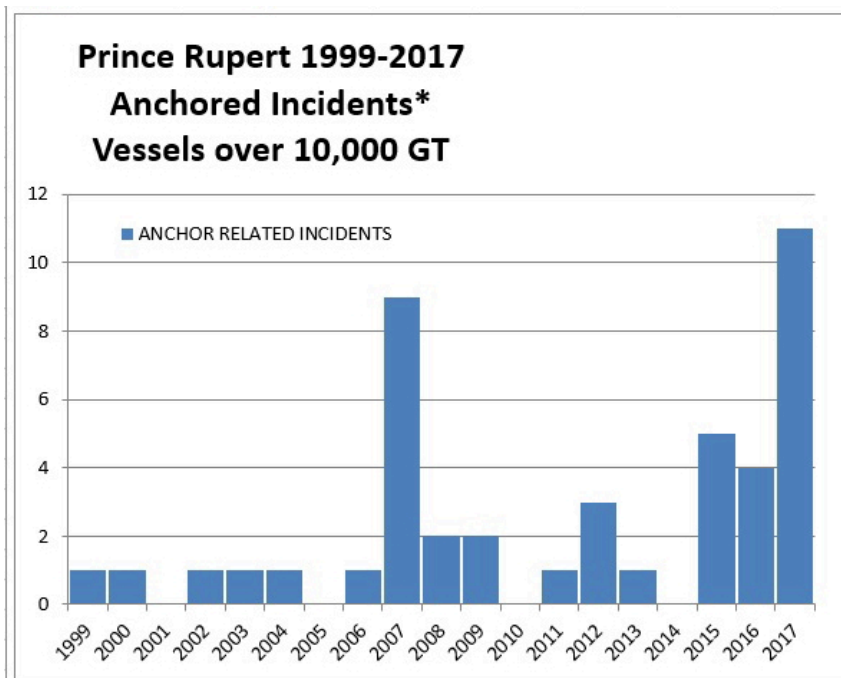


Anchor Safe Prince Rupert

Alarming and Increasing Anchored Incidents¹ in Prince Rupert - February 25th 2019

In the last four years, over twenty-two bulk carriers were involved in dangerous incidents² while anchored in the Prince Rupert area.

We appreciate the crews, captains, pilots, local tug boat operators and the Coast Guard who deal with these incidents. Thankfully so far, there have been no serious fuel spills. However, in one incident in 2000, the bulk carrier “Bovec” dragged anchor and ended up on a rocky point, experiencing considerable damage. These extremely dangerous incidents (most specified “risk of grounding”) are far too numerous and are escalating. At the current rate, it is only a matter of time until there is a fuel spill in the Skeena Estuary.



Anchored Incidents

considered in this report:

All marine incidents in the Transport Canada occurrence list which specify:

“Anchored”

Except those:

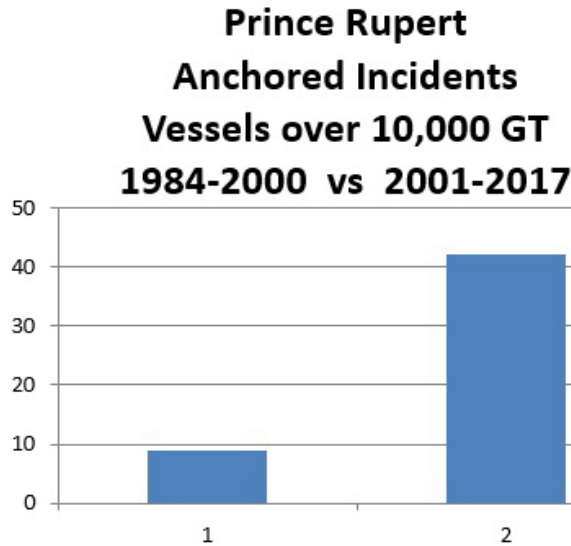
- involving vessels under 10,000 GT or
- those which specify: “fire, person, struck, product discharge or explosion,”

*See detailed list of Anchored Incidents by year starting page 6 below

¹ *Anchored Incidents considered in this report are all those in the Transport Canada marine occurrence list which specify: “Anchored” except those involving vessels under 10,000 GT and except those which specify: “explosion, struck by vessel(only 1), person, fire or product discharge(only 1)” Accessed Nov 10th 2018 <http://www.bst-tsb.gc.ca/eng/stats/marine/data-2.asp> Most of the incidents note: “Risk of Grounding” or worse.

