A RECONNAISSANCE SURVEY
OF THE
SHIPS OF THE ROYSTON BREAKWATER
VANCOUVER ISLAND, BRITISH COLUMBIA, CANADA

Edited by
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ABSTRACT

The Royston hulk breakwater may contain the largest and most diverse collection of historical vessels anywhere along the west coast of North America.

The March 2011 Royston Breakwater Project was the first systematic, in-water assessment of these vessels. The Project was a joint effort by the Underwater Archaeological Society of British Columbia (UASBC) and the Institute of Nautical Archaeology (INA). An intensive, reconnaissance-level assessment was performed on the hulks of 14 historic sailing, World War Two fighting ships, steam tugs, and whalers. This diverse fleet contains hulls dating back to 1876 and spans the transition from the zenith of sail to diesel turbines. Several of the sailing vessels are three- to five-masted, fully rigged ships including Cape Horn windjammers, and some of the various destroyers and frigates figured prominently in the Battle of the Atlantic as well as the Pacific war.

Sufficient data was collected during the reconnaissance survey to prepare Basic Shipwreck Recording Forms for all 14 vessels. Site plans were not prepared because of the scale of the site. Photography included 35 mm terrestrial and underwater digital photography in March and large format aerial photography in June 2011.

The site contains several globally important vessels, namely the three-masted Cape Horn windjammers *Melanope* and *Riversdale*, and the sole remaining example of a four-masted case oil carrier, *Comet*. These three sailing vessels plus the steam tug *Qualicum* are priorities for further detailed study scheduled to begin in April 2012.

ACKNOWLEDGEMENTS

The Royston hulk breakwater lies on private industrial land leased and owned by International Forest Products Ltd. We are extremely grateful to the managers of Interfor for permission to conduct this project.

The March 2011 project was carried out entirely by volunteer avocational and professional underwater archaeologists associated with the Institute of Nautical Archaeology (INA) and the Underwater Archaeological Society of British Columbia (UASBC). The majority of field expenses were covered by the participants, with a small additional sum provided by the UASBC Explorations Budget.
We particularly thank the UASBC Board of Directors for their vote of support for the project.

Both the UASBC and the INA provided participants with survey equipment while the INA brought its portable compressor to Courtenay to fill SCUBA tanks.

Geoff Bell's family provided a 12' skiff and outboard and arranged for the 70mm aerial photography of the site undertaken by surveyor Dave Bazett.

Finally, the Courtenay Museum Society allowed us to use the Capes Escape as a base of operations. This facility is a beautifully restored 1922 heritage property, and it provided the team with the best field station we have seen in many years.

Our sincere thanks to all of you for your assistance and support.

TABLE OF CONTENTS

1.0 Introduction and Objectives of the Project

Ships' graveyards have become increasingly significant as a neglected opportunity to study maritime archaeology (Richards 2008). The Royston breakwater is comprised of perhaps the largest collection of sail and steam-era vessels anywhere along the west coast of British Columbia and perhaps North America. On March 19th-21st, 2011, a joint UASBC / Institute of Nautical Archaeology expedition visited the breakwater with the objective of conducting a reconnaissance survey on each of the 14 known vessels. Rick James' ***Ghost Ships of Royston*** (2004) provides a detailed summary of each vessel, yet systematic in-water assessments of each ship had not been made, nor had Basic Shipwreck Recording Forms been prepared and submitted to the Archaeology Branch.

With the job half-finished in this world-class ship graveyard, our objective was to examine the vessels in the water, prepare the basic forms, and create a status report on the breakwater as a precursor for future work.

Participants in the project included Sean Adams (NA/UASBC), Geoff Bell (INA/UASBC), Rick James (UASBC), Jacques Marc (UASBC), Bill Meekel (UASBC), John Pollack (INA/UASBC), Randy Ruygrok (UASBC), Eric Young (UASBC), and Bronwen Young (UASBC). The project was organized and led by Pollack and James.

2.0 Previous Research

Rick James's historical research began in 1989 and in 2004 he published a detailed account of the operational histories of each of the 15 breakwater vessels as a UASBC report entitled ***Ghost Ships of Royston.***

As part of the preparation for that publication, in August 2003 John Pollack, Rick James and the UASBC conducted a two-day total station project and surveyed the locations of 14 vessels.

Prior to the March 2011 project, UASBC divers had made two casual visits to the site without collecting data.

3.0 Location and History of the Site

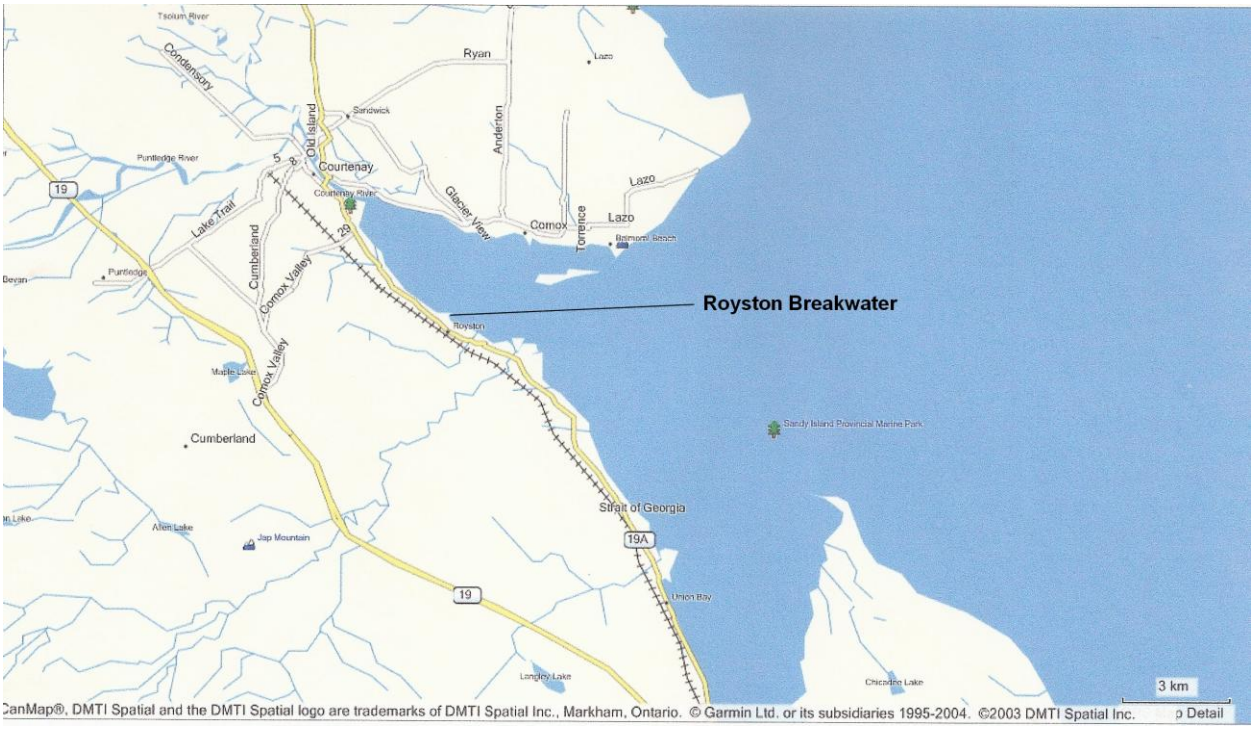
The Royston breakwater is located near the mouth of the Courtenay River on the eastern shore of Vancouver Island, British Columbia, Canada, some 3 km SE of Courtenay and 90 km NW of Nanaimo (Figure 1). A June 2011 aerial photograph shows the remaining pilings, dolphins, rock ballast, and the locations of the fourteen ships Figure 2). The breakwater originally extended 540 m from the shore into the bay at an angle of 35 degrees N. The ships are concentrated in a 480 x 80 m area partially under and to the SE of the rock ballast. Pilings and dolphins occupy a much larger area and were not mapped as part of the March 2011 project.

The original breakwater was designed to protect the Comox Logging and Railway Company log dump and booming ground on the south-western side of Comox Bay that dates from the early 20th century. The site is currently owned by International Forest Products Ltd. and is no longer in use.

The first hulk was scuttled in the bay in 1936, and the last, in 1962. Many have partially collapsed due to corrosion and storms on this exposed site, but significant portions are still three dimensional, and visible above water. Sailing ships include an auxiliary schooner, a barkentine, and three Cape Horn windjammers. There are also three frigates, two destroyers, a US Navy deep sea rescue tug, two historic steam tugs, and a Norwegian-built whaler. The location of a second whaler is unknown and it would be the 15th ship if found.

A number of these vessels have dramatic histories. One ship was supposedly cursed, while another served a few days as a floating nightclub off the Vancouver waterfront in the summer of 1936. It was the warships that had the most striking stories to tell. Their wartime service included North Atlantic convoy battles against wolf packs, U-boat sinkings, the rescue of more than 900 seamen from the capsizing battleship *HMS Prince of Wales* near Singapore, and multiple evacuation trips from the beaches of Dunkirk. Later in life, three of the sailing vessels were stripped or heavily modified to serve as log, hog fuel and sawdust barges working for British Columbia's forest industry, before they arrived at Royston. Eventually the deterioration of the ships caused the forest company to truck and dump rock ballast over some of the site, burying several of the vessels such as the *Forest Friend*, *USS Tattnall* and *Laurel Whalen*.

Genera l location of the Royston Breakwater



Specific location of the Royston Breakwater.

Aerial mosaic of the Royston Breakwater (D. Bazett 2011)

4.0 Methodology

The March 2011 project was organized as a low intensity, high production reconnaissance survey to explore, evaluate and photograph 14 large vessels in three days. A low tide was selected to allow maximum exposure of the shallow wrecks. Nine people were organized into four teams of two plus a boat driver who assisted on terrestrial sites when not occupied transporting dive teams. SCUBA was used by three of the teams to explore sites to a maximum depth of -8 m, and the fourth team concentrated on two terrestrial sites and two sites shallow enough to allow snorkelling.

Baseline, trilateration and total station surveys were not attempted during the site assessment, but are planned for at a later date on high priority ships. Rather, the March inspections were designed to document the general status and condition of each hull, identify any major machinery present, and prepare the Basic Shipwreck Recording Form for each of the 14 ships.

GPS locations of the bow and stern of each vessel were obtained using a WAAS-corrected Garmin 60CSX.

Underwater photography was undertaken by Jacques Marc using a digital Nikon camera. Aerial photography was shot with a Hasselblad camera and a 60 mm lens by David Bazett of Bazett Land Surveying Inc. in June 2011.

Subsequent to the March 2011 project, Basic Shipwreck Recording Forms were filed and Borden numbers were obtained from the Archaeology Branch, for all 14 ships.

5 Status of Individual Ships[1]

5.1 Melanope

Borden Number: DjSf-43
Original Registration: 74550 Liverpool, England
Year Built: 1876
Vessel Type: three-masted windjammer
Location Built: Liverpool, England.
Hull Material: Iron clincher hull
Gross Tonnage: 1,686 tons
Hull Length: 258.2' (78.7 m) ***Beam:*** 40.2' (12.3 m) ***Hull Depth:*** 23.8' (7.3 m)
Engines and Machinery: No propulsion except sail, large windlass on bow.

