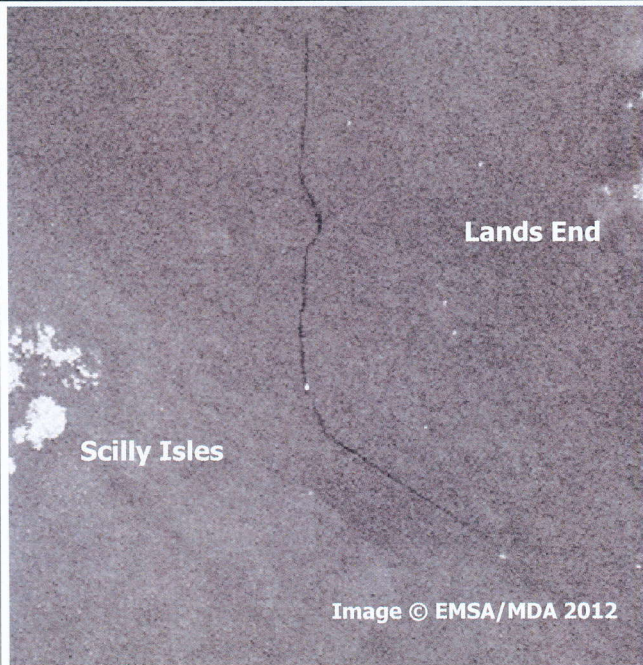


## SATELLITE IMAGERY BUSTS MAERSK TANKER IN UK POLLUTION CASE



At a hearing in early October 2013 at Truro Magistrates Court in the UK, Maersk Tankers Singapore was ordered to pay a total of £22,500 in fines and costs after pleading guilty to a breach of UK maritime pollution legislation.

For the first time ever, satellite imagery was used as primary evidence in a maritime pollution case brought about by the UK's Maritime and Coastguard Agency (MCA).

On 25 February 2012 a satellite operated by European Maritime Safety Agency (EMSA) detected the Singapore-registered *Maersk Kiera* trailing a slick in the waters between Lands End and the Scilly Isles.

According to the MCA, the vessel was contacted by Falmouth Coastguard to query whether they were carrying out tank cleaning operations as they had satellite imagery of oil traces in the track of the *Maersk Kiera*.

The Master confirmed to Falmouth Coastguard that tank cleaning and associated discharge following a



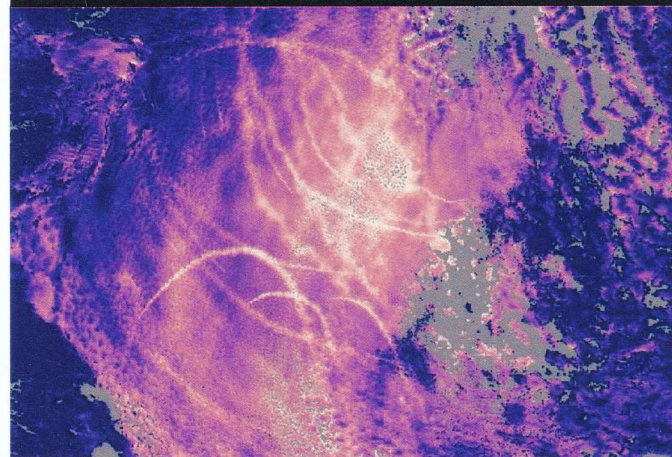
cargo of palm oil was indeed being undertaken, but that they were complying with International requirements.

Under the Dangerous or Noxious Liquid Substances in Bulk Regulations 1996 (SI 3010) discharge of palm oil slops is permissible subject to certain conditions, however, one of those conditions is that the discharge occur beyond 12 miles from the nearest land.

Satellite imagery confirmed the slick was inside that mark and Maersk Tankers eventually admitted that a breach of the UK Pollution Legislation had taken place.

Captain Jeremy Smart, Head of Enforcement at the Maritime & Coastguard Agency, commented on the case: "This is the first time satellite imagery has been successfully used as primary evidence in a maritime pollution prosecution brought by the Maritime and Coastguard Agency. The Agency will use all means available to identify and prosecute those carrying out illegal discharges within the UK Pollution Control Zone."

