

***Filling the Gap : Small Inter-Island
Caribbean Trading Ships
and Their Crews***

Geoffrey Boerne

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Geoffrey's interest in transport issues stems from his experiences in the industry and his concern with environmental issues relating to the transport industry. In this regard he built and sailed his own sailing cargo vessel, 'Lo Entropy'. This experience brought him into contact with the informal maritime sector and the seafarers who sail on the small vessels. The importance of this sector to those involved with it, and its wider socio-economic implications to maritime transport, developing regions and remote locations has fascinated him ever since.

He has written articles on: intermodal cargo transport, transports impact on the environment, transport's energy usage, the abuse of seafarers, and the East African informal maritime sector.

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SUMMARY

There are only rough estimates of the numbers of vessels and seafarers engaged in the small vessel sector in different parts of the world. A very brief study of small vessel usage in East Africa (appendix 4) is attached. The purpose of this research is to analyse the Caribbean small vessel sector (less than 150 gross tons) within the maritime industry of that region, to examine the working environment in which these vessels operate and to assess the implications for the seafarers employed with respect to rights, conditions, health and safety. The lack of detailed information and significant research in this area has prompted the study and has highlighted the need to build an international database on these types of vessels, their safety and their crews. This pilot study examines the conditions, statutory rights and working environment of seafarers employed in the commercial small vessel cargo carrying fleet used in the Caribbean inter-island and mainland-island trades.

The research reveals that the safety standards of the Caribbean informal maritime transport sector is lower than the 'formal', international maritime legislation, but is still of a relatively high standard for a regional transport sector. This report questions the full use of stringent legislation as a means of development in the locally produced and manned small vessel sector, as it seems more likely to destroy than develop it. The report indicates that although in terms of cargo tonnage moved this small vessel sector is a minor player, rather its importance lies in supplying unsubsidised transport to remote, insular and economically poor places that would either demand government subsidised transport or receive none at all.

The seafarers working in this sector have few employment rights. Although most have over 10 years seafaring experience, few have any formal qualifications, due mainly to the lack of educational and training facilities in the region. The small vessel seafarers receive no recognition of their value as seafarers from

government, unions, port authorities etc. This lack of recognition and development limits the seafarers chances of advancement into the formal maritime transport sector, and could result in the Caribbean islanders being denied a maritime future as rich as their maritime traditions and history.

INTRODUCTION

Small Island Developing States (SIDS) in the Caribbean, are in general minor places in world terms. All of the islands studied except Trinidad and Tobago, have a population of less than 300 000. The island groups are archipelagic in form, in warm waters and in locations prone to hurricanes, earthquakes and volcanoes. They are on average some 700 km away from markets of more than 500 000 people. For all the above reasons, they are considered to have vulnerable economies. The United Nations defines a vulnerable economy as one which:

- is subject to frequent **shocks** which are unpredictable and not controllable by national governments
- has low **resilience**, in the sense that it has little internal capacity to absorb the damage caused by shocks and resume normal economic life when subject to shocks.

For these reasons, the United Nations Conference on Trade and Development, (UNCTAD), treats SIDS as a “special case” in terms of development and aims is to promote sustainable development¹ on these islands. Although not necessarily total self reliance, as it is improbable that complete self sufficiency can be achieved. SIDS have this low resilience as they are usually dependent on tourism for their main

¹ Sustainable development aims at achieving both efficient economic performance and ecological sustainability, as well as equity, at all levels of development. pp 20 from: UNCTAD (1992) A new partnership for development: The Cartagena Commitment. TD(VIII)/Misc.4. Such development seeks to meet the needs of the present without compromising the ability of future generations to meet their needs. pp20 from: World Commission on Environment and Development (1987) Our Common Future. New terminology for Island developing Countries (IDC's) is now SIDS which is the acronym for 'Small island developing States'; Sustainable development is defined as 'the progressive and balanced achievement of economic growth, social development and environmental sustainability'. "The concept of sustainability brings in elements of quality of growth ensuring that economic and social development and environmental protection are mutually reinforcing" pp87, Review of Maritime Transport: UNCTAD; 1997

income, which is approximately 70% or more of Gross Domestic Product (GDP) for most Caribbean islands, and what goods they do produce and manufacture are subject to changing trade agreements with other external markets. Tourism is dependent on levels of economic well-being in foreign countries and the SIDS's own political stability and pristine land and marine environments. In order to promote development SIDS receive a disproportionate amount of overseas aid in comparison to mainland developing countries and regions. On average, they obtain US \$100 per capita in aid, compared to US\$ 16 per capita in mainland developing regions.² If SIDS are to reduce their dependency and their vulnerability, development needs to be sustainable so that once initial development costs are paid, islanders can maintain these facilities without outside aid.

Due to the small land areas of the islands and the large distances between them, the transport system connecting islands is essential to an archipelago's economic and social development. The UN has stated that one of the activities they consider critical to SIDS sustainable development is inter-island transport and UNCTAD is prepared to give assistance in this area.

In many cases, and certainly in the Caribbean, inter-island transport is the province of an informal maritime transport sector, which is subject to few regulations which are variably enforced by port authorities. The informal sector in the Caribbean does not receive state subsidy and therefore seems to be 'sustainable'. In order for this informal maritime sector to develop higher safety standards, legislation has been promulgated with the help of the International Maritime Organisation, the USA, and various Caribbean island states. However, no financial or educational incentives have been offered to help the small vessels seafarers and owners reach these desired standards.

² Report of the Secretary-General: Specific Problems and needs of island developing countries; United Nations, Forty seventh session: General A/47; August 1992

The research reported here is based on the premise that the seafarers and islanders are the important players in this industry, and if sustainable development of this small vessel sector is truly the aim of any legislation, in order to judge its applicability, one must first understand the importance of this informal maritime sector in regard to the seafarers who operate it, and their importance to the local island economies as well as the importance of this sector to the markets it serves. Writing in relation to the development of the maritime industry in the Pacific, Professor Alastair Couper has said : “It is essential for those who wish to help Pacific Island communities, to acknowledge that they will achieve far more by seeking first an understanding of the social organisation and social geography of the Pacific seafaring than by continuing with policies based on Eurocentric ideas of the sea business, and virtually ignoring the wealth of maritime heritage of the Pacific islanders.”³ The same holds true for the Caribbean seafarers and their industry, and it is hoped this research will give an insight into these factors making for informed policy making.

Information on the informal sector in the Caribbean is difficult to find. A bibliographic search for publications relating to the use of small vessels of less than 150 G.R.T. produced one reference on the size of the small vessel sector which estimated that some 400 - 500 small vessels between 100 to 200 dead weight ton (d.w.t.) operated on inter-island trades in 1990.⁴ This figure relates to the whole Caribbean region, from Cuba, south along the Central and South American coast to Suriname, as well as the island chains of the Lesser and Greater Antilles. There were

³Couper.A.D: Islanders at sea: Change and the maritime economies of the Pacific, in Brookfield H.C.(Ed), *Pacific in Transition*, pp247.

⁴. Mallejac. J.; Report on the Mission to the Republic of Maldives of the inter-regional adviser on Maritime Safety Administration from 22 June to 6 July 1978. Inter-Governmental Maritime Consultative Organisation, IMO; London; January 1979; (Project INT/73/022). This research cannot confirm the Caribbean figure due to this figure relating to the whole region, and not just the windward and leeward islands. In the location of this research, there were approximately 70 - 80 small vessels below 150 gross registered tons (G.R.T.) operating, not 400 - 500.

no references on the size of the small vessels fleet below 150 G.R.T its operational costs and benefits, or its social and economic organisation.

This study focused on the use of small vessels of less than 150 G.R.T. from Trinidad in the south to St. Maarten in the north. The islands of Guadeloupe and Martinique were not included in the research as they are governed directly from France and therefore operate under a different regulatory environment to the other islands in the Caribbean. The research documents trading patterns, ship sizes, living conditions aboard ship, the rights of seafarers who sail these vessels and the general regulatory framework.

Letters requesting information about seafarers and small vessels were sent to the Maritime Authorities of fourteen islands nations in the region, as well as to the US Coastguard. Five replies were received, but unfortunately, none gave useful information regarding the number of seafarers employed, the number of small vessels registered, or the regulatory system governing small vessels.

Twenty nine small vessel crews, totalling some 117 seafarers were interviewed for this research.⁵ The Leeward and Windward islands where interviews took place with seafarers and to which visits were made were the following: St Maarten, Anguilla, St Christopher, Dominica, St Lucia, Barbados, St Vincent, Bequia, Mystique, Union island, Petite Martinique, Carricou, Grenada and Trinidad. There are large numbers of small vessels working in this area and the data accumulated is from approximately one third of them. It is not known how representative the Leeward and Windward Islands trading vessels are in comparison to the rest of the region, but it is unlikely to be substantially different.

⁵ Thirty two interviews took place, however, three small vessels were over 150 G.R.T. and their interview responses do not form part of this research.

Interviews were conducted at random. The researcher waited at a port and then sought interviews with crew members of any vessel that looked as if it was below 150 G.R.T. Interviews themselves rarely took more than an hour, although, waiting for boats to arrive could take days. Where possible, vessel registration documents were read. Officers of eight Port Authorities were interviewed, on the islands of St Maarten/Martin; St Christopher; Dominica; St Lucia; Barbados; St Vincent; Grenada. The questionnaire used for these interviews is attached as appendix 3.

All calculations for the statistical data for this research are based on the information obtained from the field work interviews with the seafarers and with port officials.

1: INVESTIGATION INTO THE SMALL VESSELS AND THEIR TRADES

1.1: Fleet Size

Registry information for small cargo ships of less than 150 G.R.T. trading throughout the Caribbean islands is difficult to attain. This is due to poor record collection and the diffuse nature of the maritime authorities in the region where due to a lack of central control, one department is often ignorant of information held elsewhere. The researcher therefore counted small vessels, (SV), by travelling around the islands at which interviews were taking place. Approximately 140 small vessels were counted throughout the islands from St.Maarten to Trinidad (excluding St.Barts, Guadeloupe and Martinique) visited by the researcher. Based on this count, the researcher estimates that the amount of small vessels registered throughout the Windward and Leeward islands of the Caribbean to be no more than 200 small ships. Further, from observation of the sector under normal circumstances, it is unlikely that more than 70 - 80 of these small cargo ships are operating at any given time. This estimate is based on the frequency of small vessels voyages per month, and the number of stops to load and unload on the routes along which they trade.

The UN estimate of 400 to 500 small vessels of 100 to 200 d.w.t. operating in the Caribbean region may be correct. However, as the criteria is different from this research in that the UN estimate refers to a dead weight tonnage of between 100 to 200 d.w.t., it includes ships which are larger than 150 gross registered tons (G.R.T.),⁶ and secondly, it refers to the whole Caribbean region, not just the Windward and

⁶ The definition of d.w.t. and G.R.T. is as follows: Deadweight or deadweight all told: Difference between a ships loaded and light displacement, consisting of the total weight of cargo, fuel, fresh water, stores and crew which the ship can carry when immersed to a particular load line, normally her summer load line. The deadweight is expressed in tons or tonnes. Also referred to as Total deadweight. Abbreviated to d.w.t. or d.w.a.t. G.R.T: Gross tonnage or Gross register/ed tonnage: The total of all the enclosed spaces within a ship, expressed in tons each of which is equivalent to one hundred cubic feet. Brodie.P.(1994) Dictionary of Shipping Terms, 2nd edition; London; Lloyds of London Press Ltd.

Leeward islands as in this research. To verify this UN estimate would demand field work throughout the Caribbean region. Based on the researchers previous experience of working in the small vessel sector of the Caribbean, he believes this UN estimate to be on the conservative side. But until there is an exact count of the number of small vessels in the Caribbean region, this estimate will suffice as a benchmark figure for the region.

1.2: Ship Size

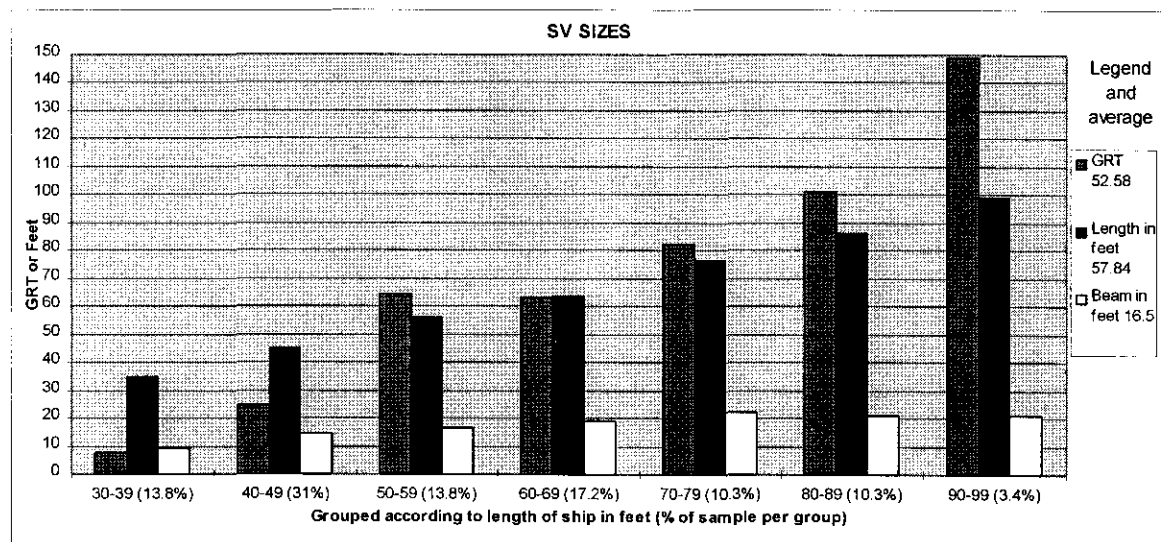
In the sample interviewed (Crews of 29 small cargo vessels of less than 150 G.R.T.) the average size of ship was 52 G.R.T.. The average waterline length was 57.8 feet, the beam on average 16.5 feet. Due to the range from which this average is calculated, seven categories of ship sizes, based on the water line length of the ships, were classified. These are as follows:

Figure 1.1: Categorisation of Interview Sample

Size of ship categorised according to waterline length	Percentage this size of ship represents in relation to the total sample interviewed
30 feet to 39 feet	13.8%
40 feet to 49 feet	31 %
50 feet to 59 feet	13.8%
60 feet to 69 feet	17.2%
70 feet to 79 feet	10.3%
80 feet to 89 feet	10.3%
90 feet to 99 feet	3.4%