Operational History:

- 1876 built by W.H. Potter & Co.
- Initial owners Heap & Sons, a rice milling firm
- 1876 dismasted in gale.
- Carried cargo and immigrants to Australia (outbound) and rice from SE Asia to Europe (inbound)

[1] Ships are listed by year of construction and many of the details were obtained from James (2004).

- 1882 Heap & Sons fleet sold to Gracie, Beazley and Co. who formed the Australasian Shipping Co.
- Voyages with bulk cargo included jute and rice loaded in the Far East, grain from San Francisco and Puget Sound, Australian wool and refined petroleum products loaded in New York.
- 1890s became more involved in Pacific USA coastal trade and Australia
- 1898 voyage from New South Wales to Valparaiso Chile
- 1900 seized and sold by US marshal to US citizen.
- 1901 reregistered in Australia by a new owner and transferred to English registration the same year.
- 1906 abandoned off Oregon in storm, damaged beyond repair, sold and converted into a barge
- 1911 purchased by CPR for a coal barge and reregistered in Vancouver.
- 1946 used as a breakwater ship at Royston

Status: The remains of *Melanope* lie on a sandy bottom with the rip-rap breakwater encroaching on its port side. In March 2010 this large iron-hulled vessel displayed an intact three-dimensional bow forward of first mast stub, and a similarly intact stern aft of the third mast stub. Orientation of the vessel from stern to bow is 002 degrees TN. Both the forward and aft mast stubs are visible between the main and second decks, and are severed above the main deck vessel.

The intact stern section displays a radial pattern of deck beams above the apron. A rudder assembly was not observed. Both levels of deck beams were constructed of T-bulb iron with brackets reinforcing the junction at the side frames, and approximately 20 frames were noted in the intact stern section. Side frames and floors are constructed of angle iron with occasional reversed frames. Frame and space is variable, ranging from 65- 70 cm.

Forward of the intact stern section the sides of the vessel have fallen outward and the wreck is two-dimensional, with the sides of the vessel lying flat on the ocean floor in approximately 1.5 m of water. The port side is buried under rubble associated with the breakwater fill with some deck beams pointing skyward on the outside of the fill to the west with the collapse of the hull many years ago.

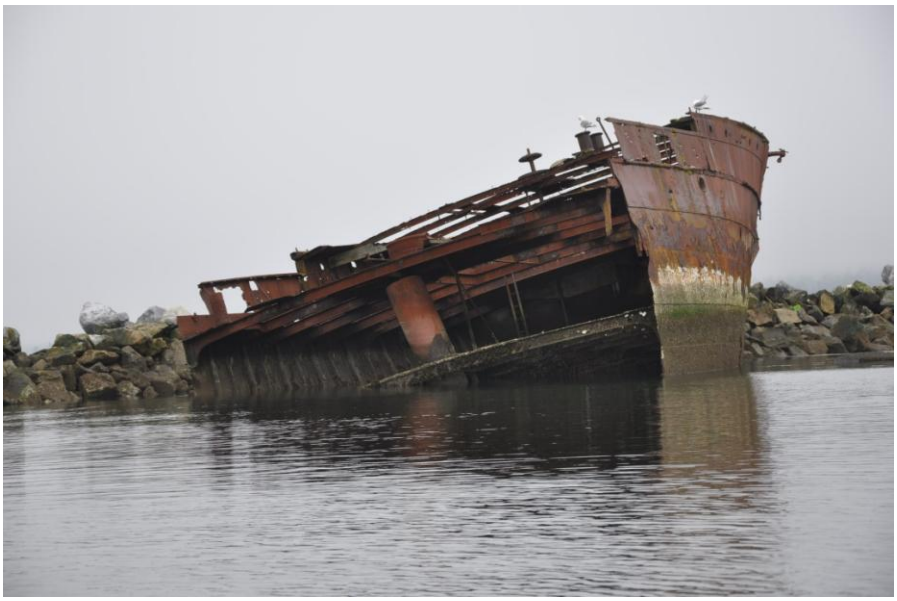
The bow is intact and three-dimensional, with 20 frames ending in a transverse bulkhead. Again the ship has two decks and several hold stanchions positioned on the centerline forward of the forward mast stub. A massive windlass is positioned on the upper deck. A foredeck is present along with at least four sets of bollards. Three side stringers are visible on each side of the vessel.

Assessment History: The location of the hull on the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by John Pollack, Rick James and Geoff Bell and submitted April 2011 to the Archaeology Branch.

Significance: *Melanope* is a rare example of an 1876 iron-hulled Cape Horn windjammer with bow and stern intact and largely exposed during a low tide. This ship would rank as a high priority for a detailed total station survey and formal publication.

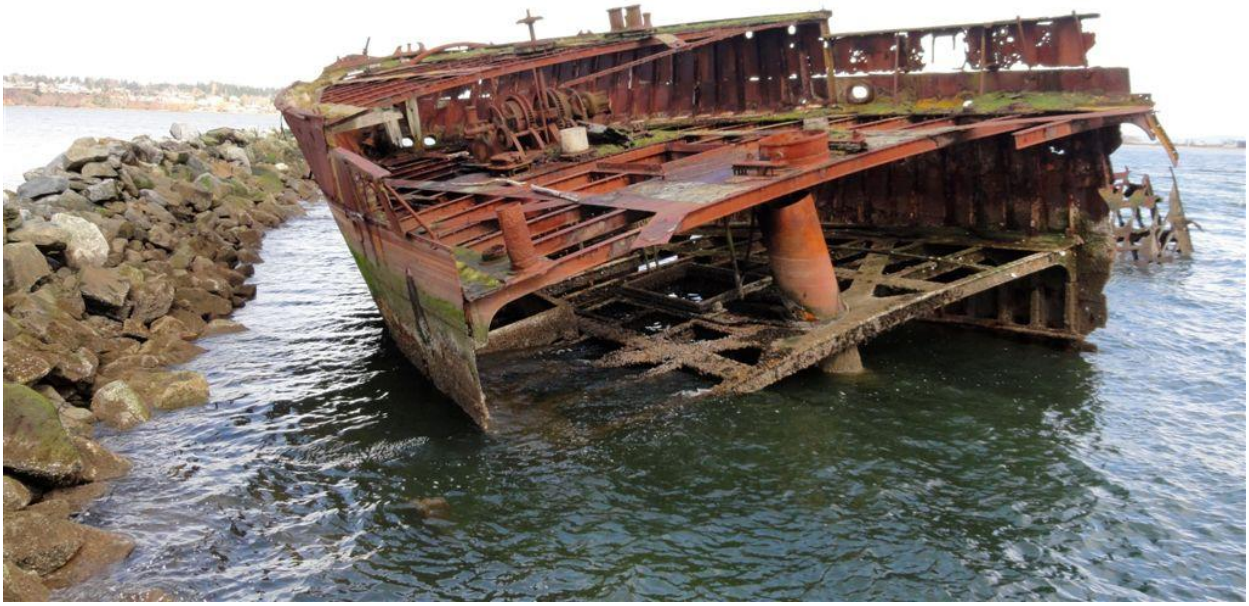
Author - John Pollack

Aerial image of *Melanope* (lower hull) on a June low tide. Bow at top. D. Bazett 2011.

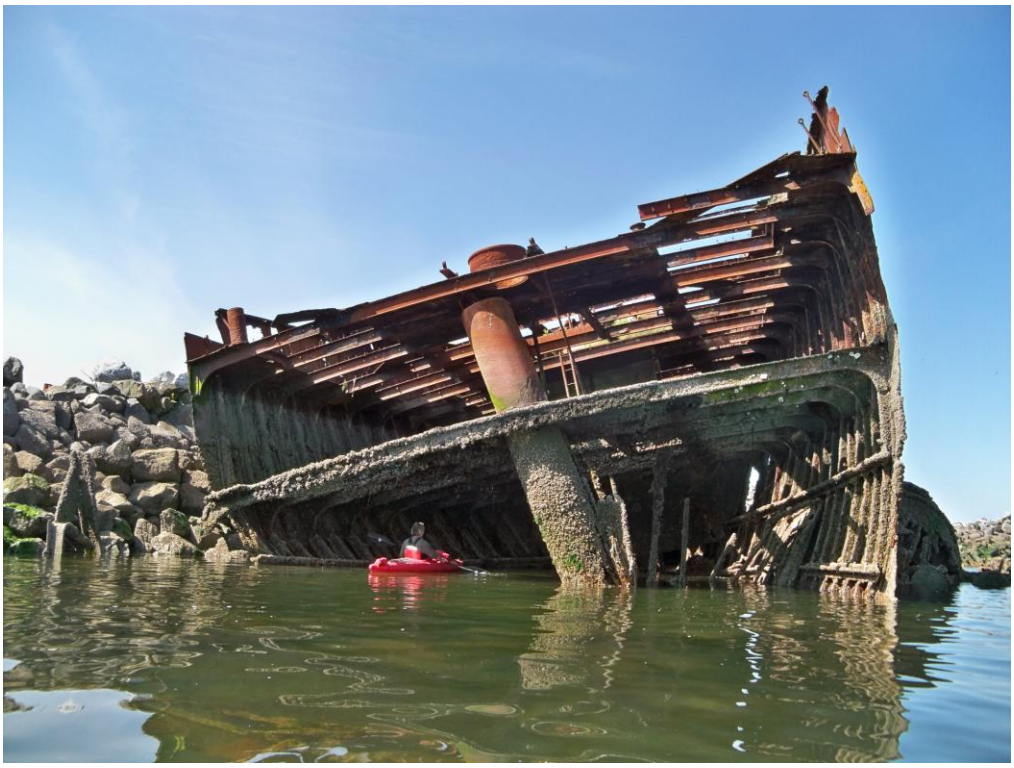


Bow of *Melanope*. J. Pollack 2011

Stern of *Melanope*. J. Pollack 2011



Bow and windlass of *Melanope*. S. Adams 2011



Interior detail of the bow of *Melanope* at low tide. R. James 2011

5.2 Riversdale

Borden Number: DjSf-53
Original Registration: 102129 Liverpool, England
Year Built: 1894
Vessel Type: three-masted, square-rigged, windjammer
Location Built: Port Glasgow, Scotland
Hull Material: Steel clincher
Gross Tonnage: 2,206 tons
Hull Length (m): 275.8' (83.9 m) ***Beam:*** 41.9' (12.75 m) ***Hull Depth:*** 24.0' (7.3m)
Engines and Machinery: No propulsion except sail

Operational History:

1894 built by William Hamilton & Co.
1896 sold to R. W. Leyland & Co.
1896-1909 bulk cargo trade (coal, coke, wheat, lumber, nitrates, etc.)
San Francisco, Singapore, Portland, London, Calcutta, Hamburg, Sydney, Valparaiso, Acapulco, Buenos Aires, Antwerp, etc.
1909 sold to Schluyter & Mack of Hamburg, renamed Harvestehude
1910-1914 bulk trade between Europe and the west coasts of the Americas
coal, coke and fuels outbound, nitrates, copper, grain home bound
1914-1920 interned in Santa Rosalia, Mexico due to World War One
1920-1924 owned by Robert Dollar, sat in San Francisco bay
1924 sold to Coastwise Steamship & Barge Co. and towed to Puget Sound

1929 converted to a barge, renamed *Riversdale*, registered in Vancouver, BC
bulk carrier on BC coast, coal and copper concentrates
1935 sold to Island Tug & Barge Co., of British Columbia
hauled hog fuel, saw dust and logs on BC coast
1956(?) sold to Crown Zellerbach, renamed Crown Zellerbach #3, same cargos
1961 placed on outside of log boom break water at Royston in November

Status: *Riversdale's* steel windjammer bow is the most prominent visual artifact of the Royston breakwater. This intact 10 meter long section rests upright with its stem towards the shore. It is above water at all tides with approximately two meters of water above the keel at a one meter low tide. *Riversdale's* bow is closest to shore, large, intact structure of all the wrecks at Royston. Little is left in the interior of this section.