## SHIP TRACKS IN THE SKY



This is pretty cool. The photo above is from National Geographic collection of "Space Photos This Week" and is titled 'Ship Tracks in Sky'. Using NASA's Terra Satellite, the image is a false-color picture showing pale arcs in a layer of marine clouds that are in fact traces of the paths of ships in the North Pacific. National Geographic tells us more:

Clouds form when water droplets condense around airborne particles, such as dust and sea salt crystals. Over the open ocean, there are fewer natural particles, so the water droplets that do form tend to grow relatively large.

But air pollution from ship exhaust creates smaller cloud droplets, which are more reflective and thus brighter in the enhanced image.

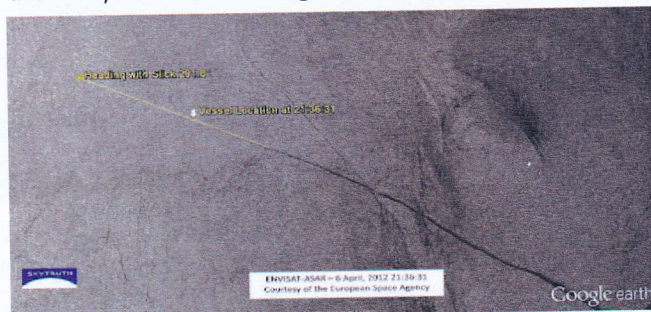
# BILGE DUMP CSI: AIS HELPS ID VESSEL RESPONSIBLE FOR OIL SLICK OFF ANGOLA GCAPTAIN

Radar satellite image showing a 92 mile long bilge-dump slick, taken on April 6, 2012. Envisat ASAR image courtesy European Space Agency.



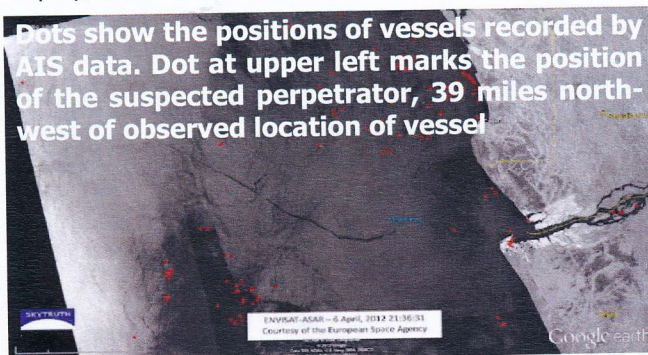
In April last year, satellite-image-monitoring-environmental group SkyTruth identified a 92-mile slick off Congo and Angola, captured in the above photo, that was likely the result of a discharge of oily bilge water from a ship. Now, after a thorough investigation worthy of it's own CSI episode to find the perpetrator, SkyTruth has identified just who is responsible for the release of the oily bilge waste.

Here, SkyTruth tells us just how they cracked the case That reads like a maritime detective 'whodunnit': In the ASAR satellite radar image, we can determine the exact time and date of the event, the co-ordinates of the start and end point of the slick, the length of the slick, and the heading of the vessel:



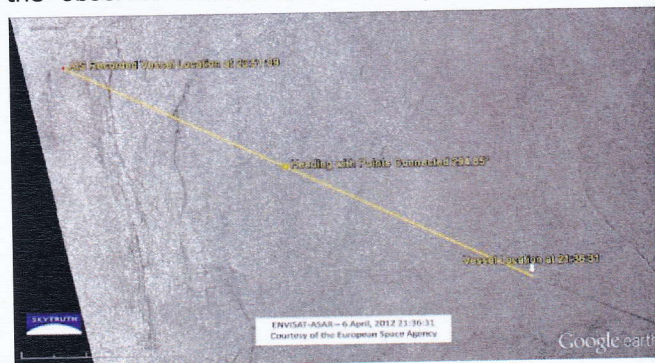
SpaceQuest builds satellites that intercept Automatic Identification System (AIS) data broadcast by vessels at sea. SpaceQuest gave us AIS data for the region spanning a 24-hour period, enabling us to identify vessels that were operating in the area around the same time the radar image was taken. After doing some simple mathematics we had enough information to pinpoint the likely culprit.