² The TC marine occurrence list linked to in note 1 above reports 2 incidents in 2018 prior to yearend and there are 20 from 2015-17 as shown in the summarized table above.

The number of Prince Rupert incidents is alarming and appears to be increasing rapidly



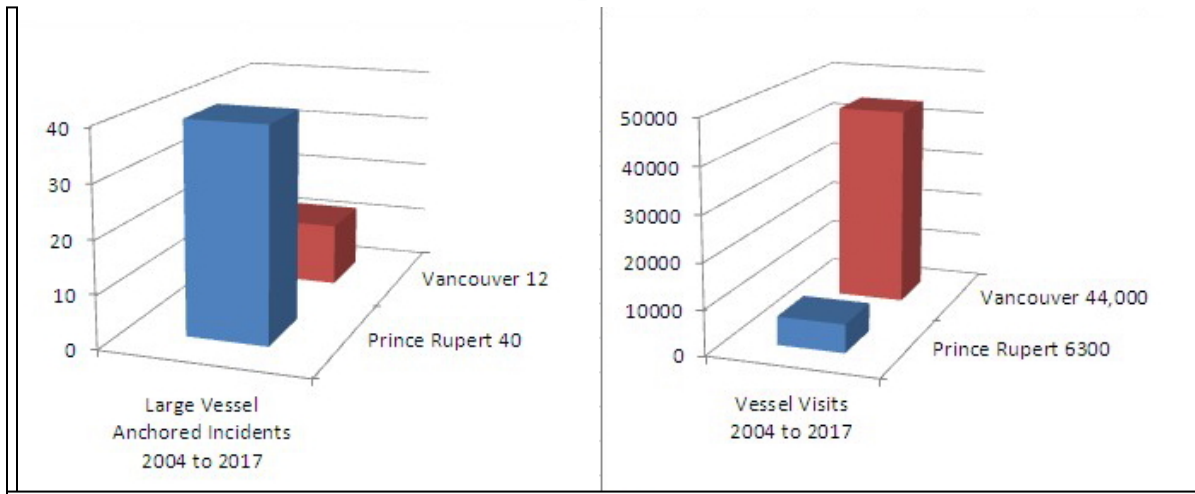
In Prince Rupert Anchored Incidents have more than quadrupled from:

(1) Nine in the 17 year period 1984-2000 to

(2) Forty-two in the 17 year period 2001-2017

Period (1) 1984-2000 is based on NEB File of Fact report³ which used TC. Period (2) is taken directly from TC statistical information (link in footnote 1 below) see detailed list starting page 6 below.

The anchored incident rate, per vessel visit, is about 2,300% worse in Prince Rupert than in Vancouver



In the last 14 years Prince Rupert had 3.3 times as many anchored incidents as Vancouver with only 0.14 the vessel visits; which is 2,360% worse per vessel visit ($3.3/0.14=23.6$ more incidents/visit). Vessel visit calculation and references are shown on page 6 and 8 below.

³ Northern Gateway Pipelines Limited Partnership Enbridge Northern Gateway Project, NEB File OF-Fac-Oil-N304-2010-01 01 noted that there were twelve dragged anchor incidents involving bulk carriers (>10,000 grt) between 1984-2005. To calculate to 2000, we subtracted the three occurring 2001-2005 (as noted in list below page 6).

Two Prince Rupert projects are currently being assessed without consideration of anchoring risk: Wolverine and Vopak

Two projects are currently being reviewed by Transport Canada (TC) to make Environmental Effects Determinations (EEDs); Wolverine and Vopak Pacific Canada. The Wolverine Bulk Carrier refueling project would greatly increase the average volume of fuel on board Bulk Carriers in the harbour. The Vopak Project would introduce liquid bulk carriers with potentially catastrophic volumes of toxic product into the area. If both of these projects were approved, the consequences of an anchored incident involving a breach of the fuel tanks or product would be dire, risking devastating effects to the marine ecosystem. However, no governing body, including TC, has quantified the risk of a marine incident resulting in a toxic spill in the inner Skeena estuary. It is essential that TC require a comprehensive Marine Risk Assessment prior to making their EEDs for each of these propose projects.