The central sections of *Riversdale* rest on a gently sloping sand and gravel bottom. The keel has a 49° (true) orientation from bow to stern. This part of the wreck is mostly two-dimensional as the sides of the hull have fallen about two meters above the rounding of the bilge. The port side has fallen outwards (to the SE), while the starboard side has fallen inwards (to the SE). This entire portion of the ship is submerged at all tides.

Riversdale's stern section has broken into two pieces. The lower portion is upright, intact, and stretches back to the rudder post. The rudder is adjacent to the post but detached by 70 cm. The upper portion of the round/elliptical stern is completely inverted and to the SE of the rudder post. The steering quadrant is intact and the hole into which the rudder fit is visible. The upper most part of the rudder post is dry at extremely low tides.

Assessment History: The location of the hull in relation to the breakwater, was surveyed in 2003. GPS locations if stem and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared in March 2011 by Bronwen and Eric Young, and submitted in April 2011 to the Archaeology Branch. Government.

Significance: *Riversdale* along with *Melanope*, are the last three-masted windjammers still accessible and visible above tide water along Canada's West Coast. The ship was severely altered when it was converted for use as a barge. Although the ship's masts were cut down and her interior stripped before the ship became part of the breakwater, her bow, stern, and rudder are relatively intact along with the plating and framing amidships. This ship would rank as a high priority for a formal survey and publication.

Authors - Eric and Bronwen Young

Aerial view of *Riversdale* on a June low tide. Bow to left. D. Bazett 2011.

Bow of *Riversdale*. S. Adams 2011.

Bow of *Riversdale*. E. Young 2011.

Interior of the bow of *Riversdale* with divers in the water (right). J. Pollack 2011.

5.3 Comet

Borden Number: DjSf-50
Original Registration: 112812 London, England
Year Built: 1901
Vessel Type: Four-masted flat-bottomed steel barque
Location Built: Port Glasgow, Scotland
Hull Material: Steel clincher hull
Gross Tonnage: 3,017 tons
Hull Length: 318' (97.8m) ***Beam:*** 46' (14.1m) ***Hull Depth:*** 26' (8m)
Engines and Machinery: No propulsion except sail, steam cargo windlass and steam-assisted steering

Operational History:

- 1901 launched in Scotland
- Carried case oil in pairs of 5 gallon cans in wooden cases
- Later re-registered in the United States
- 1901 March maiden voyage out of Greenock Scotland *Comet* fouled the steam yacht *Lysistrata*
- 1901 March totally de-masted and the crew rescued by the steamship *Minneapolis* whom in turn towed her to the Azores Islands
- *Comet* was returned to Port Glasgow Scotland for repairs where the 54 foot long royal yards were reduced
- 1901 August returned to active service and reached Philadelphia
- 1901-1913 continued sailing between the United States and Asia
- 1913 sold to The Rheederei Aktien Gesselschaft von 1896 or the" Eighteen Ninety-Six Company" of Hamburg
- Renamed *Orotava*
- 1914 sailed under command of Captain Friedrich Dreier until November when the ship was interned in Santa Rosalia Mexico at the outbreak of World War One
- During the 6 years *Comet* was interned, the crew deserted and the ship deteriorated and was in need of serious repairs
- 1920 ship awarded to France as part of war reparations
- Bought by Robert Dollar, renamed *James Dollar* and re-registered in the United States under number 221836, given a minor refit and sailed to Japan in 1921
- 1929 *Comet* was bought by the Pacific (Coyle) Navigation Company
- Towed to Vancouver, the masts and rigging were removed, the hull gutted and the hatchways opened up. Upon completion, the vessel was renamed *Pacific Forester* and employed by Pacific (Coyle) Navigation as a log barge for six years
- 1936 *Pacific Forester* was sold to Island Tug and Barge and renamed *Island Forester*
- After World War II, three large steam cranes were installed to load and unload logs
- late 1950s *Comet* was sold to Crown Zellerbach Corporation of Canada
- 1962 moved to Royston Breakwater

Status: *Comet* lies off the stern of *Melanope* and of all 14 ships, this vessel is furthest away from the rip-rap break water. The hull is the most exposed of all of the breakwater ships, and it has borne the full force of southeasterly storms. The midship bulwarks have collapsed leaving the bow and stern sections standing above water and three-dimensional. Some years later the stern section fell over but

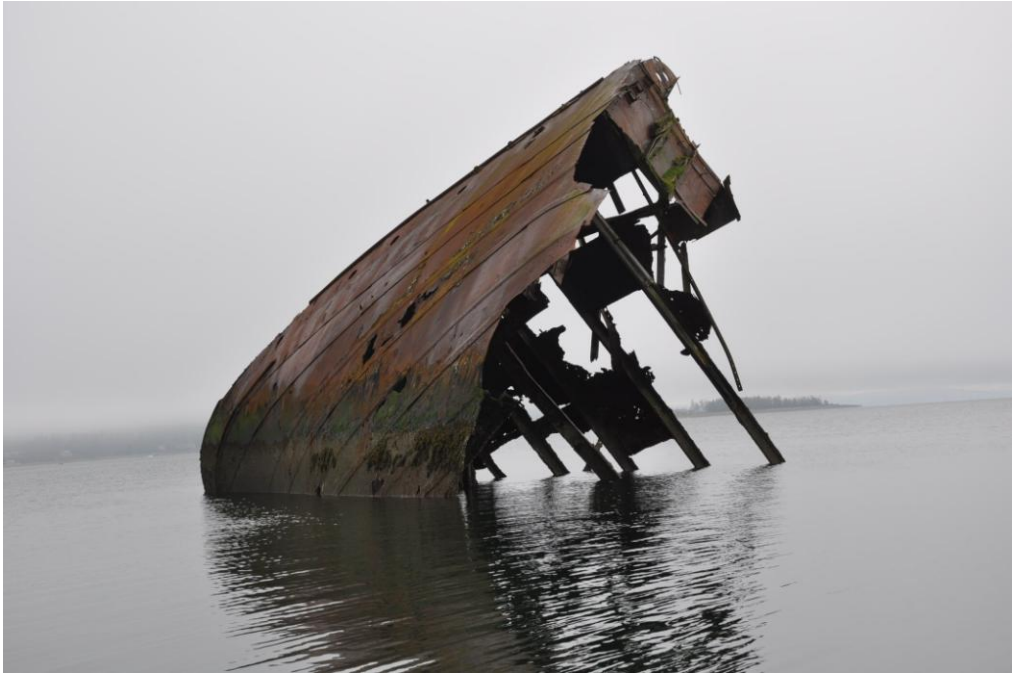
the rudder and steam-assisted steering is still definable. The bow stood upright for some 30 years before it in 2002-2003 collapsed over on the port side. The steam boiler has broken free and is lying amongst the debris. *Comet*'s massive bow windlass and capstan are still intact but lie at right angles to the bottom. As for *Comet*'s hull, it collapsed flat but with careful observation one can group its robust construction that allowed this vessel to stay in service one way or another for over 60 years.

Assessment History: The location of the hull on the breakwater, was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Bill Meekel and Randy Ruygrok and submitted April 2011 to the Archaeology Branch.

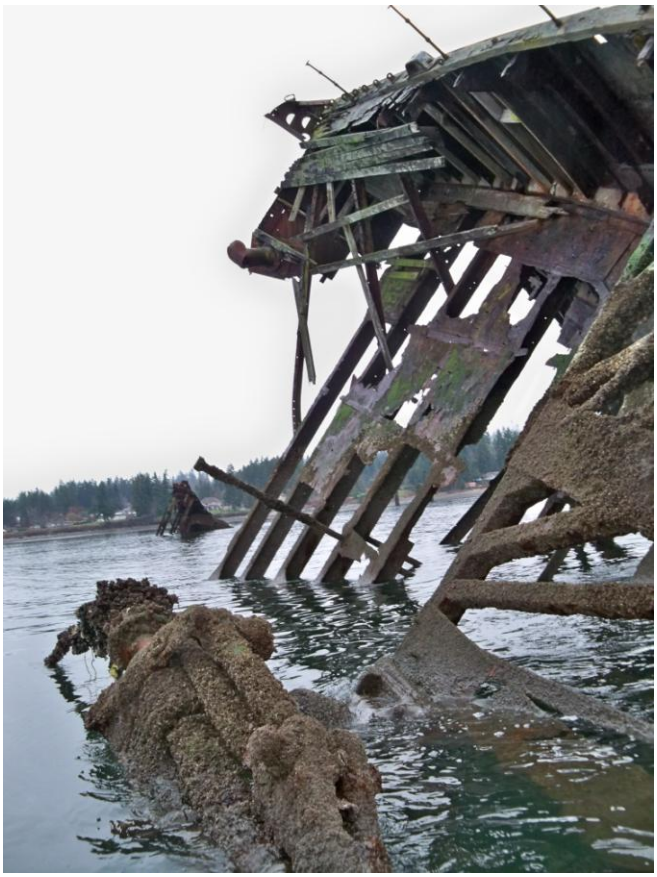
Significance: Globally, *Comet* is the only known example of a case oil carrier. The vessel was a large four-masted flat bottom barque constructed in the twilight years of the large bulk carrying sailing ship and at a time of transition when the modern, screw-driven steamship began to dominate the sea lanes of the world. It did use steam for its windlass but not for propulsion. Despite being converted to a barge, portions of the bow, stern and hull are relatively intact. The rarity of this vessel and its completeness makes this vessel a priority for detailed study.

Author - Randy Ruygrok

Comet on a June low tide. Bow to left. D. Bazett 2011.