Dots show the positions of vessels recorded by AIS data. Dot at upper left marks the position of the suspected perpetrator, 39 miles northwest of observed location of vessel

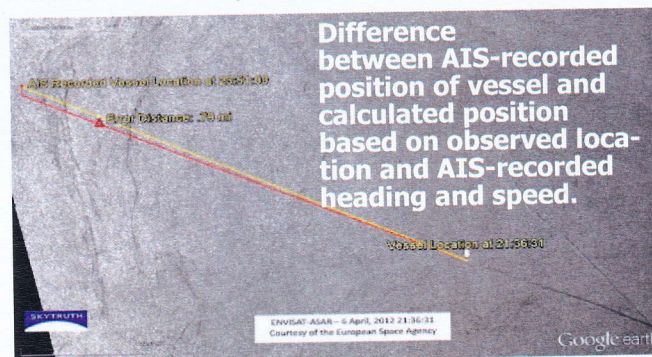


AIS data for a vessel 39 miles northwest from the observed location of the ship gave a heading of 293.8° and a speed of 15 knots (17.3 nmph). This AIS

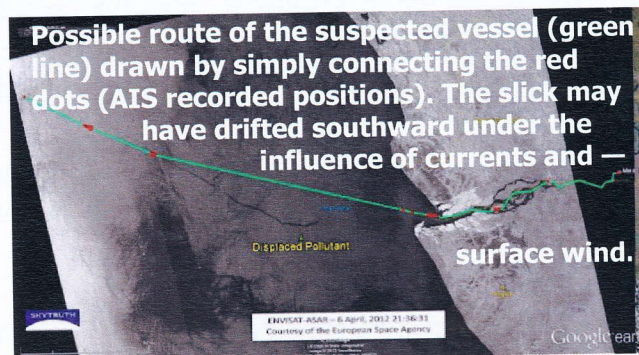
information was broadcast 2.25 hours after the radar image was taken. If the ship travelled for 2.25 hours at 17.3 nmph, then the ship travelled 38.925 nautical miles, very close to the measured distance between the observed location and the AIS position.



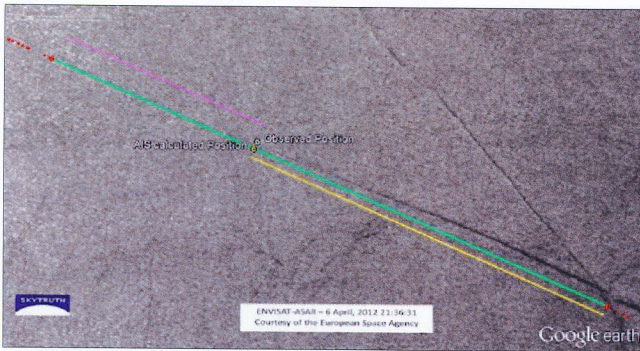
The heading of the ship was reported by AIS to be 293.8°, only 1.1° off from the measured heading of 294.9°. Also calculated was where the vessel should be, had it been traveling for 2.25 hours at the AIS-recorded heading from the location observed on the satellite imagery. The ship would have ended up only 0.79 miles from the AIS-recorded location. No other vessels appeared anywhere near this location on either the radar image, or the AIS data, making the *Dona Liberta* a likely culprit for this bilge dumping.



But a 'good idea' of who dumped this material really isn't good enough. After checking back with SpaceQuest on our findings, they supplemented our data with a compilation of the perp's AIS data for the previous 24 hours. From that, we were able to determine more about the trajectory of this vessel:



The observed location of the vessel in the radar satellite image was bracketed by two AIS data points,



so there was more information available to cross reference with our current suspect. By comparing the time of each AIS point, with the time of the ASAR image, as well as the distance between them, the rate of travel was confirmed:

The observed location of the vessel in the radar satellite image was bracketed by two AIS data points, so there was more information available to cross reference with our current suspect. The distance between the eastern AIS position to the observed location (yellow line) is 16.9 miles, and the vessel's speed according to AIS was 15.1 knots (17.377 mph), giving a travel time of 58.4 minutes. The actual time difference between the radar image and the AIS broadcast is 54 minutes. On the other side, the distance between the western AIS point and the observed location (pink line) is 9.66 miles, with the vessel speed at 15.2 knots (17.49 mph), implying a travel time of 33.1 minutes compared with the actual time difference of 36 minutes. These measurements are not exact but are very close, with no other vessels in the vicinity that could be confused with the suspected vessel.

