are safe and reliable for transporting passengers and cargo
- Ensure the vessels pose no safety issues to any other marine traffic

Transport Canada regulates the safety aspect of a vessel through the *Canada Shipping Act*.



Maintaining our Fleet

Our refit principles

1. Integrate improvements for efficiency, enhance the customer experience, and reduce environmental impact
2. Plan refit schedule to mitigate service disruptions
3. Find the best balance between sailings/capacity to keep ships running to meet our service needs
4. Plan refit schedule to maintain vessel certification with Transport Canada



Maintaining our Fleet

Refit frequency

Annually

Major route vessels

Spirit Class, Coastal Class, C-Class and North Coast vessels

Every Five Years

Minor and intermediate ferries: One or two refits

20 refits planned in 2024

- 15 Major vessels
- 2 Intermediate vessels
- 3 Minor vessels



2024 Refit Schedule

<i>Coastal Renaissance</i>	October 2023
<i>Spirit of British Columbia</i>	January 2024
<i>Queen of Oak Bay</i>	January 2024
<i>Northern Adventure</i>	January – March 2024
<i>Queen of Cumberland</i>	January – February 2024
<i>Queen of Surrey</i>	January – March 2024
<i>Spirit of Vancouver Island</i>	February – March 2024
<i>Salish Eagle</i>	February – March 2024
<i>Coastal Celebration</i>	March – April 2024
<i>Northern Sea Wolf</i>	March – May 2024
<i>Northern Expedition</i>	March – May 2024
<i>Klitsa</i>	April – June 2024
<i>Coastal Inspiration</i>	April – May 2024
<i>Queen of Coquitlam</i>	September 2024
<i>Coastal Renaissance</i>	October – December 2024
<i>Island Discovery</i>	October – November 2024
<i>Queen of Capilano</i>	October – December 2024
<i>Queen of New Westminster</i>	October – November 2024
<i>Island Aurora</i>	November – December 2024
<i>Queen of Alberni</i>	November – December 2024
<i>Queen of Cowichan</i>	November – December 2024



Refit Schedule and Cost Factors

- Several factors go into planning the refit schedule, including age and size of vessel

4.7M

Average refit costs are estimated to be \$4.7M per vessel

20

20 refit projects in 2024



Dry Dock

Passenger vessels are required by Transport Canada regulations to dry dock once in a five-year period for:

- Refit work and safety inspections involved through maintenance of the hull
- Maintenance for underwater equipment and systems such as: propellers, shafts, rudder, water intake valves, bow thrusters, cathodic protection systems, etc.



Where we conduct our work on vessels

- BC Ferries' Fleet Maintenance Unit
- Allied Shipbuilders Ltd.
- Point Hope Maritime Ltd.
- Seaspan Vancouver Dry Dock Co.
- Seaspan Victoria Shipyards Co



Fleet Maintenance Unit (FMU)

- 16.2 hectare property, located in Richmond, near Massey Tunnel
- Seven berths
- The facility contains a complex of workshops engaged in highly skilled ship repair activities such as:
 - Machinery rebuilding
 - Structural repairs
 - Lifesaving system re-certification
 - Coatings



Fleet Maintenance Unit - Team

150

The FMU employs 150 skilled workers including:

- Heavy duty mechanics
- Fuel injection technicians
- Welders
- Electricians
- Painters
- Coating inspectors
- Life saving technicians
- Rescue boat technicians
- Ship safety technicians
- Shipwrights
- Plumbers
- Riggers
- Upholsterers
- Sign fabricators
- Overall labour support

BC Ferries

Coastal Class Update



Jan 31, 2024

 **BCFerries**

Coastal Class

There are three Coastal class vessels in the BC Ferries fleet:



Coastal Renaissance (in service 2007)



Coastal Celebration (in service 2008)



Coastal Inspiration (in service 2008)

- Over the previous five years, our Coastal Class ships made over **13,000** sailings, with a technical reliability rate of **99.3** per cent.



Coastal Class

Drive motor issue

The issue

- Motor rotor and operating environment.
- Noise and vibration was disruptive for our neighbours and terminal infrastructure.

The reason

- The rotors (rotating part of electric motor) have a service life of 30,000 starts.
- An operational decision was made to shut in-shore motor off in dock, resulting in double the starts.



Coastal Class

Drive motor issue

The solution

- This is a standalone mechanical issue that we've isolated, we are installing variable speed motor controls to avoid it in the future.

Proactive measures

- A decision was also made to sail the *Coastal Inspiration* around the east point, rather than through Active Pass as a safety precaution to save wear.



Coastal Class

Repair plan

- *Coastal Renaissance* on track to return to service in March (refit being conducted simultaneously)
- All Coastal Class vessels will have new rotors in time for peak season (summer 2024):
 - (March-April) *Coastal Celebration*
 - (April-May) *Coastal Inspiration*



BC Ferries

Putting Customers First During Repairs and Refits



January 31, 2024

 **BCFerries**

By the Numbers

20M

Over 20M
Passengers (2023)

25

Routes

14

Classes of
vessel

39

Vessels

123K

Over 123k
sailings (2023)



Scheduling and Fleet Deployment

- We plan our refits to ensure that all of our vessels are available for service during peak season.
- The refit schedule is set up to ensure a compatible replacement vessel is available to meet service demand.
- Scheduled refits are designed to ensure service levels remain undisrupted.



Scheduling and Deployment

Considerations

Crew clearance

Crew who are cleared for one class of vessel may not be for another, as requirements vary.

Berths

Vessel classes have unique requirements for docking and require different berths.

Fleet composition

There are currently 14 different classes of vessels and we are aiming to reduce to 5 or 6.



Fleet Deployment

Unplanned repairs

When faced with unplanned repairs, our first step is to put passengers first.

1

How can we maintain service without (or with minimal) disruption?

2

Do we have ships in lay-up and is there a compatible ship available?

3

Can we swap with a ship on another route, without impacting service?

4

Based on historical capacity, how do we ensure we maintain service levels?

We also look to mitigate impacts for commercial traffic and the supply chain.

Unplanned Repairs

Mitigation

If a compatible ship is unavailable, we will consider other mitigation efforts to maintain base service levels:

- Changing service without reducing service level (e.g. run a smaller ship more frequently)
- Where appropriate, run water taxis for smaller routes
- If a ship is not available because it is undergoing a planned refit, we may pull that ship back into service and adjust refit schedule

Looking Ahead

- Busy planning for the summer season
- 12 vessels undergoing refit before our peak summer season
- We look forward to welcoming record numbers of passengers travelling our coast this summer



BC Ferries

Q & A



January 31, 2024

 **BC Ferries**