

SOUTHEAST ALASKA

Vessel Traffic Study

July 23, 2012, Revision 1



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Executive Summary

Automated identification system (AIS) data and the most recently published vessel schedules were examined to determine the scope and type of large vessel operations in Southeast Alaska (SEAK) and Dixon Entrance. Large vessels, as defined for this report, include cruise ships, passenger vessels with overnight accommodations, tank and freight barges with tugs, freight ships, and tank ships.

In addition, a United States Coast Guard (U.S. Coast Guard) database of vessel incident reports collected since 1990 was sorted and grouped in a manner that, if used in conjunction with the traffic analysis, can support more detailed risk assessments for contingency emergency planning and mishap prevention initiatives.

Types of Vessel Activity in Southeast Alaska

Ferries (28%), passenger vessels with overnight night accommodations (20%), and cruise ships (19%) comprise the majority of vessel activity in Southeast Alaska even though most of these vessels only operated during the five month period from May through September. The high percentage of passenger vessel activity is of interest because of the relatively low number of these vessels (14) when compared to cruise ships (28).

Dry freight cargo barges and tank barges account for 19% and 11% of total vessel activity, respectively, while freight ships, both log and ore carriers, comprise less than 3% of the total.

Twenty-eight cruise ships are scheduled to make 450 voyages through Southeast Alaska in 2012. The future total maximum capacity is 850 voyages per season.

Fuel barges, whose primary role is to replenish shore side tank farms, do not operate on a set schedule. Their movements are influenced by market conditions and they will often change their schedule to accommodate demand. In general, two barges each month, carrying diesel, heating oil, aviation gas, and gasoline, are towed from Washington (WA) or, less frequently, from Nikiski to provide fuel for Southeast Alaska. An additional 'resident' barge takes fuel from Ketchikan and provides supplies for the smaller communities or industrial activities.

Relatively low log carrier activity (31 port calls in 2011) is expected to continue. Ore concentrate bulk freight ship port calls (19 in 2011) may double with the expansion of the Skagway terminal and the development of Yukon zinc exports.

Two freight barge companies provide approximately 180 service runs from Seattle each year. One hundred fifty to one hundred and ninety (150-190) times each year freight barges traveling to and from Western Alaska pass through the Inside Passage without stopping at a Southeast Alaska port.

Operating Areas of Special Interest

Sailing the Inside Passage of Southeast Alaska is a spectacular experience but requires vigilance and good voyage planning. Several areas are designated for special or enhanced navigational watches by large vessels. The Marine Safety Task Force (MSTF), a work group drawing from the U.S. Coast Guard, marine pilots, and cruise ship operators, has developed comprehensive voluntary guidelines to promote navigation safety in these special areas.

Dixon Entrance

Vessel traffic in Dixon Entrance is different from Southeast Alaska in both type and amount. According to 2011 AIS passage-line data plots obtained from the Marine Exchange of Alaska, 1489 vessels moved north or south between Alaska and British Columbia (BC). Two hundred eighty-eight (288) vessels moved east or west between the Dixon Entrance and the Pacific Ocean during the year. Cargo ships calling at Prince Rupert dominated the east-west large vessel traffic. Cruise ships, tugs and ferries dominated the north-south traffic. Future expansion of the Prince Rupert Fairview Container Terminal in response to increased mining in Canada, could quadruple cargo ship traffic. Full development and use of the Kitimat, British Columbia import/export oil terminal would add 250 tank ship round trips through Dixon Entrance each year. There is also the potential for 180 ore carrier annual port calls at the Stewart, BC bulk terminal in response to increased mining in Canada.

There is significant crossing traffic in Dixon Entrance. These perpendicular traffic patterns are different from most of Southeast Alaska where the features of the Alexander Archipelago tend to funnel traffic in opposing directions with few appreciable crossing situations. Vessels crossing Dixon Entrance apparently do not use established tracklines or fairways, unlike the recommended track lines used on many of the water bodies in Southeast Alaska.

Marine Casualty Reports

We examined 6518 Southeast Alaska marine incident reports to the U.S. Coast Guard from January 1, 1990 through April 8, 2012. Of these, 487 were reports of large vessel mishaps (collision/allision, grounding, fire, flooding, material failure, oil spill), accounting for 3% of the State of Alaska reports and 8% of the reports from Southeast Alaska. These categories are grouped and analyzed by vessel type.

There have been several casualties in Southeast Alaska significant enough to warrant investigation by the National Transportation Safety Board. By and large, the groundings of cruise ships, passenger vessels and ferries were caused by poor bridge resource management. The pilots and vessel operators have taken a number of steps to address those inadequacies, including the formation of work groups to make special recommendations for safe operations in certain areas of Southeast Alaska.

Recommendations and Conclusions

- This report and its preliminary vessel casualty analysis should be reviewed by a diverse work group in order to identify whether any additional research or action should be undertaken.
- The U.S. Coast Guard, the State of Alaska, and the Government of Canada should continue a dialogue regarding the best management of risks from increasing vessel traffic in Dixon Entrance.
- Although detailed casualty analysis and risk assessment was beyond the scope of this report, this preliminary review did suggest some logical areas for further study and spill response contingency planning.

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1. INTRODUCTION

A. Purpose

This study is designed to support the Alaska Department of Environmental Conservation's on-going efforts to identify and address any significant risks related to spills from shipping. It defines current large vessel traffic patterns and reviews past large vessel casualties, including pollution incidents, in the marine waters of Southeast Alaska and Dixon Entrance.

B. Objectives of the Study

- Develop and present a comprehensive picture of large vessel operations in Southeast Alaska and the Dixon Entrance, including expert opinions regarding the risks these activities may pose to the Alaska marine environment.
- Review and categorize available vessel casualty reports from 1990 to present for possible use in future risk analysis or more comprehensive planning for potential pollution incidents.

C. Scope

This report provides a narrative account, tables, and maps inventorying large vessel traffic movements in Southeast Alaska for 2011 and 2012. Specifically, this work categorizes the number, type, and areas of operation of cruise ships, passenger vessels, barges, and freight ships in Southeast Alaska and Dixon Entrance. The report sorts, groups, and provides a preliminary analysis of a U.S. Coast Guard database of vessel incident reports collected since 1990 and is designed to support risk assessments for contingency emergency planning and mishap prevention initiatives.

D. Types of Vessels Included in the Study

This research examines the type, amount, and activity of large vessels in Southeast Alaska. Large vessels, as defined in this study, include:

- Cruise ships
- Passenger vessels with overnight accommodations

- SOLAS-class cargo ships¹
- Alaska Marine Highway System (AMHS) ferries
- Inter-Island Ferry Authority (IFA) ferries
- Tugs and towing vessels
- Tank barges
- Dry cargo freight barges

Vessels not included in this study include deck or construction barges, fishing vessels, passenger vessels on day trips, and pleasure craft.

E. Background

i. SOUTHEAST ALASKA OPERATING ENVIRONMENT

For the purpose of this study, Southeast Alaska will be broken into two distinct sections.

The first, the **Alexander Archipelago**, lies between the Dixon Entrance and Cape Spencer. The general ocean coastline is only 250 nautical miles (nm) but the tidal shoreline totals 11,085 nm. The archipelago, most of which is the Tongass National Forest, consists of a 30-mile-wide strip of mainland bordered by an 80-mile-wide compact chain of islands.

The sea bottom features are similar to those of the adjacent land. The steep inclines and narrow gorges of the land continue below sea level and form a system of narrow deepwater straits that extend from Puget Sound to Cape Spencer. The rugged ridges and peaks of the land area and the absence of plains or extensive plateaus, are matched by the numerous rocks and reefs. These are surrounded by deep water but the only extensive shoals are at the mouths of glacier-fed streams or rivers.² Tides range from 10 to 17 feet, on average, with greater ranges within the inside passages. Tidal currents can be strong; four to six knots in some areas.

The principal ports for large vessel traffic in Southeast Alaska are Ketchikan, Sitka, Juneau, and Skagway. Large vessels also call at Hydaburg, Klawock, Metlakatla, Pelican, Petersburg, Wrangell, Yakutat, Haines and Hoonah/Icy Strait Point. Vessels enter the archipelago for Ketchikan, Juneau, Skagway or Glacier Bay through one of three water bodies; Dixon Entrance, Chatham Entrance, or Cross Sound.

From **Cape Spencer** to **Icy Bay**, the Southeast Alaska shoreline extends northwest, relatively unbroken for over 200 nm except for Lituya and Yakutat Bay. Yakutat Bay, 130 miles NW of Cape Spencer, has a 16.5-mile-wide entrance.³ Hubbard Glacier, 35 nm from the mouth of Yakutat Bay, is an active tideland glacier and a frequent cruise ship destination. Until recently, remote **Icy Bay** was the site of a large timber harvest operation that used SOLAS-class foreign log carriers to export product.

¹ SOLAS: Safety of Life at Sea - Code for commercial vessels sailing on international voyages.

² Coast Pilot 8 – Chapter 2 – Edition 33, 2010

³ Coast Pilot 9 – Chapter 4 – Edition 29, 2011



Figure 1: Ports used by large vessels in Southeast Alaska, excludes smaller communities served by ferries. See Figure 7 for ferry ports.

Table 1: Port distances in nautical miles by most commonly traveled route.

Approximate distance in nautical miles	Dixon Entrance	Ketchikan	Petersburg	Juneau	Skagway	Glacier Bay	Sitka	Seattle
Dixon Entrance		49	161	268	368	161	321	610
Ketchikan	49		112	219	82	288	272	659
Petersburg	161	112		107	207	191	160	771
Juneau	268	24	107		100	98	161	879
Skagway	368	82	207	100		124	187	962
Glacier Bay	337	140	191	98	124		93	947
Sitka	321	272	160	161	187	93		883
Seattle	610	651	771	879	962	947	883	

Typical winter maritime operating conditions can be difficult due to the often

intense, extra-tropical low pressure systems moving across the Gulf of Alaska. Summer weather is usually dominated by the large, semi-permanent North Pacific high pressure systems centered over the eastern North Pacific Ocean. The waters of Southeast Alaska lie on the northern edge of that circulation. About two or three low centers pass through the area each month. For more general information on weather conditions see the Coast Pilot.²

In general, Alaska state pilots are required for all vessels over 300 gross tons operating in Southeast Alaska. One exception is the AMHS ferries, owned and operated by the State of Alaska, which employ federal pilots.

ii. DIXON ENTRANCE OPERATING ENVIRONMENT

The Dixon Entrance is a water body with a 24 nm opening to the Pacific Ocean. Prince Rupert, British Columbia is approximately 85 nm due east of the entrance to Dixon Entrance. Thirty to 45 nm miles wide at other points, Dixon Entrance encompasses the international boundary between Alaska and British Columbia, Canada.⁴ Prominent or important water bodies connected to the Dixon Entrance include Alaska's Clarence Strait, Cordova Bay, Revillagigedo Channel, and British Columbia's Chatham Sound, Portland Inlet and Hecate Strait.



Figure 2: Dixon Entrance.

⁴ The International Boundary Line between the United States and Canada runs through Dixon Entrance, Tongass Passage, Pearse Canal, and Portland Canal.

From its junction with Pearse Canal and Portland Inlet at Tree Point, the Portland Canal extends north for about 57 miles to the towns of Hyder, Alaska, and Stewart, BC.

The Coast Pilot provides the following description of the often challenging maritime conditions found in the Dixon Entrance:

The Dixon Entrance is exposed to the rigors of the nearby Pacific. Gales blow frequently from October through April, mainly out of the southeast, up the Hecate Strait. Sometimes northern gales draw down Portland Inlet across the northeast end of Chatham Sound, making the crossing from Dundas Island to Cape Fox hazardous. Strong southwest winds create a heavy beam sea on this same crossing. Swells approach Dixon Entrance mostly from the west and southwest, particularly in winter. They move through passages, break on shoals or against shorelines, and are heavy at times. In Caamano Passage, the west coast of Dundas Island experiences almost continuous heavy swell. Parry Passage, as well as the western and northern coasts of Langara Island, are subject to prevailing ocean swell.⁵

Uncertain currents and a number of hazards make navigation in Dixon Entrance treacherous when visibility is poor. Advection fog plagues these waters from July through September, when visibility less than 0.5 mile (0.8 km) occurs up to five percent of the time, and is often cyclical over a period of several days. At Langara Island, fog is reported 4 to 9 days each month from May through September.⁶

Limited oil slick trajectory modeling has been developed for Dixon Entrance using the National Oceanographic and Atmospheric Administration's (NOAA) (General Operational Modeling Environment) GNOME.⁷ Preliminary analysis seems to indicate that slick movement in Dixon Entrance is wind dominated. Traditional rule-of-thumb indicates that the slick will move at 3% of the surface wind velocity.

⁵ NOAA and Environment Canada maintain a weather buoy at Dixon Entrance capable of providing realtime weather data. Go to: http://www.ndbc.noaa.gov/station_page.php?station=46145

⁶ Coast Pilot 8 - Chapter 4 - Edition 33, 2010

⁷ GNOME (General Operational Modeling Environment) is the modeling tool the NOAA Office of Response and Restoration's (OR&R) Emergency Response Division uses to predict the possible route or trajectory a pollutant, such as in an oil spill, might follow in or on a body of water. GNOME supports different user experience levels through user modes. To quickly set up spill scenarios customized for each incident, OR&R modelers use GNOME in Diagnostic Mode, which enables them to incorporate a number of outside atmospheric and oceanic circulation models. <http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/gnome.html>

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2. METHODOLOGY

A. Characterizing Vessel Traffic in Southeast Alaska and Dixon Entrance

Published schedules were used to determine the amount of dry cargo barge, cruise ship, ferry, and passenger vessel activity that occurred in Southeast Alaska in 2012. With few exceptions, these schedules have been a precise and accurate reflection of vessel activity from year to year. Using the most recent schedules rather than the 2011 schedules or U.S. Coast Guard advance notice of arrival (ANOVA), provided current and more accurate traffic estimates for future risk analysis and contingency planning. Freight ship calls (ore and log carriers) to Southeast Alaska were obtained from maritime agents.

In order to make apt comparisons between the various vessel categories, we estimated total underway operating weeks in Southeast Alaska for cruise ships, barges, ferries, and passenger vessels with overnight accommodations. This was necessary because most types of vessels spent significant amounts of each voyage outside of Southeast Alaska. While in Alaska, cruise ships and some ferries spent significant amounts of time moored. An operating week was defined as 168 hours of accumulated time in Southeast Alaska for a single vessel, whether moored⁸ or underway. We also calculated the amount of time that a vessel in Alaska was underway. An underway operating week for a vessel was 168 hours of accumulated time in Southeast Alaska while underway at any speed. Seasonal vessel activity was grouped by the five month cruise ship season (May-September) and the (creatively named) seven month non-cruise ship season (October-April).

Oil barge traffic was the most difficult to quantify given that their activity and schedules fluctuate considerably in accordance with market conditions and supply source (Anacortes, WA and Nikiski, AK). Vessel estimates were developed from consultation with oil terminal and tug boat operators. In general, two oil barges each make one round trip per month to Southeast Alaska from Anacortes, WA, and occasionally from Nikiski, AK. Using an average transit speed of nine knots and a load time at dock of 24 hours, each barge spent three weeks each month in Southeast Alaska. A third barge remained in Southeast Alaska to provide service to the smaller communities and mines. Total operating weeks for oil barges in Southeast Alaska was estimated at 124 weeks per year.

B. AIS Data Analysis and Maritime Operator Input

The primary source of information used to characterize the Dixon Entrance vessel traffic was Automatic Identification System (AIS)⁹ data purchased from the

⁸ For this study, cruise ships anchored in Juneau Harbor or Icy Strait Point (Hoonah) were considered moored.

⁹ The Automatic Identification System (AIS) is an automated tracking system used on ships and by Vessel Traffic Services (VTS) for identifying and locating vessels by electronically exchanging data with other nearby ships and VTS

Marine Exchange of Alaska (MXAK).¹⁰ This information included almost all vessels that used an AIS transponder in Dixon Entrance in 2011.

Two AIS receiving stations provided the coverage in the study area, both of which were operated and maintained by the MXAK in 2011. The data provided included:

- Track lines by vessel category throughout Dixon Entrance.
- Specific vessel 'hits' as vessels crossed a particular AIS passage line

These recorded tracks were sorted and categorized by vessel type.

i. AIS DATA FORMAT

The fields provided in the raw AIS data included:

- Base station time stamp
- Call sign
- Vessel name
- Type of ship and cargo
- Maritime Mobile Service Identity (MMSI)¹¹
- Draught
- Latitude & Longitude
- Destination
- Navigational status (engine, anchored, sail, fishing)
- Cargo
- Course over ground
- Country or flag state
- Speed over ground
- International Maritime Organization (IMO) number
- Heading

While some of this information is automatically generated by the AIS transponder/receiver (e.g. lat/long, MMSI), other data require manual input by the operator (e.g. destination, cargo, vessel type). Data that require manual input was the least reliable, particularly in determining destinations.

stations. In general, federal regulations (33 CFR 164.46) and International Maritime Organization's (IMO) International Convention for the Safety of Life at Sea (SOLAS) require AIS to be fitted aboard the following vessels: those weighing 300 gross tons or more, all tank ships, self-propelled vessels of 65 feet or more in length, those engaged in commercial service, most towing vessels, dredges, and certain classes of passenger vessels.

¹⁰ The Marine Exchange of Alaska (www.mxak.org) is a non-profit maritime organization established to serve the Alaska maritime community by providing information, communications and services to ensure safe, secure, efficient and environmentally responsible maritime operations.

¹¹ Maritime Mobile Service Identity (MMSI) is a series of nine digits which are sent in digital form over a radio frequency channel in order to uniquely identify ship stations, coast stations, coast earth stations, and group calls.

ii. AIS DATA QUALITY

Other studies and AIS vessel tracking organizations report that ships required to operate AIS do so nearly 100% of the time.¹² Therefore, the track lines and hits across Dixon Entrance passage lines are assumed to be reliable for the purposes of this study.

AIS records, as a primary source for this study, do have some limitations that may impact this analysis:

- Manually inputted data have the potential to contain errors or inaccuracies.
- Many AIS entries showed no vessel name, call sign, or IMO number. These entries were assumed to be small vessels under 300 GT and were excluded from the study.
- The AIS data did not always provide the level of detail needed to assign a vessel to one of the vessel types or categories reviewed in this traffic study.
- The AIS data did not provide the type of cargo carried. In fact, the majority of the datum plots listed the cargo as ‘undefined.’
- Nearly all tugs have AIS but the barges they tow do not. AIS did not show whether a tug was towing a barge, and if it was, whether the barge carried oil or dry cargo. Therefore tank barge activity was determined from records and input provided by tank barge operators.

C. Casualty analysis

We examined U.S. Coast Guard marine incident reports from January 1, 1990 through April 8, 2012. These records included vessel casualties and reports of pollution from vessels, marine facilities and offshore platforms throughout Alaska.

A vessel casualty must be reported to the U.S. Coast Guard if it occurs upon the navigable waters of the US, its territories or possessions, or whenever and wherever a casualty involves a US vessel. Public vessels and recreational vessels are exempt from these reporting requirements. Casualties include: groundings, loss of main propulsion, primary steering or reduction in maneuverability, occurrences that reduce seaworthiness (fire, flooding, damage to or loss of fire extinguishing, lifesaving or bilge pumping systems), loss of life, injuries requiring professional medical treatment, vessel damage exceeding \$25,000, and spills of oil and hazardous material.¹³

Typically, accidents, fatalities, injuries, violations of rules and regulations by merchant mariners, and security violations are reported by vessel or marine facility operators on U.S. Coast Guard standard form CG-2692, a copy of which is included in this report as Appendix C. These reports and other investigations undertaken by the U.S. Coast Guard Sectors and Marine Safety Units are entered into the Marine Information for Safety and Law Enforcement (MISLE).

Approximately 17, 200 accident and spill reports from U.S. vessels operating in or

¹² See DNV-ERM West. (2010). Aleutians Islands Risk Assessment: Phase A Task 1 Semi-quantitative Vessel Traffic Study. http://www.aleutiansriskassessment.com/documents/2010.09.03_FinalEP007543AIRAPhaseATask1eReport.pdf.

¹³ 46 CFR 4.05-1

near Alaska territorial waters¹⁴ were entered into the U.S. Coast Guard MISLE database from January 1, 1990¹⁵ through April 08, 2012.¹⁶ Of those, 6513 incidents (38%) were recorded by the U.S. Coast Guard Captain of the Port for Southeast Alaska.¹⁷

The majority of these reports were for minor pollution. For this study we focused only on casualties affecting the seaworthiness of large vessels or oil spills from large vessels (cruise ships, ferries, passenger vessels with overnight accommodations, freight ships, tugs, oil barges, and dry cargo barges). To avoid double counting, casualties were grouped by the first event. For example, if a vessel lost steering that resulted in grounding, flooding, and damage to the environment by oil spill, the casualty was counted as a loss of maneuverability. Personnel casualties that did not appear to affect safe navigation of the vessel were excluded.

Data entries in MISLE spreadsheets typically had limited descriptions of the casualties. Any lessons learned from major marine casualties were drawn from published National Transportation Safety Board (NTSB) reports.

Incidents or casualties not addressed in this study include:

- Close-quarters or near-miss incidents not required to be reported to the U.S. Coast Guard
- Loss of life unrelated to safety of navigation or pollution
- The root cause of marine casualties unless specifically provided by the incident reports
- Casualties that occurred on vessels off the coast of Southeast Alaska in the Gulf of Alaska
- Casualties/spills from fishing vessels, deck or construction barges, passenger vessels on day trips, and pleasure craft.

¹⁴ Nearly 25% of the casualty reports occurred on fishing vessels operating in the Bering Sea, western Alaska or the Gulf of Alaska.

¹⁵ 1992 seems to be the first year that the U.S. Coast Guard consistently entered casualty and marine incident information into the data. The records we obtained had 4 entries for 1990 and 59 entries for 1991.

¹⁶ April 8, 2012 was the arbitrary cutoff date for the records supplied by the U.S. Coast Guard.

¹⁷ The U.S. Coast Guard Captain of the Port (COTP) for Southeast Alaska has marine safety and investigation units in Juneau, Ketchikan and Sitka.

3. VESSEL TRAFFIC IN SOUTHEAST ALASKA

Using the methods described in Section 2, we estimated vessel activity in Southeast Alaska as shown in Table 2 and Figure 3. Each vessel category is discussed below.

Table 2: Comparisons of various categories of vessel activity in Southeast Alaska

	Number of different vessels	Total vessel operating weeks in SEAK	Operating weeks for vessels underway in Southeast Alaska	Operating weeks for vessels underway, May-Sept
Cruise ships (2012)	28	222.0	136.0	136
Ferries (2012)	11	327.9	207.4	102.6
Freight ships: Log carriers (2011)	14	23.1	2.8	2.4
Freight ships: Ore carriers (2011)	11	6.7	2.4	0.4
Overnight passenger vessels (2012)	14	236	196	196
Tank barges (2012)	4	124	124	52
Dry cargo freight barges traveling to Southeast Alaska	~10	159.1	159.1	66.3
Dry cargo freight barges traveling through the Inside Passage to and from Western Alaska	150-180 transits	53.0	53.0	N/A

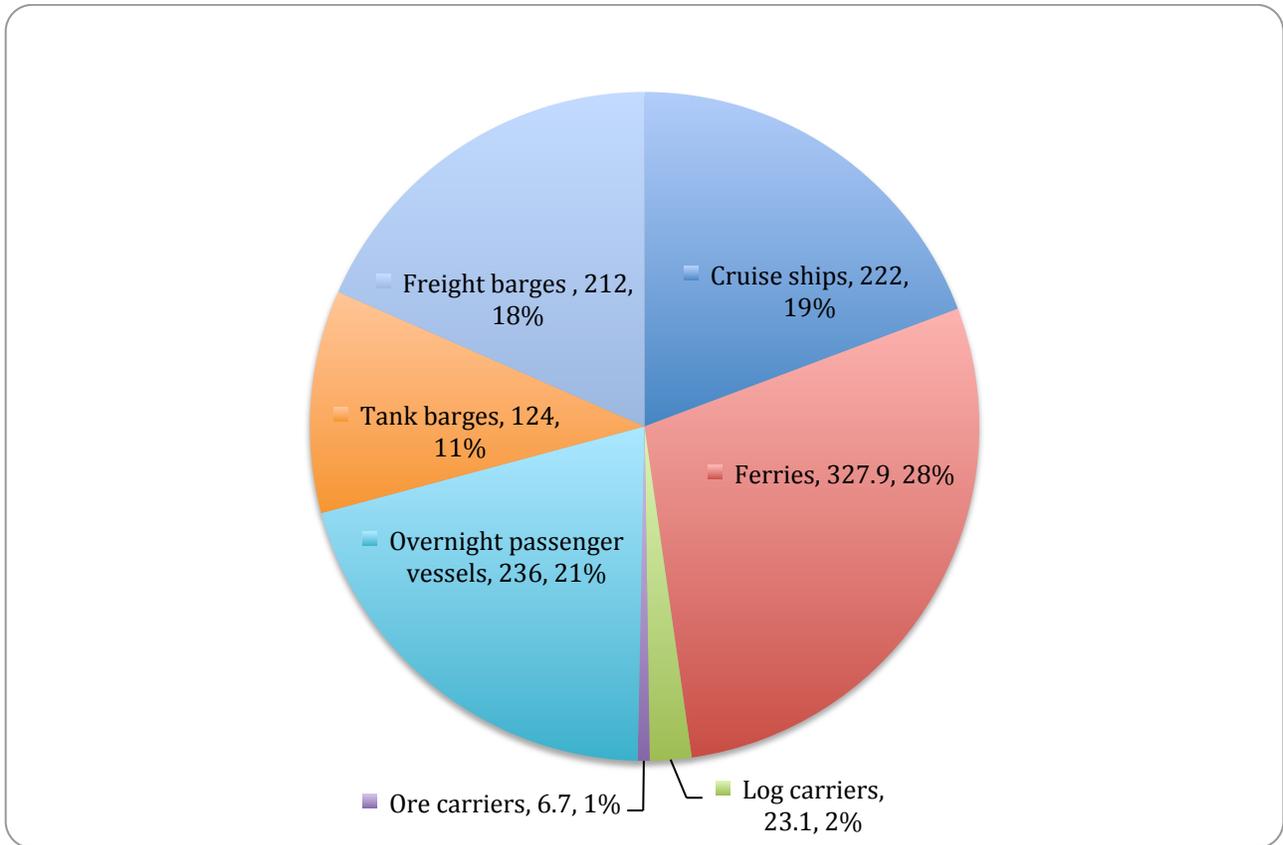


Figure 3: Vessel Activity in Southeast Alaska Compared by Operating Weeks.

A. Cruise Ships in Southeast Alaska

According to published schedules¹⁸ 30 cruise ships will make 450 voyages through Southeast Alaska in 2012. This is a slight increase from 2011 (28 cruise ships, 440 voyages) but below the all-time peak traffic in 2009 when 32 different cruise ships made 496 trips throughout Southeast Alaska.¹⁹ Twenty-five ships make regular, weekly calls to Southeast Alaska ports during the peak of the season; mid-June through the first week of September. On average, a cruise ship voyage through Southeast Alaska will last 83 hours with 32 hours of that voyage being at anchor or at a port berth. Weekly peak season cruise ship traffic is shown in Figure 4.

Most analysts believe the Alaska cruise ship industry is at market capacity. However, the economy or instability in the Mediterranean region could change this outlook. When construction of the city of Juneau’s two Panamax docks is complete in 2013, the total maximum capacity for Southeast Alaska will be five ships at Juneau per day (four at dock and one at anchor), 35 per week, or about 850 voyages per year.