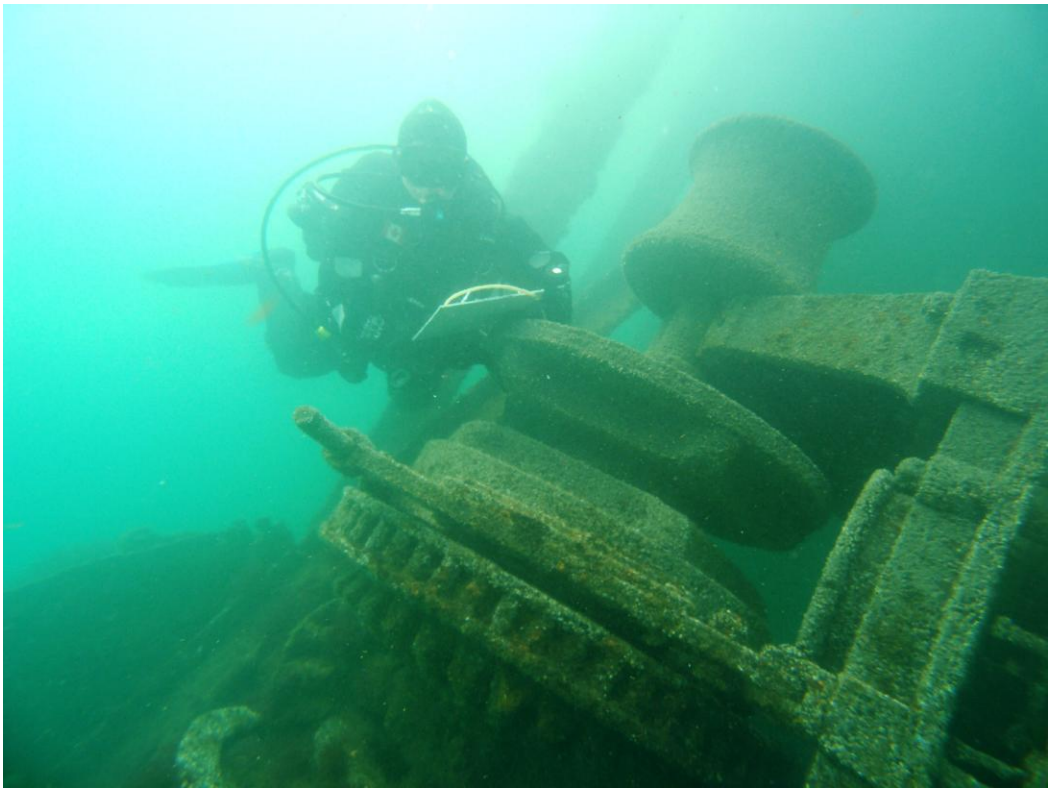


Stern of *Comet*. J. Pollack 2011.

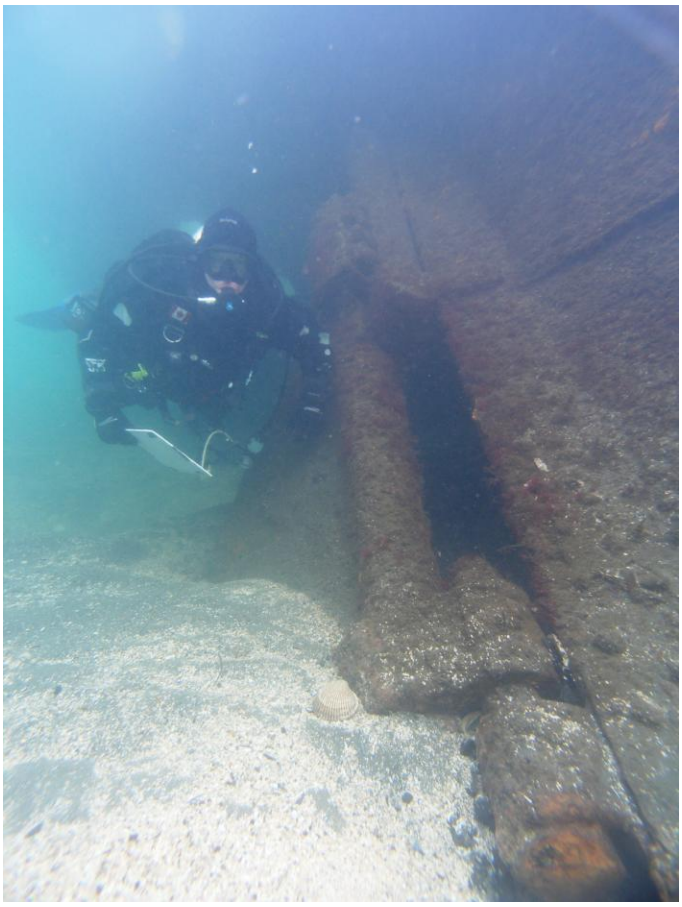


Stern of *Comet* with steam-assisted steering mechanism at the lower left of the picture. The bow of *Comet* is in the distance. R. James 2011.

Bow of *Comet* with windlass half-submerged. B. Young 2011



Sean Adams and the windlass on the bow of *Comet*. J. Marc 2011.



Rudder of *Comet*. J. Marc 2011

5.4 Qualicum

Borden Number: DjSf-48
Original Registration: USA
Year Built: 1904
Vessel Type: Steam tug
Location Built: Philadelphia, Pennsylvania, USA
Hull Material: Clincher steel hull
Gross Tonnage: 200 tons
Hull Length: 96' (29.3 m) ***Hull Beam:*** 22.5' (6.8 m) ***Hull Depth:*** 11.75' (3.6 m)
Engines and Machinery: Two-cylinder compound steam engine, 150 psi boiler and single propeller

Operational History:

- 1904 built by Neafie Levy S. & E.B. Co.
- Original name was *Eugene F. Moran*
- Initial owners Moran Towing & Transportation Co.
- Used to dump dredgings and garbage from New York City
- 1904 one of *Moran's* scows impact another towed vessel
- 1905 *Moran's* scows collides with a rail car transport barge
- 1906 sold to Mexican & Northern Steamship Co; name changed to *Colima*

- *Colima* used in railway service in Mexico until 1908
- 1910 *Colima* purchased by the CPR; name changed to *Qualicum*
- Reregistered in Canada 130607
- *Qualicum* put into railcar barge transfer service
- 1918 *Qualicum* involved in rescue of CPR steamer *Tees*; the vessel was saved
- 1918 the ship helped rescue CPR steamer *Princess Adelaide*
- 1943 *Qualicum* helped rescue CPR passenger ship *Princess Elaine*
- 1946 used as breakwater ship at Royston

Status: The vessel is located on the starboard side of the bow of *Melanope*. *Qualicum* is mostly two-dimensional; the keel and hull have collapsed with the upper decks now sitting on the hull. However the bow and the curve of the railing can still be seen since it has not been buried in the breakwater located on the port side of the vessel. Above the main deck, little of the original superstructure (e.g. main cabins with pilot house on top or the smoke stack) remains. A 6 m wide bulkhead still stands 9 m aft of the bow. Immediately behind the bulkhead is the most prominent element of the vessel, a 3 m diameter Scotch boiler. The steam engine is located seven meters behind the boiler, and it stands 3 m above the two-dimensional hull. Moving 9 m further astern, the curve of the stern can be seen and the deck plating is still in place. Below the stern in 2 – 3 m of water lie the rudder and single propeller. The propeller is 2.8 m in diameter and each of the four blades are 0.9 m wide. A life boat davit lies on the main deck.

Assessment History: The location of the hull on the breakwater, was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Bill Meekel and Randy Ruygrok and submitted April 2011 to the Archaeology Branch .

Significance: *Qualicum* is a rare example of an early 1900s steam tug with the boiler, two-cylinder steam engine and prop still intact and exposed during a low tide. This ship would rank as one of the higher priorities for detailed survey and formal publication.

Author – Bill Meekel

Aerial view of *Qualicum* on a June low tide. Bow to right. D. Bazett 2011.

In the foreground, the boiler, engine and stern of *Qualicum* at low tide. The bow of *Melanope* is in the background. J. Pollack 2011.

Propeller of *Qualicum.* J. Marc 2011.

Engine of *Qualicum.* J. Marc 2011.

5.5 Nanoose

Border Number: DjSf-44
Original Registration: 122397 Victoria, BC
Year Built: 1908
Vessel Type: Steam Tug
Location Built: British Columbia
Hull Material: Steel
Gross Tonnage: 305 tons
Hull Length: 116' (36.2m) ***Beam:*** 24.5' (7.6 m) ***Hull Depth:*** 14' (4.3m)
Engines and Machinery: Two-cylinder, compound inverted surface-condensing engine

Operational History:

- 1908 built in Esquimalt BC and registered in Victoria
- Owned by Esquimalt & Nanaimo Railway, a CPR subsidiary
- 1909 Bought by CPR
- Primarily assigned to tow railcar barges between Vancouver Island and Burrard Inlet
- 1911 recovered and brought back the CPR coastal steamer *Tees* after striking a rock in Kyuquot Sound
- 1918 salvaged *Princess Adelaide* which had gone aground on Georgina Point in Active Pass
- 1925, February 6 *Nanoose* was involved in a tragic event in Burrard Inlet when its railcar tow ran down the Japanese cruiser *Izumo's* pinnance and 11 sailors lost their lives

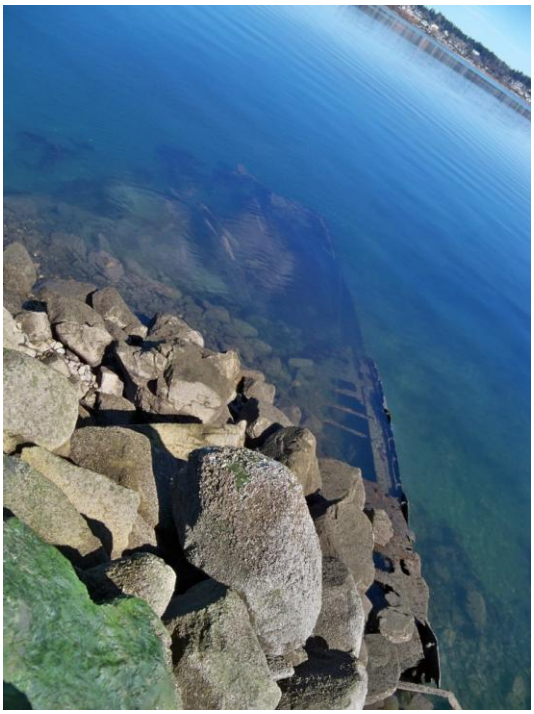
- A few years later the *Nanoose* was part of a fleet that helped rescue the CPR 's *Empress of Canada* after the huge ocean liner ran hard ashore on William Head near Victoria Harbour
- 1943 November 3rd picked up 3 crew adrift in Nootka Sound and helped rescue 280 passengers from *Princess Elaine* after the ship ran aground in Stanley Park
- Mid-1940s *Nanoose* was withdrawn from service
- 1946, October 22 registry closed, stating "vessel being sunk as a breakwater at Royston BC

Status: The remains of *Nanoose* are not visible above water on most low tides and the ship is completely buried except for an 8.4 meter section of the bow that protrudes from under the breakwater. The remainder of the hull is buried under rubble associated with the breakwater fill. Given the absence of machinery and the extensive burial of the hull, this ship is not a priority for further assessment.

Assessment History: The location of the hull on the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Jacques Marc and Sean Adams and submitted April 2011 to the Archaeology Branch.

Significance: The tug *Nanoose* was owned for most of its career by the Canadian Pacific Railway. The ship was used for towing hulks and transporting passengers from Vancouver Island to Vancouver. *Nanoose* was still owned by the CPR in 1946 when it was retired and sunk at the Royston Breakwater. *Nanoose* was one of the first ships sunk to form the breakwater and was a typical example of one of the larger towboats of her era with no outstanding features or attributes. This hulk adds to the historical diversity of the Royston Breakwater and the importance of its preservation as a historical site.

Author - Sean Adams



Bow of *Nanoose.* R. James 2011.