After this thorough investigation, SkyTruth revealed the perpetrator as.... the *Dona Liberta*, a refrigerated cargo ship owned by NaviFruit Ltd.



***Donna Liberta***



**Cribs on the Kent coast.**

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**INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS**

During the 30th Annual General Assembly in Buenos Aires there was concern that some members were not fully aware of the work that was carried out by the IFMSA in London. To try to put this right and to add some immediacy to conveying the information between the quarterly newsletters, IFMSA publishes a monthly log to highlight the key activities that have kept the secretariat occupied.

These logs give details of IFMSA's interactions with IMO as well as the general activities of the IFMSA organization itself.

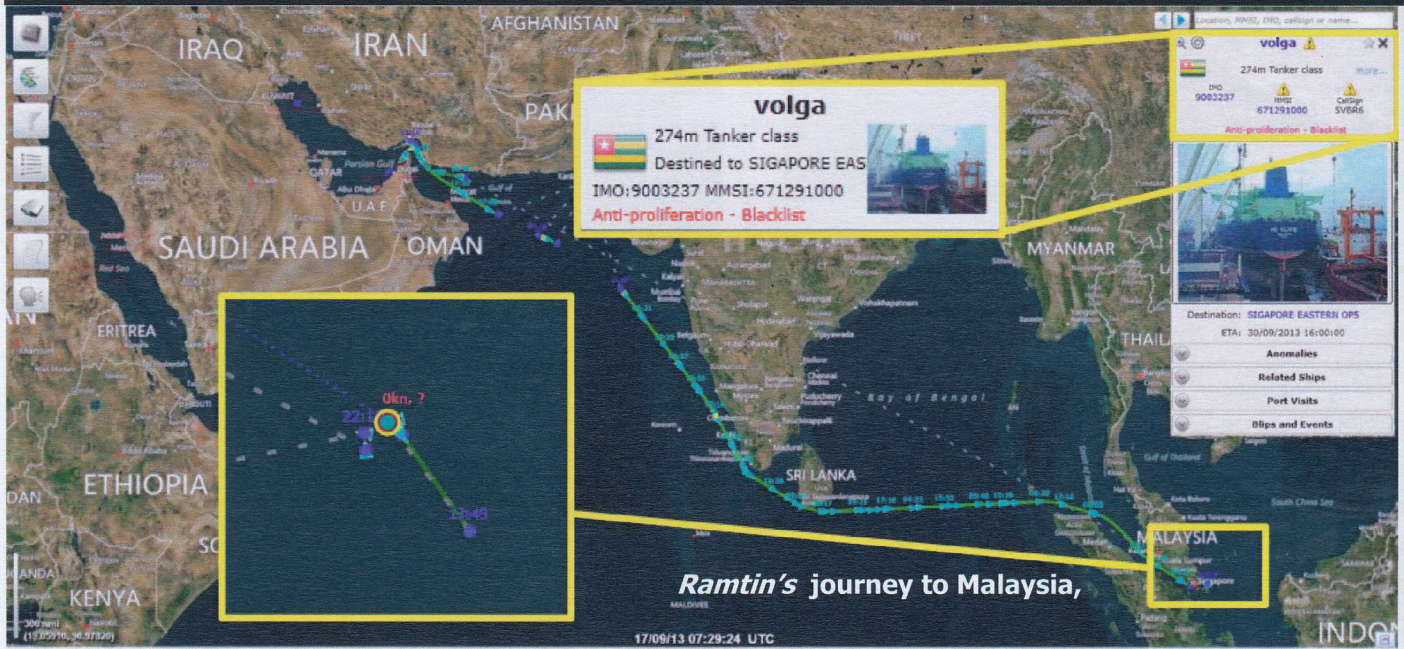
These interesting and informative logs can be accessed via the IFMSA website [www.ifsma.org](http://www.ifsma.org) and then by clicking on the link at the top of the page called **Monthly Logs**.

It's well worth a visit.

**IFMSA 40th Annual General Assembly will be held in Sandefjord, Norway June 5 & 6, 2014**

# IRANIAN TANKER HACKS AIS TO DISGUISE ITSELF OFF SINGAPORE DURING THE PERIOD OF UNITED NATIONS SANCTIONS.

By Rob Almeida gCaptain October 25, 2013



*Ramtin's journey to Malaysia,*

Well, what about security vulnerabilities when it comes to hacking the Automatic Identification System (AIS), a system which is used to track maritime shipping around the world?