¹⁸ Cruise Line Agencies of Alaska <http://www.claalaska.com/schedules2012.html>

¹⁹ To avoid double counting and for consistency, we used cruise ship visits to Juneau to set overall activity. Source: Juneau Convention & Visitors Bureau, Cruise Ship Rosters for 2009, 2011 and 2012. http://www.traveljuneau.com/downloads/Cruise_Ship_Calendar.pdf

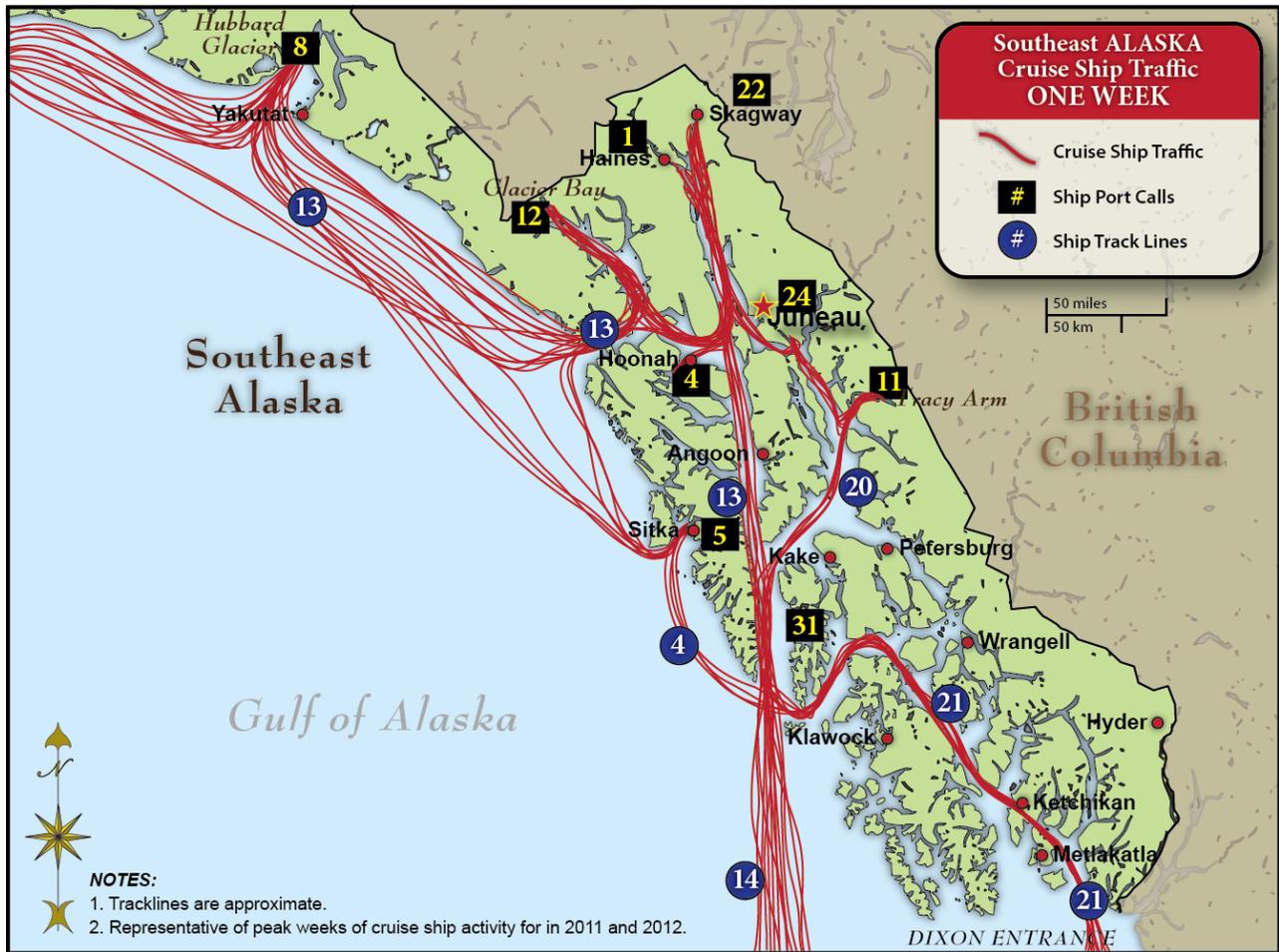


Figure 4: One week of peak-season cruise ship activity.

B. Small Passenger Ships

(Passenger Vessels with Overnight Accommodations²⁰)



Figure 5: Small Passenger Ships – from left to right: Wilderness Discoverer, Sea Lion, and Wilderness Explorer – at Juneau turn-around port on June 2, 2012.

In 2012, at least 14 passenger vessels with overnight accommodations are scheduled to spend 236 operating weeks in Southeast Alaska from May through September. The high percentage of passenger vessel activity (21%) when compared to overall vessel traffic is of interest because of the relatively low number of passenger vessels (14) when compared to the number of cruise ships (28).

From 125 to 200+ feet in length, these vessels carry 30 to 90 passengers and have the capacity for 6,000 to 12,000 gallons of diesel fuel.

Typical schedules involve embarkation from Ketchikan, Juneau or Sitka and traveling 7 to 14 days to a variety of isolated coves and fjords for kayaking and other wilderness activities. During the course of a week in the peak summer tourist season, these vessels can be seen nearly everywhere from Glacier Bay to Ketchikan. See Figure 6.

²⁰ These vessels may be smaller than day-run passenger vessels. However, they were selected for this study given their extended operations in remote areas.

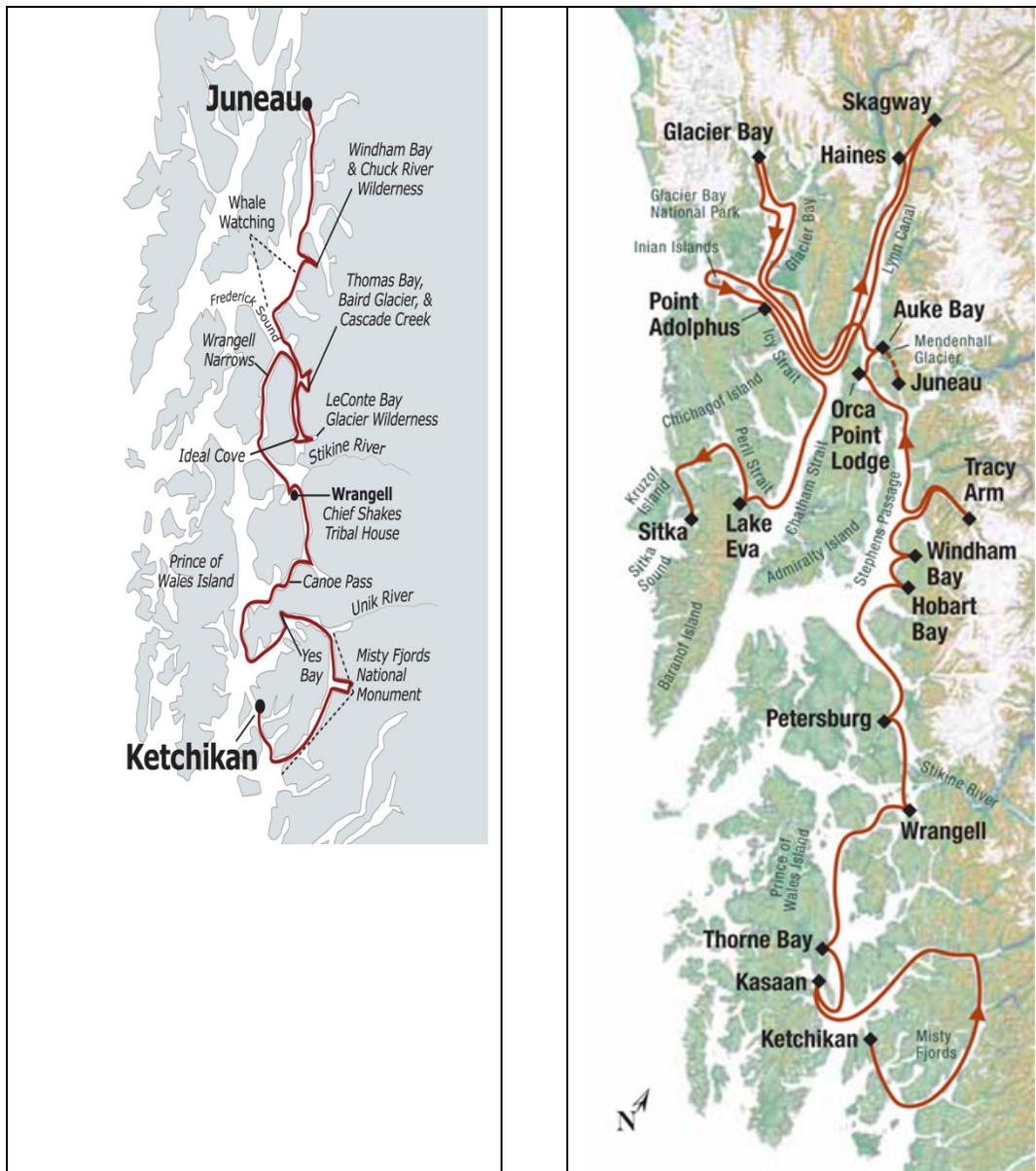


Figure 6: Two example itineraries from operators of passenger vessels with overnight accommodations (Innersea Discoveries on the left and Alaskan Dream Cruises on the right).

C. Ferries in Southeast Alaska

The Alaska Marine Highway System (AMHS) and the Inter-Island Ferry Authority (IFA) operate roll-on, roll-off (RO-RO) car and passenger ferries throughout the year. Figure 7 shows typical peak season (June – mid-September) ferry traffic over a seven day period.

i. ALASKA MARINE HIGHWAY SYSTEM

Four of the nine AMHS ferries operating in Southeast Alaska during peak season are day-boats that service upper Southeast Alaska ports, Metlakatla, or Prince of Wales Island. Four AMHS mainline ferries operate between Skagway and Prince Rupert, BC or between Skagway and Bellingham, WA. The AMHS M/V *KENNICOTT* makes runs from western Alaska through Southeast Alaska to Bellingham, WA, including Yakutat.

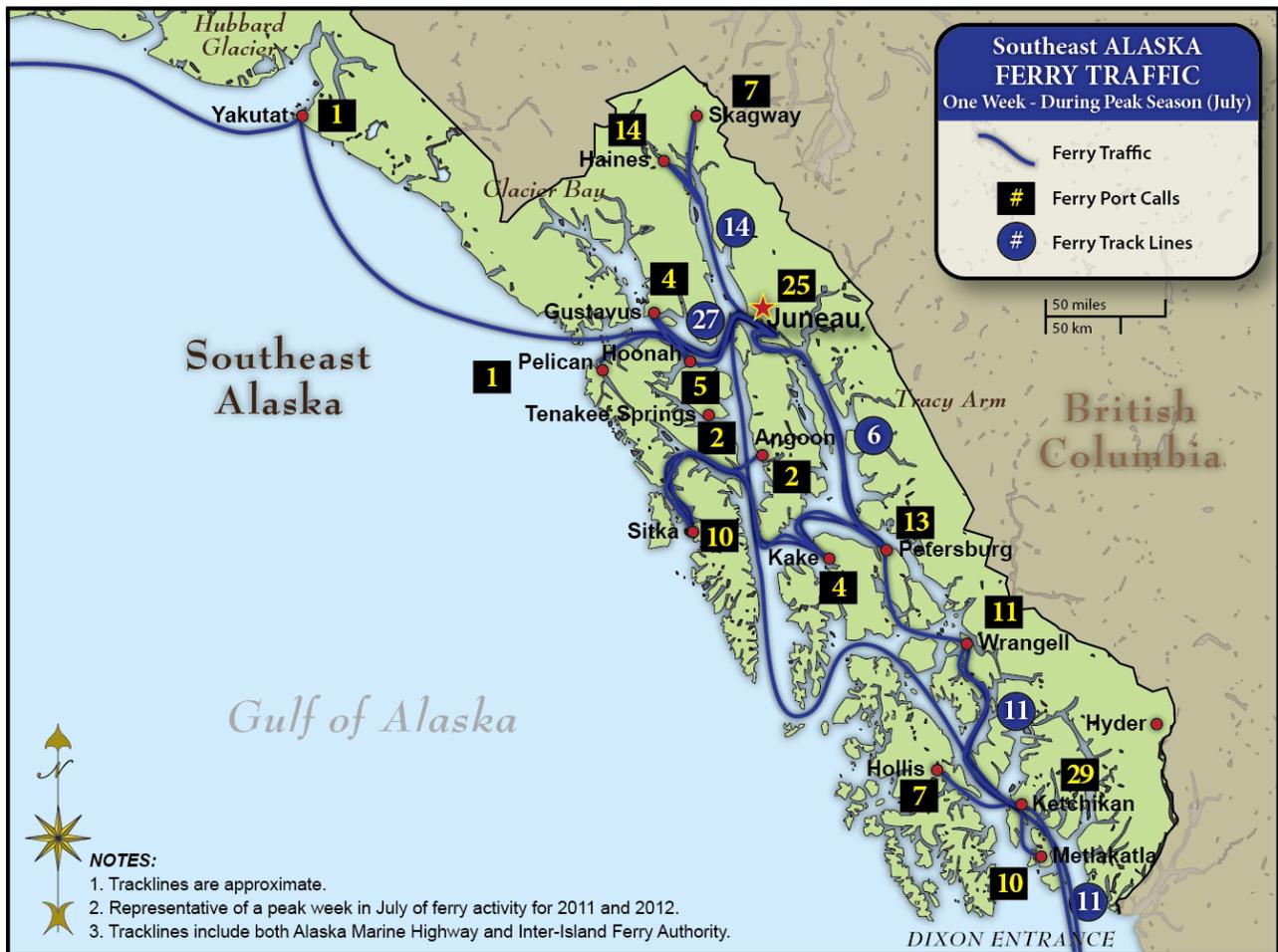


Figure 7: Peak-season ferry traffic during one week (July).

Using published schedules²¹ and the AMHS operating plan for 2012-2013²², we calculated total operating weeks for each vessel in Southeast Alaska by subtracting the time that each vessel was out of Southeast Alaska from the total operating weeks provided. Given that the four day-boats spend at least 50% of their operating weeks moored overnight, we subtracted this moored time from their total operating weeks in order to make like comparisons to cruise ships, which also spend significant time at dock, albeit during the day.

Although AMHS ferries operate year round, three are placed in layup during the fall and winter. In order to make relative comparisons to the seasonally active cruise ships and overnight passenger vessels, we estimated ferry operating weeks from May through September.

ii. INTER-ISLAND FERRY AUTHORITY

Inter-Island Ferry Authority (IFA) operates one daily round trip ferry run between Hollis, on Prince of Wales Island, and Ketchikan 363 days of the year.

²¹ AMHS OARS sailing calendar available at: <https://www.dot.state.ak.us/oars/reservations/CalendarFM.amhsf> This electronic calendar allows the user to view ferry arrival and departure times for any port on any month.

²² Alaska Department of Transportation, Alaska Marine Highway System Operating Plan 2012-2013, Revision Number 13.05, 05/01/2012. This schedule projects vessel layup, overhaul and operating areas July 2012 through June 2013. The schedule lists the total operating weeks for each vessel for the coming 12 month period.

The vessel, either the *M/V STIKINE* or its sister ship the *M/V PRINCE of WALES*, departs Hollis at 8:00 am and returns at 6:30 pm. The *PRINCE OF WALES* is a 2,309 Gross Ton (95 Regulatory Gross Tons) passenger ferry built in 2001 with a length overall (LOA) of 197 feet. The vessel has a capacity of 170 passengers (no staterooms).

D. Oil Barges

Fuel barges, whose primary role is to replenish shore side tank farms, do not operate on a set schedule. Their movements are influenced by market conditions and they will often change their schedule to accommodate changing demand. In general, two barges carrying diesel, heating oil, aviation gas, and gasoline, are towed from Washington each month or less frequently, from Nikiski, to provide fuel for Southeast Alaska. An additional ‘resident’ barge takes fuel from Ketchikan and provides supplies for the smaller communities or industrial activities.

If a refinery shuts down in Alaska, which happens infrequently, then volumes pick up in Haines or Skagway, with one or more additional barges per month towed to these Upper Lynn Canal ports.

We estimate that the accumulative activity of all oil barges in Southeast Alaska is 124 operating-weeks per year.

E. Freight Ships

Freight ship activity is limited. In 2011, 25 vessels made 36 voyages to Southeast Alaska to load logs or ore (Table 3). Log carriers were loaded at the Klawock wharf and from mooring buoys in Leask Cove, Tolstoi, Hydaburg, and Petersburg. Ore carriers called at the Greens Creek gold-copper-zinc mine in Hawk Inlet and at Skagway for ore brought by rail from the Yukon (Figure 8).

Table 3: 2011 freight ship port calls for Southeast Alaska²³

PORT	LOCATION	NUMBER OF PORT CALLS	CARGO
Hawk Inlet	58° 09.8' N, 134° 45.7' W	13	Ore
Hydaburg	55° 11.1' N, 132° 48.1' W	13	Logs
Klawock	55° 32.4' N, 133° 06.5' W	5	Logs
Leask Cove/Ketchikan	55° 25.8' N, 131° 29.5' W	5	Logs
Petersburg	56° 49.0' N, 132° 57.5' W	1	Logs
Skagway	59° 27.5' N, 135° 19.3' W	6	Ore
Tolstoi	55° 40.6' N, 132° 24.1' W	7	Logs

Log carrier activity has been low since mills closed in Ketchikan and Sitka in the 1990s. Low levels of log exports are expected to continue unless new leases are

²³ Sources: U.S. Coast Guard Advance Notice of Arrival (ANOVA), maritime agent records, AIS data.

negotiated and roadless rules are relaxed for the Tongass National Forest.

Ore exports from the Greens Creek Mine are expected to continue at the present rate for the next several years. The ore terminal at Skagway has plans to increase capacity and export volume by expanding the facility to allow Panamax ships and would receive 25-55 ships per year.²⁴

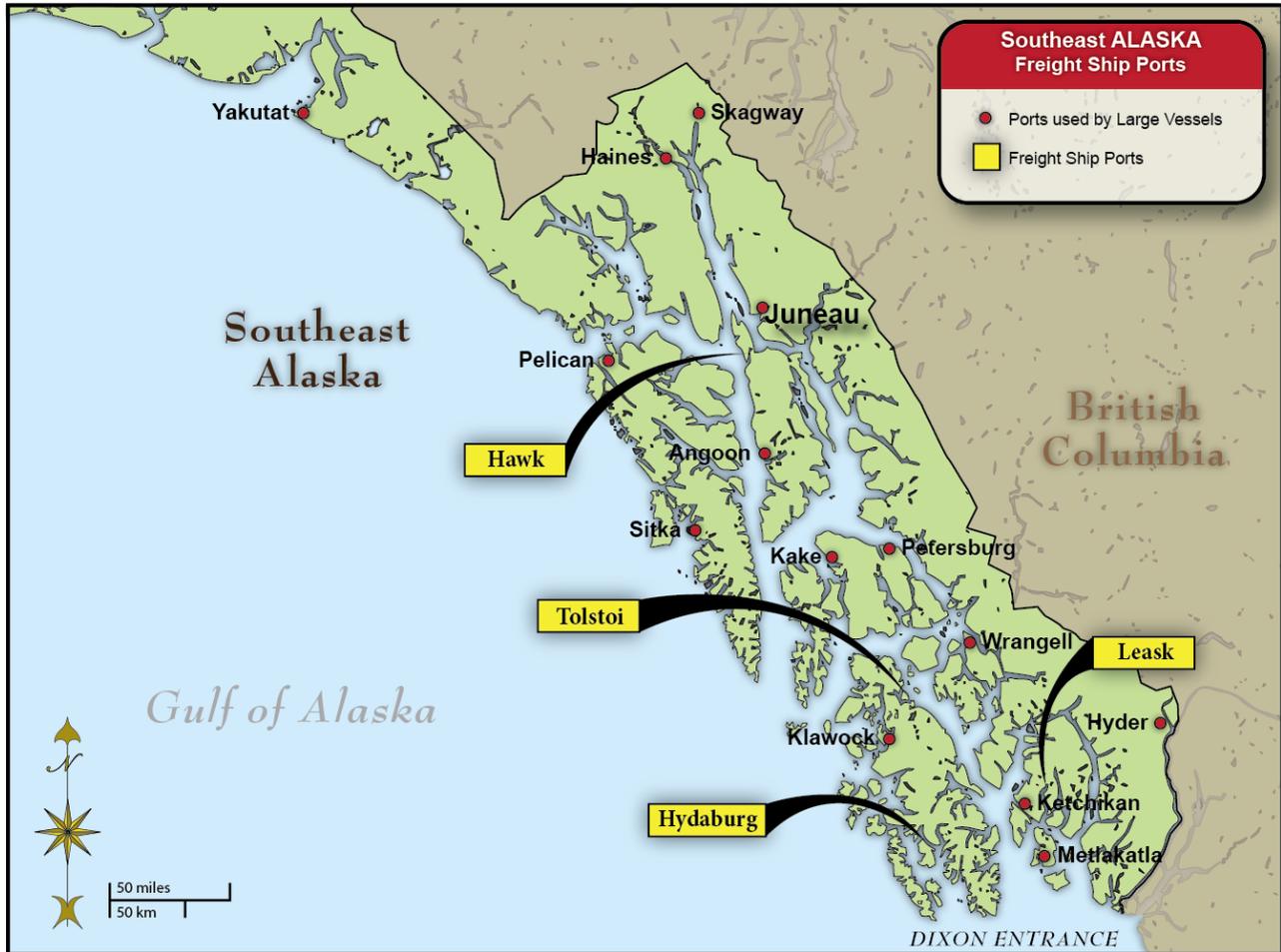


Figure 8: Freight ship ports for Southeast Alaska.

F. Freight Barges

Most of Southeast Alaska consumer commodities, from baseball gloves to modular homes, are provided by freight barges towed from Seattle by two cargo services. Alaska Marine Lines²⁵ offers twice-weekly service and Northland Services²⁶ has 78 service runs scheduled in 2012. These deck barges, laden with containers, call at most Southeast Alaska communities and at the two major mines, Greens Creek and Kennington. Combined, these barges operate approximately 159 vessel-weeks per year in Southeast Alaska.

A number of dry cargo freight barges use the Inside Passage (Figure 9) to travel to and from Western Alaska. This activity is difficult to estimate precisely, given

²⁴ Conversation with Ethan Berto, Cruise Line Agencies of Alaska. May 17, 2012

²⁵ <http://www.aml.lynden.com/>

²⁶ <http://www.northlandservices.com/>

that barges do not carry AIS. However, assuming that most tugs traveling north or south through Dixon Entrance are towing a barge,²⁷ we estimated traffic to and from Western Alaska via the Inside Passage by subtracting known Southeast Alaska tug/barge combinations from total tug transits found in AIS passage-line data. The total north or south transits – 187 for 2011 – may include some tank barge traffic.²⁸



Figure 9: Tug and barge traffic using the Inside Passage.

²⁷ Consultation with Captain Erik Dreisbach, AMAK Towing, Juneau, AK. June 5, 2012

²⁸ Dixon Entrance 2011 tug AIS passage line count (393) minus southeast only freight (182) and tank barge traffic (24).

G. Comparisons of Seasonal and Daily Activity among Vessel Types

As seen in Figures 10-12, vessel activity that is dominated by cruise ships, ferries and small passenger vessels in the summer months declines dramatically in the winter.



Figure 10: Peak summer season large vessel positions (approximated from published schedules for 1:00 am, July 13, 2012)

Comparing Figure 10 (1:00 am vessel plots) and Figure 11 (1:00 pm vessel plots) show that cruise ships are underway in the evening and early morning hours and moored, in the main, during the day.



Figure 11: Peak summer season large vessel positions (approximated from published schedules for 1:00 pm, July 13, 2012)



Figure 12: Winter large vessel positions (developed from published schedules for December 19, 2011)

4. SPECIFIC TRANSIT AREAS IN SOUTHEAST ALASKA

Areas in Southeast Alaska where ships might set an enhanced navigation watch

- When approaching all moorages
- Gastineau Channel (Juneau)
- Tongass Narrows (Ketchikan)
- Snow Passage
- Hawk Inlet
- Parts of Glacier Bay
- Tracy Arm
- Hubbard Glacier under certain weather and ice conditions
- Wrangell Narrows
- Peril Strait

From Southeast Alaska Pilots Association²⁹

The relatively short distance between the deck of a ship and the glaciers and mountains of Southeast Alaska makes sailing the Inside Passage dramatic and beautiful, as attested by close to one million cruise ship passengers that come to Southeast Alaska during the five-month cruise season. It would be an overstatement to say that the close proximity of vessel and land throughout the archipelago makes navigation risky and hazardous. However, there are some passages where there is less time to react in the event of a sudden reduction in the ability to maneuver (i.e. steering casualty, loss of power). Vessel operators cannot avoid all risk but can endeavor to manage risk.

We consulted state marine pilots (Southeast Alaska Pilots Association) to identify operating areas where ships set enhanced watches and other risk management measures.²⁹ These are shown in the text box at left. Several of these areas, particularly where cruise ships and freight ships operate, are discussed below.

In addition to the regular bridge watch, enhanced navigation watches may include:

- The master, chief mate or extra watch officer on the bridge
- Engineer on standby with engines on light fuel and in maneuvering status
- Foc'sle manned and anchors ready to let go from the foc'sle or the bridge.

In addition, pilots and watch officers employ a number of other tools and procedures when operating in restricted waters. These include:

- Bridge Resource Management, Bridge Team Management, Voyage Planning
- Port departure meeting and briefing between the master and the pilot
- Electronic equipment (i.e. radar, depth sounder, GPS/DGPS, ARPA, gyro compass)
- Charts and publications, including electronic publications
- Electronic Charting and Display Information Systems (ECDIS)

²⁹ Interview with Captains Larry Vose and Ed Sinclair, Southeast Alaska Marine Pilots Association.

- Pilot Portable Units (PPUs)
- Vessel Traffic Services (VTS)

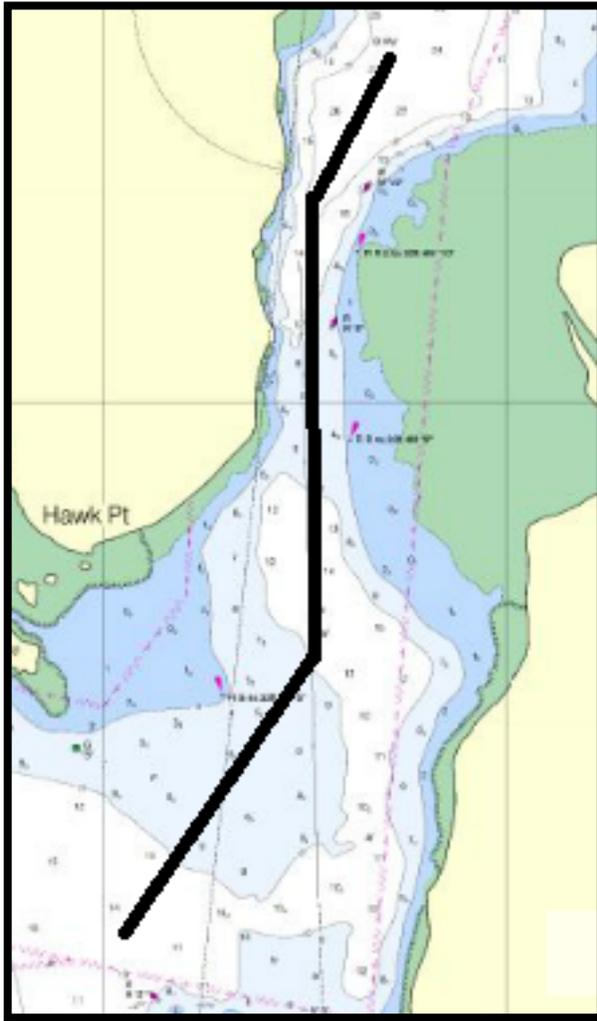
Steering failures while transiting restricted areas are of primary concern. Ships have redundant power and steering systems through the bridge, the engine control room, and after-steering. Ship's officers and Alaska State Pilots practice their response to steering failures on realistic simulators.