5.6 Blue (or *Black*)

Border Number: DjSf-47
Registration: *Blue* 131157 / *Black* 131337 England
Year Built: 1910
Vessel Type: " chaser" whaler
Location Built: Christiania, Norway.
Hull Material: Steel
Gross Tonnage: 102 tons
Hull Length: 91.8' (28 m) ***Beam:*** 18' (5.5 m) ***Hull Depth:***11.2' (3.4 m) *Blue* / 10.6' (3.2 m) *Black*
Engines and Machinery: originally sloop-rigged with a triple-expansion engine, single screw, steam-winch and bow-mounted harpoon gun. .

Operational History:

- 1910 built by Akers Mekanisk Verksted for Canadian North Pacific Fisheries Ltd.
- 1911 sailed from Norway to Victoria BC via Cape Horn
- Operated in coastal BC and Queen Charlotte Islands
- 1914 company renamed Victoria Whaling Co.
- 1922 company renamed Consolidated Whaling Corp.
- 1947 decommissioned and sold to Capital Iron & Metal Ltd.
- 1947 sold to Comox Logging Co. and scuttled at Royston 6 October

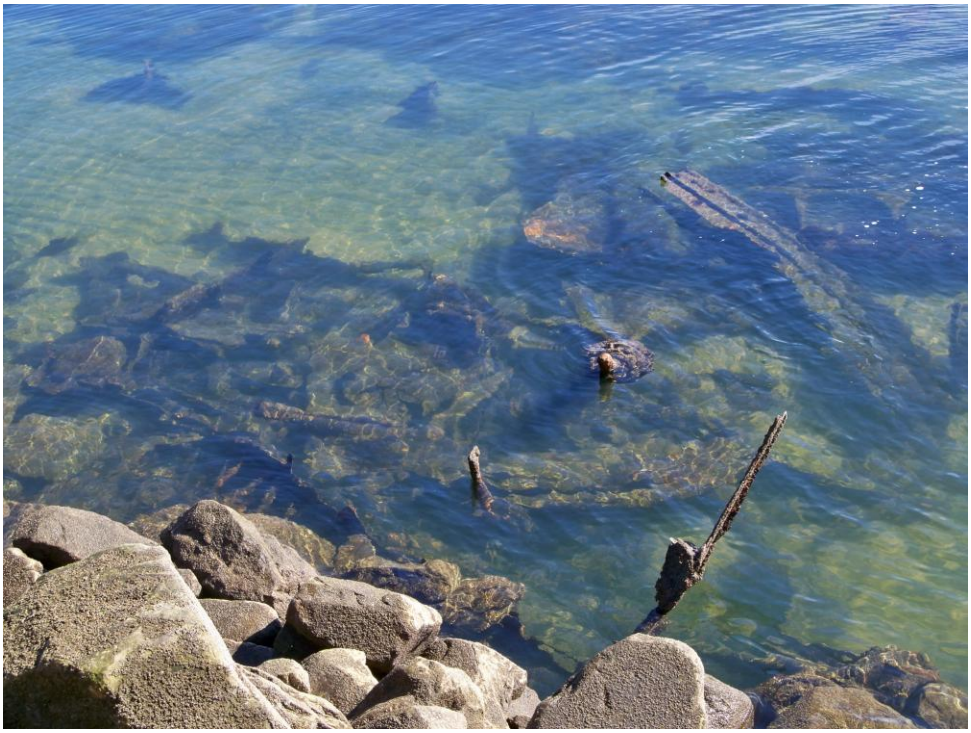
Status: The remains of one whaler identified by Rick James lie partially buried by sand west of the Royston Breakwater. Archival material indicates that another whaler is somewhere on the site, but it has not been located, and may have been completely buried by rip-rap. In March 2011 the sole whaler visible was found to be almost completely collapsed, two dimensional, and 15% complete at best. Engine, boiler, drive shaft, propeller, harpoon gun, and winch were missing. The superstructure was collapsed and missing, and few components were recognizable. Only the lower hull and the rudder stock and blade, were intact and in situ. Frames were L shaped and had a 7 cm web, but the hull remains were so limited, a reliable frame-and-space measurement could not be obtained. Three hold stanchions were noted, 24 cm circumference and on a 125 cm spacing, arranged in two rows. All were over 190 cm tall.

Assessment History: The location of the hull on the breakwater, was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by John Pollack, Rick James and Geoff Bell and submitted April 2011 to the Archaeology Branch .

Significance: Despite the rarity of west coast whaling vessels, very little hull structure and no superstructure remain on the whaler. Accordingly this site has limited value and it is not a priority for detailed study.

Author - John Pollack

Aerial view of *Blue* (or *Black*) on a June low tide. D. Bazett 2011.


Stern of *Blue* (or *Black*) in March. R. James 2011.

5.7 Laurel Whalen

Border Number: DjSf-45
Registration: 138367 Vancouver, BC, Canada
Year Built: 1917
Vessel Type: five-masted auxiliary schooner
Location Built: Victoria, BC
Hull Material: Wood
Gross Tonnage: 1,357 tons
Hull Length: 240.5' (73.3 m) ***Beam:*** 43.9' (13.4 m) ***Hull Depth:*** 19' (5.8 m)
Engines and Machinery: originally powered by 2 semi-diesel Bolinder engines and twin screws, plus sails

Operational History:

- 1917 March built and launched by Cameron-Genoa Mills as a *Mabel Brown*-class lumber freighter
- Operated by Canada West Navigation Co.
- 1917 June 23 first voyage from Vancouver to Adelaide Australia with lumber returning to Vancouver 1918 with salt
- 1918 April 25 from Victoria to Australia with load of lumber arriving Sydney July 10, 1918
- After many delays *Laurel Whalen* clears Sydney for Vancouver with wheat, hides and tallow November 2, 1918 but does not arrive in Vancouver until April 9, 1920
- 1920 purchased by R.P. Butchart (B.C. Cement Co) to serve as a cement barge
- 1923 sold in November to Francis Millerd for conversion into a floating fish cannery
- 1929 retired from cannery service
- 1936 sold to Comox Logging & Railway Company for use as a breakwater ship and scuttled August 19th

Status: The only extant portion of *Laurel Whalen* in March 2011 was a single anchor chain hawse pipe protruding out of the rip-rap breakwater. The hawse pipe measured 1.2 meters long by 40 cm in diameter. The wall thickness of the pipe was 3 cm. In shore of the hawse pipe, wooden frames could periodically be found protruding out of the rip-rap over a 20 meter distance. No other evidence of *Laurel Whalen* was found.

Assessment History: The location of *Laurel Whalen* in the breakwater was surveyed in 2003. A GPS location of the pipe was taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Jacques Marc and Sean Adams and submitted to the Archaeology Branch in April 2011.

Significance: *Laurel Whalen* was one of a number of five-masted wood *Mable Brown*-class schooners built on Canada's West Coast during the final years of the First World War. *Mabel Brown-class* auxiliary schooners were never a commercial success as deep water lumber freighters. The vessels were built to provide lumber companies with the means to get their wood to foreign markets since steamships were in short supply as a result of the war. Their service was short lived. Following the Armistice, steam and motor vessels flooded the market. The fact that *Laurel Whalen* remains have been completely covered by breakwater rip-rap eliminates the ability to study this vessel in detail.

Author- Jacques Marc

A solitary hawse pipe is all that remains of *Laurel Whalen*. R. James 2011.

5.8 USS Tattnall DD-125

Borden Number: DjSf-55
Registration: USA
Year Built: 1918
Vessel Type: *Wickes and Clemson* -class Destroyer
Location Built: Camden, New Jersey
Hull Material: Steel
Gross Tonnage: 1,247 tons
Hull Length: 314.3' (95.8 m) ***Beam:*** 30.1' (9.2 m) ***Hull Depth:*** 9.1' (3.9 m)
Engines and Machinery: (2) Twin Shaft Parsons turbines – four White-Forster boilers

Operational History:

- September 5th 1918 launched from Camden, New Jersey by New York Ship Building.

- 1919 June 26 commissioned by US Navy
- Initial operations in Turkish waters
- Commissioned June 26th 1919 designated "DD-125"
- Decommissioned in 1922 and placed in reserve in San Diego, California USA
- Spent 10 years in and out of reserve on both coasts conducting training activities.
- 1935 rejoined Scouting Force Training Squadron
- 1938 transferred to Special Service Squadron in Panama Canal zone
- 1942 operated as a convoy escort in the Windward Passage between Cuba and Hispaniola
- 1943 July sent to Charleston, South Carolina for conversion to new role of "Destroyer Personnel Transport" designated "APD-19" refitted for LCPR's and fitted with new armament
- APD-19 became the flagship of "Transport Division 13" the only high speed transport in the Atlantic theatre
- 1944 May 30 participated in operation "SPAM" North of Rome. Successfully luring away the German troops from the planned Allied landing at Anzio
- 1944 June 17-19 successfully landed French troops ashore to capture Elba and the Pianosa Islands
- 1944 August disembarked "Frederick's Freighters" the hand picked American and Canadian 1st Special Services to Hyeres Islands
- 1944 December returned stateside – Norfolk Navy Yard Anti aircraft guns installed
- 1945 April 19 arrived Okinawa and was assigned to protect the invasion fleet from Kamikaze attack –
- 1945 April 29 attacked by Kamikaze – successfully shot down both attempts
- Finished the war patrolling Okinawa to the Philippines
- 1945 September 13 returned stateside
- 1945 December decommissioned after winning 3 battle stars for her World War Two service.
- 1946 sold as scrap to Pacific Metal Salvage Company
- 1947 HMCS *Tattnall* or *Gatineau* used as breakwater ship at Royston August 21

Status: The remains of USS *Tattnall* are buried under a rip-rap breakwater other than a 7.4 meter section of the bow which protrudes the breakwater. The most visible piece of the vessel is the bow which faces shore, adjacent to the stern of HMCS *Prince Rupert*. This seven meter section lies upright and has its fairleads in place. Aft of the bow the rip-rap almost completely covers *Tattnall* . Only at low tide can one see that the port side is exposed, discontinuously amongst the rock. A ten meter section of the port gunnel, with a bollard, is exposed. It appears to be in the area that was aft of the bridge, but forward of the funnels. Aft of that, quite discontinuously, three more bollards are visible, but one needs to be above them and look down in between the rocks. The final set of bollards has a fairlead next to them. Comparing this arrangement to a photograph seems to place this set immediately in front of the aft gun platform. Hence three quarters of the ship's length can be accounted for. With exception of the bow, the remainder of the hull is buried under rubble associated with the breakwater fill.

Assessment History: The location of the hull in the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Eric Young, Jacques Marc, John Pollack, Rick James and Sean Adams submitted April 2011 to the Archaeology Branch.

Significance: USS *Tattnall* is an example of the mass-produced (300) *Wickes and Clemson* -class World War One destroyers. These ships were the back bone of the US Navy's destroyer force until the outbreak

of World War Two. This hulk adds to the historical diversity of the Royston Breakwater and the importance of its preservation as a historical site. However >85% of the vessel is buried by rip-rap and therefore unavailable for study.

Author - Sean Adams

Bow of USS *Tattnall*. S. Adams 2011.

S. Adams and J. Marc on the bow of USS *Tattnall*. The starboard side of bow of *Prince Rupert* is in the immediate background. J. Pollack 2011.

One of the bollards amidships on the port side of USS *Tattnall*. In-board the hull is buried under the rock breakwater. S. Adams 2011.

Hatch on USS *Tattnall*, port side. E. Young 2011.