The cut off point on ship size is set at vessels of less than 150 G.R.T., the limit at which the original 1932 Load Line Convention came into force in the UK. In 1966, the Load Line Convention changed from a tonnage regulation to a vessels length regulation, (ships of more than 78.7 feet [24 metre] need a load line). As some of the original Caribbean designed wooden ships and the newer steel small ships in the informal sector are longer than 78.7 feet, but less than 150 G.R.T., it was decided that 150 G.R.T. would be the limit of the ships being studied. Further, in practical terms, after 150 G.R.T., a ship is quite a large entity, bearing little resemblance to the notion of small home built ships one sees plying their trades in the informal sector. The new regulations coming into force in the Caribbean, the Code of Safety for Caribbean

Figure 1.2: Small Vessel Sizes



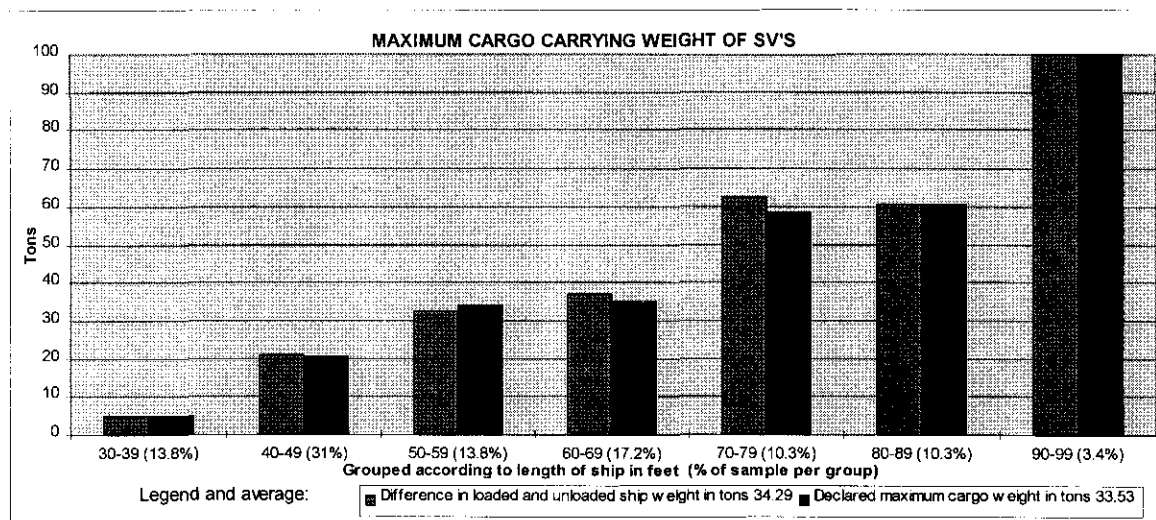
Cargo Ships, has a much wider definition with regard to ship size. The Code of Safety for Caribbean Cargo Ships Code exempts all vessels of less than 49.2 feet (15 metres), but includes all vessels above this length but of less than 500 G.R.T. In the

Caribbean, most ship sizes in the informal sector are determined by the local skills and materials available to build them rather than commercial considerations.

1.3: Cargo Capacity

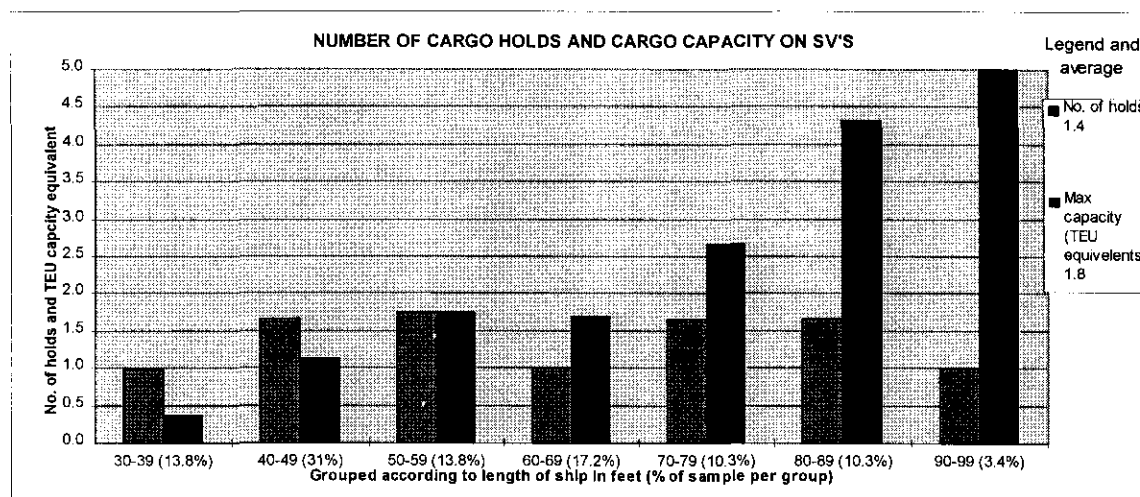
On average the small ships maximum cargo capacity is approximately 34.29 tons. Figure 1.3 below shows that the average cargo weight for each category of small vessel varies from 4.8 tons to 100 tons. The difference in the declared maximum

Figure 1.3: Maximum Cargo Carrying Weight of Small Vessels



cargo weight and the weight loaded and unloaded might reflect the amount of deck cargo carried, as the declared cargo weight reflects the hold capacities only.

In Figure 1.4 below, the capacity and number of cargo holds again varies from one category of small vessels to another. This figure shows that on average, most small vessels have more than one hold, which in turn means that bulkheads separate the hull of the ship, which is a useful safety feature.

Figure 1.4: Number of Holds and Cargo Capacity on Small Vessels

1.4: Voyage Costs

Voyage costs for the purpose of this research refer only to the fuel, food and wage costs of a vessel. These vary due to the different sizes of boats, the routes followed and the trades in which the boats participate. Taking into account wage, food and fuel costs, the average operating costs per ton/mile at maximum cargo capacity is US\$ 0.38. Sadly for the small vessels, they rarely trade at full capacity. In Figure 1.5 below, the voyage or operating cost per ton/mile for a typical voyage of a small vessel is given, the average per ton/mile cost at normal loaded capacities is US\$ 0.62. The average mileage of a small vessel voyage, round trip, is approximately 271 miles. The average cost for this distance in terms of wages, fuel and food is US\$ 168.02. When broken down into the three factors of wage, fuel and food costs per ton/mile the results were as follows:

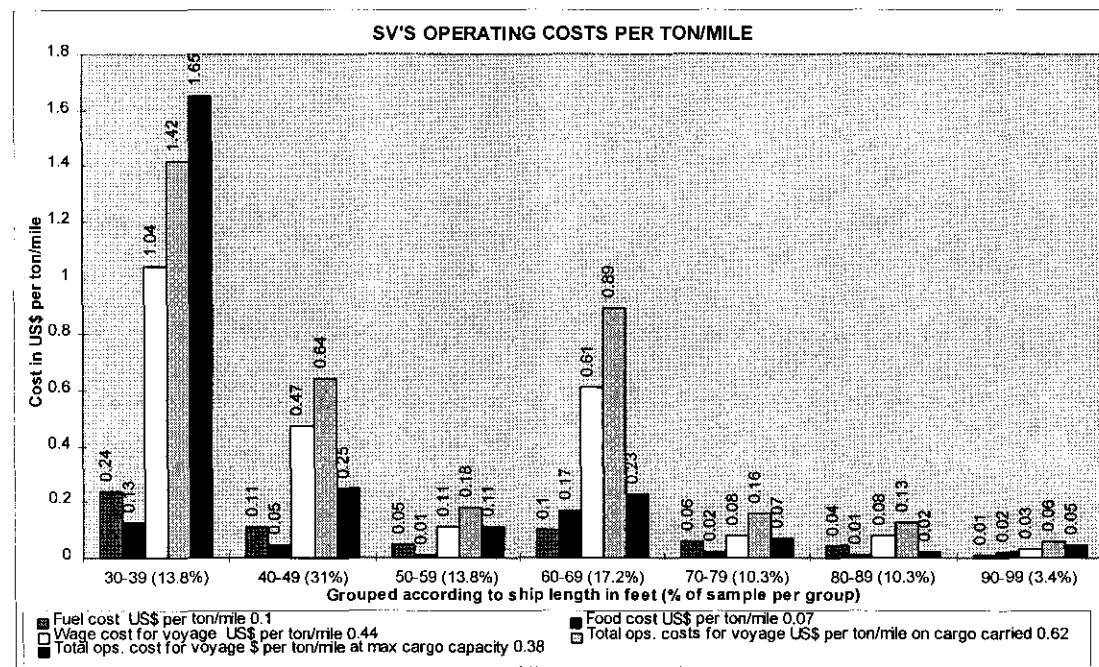
average wage costs per ton/mile:	US\$ 0.44
average fuel costs per ton/mile:	US\$ 0.10

average food costs per ton/mile: US\$ 0.07

average operating cost per ton/mile: US\$ 0.62⁷

The voyage operating costs vary considerably from one size of small vessel to another, as can be seen in Figure 1.5 below, the smaller vessels having substantially higher costs per ton/mile than the larger ones.

Figure 1.5: Small Vessels Operating Costs



On the basis of these costs, it would seem that it is not economical to operate the smaller ships, but this is obviously false. Although direct voyage operating costs might be higher for the smallest vessels, their building costs, maintenance costs, harbour dues, loan repayments and, in most cases, lack of insurance costs, make their overall operating costs far lower. The figures above suggest that overloading in the 30 - 39 foot category of small vessels is quite common, but that in the other categories of small vessels, few load to their full tonnage capacity.

⁷ The discrepancy between 0.61 and 0.62 is due to decimals being rounded off.

The average distance sailed in round voyages from the home port is approximately 271 miles. However, this distance varies according to the trades the small vessels are working in, the frequency of their voyages, the speed of their vessel, the operational costs, and weather conditions throughout the year. Voyage duration is of course far more than the time spent at sea between ports alone, and Figure 1.6 below, takes this into account. Time values are based on the time taken to complete a round trip voyage, including all the stops in port. Stays in port are far longer than desired as far as owners and skippers are concerned, due to the attitude that port officials so often take with the small vessels. Although considered critical to the islands economy, it is not uncommon for a small vessel to have to wait days for a berth that they need for only a few hours and for no apparent reason.

Most small vessels usually do a voyage a week. Paradoxically, the average amount of voyages per month per small vessel is 7 according to the research data but the additional voyages include day runs, travelling between neighbouring islands.

Figure 1.6: Time Taken and Round Trip Voyage Distances

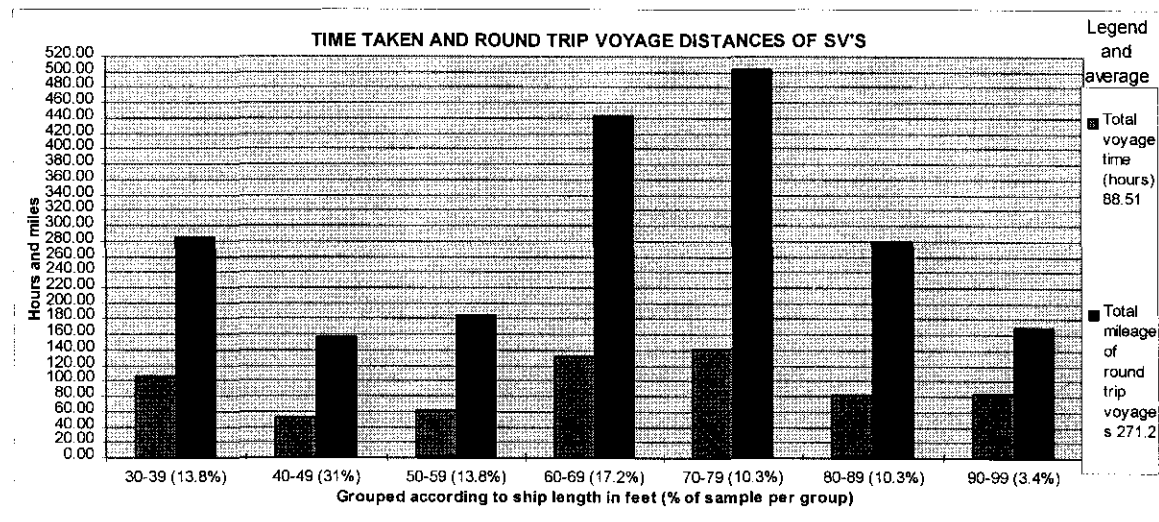
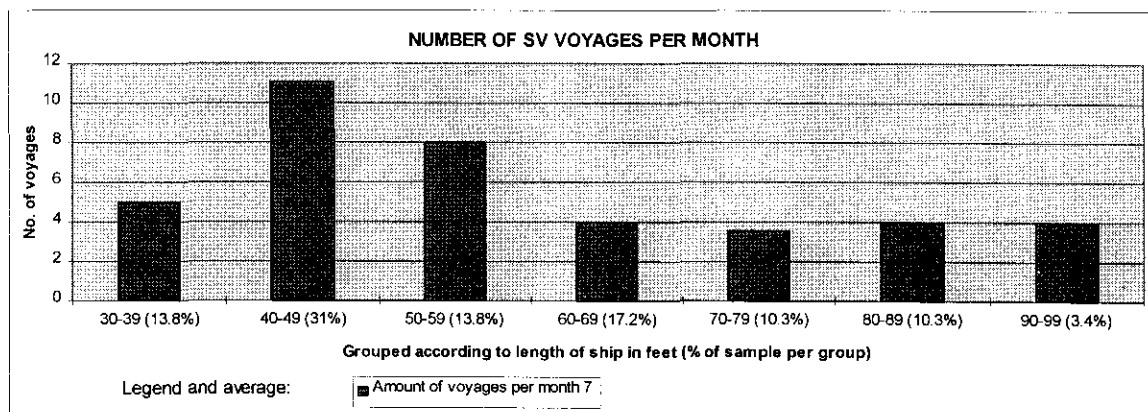


Figure 1.7: Number of Small Vessel Voyages Per Month

1.5: Routes Traded and Cargoes Carried by Small Vessels

The small vessels typically operate in a particular trade, and in effect run a liner service as regularly as they can or wish to, although without the benefit of a conference to safeguard their trade. One would think that the size of a small vessel would determine the length of a voyage, but it is clear that this is not the case. The trade a small vessel is in will determine the length of the voyage, not the size of the small vessel.