A. Voluntary Waterway Risk Management

The Marine Safety Task Force (MSTF), formed in 1996 in the wake of two cruise ship groundings, addresses most if not all of the restricted navigation areas in Southeast Alaska. Highly regarded by both the marine industry and the U.S. Coast Guard, the MSTF reviews and publishes the Voluntary Waterway Guide (VWG) every April. The VWG recommends guidelines for pilots, bridge teams, cruise ship operators, and agents to improve the safety standards on Southeast Alaska's waters. Because of its comprehensive coverage, the VWG is included in this report as Appendix G.

B. Hawk Inlet

Ore carriers calling at the Greens Creek silver-gold-zinc-lead ore mine on Admiralty Island must transit the short (~2000 feet), narrow (less than 300 feet)



entrance to Hawk Inlet (Figure 13). In 2011, the facility had 13 port calls from bulk ore carriers. In 1997, the U.S. Coast Guard COTP set informal conditions, or ‘expectations,’ which included maximum ship length and beam, minimum under-keel clearance, daylight transit, and slack tide (Appendix E). Although not a regulation or requirement, marine pilots indicate that vessel operators and Greens Creek terminal still abide by these expectations.³⁰

In spite of the challenging features of the inlet entrance, there have been no reports of mishap during ship transits.

The Hawk Inlet marine terminal includes, in addition to the ore loading dock, an oil transfer facility for barges, and a dry cargo barge terminal for off-loading explosives and other hazardous materials needed for the operation of the mine.

Greens Creek is looking for additional metal reserves and resources that would extend the life of the mine.³¹ Active mining is expected to continue for the next several years with one freight ship port call a month, on average.

Figure 13: Hawk Inlet entrance track line for freight ships. (The channel is approximately 300 feet wide at narrowest point.)

its

C. Lower Lynn Canal during the Cruise Ship Season

Cruise ships, passenger vessels with overnight accommodations, and ferries and tugs traveling between Skagway, Juneau and Glacier Bay can create significant traffic density around midnight in lower Lynn Canal near Lincoln and Shelter Islands (Figures 14 and 15). During the mid-week of the peak cruise ship season, five ships can be southbound and four ships northbound. These ships are all on scheduled runs, however, and State marine pilots of cruise ships consult the AMHS schedules and confer with other cruise ships in order to avoid meeting in Saginaw Channel and other possible conflicts. Operators are particularly alert for seasonal fishing vessel activity in this area.

³⁰ Interview with Captains Larry Vose and Ed Sinclair, Southeast Alaska Marine Pilots Association.

³¹ From: http://www.hecla-mining.com/operations/operations_greenscreek_futureupside.php

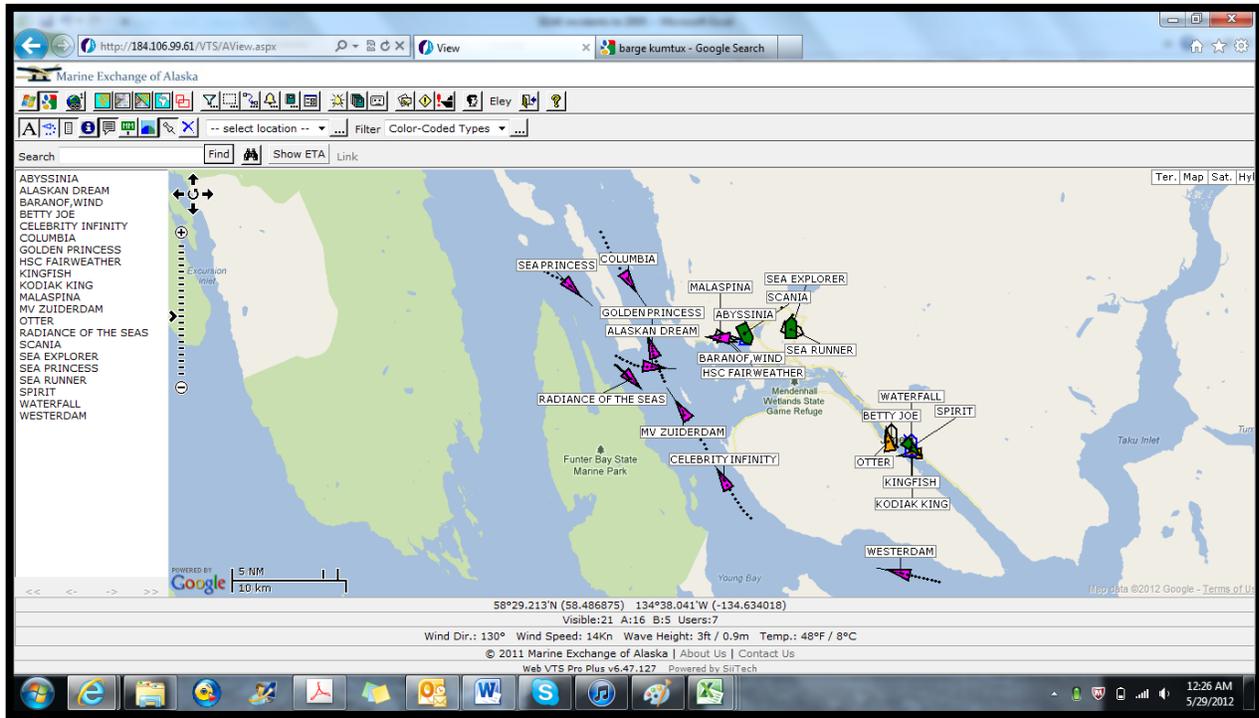


Figure 14: Cruise ships, ferries and passenger vessels at the confluence of Saginaw and Favorite Channels west of Auke Bay at 12:30 am, May 28, 2012.

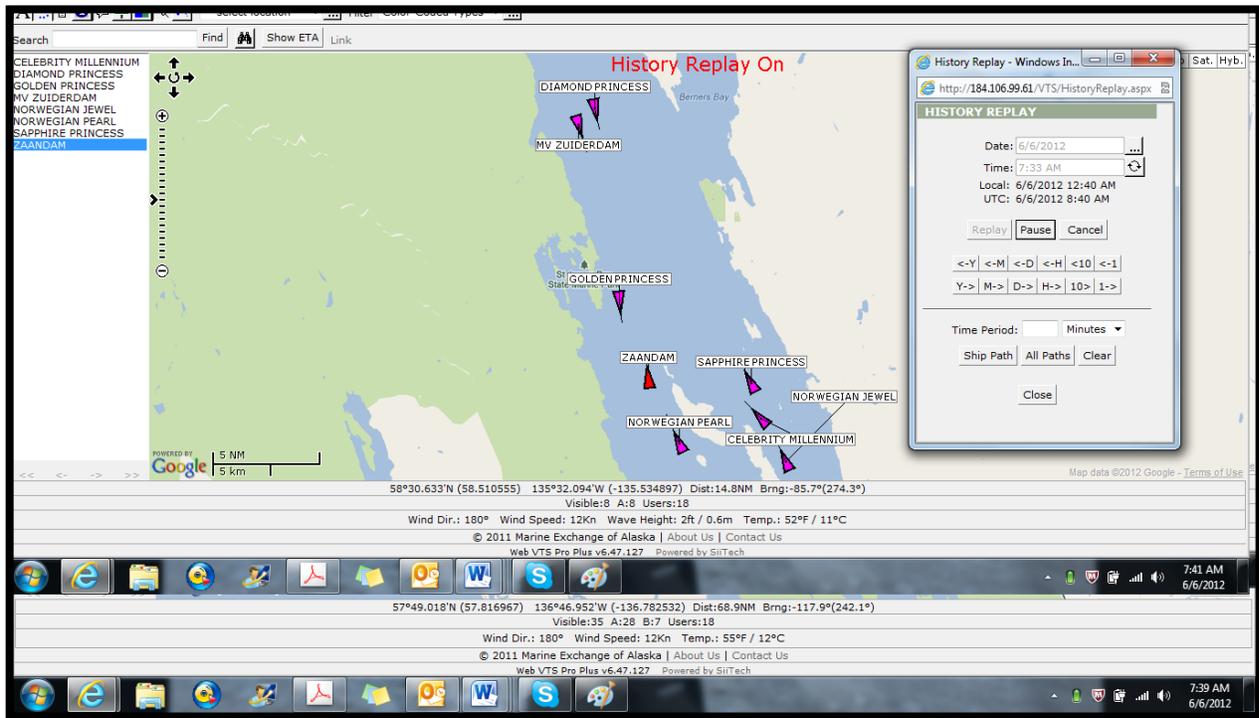


Figure 15: Cruise ship activity in lower Lynn Canal, 12:40 am June 6, 2012

D. Tongass Narrows

Approximately 10 nm long, Tongass Narrows is straight and well-marked. Any difficulties arise from the heavy traffic, particularly in the summer months. This is comprised of ferries, cruise ships, fishing vessels, and significantly, floatplanes.

In 1999, the U.S. Coast Guard initiated a voluntary waterway management program to address traffic congestion and risks from floatplane landings and takeoffs. The Tongass Narrows Voluntary Waterway Guide (TNVWG)³² is intended for use by all vessel operators when transiting Tongass Narrows from the intersection of Nichols Passage and Revillagigedo Channel on the southeastern-most end to Guard Island on the northwest end of the narrows. This guide was developed and is being kept under review (it has been revised three times) by members of the Tongass Narrows Work Group (TNWG), which includes representatives from the U.S. Coast Guard, Federal Aviation Administration (FAA), marine pilots, commercial boat operators, waterfront facility operators and AMHS. The Tongass Narrows Voluntary Waterway Guide (rev 3) is included in this report as Appendix H.

E. Wrangell Narrows

Wrangell Narrows, a narrow, winding but well-marked channel from Sumner Strait to Petersburg requires vigilance to transit. Cruise ships and freight ships cannot make this transit, although AMHS ferries make regular runs between Wrangell and Petersburg. Tugs and barges have occasionally run aground along Wrangell Narrows.

F. Tracy Arm

Tracy Arm, the north arm of Holkham Bay, runs in a northerly direction for nine miles and then turns east for 16 miles. At its head two large glaciers, Sawyer and South Sawyer, discharge into salt water. The arm is often clogged by small icebergs for several miles and great care is needed in navigating the ice field. Both glaciers can be very active, with huge blocks of ice falling off their faces into very deep water.

This is an incredibly scenic water body and is frequented by cruise ships (seven per week on average) and passenger vessels. The VWG provides several recommendations regarding transit and the number of deep draft vessels that can be in Tracy Arm at any one time (see Page 8 of Appendix G). There have been no reports of a significant cruise ship mishap in Tracy Arm. In 1999 a passenger vessel with overnight accommodations, *SPIRIT of 98*, hit an uncharted rock which lead the captain to intentionally ground the vessel.

G. Snow Passage

Snow Passage³³ is a channel (500 yards in width at its most narrow point) between Zarembo and Bushy Islands at the northern end of Clarence Strait. It is the preferred route for large ships traveling between Juneau and Ketchikan. The transit demands a course change at the narrowest point of the passage. Large

³² TONGASS NARROWS VOLUNTARY WATERWAY GUIDE (last revision April 2010). Available from U.S. Coast Guard Marine Safety Detachment, Ketchikan.

³³ Snow Passage: 56° 16.5'N, 132° 57.1'W

ships reduce their speed when entering this area, both because of the channel restrictions and the tendency for humpback whales to congregate there. Industry and government agency spill responders have conducted oil spill contingency planning for Snow Passage, including a large command post exercise in 2006.

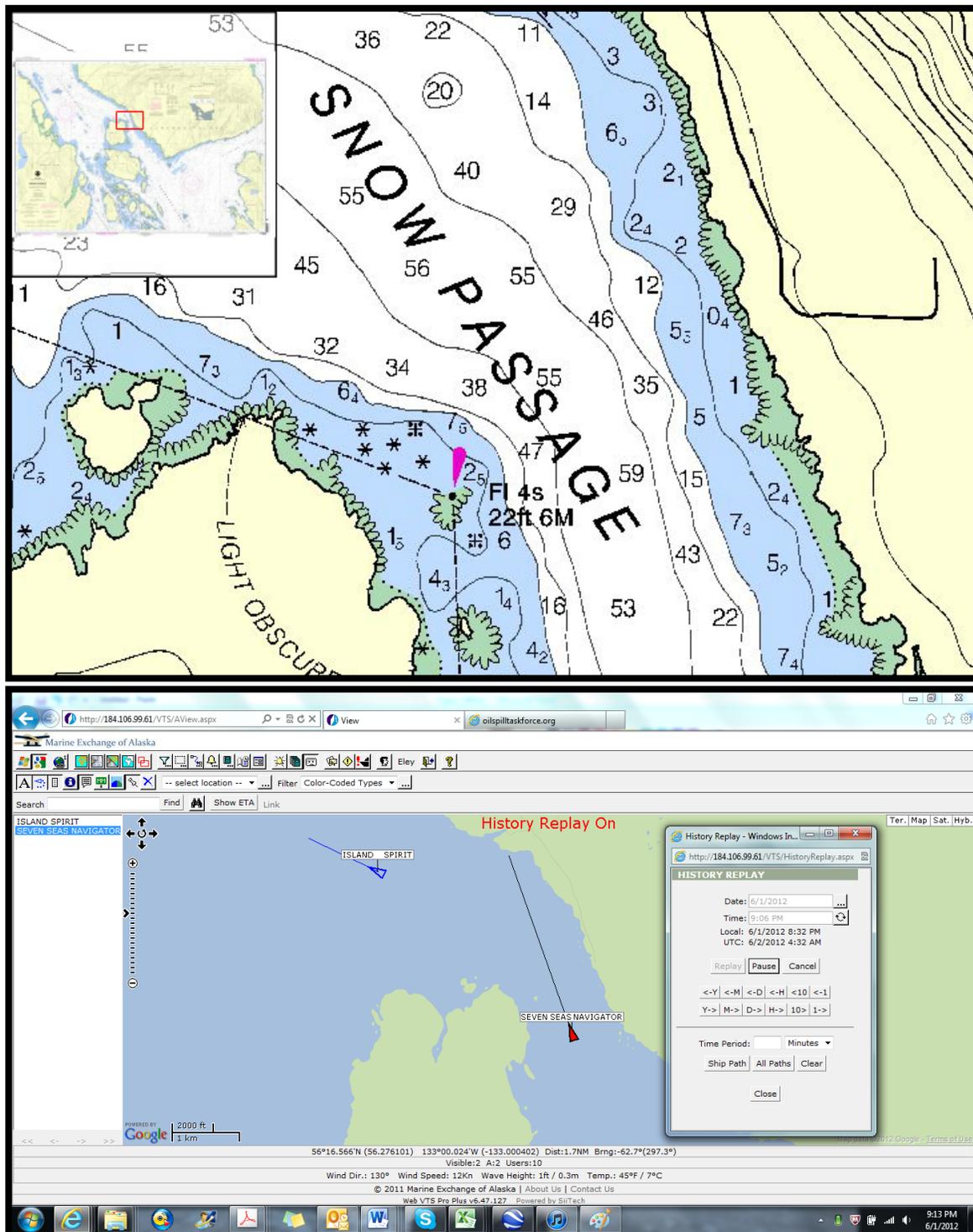


Figure 16: Snow Passage navigational chart and AIS plot showing Cruise ship SEVEN SEAS NAVIGATOR and overnight passenger vessel ISLAND SPIRIT in Snow Passage at 8:32 pm, June 1, 2012. The SEVEN SEAS NAVIGATOR was underway at 15.4 knots and the ISLAND SPIRIT was recorded at 6.4 knots.

H. Inian Pass, Cross Sound

Tidal movements of water between the Gulf of Alaska and the Inside Passage at Cross Sound, west of Glacier Bay, can create swift currents north and south of Inian Island. Although these tidal currents can exceed nine knots (Appendix E), we are not aware of any large vessel mishap caused by or exacerbated by these high velocities. Ships do not normally set an enhanced watch when transiting this area.³⁴ This area is addressed in the VWG.

I. Areas of Congestion due to Seasonal Fishing

Pilots report that in recent years the cooperation and coordination with Southeast Alaska gillnet fishing vessels has, for the most part, been effective. Traditional areas of seasonal congestion include Point Baker in Sumner Strait, the confluence of Taku Inlet and Stephens Passage, and lower Lynn Canal between Sentinel Island and Little Island. Voluntary vessel traffic procedures have been adopted for gillnet vessels and deep-draft vessels transiting Lynn Canal, the north section of Clarence Strait, Snow Passage, and Sumner Strait in the vicinity of Point Baker. Traffic lanes, about 0.2 mile wide, have been established for these areas.³⁵ The radar plots in Figures 17 and 18 show times where gillnet fishing congestion required a cruise ship to depart from the recommended track lines.

³⁴ Interview with Captain Larry Vose, Southeast Alaska Marine Pilots Association. May 7, 2012.

³⁵ Although specific mention of these voluntary agreements in the US NOAA Coast Pilot 8, Chapter 7 & 11 (2011), we could not reference to them in the Voluntary Waterway Guide or elsewhere.



Figure 17: Radar plot from northbound cruise ship during gillnet season in Lower Lynn Canal and immediately north of Lincoln Island. Green line to the northwest shows alternate route from recommended track line that the cruise ship took to avoid the gillnet fleet clustered between Sentinel Island and Vanderbilt Reef. The cruise ship passed 0.2 nm off Little Island, immediately north of Lincoln Island (large island in lower center of screen) at 58° 33.5 N, 135° 02 W. Five additional cruise ships are to the west. (Provided by Captain Larry Vose, Southeast Alaska Pilots Association.)



Figure 18: Radar plot from northbound cruise ship showing gillnet fleet extending across the entrance to Gastineau Channel, nine nm southeast of Juneau. (Provided by Captain Larry Vose, Southeast Alaska Pilots Association.).

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5. DIXON ENTRANCE

The Prince Rupert's 'competitive advantage'

The Prince Rupert Port Authority believes its Fairview Container Terminal has several advantages over other West Coast ports including:

- 1.5 days closer to China than Seattle-Tacoma
- 3 days closer to China than LA/Long Beach
- Deepest natural harbor in North America (17 meters)
- 24-hour average terminal dwell time (shortest on North American west coast)
- Prince Rupert to Chicago by rail is only 100 hours (low urban congestion) with best Rocky Mountain rail crossing from west coast (rail grade under 1%)

With regard to large vessel traffic, the dominant feature in Dixon Entrance is the Prince Rupert Fairview Container Terminal (See Table 11). One hundred fifty six (156) container ships called at the terminal in 2011. When the Fairview Phase II expansion is completed in 2014, the port authority expects 12 port calls per week or 600 container ships per year.³⁶ Prince Rupert also has a coal loading berth for ships up to 250,000 dead weight tons (DWT), a grain terminal that accommodates 145,000 DWT bulk carriers, a cruise ship dock, and two ferry terminals.

According to AIS passage-line data plots³⁷ obtained from the Marine Exchange of Alaska for 2011, 1489 vessels moved north or south between Alaska and British Columbia. Two hundred eighty eight (288) vessels moved east or west between Dixon Entrance and the Pacific Ocean during the year. Cargo ships calling at Prince Rupert dominated east-west large vessel traffic. Cruise ships, tugs and ferries dominated north-south traffic (See Table 12).

With regard to cargo ships there is a discrepancy between AIS records and company records for the Fairview Container Terminal. Terminal records

indicate that 154 containers called at the facility in 2011. That should result in 308 data passage line 'hits' on AIS. AIS indicate only 185 cargo ship transits, with many of those going to or coming from Southeast Alaska. It may be that many of the containers come to Fairview Terminal from Hecate Strait, south of Dixon Entrance. This discrepancy should be resolved in order to understand fully the impact on Dixon Entrance of the growth of the Prince Rupert container terminal.

As can be concluded from Table 12 and seen in Figure 20 there is significant crossing traffic in Dixon Entrance. These perpendicular traffic patterns are different from most of Southeast Alaska where the features of the Alexander Archipelago tend to funnel traffic in opposing directions with few significant crossing situations. Figure 19 shows somewhat discernible traffic patterns for

³⁶ Prince Rupert Port Authority. <http://www.rupertport.com/facilities/fairview>

³⁷ Passage line data plots were obtained from AIS transponder 'hits' from vessels crossing east-west or north-south lines transecting Dixon Entrance.

most of Dixon Entrance, but no recommended track lines for many of the water bodies in Southeast Alaska.

Table 4: Overview of vessels calling on Prince Rupert Fairview Terminal³⁸

Container ships arrive on Wednesday, Thursday and Saturday. Wednesday and Thursday are 1-day turnarounds, while Saturday is a 2-day turnaround.
17 container ships (3 operators) on the port
Size Range: 280 to 336 meters (879-1,055 ft)
Twenty Equivalent Units (TEUs): Max - 7,488. Average approximately 5,300
Largest Fuel Oil tank: 265k gal (or 6.3k bbls or 1,000 m ³ or 893 mt).
Speed: 10 – 26 kts.

Table 5: Dixon Entrance Traffic

Vessel Type	Transits (east or west)	Transits (north or south)	Total 2011 transits	Maximum potential growth
Cargo ship	142	43	185	790 ^a
Cruise ship	55	330	385	750 ^b
Ferry	0	302	302	302
Military/Government	2	22	24	unknown
Tanker	2	2	4	500 ^c
Overnight Passenger Vessel	1	8	9	14
Tug or Towing Vessel	3	392	395	395 ^d
Fishing or not specified	83	347	430	430
Total	288	1446	1710	3181

- a. Assumes maximum capacity at Fairview terminal (600) and Portland Canal/Stewart (180)
- b. Full capacity of 35 ship visits to Southeast Alaska per week
- c. Assumes 250 tank ship calls to Kitimat oil terminal
- d. No projected increases unless pipeline construction creates additional demand

³⁸ McNutt, C. and Neely, M. CANUSDIX 2011 general session.

http://www.akrrt.org/canusdix_2011_exercise/Presentations/01_General-Session-Opening_U.S. COAST GUARD-dxc.pdf

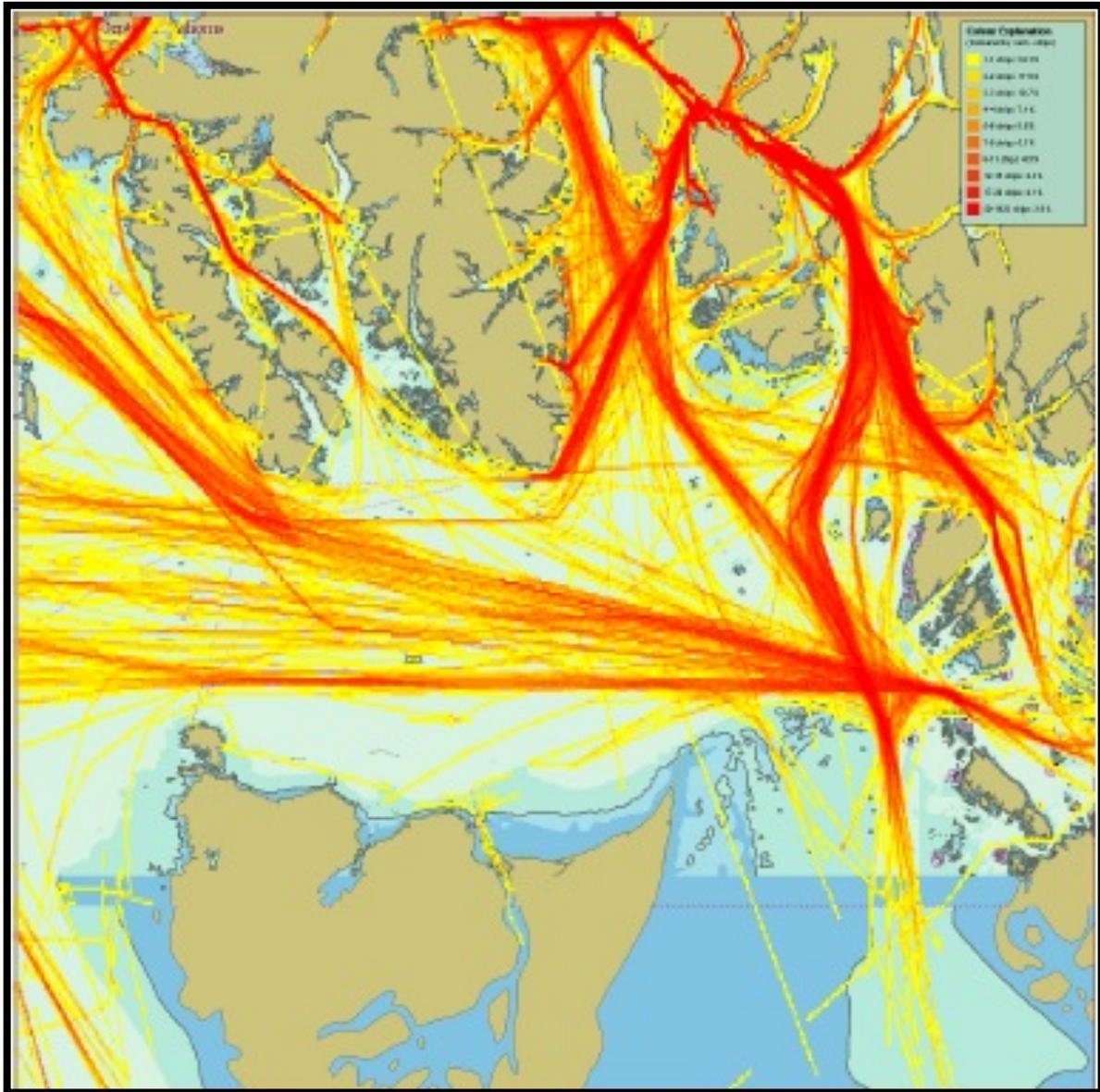


Figure 19: Dixon Entrance AIS Density Plot for Vessels underway July 1 to September 30, 2011 (heavy orange lines indicate highest numbers of vessel transits).

A. Canada's Northern Transportation Corridor and Its Potential Impact on Dixon Entrance Traffic

According to its promoters,³⁹ “the Northern Corridor spans over half of continental Canada and reaches well into the heartland of North America south of Chicago, USA. It travels through the lowest elevations of the Americas great continental divide, also known as the ‘Yellow Head Pass,’ and forms the straightest, shortest, flattest route for Asian-North American trade. Three Northern British Columbia ports provide efficient access to this corridor; Kitimat, Stewart and Prince Rupert. Each port offers unique advantages and services that meet the needs of the region and international trade.”

The growth potential for Prince Rupert has been discussed in a previous section of this report. The following sections briefly describe the ports of Stewart and Kitimat and their potential impact on Dixon Entrance traffic.

i. STEWART

Stewart (CA) and Hyder (US) straddle the US-Canada border at the end of the 57 nm long Portland Canal. The Port of Stewart advertises itself as the most northerly ice-free port located in one of the most mineral rich regions in North America. Two deep sea facilities are in operation there; Stewart Bulk Terminals (SBT) and the District of Stewart log storage and handling facility. The port indicates that there is potential for considerable expansion at both facilities.⁴⁰

Stewart Bulk Terminals²⁸

Channel Depth: 46 meters
Berthing Structure: 50,000 DWT
Concentrate Loading Rates: 700 – 800 tonnes/hr
Ship Cycle Time: 24 hrs
Shallow and Deep Water Barging Facilities
General Cargo Facilities: No
Containerized Facilities: No
Two storage facilities
Highway service

Unlike Prince Rupert, the port does not have rail service. However Highway 37, which ends at Stewart, extends along several active or proposed mines.

SBT has applied for wharf expansion and an increase in ore concentrate storage capacity with preliminary approval (subject to issuance of permits) for maximum capacity of 180 vessels per year. The number 180 was arrived at based on these conditions: (1) only one vessel at a time is allowed in Portland Canal between Triple Island and SBT; (2) travel time from Triple Island to Stewart is 12 hours; and (3) loading time for a vessel at the SBT is 24 hours. The turnaround time for one vessel is 48 hours, which would accommodate 180 vessels per year.⁴¹

The existing facilities have the capacity for roughly 130,000 tonnes of concentrate.