5.9 Forest Friend

Border Number: DjSf-54
Registration: USA 219452 then Canada 156447
Year Built: 1919
Vessel Type: five-masted barquentine
Location Built: Aberdeen, Washington
Hull Material: Wood
Gross Tonnage: 1,614 tons
Hull Length: 243.3' (74.2 m) ***Beam:*** 44' (13.4 m) ***Hull Depth:*** 19.2' (5.9 m)
Engines and Machinery: none except for donkey boiler to supply steam for a cargo winch and an anchor windlass.

Operational History:

- Built by the Grays Harbour Shipbuilding Co and launched 1919 as a deep-water lumber freighter
- 1919 registered in Tacoma
- 1920 February - first voyage to Australia, Hawaii and return
- 1921 laid idle in Seattle
- 1922-1928 worked out of Vancouver and Seattle on lumber runs to Australia, with a return cargo of coal to South America, and saltpetre to Hawaii.
- 1929 repaired in Esquimalt BC, and seized and sold for non-payment of bills
- 1929 August converted to Canadian registry
- 1929-1937 idle
- 1937 May sold to Island Tug and Barge Co. and converted into a barge carrying hog fuel and wood chips
- 1954 sold to Badwater towing
- Mid- to late 1950s, taken to Royston Breakwater

Status: The remains of *Forest Friend* lie partially buried by large rip-rap boulders in the Royston Breakwater. In March 2010 the hull of this five-masted vessel was buried up to the upper deck in rock and estuary mud. The bow and stern of the vessel were buried or absent, and 65% of the hull amidships, is visible. On the port side, a 47 m long section of the upper frames, interior ceiling, hull planking and numerous chain plates protruded above the fill. On the starboard side, a 31 m section of the upper frames, interior ceiling, and 4 strakes of hull planking were exposed, again with numerous chain plates. Ceiling timbers were 19.5 cm moulded and 30 cm sided, with frames 30.0 cm sides and 27 cm moulded. Hull planking was 11 cm moulded with widths of 19 to 28.5 cm. Chain plates were 2.5 cm thick, 10 cm wide and at least 210 cm long to the point of torch cutting. The chain plates were located on the outside of the hull planking and fastened with stirrup bolts penetrating the hull.

A small set of pintels and gudgeons were located on the starboard side, but their size does not match the size of *Forest Friend.*

Assessment History: The location of the hull on the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by John Pollack, Rick James and Geoff Bell and submitted April 2011 to the Archaeology Branch.

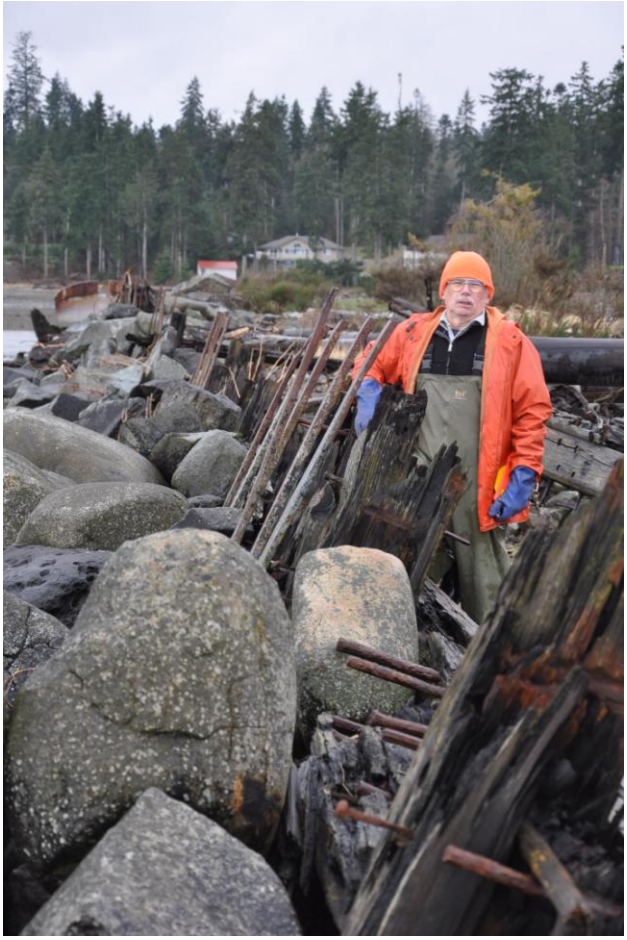
Significance: *Forest Friend* is a rare example of a 1919 deep-water lumber freighter, in the form of a five-masted barquentine. Unfortunately the amount off rip-rap and fill covering the hull now prevents

access to all but the upper 1.5 m of frames amidships. This limited access means the vessel is not a priority for future work despite its rarity.

Author - John Pollack

Aerial view of the 2 rows of upright frames amidships on *Forest Friend* in June. The top row marks the starboard side of the vessel. D. Bazett 2011.

Rick James and starboard hull amidships of *Forest Friend*. J. Pollack 2011



Rick James, chain plates and upper hull, the port side amidships of *Forest Friend*. J. Pollack 2011

Hull and chain plates to starboard amidships on *Forest Friend*. Bow of *Riversdale* in background. S. Adams 2011.

5.10 HMCS Gatineau H61

Borden Number: DjSf-52
Registration: H 61 (*HMS Empress*); 1943 renamed *HMCS Gatineau* (still H 61)
Year Built: 1934
Vessel Type: *E* -class Fleet Destroyer
Location Built: Wallsend-On-Tyne, England
Hull Material: Steel
Gross Tonnage: 1,370 tons
Hull Length: 326.0' (99.2m) ***Beam:*** 33.25' (10.1m) ***Hull Depth:*** 19.5' (5.9m)
Engines and Machinery: triple three-drum boilers, Parsons single-reduction turbines developed 36,000 shaft horsepower and 36 knots

Operational History:

- One of two mine-laying destroyers built by Swan, Hunter and Wigham Richardson Ltd.
- 1934-39 Home Fleet
- 1940 May part of Dunkirk rescue armada, rescued 3500 troops in six trips, second to last ship to leave the beach
- 1940 August hit a mine off Holland, lost bow section, towed to England for repairs
- 1941 Eastern Fleet as destroyer escort
- 1941 rescued nearly 1000 survivors from battleship *Prince of Wales* near Singapore
- 1943 refitted for North Atlantic convoy duty, transferred to Royal Canadian Navy designated *River* -class destroyer, renamed *Gatineau*
- 1943 assigned Mid-Ocean Escort Force (MOEF) group C-2, Battle of Atlantic
- 1943 September participated in one of the great convoy battles of the Atlantic, when convoy ONS 18 was attacked by 21 U-boats
- 1944 supported the D-Day invasion by protecting supply lines
- 1945 Operation Nestegg, reoccupation of Channel Islands
- 1945 sailed to Royal Roads Naval College, Esquimalt for sea training duties
- 1947 sold and dismantled
- 1947 towed across to Royston to form part of break water November 8th

Status: HMCS *Gatineau* forms part of the middle portion of the booming ground breakwater. The ship has been largely covered by rip-rap that was used to augment the breakwater after her arrival. The most easily identifiable piece of the vessel is the bow which faces shore, immediately adjacent (west) to the bow of *Riversdale*. In this section both hawse pipes are evident but are detached slightly from the hull plating.

Moving aft, to the north, the forward gun mount is in place, but the surrounding structures have broken off and lie beside it. The section that once supported the bridge has collapsed under the rip-rap. The port side rail and deck aft of the bridge are exposed. All aspects of the starboard side and the midships line are covered in the rock, which also extends across to the port side in places.

The aft portions of *Gatineau* are mostly covered by the rip-rap. From the east some of the remains of *Salvage King* have also collapsed over onto the port gunnel of *Gatineau*. Viewed from above, down through the rocks, one can easily determine the port gunnel, discontinuously, as it extends to within 10 meters of the stern. If the rip-rap were not quite so thick one could likely see *Gatineau*'s stern immediately adjacent to *Melanope*'s stern.

Assessment History: The location of the hull in relation to the breakwater, was surveyed in 2003. GPS locations if stem and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared in March 2011 by Bronwen and Eric Young, and submitted in April 2011 to the Archaeology Branch. Government.

Significance: HMCS *Gatineau* is an example of an *E* -class destroyer built in the inter-war years that was on-hand for some major engagements in the war at sea while serving with both the Royal Navy and with the Royal Canadian Navy. *Gatineau*'s extensive service record is an outstanding historical example of a World War Two naval vessel. As with the vast majority of warships, with the return of peace, the scrapped hull was seen as having no more value than a cheap component for a breakwater to protect a log booming ground. *Gatineau* is a degraded example of its class of vessel, which reduces it applicability for further survey work, but the majority of the vessel is accessible.

Authors - Eric and Bronwen Young

Bronwen Young and the forward gun mount of HMCS *Gatineau*. E. Young 2011.

Bow and hawse pipes of HMCS *Gatineau.* E. Young 2011.

5.11 HMCS Dunver K03

Borden Number: DjSf-49
Registration: Canada K03
Year Built: 1942
Vessel Type: *River* -class frigate
Location Built: Quebec City, Quebec, Canada
Hull Material: Steel
Gross Tonnage: 1,445 tons
Hull Length: 301.5' (91.8 m) ***Beam:*** 36.5' (11.1 m) ***Hull Depth:*** 12.8' (3.9 m)
Engines and Machinery: No propulsion equipment remains in the wreck. Originally powered by twin triple expansion steam engines two three-drum boilers and twin propellers

Operational History:

- Built by Morton Engineering and Dry Dock Co.
- 1942 launched as the first frigate from a Canadian shipyard for the Royal Canadian Navy, November 10
- 1943 commissioned September 11
- 1943-45 Battle of the Atlantic; notably Mid-Ocean Escort Force (MOEF)
- 1944 assisted *HMCS Hespeler* in sinking of *U-484* September 9
- 1945 sent to West Coast for tropical service refit
- 1946 declared surplus, sold to Wagner Stein & Greene and scrapped
- 1948 or 1949 placed in the Royston breakwater

Status: The remains of *Dunver* lie on a sandy bottom with the wrecks of *Melanope* and *Qualicum* close by to the west, and the wreck of *Comet* close by to the east. In March 2011 this steel hulled veteran was still completely three-dimensional. Its keel is covered by small sized gravel, and lies on a bearing of 185° (true) from stem to stern.

The bow section is broken from the rest of *Dunver's* remains. It comprises approximately 25% of the site. It is very three dimensional but lists to starboard at a 60° angle. Perhaps 50% of its plating is still in place. The port side hawse pipe is exposed, while the starboard side is buried. The hedge-hog platform is the most evident piece of the forward main deck that is still intact.

The aft three quarters of the hull has been reduced to its frames and undifferentiated bulkhead type structures. The frames were constructed from 15 cm x 7 cm bulb-angle iron, with 66 cm spacing towards the bow and stern, and 83 cm spacing in mid-ships areas. They have been worn down to a height below the main deck line, and most to approximately the water line. The stern gun platform is still intact and is exposed at low water.

As stated above the interior is covered by gravel and can not be examined. A ladder and some 10 cm piping can be seen in the center portion of the hull. The extended fan-tail stern is above the gravel, but the rudder and propeller areas are covered.