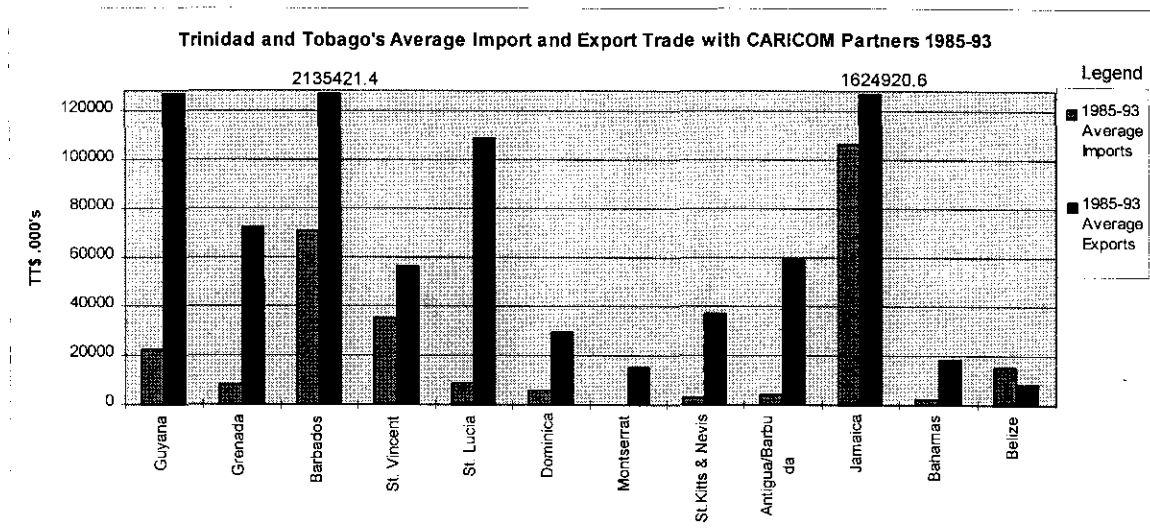
Trinidad to the south of the windward islands is one of the most important small vessel ports. Each week up to 10 small vessels can be found in Port of Spain on a Wednesday and a Thursday, discharging and loading cargo. These small vessels then sail to Grenada and northwards, calling at the various islands, some going as far as St Maartens. In general, cargoes of manufactured goods from Trinidad serve mainly the windward islands, as far north as Martinique. Trinidad is the most developed island of the CARICOM⁸ nations surveyed, and a major transshipment point for cargoes

⁸ CARICOM: Caribbean Community and Common Market : a trade block similar to the European Community. Consists of the following countries: Antigua/Barbuda, Bahamas, Barbados, Belize,

bound for the Caribbean islands from throughout the world, hence its importance to the small vessels, who then take the cargoes northwards through the islands. The small vessels often take return voyage cargoes from the islands to Trinidad, usually fresh produce, i.e. spices, fruit and vegetables, and to a certain extent, timber from Guyana. During the period of the fieldwork for this research, the small vessels were unable to bring much fresh produce to Trinidad due to the problems of “millibug” affecting the islands produce. In order to inhibit the spread of this pest, the Trinidad Authorities were not allowing fresh produce to enter Trinidad. This factor obviously affected the small vessels trade profits, but not enough to reduce the frequency of the small vessels trips to Trinidad, which suggest that it is the cargoes from Trinidad which are most important. Alternatively, it might suggest that changing to a different trade might be difficult, as a new clientele would need to be found whilst competing with other small vessels already in the trade. In Figure 8 below, the trade figures for the years 1985 to 1993 between Trinidad and Tobago and other CARICOM members are shown. These trade figures confirm Trinidad’s economic dominance in the region.

From Trinidad, as the SV Route map (Figure 1.9) below shows, small vessels cargoes flow northwards up the island chain, principally to Grenada and St Vincent. Most of the larger small vessels (50 foot and above in length) do the run from Trinidad to Grenada and St Vincent. From these ports, transhipments do take place, particularly to the island of Carricou and then up through the Grenadine islands to St Vincent. It would seem from the routes the small vessels ply, that Trinidad’s trade influence via the small vessels extends to most of the Windward Islands. In general however, the small vessels act as a feeder service. All the major islands have a least one good port able to accommodate large vessels and the small vessels then transport these cargoes in smaller units to the more remote ports and islands.

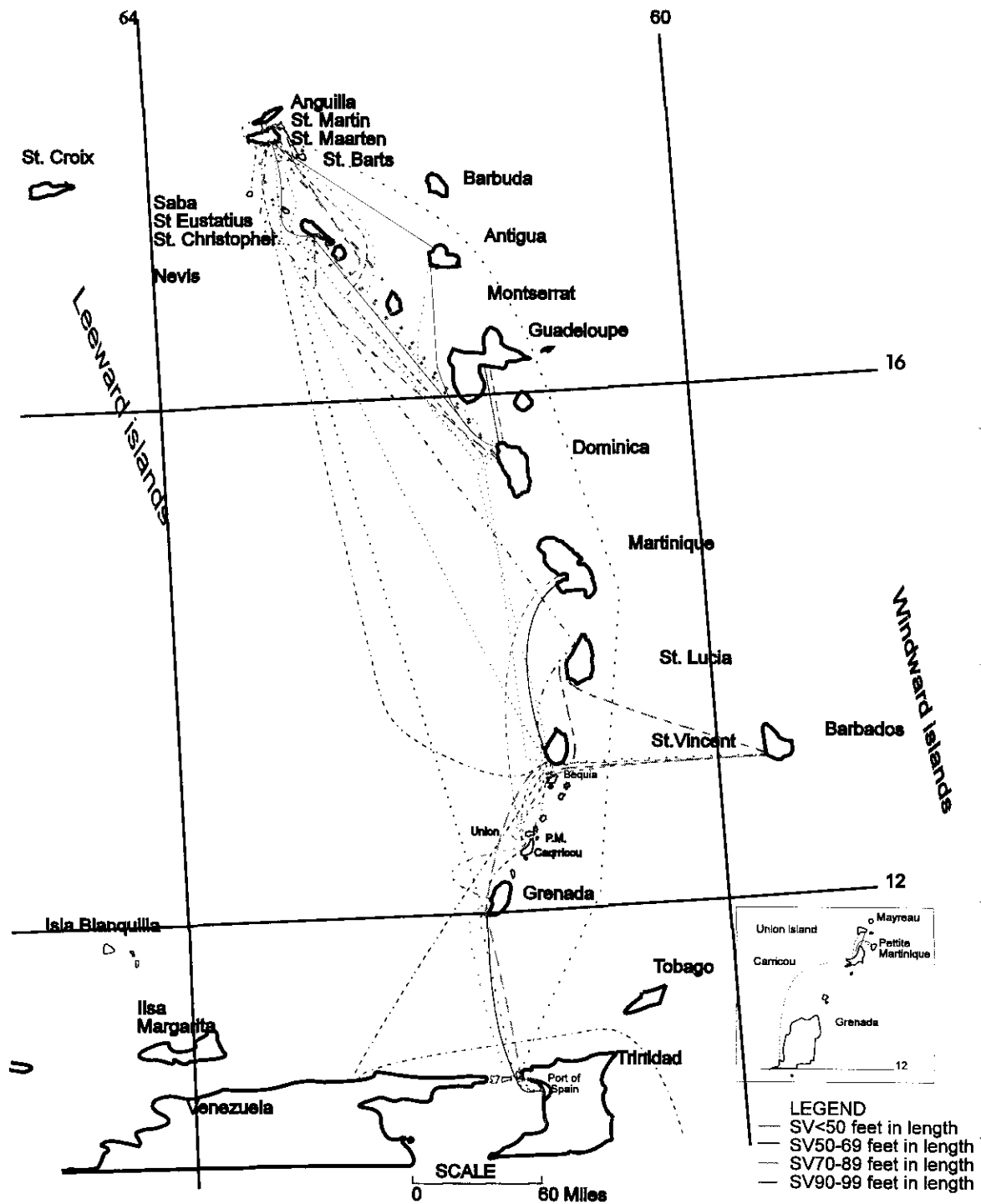
Grenada, Guyana, Jamaica, Montserrat, St.Christopher and Nevis, St.Lucia, St.Vincent and the Grenadines, Suriname, Trinidad and Tobago, Anguilla is an associated member

Figure 1.8: Trinidad and Tobago's Average Import and Export 1985-93

Source: Annual Statistical Digest 1993: Republic of Trinidad and Tobago; Office of the Prime Minister; Central Statistical Office; pp 180.

Herein lies the importance of the small vessels to the islands, for although the facilities may or may not exist to accommodate large ships, in the trades in which the small vessels operate, it is not financially viable for large ships to work these markets. This is mainly a result of there being neither a big enough population to sustain the trade of a large vessel nor the purchasing power which would make substantial shipments viable for traders. Due to the ability of the small vessels to keep their operational costs low, they in turn allow goods to reach markets that could not otherwise afford them.

Figure 1.9: Small Vessel Routes



St Maarten in the north, like Port of Spain in the South, is an important port for the small vessels. Here small vessels unload cargoes of fruit and vegetables, and load manufactured goods, particularly electrical items, which are traded with the islands to the South. This predominance of St Maartens has much to do with its free port status on the Dutch side of the island. This attracts numerous cargoes from more developed regions like the USA and Europe, which are then transhipped to other islands in the south. St Maarten also has a well developed tourist trade and being short of water is unable to provide its own fruit and vegetables. As half the island is French, the other half Netherlands Antilles, St Maarten is one of the more developed islands. The island also boasts an international airport and has strong trade links with both Europe and the USA. In view of all these trading factors, it is unsurprising that the research found that 48% of the small vessels stopped at St Maartens, although only 3% of the small vessels were based in St Maartens.

The research found that few small vessels in this region were traders. There are set times of arrival and departure, and the customers using the small vessels service would arrive with their packages to be transported to the next island or the small vessels destination. The small vessels in effect act like a postal system, with virtually all small vessels carrying packages for individuals. Any larger goods carried, have been ordered by the buyer and are then transported by prior arrangement and to agreed terms.

Few small vessels provide product dedicated services. The only exceptions found were one small vessel carrying fuel between Carricou and Pettite Martinique, and those small vessels carrying frozen fish, shrimp and crab products for tourist markets or export to countries outside the Caribbean.⁹ Figure 1.10 below shows the various commodities carried.

⁹ In July 1998, new EC regulations came into force regarding the storage and transport of fish and shell fish products for EC consumption. Many small vessels, as well as fisheries in the research area

Figure 1.10: Commodities Carried by Small Vessels

Cargo Type	Percentage of small vessels carrying different cargo types, Grouped according to length of ship in feet (% of sample per group)						
	30-39 (13.8%)	40-49 (31%)	50-59 (13.8%)	60-69 (17.2%)	70-79 (10.3%)	80-89 (10.3%)	90-99 (3.4%)
General cargo	25%	66%	75%	40%	100%	100%	100%
Fruit	75%	66%	75%	60%	66%	100%	75%
Vegetables	50%	66%	75%	60%	33%	100%	75%
Flour		55%	50%	20%	66%	33%	50%
Liquor	25%			20%	33%		25%
Horticultural goods				20%			
Manufactured goods		77%	50%	40%	100%	100%	100%
Fuel			25%	20%			50%
Frozen Fish		33%		20%			50%
Frozen shrimp				20%			25%
Frozen goods		11%					25%
Tinned food	25%	55%	50%	40%	100%	66%	75%
Building materials	25%	55%	50%	40%	100%	66%	100%
Individual's packages	100%	77%	100%	60%	100%	100%	100%
Water							25%

will not be able to reach the required standards, and as a result, both Caribbean fishermen and small vessels' are likely to lose substantial parts of their income.

1.6: Commercial and Market Organisation

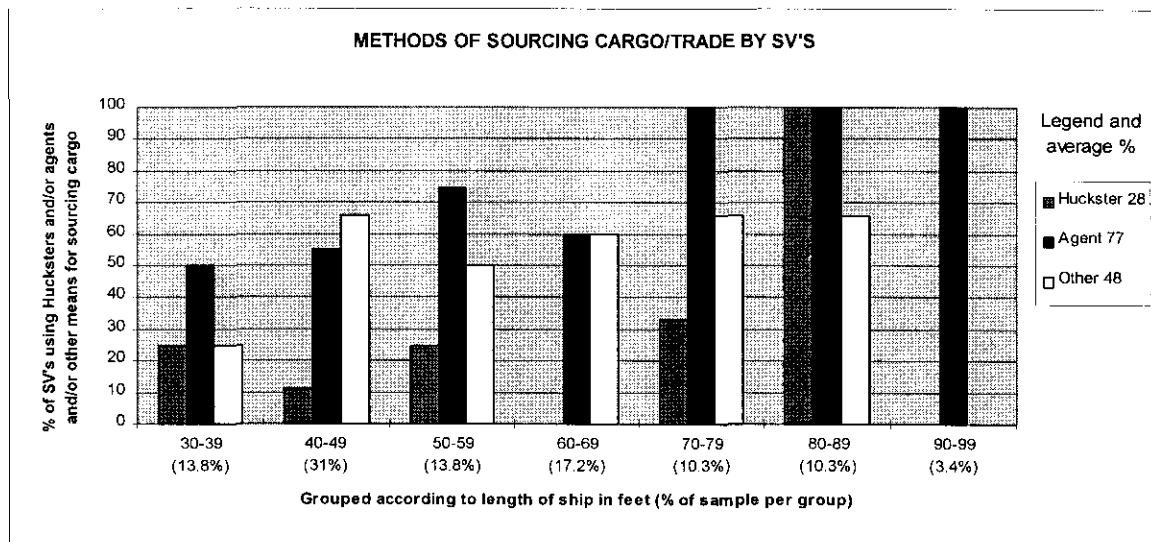
Although at first glance the small boat sector looks like a free for all, this is definitely not the case. Approximately 77% of the vessels at some stage employed shipping agents to deal with all the custom formalities, and to arrange cargoes and transport payments. Where there were no shipping agents, or hucksters, the boats would either be on a well known route, with established connections at their destination ports. Sometimes these are family members or trusted friends. Sometimes people will arrive at the wharf with cargo and arrange for its delivery to family or associates at its destination, usually paying for the transport at loading. Receipts are generally issued, depending on the relationship with the crew or the vessel's owner. Generally, the people for whom the cargo is destined will meet the vessel shortly after its arrival at an island. The system works well, due mainly to family connections throughout the islands, linking skippers, crews or owners.

Alternatively, the small vessels might be involved in the Huckster trade. The Huckster trade is a trade which takes place in the Caribbean, where farmers sell their produce to hucksters, who then sail on the small vessels with the fruit and vegetables to various islands, arriving on each islands market day to sell their fruit and vegetables in the local market. Hucksters are predominantly women. The crews are expected to load and unload the huckster produce at each port, and the hucksters must sell their wares in the market, no matter how rough the passage was the night before. The small vessels are expected to arrive in time for each market day on the different islands. A huckster voyage will usually last for 5 to 6 days, and be repeated the following week. Here the skippers deal with the port authorities, rather than agents who would not be needed for obtaining cargo, as the hucksters travel onboard with their cargo of fruit and vegetables. Most small vessels use a combination of the three different sourcing of cargo methods. However, as the ships become larger, it can be

seen that the use of agents becomes more important in securing larger amounts of cargo.