³⁹ Invest in Northwest. <http://investnorthwestbc.ca/transportation/pacific-gateway>

⁴⁰ <http://www.stewart-hyder.com/company/bulkterminals.html>

⁴¹ Consultation with **Leigh-Ann Fenwick**, Major Projects Office, Ministry of Forests, Lands and Natural Resource Operations, Government of British Columbia. June 7, 2012

It is on-site concentrate storage that limits the number of vessels. With existing concentrate storage of 130,000 tonnes it would take three 50,000 metric ton capacity ships a month to move this amount of ore concentrate, or 36 vessels per year.

AIS records show that only two freight ships and two barges called at Stewart during 2011. However, AIS destination data requires manual input from the operator and therefore is not a reliable indicator of overall traffic volumes at a particular port.

In summary, in the near term and subject to mine activity in British Columbia, Hyder/Stewart traffic may grow to 36 vessel port calls per year (72 Portland Canal transits). Stewart has a maximum capacity of 180 ships per year.

ii. KITIMAT

The Northern Gateway project proposes to construct two pipelines to a marine terminal at Kitimat in British Columbia from Bruderheim, Alberta. One pipeline will transfer a mixture of crude oil and condensate west from Bruderheim to Kitimat and the second pipeline will carry condensate east from Kitimat to Bruderheim. The marine terminal at Kitimat would load and off-load up to 250 tank ships a year, of which 60 could be 320,000 DWT.⁴² There is considerable public opposition to this project. It is likely this facility is at least three years from commencing operations.

⁴² Transport Canada. February 2012. TERMPOL Review Process Report on the Enbridge Northern Gateway Project.

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6. VESSEL ACTIVITY IN PERSPECTIVE

Table 6: Comparing vessel traffic between Southeast Alaska, Dixon Entrance and Cook Inlet

	Southeast Alaska	Dixon Entrance transits^b (2011)	Cook Inlet transits one way^a (2010)⁴³
Cruise ships	450 transits through SEAK	385	26
Ferries	328 operating- weeks ^c	302	228 (estimate 9.5 operating- weeks)
All freight and cargo ships	74 (to or from SEAK) (2011)	185	476 (to or from Anchorage)
Overnight passenger vessels ^d	236 operating- weeks	9	4
Tank ships (crude or product)	0	4	212
Non-resident tugs moving with and without barges	>400	395	368
Tank barges ^e	24 (+resident barge)	UNK	204

Notes:

- One vessel port call to Cook Inlet equals two transits.
- Each north or south AIS passage line 'hit' counted as one transit.
- Given that some ferries do not operate outside of Southeast Alaska, calculating ferry transits is not useful for comparisons.
- Most overnight passenger vessels travel to Southeast Alaska once per year, then remain within SEAK from May through September.
- At least one tank barge operates within Southeast Alaska, supplying fuel for smaller communities and industrial operations.

⁴³ From Cape International Inc (January 2012) Cook Inlet Vessel Traffic. Report to the Cook Inlet Risk Assessment Advisory Work Group.

Table 7: Largest Representative Vessels by type

Vessel Name	Type/Service	Length	Gross Tons	Total Oil Capacity (bbls)	Largest Oil Tank (bbls)
<i>LUCAS OLDENDORFF</i> ⁴⁴	Ore Carrier	534	19982	11409 Heavy fuel oil (HFO)	2335
<i>DISNEY WONDER</i>	Cruise Ship	964	83308	14170 HFO	1307
<i>POS JADE</i>	Log Carrier	576	19800	11112 HFO	3745
<i>KENNICOTT</i>	Ferry	344	9978	5030 Diesel	250
<i>SEA LION</i>	Passenger vessel with overnight accommodations	146	630	260 Diesel	UNK
<i>Le CHEVAL ROUGE</i> ⁴⁵	Tug, Alaska local (3500 hp)	90		762 Diesel	238
<i>COSCO PRINCE RUPERT</i> ⁴⁶	Container ship calling at Prince Rupert, BC	1054	91,051	34,700 HFO	6290
<i>CASCADES</i>	Tank barge bringing fuel from Anacortes, WA			67,000 Gasoline, avgas, diesel	
<i>PM-230</i>	Tank barge servicing local communities			25,000 Gasoline, avgas, diesel	

⁴⁴ Information provided by Alaska Department of Environmental Conservation (ADEC) for *LUCAS OLDENDORFF*, *DISNEY WONDER*, *POS JADE*, and *KENNICOTT*.

⁴⁵ Information from AMAK Towing

⁴⁶ Information from Cecil McNutt, U.S. Coast Guard District 17

7. VESSEL CASUALTIES IN SOUTHEAST ALASKA

We examined 6518 Southeast Alaska marine incident reports to the U.S. Coast Guard from January 1, 1990 through April 8, 2012. These records included vessel casualties, personnel mishap, and reports of pollution from vessels and marine facilities.

After deleting entries related solely to facilities, fishing vessels, pleasure craft, small passenger vessels without overnight accommodations, and personal injuries which did not place a vessel at risk of mishap, the recorded casualties were grouped by initial casualty events. These included:

- Allisions (collision with a fixed object: dock, ice⁴⁷)
- Collisions
- Flooding, sinking or capsizing
- Grounding
- Fire or explosion
- Reduction of vessel maneuverability through material or electrical failure, loss of propulsion or steering
- Oil spill not connected to any incident report listed above⁴⁸

The result is 487 separate incident reports for large vessels operating in Southeast Alaska, or 3% of total Alaska reports and 8% of the total reports from Southeast Alaska (See Figure 20). The casualty types (Figure 21) do not necessarily depict the root cause of the event. For example, the 52 groundings reported were caused by human error, uncharted rocks (possibly), equipment failure, or a combination of these.

Close-quarters or near-miss incidents are not required to be reported. Near-miss reports are helpful in determining areas of risk.⁴⁹ With the exception of a fire on a barge laden with container boxes, there were no reported incidents of hazardous material release. Table 8 groups all casualty incident types by vessel category.

⁴⁷ Icebergs are not 'fixed objects' but are designated as such in U.S. Coast Guard data entries.

⁴⁸ Because the MISLE entries focused on initial events, oil spills are likely underreported. For example, there were several reports of sinking or total loss due to fire. Invariably, small amounts of oil leak from vessels subject to these types of casualties. We assume, however, that if the spills were significant the U.S. Coast Guard investigators would have reported them.

⁴⁹ The New Zealand Maritime Safety Agency recently released a report of ferry safety in Cook Strait where much use was made of near miss reports. See: <http://www.msa.govt.nz/publications/general/CookStraitReview.pdf>

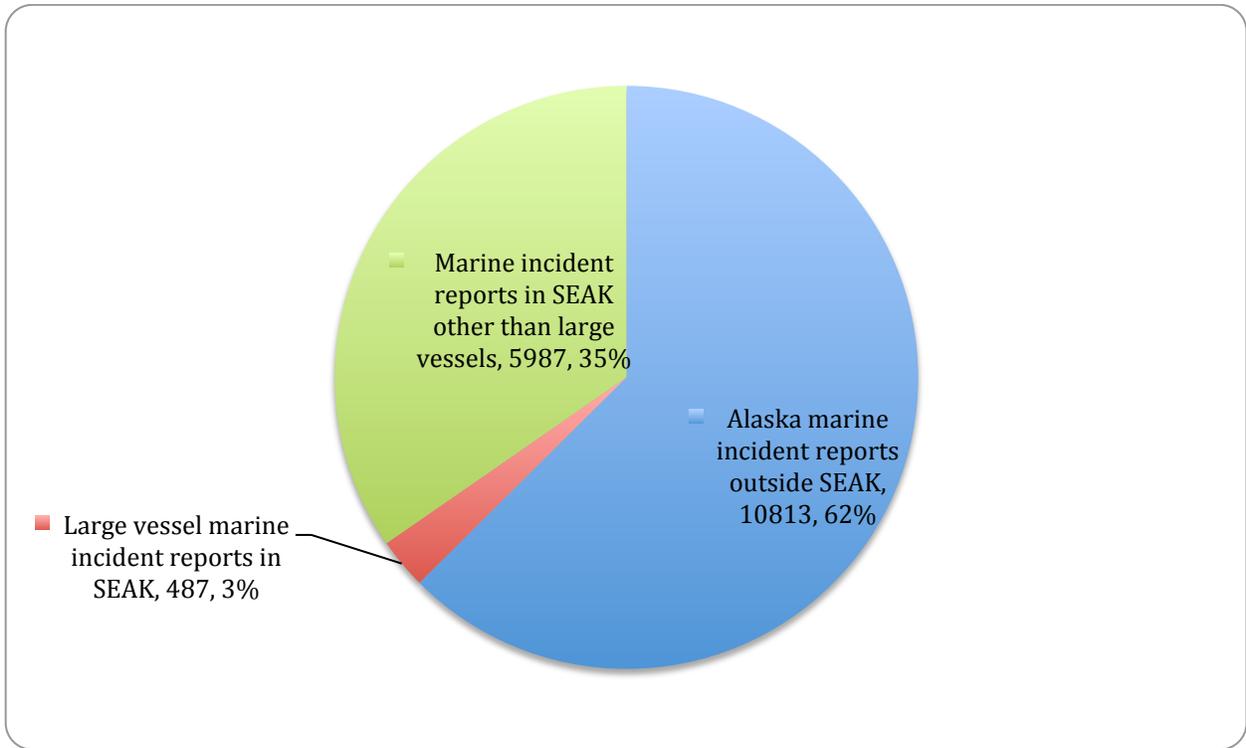


Figure 20: Incident reports by location (1990 - April 8, 2014)

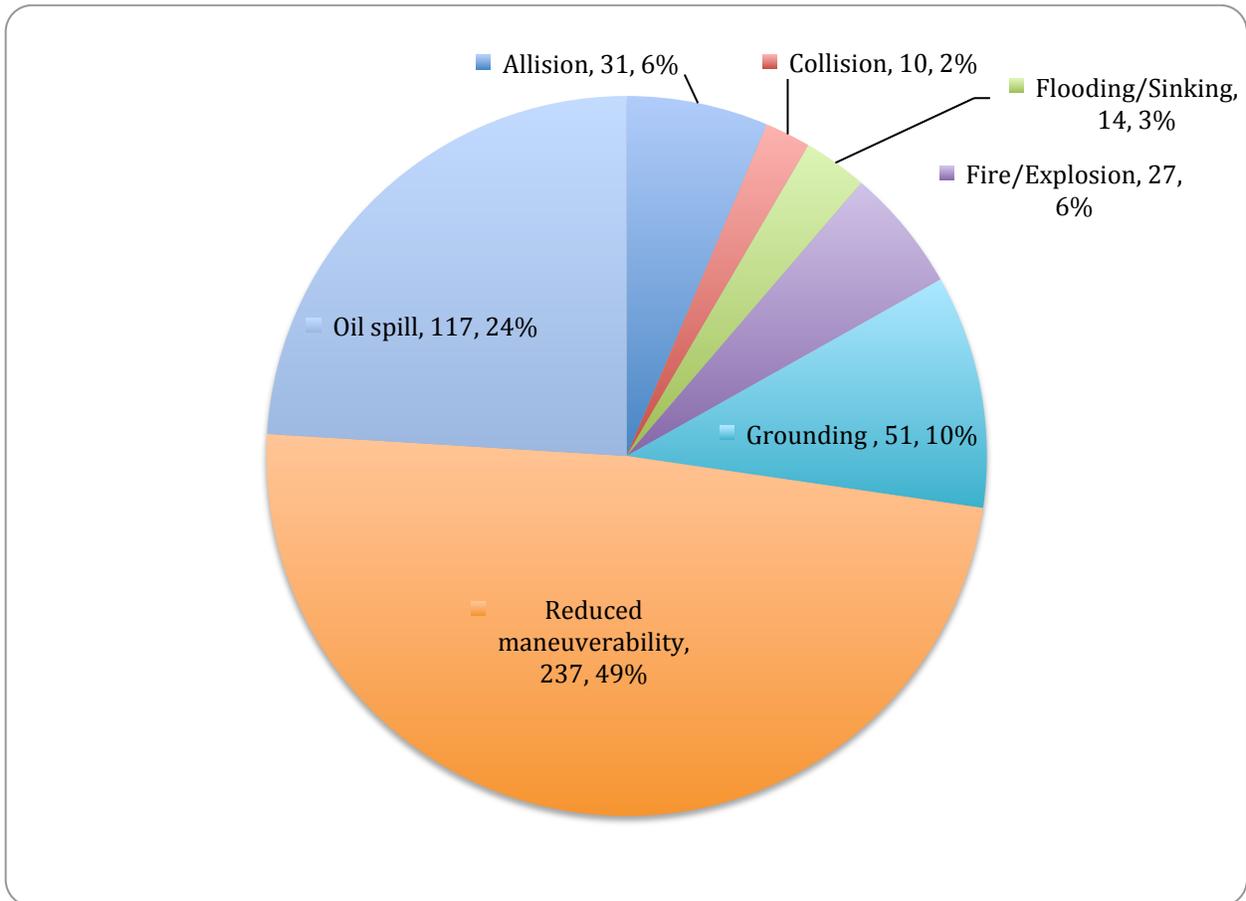


Figure 21: Large vessel incident reports for Southeast Alaska by event type

A. Casualty and Incident Report Discussion and Analysis

There have been several casualties in Southeast Alaska significant enough to warrant investigation by the National Transportation Safety Board. These reports are summarized in Appendix F. By and large, the groundings of cruise ships, passenger vessels and ferries were caused by poor bridge resource management.

MISLE entries in the U.S. Coast Guard require some interpretation in order to obtain meaningful metrics that can assist in risk analysis and contingency planning.

- i. Reduced maneuverability ‘incidents’ account for nearly 50% of the reports and AMHS ferries reported most of those. These include electrical or material failure and loss of power or propulsion. These incidences seldom lead to vessel groundings or other significant casualties. The high number of reports may be because AMHS ferries are US flagged vessels inspected by the U.S. Coast Guard. This group of vessels will have a disproportionate number of reports when compared to foreign vessels.
- ii. The highest number of oil spill reports (those without other contributing causes) were attributed to cruise ships. Cruise ships are known to have a high rate of self-reporting. All reports were classified as minor spills.
- iii. The majority of the fires (66%) were reported by cruise ships (11) and AMHS ferries (9). This is a small number over a 22-year period. Also, the largest vessels included in this study which carry up to 5000 persons would logically generate the greatest number of minor fire reports.
- iv. Groundings were highest for small passenger vessels with overnight accommodations. These vessels operate in remote areas near shorelines.
- v. The few but significant groundings of cruise ships were the result of poor bridge resource management or inadequate voyage planning. Cruise ship operators and marine pilots have addressed the root causes of cruise ship groundings in the early 1990s through: enhanced navigational aids and training, bridge resource management, and voluntary guidelines for special areas developed through the Marine Safety Task Force.
- vi. Tank barges were the subject of few incident reports of any type.

B. Summary of Vessel Casualties Reported to U.S. Coast Guard in Southeast Alaska

Table 8: Summary of U.S. Coast Guard vessel incident reports. January 1, 1990 through April 8, 2012 (cruise ships, ferries, passenger vessels with overnight accommodations, freight ships, tugs, oil barges, and dry cargo barges).

ACCIDENT OR EVENT		COMMENTS
Allision		
5	Cruise ship	Three ships reported damage from allisions with ice near Hubbard Glacier (2) and Tracy Arm (1). Two incidents occurred while docking with \$110,000 and \$95,000 in damages respectively.
4	Passenger vessel	Damage costs ranged from \$500 - \$13,000
8	Ferry	Three with reported damages between \$10,000 - \$45,000
2	Cargo ship	\$80,000 in reported damages for one incident.
5	Tug	Minor or no damage reported in all cases.
3	Tank Barge	Contact with an aid to navigation in one incident.
4	Tug/Dry cargo barge	Contact with an aid to navigation.
31	Total	
Collision		
0	Cruise ship	
2	Passenger vessel	One collision between passenger vessel and fishing vessel resulted in \$110,000 in reported damages
0	Ferry	
1	Cargo ship	\$2500 in damages reported
6	Tug	\$20,000 in damages reported in one incident. Near miss reported between tug and cruise ship in another incident.
0	Tank Barge	
1	Tug/Dry cargo barge	No damage reported
10	Total	
Flooding/Sinking/Capsize		
0	Cruise ship	
1	Passenger vessel	Minor flooding
2	Ferry	Minor flooding
1	Cargo ship	Minor flooding
8	Tug	\$100,000, \$150,000, \$185,000 and \$750,000 in damages

ACCIDENT OR EVENT		COMMENTS
		reported in four cases, respectively.
1	Tank Barge	Flooding, no damage of monetary value reported
1	Tug/Dry cargo barge combination	\$250,000 in damages reported
14	Total	
Fire or Explosion		
11	Cruise ship	Fire on board C/S Universe Explorer caused several deaths and required cruise to be canceled. One main engine fire reported in another incident. Remaining incidents did not appear to compromise safe navigation or pose a threat to the environment.
2	Passenger vessel	Minor damage reported.
9	Ferry	\$750,000 and \$80,000 in damages reported in two cases. Two other incidents involved service generator fires resulting in loss of power, one of which required passengers to be evacuated to another ferry.
0	Cargo ship	
4	Tug	One report of \$125,000 in damages.
0	Tank Barge	
1	Tug/Dry cargo barge combination	Fire on dry freight barge
27	Total	
Grounding		
4	Cruise ship	Three were categorized as major marine casualties. 1. NIEUW AMSTERDAM: south of Ketchikan, August 1994. 2. STAR PRINCESS: Poundstone Rock, June 1995. 3. SUMMIT: Yakutat, July 2003
19	Passenger vessel	Five required evacuation of passengers and salvage.
5	Ferry	One grounding (LECONTE, 2004) resulted in near sinking of vessel and required evacuation, salvage and extensive repair. In another incident, an unmanned ferry broke from moorings in high winds and was blown aground.
3	Cargo ship	The database did not provide any specifics regarding the incidents reported.
11	Tug	No monetary damage reported for any of the incidents.
1	Tug/Tank barge	Grounding in Wrangell Narrows with \$25,000 in damages reported.
7	Tug/Dry cargo barge	\$150,000 in damages reported for one incident.

ACCIDENT OR EVENT		COMMENTS
50	Total	
Reduction in ability to maneuver or operate		
28	Cruise ship	Four reports of loss of propulsion or power
41	Passenger vessel	The database did not provide any specifics regarding the incidents reported.
147	Ferry	One report of \$75,000 in electrical damages and another report of \$80,000 in heavy weather damage.
3	Cargo ship	The database did not provide any specifics regarding the incidents reported.
17	Tug	One material failure reported at \$75,000
1	Tank Barge	Report of hull separation; no damage costs reported.
0	Tug/Barge combination	
237	Total	
Oil spill not connected to another event		All reported as minor oil discharge
49	Cruise ship	
15	Passenger vessel	
21	Ferry	
0	Cargo ship	
25	Tug	
7	Tank Barge	
0	Tug/Barge combination	
117	Total	

8. RECOMMENDATIONS AND CONCLUSIONS

- A. This report and its preliminary vessel casualty analysis should be reviewed by an in-house or multi-agency ad hoc work group in order to decide whether any additional research or action should be undertaken.
- B. Detailed casualty analysis and risk assessment was beyond the scope of this report. However, our preliminary review did suggest some logical areas for further study. These include:
 - A more detailed review of vessel casualties by vessel operating-weeks and location
 - Selective and more in-depth review of incidents reported as ‘reduction in ability to maneuver’
 - Review existing geographic response strategies (GRS) and past exercise scenarios as they relate to the ‘transit areas of interest’ listed in Section 4. Identify any gaps or additional contingency planning needed
 - Perform additional spill trajectory modeling for Dixon Entrance
 - Study the types of freight barges passing through the region. AIS data suggest that tugs move freight barges through Southeast Alaska 150-190 times per year on their way to or from Western Alaska. Given that these vessels do not make port calls in Southeast Alaska, little is known about the cargoes carried, which may include hazardous material.
- C. The U.S. Coast Guard, State of Alaska, and the Government of Canada should continue a dialogue regarding the best management of risks from the increasing vessel traffic in Dixon Entrance. Consider chartering a stakeholder-driven workgroup, similar to the Aleutian Islands and Cook Inlet risk assessment workgroups. The Dixon Entrance risk assessment workgroup could continue the assessment begun in this report and address the probability, consequence, and best prevention and mitigation efforts for vessel casualties on this water body.

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10. APPENDICES

Appendix A: Glossary

Appendix B: Acronyms

Appendix C: CG-2692, Marine Casualty Report

Appendix D: COTP letter to Greens Creek Mine regarding ships entering Hawk Inlet

Appendix E: Tidal current velocities at Inian Pass, Hawk Inlet and Tracy Arm

Appendix F: Summary of selected vessel casualties

Appendix G: Voluntary Waterway Guide

Appendix H: Tongass Narrows Voluntary Water Guide (rev 3)

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APPENDIX A: GLOSSARY

Advance Notice of Arrival (ANOVA): Required by federal regulations for vessels entering U.S. waters. The notice is usually required to be given to the U.S. Coast Guard 72 hours in advance.

Advection:

Allision: collision with a fixed object

Archipelago: a large body of water with many islands

Call Sign: Vessel unique alpha-numeric radio call sign.

Condensate: Natural gas condensate or “wet gas”. Gas oil which remains liquid when recovered from gas reservoirs. Condensates are very similar to light stabilized crude oil.

Confluent: flowing together

Conning: responsibility for the steering of a ship

Dry cargo ships: Cargo ships that carry bulk or packaged goods.

Foc’sle: The forecandle of a ship, commonly spelled as foc’sle to reflect the truncated pronunciation used by mariners, is the forward part of the ship or bow

Freight barge: In Southeast Alaska, primarily open deck barges designed to ship freight containers.

Gyro compass: a navigational compass containing a gyroscope

Inside Passage: the naturally protected waterway from Seattle to Skagway in southeastern Alaska and British Columbia.

International Maritime Organization (IMO): An agency of the United Nations that specializes in measures to improve safety and security of international shipping and reducing marine pollution from ships.

IMO Number: A ship’s unique international identity number.

Maritime Mobile Service Identity (MMSI): A series of nine digits which are sent in digital form over a radio frequency channel in order to uniquely identify ship stations, coast stations, coast earth stations, and group calls.

Moorage: Typically, a place away from a wharf or dock where a vessel can connect to a mooring buoy. This is not the same as an anchorage which is a designated area that a vessel can use its anchor to hold position.

Operating week: 168 hours of accumulated time in Southeast Alaska for a single vessel, whether moored or underway

Nautical mile: Equal to 1.15 statute miles or approximately 2000 yards.

Panamax class ships: A ship that can just pass through the locks of the Panama Channel. Panama Canal maximum ship dimensions are 965-ft length, 106-ft beam, and 39.5-ft draft.

Passenger vessels with overnight accommodations: Within the context of this study, a vessel carrying passengers for hire where berthing is provided.

Port call: As used in this report, a stop at a port by any vessel.

Resident vessels: As used in this report, vessels that remain in Southeast Alaska for most of the year.

Spill Trajectory Modeling: a numerical computer model that simulates the likely trajectory of a surface oil slick

Tank barge: A barge designed to carry liquid cargo.

Tonnes: Metric tons equal to 1000 kilograms or approximately 2200 pounds. Tonnes is the most common international unit for fuel oil or oil as cargo.

Transient vessels: In contrast to resident vessels, transient vessels make calls or pass through Southeast Alaska. These vessels are operated the majority of time elsewhere.

Transits: As used in this report, voyages to locations within Southeast Alaska or Dixon Entrance.

Transponder: An AIS device that receives a radio signal and automatically transmits a different, unique, identifying signal.

Tugboat or tug: Strong v-hull shaped boat used for maneuvering ships into and out of port or to pull barges by hawser.

Twenty Foot Equivalent Unit (TEU): A unit of measurement equal to the space occupied by a standard twenty foot container. Used in stating the capacity of container vessel or storage area. One 40 ft. Container is equal to two TEU's. See container.

Underway operating week: 168 hours of accumulated time in Southeast Alaska while underway at any speed.

Vessel: A ship, boat or barge.

Vessel operator: A firm that charters vessels for its service requirements, which are handled by their own offices or appointed agents at ports of call. Vessel operators also handle the operation of vessels on behalf of owners.

Vessel traffic services (VTS): A marine traffic monitoring system established by government, harbor or port authorities, to provide active monitoring and navigational advice for vessels in particularly confined and busy waterways.

Wharf: The place at which ships tie up to unload and load cargo. The wharf typically has front and rear loading docks (aprons), a transit shed, open (unshedded) storage areas, truck bays, and rail tracks.