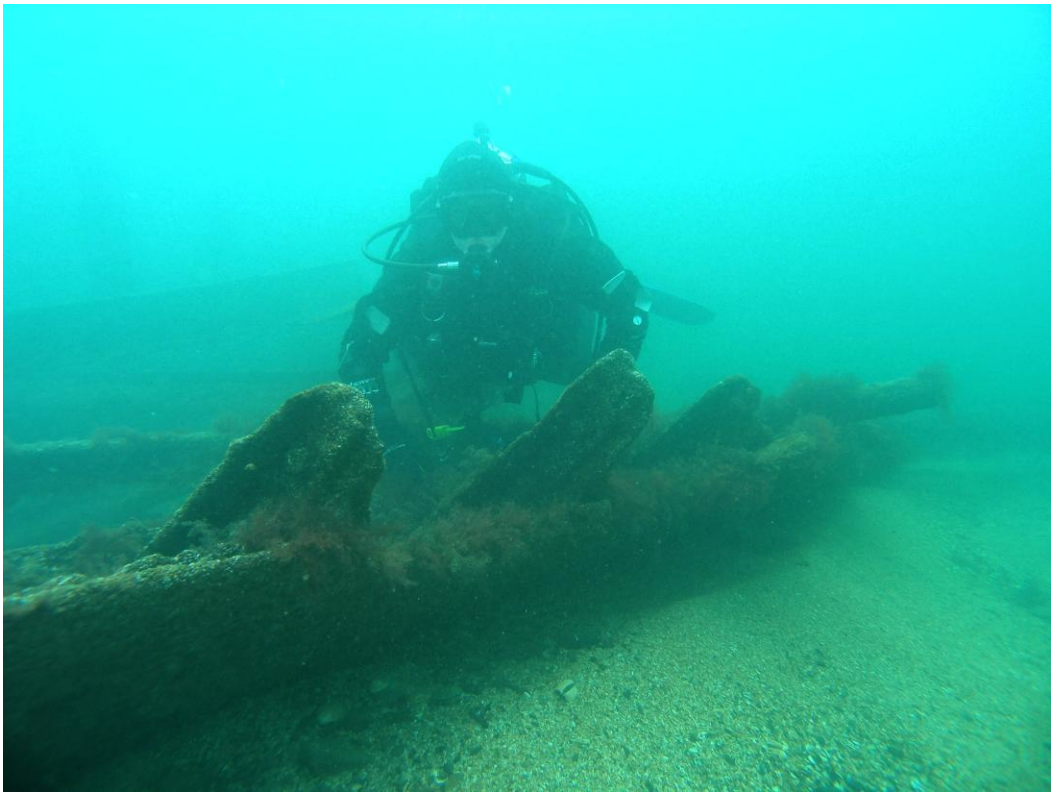
Assessment History: The location of the hull in relation to the breakwater was surveyed in 2003. GPS locations if stem and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared in March 2011 by Bronwen and Eric Young, and submitted in April 2011 to the Archaeology Branch.

Significance: HMCS *Dunver* is a significantly degraded example of a *River* -class frigate built in a Canadian shipyard during the Second World War, to serve in the Royal Canadian Navy during the Battle of the Atlantic. As with the vast majority of like vessels, after the war *Dunver* was seen as having no more value than becoming a component of a break water to protect a log booming ground. The worth of further survey work on *Dunver*'s bare hull is questionable.

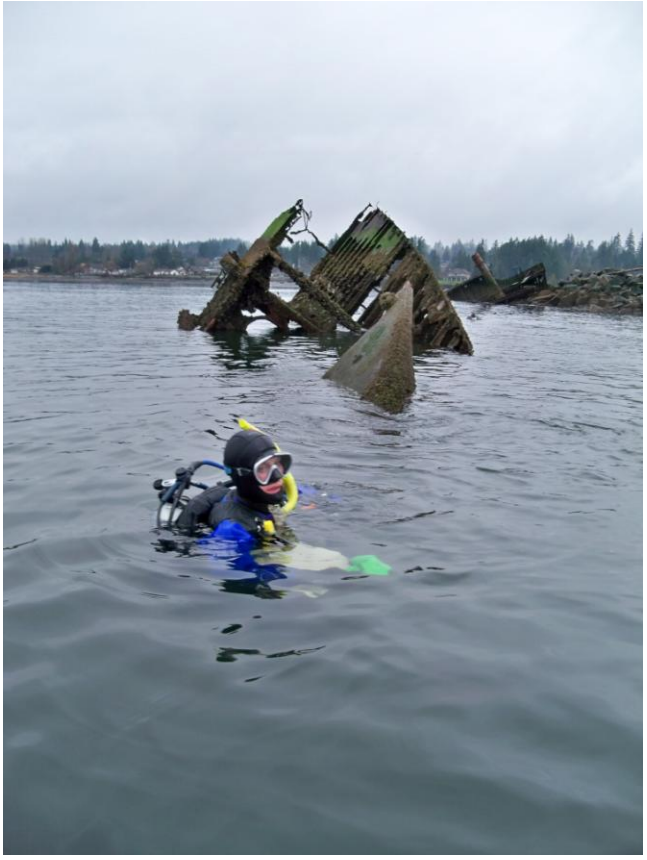
Authors - Eric and Bronwen Young

Aerial view of HMCS *Dunver* on a June low tide. Bow at upper right. D. Bazett 2011.

Frames on HMCS *Dunver.* J. Marc 2011.



Frames and hull plating on HMCS *Dunver*. J. Marc 2011



Bronwen Young and HMCS *Dunver*. R. James 2011

5.12 HMCS Prince Rupert K324

Border Number: DjSf-56
Registration: Canada K324
Year Built: 1943
Vessel Type: *River* -class frigate
Location Built: Esquimalt, BC, Canada
Hull Material: Steel
Gross Tonnage: 1,445 tons
Hull Length: 301' (91.7 m) ***Hull Beam:*** 36' (10.9 m) ***Hull Depth:*** 12.75' (3.9 m)
Engines and Machinery: No propulsion equipment remains in the wreck. Originally powered by twin triple expansion steam engines two three-drum boilers and twin propellers

Operational History:

- 1943 launched at Esquimalt BC February 3rd
- 1943 joined Escort Group C-3 as part of North Atlantic convoy duties
- 1944 assisted in the kill of U-575 & helped rescue the U-boat crew March 13
- Served with Escort Group 27
- Slated for tropicalization and service in the Pacific when Japan surrendered
- No lives were lost on the ship during her tours of duty
- early 1948 stripped for salvage

- 1948, the hulk of *HMCS Prince Rupert* was placed in the breakwater at Royston on February 25th

Status: HMCS *Prince Rupert* lies closest to shore of all the vessels at Royston. The front 26 metres of the vessel are partly buried by rock in the breakwater. However the upper deck frames are exposed. The outer plating of the hull is gone but the frames are still in good condition so that the shape and construction of the vessel can be easily seen. The vessel was build for speed so the frames and general construction are light. The frames in the bow area were 6 cm x 12 cm "L" section steel. The bow still has its "bull's eye" (e.g. tow ring) and fairleads. The entrance to the chain lockers can be seen 10 m from the bow. The fore deck still has the mount for the Hedgehog depth-charge weapon. The middle half of the vessel is two-dimensional and not visible above even a low tide. When diving over this section of the ship, there is little to be seen except the top deck. The back quarter of the vessel above the water line is still intact. However below the water line the effect of wave action and corrosion has opened up the hull so that the internal structure can be seen. The vessel appears to have an inner hull for the crew and machinery. Surrounding this structure at the stern is an outer hull which was probably used as tanks for holding fuel or water or ballast. All the guns and anything of value were removed from the vessel by Wagner, Stein and Greene upon scrapping 1947-48.

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Assessment History: The location of the hull on the breakwater, was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by Bill Meekel and Randy Ruygrok and submitted April 2011 to the Archaeology Branch .

Significance: HMCS *Prince Rupert* is a prime example of the *River* -class frigates built in Canada during the Second World War for the Royal Canadian Navy. The ship's role in the Battle of the Atlantic and, particularly, its importance to surviving crew members over the years is significant. The ship's wartime service and links to the West Coast as Prince Rupert's "very own ship" commanded by a professional mariner from New Westminster has made K324 a popular attraction over the years. Also her close location to shore makes HMCS *Prince Rupert* easy to approach safely for viewing all which contributes to the Royston breakwater's recognition in the public mind as a significant heritage site.

Author – Bill Meekel

Aerial view of HMCS *Prince Rupert* on a June low tide. Bow to right. D. Bazett 2011

Bow of HMCS *Prince Rupert*, looking toward the stern. S. Adams 2011.

Stern of HMCS *Prince Rupert*. E. Young 2011.

5.13 HMCS Eastview K665

Border Number: DjSf-46
Registration: Canada K665
Year Built: 1943
Vessel Type: *River* -class frigate
Location Built: Montreal, Quebec, Canada
Hull Material: Steel
Gross Tonnage: 1,445 tons
Hull Length: 301.5' (91.9m) ***Beam:*** 36.5' (11.2 m) ***Hull Depth:*** 12.9' (3.93m)
Engines and Machinery: No propulsion equipment remains in the wreck. Originally powered by twin triple expansion steam engines two three-drum boilers and twin propellers

Operational History:

- 1943 Launched November 17 Canadian Vickers Yard, Montreal
- 1944 Commissioned into the Royal Canadian Navy June 3rd
- 1944 Assigned to North Atlantic C-6 Escort Group convoy duty September
- 1945 Served in convoy duty until end of war in Europe in May
- 1945 moved to the West Coast to be refitted for service in the War in the Pacific.
- 1946 turned over to the War Assets Commission for disposal January 22
- 1947 Scrapped by Wagner Stein & Greene
- 1948 Hull beached as breakwater ship at Royston

Status: The remains of *Eastview* lie on a sandy bottom with the rip-rap breakwater to the port side. The bow lies on its starboard side and is heavily perforated by corrosion. Five to six 6 meters astern of the bow are two fairleads one either side of the canted deck. Astern of the fairleads is the starboard hawse pipe. The hull is disarticulated from the remainder of the wreck at this point. After swimming over a 10-20 meter void the wreck begins again and is one deck in height. There are successive breaks in the hull until one reaches the end of the vessel. The stern is identified by a partially intact counter which has broken away from the main hull and is canted stern down. The counter lies partially on the bow of HMCS *Dunver.*

Assessment History: The location of the hull on the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared in March 2011 by Jacques Marc and Sean Adams and submitted April 2011 to the Archaeology Branch.

Significance: The *Eastview* was one of 70 *River* -class frigates that saw service in the Canadian Navy during World War Two. As such the warships remains aren't particularly unique other than the fact *Eastview* served in the Battle of the Atlantic which effectively transformed the RCN into a well respected blue water navy. Better and more intact examples of *River* -class frigates can be observed in the Kelsey Bay breakwater. However, the presence of *Eastview* along with 13 other vessels makes Royston significant in terms of the concentration and diversity of derelict vessels. There are no other sites like it in the province.

Author - Jacques Marc

Aerial view of HMCS *Eastview* on a June low tide. D. Bazett 2011.


S. Adams and the frames of HMCS *Eastview.* J. Marc 2011.

Bollards on HMCS *Eastview.* J. Marc 2011.

Frames and ladder on HMCS *Eastview.* J. Marc 2011.