It would seem that as the ship size and cargo capacity increases, the need for a more formalised approach to obtaining cargo and trade begins to affect the small vessel fleet. As most of the smaller, and all of the wooden small vessels, are not insured, nor is the cargo, the safety of the cargo is ‘personally’ insured. Should things go wrong, the skipper or the owner would be personally responsible for making good any losses.¹⁰

Figure 1.11: Methods of Sourcing Cargo/Trade by Small Vessels



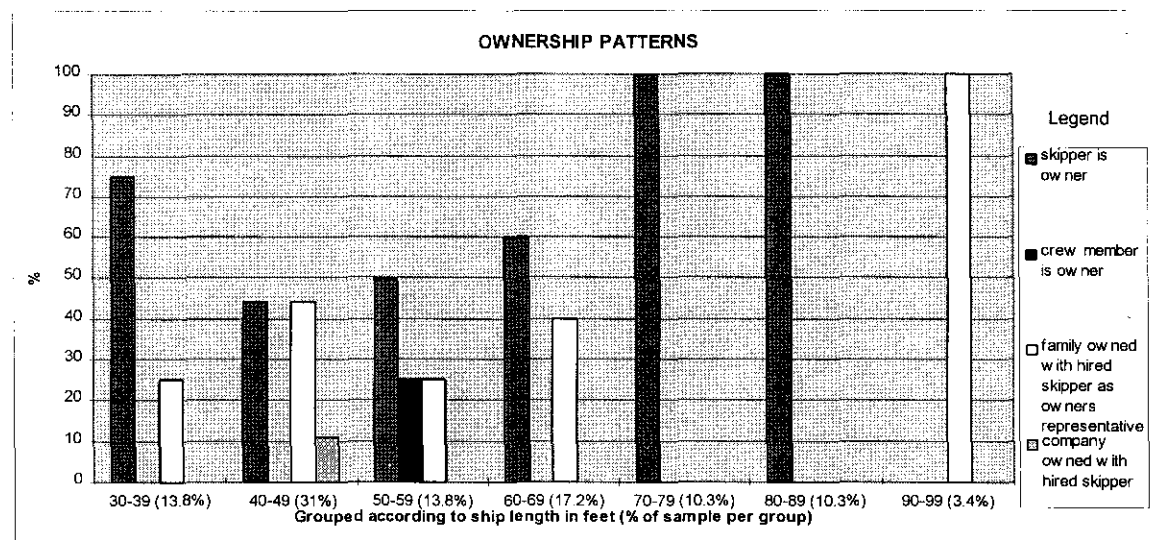
¹⁰ This is perhaps one of the reasons that the owners of the small vessels 's invest much of their profits in land and buildings, rather than in equipment for the small vessels . It follows therefore, that as a shipper, it makes sense to ship one's cargo with successful skippers, as if a loss occurs, the small vessels owners ability to pay for the lost cargo is more likely. This is an important factor when the small vessels crews competency is discussed further in this paper.

1.7: Ownership Patterns

Ownership patterns of the small vessels varied, but most ships are family affairs with owner skipper. This type of ownership accounted for 55.1% of the sample interviewed. 3.5% of the ships were owned amongst siblings only, and a further 3.5% had the owner onboard as crew, but as yet unable to skipper, in which case a close friend or family member was hired to captain the boat. In total, 61.9% of the small vessels had their owners onboard at all times.

In one-third of cases, the owner was not onboard the vessel, and a non family member was hired as skipper. In only 3.5% of cases was the vessel owned by a company, using hired skippers to run the vessel. In these latter cases, there were no owners representatives onboard, (neither trusted friend nor a family member), other than the hired skipper. The small vessels in this case were purely a financial venture on the part of the owner, and probably not his/hers only means of generating income.

Figure 1.12: Ownership Patterns



The nationality of 86% of the owners was the same as the nationality of the vessels registration. Where ownership nationality differs from that of the vessels registration

a number of reasons for this might exist. The most common is that a small vessel has changed ownership, but the registration remains under the same flag, until some time later when the owner registers it under his/her country's flag. Another is that owners believe that they are afforded more protection under the British flag, what is effectively a flag of convenience. The inefficiency of the British regulating authorities in the Caribbean means that small boat working regulations are seldom applied to most of these small ships or they would not be allowed to sail.

With more regulation looming in the Caribbean (the Code of Safety for Caribbean Cargo Ships), the flag a ship flies might depend less on the owners nationality and more on the willingness of the Flag state to implement the Code of Safety for Caribbean Cargo Ships. This could lead to the growth of flags of convenience amongst informal sector shipping.

1.8: Financial and Legal Incentives/Disincentives

There are no state incentives for people to go into small vessel shipping. This has been an unregulated activity with few if any barriers to entry beyond the relatively modest levels of capital required to buy a vessel. The small vessel market or informal maritime sector is not for the faint hearted, even though it does allow for the opportunity to make a reasonable living. Some families who have been in the business for generations, as well as some comparative newcomers to the business have done very well out of small vessel operations, going on to buy much larger ships in the formal shipping sector. Their understanding and knowledge of the small ship sector has stood them in good stead for entry into the formal maritime transport sector.

The main barrier to enter the small vessel sector is having enough capital to build or buy a small ship. As no insurance is available for wooden vessels, individuals must either have the cash, or get a loan using their house or land as security. Due to the climatic conditions faced by the islanders in the Caribbean, this can be a very risky and daunting challenge. Small ships are still being built in wood at Carricou and in Petite Martinique by professional boat builders. The builders claim that they build 3 boats a year, each completed vessel, without the engine, costing in the region of US\$ 46,000 (EC\$ 120 000).

There have been no qualification requirements for crews and skippers in the small vessel sector until very recently, and to date this requirement is only for certain islands. Ostensibly therefore, there are no legal measures barring anyone with enough money to buy and operate a small vessel. There are of course other less tangible social and economic pressures. In an economic sense, without a knowledge of the market and the port customs, it is unlikely that one could enter this market and survive. It is also unlikely that people would ship their goods with a novice owner skipper. It is also unlikely that a novice sailor would get a competent crew to sail with him. Skippers serve an informal apprenticeship by crewing on these ships for many years before their skills are acknowledged by their peers as sufficient. In the Caribbean it must be understood that legal measures do not have the same power as peers. Community approval and a skippers reputation for honesty and ability is important to success. Although far less regulated, it seems that this shipping sector is far less tolerant of bad seamanship and business ethics than the highly organised world of the formal maritime shipping sector. In this sector in this region owners cannot hide behind distant brass-plate companies.

The main financial disincentives for this sector come from the port authorities, who impose high port dues but provide no reasonable facilities for the seafarers in respect of training and education, communications, medical services etc. A general

complaint of the seafarers was that their treatment by the port officials was often rude and usually off-hand, with small vessels low on the list of the port authorities priorities.

Regulatory barriers to entry have until very recently been negligible. This state of affairs is about to change dramatically with the implementation of the “Code of Safety for Caribbean Cargo Ships” (CCSS Code). The Code of Safety for Caribbean Cargo Ships seems to be designed to make informal shipping in the Caribbean formal. The view of the small vessel seafarers is that this code will make it impossible for the continuation of the small vessel sector in the Caribbean in its present form due to the costs involved in conforming to this Code in terms of equipment, building costs and training costs. The Code of Safety for Caribbean Cargo Ships is discussed in greater detail in Section 4.

2: PORTS VIEWS AND DATA

Officers of eight port authorities were interviewed and all believed the small vessel sector to be an important part of their island economy. Some claimed that they played a critical role in both the economy and the inter island transport system by enabling the export of produce, the import of goods as well as providing employment for local islanders. Their respective views were as follows:

2.1: Netherlands Antilles: Port of Phillipsburg, St. Maarten

The Port Official interviewed at the St Maarten Port Authority commented, “the small vessel sector is very important to the islands economy, small vessels come mainly from St Vincent and the ex UK islands. The port captain does not want to see these vessels disappear, ‘due to their economic importance’.”

This port handles approximately 1600 tons of cargo per month from the small vessels. It has on average 40 small vessel calls per month. Cargoes are mainly perishable goods, i.e. fruit and vegetables. The small vessels leave with electronic and manufactured goods, vehicles, beverages and processed foodstuffs. Port charges are based on the tonnage of a small vessels, and the amount of cargo discharged and loaded, at 1.50 Dutch Guilders per ton. No facilities are offered by this port to the small vessel seafarers. The port carries out safety checks on the small vessels, making sure they have safety equipment, radio and fire fighting equipment, although there is no legislation per se governing the use of small vessels in St Maarten. However, the port will intervene if a small vessel is in a really bad state of repair, or obviously dangerously loaded, using the port legislation to which all ships entering the port are subject. As there is another port on the other side of the island, to remain

competitive, the port will not intervene unless the safety of a small vessel is obviously compromised.

The Port Official thought that on average, one small vessel is lost per year, usually as a result of bad weather, although this port does not keep records on small vessel losses or fatalities, and therefore did not know how many small vessel and/or their seafarers are lost per year. This port's officers had not heard of the Code of Safety for Caribbean Cargo Ships, and when presented with a copy, the opinion was that it was not workable, due to the nature of the small vessels involved, "because these boats are constructed in backyards, they are not mass produced." No small vessels are registered in this port according to the Port Authority.¹¹

2.2: French Saint Martin: The Port of Galisbay, Marigot

The Port Official on the French side of Saint Martin, at Galisbay, the main port, said that the small vessels are "very important" to the islands economy, but added, "most small vessels come from English countries, so the French have no control; we feel these vessels are unsafe, and something must be done about it to save lives."

Approximately 25 tons of cargo per day are shipped in and out of Saint Martin by small vessels per day (about 750 tons per month). On average, the port has 60 calls a month from small vessels. Cargoes brought to and carried from the island by small vessels consist of perishable foodstuffs, electronic equipment and manufactured goods. Port charges are based on the G.R.T. of the vessel, and the cost is 1 French Franc per ton. No facilities other than refuse bins are offered at this port for the seafarers, however, at Guadeloupe, the administrative centre for the French islands in the Caribbean there is a navigation school. On French vessels all employment and

¹¹ All comments and information a result of the research's questionnaire interview with the Port Authority.

safety issues are governed by the French legislation, which is enforced strictly. However, this legislation does not cover non French ships. In any case, the French Department of Maritime affairs, and not the port, deals with safety issues on ships calling at French ports. The Port Official knew of the loss of one small vessel in 1996, due to the propeller shaft breaking loose. The small vessel sunk, but no lives were lost. With regard to the Code of Safety for Caribbean Cargo Ships, this Port Official did not know of it, and offered no opinion about it, as French legislation and not the Code of Safety for Caribbean Cargo Ships governed safety standards on ships entering French Ports. There are no small vessels registered in St Martin, as all French flagged ships registered in the Caribbean are registered in Guadeloupe.

2.3: St. Christopher: The Port of Basseterre

The Port Official at St Christopher (St Kitts) at the Port of Basseterre said that in regard to the small vessel sector's importance to the islands economy: "It's really important. We export concrete blocks to Anguilla and Statia, as well as dairy products and refill Antigua's gas cylinders weekly. We get fruits that aren't grown here from Dominica, and general cargo from Puerto Rico and St. Maarten (mainly electronics)."

The small vessels bring to St Kitts approximately 2700 tons of cargo per annum (about 225 tons per month). The island exports approximately 5700 tons via small vessels per annum (475 tons per month). On average, the island receives 28 small vessel calls per month. Port dues are charged according to the G.R.T. of a ship, and the amount of cargo in terms of weight or capacity discharged and loaded. The only facility offered to small vessel seafarers is refuse disposal. The small vessel sector is controlled by the islands Merchant Shipping act, which in addition makes provision for the Minister responsible for Maritime affairs to make laws concerning the safety

of ships at his discretion. However, due to the diffuse nature of the maritime administration, the Act is rarely used to implement safety onboard small vessels or formal sector shipping. The Port Official knew of the Code of Safety for Caribbean Cargo Ships, thought there were problems with it but had no specific criticism to offer. The official knew of no losses of small vessels or seafarers in the small vessel sector nor of any small vessels registered on the island.

2.4: Dominica: The Port of Roseau

The official interviewed in Dominica's main port, Roseau, said of the small vessel sector that it was “ an important part of the economy; it helps with employment, in export, and it brings in manufactured goods”.

Unfortunately, figures relating to the export and import of goods by the small vessels are not available, official data gives overall trade figures, rather than specific trade figures by transport mode. However, the ports were able to give the number of small vessel calls for both Roseau, and the main small vessel port, Portsmouth. The average was 60 small vessel calls to Dominica per month and from this it is possible to produce a broad estimate of cargoes being transported by small vessels. The estimate suggests that total exports from Dominica by small vessels per month is approximately 1110 tons and imports of 150 tons, mainly manufactured goods and electrical items. Port charges are based on tonnage of cargo loaded and discharged.

No facilities are offered to the seafarers of the small vessel sector in terms of educational or social facilities, but seafarers, as with all workers in Dominica, are entitled to social security. Registration information pertaining to the small vessels was not available, and all attempts at finding data were fruitless. The Maritime Administration is presently in the process of formulating legislation dealing with

safety, registration, carriage of goods and health of small vessels and their crews. The Port Official knew of the Code of Safety for Caribbean Cargo Ships, and thought that it would increase small vessel safety and pollution control. The Port Official believed that it was rare for small vessels to be lost at sea and knew of no such losses.

2.5: St. Lucia: The Port of Castries

The Port Official interviewed in St Lucia commented, “(the small vessels’) port dues are important, but far more important is that small farmers use the small vessel sector for their produce, as well as for the local movement of people; this has reverberations for the whole economy.”

Two ports are used by the small vessel sector in St Lucia-Castries and Vieux Fort. The average amount of cargo shipped by small vessels of under 100 G.R.T. for 1997 is approximately 9000 tons (750 tons per month), mainly fruit and vegetables. The average number of small vessel calls per month to the island is 23.6. Port charges are based on the tonnage of cargo discharged and loaded on the first six calls of a small vessel per year. Should a small vessel call more than 6 times a year, from the seventh call the ship will be charged a set price. To promote the export of St Lucia's products, port charges on goods loaded and discharged are 50% of non St Lucia products.

The ports offer no recreation or training facilities to the small vessel sector seafarers, other than facilitating the processing of complaints, which are then passed on to the Labour Department. Port state control on small vessels is not implemented. The St. Lucia Port Administration is fully aware of the Code of Safety for Caribbean Cargo Ships, and believes the code to be workable. However, the Administration also believes that small vessel owners should be given appropriate time and incentive to meet the required standard. In St Lucia, the Code of Safety for Caribbean Cargo

Ships would be applied with discretion, rather than universally, to all small vessels. According to the Administration, only one small vessel is registered in St Lucia.

2.6: Barbados: The Port of Bridgetown

In Barbados, the view of the importance of the small vessel sector to the local economy expressed by the Port Official interviewed was “critical, as they move small loads which would be uneconomical for larger ships.” However, in an interview with the Maritime Administration, an alternative view was expressed by a different Official: the small vessel sector “moves a small amount of (cargo) tonnage and therefore their economic importance is not so great.”