APPENDIX B: ACRONYMS

ADEC	Alaska Department of Environmental Conservation
AIS	Automated Identification System
AMHS	Alaska Marine Highway System
ANOA	Advanced Notice of Arrival
ARPA	Automatic Radar Plotting Aids
bbf	barrels
BC	British Columbia
COTP	Captain of the Port
DGPS	Differential Global Positioning System
DWT	Dead Weight Tons
ECDIS	Electronic Charting and Display Information System
FAA	Federal Aviation Administration
GNOME	General Operational Modeling Environment
GPS	Global Positioning System
GRS	Geographic Response Strategies
GT	Gross Tons
IFA	Inter-Island Ferry Authority
IMO	International Maritime Organization
LA	Los Angeles
LOA	Length Overall
MISLE	Marine Information for Safety and Law Enforcement
MMSI	Maritime Mobile Service Identity
MSTF	Marine Safety Task Force
MXAK	Marine Exchange of Alaska
nm	nautical mile
NOAA	National Oceanographic and Atmospheric Administration
NTSB	National Transportation Safety Board
OICNW	Officer in Charge of the Navigational Watch
OR&R	Office of Response and Restoration
PPU	Pilot Portable Unit
RO-RO	Roll on-Roll off
SBT	Stewart Bulk Terminals
SEAK	Southeast Alaska
SOLAS	Safety of Life at Sea
TEU	Twenty foot equivalent
TNVWG	Tongass Narrows Voluntary Waterway Guide
TNWG	Tongass Narrows Work Group
US	United States
USCG	United States Coast Guard
VTS	Vessel Traffic Services
VWG	Voluntary Waterway Guide

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APPENDIX C: CG-2692, MARINE CASUALTY REPORT

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U.S. DEPARTMENT OF HOMELAND SECURITY U.S. COAST GUARD CG-2692 (Rev. 06-04)	<h2 style="margin: 0;">REPORT OF MARINE ACCIDENT, INJURY OR DEATH</h2>	RCS No. G-MOA MISLENOTIFICATION NUMBER
---	--	---

SECTION I. GENERAL INFORMATION

1. Name of Vessel or Facility		2. Official No.		3. Nationality		4. Call Sign		5. USCG Certificate of Inspection issued at:			
6. Type (Towing, Freight, Fish, Drill, etc.)			7. Length		8. Gross Tons		9. Year Built		10. Propulsion (Steam, diesel, gas, turbine...)		
11. Hull Material (Steel, Wood...)		12. Draft (Ft. - in.) FWD AFT.		13. If Vessel Classed, By Whom: (ABS, LLOYDS, DMV, BV, etc.)			14. Date (of occurrence)		15. TIME (Local)		
16. Location (See Instruction No. 10A)								17. Estimated Loss of Damage TO:			
18. Name, Address & Telephone No. of Operating Co.								VESSEL _____			
								CARGO _____			
								OTHER _____			
19. Name of Master or Person in Charge				USCG License		20. Name of Pilot			USCG License		State License
				<input type="checkbox"/> YES <input type="checkbox"/> NO					<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO
19a. Street Address (City, State, Zip Code)			19b. Telephone Number			20a. Street Address (City, State, Zip Code)			20b. Telephone Number		

21. Casualty Elements (Check as many as needed and explain in Block 44.)

<input type="checkbox"/> NO. OF PERSONS ON BOARD _____ <input type="checkbox"/> DEATH - HOW MANY? _____ <input type="checkbox"/> MISSING - HOW MANY? _____ <input type="checkbox"/> INJURED - HOW MANY? _____ <input type="checkbox"/> HAZARDOUS MATERIAL RELEASED OR INVOLVED _____ (Identify Substance and amount in Block 44.) <input type="checkbox"/> OIL SPILL - ESTIMATE AMOUNT: _____ <input type="checkbox"/> CARGO CONTAINER LOST/DAMAGED _____ <input type="checkbox"/> COLLISION _____ (Identify other vessel or object in Block 44.) <input type="checkbox"/> GROUNDING <input type="checkbox"/> WAKE DAMAGE	<input type="checkbox"/> FLOODING; SWAMPING WITHOUT SINKING <input type="checkbox"/> CAPSIZING (with or without sinking) <input type="checkbox"/> FOUNDERING OR SINKING <input type="checkbox"/> HEAVY WEATHER DAMAGE <input type="checkbox"/> FIRE <input type="checkbox"/> EXPLOSION <input type="checkbox"/> COMMERCIAL DIVING CASUALTY <input type="checkbox"/> ICE DAMAGE <input type="checkbox"/> DAMAGE TO AIDS TO NAVIGATION <input type="checkbox"/> STEERING FAILURE <input type="checkbox"/> MACHINERY OR EQUIPMENT FAILURE <input type="checkbox"/> ELECTRICAL FAILURE <input type="checkbox"/> STRUCTURAL FAILURE	<input type="checkbox"/> FIREFIGHTING OR EMERGENCY EQUIPMENT FAILED OR INADEQUATE (Describe in Block 44.) <input type="checkbox"/> LIFESAVING EQUIPMENT FAILED OR INADEQUATE (Describe in Block 44.) <input type="checkbox"/> BLOW OUT (Petroleum exorption/production) <input type="checkbox"/> ALCOHOL INVOLVEMENT (Describe in Block 44.) <input type="checkbox"/> DRUG INVOLVEMENT (Describe in Block 44.) <input type="checkbox"/> OTHER (Specify) _____
---	--	--

22. Conditions

A. Sea or River Conditions (wave height, river stage, etc.) _____	B. WEATHER <input type="checkbox"/> CLEAR <input type="checkbox"/> RAIN <input type="checkbox"/> SNOW <input type="checkbox"/> FOG <input type="checkbox"/> OTHER (Specify) _____	C. TIME <input type="checkbox"/> DAYLIGHT <input type="checkbox"/> TWILIGHT <input type="checkbox"/> NIGHT	D. VISIBILITY <input type="checkbox"/> GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR	E. DISTANCE (miles of visibility) _____ F. AIR TEMPERATURE (F) _____ G. WIND SPEED & DIRECTION _____ H. CURRENT SPEED & DIRECTION _____
--	--	---	--	--

23. Navigation Information

<input type="checkbox"/> MOORED, DOCKED OR FIXED <input type="checkbox"/> ANCHORED <input type="checkbox"/> UNDERWAY OR DRIFTING	SPEED AND COURSE _____	24. Last Port Where Bound _____	24a. Time and Date of Departure _____
---	------------------------	---------------------------------	---------------------------------------

25. Towing Information

FOR TOWING ONLY	25a. NUMBER OF VESSELS TOWED	Empty	Loaded	Total	25b. TOTAL H.P. OF TOWING UNITS	25c. MAXIMUM SIZE OF TOW WITH TOW-BOAT(S)	Length	Width	25d. (Describe in Block 44.)
	_____	_____	_____	_____	_____	_____	_____	_____	<input type="checkbox"/> PUSHING AHEAD <input type="checkbox"/> TOWING ASTERN <input type="checkbox"/> TOWING ALONGSIDE <input type="checkbox"/> MORE THAN ONE TOW-BOAT ON TOW

SECTION II. BARGE INFORMATION

26. Name		26a. Official Number		26b. Type		26c. Length		26d. Gross Tons		26e. USCG Certificate of Inspection Issued at:	
26f. Year Built		26g. <input type="checkbox"/> SINGLE SKIN <input type="checkbox"/> DOUBLE		26h. Draft FWD AFT		26i. Operating Company					
26j. Damage Amount						26k. Describe Damage to Barge					
BARGE _____											
CARGO _____											
OTHER _____											

SECTION III. PERSONNEL ACCIDENT INFORMATION

27. Person Involved <input type="checkbox"/> MALE or <input type="checkbox"/> FEMALE <input type="checkbox"/> DEAD or <input type="checkbox"/> INJURED <input type="checkbox"/> MISSING		27a. Name (Last, First, Middle Name) _____ 27b. Address (City, State, Zip Code) _____		27c. Status <input type="checkbox"/> Crew <input type="checkbox"/> Passenger <input type="checkbox"/> Other
28. Birth Date _____	29. Telephone No. _____	30. Job Position _____	31. (Check here if off duty) <input type="checkbox"/>	
32. Employer - (if different from Block 18., fill in Name, Address, Telephone No.) _____				
33. Person's Time A. IN THIS INDUSTRY - B. WITH THIS COMPANY - C. IN PRESENT JOB OR POSITION - D. ON PRESENT VESSEL/FACILITY - E. HOURS ON DUTY WHEN ACCIDENT OCCURRED -			YEAR(S) _____ _____ _____ _____	MONTH(S) _____ _____ _____ _____
			34. Industry of Employer (Towing, Fishing, Shipping, Crew Supply, Drilling, etc.) _____	
			35. Was the Injured Person Incapacitated 72 Hours or More? _____	
			36. Date of Death _____	
37. Activity of Person at Time of Accident _____				
38. Specific Location of Accident on Vessel/Facility _____				
39. Type of Accident (Fall, Caught between, etc.) _____			40. Resulting Injury (Cut, Bruise, Fracture, Burn, etc.) _____	
41. Part of Body Injured _____			42. Equipment Involved in Accident _____	
43. Specific Object, Part of the Equipment in block 42., or Substance (Chemical, Solvent, etc.) that directly produced the Injury. _____				

SECTION IV. DESCRIPTION OF CASUALTY

44. Describe how accident occurred, damage, information on alcohol/drug involvement and recommendations for corrective safety measures. (See instructions and attach additional sheets if necessary).

45. Witness (Name, Address, Telephone No.)

46. Witness (Name, Address, Telephone No.)

SECTION V. PERSON MAKING THIS REPORT

47. Name (PRINT) (Last, First, Middle) _____		47b. Address (City, State, Zip Code) _____		47c. Title _____
47a. Signature _____				47d. Telephone No. _____
				47e. Date _____

FOR COAST GUARD USE ONLY

REPORTING OFFICE: _____

MISLE Incident Investigation Activity Data Entry: NONE PRELIMINARY DATA COLLECTION INFORMAL FORMAL

MISLE Incident Investigation Activity Number (if applicable): _____

Serious Marine Incident <input type="checkbox"/> Yes <input type="checkbox"/> No	INVESTIGATOR (Name) _____	DATE _____	APPROVED BY (Name) _____	DATE _____
Major Marine Casualty <input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____	_____	_____

Reset

INSTRUCTIONS

FOR COMPLETION OF FORM CG-2692

REPORT OF MARINE ACCIDENT, INJURY OR DEATH

AND FORM CG-2692A, BARGE ADDENDUM

WHEN TO USE THIS FORM

1. This form satisfies the requirements for written reports of accidents found in the Code of Federal Regulations for vessels, Outer Continental Shelf (OCS) facilities, mobile offshore drilling units (MODUs), and diving. The kinds of accidents that must be reported are described in the following instructions.

VESSELS

2. A vessel accident must be reported if it occurs upon the navigable waters of the U.S., its territories or possessions; or whenever an accident involves a U.S. vessel; wherever the accident may occur. (Public vessels and recreational vessels are excepted from these reporting requirements.) The accident must also involve one of the following (ref. 46 CFR 4.05-1):

A. All accidental groundings and any intentional grounding which also meets any of the other reporting criteria or creates a hazard to navigation, the environment, or the safety of the vessel;

B. Loss of main propulsion or primary steering, or an associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel. Loss means that systems, component parts, subsystems, or control systems do not perform the specified or required function;

C. An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route including but not limited to fire, flooding, failure or damage to fixed fire extinguishing systems, lifesaving equipment or bilge pumping systems;

D. Loss of life;

E. An injury that requires professional medical treatment (beyond first aid) and, if a crewmember on a commercial vessel, that renders the individual unfit to perform routine duties.

F. An occurrence not meeting any of the above criteria but resulting in damage to property in excess of \$25,000. Damage cost includes the cost of labor and material to restore the property to the condition which existed prior to the casualty, but it does not include the cost of salvage, cleaning, gas freeing, drydocking or demurrage.

MOBILE OFFSHORE DRILLING UNITS

3. MODUs are vessels and are required to report an accident that results in any of the events listed by Instruction 2-A through 2-F for vessels. (Ref. 46 CFR 4.05-1, 46 CFR 109.411)

OCS FACILITIES

4. All OCS facilities (except mobile offshore drilling units) engaged in mineral exploration, development or production activities on the Outer Continental Shelf of the U.S. are required by 33 CFR 146.30 to report accidents resulting in:

A. Death;

B. Injury to 5 or more persons in a single incident;

C. Injury causing any person to be incapacitated for more than 72 hours;

D. Damage affecting the usefulness of primary lifesaving or firefighting equipment;

E. Damage to the facility in excess of \$25,000 resulting from a collision by a vessel;

F. Damage to a floating OCS facility in excess of \$25,000.

5. Foreign vessels engaged in mineral exploration, development or production on the U. S. Outer Continental Shelf, other than vessels already required to report by Instructions 2 and 3 above, are required by 33 CFR 146.303 to report casualties that result in any of the following:

A. Death;

B. Injury to 5 or more persons in a single incident;

C. Injury causing any person to be incapacitated for more than 72 hours.

DIVING

6. Diving casualties include injury or death that occurs while using underwater breathing apparatus while diving from a vessel or OCS facility.

A. COMMERCIAL DIVING. A dive is considered commercial if it is for commercial purposes from a vessel required to have a Coast Guard certificate of inspection, from an OCS facility or in its related safety zone or in a related activity, at a deepwater port or in its safety zone. Casualties that occur during commercial dives are covered by 46 CFR 197.486 if they result in:

1. Loss of life;

2. Injury causing incapacitation over 72 hours;

3. Injury requiring hospitalization over 24 hours.

In addition to the information requested on this form, also provide the name of the diving supervisor and, if applicable, a detailed report on gas embolism or decompression sickness as required by 46 CFR 197.410(a)(9).

Exempt from the commercial category are dives for:

1. Marine science research by educational institutions;
2. Research in diving equipment and technology;
3. Search and Rescue controlled by a government agency.

B. ALL OTHER DIVING. Diving accidents not covered by Instruction (6-A) but involving vessels subject to Instruction (2), VESSELS, must be reported if they result in death or injury causing incapacitation over 72 hours. (Ref. 46 CFR 4.03-1(c)).

HAZARDOUS MATERIALS

7. When an accident involves hazardous materials, public and environmental health and safety require immediate action. As soon as any person in charge of a vessel or facility has knowledge of a release or discharge of oil or a hazardous substance, that person is required to immediately notify the U. S. Department of Homeland Security's National Response Center (telephone toll-free 800-424-8802 - in the Washington, D.C. area call 202-426-2675). Anyone else knowing of a pollution incident is encouraged to use the toll-free telephone number to report it. If etiologic (disease causing) agents are involved, call the U.S. Public Health Service's Center for Disease Control in Atlanta, GA. (telephone 404-633-5313). (Ref. 42 USC 9603; 33 CFR 153; 49 CFR 171.15)

COMPLETION OF THIS FORM

8. This form should be filled out as completely and accurately as possible. Please type or print clearly. Fill in all blanks that apply to the kind of accident that has occurred. If a question is not applicable, the abbreviation "NA" should be entered in that space. If an answer is unknown and cannot be obtained, the abbreviation "UNK" should be entered in that space. If "NONE" is the correct response, then enter it in that space.

9. Once completed, deliver or mail this form as soon as possible to the Coast Guard Marine Safety, Marine Inspection or Activities Office nearest the location of the casualty or, if at sea, nearest the arrival port.

NOTICE: The information collected on this form is routinely available for public inspection. It is needed by the Coast Guard to carry out its responsibility to investigate marine casualties, to identify hazardous conditions or situations and to conduct statistical analysis. The information is used to determine whether new or revised safety initiatives are necessary for the protection of life or property in the marine environment.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number.

The Coast Guard estimates that the average burden for this report is 1 hour. You may submit any comments concerning the accuracy of this burden estimate or any suggestions for reducing the burden to: Commandant (G-MOA), U.S. Coast Guard, Washington, DC 20593-0001 or Office of Management and Budget, Paperwork Reduction Project (1625-0001), Washington, DC 20503

10. Amplifying information for completing the form:

A. Block 16 - "LOCATION" - Latitude and longitude to the nearest tenth of a minute should always be entered except in those rivers and waterways where a mile marker system is commonly used. In these cases, the mile number to the nearest tenth of a mile should be entered. If the latitude and longitude, or mile number, are unknown, reference to a known landmark or object (buoy, light, etc.) with distance and bearing to the object is permissible. Always identify the body of water or waterway referred to.

B. Tug or towboat with tow - Tugs or towboats with tows under their control should complete all applicable portions of the CG-2692. SECTION II should be completed if a barge causes or sustains damage or meets any other reporting criteria. If additional barges require reporting, the "Barge Addendum," CG-2692A, may be used to provide the information for the additional barges.

C. Moored/Anchored Barge - If a barge suffers a casualty while moored or anchored, or breaks away from its moorage, and causes or sustains reportable damages or meets any other reporting criteria, enter the location of its moorage in Block (1) of the CG-2692 and complete the form except for Blocks (2) through (13). The details will be entered in SECTION II for one barge and on the "Barge Addendum" CG-2692A, for additional barges.

D. SECTION III - Personnel Accident Information - SECTION III must be completed for a death or injury. In addition, applicable portions of SECTIONS I, II and IV must be completed. If more than one death or injury occurs in a single incident, complete one CG-2692 for one of the persons injured or killed, and attach additional CG-2692's, filling out Blocks (1) and (2) and SECTION III for each additional person.

E. BLOCK 44 - Describe the sequence of events which led up to this casualty. Include your opinion of the primary cause and any contributing causes of the casualty. Briefly describe damage to your vessel, its cargo, and other vessels/property. Include any recommendations you may have for preventing similar casualties. **ALCOHOL AND DRUG INFORMATION.** Provide the following information with regard to each person determined to be directly involved in the casualty: name, position aboard the vessel, whether or not the person was under the influence of alcohol or drugs at the time of the casualty, and the method used to make this determination. If toxicological testing is conducted the results should be included; if results are not available in a timely manner, provide the results of the toxicological test as soon as practical and indicate that this is the case in block 44 of the casualty form.

APPENDIX D: COTP LETTER TO GREENS CREEK MINE REGARDING SHIPS ENTERING HAWK INLET

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
U.S. Coast Guard
Marina Safety Office

2760 Sherwood Lane, Suite 2A
Juneau, AK 99801-8545
Staff Symbol ree
Phone: (907) 463-2458

16720

RECEIVED

APR 29 1997

Kennicott
Greens Creek Mining Company
Attn: Ms. Susan McGarrigan
P.O. Box 32199
Juneau, AK 99803-2199

MAY - 2 1997

Dear Ms. McGarrigan:

The purpose of this letter is to set forth certain expectations as to the vessel type and the conditions for transit to and from your facility in Hawk Inlet.

As you well know, shiphandling is a complex skill that is acquired through practice and experience. Each vessel has its own unique properties which vary with weight, hull, shape, size, and type of power. Vessel particulars combined with severe physical waterway constraints have made Hawk Inlet one of the most challenging waterways to navigate in Southeast Alaska.

As the Captain of the Port for Southeast Alaska, I am required to address potential risks to marine safety and the maritime environment. A grounding in Hawk Inlet would not only be devastating to the surrounding environment, but would obviously severely restrict your operation. Therefore, I believe there needs to be a clear understanding by all parties as to what type and under what conditions deep draft vessels can make their transit. Rather than establish a regulated navigation area, I am requesting you follow the interim guidelines below for the movement of vessels to and from your facility in Hawk Inlet:

All vessels shall be no more than 600 feet in length with a beam width of no more than 100 feet. Vessels shall transit Hawk Inlet within 30 minutes of slack water (prior to or after), during daylight hours, in conditions of good visibility and good weather, and with an under the keel clearance of no less than 8 ft.

Again, this letter is not regulatory in nature. It's purpose is to establish interim guidelines or expectations that are intended to assist pilots, bridge teams, vessel agents, and industry in reducing the potential risk of vessel groundings in Hawk Inlet. Once updated hydrographic survey data becomes available and we gain more understanding of the risks through experience, these guidelines will be reevaluated.

Should you have any questions, require further information, or wish to respond to this letter, please do not hesitate to contact me or my project officer, LT Eileen Nally, at the above address and telephone number.

Sincerely,

W. D. ELEY
Commander, U.S. Coast Guard
Captain of the Port Southeast Alaska

Copy: Alaska Coastwise Pilots Association
Southeast Alaska Pilots Association
Southeast Stevedoring Corp

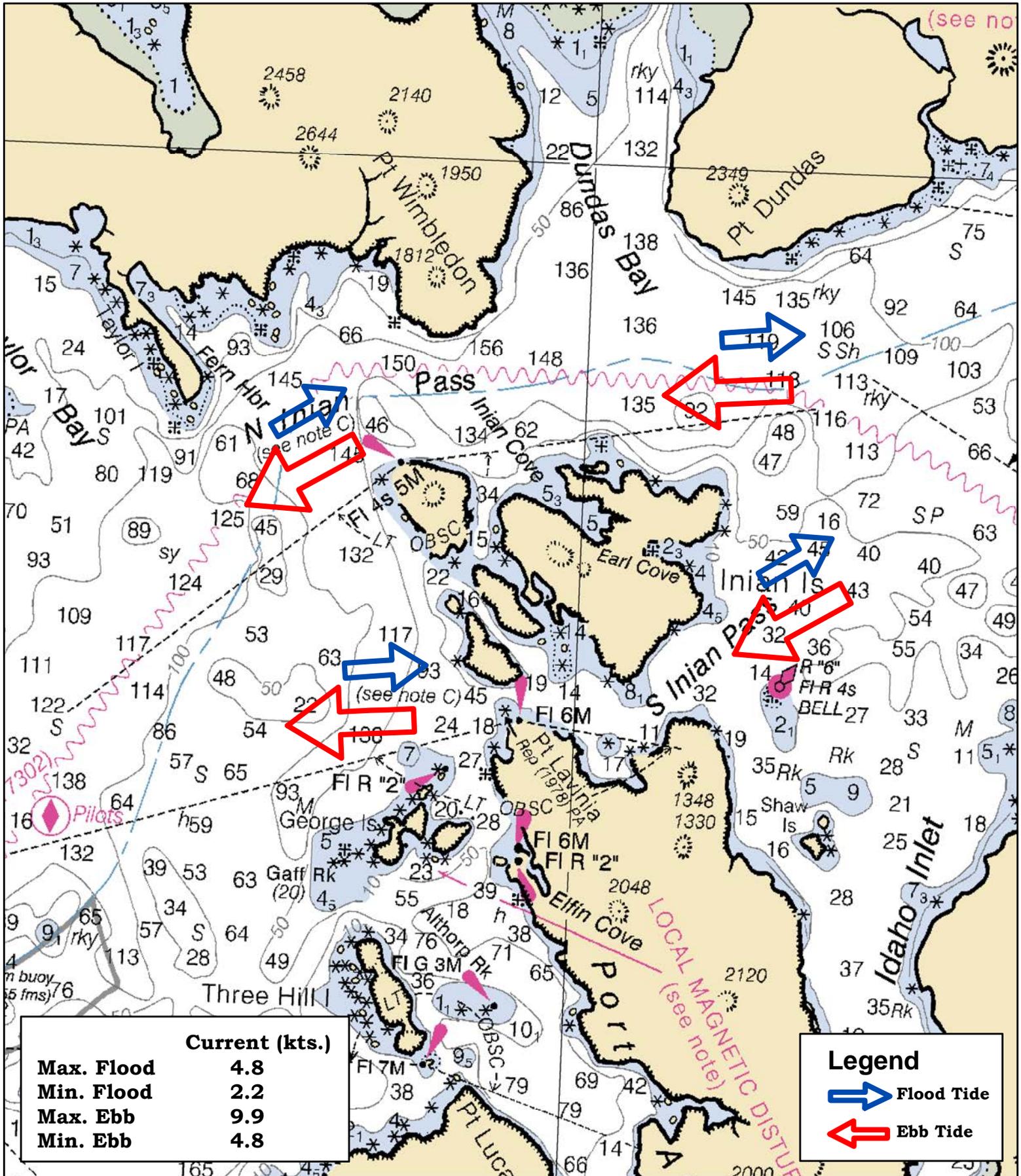
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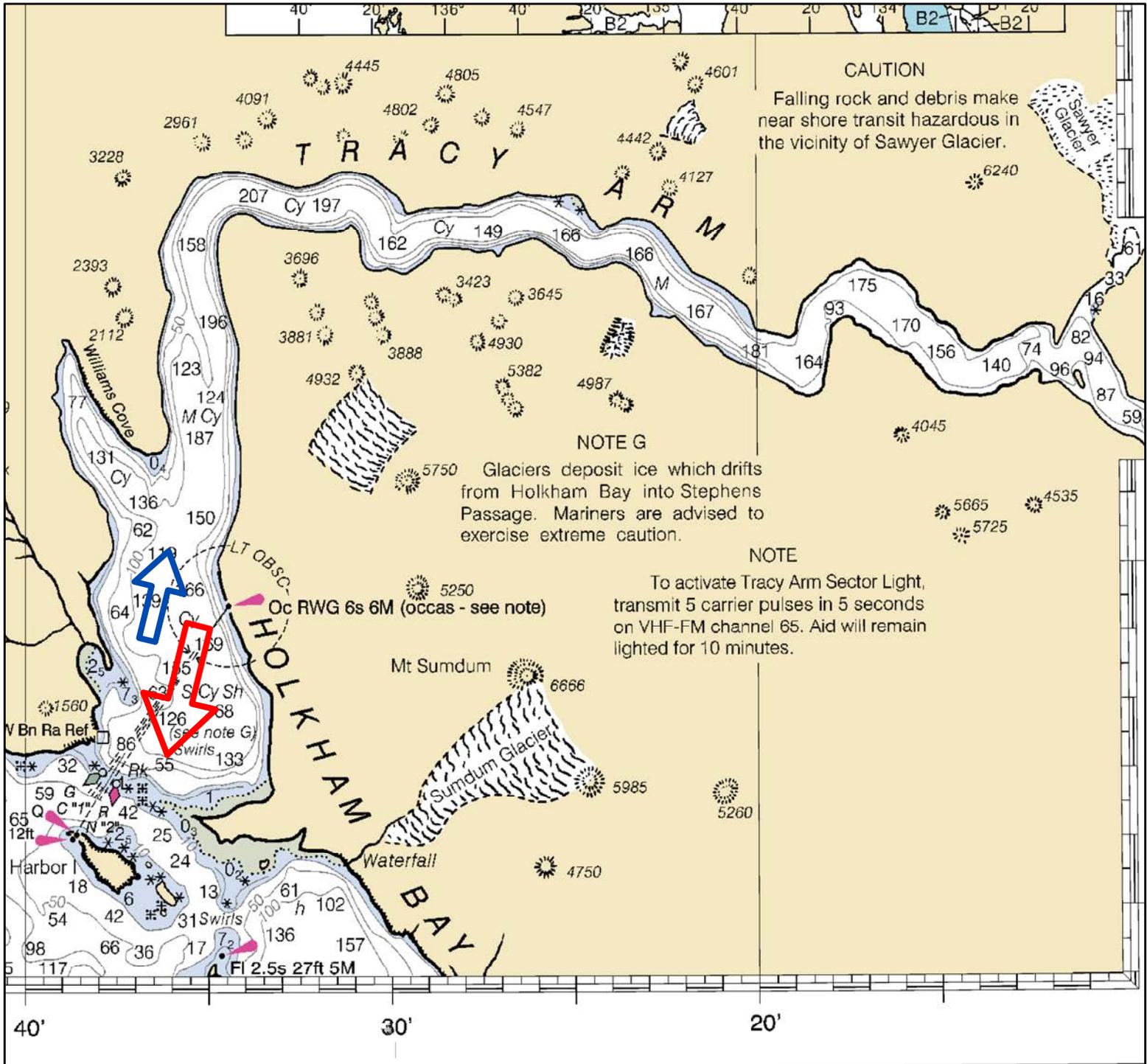
APPENDIX E: TIDAL CURRENT VELOCITIES AT INIAN PASS, HAWK INLET AND TRACY ARM

NOTE: Chartlets provided by Jim Pomplun, consultant to Southeast Alaska Petroleum Resource Organization (SEAPRO)

Inian Pass, Icy Strait



Tracy Arm, Stephens Passage



Stephens Passage to Cross Sound

173

SCALE 1:209,978

Current (kts.)	
Max. Flood	1.4
Min. Flood	0.7
Max. Ebb	4.4
Min. Ebb	1.0

LORA

Legend

 Flood Tide

 Ebb Tide

APPENDIX F: CASUALTIES OF INTEREST

Grounding of the cruise ship **NIEUW AMSTERDAM** on August 9, 1994 while the ship was underway south of Ketchikan, AK in dense fog. Grounding caused extensive damage to the props (propellers) and bulbous bow. Pollution was minor and attributed to hydraulic oil leaking from the damaged port shaft.

Cause: Navigation error and poor bridge resource management.

M/V PAC SUN (log carrier) aground, February 26, 2000 Icy Bay, north of Yakutat

Cause: Weather, improper mooring

M/V WILDERNESS ADVENTURER (passenger vessel with overnight accommodations) grounding, June 1999, Dundas Bay, Glacier Bay

Cause: Navigational watch error, fatigue

M/V SPIRIT OF 98 (passenger vessel with overnight accommodations) grounding July 1999, Tracy Arm

Cause: Uncharted rock?

AMHS Ferry LITUYA Grounding, Metlakatla, January 2009

Cause: Inadequate mooring.

Cruise Ship SUMMIT grounding, **Hubbard Glacier**, July 2003

Cause: Uncharted rock? Unknown.

The following are from National Transportation Safety Board investigations:

Fire with loss of life and injuries on cruise ship **UNIVERSE EXPLORER** in Lynn Canal, July 27, 1996

Cause: *Lack of effective oversight* by vessel operator which allowed physical conditions and operating procedures to exist that compromised the fire safety of the Universe Explorer. Contributing to the loss of life and injuries was the lack of sprinkler systems, the lack of automatic local-sounding fire alarms, and the rapid spread of smoke through open doors into the crew berthing area.

Grounding of the cruise ship **STAR PRINCESS** on Poundstone Rock, Lynn Canal, June 23, 1995

Cause: Ineffective bridge resource management; marine pilot's physical fitness for duty, the importance of bridge resource management, the pilotage practices in the Alaskan cruise industry.

Grounding of the **Alaska Marine Highway System Ferry LCONTE** near Sitka, May 10, 2004

Cause: failure of the master and the chief mate, who was conning the vessel, to recognize that the course selected by the chief mate would cause the vessel to pass on the wrong side of the navigation daymark for Cozian Reef and to pass over the reef. Contributing to the loss of awareness of the navigation situation was the fatigue of the conning officer, the chief mate, who had a significant sleep deficit because of work accomplished off watch in addition to standing a routine 6-hour watch.

Grounding of passenger Vessel ***EMPRESS OF THE NORTH*** at the intersection of Lynn Canal and Icy Strait, May 14, 2007

Cause: failure of the officer of the watch and the helmsman to navigate the turn at Rocky Island, which resulted from the master's decision to assign to the midnight-to-0400 watch an inexperienced, newly licensed deck officer who was not familiar with the route, the vessel's handling characteristics, or the equipment on the vessel's bridge.