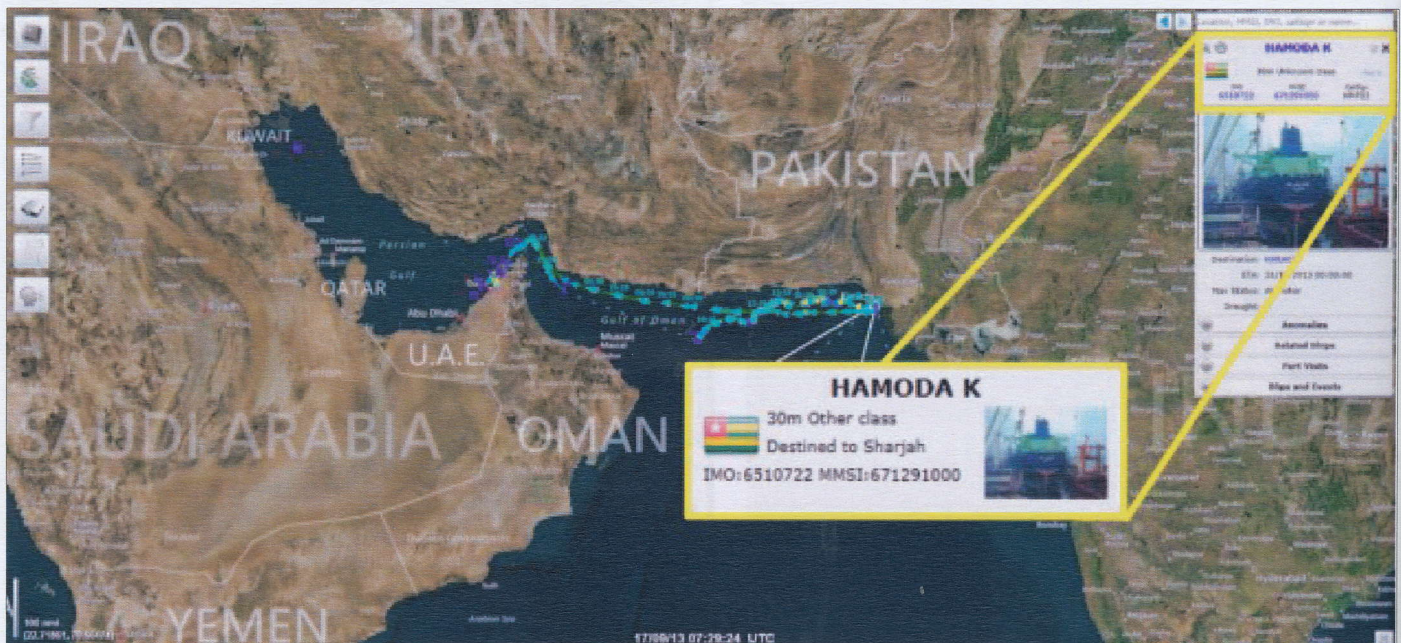
How difficult is it? How prevalent? How easily can it be done?

Hacking the AIS system on board own ship however, may be no longer be any bigger deal to computer wizards than hacking into emails on a home computer. This article follows a case study, and perhaps demonstrates that rather than a possibility it may be already happening.

It examines a method apparently actually used by the 163k deadweight crude oil tanker *Ramtin* (formerly known as *Volga*) it anchored off Singapore in early

October last year. This vessel is managed and owned by Tabuk Maritime, a company which has been sanctioned by OFAC for its connections to the Iranian oil trade. The vessel has been detected operating in the Eastern Singapore/Malaysia ship-to-ship transfer operation area after steaming fully-loaded with crude from Bandar Abbas, Iran.

MarInt, a predictive maritime analytics system developed by Windward followed the *Ramtin* as it began transmitting a new Maritime Mobile Service Identity (MMSI) number while it passed through the Gulf of Oman on its way toward Singapore. Its MMSI number now matched that of a much smaller tanker named *Hamoda K* which was on its way to Karachi from the U.A.E.