In Bridgetown, Barbados, there is a dedicated section of the port called the “shallow draft port” which is used by small vessels. Statistics given by the Port Authorities show that on average approximately 1800 tons of cargo are imported and 1100 tons of cargo are exported through this port per month. On average there are 31.4 small vessel calls to this island per month. However, although the Barbados Port Authority considers all these ships to be small vessels, in terms of the parameters of this research, in many cases this is not so. This is due to the fact that many of the ships from which these statistics are derived are over 150 G.R.T., but less than 500 G.R.T., and therefore beyond the scope of this research. These “small vessels” are still part of the Caribbean informal sector but, unfortunately for the purpose of this research, these statistics should only be viewed as an interesting estimate, and no firm conclusions should be drawn from them. However, through the interview with the Port Official, it is known that on average 4 small vessels per week (20 per month), of below 150 G.R.T., do call at this port, although the amount of tonnage transported by these small vessels is not recorded. Estimates of the amount of cargo small vessels travelling to and from Barbados suggest approximately 700 tons per month of imports and exports

taken together. A similar amount of cargo exported by small vessels could also be possible, but both these figures must be treated with caution.

Port charges in Barbados are based on the tonnage of the ship. Ships of over 35 G.R.T. must use stevedores, and the cost of loading and discharging cargo is based on the tonnage of the cargo. No facilities are supplied for small vessel sector seafarers, although there are thoughts about building a crew facility. The port does supply refuse bins, but no longer supplies oil waste facilities since the closure of the local oil refinery. Small vessels are governed by the Barbados Shipping Act and more recently by the Code of Safety for Caribbean Cargo Ships, although the authorities only use this legislation when a vessel is considered a danger. The Maritime Authority did not know of any losses to the small vessels, but believed the incidence of losses to be very low, perhaps in the region of 2 to 3 small vessels lost in the last 9 years, without any loss of life. The Port Authority and Maritime Administration is fully aware of the Code of Safety for Caribbean Cargo Ships as they were instrumental, with Trinidad and Tobago and Antigua, in formulating this Code. The Authorities consider the Code of Safety for Caribbean Cargo Ships important and workable. They believe this Code is necessary in order to increase the safety of the small vessels, although they do understand that the small vessels owners will need an appropriate amount of time to upgrade their vessels to the Code's standard. There are no small vessels registered in Barbados.

2.7: St. Vincent and the Grenadines: The Port of Kingstown

The Port Official at Kingstown Harbour said that: "The small vessel sector is very important to the economy, and its direct revenue for the port."

In this port alone, small vessels unload approximately 1000 tons of cargo, and export approximately 150 tons of cargo per month. The port has on average 20 small vessel calls per month. As St Vincent and the Grenadines is one country, consisting of nine islands, small vessels move far more cargo and make many more calls than to Kingstown Harbour alone. Cargoes consist of manufactured goods, building materials and processed foodstuffs coming into the country, with fruit and vegetables the principle export carried by the small vessels. Port charges in Kingstown are based on the tonnage of cargo discharged and loaded, however, local boats have only to pay for the first 6 calls they make in a year. Other facilities the port offers to the small vessels is that of refuse bins, and insuring that seafarers employment conditions reach the standard of the International Labour Organisation 147 level. The St Vincent and the Grenadines Merchant Shipping Act governs the use of small vessels. This Port Official knew of one small vessel lost in 1996, in which 4 seafarers lost their lives.

The St. Vincent Maritime Authorities are well aware of the Code of Safety for Caribbean Cargo Ships, but do not believe it is workable. They believe the code to be too ambitious in the standards it is attempting to set for the small vessels registered in St Vincent. Further, they think that the Code of Safety for Caribbean Cargo Ships has been designed in order to “deplete” the small vessel sector. Registry information as to how many small vessels are registered in St.Vincent was not available, but the research has shown that 17.2% of the small vessel crews interviewed were St Vincent flagged vessels. Based on the researchers count of the small vessels, and the estimate of a total small vessel fleet of a maximum of 200 small vessels, it is estimated that the number of small vessels registered in St Vincent is probably between 24 to 34.

2.8: Grenada: The Port of St. George's

In answering the question as to the importance of the small vessel sector to the local economy, the Port Official at St George's said, "they are very important, the majority bring in building materials, and they service the small ports big shipping cannot."

Small vessels carried approximately 1200 tons per month in 1997 to Grenada and Carriacou, and shipped out from these islands approximately 80 tons per month. In 1997, small vessels were responsible for shipping 4.4% of the total cargo shipped to the country of Grenada, and 3.3% of the total exports. Cargoes shipped in are manufactured goods, building materials, foodstuffs, individuals packages of everything and anything. Cargoes exported by small vessels are generally fruit and vegetable, spices and fishing produce. Grenada receives on average 51.5 small vessel calls per month. Port charges are based on the G.R.T. and length of a ship, and cargo loaded and discharged is charged by the ton. St George's Harbour offers few facilities to the small vessel seafarers, just refuse bins and public toilets. Employment disputes are dealt with under the National Labour legislation.

Small vessels are governed by the Grenadian Merchant Shipping Act and the Port Authority Acts, although the Port Administration rarely enforces this legislation. On average 1 to 2 small vessels are removed from trading each year as a result of arrests. The reason small vessels are removed once arrested is due to the slowness of the courts, by the time the matter finally gets to court, the ship has so deteriorated that there is no case! Those not removed as a result of arrest are usually lost due to equipment failure and subsequent grounding. The number of seafarers lost seems very small compared to the losses of life sustained by local fishermen.

The Port Official interviewed knew of the Code of Safety for Caribbean Cargo Ships, and believed it to be workable, but at the same time questioned its viability on the grounds as to how much time would be allowed to phase the Code's standards into the

small vessel sector. He believed that many small vessels would be put out of business as a result of the Code of Safety for Caribbean Cargo Ships. The present registration records show 52 small vessels registered in St George's, (all Grenadian flagged ships are registered here, even though many Grenadian small vessels home islands are Carricou and Pettite Martinique). This registration figure is a conservative one as the records are not up to date, due to a change in responsibility for the registration records, from Customs to the St George's Port Authority.

Conclusion

In all cases, it is clear that the small vessel sector is relatively minimal when it comes to total imports and exports per annum. Small vessels, although ostensibly unregulated, are subject to the same controls as any larger ship while in port. Immigration, customs and health requirements must be fulfilled. Ports have at their discretion legislation that they can use to stop an unsafe ship from leaving port, although this legislation is rarely used other than to deter unsafe loading practices, or if there is a problem regarding port dues. In many ways, ports turn a blind eye to the small vessels as long as they pay their port bills and are not involved in illegal activities. Their main interest in the small vessel sector revolves solely around the revenues they can derive from this shipping sector, not the seafarers welfare or safety. This is demonstrated by the lack of any facilities for the small vessel seafarers, as well as the absence of records about this informal sector.

3: SEAFARERS AND THEIR SAFETY

3.1: Competence of Small Vessel Seafarers

The seafarers employed in the small vessel sector display a high standard of seamanship, although few possess any formal qualifications. This is not due to a lack of willingness to get formal qualifications, rather it reflects a lack of educational facilities in the region, both at tertiary and further education levels. Those that were ticketed, had usually served on foreign going formal sector shipping, or have been fortunate enough to be able to afford to go either to the USA or Europe for further Maritime training. Government sponsored places to overseas educational institutions were not available for people in the informal sector of shipping.

The average seafaring experience of individual crew members was relatively high at 11.29 years. By most standards this is significant seafaring experience and knowledge. Skippers on average had 18.69 years of seafaring experience and their skills were observed first hand by the researcher on voyages with small cargo ships. The competency of crews and skippers was excellent with regard to manoeuvring the small ships, and their ability to deal with their day to day running and operating problems. However, due to a lack of any formal training, there were also serious deficiencies:

- most crews could not navigate using a chart, although most could steer a compass course
- no watchkeeping or navigational logs were kept
- there were no fire drills and in most cases, fire fighting equipment consisted of a couple of fire extinguishers
- there were no formal watches, although ships were run steadily and consistently

- at no stage was any type of safety drill practised or advertised to either crews or passengers.

All the above point to a lack of 'structure' in the way these vessels are operated, rather than a lack of seamanship.

3.2: Navigational Abilities and Equipment

When questioned on navigational abilities, the research allowed for six levels of competence, weighted accordingly:

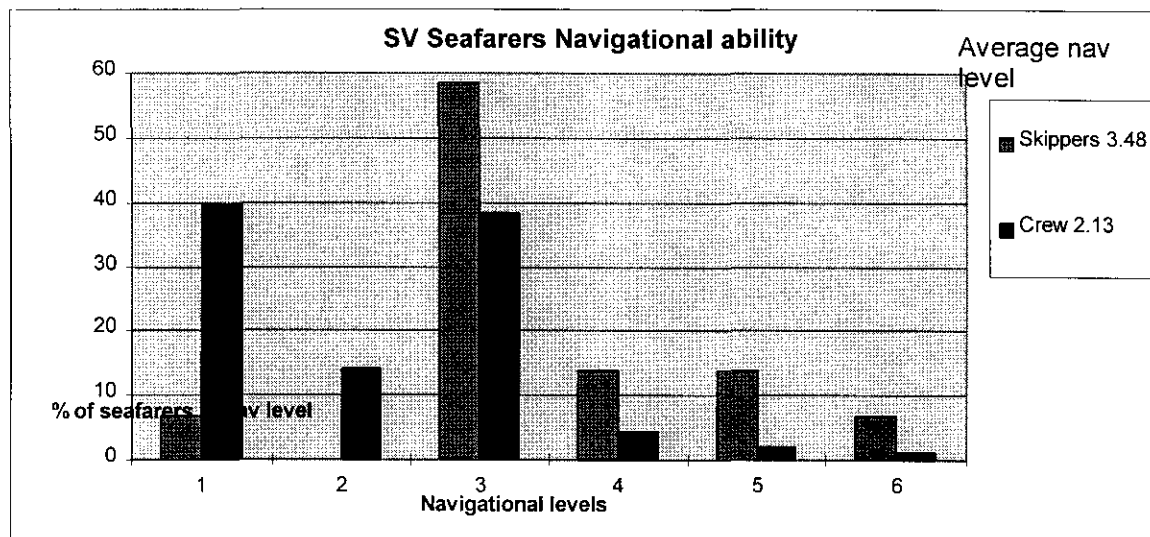
1. No navigation knowledge or skills
2. Basic navigation, still learning: this meant the respondent could hold a compass course whilst steering, but was not familiar with chart work
3. No navigation certificate, but could navigate locally: this category allowed for seafarers who through years of sailing experience in the region, knew what course to set at different waypoints, i.e. some geographical land mark on an island. This level also accepts that the respondent has a rudimentary knowledge of chart work, knowledge of navigation lights and rules of the road
4. Holds a local navigation ticket: this would mean that the respondent had a working knowledge of coastal navigation, navigation lights and the rules of the road
5. Accredited navigational certificate: the respondent has been formally trained in navigation to STCW standard for a bridge officer on SOLAS¹² standard ships.

¹² STCW: Standards of Training, Certification and Watchkeeping for seafarers; SOLAS: Safety of Life at Sea

The skippers average navigational competence was 3.48 out of the maximum of 6 points. This average can be further broken down into each level of competence as follows: 6.89% of the skippers were at level 1, 0 at level 2, 58.62% at level 3, 13.79% at levels 4 and 5, and 6.89% at level 6. The crews navigational competency level average is 2.13 points out of a maximum of 6. When this is broken down into percentages for each level of navigational competency, the following results occur: 39.56% of crews were at level 1; 14.28% at level 2; 38.46% at level 3; 4.39% at level 4; 2.19% at level 5 and 1.09% at level 6 (although this is an anomaly, as masters at this level of navigation competency would be hitching a ride by working their passage, rather than working as a regular crew).

The average navigational ability of the sample was 2.47 points out of a possible 6 points, which from experience in this field would seem to point to an accurate representation of the level of navigational ability of the small vessel sector. Considering the lack of educational facilities in the region, at all levels, the navigational abilities of small vessel seafarers in the Caribbean informal maritime transport sector is of a relatively high standard.

Navigational equipment on board the small vessels is generally very limited. However observations showed that 96.5% of the small boats have at least one fixed compass. Those that did not have a fixed compass were boats that would not sail unless the weather was good, and the distance they travelled was no more than 5 miles from one island to the other (although they were trading between two different countries).

Figure 3.1: Small Vessel Seafarers' Navigational Ability

However, only 13.7% of the small vessels had a hand bearing compass an essential navigational aid for coastal chart work. Yet, 65.5% of the small ships claimed to have charts aboard which they use for navigation, although 52.6% of these small ships with charts had only 1 or 2 charts, which is not sufficient for all their navigational purposes. Navigation is based upon many years experience at making safe passages. This and the lack of basic navigation equipment for accurate chart work, points to the fact that few small vessels navigate in the formal sense of the word as understood by STCW-95 certification boards in the merchant marine. Only 3.4% of the small vessels had a sextant onboard, although 31% of the skippers claimed they were able to use a sextant.

Radio direction finders, a useful navigation tool for small vessels is not in common use, with only 24% of the small vessels using this instrument. However, it is not uncommon to find short wave radios onboard, which can be partially used for the same purpose, and on the small vessels in the Caribbean, often is. The use of Global Positioning Systems (GPS) is not yet widespread, with 34% of small vessels having

GPS onboard. This useful navigation instrument is certainly of interest to most of the small vessels, and the use of GPS is likely to increase, which in turn should improve the small vessel fleets navigational ability. Radar, both a navigational aid and a useful safety instrument, is not widely used, although 27% were equipped with it. All the small vessels had the correct number of navigation lights in suitable positions.

3.3: Safety Standard of the Fleet

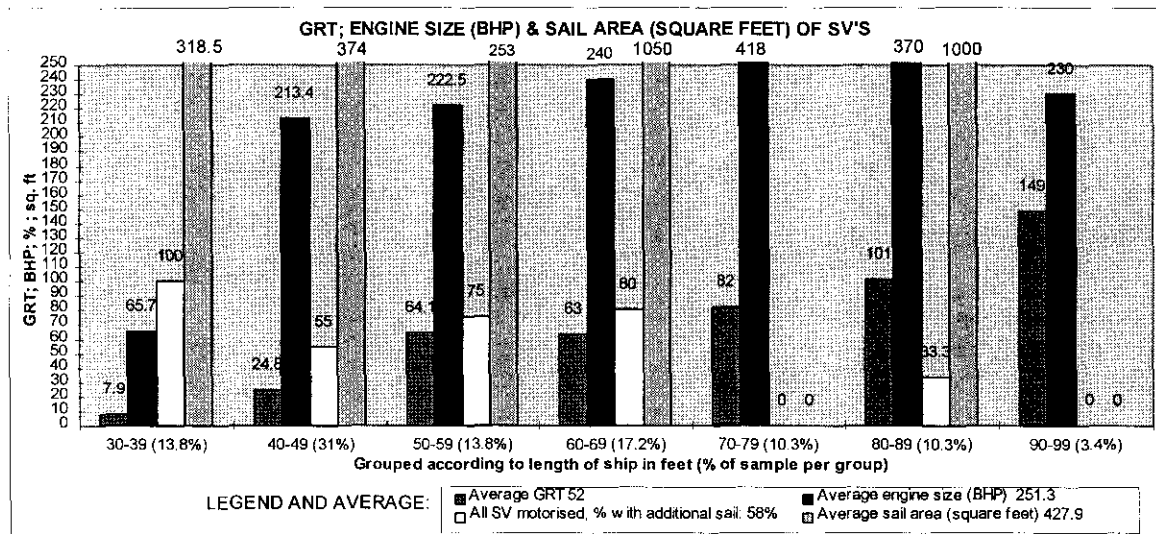
The safety standard of the small vessel fleet was not generally deficient in respect of safety equipment, although safety procedures left much to be desired. Despite the lack of safety drills, few vessels are lost and only one port official knew of any deaths of seafarers in the small vessel fleet. This occurred in 1996, when a small vessel went missing and the crew of four were lost. The cause of the loss remains unknown.