Grounding of ***YORKTOWN CLIPPER*** in Glacier Bay, June 1993

Cause: navigational planning and positioning procedures inadequate to accurately identify the vessel's position and to warn the navigator of the danger of running aground. This was coupled with the fact that the watch officer was not qualified in radar navigation.

APPENDIX G: VOLUNTARY WATERWAY GUIDE

**2012 Southeast Alaska
Voluntary Waterway Guide**



SOUTHEAST ALASKA VOLUNTARY WATERWAY GUIDE

Revisions

*Established: June 8, 1996 Revised: April 29, 1997 Revised: January 29, 1998 Revised: January 27, 1999
Revised: March 1, 2000 Revised: April, 14, 2001 Revised: February 2002 Revised: April 2003 Revised: April
2004 Revised: April 2005 Revised: January 2006 Revised: March 2007 Revised: April 17, 2008 Revised:
April 2009 Revised: April 2010: Revised April 2011; Revised: April 2012*

*Cover photo: "Marjorie Glacier" taken by Capt Greg Styrk, SEAPA. Cover by Greg Styrk,
Northstar Navigation Web Design*

The Southeast Alaska Voluntary Waterway Guide (VWG) was developed by the Marine Safety Task Force (MSTF) and is intended for use by deep-draft vessels, primarily cruise vessels which are subject to pilotage. The VWG is published by the Southeast Alaska Pilots Association and is distributed by Cruise Line Agencies of Alaska and the United States Coast Guard. The MSTF includes representatives from:

- The United States Coast Guard
- The North West Cruise Ship Association
- Cruise Line Agencies of Alaska
- The Southeast Alaska Pilots' Association
- The Alaska Marine Highway System

Mariners should be aware that the Marine Safety Task Force has additional guidance for deep draft vessels operating in Southeast Alaska. The most recent version can be found at <http://www.seapa.com/waterway/VWG.pdf>

For more information contact:

Southeast Alaska Pilots' Association ▪ 1621 Tongass Avenue, Suite 300
Ketchikan, Alaska 99901 ▪ Phone 907-225-9696 ▪ Fax 907-247-9696
Website: <http://www.seapa.com>

Cruise Line Agencies of Alaska
P.O. Box 8080 ▪ Ketchikan, Alaska 99901
Phone 907-225-0999

North West Cruise Ship Association
100-1111 West Hastings Street ▪ Vancouver, BC, V6E 2J3

U.S. Coast Guard Sector Juneau
2760 Sherwood Lane, Suite 2A ▪ Juneau, Alaska 99801
Phone 907-463-2980

Alaska Marine Highway System
7559 N. Tongass ▪ Ketchikan, AK 99901
Phone (907) 228-7255

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Disclaimer

Prudent seamanship should be the mariner's guide.

The VWG recommends guidelines intended to assist pilots, bridge teams, cruise ship operators, and agents in improving the safety standards on Southeast Alaska's waters.

The VWG is meant to complement, not replace, federal Colregs, state laws and regulations that govern maritime traffic in the region. Prudent mariners will comply with applicable laws and not rely on the VWG as their only source of information for Southeast Alaska. Mariners are advised that traffic patterns and maritime conditions in Southeast Alaska are constantly changing.

The Marine Safety Task Force expressly disclaims any liability which may arise from the use of, or reliance on, this VWG.

COMMUNICATIONS

1. GENERAL

Good communications are essential for the marine industry to run efficiently and safely. The MSTF encourages all involved parties including pilots, bridge teams, agents, shore-based operators, the State Board of Marine Pilots, and the U.S. Coast Guard to form and maintain an efficient communications network to ensure that relevant information is quickly distributed via the most efficient means available, including written memorandums; faxes; emails; and/or telephone, cell phone, radio and personal communications.

2. BRIDGE-TO-BRIDGE COMMUNICATIONS

Vessels are encouraged to communicate via VHF Channel 13 to ensure that intentions are understood. Radio broadcasts should be kept brief and concise. Mariners should be aware that there are numerous blind spots in Southeast Alaska where radio communications are sporadic; resulting in lost transmissions. Vessels equipped with AIS are encouraged to utilize this technology and the information it provides for better awareness and safer vessel navigation.

3. PRIMARY AND SECONDARY SECURITE CALLS

- a. The MSTF recommends that Primary Securite Calls be initiated on VHF Channels 13 and 16, 30 minutes prior with a 15 minute follow up call when:
 - i) Departing from docks or anchorages
 - ii) Entering harbors or anchorages
 - iii) Entering narrow channels

When departing docks or anchorages, an additional call once the vessel is underway.

- b. It is recommended that Primary Securite Calls include the following information:
 - i) The vessel's present position and direction of travel with estimated time of departure (ETD) from docks or anchorages
 - ii) The estimated time of arrival (ETA) at harbors, anchorages, narrow channels or active fishing areas
 - iii) The vessel's voyage plan, principally the destination and intended route
 - iv) Any other relevant information that may be useful to other vessels in the area
- c. The MSTF recommends that mariners adhere to the Primary Securite Calling Points listed below. Mariners are encouraged to be aware that other considerations such as fishing openings, inclement weather, congested vessel traffic, changes in voyage plans, suspected radio blind spots, or any uncertainty regarding the intentions of other vessels might result in the necessity of additional, secondary securite calls.

- d. It is recommended that *Secondary Security Calls* include the following information:
- i) The vessel's present position and direction of travel
 - ii) The estimated time of departure (ETD) from docks or anchorages
 - iii) The estimated time of arrival (ETA) at harbors, anchorages, narrow channels or active fishing areas
 - iv) The vessel's voyage plan, principally the destination and intended route
 - v) Any other relevant information that may be useful to other vessels in the area

4. SECURITE CALLING POINTS

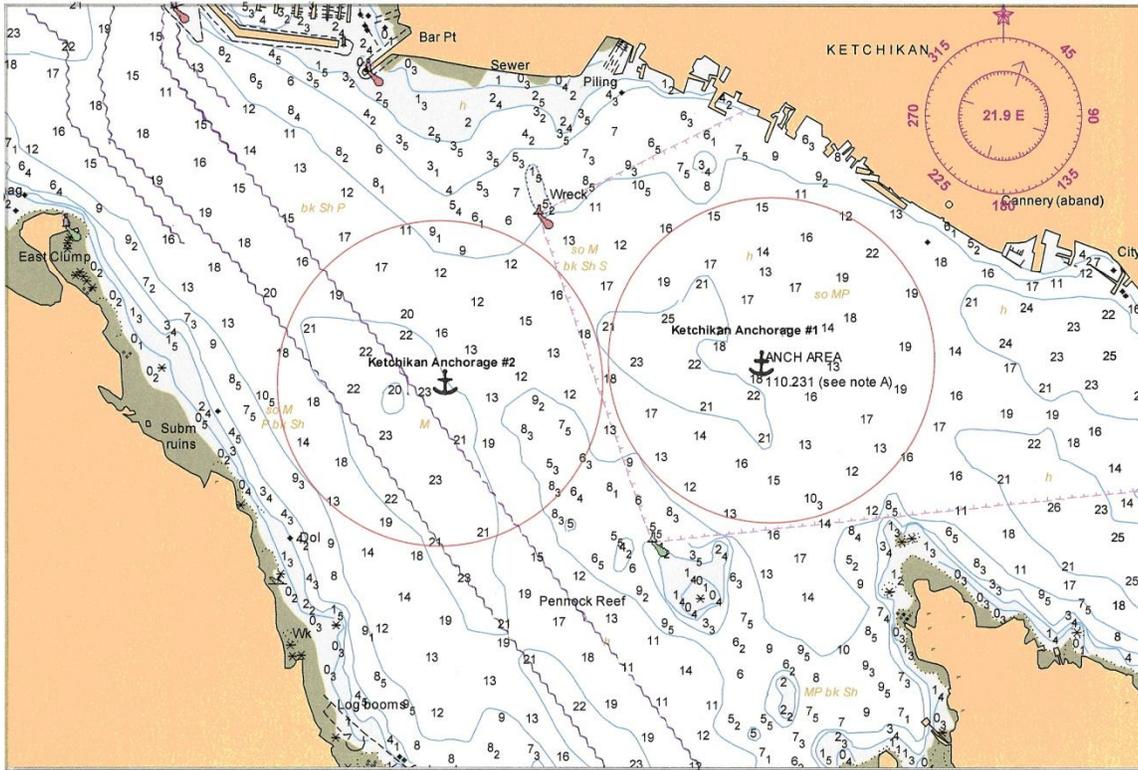
- a. Revillagigedo Channel/Nichols Passage/Ketchikan Harbor
 - i) Hog Rocks Light (northbound)
 - ii) Spire Island Reef Light (secondary) (northbound)
 - iii) Kelp Rocks Buoy (northbound)
 - iv) Blank Island Light (secondary) (northbound)
 - v) Guard Island Light (southbound)
- b. Misty Fjords
 - i) New Eddystone Rock (inbound)
 - ii) At the turn-around point (prior to departure from the fjord)
- c. Snow Pass
 - i) Key Reef Light (northbound)
 - ii) Nesbit reef (secondary northbound)
 - iii) Point Colpoys Light (southbound)
 - iv) Rookery Island (secondary southbound)
- d. Wrangell Narrows
 - i) Station Island (northbound)
 - ii) Point Alexander (northbound)
 - iii) Mountain Point Light (northbound and southbound)
 - iv) Sukoi Island Light (southbound)
- e. Point Baker
 - i) Point Colpoys Light (westbound)
 - ii) Caulder Rocks Buoy (eastbound)
 - iii) Buster Bay (secondary) (westbound)
 - iv) Point Baker Light (secondary) (westbound and eastbound)
- f. Decision Pass
30 minute call with a 15 minute follow up call (eastbound and westbound)
- g. Tracy Arm
 - i) Fifteen minutes prior to crossing Tracy Arm Bar (inbound and outbound)
 - ii) Mile 8 and Mile 16 (inbound)
 - iii) Mile 20 and Mile 10 (outbound)
- h. Endicott Arm
Fifteen minutes prior to passing Woodspit Light (inbound and outbound)

- i. Taku Inlet (secondary) (during fishing openings)
 - i) Limestone Inlet (northbound)
 - ii) Marmion Island Light (southbound)
 - iii) Icy Point (southbound)
- j. Gastineau Channel/Juneau Harbor
 - i) Icy Point/Pt. Arden (inbound)
 - ii) Marmion Island Light (inbound)
 - iii) DuPont Dock (outbound)
- k. Saginaw Channel/Point Retreat
 - i) Outer Point (north- and westbound). Provide ETA Pt. Retreat.
 - ii) Favorite reef northbound (secondary)
 - iii) False Point Retreat Light (north- and eastbound)
 - iv) Little Island Light (southbound)
- l. Favorite Channel
 - i) Outer Point (northbound)
 - ii) Vanderbilt Reef Light (southbound)
- m. Upper Lynn Canal
 - i) Eldred Rock Light (northbound)
 - ii) Fifteen minutes prior to Taiya Point (southbound)
 - iii) Battery Point northbound
- n. Rocky Island Light
30 minutes prior to, with a 15 minute follow up (northbound and westbound)
- o. Glacier Bay
Fifteen minutes prior to Jackie Point north of Lamplugh Glacier
(inbound and outbound: Tarr and Johns Hopkins Inlets)
- p. North Inian Passage
 - i) Point Adolphus Light (westbound)
 - ii) Lemesurier Island Light (secondary) (westbound)
 - iii) Cape Spencer Light (eastbound)
- q. Sitka
 - i) Cape Edgecombe Light (inbound)
 - ii) Vitskari Rocks Light (inbound)
 - iii) The Eckholms (outbound)
- r. Sergius Narrows
 - i) Hoggatt Island Light (southbound)
 - ii) Kane Island Light (northbound)
- s. Whitestone Narrows
 - i) Kane Island Light (southbound)
 - ii) Big Gavanski Island Light (northbound)
- t. Yakutat Bay
Fifteen minutes prior to Ocean Cape, Buoy #2 (inbound and outbound)

RECOMMENDED OPERATIONAL GUIDELINES

1. TONGASS NARROWS/KETCHIKAN HARBOR

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. The MSTF encourages vessels to observe the following speeds while transiting Tongass Narrows:
 - i) Between Mountain Point and Saxman 12 knots
 - ii) Between Blank Island Lt. and Saxman 12 knots
 - iii) Between Saxman and Channel Island 7 knots
 - iv) Between Channel Island and Rosa Reef 12 knots
 - v) Between Rosa Reef and Guard Island 16 knots
- c. Mariners are advised that there may be simultaneous vessel arrivals from both the north and south. The MSTF recommends in the event where two deep-draft vessels are maneuvering simultaneously in the Ketchikan Harbor that it only be done by PRIOR mutual consent between the Masters and Pilots of the vessels involved.
- d. Successive vessels traveling in the same direction should maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, and each vessel's maneuverability and speed.
- e. The MSTF recommends the anchorage positions as set forth by the USCG (see chartlet page 7). When one or more vessels are anchored in Ketchikan Harbor, any subsequent maneuvering vessel should consider using adequate tug assist, taking into consideration the weather, the tide and current, the maneuvering characteristics of the vessel, and the position of the anchored vessel(s).
- f. Tongass Narrows is a congested waterway, especially during May through September. Local user groups have united and established specific voluntary guidelines for all users within this area. The Tongass Narrows Voluntary Waterway Guide outlines these guidelines. Copies of this document are available from the United States Coast Guard, Ketchikan Harbor Master, and Cruise Line Agencies of Alaska.



2 SNOW PASSAGE

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. Vessels are encouraged to be fully maneuverable while transiting Snow Passage.
- c. Successive vessels traveling in the same direction should maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, and each vessel's maneuverability and speed.
- d. The MSTF recommends that no more than one vessel transit Snow Passage at any one time. When another vessel is transiting Snow Passage; subsequent vessels should delay, until the transiting vessel has cleared the Passage.
- e. When conditions such as inclement weather and vessel traffic congestion warrant, Stikine Passage is recommended as an alternate route.

3. DECISION PASS

The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.

Tracy Arm Bar
Vessel Operation Parameters

4. TRACY ARM

- a. The MSTF recommends a Tracy-Arm-specific Master/Pilot conference prior to arrival. The conference should take into consideration varying conditions such as weather, tidal and ice conditions, and limited VHF communications.
- b. For scheduling and planning purposes, vessel arrivals and departures at the Tracy Arm Bar should also take into consideration, the following:
 - i) Daylight transit
 - ii) Visibility
 - iii) Ice
 - iv) Squat
 - v) Height of tide
 - vi) Minimum 10 feet under-keel clearance
- c. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- d. Vessels in Tracy Arm are advised to maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, ice conditions, the recommended Passing Zones, and each vessel's maneuverability and speed. There are two recommended *Passing Zones* in Tracy Arm:
 - i) Between Tracy Arm Bar and Mile 8
 - ii) Between Mile 10 and Mile 16
- e. It is recommended that no more than three vessels of greater than 50,000 gross tons be in Tracy Arm at any one time, and no more than two vessels greater than 50,000 gross tons be east of Mile 12 at any one time.
- f. When more than one vessel is in Tracy Arm, only one vessel should transit inbound beyond Mile 17 unless prior agreement is made with an outbound vessel. Only one vessel greater than 50,000 gross tons should be North or East of Sawyer Island at any one time. The MSTF recommends transits on the Southwest side of Sawyer Island may be appropriate if it is determined conditions dictate.

5. ENDICOTT ARM

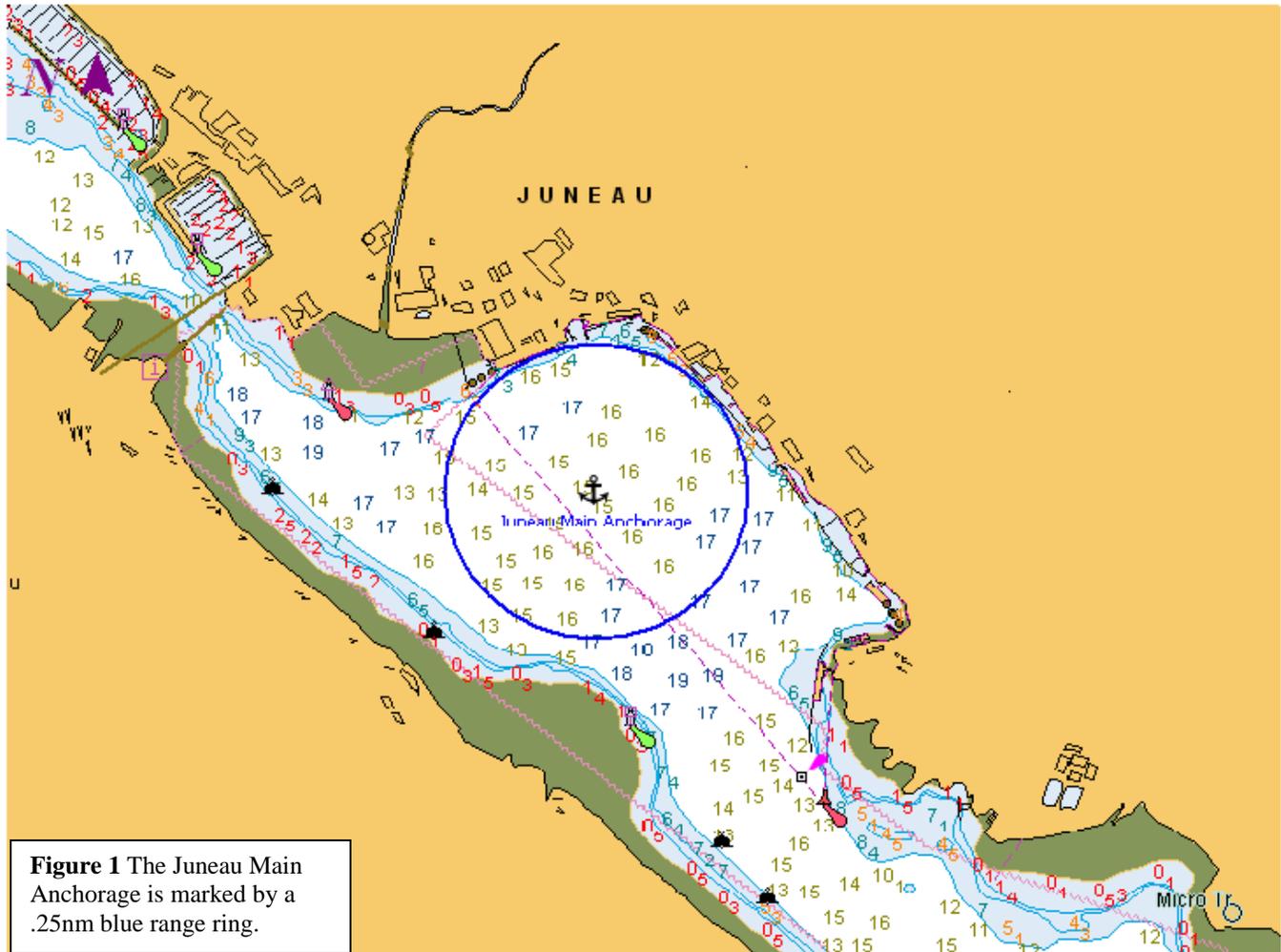
- a. The MSTF recommends that vessels adhere to the Primary and Secondary Securite Calling Points and conditions as provided on pages 3-5.

- b. When two or more vessels are present in Endicott Arm, they are encouraged to coordinate itineraries via VHF radio communication and stagger their arrivals and departures at the entrance to the arm.
- c. The MSTF recommends that vessels in Endicott Arm maintain a safe and appropriate distance from one another taking into consideration the weather, tide and current, ice conditions, and each vessel's maneuverability and speed.
- d. The recommended CPA from the face of Dawes Glacier is 2.5 cables (0.25nm).

6. GASTINEAU CHANNEL/JUNEAU HARBOR

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. It is recommended that vessels arriving and departing Juneau Harbor maintain a safe and appropriate distance from one another taking into consideration the weather, tide and current, and each vessel's maneuverability and speed. Notwithstanding concerns for weather, environmental conditions, and small boat/fishing vessel operations, the MSTF recommends the following speed limit guidelines while transiting Gastineau Channel:
 - i) Between Marmion Island and DuPont Dock 16 knots
 - ii) Between DuPont Dock and Sheep Creek 14 knots
 - iii) Between Sheep Creek and Juneau Isle 10 knots
 - iv) Between Juneau Isle and Juneau Harbor 7 knots
- c. Vessels requiring tug assist are encouraged to set their ETA's to allow extra time to complete their maneuvers.
- d. The MSTF recommends that where two deep-draft vessels are maneuvering simultaneously in the Juneau Harbor that it is done only by PRIOR mutual consent between the Masters and Pilots of the vessels involved.
- e. The MSTF advises that no vessels be underway in Juneau Harbor if there are two vessels at anchor. When two vessels are at anchor, a tug shall standby to assist.
- f. When a vessel is anchored in Juneau Harbor, any subsequent vessel maneuvering in the harbor should contemplate using adequate tug assist, taking into consideration the vessel's maneuvering characteristics, the weather, the tide and current, and the position of the anchored vessel.
- g. The MSTF recommends the following anchorage position, as set forth by the USCG (See Figure 1), taking into consideration weather conditions, tendering docking assignments, berth assignments for other vessels, and the arrival and departure times of other vessels.

- h. The MSTF recommends that assignments to anchorage be prearranged in agreement with cruise ship operators, pilots, and the USCG; and that notice of these assignments be communicated to all parties by the agent.



7. SAGINAW AND FAVORITE CHANNELS

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. The MSTF recommends against vessels meeting or overtaking one another in Saginaw Channel between Faust Rock and Symonds Point.
- c. The MSTF recommends against vessels meeting or overtaking one another in Favorite Channel.

8. SKAGWAY

- a. Vessels arriving and departing Skagway are advised to maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, each vessel's maneuverability and speed, and tug assist needs.
- b. Vessels requiring tug assist are encouraged to set their ETA's to allow extra time to complete their maneuvers.
- c. Successive vessels bound for Skagway should be positioned in their order of arrival by **Katzehin River**.
- d. The MSTF recommends that vessels scheduled for the Broadway Dock be the first to arrive in the west harbor.
- e. After any vessel has departed Skagway, subsequently departing vessels should confirm that the departed vessel has completed its turn and attained proper steerage, prior to letting their own lines go. Mariners should be aware that departure times may vary; especially in instances where assist tugs are being utilized.
- f. Departing vessels are encouraged to communicate any changes in their ETD, which might affect the departure or arrival of any other vessel.

9. ROCKY ISLAND AREA

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. Vessels passing or meeting in the Rocky Island area should maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, and each vessel's maneuverability and speed.
- c. The MSTF recommends that vessels passing one another in the Rocky Island area make port-to-port passing arrangements. These passing arrangements should be facilitated by westbound vessels rounding Rocky Island at a distance of 1.0 mile off and eastbound vessels rounding the island at 2.0 miles off.

10. ICY STRAITS

When traffic patterns warrant, vessels transiting Icy Straits should consider routing north of Sisters Island when westbound and south of Sisters when eastbound.

11. GLACIER BAY

- a. Vessels in Glacier Bay are advised to comply with National Park Service requirements which are detailed in the CFR's, Coast Pilot and the annual port information packet distributed by the agent.

- b. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- c. When two or more vessels are in Glacier Bay, they are encouraged to coordinate itineraries via VHF radio communication.
- d. Vessels in Glacier Bay are advised to maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, ice conditions, and each vessel's maneuverability and speed. The recommended CPA from any glacier face is 2.5 cables (0.25 nm).

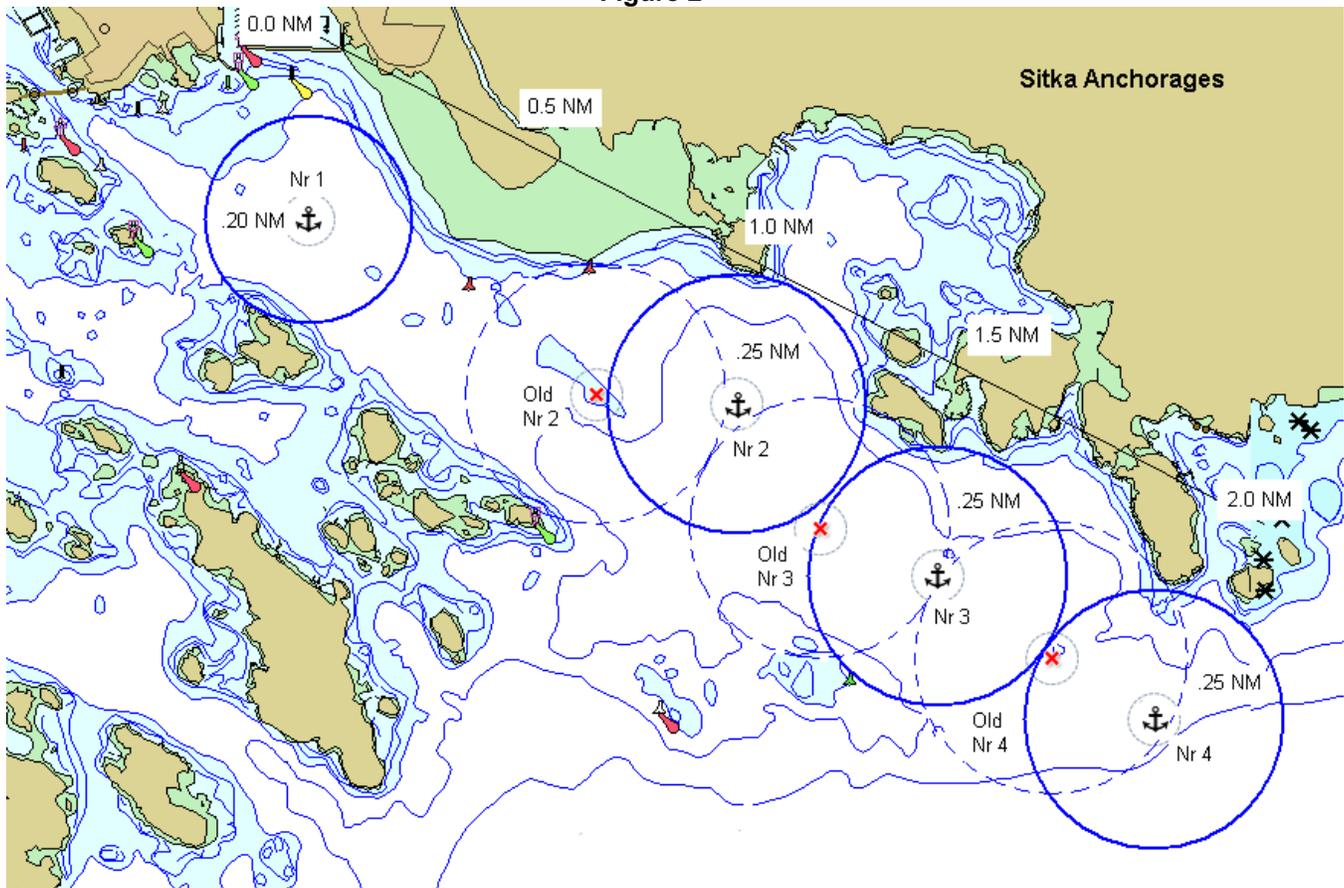
12. NORTH INIAN PASS

- a. The MSTF recommends that vessels adhere to the Primary and Secondary Securite Calling Points and conditions as provided on pages 3-5.
- b. The MSTF recommends against vessels meeting or overtaking one another in the narrows of North Inian Pass.