Rudder post and rudder on HMCS *Eastview*. J. Marc 2011.

5.14 Salvage King / ATR-13

Border Number: DjSf-51
Registration: USA then Canada 179065
Year Built: 1943
Vessel Type: deep sea salvage tug
Location Built: Leesburg, N.J.
Hull Material: wood
Gross Tonnage: 616 tons
Hull Length: 157.7' (48.1 m) ***Beam:*** 33.5' (10.2 m) ***Hull Depth:*** 16' (4.9 m)
Engines and Machinery: Originally equipped with a single screw, a four cylinder, vertical triple expansion steam engine and two water tube boilers fired by diesel fuel.

Operational History:

- 1943 launched 15 August
- 1944 crosses Atlantic in a fleet of American tugs and barges in preparation for the Allied invasion of Europe
- 1944 participated in D-Day June 7 then artificial harbour construction at Normandy
- 1944 autumn stationed at Guantanamo Bay, Cuba
- 1945 transit of Panama Canal in March followed by Pacific theatre operations at Hawaii, Kwajalein, Guam and Okinawa.
- 1947 no longer "essential to the defence of the US", put up for sale
- Purchased by Pacific Salvage Co. Ltd. of Vancouver and transferred to Canadian registry
- Based in Victoria as a deep sea salvage tug

- 1953 destroyed by fire in Victoria's Inner Harbour October 19
- 1959 stripped and towed to Royston breakwater

Status: The remains of *Salvage King* lie slightly buried by large rip-rap boulders in the Royston Breakwater. In March 2010 only small sections (5%) of the wooden hull remain on the port side of this large ocean-going fleet rescue tug. Substantial amounts of iron machinery were still in situ. A rudder post and quadrant were in situ on the stern, but the propeller and propeller shaft were not observed. Moving forward a series of large paired fuel tanks was encountered. These tanks filled the hold below the main deck. Forward of the fuel tanks twin, water tube boilers were noted with cylindrical steam drums and a large mass of piping. No engines were visible. A massive wooden stem and deadwood assembly at the bow was badly deteriorated. Frame and space in the hull was 75 cm on the port side, amidships, with double frames each of which was 23 cm sided and 16 cm moulded. Hull planking was estimated at least 11 cm thick. No iron sheathing was found on the hull.

Assessment History: The location of the hull on the breakwater was surveyed in 2003. GPS locations of the bow and stern were taken in March 2011. A Basic Shipwreck Recording Form was prepared March 2011 by John Pollack, Rick James and Geoff Bell and submitted April 2011 to the Archaeology Branch.

Significance: *Salvage King* is an example of the powerful US-built World War Two fleet rescue tugs that served in both the Atlantic and Pacific theatres of operation. The water tube boilers are completely intact and in situ.

Author - John Pollack

Aerial view of *Salvage King* on a June low tide. Bow to left. D. Bazett 2011.

Looking forward along the port side of the wooden hull of *Salvage King.* The bow and stern of *Comet*, and the stern of *Melanope* are in the background. J. Pollack 2011.

Diesel tanks and tops of the twin, water tube boilers in *Salvage King*. R. James 2011

Kayaker and steering quadrant of *Salvage King*. J. Pollack 2011

Steam piping and one of the two water tuber boilers on *Salvage King*. J. Marc 2011.

6.0 Significance of the Ships in the Royston Breakwater

The Royston Breakwater is a significant representative of a now-vanished 19th and 20th century maritime practice of recycling laid-up, stripped, and partially salvaged vessels that when past their prime, working life were utilized as shore-side infrastructure. In this case, the vessels formed a breakwater in conjunction with wooden pilings and stone rip-rap. Unlike other ship graveyards, where vessels were simply laid up or allowed to deteriorate after all "usable" materials had been stripped from them, these vessels were not derelict, but remained in use for decades. A combination of natural and cultural processes have slowly transformed the Royston Breakwater from industrial infrastructure into an archaeological site. The site as it is, with all of its elements, comprises a unique and significant maritime cultural landscape that is worthy of study and documentation as well as preservation.

The site in its totality also represents more than industrial reuse; it is an instructive artifact of the changes in maritime technology and trade that occurred in the 20th century, as evidenced by the iron and steel-hulled vessels such as *Melanope*, *Riversdale* and *Comet*. These vessels, built in the last quarter of the 19th century, lasted into the 20th century even after they were replaced by steam and motor vessels, as tramp freighters, barges and finally as breakwater ships, and thus survived long past their anticipated lifetimes. Other vessels are reflective of the processes at play during two world wars as vessels were launched in large numbers as the result of heavily capitalized shipbuilding programs in response to perceived and real wartime needs. These include the wooden schooners and barquentines such as *Forest Friend* and *Laurel Whalen* (World War One), frigates *Dunver*, *Prince Rupert* and *Eastview*, destroyers *Gatineau* and *Tattnall*, along with the US navy salvage tug ATR-13 (*Salvage King*). Other vessels reflect changing economic or environmental circumstances, notably the former whalers *Blue* and *Black*. There is also *Comet*, the only known survivor of a case-oil carrying sailing ship, a vessel type which represented the beginning of trade in petroleum products which was rapidly overtaken by more modern vessels, the culmination of which are the supertankers of the 21st century. Quickly outmoded, *Comet* is a type of vessel that purposely built for a certain cargo is not a type of vessel one would expect to have survived.

In a detailed sense, the hulks at Royston also represent substantial, in part intact examples of ship types, construction and equipment and machinery that survived stripping and the forces at play on the site after their deposition in the breakwater, and in some cases represent unique opportunities for documentation and assessment. In the case of the 19th century iron and steel-hulled vessels, a handful of these craft survive afloat in museum collections around the world, such as *Star of India* (1863), *City of Adelaide* (1863), *James Craig* (1874) *Elissa* (1877) *Falls of Clyde* (1878), *Joseph Conrad* (1882), *Wavertree* (1885), *Pioneer* (1885), *Balclutha* (1886), *af Chapman* (1888) and *Glenlee* (1896), all preserved afloat in Australia, the U.K., the U.S., and Sweden. If the list seems long, it should be recalled that thousands of these vessels were built, and they were once as ubiquitous as cars on the freeway. Detailed information on some of their construction is known; for example, *Balclutha*, a National Historic Landmark vessel preserved at San Francisco (California) Maritime National Historical Park, was extensively mapped, drawn and photographed for the Historic American Engineering Record at the Library of Congress. Other examples in this collection of museums ships have been documented to varying extents, but it should be noted that the ongoing process of maintaining these vessels afloat has led to more modern intervention, repairs and replacement, so that in a sense these vessels are no longer as representative of their original design and construction as they were a century, five decades or in some cases even a

decade ago. It is in circumstances such as this that archaeology plays a role in the documentation of vessel characteristics and construction.

A handful of wrecks of 19th century iron and steel-hulled sailing vessels are known and have been the subject of archaeological documentation. These include the iron-hulled barque *Frances* (wrecked 1872); *Avanti*, ex-*Killean*, an 1875-built iron bark wrecked in 1907; and *Goldenhorn*, an 1885-built three-masted iron barque wrecked in 1891 all studied by the U.S. National Park Service. *Dunnottor*, a three-masted iron ship built in 1874 and wrecked in 1886, documented by the Maritime Heritage Program of the NOAA (U.S.) Office of National Marine Sanctuaries; *Lofthus*, ex-*Cashmere*, an 1868-built three-masted barque wrecked in 1898; *Ivanhoe*, a three-masted, 1868-built ship wrecked in 1915; *Smyrna*, an 1876, iron-hulled three-masted ship wrecked in 1888; and *Glamis*, an 1876-built three-masted ship wrecked in 1913 are among the sunken vessels of this type which have undergone archaeological study. In all of these cases, the vessels lie underwater, at various depths, and are broken up, albeit with some intact structure. There are doubtless other examples of this type of site which have been documented, including some hulks elsewhere in the world which remain substantially intact but aground or flooded, such as *Lady Elizabeth*, an 1879-built barque which has been resting in the Falkland Islands as a hulk since 1913, Other undocumented hulks of the period and type await documentation, such as the three-masted steel ship *Lord Lonsdale*, built in 1899 and laid up at Punta Arenas, Chile since 1909, and the world's first four-masted, iron-hulled "full-rig ship", *County of Peebles*, built in 1875, laid up as a coal hulk at Punta Arenas in 1898 and beached as a breakwater since the 1960s.

Surviving examples of the some of the other ship types include a few ATRs, including one laid up in the ship graveyard off Staten island, New York, another at Punta Arenas, Chile, and in proximity to Royston, the former ATR-64, which after decades in Canadian service, including its final active years as *Seaspan Chinook*, sank at Britannia Beach in Howe Sound in 2008 and which is now reportedly an intact derelict. None of the destroyers at Royston survives afloat, nor the whalers, while only one *River* -class frigate, HMAS *Diamantina,* survives afloat in Brisbane, Australia. Still, data is scarce in regard to other examples which reportedly were scrapped but which may “survive” in the same form as the Royston hulks.

Architectural and/or archaeological documentation of the other types of vessels present at Royston has not taken place. In the case of the World War II vessels, plans survive for the frigates and tugs, while detailed documentation for the World War I wooden schooners also survives in the form of plans, extensive photographs, especially of the *Mabel Brown* -class, and archaeological work has taken place with one of the *Mable Brown*s, *Malahat*, which lies sunken off the Powell River, B.C. breakwater. In summary, it should be reiterated that the most significant of the vessels that lie at Royston, in regard to individual sites worthy of detailed documentation, are the metal-hulled sailing craft – *Melanope*, *Riversdale*, and *Comet* – stressing that a comparative study of this type of ship which assembles the data from other sites and offers a comprehensive archaeological assessment of them is highly desirable and would add to the study of vessels of the period and type. Also significant, and in definite need of documentation, however, is the entire Royston Breakwater as a very rare and now vanishing type of industrial, maritime, and archaeological site.

Author - Dr. James P. Delgado

7.0 Conclusions and Recommendations:

This project has confirmed the significance of the Royston Breakwater fleet as one of the premier ship graveyards on the West Coast of North America, and a valuable site for future maritime archaeology projects. Its collection of historic sailing, steam-era, World War One and World War Two vessels spans the transition from sail to diesel turbine power and two of the major conflicts of the 20th century. Several of the sailing vessels are three- to five-masted, fully rigged ships and the five destroyers and frigates figured prominently in the historic battles of the Atlantic and Pacific. The full list of vessels on the site includes three frigates, two destroyers, one whaler, two three-masted Cape Horn windjammers, two lumber carriers, a case oil freighter, and three steam tugs.

The site contains several globally important vessels, namely the three-masted Cape Horn windjammers *Melanope* and *Riversdale*, and the sole remaining example of a five-masted case oil carrier, the *Comet*. These three sailing vessels plus the steam tug *Qualicum* are priorities for further detailed study scheduled to begin in April 2012.

It is recommended the site be left intact and the protection afforded archaeological sites under the Amended Heritage Conservation Act, be continued for the wrecks, pilings in the immediate vicinity, and the associated rock breakwater. Maritime history consists not only of shipwrecks, but also the structures associated with foreshore facilities that make up the maritime landscape. In this case removal or modification of breakwater materials in the immediate vicinity of these vessels may degrade their stability, hasten their deterioration, and compromise the site.

8.0 References:

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