As far as we have been able to determine, TC, EC, DFO and the Prince Rupert Port Authority (PRPA) have not assessed the serious risk posed by anchoring and other potential marine incidents in relation to the Vopak and Wolverine projects, despite the obvious potential for significant residual environmental effects. Accurate EEDs cannot be made without quantifying factors including; the number of ships that will be anchoring by vessel type, the average amount of liquid toxic product on board each ship, the marine incident rate specifically calculated for Prince Rupert, and how the projects in question will affect these parameters. The 2012 PRPA Marine Risk Assessment by Det Norske Veritas deliberately excluded anchoring incidents⁴ and in their January 17th letter PRPA appears to concede it cannot be relied upon as a basis to approve a given project. Therefore, it is clear that a full marine risk assessment must be made for each project.



Pacific Harbour Porpoise photo courtesy Ari S. Friedlaender

⁴ Page 151 DET NORSKE VERITAS, Prince Rupert Marine Risk Assessment Navigational Risk Assessment Report, Prince Rupert Port Authority Report No./DNV Reg No.: / 13JIMVK-8 Rev 3, 2012-02-29
http://saveourskeenasalmon.org/wp-content/uploads/marine_risk_assessment.pdf

Mitigation options to investigate to limit risk to the Skeena Estuary

1) **Investigate the effect of and implement mooring buoys to eliminate anchor drag.** Poor anchorages reported in Prince Rupert Harbour are thought to be because a thin layer of mud overlies smooth rock.”⁵ This situation is aggravated by the high current rate (4 knots) in Prince Rupert anchorages (see Kowalski 2016 referenced below for an analysis of the effect of current). The internationally respected Det Norske Veritas⁶ recommended further investigation of the effect of mooring buoys to eliminate any dragging of anchor be done prior to introducing crude oil and LNG carriers into the Prince Rupert area. This should be studied and implemented if it is determined that mooring buoys would reduce the risk to the Skeena Estuary.

2) **Minimize fuel reserves onboard bulk carriers in the Rupert area** - If the risk of an incident is quantified and found to be likely to cause significant adverse effects, and it is acknowledged that Wolverine would add to the severity of the consequences by greatly increasing the average amount of fuel on board carriers, then TC, DFO, PRPA, and EC should refuse to issue a positive EED.

3) **Restrict vessels over 50,000 DWT to areas with safe anchorages.** A 1975 federal provincial joint committee report⁷ noted: “Of significance is the fact that ships over 50,000 DWT must use Port Simpson for anchorage for any length of time.” Given this fact options should be considered i.e.:

- requirement for vessels over 50,000 DWT to anchor in safe areas near Lax Kw’alaams (Port Simpson), especially if carrying liquid bulk
- prohibition of vessels over 50,000 DWT carrying liquid bulk from being in the Prince Rupert area if the risk is too great. Once the residual potential risk of a spill in the Estuary is quantified the Vopak project may be determined to be likely to cause significant adverse environmental effects.

⁵ A REVIEW OF THE OCEANOGRAPHY AND MARINE ECOLOGY OF PRINCE RUPERT HARBOUR See page 11: “2.7 Sediments-- Poor anchorages reported in Prince Rupert Harbour (pers comm., Capt. John Anderson, Institute of Ocean Sciences)....”

⁶ page 68 DET NORSKE VERITAS, Prince Rupert Marine Risk Assessment Navigational Risk Assessment Report, Prince Rupert Port Authority Report No./DNV Reg No.: / 13JIMVK-8 Rev 3, 2012-02-29
http://saveourskeenasalmon.org/wp-content/uploads/marine_risk_assessment.pdf

⁷ TSIMPSEAN PENINSULA FEDERAL – PROVINCIAL JOINT COMMITTEE

PHASE II BULK MARINE TERMINAL SITES IN THE PRINCE RUPERT AREA OF BRITISH COLUMBIA

File: 3198/02 Swan Wooster Engineering Co. Ltd. Consulting Engineers, Vancouver, 1975

-Volume 6 appended to NEAT report page 7 of Wooster (page 123 in Volume 6 pdf)

<http://saveourskeenasalmon.org/skeena-estuary/click-here-for-her-full-report-which-was-submitted-as-part-of-prince-rupert-environmental-societyt-buck-suzuki-environmental-foundation-and-the-united-fishermen-and-allied-workers-union-unifor/neat-report-1975/>

4) Transport Canada should require an MRA to quantify the risk posed by the proposed Vopak project.

This MRA must include the risk of a toxic product spill resulting from a potential anchor related incident and other marine incidents. Spills of toxic products could have catastrophic impacts in the Skeena Estuary. If the level of risk of a spill from a marine incident, is found to be likely to cause significant adverse environmental effect, TC should refuse to issue a positive EED for Vopak.