13. SITKA

- a. The MSTF recommends that vessels adhere to the Primary Securite Calling Points and conditions as provided on pages 3-5.
- b. Vessels arriving and departing Sitka are advised to exercise prudent safety practices and maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, each vessel's maneuverability and speed, vessels at anchor, and concentrations of fishing vessels.
- c. The MSTF recommends the following anchorage positions (See Figure 2), taking into consideration weather conditions, tendering dock assignments, and the arrival and departure times of other vessels.
- d. The MSTF recommends that assignments to anchorage positions be prearranged in agreement with cruise ship operators and the pilots. Notice of these assignments should be communicated to all parties by the agent.
- e. Vessels desiring to anchor in Anchor Position #1 (the Inner Anchorage) should take into account weather conditions, as well as vessel size and maneuverability.

Figure 2



14. YAKUTAT BAY/DISENCHANTMENT BAY

- a. The MSTF recommends that vessels adhere to the Primary Secure Calling Points and conditions as provided on pages 3-6.
- b. When two or more vessels are in Disenchantment Bay, they are encouraged to coordinate itineraries via VHF radio communication.
- c. When multiple vessels are scheduled for Yakutat Bay, they are advised to allow an hour of separation between ETA's at Ocean Cape.
- d. The MSTF recommends that vessels in Yakutat Bay maintain a safe and appropriate distance from one another taking into consideration the weather, the tide and current, ice conditions, and each vessel's maneuverability and speed.
- e. The MSTF recommends transits between Haenke Island and the East shore may be appropriate if it is determined conditions dictate.

- f. The recommended CPA from any glacier face is 5 cables (0.5 nm). Mariners are advised of the strong currents and rapidly shifting icebergs in the vicinity of Turner and Hubbard Glaciers (See US Coast Pilot 9).

15. SPEED

It is recommended that vessels observe established harbor speed limits and comply with Colregs Rule 6, Safe Speed. Vessels are encouraged to reduce speed for sensitive shore-line areas and other vessels susceptible to wake damage (e.g.; log tows and tugs alongside barges).

16. TRACK LINES

- a. The MSTF advises pilots and bridge teams to engage in route planning, prior to and during each voyage.
- b. Upon request, pilot associations are encouraged to provide cruise ship operators with safe and appropriate, generic track lines. Operators should recognize that these track lines are for voyage planning purposes only.
- c. It is recommended that specific track lines be discussed and agreed upon by pilots and bridge teams. All parties should be aware that track lines are meant to indicate a vessel's intended route only. Inclement weather, congested traffic, concentrations of fishing vessels, or other conditions may necessitate changes from planned routes.

17. NATURAL SEPARATION ZONES

The geography of Southeast Alaska affords several natural bifurcation zones which provide for vessel traffic separation schemes. These zones allow for opportunities to deviate from planned routes if inclement weather, congested traffic, concentrations of fishing vessels, or other conditions warrant.

Lynn Canal affords multiple routes for north and southbound traffic. Considerations for traffic or weather may dictate route selection. Any departure from these routes should be made with the mutual agreement of the bridge team, pilot and other vessels affected by the change. Vessels should avoid meeting or overtaking in Favorite or Saginaw Channels.

18. RESTRICTED MANEUVERING AREAS

Vessels are encouraged to avoid narrow or congested waterways while delaying for arrival at any port or waterway.

19. MASTER SHIP SCHEDULES

- a. Prior to each Alaska cruise season, cruise ship operators should provide the agent with each vessel's voyage information. From this information the agent consulting with the regional pilot association, should prepare a master ship schedule containing individual vessel schedules, berthing assignments, and other relevant operational information. This master schedule should be distributed to the pilot association, the cruise ship operators, the individual vessels, the USCG Marine Safety Office, the Alaska Marine Highway System, and any other appropriate parties (e.g.: harbor masters, etc.).
- b. Upon commencement of the cruise season, any substantial and premature changes or deviations from the master ship schedule should be reported and approved by the agent and regional pilot association and be distributed to the waterway users listed above.
- c. Vessels are encouraged to report to the agent and regional pilot association any anticipated or intended deviation from the recommended operational guidelines or master ship schedule. In turn, the agent should advise all affected parties. If time does not allow for prompt reporting to the agent, the vessel should ensure that other affected vessels and/or authorities are notified.

20. VOYAGE PLANNING

- a. Pilots and bridge teams are encouraged to give the highest priority to voyage planning prior to, and during, vessel transits. Voyage planning should utilize all resources available and follow the guidelines outlined below. Pilots and bridge teams are reminded that good communication and teamwork are essential for safe vessel operations.
- b. The MSTF recommends that pilots and bridge teams conduct Master/Pilot conferences and Bridge Resource Management meetings following the International Maritime Organization (IMO) Bridge Procedures Guide or the American Pilot Association's Bridge Resource Management Guidelines, as set forth below:

Each vessel transit should begin with a Master/Pilot conference taking into consideration the following:

- i) The initial conference should serve as an opportunity to exchange relevant information and establish an appropriate working relationship between the pilot and the master.
- ii) It is not necessary that all relevant information be exchanged in the initial conference. The amount and type of information exchanged may be determined by the difficulty of any immediate maneuvers and the length and navigational parameters of the transit. Additional information may be exchanged later, as the transit proceeds.
- iii) All parties should acknowledge that the pilot and each member of the bridge team have important roles to perform in the safe operation of the vessel.

WEATHER AND ICE CONDITIONS

1. WIND AND TUGS

- a. When inclement weather is anticipated in any port, vessels are encouraged to give sufficient advance notice for the scheduling of tugs for standby or assistance.
- b. Prior to each cruise season, cruise ship operators should determine their tug-assist requirements for each port and coordinate their dispatch requests through the agent.

2. VISIBILITY

When visibility is limited, bridge teams are encouraged to comply with appropriate Colregs and safety procedures including reducing the vessel's speed, sounding the fog signal, and considering alternate routes.

3. ICE

Mariners are encouraged to report any hazardous ice conditions to the U.S. Coast Guard, particularly in the vicinity of Holkham Bay in Stephens Passage.

VWG EVALUATION AND REVISIONS

This VWG is intended to be a work-in-progress. It is a document that should always be in need of evaluation, revision, and refinement. All interested parties including pilots, bridge teams, cruise ship operators, agents, the USCG, shore-based organizations and individuals are encouraged to offer suggestions and comments directly to the MSTF.

**APPENDIX H:
TONGASS NARROWS
VOLUNTARY WATER GUIDE (REV 3)**

TONGASS NARROWS VOLUNTARY WATERWAY GUIDE

Revisions

Est. February 28, 1999

October 1, 2006

April 30, 2007

April 10, 2010

The Tongass Narrows Voluntary Waterway Guide (TNVWG) is intended for use by all vessel operators when transiting Tongass Narrows from the intersection of Nichols Passage and Revillagigedo Channel on the Southeastern-most end to Guard Island on the Northwest end of the narrows. The members of the Tongass Narrows Work Group (TNWG), which included representatives from the following waterway user groups, developed this Guide in an effort to enhance the safety of navigation on this congested waterway:

United States Coast Guard · Federal Aviation Administration
Southeast Alaska Pilots Association · Cruise Line Agencies of Alaska
Commercial and private floatplane operators · Small passenger vessels
Commercial Kayak Operators · Commercial freight transporters
Pennock-Gravina Island Association · Charter vessel operators
Recreational boat operators · Local City-Borough · Waterfront Facility Operators
Commercial fishing interests · Alaska Marine Highway System

This Guide is published and distributed by the United States Coast Guard.

For more information contact the:
U.S. Coast Guard Marine Safety Detachment
1621 Tongass Ave. Ketchikan, AK 99901
(907) 225-4496

Disclaimer

The Tongass Narrows Work Group TNVWG provides suggestions and recommended guidelines that are intended to assist persons operating vessels on Tongass Narrows, regardless of type of vessel.

This Guide is meant to complement and not replace the federal and state laws and regulations that govern maritime traffic on the narrows. Prudent mariners should not rely on the Guide as their only source of information about vessel traffic patterns and safe navigation practices in Tongass Narrows, and should comply with all applicable laws and regulations.

Vessel operating parameters and maritime conditions on Tongass Narrows constantly change. The TNWG and its members expressly disclaim any liability or responsibility, direct or indirect, which may arise from the use of the Guide, or reliance upon any information or recommendations in the Guide, by any person or entity.

Description: Tongass Narrows is a “Y” shaped body of water that stretches from Nichols Passage on the Southeast end to Guard Island on the North. Tongass Narrows is approximately 13 nautical miles in length and at its narrowest point is only about ¼ of a nautical mile wide. The narrows is bounded on the eastern side by Revillagigedo Island and by Gravina Island on the west. The narrows is oriented in a southeast to northwesterly direction and is split into two channels in the southeastern most third of the narrows by Pennock Island. The cities of Saxman and Ketchikan lie along the eastern side of Tongass Narrows.

Reason/Purpose: To provide a non-regulatory approach to deconflict traffic and improve safety in the Tongass Narrows waterway.

Because of the high volume of traffic, the geography of Tongass Narrows, and the multiple directions of travel, it is vital that operators on Tongass Narrows (both first time and experienced) adhere to all navigation safety regulations and follow, as closely as possible, the suggested operating guidelines found in this Guide.

Primary Waterway Users/Background: Tongass Narrows is home to a large variety of traffic ranging from some of the largest cruise ships in the world to kayaks. Types of vessels operating on the narrows include: recreational vessels, passenger vessels, commercial fishing vessels, commercial freight vessels/barges, commercial tank barges, kayaks, floatplanes, charter vessels and passenger ferries.

Navigational Restrictions: For a detailed description of the navigational restrictions on Tongass Narrows, see the **COAST PILOT 8**. This volume of the COAST PILOT gives a complete and adequate description of Tongass Narrows from the North Entrance of Nichols Passage to Guard Island. Generally, the more restricted areas of Tongass Narrows are:

- 1) West Channel in the vicinity of Clam Cove.
- 2) East Channel from Idaho Rock to CG Base.
- 3) North Channel from Danger Island to South End of Bar Harbor.

Annual Marine Events: During the summer months, the Ketchikan Yacht Club holds sailboat regattas on each Wednesday night and on some weekends. All marine events require a formal permit issued by the USCG. Approved marine events will be published in the Local Notice to Mariners. In addition to the weekly sailboat regatta, permit requests for the following annual marine events are anticipated – the annual Pennock Island Swim and the Christmas boat parade.

Federally Regulated Navigation Areas: The following regulated navigation areas are in effect on Tongass Narrows and are **MANDATORY, NOT VOLUNTARY**:

- 1) **33 CFR 110.231**, Ketchikan Harbor, Alaska, Large Passenger Vessel Anchorage. This regulation defines an anchorage area in which no vessel, other than a large passenger vessel of over 1600 gross tons, may anchor without the express consent of the Captain of the Port Southeast Alaska. This regulation also requires all vessels using propulsion machinery to proceed through the anchorage by the most direct route without unnecessary delay and prohibits sudden course changes.
- 2) **33 CFR 165.1708**, Tongass Narrows, Ketchikan, Alaska-Safety Zone. This regulation designates a safety zone for the annual fireworks display on the fourth of July.

- 3) [33 CFR 162.240](#), Tongass Narrows, Ketchikan, Alaska; navigation. This regulation establishes a **maximum speed limit of 7 knots for vessels of over 23 feet** in length in Tongass Narrows, bounded on the north by Buoy '9' and to the south by the East and West Channel Regulatory markers, respectively. Float planes involved in take-off or landing are exempt.

Security Zones: The following security zone is in effect on the Tongass Narrows:

[33 CFR 165.1711](#), Waters of the Seventeenth Coast Guard District. This regulation establishes a 100 yard zone around escorted high capacity passenger vessels (HCPV, i.e. cruise ships and AMHS vessels). Persons desiring to transit within 100 yards of a moving, escorted HCPV or AMHS vessel in the Seventeenth Coast Guard District must contact the designated on scene representative on VHF channel 16 (156.800 MHz) or VHF channel 13 (156.650 MHz) to receive permission.

There is no type of vessel traffic control system in effect for Tongass Narrows.

Pollution Response/Salvage Companies

Alaska Commercial Divers: (907) 247-0771

Diversified Diving Service (907) 247-3843

SEAPRO: (907) 225-7002

Federal Pilotage Requirements: For information on pilotage requirements see [COAST PILOT 8](#). As a general rule all U.S. vessels over 300 Gross Tons must have a federally licensed pilot onboard or must have a federal pilotage endorsement on their license for these waters. For non-U.S. flagged vessels over 300 Gross Tons, you must meet all applicable Alaska State Pilotage Rules, found in [Alaska Statutes, Title 8, Chapter 62](#).

U.S. Customs & Border Protection (CBP) Requirements: As a general rule, all persons entering U.S. waters from Canadian waters, after having stopped in Canada are subject to all applicable customs regulations. To arrange for a U.S. Customs service inspection, to notify the CPB of your arrival, or to get further information on this topic, you may contact the CPB Office at (907) 225-2254.

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Comments and Concerns

Any questions, comments, or concerns can be submitted to the following:

United States Coast Guard Marine Safety Detachment Ketchikan at (907) 225-4496
1621 Tongass Avenue, Suite 202A, Ketchikan, AK 99901

Ketchikan Harbormaster at (907) 228-5632 or 2933 Tongass Harbor Master, Ketchikan, AK
99901

OPERATING GUIDELINES FOR VESSELS OPERATING ON TONGASS NARROWS

The items listed below are suggested guidelines (in bullet form) for operations on Tongass Narrows. This section is followed by user specific guidelines. These guidelines are not all-inclusive. These are suggested procedures designed to enhance the safety of all persons operating vessels of any type on Tongass Narrows.

(Note: A “vessel” is defined by the Navigation Rules [Rule 2(a)] as “every description of water craft, including nondisplacement craft and seaplanes, used or capable of being used as a means of transportation on water.”)

The chartlets used in this guide illustrate suggested or preferred operational areas but are not all-inclusive. Mariners should be aware of this and should maintain their vigilance when transiting Tongass Narrows.

GENERAL GUIDELINES

- All vessels in Alaskan waters are required to operate in accordance with the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS), also known as the Navigation Rules, per 33 CFR 80.1705.
- All vessels equipped with a VHF Marine band radio should monitor channel 16 when underway. Channel 13 should also be monitored if available. It is the policy of cruise ships and other large commercial vessels including tugs with tow and Marine Highway vessels to give “securite” call on channels 13 and 16, fifteen minutes prior to getting underway and at prescribed call points while transiting. Only concerned vessel affected should respond to these securite calls.
- **All mariners are responsible for the wake created by their vessel.** If your vessel causes a dangerous or damaging wake, in addition to civil fines, you may be held liable for damages resulting from that wake.
- When transiting the Tongass Narrows, please exercise caution, maintain extra vigilance and be courteous. Unlike other waterways, on Tongass Narrows you must also remember to scan the sky as there is a constant stream of floatplanes landing and taking off on these waters.
- Whenever possible, vessels should transit perpendicular to, or parallel with, the main channel.
- For moorage information, you may contact the local harbormaster’s office on VHF channel 73, or you may call them at (907) 228-5632.
- This Guide includes chartlets showing some of the suggested operating areas for various user groups. There is also a chartlet in each section for that specific waterway user. Please become familiar with these suggested operating areas prior to operating your vessel on the narrows.
- The Marine Safety Task Force has created a Southeast Alaska Voluntary Waterway Guide for use by cruise ships and other large vessels when transiting Southeast Alaska. A copy can be downloaded at <http://www.seapa.com/> for review. This guide gives additional information on cruise ship operations in the Tongass Narrows.

Because of the high volume and variety of traffic and the multiple directions of travel, it is vitally important for all vessel operators to follow the suggested operating procedures outlined in this Guide when traveling on Tongass Narrows.

FISHING VESSELS

- Fishing vessel operators should be cognizant of their wake at all times while transiting Tongass Narrows. This is especially critical when around kayakers or in the vicinity of the floatplane facilities. Remember, if your vessel causes a dangerous or damaging wake, you may be held accountable for any damage that is caused by your vessel's wake as well as be subject to a fine.
- There is no Federally Regulated fishing vessel anchorage. Fishing vessels wishing to anchor in Tongass Narrows should anchor between East Clump and Clam Cove, near Gravina Island. These areas are shaded on the attached chartlet at the end of this section.
- If you anchor in the east channel of Tongass Narrows in front of the canneries and facilities, you must maintain a radio watch and should coordinate your anchoring with the canneries and facilities so as to not impede access to the shore facilities.
- Do not anchor in the Large Passenger Vessel anchorage at the north end of Pennock Island.
- When at anchor, all vessels should display the appropriate lights or day shapes required by the Navigation Rules. Care should also be taken to ensure you do not encroach upon the main channel and thus cause a hazard to navigation.
- Regardless of where you anchor, care must be taken to not impede navigation in the channel and to not block access to any waterfront facilities.
- Limit the use of your Halogen deck lights at night as they can obscure the lights from navigations aids and make it more difficult for transiting traffic. Please reference the Sector Juneau *OCMI Advisory on High Intensity Lights* on fishing vessels for further guidance.
- The following is a list of waterfront facilities and their contact numbers:

Petro Marine Service (907) 225-2106
Northland Services (907) 225-2093
Alaska General Seafoods (907) 225-2906
Anderes Oil (907) 225-2163
Trident Seafoods (907) 225-4191
E C Phillips & Sons (907) 225-3121

CRUISE SHIP OPERATIONS

- Cruise ships should anchor in the designated anchorages illustrated on the attached chartlet.
- Anchoring in this area will enable a cruise ship to have the maximum swing area and will help to ease congestion in the east channel of Tongass Narrows. If unable to use the designated anchorages, variations will be approved by the COTP prior to anchoring.
- When using tenders to transport passengers, all cruise ships are reminded that they need to be cognizant of the wake created by the tenders. A wake of 12 inches can cause problems for floatplanes landing and taking off. Given the proximity of the cruise ship anchorage to the float plane operations area, extreme care needs to be exercised.
- Tenders should transit by proceeding down the middle of the channel, parallel to the shore, until adjacent to the debarkation destination. This transit route will help to reduce the amount of congestion in the narrows, reduce exposure to floatplane traffic and make tender traffic more predictable. The suggested traffic pattern is illustrated on the attached chartlet.

- Tender operators should be able to communicate effectively in English and should monitor VHF channels 13 and 16 for other marine traffic at all times.
- Inbound and outbound cruise ships must be cognizant of their wake and any potential damage their wake may cause. This is especially true when in the vicinity of Lewis Reef and Peninsula Point. This is applicable to all cruise ships regardless of size.
- The following is a list of contacts for this group:

Southeast Alaska Pilots' Association (907) 225-9696
Cruise Line Agencies of Alaska (907) 225-0999

FLOAT PLANE OPERATIONS

- Floatplane operators are reminded that when the plane is on the water it is considered a vessel and is subject to the International Navigation Regulations ([72 COLREGS](#)). As the operator of a floatplane, you are reminded that under the 72 COLREGS, floatplanes on the water shall, in general, keep well clear of all vessels and avoid impeding their navigation. In circumstances however, where risk of collision exists, she shall comply with the Rules of this Part.
- It is recommended that “Step Taxiing” in floatplanes be minimized. “Idle Taxiing” is preferred.
- Floatplane operators should keep a close eye out for kayaks and other small vessel traffic when landing and taking off.
- Landing through fish processing outfalls should be avoided. The EC Phillips and Trident Seafoods outfalls are marked on the attached chartlet.
- Floatplane operators should be aware of changing wind conditions when in the lee of a cruise ship.
- When landing and taking off in the vicinity of a cruise ship keep a sharp lookout for vessels that may be screened from your sight by the cruise ship.
- Floatplane operators are encouraged to extend their taxi to the west when operating under the East Wind Pattern. This will aid the pilots in avoiding most of the congestion.
- There is no set distance a floatplane should keep from the waterfront facilities. However, pilots are reminded that many vessels depart from these facilities and by keeping more to the outside of the channel, you will decrease your risk of being surprised by a vessel leaving one of these facilities.
- When using the floatplane facilities at the Ketchikan International Airport, floatplane operators should avoid operating in the vicinity of the airport ferry. The attached chartlet illustrates a suggested landing and take-off zone to the northwest of the floatplane dock. By using this area for your landing and takeoffs, you are helping to ease the congestion in this, the narrowest portion of Tongass Narrows. You are also limiting the amount of vessel traffic that you will have to contend with when using this facility.
- Floatplane operators, when landing or taking off in the vicinity of any vessel should avoid doing so in a manner that will impede or surprise the operator of that vessel.

- The following is a list of contacts for this group:

Taquan Air (907) 225-8800
 Promech Air (907) 225-3845
 Pacific Airways (907) 225-3500
 Ketchikan Flight Services (907) 225-9481
 Seawind Aviation INC (907) 225-1206
 Southeast Aviation (907) 225-2900
 Alaska Seaplane Tours (907) 225-1974
 Misty Fjords Air & Outfitting (907) 225-5155
 Temsco Helicopters INC (907) 225-5141
 Family Air (907) 247-1305
 Island Wings Air Service (907) 225-2444

KETCHIKAN YACHT CLUB SAILBOAT REGATTAS

- Two days prior to each race, the sailboat race will be announced in the Events section of the Ketchikan Daily News. This announcement will give the times of the race, the name of the race committee boat if known and a method for contacting the race committee boat. The attached chartlets illustrate the usual routes used for these regattas.
- Whenever possible, races should be held in non-peak operation times for other vessels.
- All races must have an approved “Marine Event Permit” prior to their being conducted.
- Whenever possible, races should be coordinated with the local Coast Guard Auxiliary Flotilla so they may provide a safety patrol craft for the race.
- Once it is determined a race is going to be conducted, the race committee boat should initiate a “Securite” broadcast advising marine traffic of the race course, number of vessels participating, and how to contact the committee boat in the event a conflict exists.
- All race participants equipped with a marine radio should monitor VHF channels 13 and 16 during the course of the race and are reminded that at all times, they must abide by all applicable navigation safety regulations.
- Mariners wishing to contact the race committee boat may do so on VHF channel 16, 13 or 69.
- The Ketchikan Yacht Club can be contacted at: (907) 225-3262.

RECREATIONAL AND CHARTER VESSELS

All recreational and charter vessels should abide by the “1998 Power Vessel Operator & Kayaker Suggested Guidelines for Safe Operations in Alaska” (Appendix 1 to this Guide). Although it’s several years old, the information is still very useful for safe operations.

- Like all other vessels, recreational and charter vessel operators must comply with all applicable navigation safety regulations, including the [72 COLREGS](#).
- Vessel operators should ensure they are traveling at a safe speed for the given weather and traffic conditions.
- Whenever possible, vessels should transit perpendicular to, or parallel with, the main channel.
- **When possible** vessels should transit using the middle of the channel. Near shore operations are more hazardous because visibility is obstructed by shore infrastructure and other traffic.

- Do not anchor in the Large Passenger Vessel anchorage at the north end of Pennock Island.
- When transiting perpendicular to the main traffic flow, extra caution should be used. This is especially true if your view of an area is blocked by another vessel, such as a cruise ship at anchor.
- Rapid course changes should be avoided whenever possible, especially in front of large vessels and floatplanes.
- If you are transiting through the narrows, you are encouraged to use the West Channel between Pennock and Gravina Islands. This will help to reduce the congestion in the East Channel of Tongass Narrows.

KAYAK OPERATIONS

All Kayakers should abide by the “1998 Power Vessel Operator & Kayaker Suggested Guidelines for Safe Operations in Alaska” (Appendix 1 to this Guide). Although it’s several years old, the information is still very useful for safe operations.

In addition to the guidelines in the above mentioned pamphlet, when on Tongass Narrows, kayak operators should:

- At no time should kayaks be located around the stern or bow thruster area of cruise ships preparing to depart the pier. This is especially critical when ships are preparing to depart their berth or anchorage. Some ships have controllable pitch propellers. On these ships, propellers and shafts may be turning even when the vessel is not making way. They may be energized to an hour prior to the vessel getting underway to warm up the engines. Cruise ships when in berth or at anchor, as well as ship’s agents, usually monitor and work on VHF channel 12. Ships or agents may be contacted on channel 12 to verify departure times. Cruise ship pilots give securite calls on channels 16 and 13 approximately 15 minutes prior to getting underway.
- Kayak operations around any cruise ship should be avoided in the fifteen minutes immediately prior to the cruise ship’s scheduled departure. If you are unsure as to the time of the vessel departure, contact the vessel and notify them of your intentions.
- Guided kayak operations should maintain a guide to client ratio of 1 to 6, unless a motorized rescue boat accompanies your group. Guides should maintain a radio watch on VHF channels 13 and 16.
- When crossing Tongass Narrows, groups of kayaks should cross in a side by side formation, not strung out end to end. When traveling in a group, you will be more visible than when you form a line and you will also limit your exposure to other vessel traffic.
- When crossing from Revillagigedo Island to Pennock Island, you should cross at the suggested crossing corridor depicted on the attached chartlet. The corridor runs from Hansen Float to the north end of Pennock Island. By transiting across the narrows at these points kayakers will be in an area where cross traffic normally occurs.
- When weather conditions exceed safe operating level or the skill level of the kayaker, operations should be halted.
- “SECURITE” broadcasts should be made when groups are departing Thomas Basin or transiting to or from Pennock Island, to advise marine traffic of your intended route of travel and numbers in your group.
- For kayakers traveling through Tongass Narrows, we suggest that you stay to the side of the main channel and avoid traveling in the center of the channel whenever possible.

- All kayakers should be extra vigilant. Because of the low profile of a kayak, it is very difficult for other vessels or floatplanes to detect your presence.

Personal Watercraft

- Although these craft are not restricted in Tongass narrows, due to the high volume and variety of traffic in Tongass Narrows, mariners wishing to operate personal watercraft should not operate them in Tongass Narrows.
- Personal watercraft are considered motorized vessels and are subject to all applicable navigation safety regulations. This includes the 72 COLREGS.
- Rapid course changes should be avoided whenever possible.

Duck Boat Operations

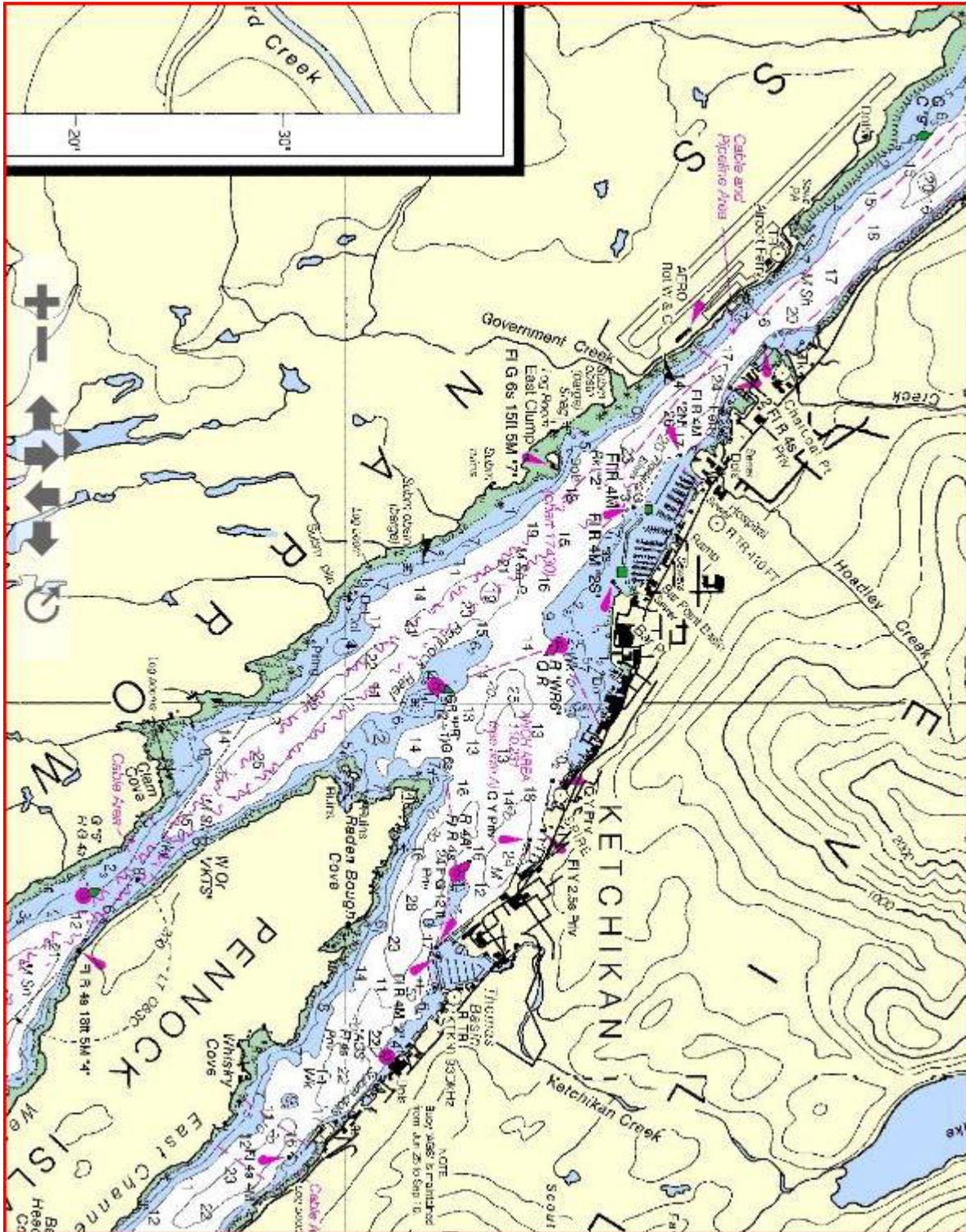
Duck boats operate at a very slow speed and are reduced in maneuverability. Other vessels in their vicinity should realize that duck boats have a minimal amount of steering and to stay clear of their heading. The duck boats enter Tongass Narrows at Bar Harbor public boat launch, head south out of Bar Harbor Marina, and make their turn back north in front of the Westflight Building at 1621 Tongass Avenue before exiting the water from Bar Harbor boat launch.