*Hamoda K's journey to Karachi*

The *Ramtin* still has its same IMO number, but its MMSI number is now that of the *Hamoda K*, a vessel which is not on the OFAC blacklist. This 'sharing' of identity, together with the close proximity in time of the operations, appears to indicate that the *Hamoda K* was being manipulated to disguise *Ramtin's* activities near Malaysia.



***Ramtin (Hamoda K?)***

Draught reports show that the *Ramtin* was at its maximum crude capacity (17metres draught) while sailing towards Singapore, and had yet to transmit any new information about its draught – possibly indicating it had not yet transferred parts of its crude oil to a second tanker.

MT *Hamoda K* then left Karachi on its way to Hamariya Bay (U.A.E)

**Timeline:**

- 10/09** – MT *Hamoda K* arrives to Karachi port waiting area in Pakistan.
- 10/09** – MT *Ramtin* (formerly known as *Volga*) leaves the port of Bandar Abbas (Iran) on its way to Eastern Singapore / Malaysia STS operation area
- 30/09** – MT *Ramtin* arrives to Eastern Singapore / Malaysia area then stops 18nm offshore
- 12/10** – MT *Hamoda* leaves the port of Karachi on its way back to the U.A.E.

***Sanctions eased***

Sanctions on ships carrying Iranian oil were eased on Jan. 20 for six months as part of a deal between Tehran and six world powers including the United States, Russia and Germany. The deal suspended some of the measures put in place since early 2012 in exchange for Iran curtailing its nuclear programme.

**TIME LAPSE  
SUEZ CANAL IN 60 SECONDS  
PANAMA CANAL IN 117 SECONDS**

A Time Lapse Transit Of The Suez Canal in 60 seconds in August 2013 by the USS *Kearsage* may be found at: <http://gcaptain.com/suez-canal-in-seconds-video/>

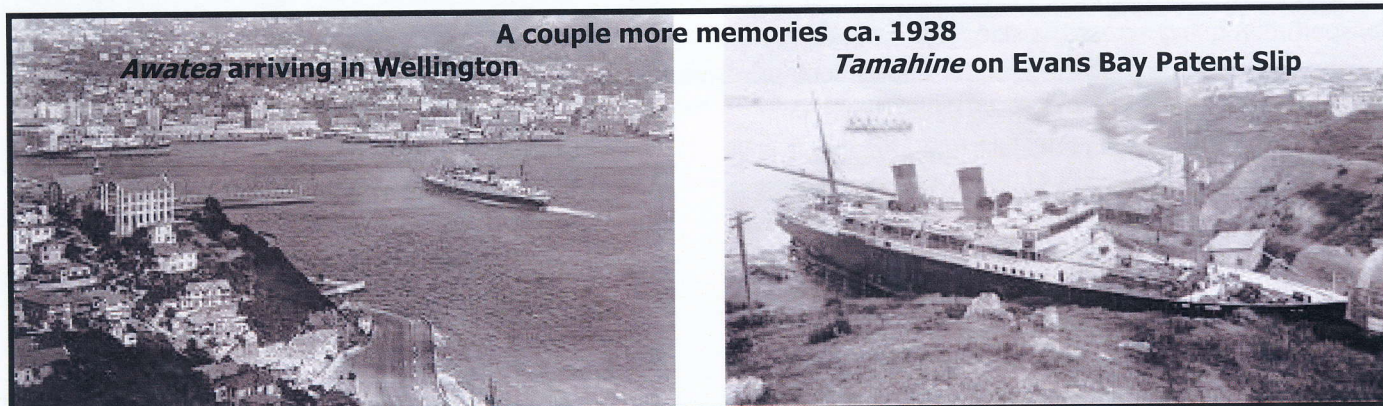


**USS *Kearsage***

Time Lapse Transit of the of the Panama Canal in 1 minute 57 seconds by the Cruiseship *Radiance of the Seas*. July 2010 may be found at: [http://www.youtube.com/watch?annotation\\_id=annotation\\_655031&feature=iv&src\\_vid=vi19z4LEi0&v=fA-pnN54uPw](http://www.youtube.com/watch?annotation_id=annotation_655031&feature=iv&src_vid=vi19z4LEi0&v=fA-pnN54uPw)



***Radiance of the Seas***



***Awatea* arriving in Wellington**

**A couple more memories ca. 1938**

***Tamahine* on Evans Bay Patent Slip**