5) Reconsider the “in ballast” anchoring requirement. A note in the 2012 DNV PRPA MRA mentioned that local experts were convinced that the local anchoring issue was solved by policies which required carriers to anchor “in ballast” between Oct – April. Clearly the continuing high anchored incident rate shows this was not a solution. The “in ballast” requirement should be reconsidered in light of high current rates in Prince Rupert anchorages. Vessels being “in ballast”, has implications for increased risk from forces of current as discussed in the Kowalski 2016⁸ scientific journal article.

6) Ensure that there is a sufficient supply of pilots available and ensure that requirements to have pilots aboard allow exceptions for emergency. The Kowalski scientific journal article, cited above, noted that requirements in the Port Information Guide 2015, to have pilots aboard may increase the risk in emergency anchor dragging situations, by encouraging captains to wait too long before taking action when winds and emergency situations come up quickly and need to be responded to before a pilot arrives. The report also noted that in 2015 when all the vessels in the inner harbor were affected by strong winds there was only one pilot available.

Large Vessel Incident Details for Prince Rupert and Vancouver areas

by area

⁸ “What is worse, the problem of uncontrolled drift on anchor affected all the ships [group of 2015 incidents] occupying the inner road of Prince Rupert. Such a situation may be extremely dangerous and in many cases it is the direct cause of breaking out the anchor from the bottom.” “It also happens due to variable speed and direction of the wind, variable speed and direction of the current and finally, forces resulting from wave motion.” -Safety problems of anchoring in restricted areas in extreme hydrometeorological conditions-Kowalski 2016 in Scientific Journals of the Maritime University of Szczecin <http://repository.scientific-journals.eu/handle/123456789/1199>



Prince Rupert Detailed List of Anchored Incidents

14 year period from 2004-2017 (approximately 6,300⁹ vessel visits)

Accidents are noted with* the others are incidents which reported risk of grounding or striking
See next page for 1999-2004 detail

Number (#) of anchored vessel incidents each year- Year - Name/s of vessels involved

#- Year Vessels involved (i.e. there was 1 incident in 2004, 0 incidents in 2005, etc.)

1- 2004 YONG TONG¹⁰ (note this incident is missing, incident number and all, from the current TC file)

0- 2005

1- 2006 SAGACIOUS ID)

9- 2007 PACIFIC PARADISE* (*grounding), ANANGEL OMONIA (container), FANY, IOANNIS K, NEW LEADER, POLAR QUEEN, SANTA FRANCISCA, TORM CHARLOTTE and VINASHIN GLORY* (*sustains damage render unseaworthy/unfit for purpose)

2- 2008 CYCLADES and EMERALD INDAH (Length 229 m)

2- 2009 EMERALD INDAH (Length 229 m) and SWIFT FORTUNE

0- 2010

1- 2011 KARIMU

3- 2012 CORAL GARNET, GLOBE ENDEAVOR and MENDOCINO

1- 2013 MITOSE

0- 2014

5- 2015 AMARANTHA* (*sustains damage render unseaworthy/unfit for purpose), BULK COLOMBIA (drifting astern in middle photo above), KEN KON, KIRAN AUSTRALIA and SARI INDAH

4- 2016 ATLANTIC TULUM* (sustains damage render unseaworthy/unfit for purpose), CARMENCITA, INCE POINT and TAMPA

11 -2017 BAYBULK INDIA, COSCO JAPAN, EVER SUCCESS, GOLDEN HAWK (Length 190 m), GOLDEN HAWK (Length 190 m--second incident same anchorage), NEW GENERAL, NORD EXPLORER, NORD EXPLORER (second incident different anchorage), PEACE PEARL, TONG SHUN (Length 229 m [or 224.5 m]--only one Tong Shun incident is included in 11 for 2017 as one was while moored) and TRADE UNITY

40 TOTAL from 2004 to 2017 PRINCE RUPERT

⁹ PRPA reported 460 vessel calls to Prince Rupert <https://2017.rupertport.com/>. DNV MRA 2012 Table 5 reported 442 vessel visits in 2011(not including ferries). We averaged 460 and 442 to come up with a rough estimate of 451 vessel visits to Prince Rupert in the last fourteen years (14 x 442 = ~6300) to compare to Vancouver (rough average for Vancouver is 3160, not including ferries, which over fourteen years is ~44,000) DNV MRA 2012 can be found at http://saveourskeenasalmon.org/wp-content/uploads/marine_risk_assessment.pdf