Airport Operations

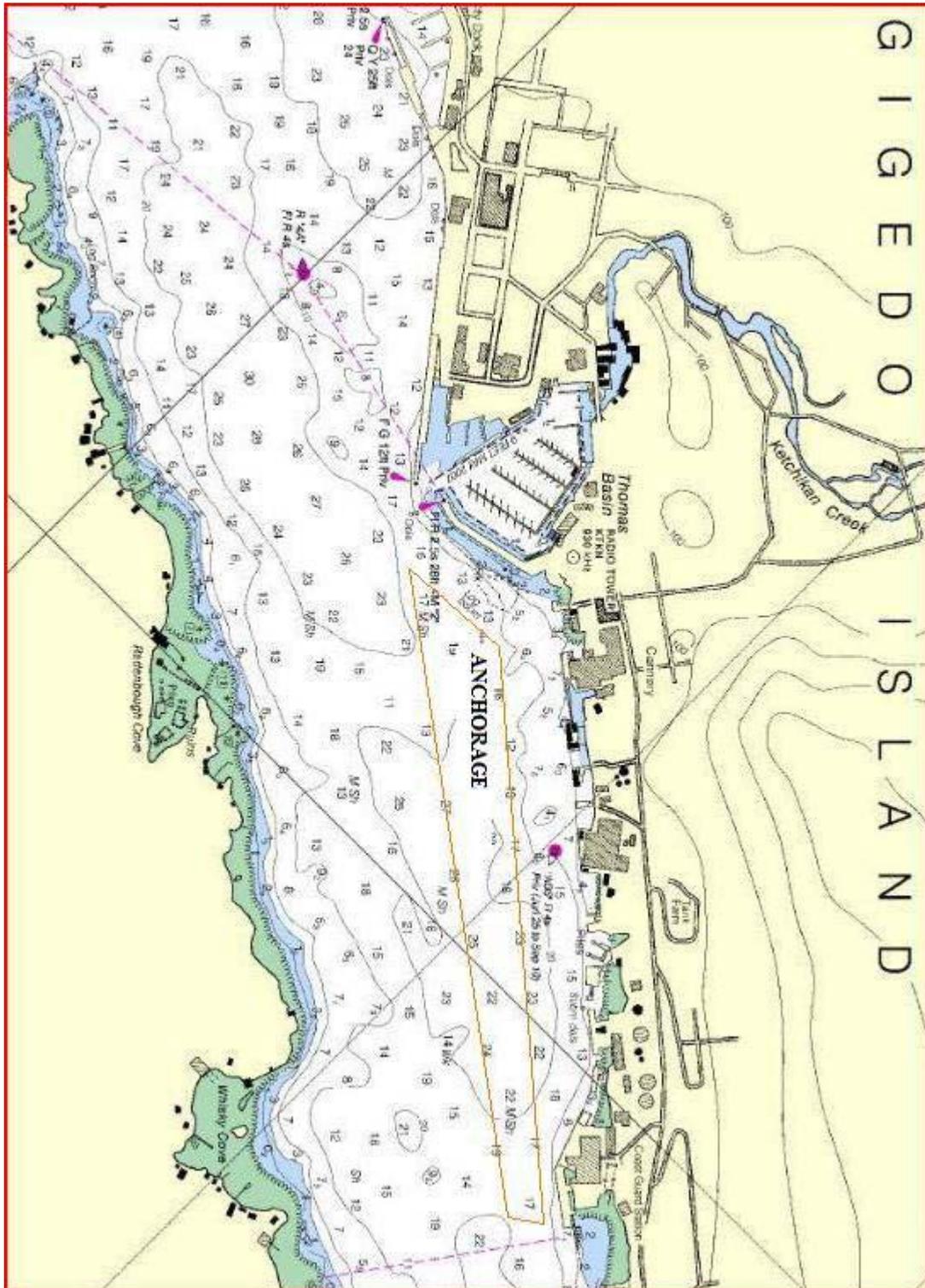
The Ketchikan Airport has a ferry that operates every 30 minutes in the winter and every 15 minutes during the busy summer months. The ferry runs from the Ketchikan side across from the airport to Gravina Island where the airport loading ramp is located. The Ketchikan Airport also operates a float dock and vessel traffic is monitored on CH 16.

- The 7 Knot restriction zone begins at buoy number “9” on the north end of the Narrows. This encompasses the Ketchikan Airport operations.
- Mariners are reminded of the Ketchikan Airport Ferry that crosses the Tongass Narrows, and small vessels are asked to give way to the ferry operations due to its time restrictions.
- The Ketchikan Airport operates a float plane dock for passenger pick ups, passenger drop offs, and for mail and package deliveries. Mariners are reminded that you are responsible for your wake and due to the dock being intended for float planes a small wake can have a very big impact. Often tourists or other passengers are being loaded or off loaded when vessels pass.
- The Ketchikan Airport Float Plane dock is for float planes only. Vessels mooring at the dock could receive a violation up to \$500.00.
- Vessels may moor on a first come basis on the south end of the Ketchikan Airport Float Plane Dock. The dock has a 50’ boat moorage and cannot receive any vessel larger than 50’.

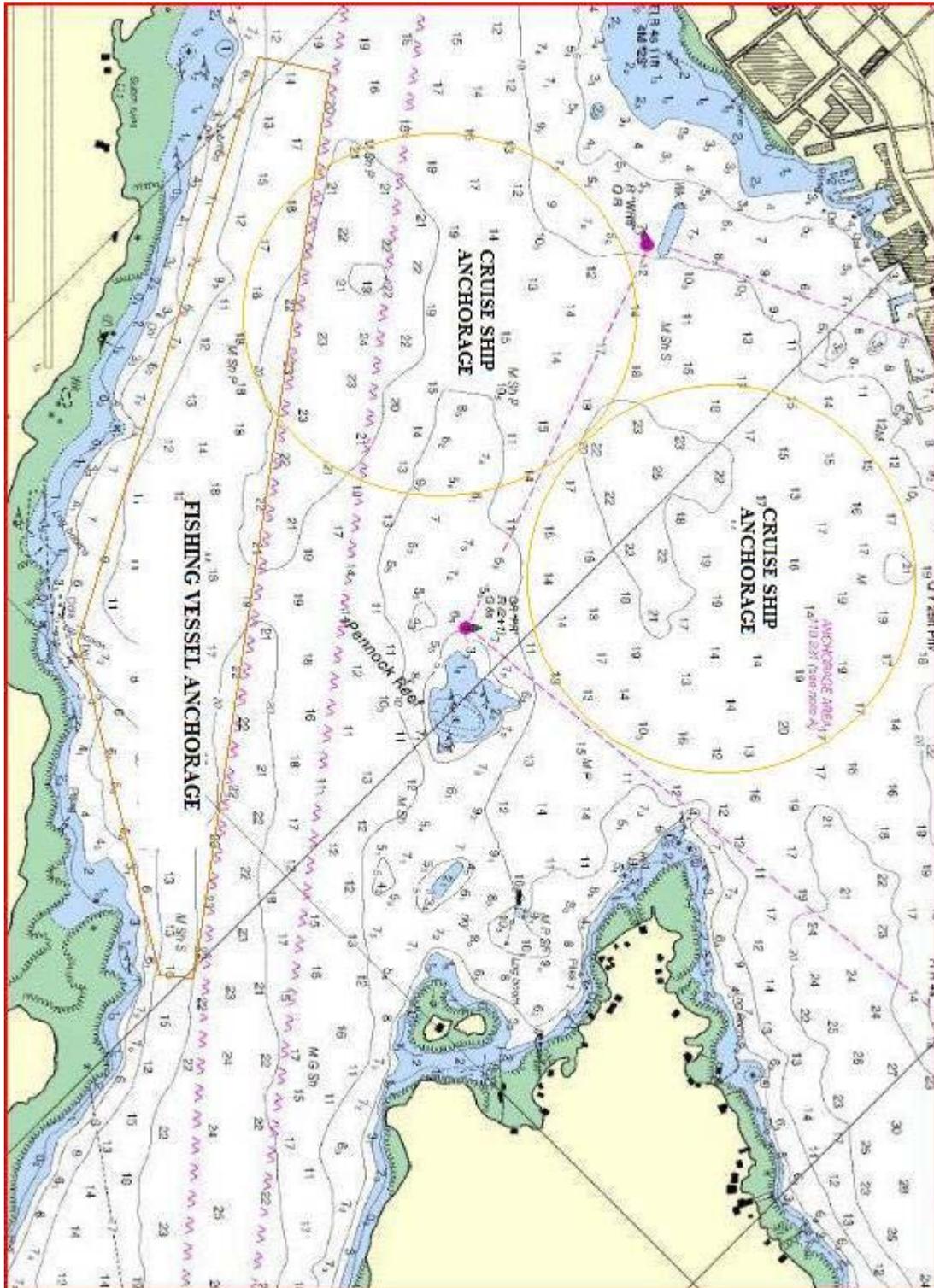
KETCHIKAN OVERVIEW



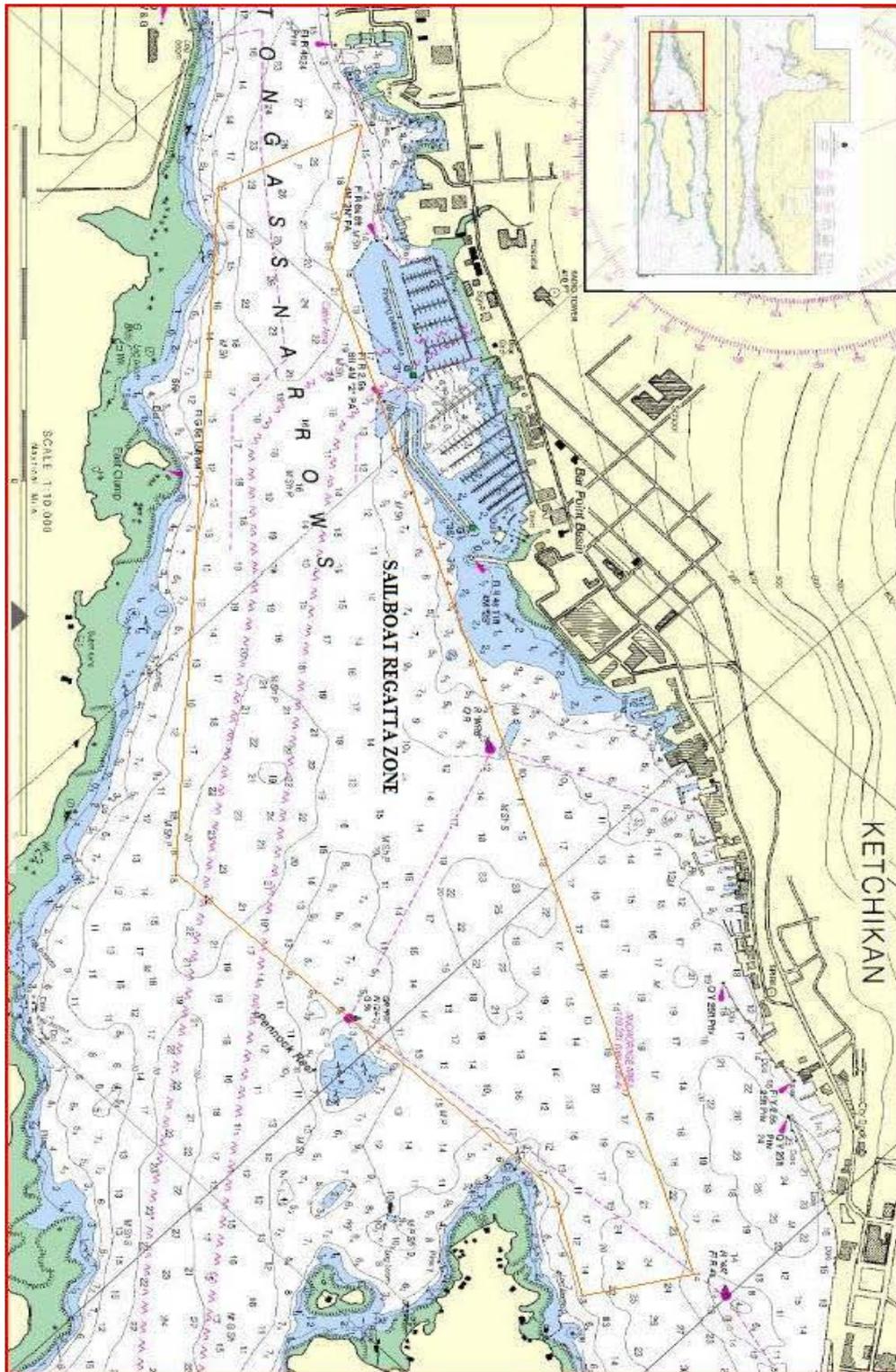
OFFLOADING FISHING VESSEL ANCHORAGE



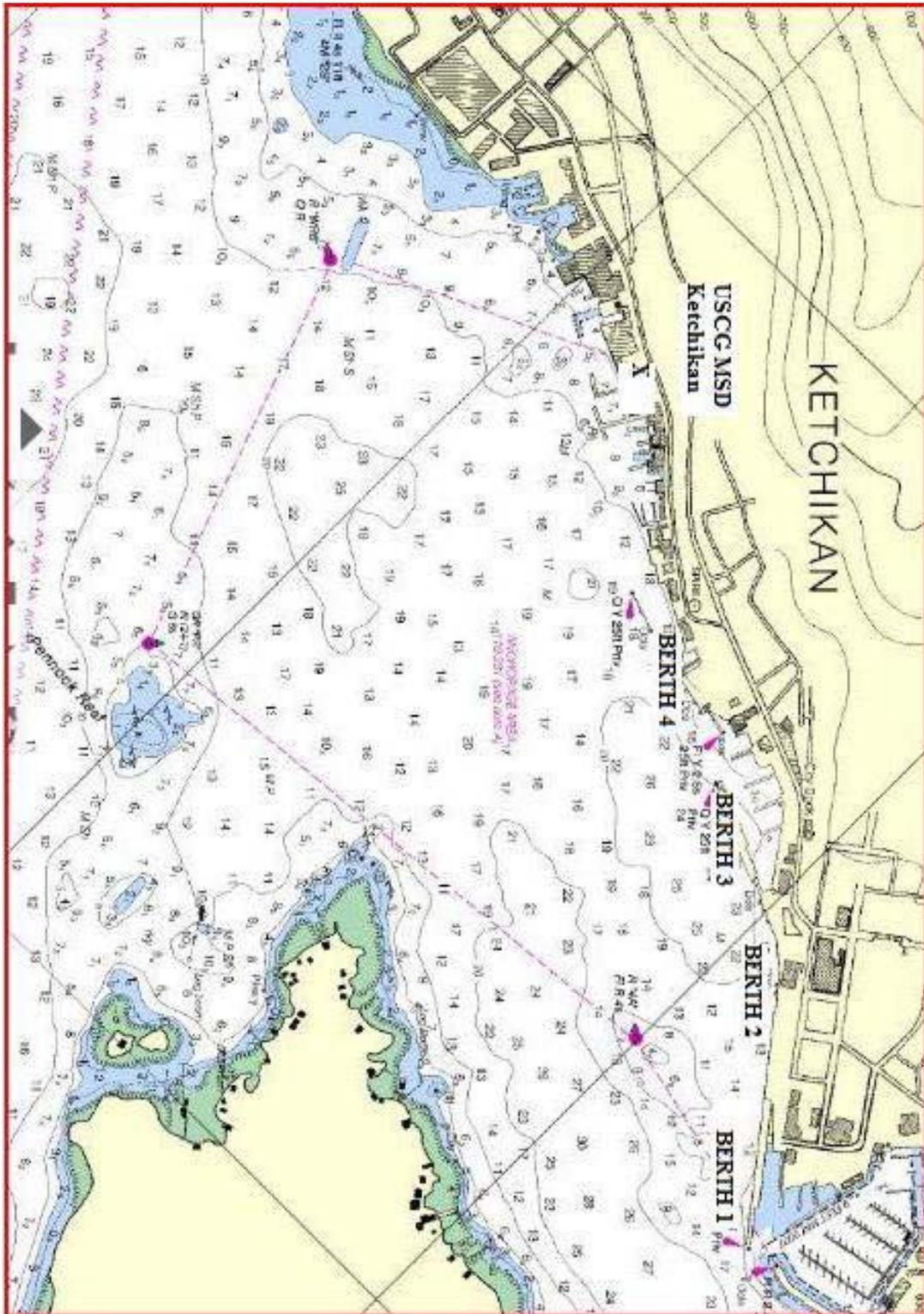
CRUISE SHIP AND TEMPORARY FISHING VESSEL ANCHORAGE



SAILBOAT REGATTA ZONE



USCG AND KETCHIKAN BERTHING LOCATIONS



1998 POWER VESSEL OPERATOR AND KAYAKER SUGGESTED GUIDELINES FOR SAFE OPERATIONS IN ALASKA

Overview: Alaska's coastal communities are connected by thousands of miles of waterways. As Alaska's economy diversifies and develops, more people are and will be using Alaska's coastal waters for business and pleasure. Commercial fishing, sport fishing charters, transportation, large vessel tourism and the sea kayaking industry each contribute millions of dollars annually to Alaska's economy and help to provide economic diversification and stability in small coastal communities. However, with this growth come increased opportunities for inadvertent adverse impact between various boating groups. Of particular concern is the possibility of collisions, capsizing or injury to sea kayakers. The Alaska Wilderness Recreation and Tourism Association, with the support of the U.S. Coast Guard, held a meeting in Anchorage and decided that increased boater education was one way to help reduce the risk of such an event.

What kayakers should know about power vessel operators

- When powerboat operators are heading into the sun, it is virtually impossible for them to see kayakers. Powerboat operators rated colliding with a kayak when heading into the sun as the most likely cause of a fatality.
- Kayakers are not visible on radar. Kayakers should not rely on a boat's radar to alert a skipper to their presence.
- When a power vessel traveling at high speeds slows down, it creates a larger wake as the vessel settles into the water.
- Large powerboats and tour-boats can be blown off course by strong winds when traveling too slowly, such as when they must pause in harbor entranceways because kayakers are blocking the passage.
- If a vessel does not respond to your VHF radio call, call again. The vessel operator may have been on the radio to another boat or using the PA system to speak to passengers.

What power vessel operators should know about sea kayakers

- Because sea kayakers carry their "life support" systems (food, clothing, tents, sleeping bags, etc.) in their kayakers, a fully loaded kayak may weigh 250 or more pounds. Kayakers and survival equipment are particularly vulnerable to being damaged by large wakes when loading or unloading on a beach as the kayakers cannot be quickly picked up and carried out of the wake zone.
- Wakes breaking onshore against a loaded kayak may push the kayak into a kayaker causing severe injury or a broken leg.
- Kayakers usually travel close to the shore to stay out of the way of power vessels. However, large wakes breaking against cliffs give kayakers a "double whammy". First they get the incoming wake, then the refracted wave off the cliff.
- A power vessel with a large wake traveling at high speeds close to sea kayakers can capsize a sea kayak if the kayakers do not have sufficient time to turn "bow-into" the wake.
- In bad weather (winds over 15 knots), kayakers are less likely to be able to maneuver. Giving them room is the best option unless assistance is clearly being requested.

Guidelines for sea kayakers

- Increase your visibility by wearing bright clothing, using a bright (not dark) colored kayak. Paddles with white rather than black blades, and putting reflector tape on kayak paddles and life jackets. Use of a bicycle flag pole may interfere with your ability to right and climb back into the kayak should you be rolled. Test this in a pool before using.
- Learn the boating sound signals so you can understand a vessel operator's intentions when he gives you a sound signal.
- Carry flares to use in distress.
- Carry a good, submersible, VHF radio where it is readily available for use. Be aware of large boats and subsequent wakes and avoid landing and launching in a potential surf zone when their wakes are approaching. Use beaches that are protected from possible surf and wake for rest breakers and/or carry your boats up out of the surf zone if possible. When loading or unloading for camp, empty and move the kayaks up the beach as quickly as possible.
- In narrow passages or places where power vessels have limited maneuverability, stay out of the main channel. Do not impede traffic in a harbor or harbor entrances.
- Move into and away from harbor entrances quickly to avoid wakes from vessels accelerating and slowing down.
- If you are traveling in a group and see a vessel approaching, move into a tight group to increase your visibility. Wave your paddles high above your head to alert the vessel operator of your presence.
- If a power vessel approaches you heading into the sun, try waving your paddles high above your head in a back and forward motion to alert them of your presence.
- When rounding blind corners or areas with submerged reefs be aware that boat wakes can be dangerous. Wait until the boat and subsequent wake pass by before proceeding.
- When crossing a passageway or open water, cross in a tight group. In areas of high traffic, give a "securite" call on your VHF radio before crossing.

Guidelines for Power Vessel Operators

- Always travel at a safe speed for the conditions. Reduce speeds when weather conditions or blind corners reduce your visibility. Never travel faster than you are capable of responding to avoid an accident or close encounter.
- Stay sufficiently far away from kayakers that they have time to maneuver "bow-into" your approaching wake.
- On leaving and approaching harbor entrances, look for kayakers and plan your acceleration or deceleration so they have time to turn into the wake. Kayaks have been capsized in this situation.
- Avoid traveling close to shore especially around blind corners. Kayakers ranked encountering a vessel rounding a blind corner as the most likely cause of a sea kayaking fatality. When rounding a blind corner in an area sea kayakers use, give one prolonged blast as a warning. Listen to your radio for response. Take action to avoid close encounters or collisions.
- When kayakers are near cliffs, consider reducing your speed well before you reach them to minimize your wake or give the area a wider berth.
- If you inadvertently place a large wake close to kayakers when they may not be able to head "bowinto" it, look back after passing and make sure you have not capsized a kayaker.
-

Sound Signals

The following maneuvering signals are used when vessels are in sight of one another or to announce a vessel's presence.

1 short blast: I am altering course to starboard.

2 short blasts: I am altering course to port.

3 short blasts: I am operating astern propulsion.

1 prolonged blast: Power driven vessel underway in reduced visibility.

5 or more short blasts: Danger signal.

Sound Signals at Blind Corners

Power vessels rounding a blind corner in areas routinely used by kayakers should indicate their approach with 1 prolonged blast. Kayakers should immediately respond on their VHF radio giving a "securite" announcement on channel 16 as follows:

"Securite, securite, securite, vessel rounding the blind corner, there is a kayaker (or group of kayaks) at _____ (location: such as - 100 yards from Point Roberts)."

Communications

Channel 16 is the standard hailing and distress channel for vessels in Alaskan coastal waters. Initial contact is made on channel 16, and then if more discussion is necessary the parties agree to switch to another channel. Channels 21 and 22 are for communication with the Coast Guard. It is advisable that kayakers carry and know how to use a VHF radio. VHF radios require a station and operator's license. The best VHF radios for Alaskan coastal conditions are water repellent and have 5 watts of power.

Using a VHF Radio

- Listen to make sure no one else is speaking.
- Establish contact on channel 16 giving first the NAME of the boat you are calling (if known, or type of boat and description of its location "tour-boat approaching Point Decision", this is NAME (of your boat) and CALL SIGN. To avoid confusion, never reverse this sequence. You may repeat the name of the boat you are calling a few times, but do not repeat your name and call sign. Keep your call short. If the boat does not respond, wait two minutes before trying again unless it is an emergency.
- When contact is established, switch to a working channel (9 if with a commercial boat or 68, 69, 70, 71, 72, or 78 for recreational boats). Listen to make sure no one else is using the channel.
- Communications should be short and about operational or safety concerns.
- Sign off giving your NAME and CALL SIGN when you are finished on the working channel.

Making a "MAYDAY" Call

"Mayday" calls are made only when one is in grave and immediate danger. Being weathered in or overdue are not "Mayday" situations. For less severe situations call the Coast Guard or harbormaster. Use VHF channel 16.

“MAYDAY” Procedures

1. On VHF channel 16 state: “MAYDAY, MAYDAY, MAYDAY, THIS IS A KAYAK PARTY (repeated three times; normally the name and call sign of the vessel goes here, but kayaks usually don’t have names)”.
2. “WHERE” you are. Give the most exact information possible.
3. “WHAT” is wrong (collision, sinking, injured person, etc.).
4. “NUMBER” of persons in party and the condition of any injured.
5. “PRESENT SEAWORTHINESS” of the kayak(s).
6. “DESCRIPTION” of the boat (yellow single person kayak, etc.)
7. Give “YOUR LISTENING FREQUENCY” and schedule.
8. Conclude: “THIS IS A KAYAK PARTY, OVER”.

Local Knowledge

- Inexperienced kayakers often do not know where they are. Follow your charts and note the local names for points and bays.
- Never kayak in an unfamiliar area without a local chart or special map. Keep track of your location.
- When kayaking in an unfamiliar area, seek local knowledge even if you have a chart.
- It is advisable to fill out a trip plan and leave it at the harbor office.
- If you are in an unfamiliar area, check with the harbor staff about local high traffic areas, such as small boat ramp areas, cannery docks, and harbor entrances, where there might be a potential conflict. Try avoiding these areas. If you cannot avoid them, enter these areas with caution and try to stay out of the way of vessel traffic. If visibility is poor, you may wish to give a Securite call. This Guide was developed in partnership with the U.S. Coast Guard. For more information call your local Coast Guard Sector.

Contributors

The Alaska Wilderness Recreation and Tourism Association took the lead in developing this brochure and received invaluable help from the Knik Kayakers and Canoers. Over 80 businesses and individuals from Ketchikan to Kodiak participated in the scoping process, risk assessment and development of this brochure. Personnel from the U.S. Coast Guard in Juneau, Valdez, and Anchorage have provided support and assistance.

Notice

This Guide is meant to complement and not replace the federal laws that govern maritime traffic. Prudent mariners should not rely on the Guide as their only source of information about vessel traffic patterns, Navigation Rules, and safe boating practices in Alaska, and should at all times comply with applicable law. The companies and agencies that have contributed to the publication of this Guide expressly disclaim any liability or responsibility, direct or indirect, which may arise from the use of this Guide, or reliance upon any information or recommendation in the Guide, by any person or entity.