The small ships seen by the researcher were in a good state of repair. Boats were always well painted, and certainly the boats running between Trinidad and Grenada had access to haul out facilities, and a steady stream of these vessels were observed being maintained in yards. With regard to engine maintenance, this was not on the research checklist, but there were no reported cases of engine failure that resulted in a threat to life on the small vessels. This is not to say that engines do not fail, only that the research did not discover any such cases, and it is therefore presumed that there must be an adequate standard of engine maintenance.

All small vessels use engines as their main propulsion. The average engine size for the small vessels in general is 251.3 BHP. However, the size of engine varied according to the size of the small vessel. In Figure 3.2 below, the average engine size in BHP and average G.R.T. for each of the surveys categories of small vessels is shown.

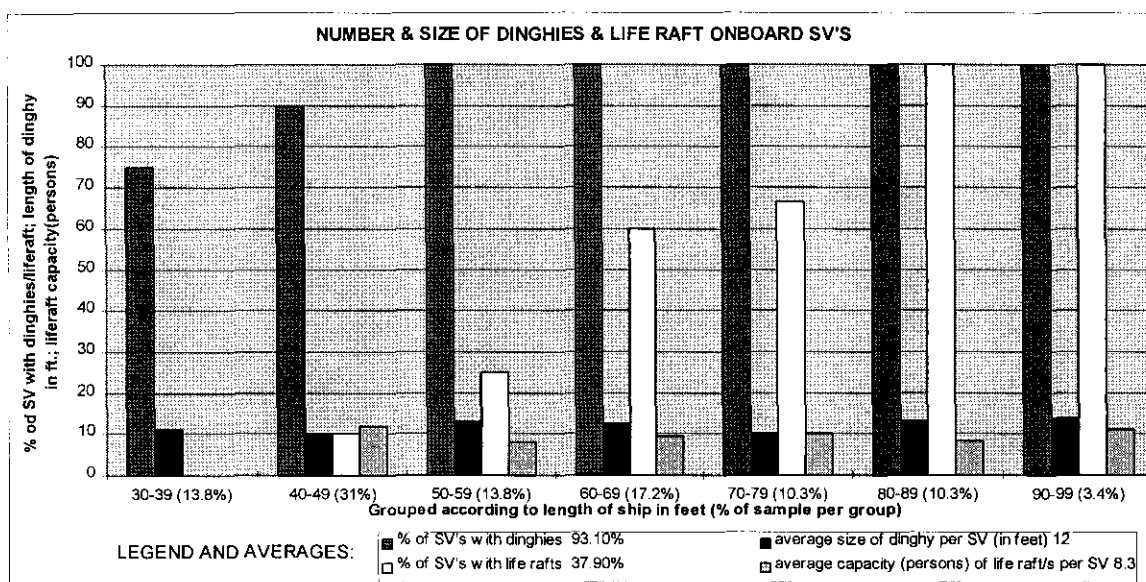
In addition to engines, 58% of the sample interviewed had sails, which increased their ability to deal with engine failure, as well as reducing their fuel consumption. The skippers of these small vessels looked upon the sailing ability of their boats in this regard. However, it should also be pointed out that most sails were old, and although they would help in certain conditions, it is doubtful they are in a good enough condition to deal with bad weather conditions. Their ability to go to windward is also questionable. The average sail area was 427.9 square feet. To maintain both the sailing equipment and a larger crew when a ship rarely uses its sails forces a choice to be made between having both engine and sail or engine alone. In most cases, as these factors increase costs, the decision will be to depend on the engine alone. On the smaller small vessels, this issue is of less relevance, as due to the small size of the sails, no increase in manning levels is needed, and the cost of maintaining the sailing equipment is small, with the added bonus of reducing fuel consumption as well as having an alternative method of propulsion in emergency. These benefits, it would seem, outweigh the costs.

Figure 3.2: Engine Size and Sail Area



The only safety equipment common to all the small vessels is life jackets, and in all but one case, more are carried than is required by the crew. On average, there are approximately 8 life jackets to a small ship. The survey found that 58.6% of the small vessels interviewed had life buoys. Of those small vessels that have life buoys the average number of life rings per boat is 3.1. Only 37.9% of the small vessels have life rafts onboard. In all these cases, the life raft capacity was either equal to or greater than the complete crew complement. The lack of life rafts amongst the small vessel fleet is not due to a nonchalance on the part of the seafarers when it comes to safety. It simply reflects that for many, the cost of buying and regularly servicing a life raft is just too expensive. Instead of life rafts, most (93.1%) small vessels have a dinghy, the average size being approximately 12 foot in length. These dinghy's perform a dual purpose of being a dinghy and life raft at a reasonable cost in terms of the small vessel sector. Without a dinghy, operation of a small vessel is quite difficult, as it is a necessary part of the ships equipment. As the average crew complement onboard small vessels is 4 seafarers, this size of dinghy is considered by the owners and skippers as large enough to carry a small vessel's crew complement during normal operations and in an emergency situation. Small vessels in all but one case (the smallest small vessel interviewed) which did not carry dinghies, had instead life rafts capable of carrying a full complement of crew and passengers (if carried).

Figure 3.3: Number and Sizes of Dinghies and Life Rafts Onboard Small Vessels

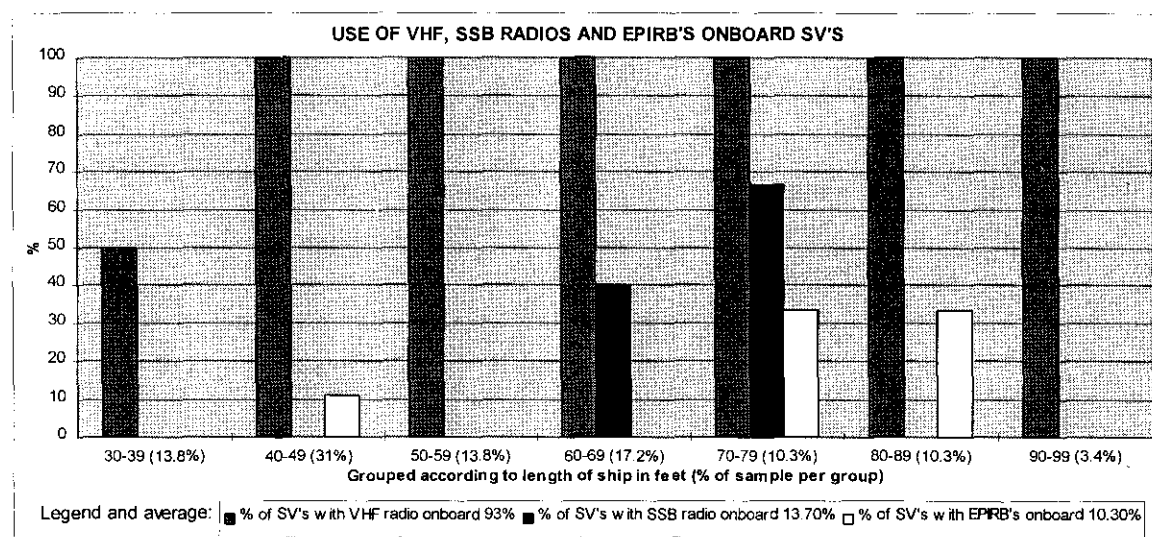


However, this lack of life rafts cannot be set aside when considering the safety of passengers carried by small vessels. Approximately 24% of small vessels carry passengers, and of this 24% only 42% had life rafts. Of the 58% of small vessels carrying passengers but no life raft, all but one (the smallest ship interviewed which trades between 2 islands 5 miles apart) claimed that they had dinghies large enough to carry both the crew and the passengers. Although this would be possible in calm seas, it is doubtful that this would be true in rough weather. A 12 foot dinghy might just cope with a maximum of 4 -6 people onboard in bad weather. Of those small vessels with dinghies, 62% propelled their dinghy using outboard engines, the average BHP of these engines being 11.7 BHP. All dinghies were capable of being propelled by oars.

Approximately 89% of the small vessels carry flares for emergency signalling. The number of flares carried varies widely between individual boats, ranging from 1 flare on one boat to 24 flares on another. Less than half carried signal flags.

VHF radio use is extensive in the Caribbean. All sorts of people and industries use VHF, at sea and on the islands and 93% of the small vessels have VHF radios.

Figure 3.4: Number of Flares and Signal Flags Onboard Small Vessels



Radios are rarely switched off, and keep islanders and seafarers in constant contact. This is very useful safety tool because emergency requests are picked up very quickly, by other boats as well as by islanders (when in range of the coasts). These devices could be better utilised were radio procedures adhered to in the Caribbean.

SSB radios are not as common as VHF, with only 13.7% of small vessels being equipped. SSB radios are able to pick up USA weather and other marine information, and they are useful safety devices. It is interesting that the small vessels that have SSB radio are those from 60 ft to 79 ft. in length. EPIRB's are found on few small vessels, with only 10.3% of small vessels having them. Cost is the major factor here.

79% of small vessels have first aid kits onboard. Of this, 78% of the first aid kits are categorised by the research as 'basic' first aid kits, the remaining 22% considered comprehensive. A 'basic' first aid kit consisted of a packet of adhesive plasters, couple of bandages and an aspirin or two. 'Comprehensive' first aid kits could deal

with burns, suturing, and have pain relieving pharmaceutical drugs. The researcher did not encounter any medical manuals.

All of the small vessels had a hand or electric pump connected to a bilge pumping system. The average number of pumps onboard the small vessels is 2.5 per ship. Dedicated fire pumps were not so numerous. The average amount of these pumps found onboard small vessels having fire fighting pumps is 1.4 pumps per craft.

Fire extinguishers are found on most small vessels, with 72.4% of the ships being equipped. Although 37.9% of small vessels have fire pumps, only 31% have hoses with which to direct the fire pumps output. Other than buckets, no other forms of fire fighting equipment was encountered in the research.

3.4: Fixed Fittings on Small Vessels

All small vessels carry water for consumption by the crew, in 76% of the small vessels this is in built in water tanks, in the remaining 24% of the small vessels, water is carried in containers, consisting of anything from empty plastic bottles to 200 litre plastic drums.

Caribbean legislation makes it illegal to pump liquid waste into the sea. Interestingly, none of the ports interviewed had facilities to pump waste from small vessels, however, 13.7% of the small vessels do have waste holding tanks for this purpose. In view of the lack of waste pumping facilities at the ports, it is surprising that so many small vessels have waste tanks onboard. As all the small vessels are diesel engine driven, all carry diesel fuel in dedicated tanks connected by a fuel pipe to the engine. 6.8% of the small vessels carry additional diesel fuel in either steel or plastic drums.

The small vessels in the Caribbean do, on the whole, supply berths (beds or bunks) for their crews. However, on approximately some 10% of vessels there are no bunks for the seafarers, and they are expected to sleep wherever they can find space, but these are generally small vessels that sail between two islands and the crew have no need to sleep onboard. On a further 14% of small vessels, there were more crew than berths, in these cases, there were never more than 2 crew short of bunks, so allowing for hot bunking (one shares one's bunk with the seafarer on watch and visa versa).

When passengers are carried the crew will generally be forced to give up their bunks for them. When this happens, the crew are expected to catnap in whatever place they can find. Approximately 20% of the small vessels carry passengers on overnight voyages, and of this figure, 66% of the passenger carrying small vessels have enough bunks to accommodate both crew and passengers, each with their own bunk.

Bulkheads to compartmentalise a boat are important safety features of a ship. They not only separate the ship into water tight compartments, but also add strength to the hull. It was found that 80% of the small vessels had one or more bulkhead built into the ship. This in most cases would allow at minimum a separation between the engine and the hold, a very useful feature in case of fire or a rupture in the hull.

Few small vessels have load lines, the research found that only 6.8% had been measured for load lines (Plimsoll lines).

3.5: Employment Conditions and Relationships

The small vessels crews who were interviewed represent a wide spread of Caribbean nationalities. The nationality composition was as follows:

Grenada: 33%; Dominica: 20.5%; St.Vincent: 14.5%; Guyana: 5.1%; Antigua: 5.1%; Anguilla: 4.2%; St Lucia: 3.4%; French Caribbean islands: 3.4%; Dominican Republic: 3.4%; UK dependencies: 2.5; Trinidad: 1.7%; Jamaica: 0.8%; St Croix: 0.8%; Barbados: 0.8%.

The average crew had four persons. Figure 3.9 shows the average number of seafarers per category of small vessel. Crews are usually from the same island from which a vessel originates, although it is not uncommon to find crew members who were not from the ships home port. These seafarers were typically from another island on the vessel's trading route. Of the skippers, 75.8% were family members of the vessel's owner/s, 6.8% were close friends of the family, while 20.6% have no connection with the owners family, and were employed by the owner to skipper the small vessel. On 80% of the small vessels interviewed, the owner or a member of the family would be onboard the ship, either as skipper or crew. Written employment contracts were not common, with only 7% of crews employed in this way. However and as in informal sectors generally, verbal agreements were not lightly abrogated.

Skippers maintain discipline by virtue of their competence and ability, and can hire and fire seafarers without the owners permission, unless of course, the person concerned is an owners representative. The average time a seafarer stays employed on one particular small vessel is approximately 2 years 8 months. Skippers tend to stay a lot longer, their average employment period is 6 years 5 months.

The average age of skippers is 43 1/2 years whilst the small vessel crews average age is 37 years. The range of the average age for all the seafarers in the small vessel

sector is from 16 to 67 years of age. Men become small vessels seafarers at all ages. Two 19 year old crew interviewed had begun working on small vessels when they were 14 years of age. Amongst older small vessel seafarers, many had started their small vessel seafaring at 12 years of age. The average amount of sea experience of the small vessel crews is 11 1/2 years, whilst skippers average sailing experience is 19 years. The average wage for skippers in the small vessel sector is US\$ 1300 per month, whilst the average crew wage is US\$ 365 per month. On average, each seafarers has 3 dependants, who receive 78% of his wage. There is no code regulating employment or contractual rights and duties. The small vessel sector seafarers have no Union or other body to represent them.