¹⁰ Northern Gateway Pipelines Limited Partnership Enbridge Northern Gateway Project, NEB File OF-Fac-Oil-N304-2010-01 01

Details for Earlier Prince Rupert Anchored Incidents 1999-2004¹¹

(not included in the TC 2004 to present occurrence list):

#- Year Vessels involved

1- 1999 P. C. EXPLORER

1- 2000 BOVEC grounding and stranding on rocky shore after dragging anchor (outer photos above)

0- 2001

1- 2002 PACIFIC CHAMP near grounding

1- 2003 BLUE SAPPHIRE in danger of running aground

4 TOTAL 1999-2003

1) 28123 M99W02 03

1999

MARINE INCIDENT **GROUNDING -NEAR**

Liberian BULK CARRIER

P. C. EXPLORER 47323

ANCHORAGE V, PRINCE RUPERT HBR

541900 1301959 **dragged anchor** due to high winds in Prince Rupert Harbour. V/L used engine to maintain position until pilot assisted re-anchoring. MCTS kept informed throughout

2) 28399 M00W00 39

2000

SHIPPING ACCIDENT GROUNDING

BULK CARRIER **BOVEC** 20433

PRINCE RUPERT, B.C.

542322 1301535 V/L **dragged anchor**. Tug RIVTOW CECIL dispatched to assist as requested by pilot who had boarded to assist. V/L was unable to maneuver clear due to extreme wind conditions and ran aground.

3) 30749 M02W02 44

Nov 20 **2002**

MARINE INCIDENT GROUNDING -NEAR

BULK CARRIER **PACIFIC CHAMP** 25503 PRINCE RUPERT HARBOUR

541900 1301900 REPORTED **DRAGGING ANCHOR** AND NEAR GROUNDING,

4) 30770 M03W00 20

Jan 26 2003

MARINE INCIDENT GROUNDING -NEAR

TANKER -CHEMICAL BLUE SAPPHIRE 22620

PRINCE RUPERT HARBOUR,

541959 1301840 reported dragging anchor and in danger of running aground

¹¹ Northern Gateway Pipelines Limited Partnership Enbridge Northern Gateway Project, NEB File OF-Fac-Oil-N304-2010-01 01

5) 32258 M04W02 30 (note this Yong Tong incident, though 2004, is missing, incident number and all, from the current TC file)

Nov 1 2004

MARINE INCIDENT OTHER- MISC.

BULK CARRIER YONG TONG 38641 PRINCE RUPERT HARBOUR

541920 1302020 reported dragging anchor near Prince Rupert Harbour

**Vancouver Detailed List of Anchored Incidents
Fourteen year period 2004- 2017 (approximately 44,000¹² vessel visits)**

Number (#) of anchored vessel incidents each year- Year - Name/s of vessel/s involved
(i.e. there were 0 incidents in 2004, 1 in 2006, etc.)

#- Year Vessels involved

0- 2004

0- 2005

1- 2006 WESTWOOD VICTORIA* (*collision)

0- 2007

1- 2008 OOCL FRANCE (Container)

2- 2009 YONG JIN and HEBEI LION* ¹³ (*grounding)

1- 2010 PLACID SEA

1- 2011 CHINA STEEL EXCELLENCE

0- 2012 (note one vessel was struck by another vessel while anchored but as noted above re definition of incidents included in the report this is not included; being struck is not related to anchor dragging)

0- 2013

0- 2014

0- 2015

4- 2016 KEN HOPE, JEWEL OF EAGLE, NORDIC TIANJIN, HANJIN MARINE (2016 includes 2 intentional beachings and 3 total failures of any machinery but none are listed as accidents)

2- 2017 ORIENT BECRUX and BOTAFOGO SW (both involve total failure of any machinery but are not listed as accidents)

12 TOTAL from 2004-2017 Vancouver

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Prince Rupert office
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¹² Port of Metro Vancouver reported: “about 3,160 vessels call the Port of Vancouver each year” in 2016 and also noted that: “Other vessels, such as ferries and recreational craft” were not included. This can be found at: <https://www.portvancouver.com/about-us/topics-of-interest/vessel-numbers-now-and-into-the-future/>

¹³ Notes: Hebei Lion is misfiled under Central Region in the TC list.