The research found no information as to how many seafarers work in the small vessel sector, because there are no registration requirements for seafarers. The total active workforce is probably in the region of 300 persons with a similar number intermittently active.

4: LEGISLATION GOVERNING THE INFORMAL MARITIME TRANSPORT SECTOR

The Code of Safety for Caribbean Cargo Ships mentioned above has been recently formulated in an attempt to bring the informal maritime sector in line with the formal maritime sector's international safety conventions. This is an admirable aim, especially as it would better safeguard seafarers lives. It would also require a widespread installation of up to date technology. This will entail training to international standards. Additionally boat building and repair facilities would need to modernise throughout the region. A regulatory system would also need to be set up and crucially, enforcement would need to be upgraded to insure a level playing field.

In order for this to be achieved, the Code will need to be phased in over an appropriate period. The question must be then as to what should be an appropriate period? The answer to this question is crucial. Should the small vessel sector be forced to develop faster than the regions general development, it is unlikely to be sustainable. Alternatively, should the pace of implementation be linked into the level of the regions development, the prospects for the sustainable development of the sector could be excellent.

The lot of the small vessel seafarer is unlikely to be improved by harsh safety legislation which vessel owners cannot afford. Forcing legislation on an informal sector that is unable to afford the cost of upgrading itself will probably destroy it or drive it underground and into illegal activities.

Few, if any, of the seafarers and port officials who are involved in the small vessel sector have had any input into this Code and in affect have had no say. When the researcher questioned seafarers about this Code, only a quarter of the skippers had

read it¹³. Of the Port Officials questioned, 25% did not know of the Code, and of those who knew of the Code, only 50% had actually read it.

Those who had read the Code of Safety for Caribbean Cargo Ships were questioned as to their views about it. These are repeated below:

“Its too tough for local vessels, have no problem with the personnel safety aspect, but they are asking too much.”

“Its okay as it protects our lives but new laws would have the support of ship operators if the Government had consulted them.”

“Its totally restrictive to the sentiment of free trade, I oppose it.”

“Its very good but does not pertain to this vessel as she does not leave Grenadian waters.”

“Certain regulations are not compatible with these types of vessels.”

“It’s good.”

“Its very harsh and local Caribbean ship owners can't afford it. There was also no consultation with ship owners and those that actually do the work.”

“Its not fair as some things are not applicable; it's been forced upon us without any consultation; it's designed to put small vessels out of business in the Caribbean.”

The editorial of the Port Management Association of the Caribbean news letter of May 1998 is most informative regarding the imposition of the US Cargo Shipping Code rules (which interestingly, is very similar to the Code of Safety for Caribbean Cargo Ships) on the Schooner trade (another name for the small vessel sector or informal maritime sector in the Caribbean). The article express's similar fears regarding the effects of the imposition of formal sector legislation on an informal sector. The complete editorial comment is attached as Appendix 1.

¹³ Not one small vessel knew of the Code of Safety for Caribbean Cargo Ships when the fieldwork started in St Maarten, but news travels fast amongst the small vessel sector. It is the researchers opinion, that due to the research, the CCSS got publicised to the degree it did. The researcher supplied the copy which was subsequently photocopied and seen on various small vessels throughout the fieldwork period.

CONCLUSION

The levels of safety provisions in the informal maritime transport sector in the Caribbean are below those of the international 'formal' maritime transport sectors. However, the amount of safety equipment found on the small vessels is quite heartening, especially when compared to the safety levels found on small vessels in the East African informal maritime transport sector¹⁴. The Caribbean small vessels safety standards reflect the development level of the region it serves, the expectations of the markets it services, and the seafarers who work the small vessels. Although no definite accident statistics on small vessels could be sourced, judging from the port officials knowledge of small vessel disasters, the safety record appears good. Over the last 4 years, it was reported that only one small vessel loss resulted in fatalities. Interestingly, when skippers were questioned regarding the need for more laws to regulate the small vessel sector, they were evenly divided between those who thought there was a need for more safety and employment legislation in order to better safeguard the seafarers, and those opposed to future controls or legislation.

The crew sizes on the Caribbean small vessels are not large, which shows a relatively high level of development. All use engines as their primary propulsion facilitating low manning levels, and only utilise sails to save fuel and as an alternative in situations of engine failure. Crews wages reflect salary levels on the islands, the average transport workers wage in Trinidad and Tobago in 1993 was US\$ 344.00 per month, while the average small vessels seafarers wage is US\$ 365.00 per month in 1998.¹⁵ Skippers of the small vessels earn a good wage in comparison to wage levels in the region. Accommodation conditions onboard the small vessels bear no

¹⁴ Boerne, G. (1999) Preliminary Study of the East African Informal Maritime Sector; Seafarers International Research Centre; Cardiff University, Wales, UK.

¹⁵ Annual Statistical Digest 1993: Republic of Trinidad and Tobago; Office of the Prime Minister; Central Statistical Office, 1996, pp 100.

resemblance to the formal maritime sector, but that is due more to the size of the small vessels than a desire to short change the crew.

The economic importance of the small vessel sector is extremely difficult to quantify, due to the lack of data on this shipping sector. However, based on the information the survey has acquired, one can estimate its economic importance to the region based on what it would cost the islands were this shipping sector not in existence.

Without this locally operated and managed shipping sector, it is likely that foreign operators will charge more for a similar service, due mainly to increased safety standards, and formal qualifications of crews. This in turn would lead to an increase in the cost of fresh foodstuffs to the dry islands from the wet islands, an increase in the price of manufactured goods. It would also reduce employment possibilities for islanders, and the present wages that are being spent in the islands would disappear, with a knock on effect throughout the islands economies. The associated ship building and repair facilities, and with it the traditional skills, would disappear. The social functions of this sector are also important. The importance of the informal maritime sector in a social context is not always appreciated. Besides the actual transport of goods between the islands, it maintains social contact between families and friends, passes on news of various events, and allows for cheap transport of people which facilitates inter-island social intercourse. In the same vein, it gives islanders pride in their own ability to be independent.

There is certainly a need for better safety to protect the seafarers, but legislation must be appropriate and reflect the reality that this is a regional transport system in a developing region. Governments should also realise that in order for this sector to develop higher safety standards, they will need to play an active role in supplying training facilities and better care of the seafarers involved. This industry, which operates in niche markets, can only afford to operate because of its low operational

costs, and unless the governments of the region decide to support this sector in achieving higher levels of safety, rather than simply legislating the small vessels out of business on the basis of safety, they could end up paying for the transport this sector presently provides. The small vessel sector is not in a position to upgrade to the level of the Code of Safety for Caribbean Cargo Ships without government help in the form of investment in training and education, boat replacement and refurbishment, and the necessary enforcement infrastructure.

This is not to say that the present situation is acceptable to the seafarers or the authorities. Perhaps the way forward is to encourage the seafarers who operate this sector to gradually upgrade it. For this to happen, seafarers would need more employment rights and the opportunity to speak out about unsafe small vessels, which would force the owners to upgrade their ships. The Code of Safety for Caribbean Cargo Ships could then be used as a bench mark to achieve in a time frame appropriate to the regions development level.

In this regard, this research recommends that in order for sustainable development of the small vessel sector to take place, the following issues should be considered by policy makers:

- 1) seafarers working in the small vessel sector should have written employment contracts which ensure their rights and make clear their obligations, enshrined in law;
- 2) that small vessel seafarers are registered under their ships flag, and receive a small vessels Seaman's Book;
- 3) that formal sector seafaring unions involve themselves in the small vessel sector, facilitating some sort of representative body for the seafarers and the small vessel owners;

-
- 4) governments help in achieving an insurance scheme for wooden small vessels;
 - 5) port authorities keep proper records on all aspects of the small vessel sector, so facilitating informed policy decisions;
 - 6) governments offer incentives in the form of tax breaks for small vessels achieving higher safety standards when boats are refurbished or constructed;
 - 7) ports offer incentives in the form of lower port dues to those small vessels which achieve agreed levels of safety and contractual agreements with their crews;
 - 8) that governments and ports recognise that the small vessel sector is a sustainable and important transport sector, operated by Caribbean people for Caribbean people, and as such, deserve to be considered as an important part of the islands infrastructure, rather than tolerated as a necessary nuisance;
 - 9) improved facilities are offered to seafarers in ports;
 - 10) that governments, if they choose to enforce legislation, ensure that the educational and other facilities needed to upgrade safety standards on the small vessels are in place before enforcement begins;
 - 11) governments need to ensure that statistics are maintained on vessel accidents and loss of life in the small ship sector.

APPENDIX 1: “The Plight of the Schooner Trade”

The schooner trade in the Caribbean carried on between the smaller islands and the US/VI¹⁶ and Puerto Rico, has linked the islands of this region for over five decades. This trade is currently under threat due to a new Cargo Shipping Code currently being introduced by the US government.

This code has imposed stringent regulations on boats under a capacity of 500 tons. Most, if not all the boats plying the route fall into this category. This policy can have devastating effects on the ship owners and those farmers and manufacturers in the Caribbean who depend on this trade.

Some of the stipulations of this policy include the provisions, that each craft should:

- i) be equipped with a USSG life craft valued at some \$13500 US;
- ii) have an electronic positioning emergency beacon (EPIRB) valued at some \$11000 US.

Immediately we recognise that most if not all of our ship owners would be terribly strained to raise the necessary sums in order to comply with the regulations.

A vacuum will be created if these vessels are to pull out of the trade immediately. By the time the schooners would have met the requirements the trade could be out of their hands. This should not be allowed to happen.

What is the answer? The answer lies in a concerted effort by schooner owners and the Governments in this region to save the trade. This can be approached as follows:

1. the schooner owners and operators should immediately establish a unified front in the form of some representative organisation;

¹⁶ USA and the US Virgin Islands

2. a survey should be carried out to identify the quality and nature of goods and their places of origin and destination and the timetable regarding the shipment of goods;
3. a central port needs to be identified to act as a transshipment port for these goods;
4. agents need to be identified in the US/VI/Puerto Rico and the non US islands to handle shipping for the group;
5. a large liner need be identified to tranship cargo between the transshipment port and the US/VI/Puerto Rico. From the transshipment points, the schooners can ply the routes among the non US islands:
6. appropriate arrangements may have to be made with insurance companies;
7. governments need to establish a time table outlining a phased implementation of those standards which would enable the schooners to satisfy the US requirements.

This approach would give schooners much needed time to hold onto the trade until they have upgraded or provided new ships which would satisfy the standards set by the US.

This state of affairs should not have been allowed to develop. We in the Caribbean need to observe standards not because they are forced upon us, but because they are just and proper things to do. It is our acceptance of substandard services which has put us in this position.

“It is my hope that the situation here will be a lesson to us not only with respect to the schooner trade but in respect to many of the other services we provide both locally and internationally.” Port Management Association of the Caribbean Newsletter, May 1998.

APPENDIX 2: Questionnaire to Skippers and Crews

Date: _____

Code _____

Name or Contact _____

Section A: Details of Boat:

A1) Name of Boat _____

2) Port of Registry _____ 3) Flag _____

4) Registered Length _____ 5) GRT _____

6) Engine Size _____ 7) Sail Area _____

8) What Propulsion is Mainly Used ?

1 ☐ Engine

2 ☐ Sail

3 ☐ Both Engine and Sail

9) Number of Berths _____ 10) Number of Pumps _____

11) Average Speed _____ 11) Maximum Speed _____

Section B: Most Typical Voyage Journey:

B1) Voyage Route From) _____ To) _____

Via _____

Amount of cargo loaded unloaded at each stop: _____

Approx time spent at each (via) port: _____

2) Voyage : Minimum Time _____ Maximum Time _____

3) Fuel Cost & Type _____ 4) Food Cost _____ 5) Wages Cost _____

6) Total Cost _____ 7) Mileage _____ 8) Amount of stops _____

9) How is cargo obtained: _____

10) Who are the agents: _____

11) Who receives the cargo: _____

12) Approx cargo value for trip: _____

13) How many pax per leg: _____

Section C: Other Typical Voyage

C1) Voyage Route From) _____ To) _____

Via _____

Amount of cargo loaded/unloaded at each stop: _____

Approx time spent at each (via) port: _____

2) Voyage : Minimum Time _____ Maximum Time _____

3) Fuel Cost & Type _____ 4) Food Cost _____ 5) Wages Cost _____

6) Total Cost _____ 7) Mileage _____ 8) Amount of stops _____

9) How is cargo obtained: _____

10) Who are the agents: _____

11) Who receives the cargo: _____

12) Approx cargo value for trip: _____

13) How many pax per leg: _____

Section D: Other Typical Voyage

D1) Voyage Route From) _____ To) _____

Via _____

Amount of cargo loaded/unloaded at each stop: _____

Approx time spent at each (via) port: _____

2) Voyage : Minimum Time _____ Maximum Time _____

3) Fuel Cost & Type _____ 4) Food Cost _____ 5) Wages Cost _____

6) Total Cost _____ 7) Mileage _____ 8) Amount of stops _____

9) How is cargo obtained: _____

10) Who are the agents: _____

11) Who receives the cargo: _____

12) Approx cargo value for trip: _____

13) How many pax per leg: _____

Section E: Other Typical Voyage

C1) Voyage Route From) _____ To) _____

Via _____

Amount of cargo loaded/unloaded at each stop: _____

Approx time spent at each (via) port: _____

2) Voyage : Minimum Time _____ Maximum Time _____

3) Fuel Cost & Type _____ 4) Food Cost _____ 5) Wages Cost _____

6) Total Cost _____ 7) Mileage _____ 8) Amount of stops _____

9) How is cargo obtained: _____

10) Who are the agents: _____

11) Who receives the cargo: _____

12) Approx cargo value for trip: _____

13) How many pax per leg: _____

Are crew articulated _____ Verbal agreement _____

How are crew paid _____ When are they paid _____

Section I: The Ship:

Who is the owner: _____ Material of build: _____

Where and when built: _____

Built by: _____ Approximate cost at time of build: _____

Who paid for the ship and how was the finance raised? _____

If a loan was used, what were the terms and has it been repaid? _____

How long did repayment take? _____

Length of ship _____ Beam _____ Weight unloaded _____ Loaded _____

Draft: _____ Loaded _____ Freeboard _____ Loaded _____

No. of bulkheads: _____ No. of watertight compartments: _____

Does ship have a load line? _____ What is registered LL tonnage _____

Number of Waste Holding Tanks and capacity _____

Water storage: no. tanks and capacity or other means: _____

Does ship have tender? _____ Size & Propulsion _____

Means of navigation:

Sextant _____ Is crew proficient in its use _____

No. of fixed Compass's: _____ Hand held compass's _____ GPS&Make _____ RDF _____

Decca _____ Radar&Type _____ Do the crew know of these nav aids? _____

What are the reasons for not having/having them onboard: _____

No. of charts:_____ No. of pilots_____ Plotting equipment_____

Safety equipment: First aid kit:___ Basic_____ Comprehensive_____

No Liferrafts and capacity _____ No. of lifejackets_____ No. of lifebelts_____

No. of harness's:_____ No.& Type of Flares_____

Communication: VHF_____ SSB_____ EPERB_____ Signal Flags_____

Fire fighting: Amount of fire pumps_____ Their output_____

Length and diameter of hose's:_____

Type, No. and capacity of Fire extinguishers:_____

Section J: Cargo:

Number of holds_____ Cargo capacity: Max weight_____ Max Capacity_____

Average value of cargo per voyage _____ Price charged for voyage_____

Is price charged: a charter price_____ or cargo weight or capacity_____

Voyage charter_____ Time charter_____

Who loads the cargo: Crew or Stevedores (&cost)?:_____

Who pays for this:_____

Is stevedore use by choice or enforced by port:_____ What is your view on
this:_____

FOB (free on board) for cargo:_____ Or CIF (carriage including freight) and
approximate cost:_____

How is transport payment made & currency type:_____

What type of commodities mostly carried:_____

Passengers: Do you carry pax?_____ If yes, how many on average:_____

_____ How much are they charged:_____

What facilities do you supply, i.e. accommodation etc:_____

Section K: Legislation:

What legislation controls your shipping activities?:_____

Do you think this legislation is appropriate, and why do you hold this view:_____

What legislation would be appropriate to this shipping sector and why?:

Have you heard of the CCSS (Code of safety for Carib Cargo ships), and what are your views on it:

How often are you searched, by who and for what reasons:

In port:

At Sea:

What do you think of these incidents, and how were you treated: _____

Is there a future in this shipping sector? Explain: _____

What govt incentives/disincentives are there to help/inhibit this shipping sector: _____

Section L: Other useful information and comments:

Do you know the names of other boats involved in this shipping sector, who owns them, skippers them, what routes they work, what they carry, their agents, anything: _____

Comments and other information:_____

APPENDIX 3: Questions to Port/ Administration Officials

1) Name of island: _____ 2) Port: _____

3) Name and position of official: _____

4) How many small vessels are registered in this port/island? _____

5) Who should I contact for this info? _____

6) How many SV per annum use this port/island: _____

7) How much cargo is loaded onto SV from this port/island per year? _____

8) What commodities and % make the above figure? _____

9) How important is the SVS to the islands economy? _____

10) What legislation is used to govern the SVS? _____

11) Do you think it works? _____

12)Have you heard of the CCSS code (Code of safety for Caribbean cargo ships)?_____

13)Do you think this code is workable and what is your opinion of this code?_____

14)How strongly is port state control implemented?_____

15)Port Health, is it policed and controlled?_____

16)Customs and Immigration: How firmly is this enforced and how effectively?_____

17)Port charges: How are they levied?_____

18)Must SV use stevedores?_____ Why?_____

19)What are the charges?_____

20)What waste facilities are provided for the SVS:_____

21)Are these adequate?_____

22)How many seafarers does the SVS employ from this island/port:_____

23)What facilities are SV seafarers offered in the port/island?ie;training, unemployment/disability benefit, medical, rescue, pension, communication etc:

24)How many of the SVS are lost per annum:_____

25)How?:_____

26)How many seafarers from the SVS are killed per year?_____

27)How do they die?:_____

28)Further comments and information:_____

29)Do you want a copy of the report?_____ 30)Will you fill in the questions on fleet size
and mortality rates?_____31)Contact address:_____

PRELIMINARY STUDY OF THE EAST AFRICAN INFORMAL MARITIME TRANSPORT SECTOR.

Geoffrey Boerne

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The purpose of this preliminary fieldwork study was to estimate the size, significance, economic and social organisation of the East African informal maritime sector.

Owners, crew members and port officials were interviewed during a two week fact finding visit to Mombassa, Dar-es-Salaam and Zanzibar.¹⁷ The study revealed a very large and important transport sector in East Africa. It is probable that a similar sector is not less significant in West Africa. A much more intensive study is needed so that the appropriate policy initiatives, especially in respect of employment, can be identified.

Fleet size

In the three ports investigated, there was a total of 450 registered small cargo vessels, most of them propelled by sail alone. This figure seriously underestimates the total number of small vessels working the East African coast from Mogadishu in Somalia to the North and Pemba in Mozambique in the South. Most vessels are actually registered in the smaller and more remote ports where they are built. For example, Lamu, a small island town off the Northern Kenyan coast is said to launch and register some 20 vessels a year.¹⁸ Since there are a number of similar boat building villages and towns on the Kenyan and Tanzanian coast, and considering the congestion in the dhow harbours of the three principal ports, it is likely that there are at least 1200 small vessels employing some 14 000 seafarers.

Employment and Competence of Seafarers

Sailing dhows have an average crew complement of 9.4 seafarers, motorised dhows 13.8 crew per vessel. Only 3 skippers had any qualifications, and these were from the Zanzibar Port Authority (2.5% of the 116 East African crews surveyed of the small vessel [SV] seafarers had any sort of navigational qualification).¹⁹ Training is by experience, with the average age of the survey sample being 30.15 years of age. The range of the ages of the seafarers was from 15 years to 70 years of age, (although it is not uncommon for boys of 12 years of age to begin a seafaring life in this sector).

¹⁷ Date of Survey: December 1998. Date at time of writing this paper: January 1999.

¹⁸ In both Mombassa and Dar-es-Salaam registration of vessels is not done by the port authorities, but by the Department of Transport, who, due to the limited time of this study, were not approached.

¹⁹ Seafarers literacy levels were not investigated, but due to the lack of tertiary educational facilities generally in the region, many of these seafarers are likely to be illiterate.

Ship crews sailed under their national flag, and were always from the same village or region, although they were rarely related by family, rather by tribe. The average skipper age is 38.2 years, with an average of 18.2 years seafaring experience. The average crew seafaring experience is 8.48 years. Of the crew surveyed, 42.9% claimed to be able to navigate locally, although they have no formal qualifications. This means that without charts and in many cases no compass's, these crews are so familiar with the local conditions and waters, that they can safely navigate from one place to another. They can and do achieve this, mostly out of sight of land. All crews are male. These men are skilled seafarers, they have to be to survive. However, there are no fire or safety drills, and on most ships there is no safety equipment. The average annual wage of skippers is US\$ 1928.00, the average crews wage is US\$ 731.07 per annum (\$60 or £38 per month). On average, each seafarer supports 3.3 dependants, with approximately 70% of all wages going to dependants. All employment agreements between owners and crews are verbal. Seafarers seem to change boats regularly, the average period of employment on a particular ship is 2.5 years. Whether this is symptomatic of good or bad employment relations between the crews, skippers and owners is not known, although a common complaint from crews is the lack of employment rights. Most of the seafarers expressed a wish to learn formal navigational and seafaring qualifications, so as to ensure their future, in terms of both employment rights and to increase their job prospects. Seafarers in the Small Vessel Sector (SVS) have no legislation or Union representation to protect them from abuse.

Ship size

The local small wooden cargo ships fall into two broad categories and sizes. The smaller dhows, which are not motorised, and rely on wind alone, and the larger motorised dhows, which may or may not be sail assisted. On the basis of five interviews with each category defined above, the average ship sizes are as follows:

Ship Type	Length in feet	Beam in feet	draft empty in feet	draft loaded in feet	free-board empty in feet	free-board loaded in feet	Light displacement (tons)	Loaded displacement (tons)
sailing dhow	56.5	13.6	4.3	7.7	4.5	1.1	10.6	38.2
motor dhow	72.9	22.9	6.4	11.14	7.7	2.5	43.75	119

Ship Safety Standards

The dhows are strongly built, but lack safety and navigation equipment. Out of the five sailing dhows interviewed, one had a compass, and only one sailing dhow had life jackets. No sailing dhows had bulkheads with which to compartmentalise the vessel. Three dhows had basic first aid kits. Four of the five sailing dhows had

dinghies, the average length approximately 11 foot in length, powered by oars. The sailing dhows had no other navigation or safety equipment onboard, not even navigation lights, other than a single clear paraffin lantern. These dhows have no pumps, only buckets, an average of 3 buckets per vessel. There are no bunks. The average age of these vessels is 9 years. When questioned why they did not have safety and navigation equipment, the reply was that they would like this equipment, but could not afford it. There is no electricity or gas equipment on sailing dhows. Cooking is done on an open fire, in the bow of the ship. The mast of the dhow is considered to be the main safety device should one sink!

The motorised dhows had a compass, an average of 3 charts, lifejackets, a VHF radio and navigation lights. Two of the motorised dhows had life rings. One local motorised dhow had flares (2), and one had a basic first aid kit. Two of the five motorised dhows had oar powered dinghies of 10 and 12 feet in length. These vessels have an average of 2.6 pumps onboard, although only 3 vessels claimed that these could be used for fire fighting purposes. Only one dhow had a hose long enough for fire fighting purposes. Four of the five dhows have fire extinguishers onboard. Three of the five dhows have bulkheads, chiefly to separate the engine room from the hold. One dhow had a load line, for 55 tons. The average age of the motorised dhows is 10 years.

None of the dhows had GPS's, Radio direction finders, hand held compass's, speed or mileage logs, sextants and tables, pilots, life rafts, EPERBS, showers, inboard toilets or decent cooking/living quarters. The researcher was struck by the lack of knowledge of safety and navigation equipment on these small vessels. No log keeping seemed to be in existence, and it seemed unlikely that any safety drills such as fire, man overboard etc. were ever practised or in operation. There is also no knowledge of the dynamics of motorised vessels, i.e. hull speed, regular engine maintenance, fire bulkheads. On 3 of the 5 motorised dhows, crews expressed a desire for more safety and employment legislation to ensure greater protection of seafarers working in this maritime transport sector.

Cargo Capacity

The average cargo capacity of the sailing dhow's is 29.4 tons. The average GRT of these dhows was 31.2 tons. In terms of cubic feet capacity, estimates were made as to how many twenty foot equivalent unit containers (TEU's) could be accommodated in a vessel, and on average, most dhow skippers believe they can load a 2.2 TEU capacity. On the sailing dhows, no deck cargo is carried, as these dhows are not decked, rather, reed mats are placed on a wicker structure to shelter the cargo. This does not provide a watertight deck, and therefore the sailing dhow, in seafaring terms, remains an open boat.

The local motorised dhows are decked and do carry deck cargo. The average maximum weight of cargo that can be carried is approximately 100 tons. In cubic capacity, skippers on average, believe they are able to carry the equivalent of 7 TEU's. The average GRT for these ships is approximately 110 GRT.

Cargoes carried and routes traded by Small Vessels

There would seem to be no legal limitations as to what the dhows carry. Cargoes of all types are mixed at random, and it is common to find inflammable and toxic goods alongside foodstuffs. Animals are generally carried on particular dhows which specialise in animal carriage, although this is subject to the needs of the consumer²⁰. Both high value and low value cargoes are carried, simply because in the rainy season, for many coastal towns (and islands), this is the only transport available.

Broad estimates of the value of the cargoes carried are as follows:

Sailing dhows average cargo value estimate: US\$ 4 000

Motorised dhows average cargo value estimate: US\$ 20 000

The local dhows, both sail powered and motorised serve the East African coast from Somalia to Mozambique. Mombassa is a major export port in the informal maritime sector for cargoes headed for Somalia in the north, as well as for the Kenyan coastal ports and islands i.e. Lamu, Malindi, Tanga. Dar-es-Salaam and Mombassa serve as feeder ports for Pemba island, Zanzibar, Mtwara, Lindi, and as far south as Pemba in Mozambique. Both sailing dhows and motorised dhows sail to any of the ports mentioned, as and when demanded. Only one local motorised dhow claimed to sail to the Comores islands. When all the sailing dhows distances were averaged, the average voyage mileage is 338 miles. A similar figure for the motorised dhows was also calculated, 333 miles. However these average distances are distorted, as some dhows working between Dar-es-Salaam and Zanzibar travel not more than 90 miles a round trip, whilst others are sailing up and down the East African coast, as much as 2000 miles a voyage. The average speed of a sailing dhow when there is wind is about 3 - 5 knots, whilst motorised dhows cruise at an average speed of 9 knots. Few skippers had knowledge of the distances in terms of miles, rather, distances are determined by how long it takes to get from A to B in terms of hours or days.

Most routes traded are age old trading routes, depending on the monsoon seasons. The sailing dhows sailing up and down the East African coast have a 10 month season, however, with the introduction of more motorised dhows, these trades are now worked all year round.

²⁰ Passengers are carried on all the craft, although only local people. The authorities will not allow foreigners to travel on the dhows, as they are considered too dangerous for foreigners, as if a foreigner is killed, this would affect the tourist trade. Still, its considered safe enough for locals! Few dhows admitted to the researcher that they carried passengers.

Commercial Organisation

Ownership Patterns

Of the ten dhows interviewed only one was owned by a company, the rest are owned by individuals, whose nationality is the same as the dhows flag. Sailing dhows cost approximately US\$ 9 600 to build, and 3 of the 5 sailing dhows interviewed were built by local boatbuilders, the remaining two being built by their owners. Motorised dhows cost approximately US\$ 48 000 to build, 4 of the 5 motorised dhows were built by boatbuilders, one by the owner.

Only one dhow worked on a profit share system with the crew (50% to owner; 50% to crew), in all other cases the owner paid salaries and would be intrically involved in the hiring of the crew (as opposed to the skipper hiring the crew). Owners paid all operational and maintenance costs of the vessel. On all the sailing dhows there would be a seafarer related to the owner, although usually not the skipper. On the motorised dhows, only 2 of the five ships interviewed had a member of the owners family onboard. None of the dhows interviewed had their owner permanently onboard as a member of the crew.

Finding Freights

The dhow owners and captains arrange loads through shipping agents, only one dhow of the 10 dhows interviewed depended on other means to find loads. Cargo rates (based on cargo weight in 9 of the survey's 10 cases, the tenth being a voyage charter) would be negotiated with an agent each voyage, the lowest rate receiving the shipment. How this "exchange" is operated remains a mystery. Only one East African dhow claimed it was insured, although skippers are under the impression that their cargoes are insured through either the agent or the owner of the cargo. The researcher is doubtful about authenticity of this claim. Payment for the transport of the cargo would usually be half the amount on loading, the remaining half paid at the destination.

Financial and legal incentives/disincentives

There are no financial or legal incentives to help the development of this sector of shipping. This sector is regulated by the port authorities in Tanzania and Kenya, and ostensibly governed by their respective Merchant Shipping acts. In practise however, the ports are only interested in the revenue that they can collect, and would only intervene if a vessel looked as if it might sink through overloading or lack of maintenance, although the situation would have to be extreme. This in turn means that

there are no disincentives both legally and financially with regard to lack the of safety on the dhows.

Ports and Port Administrators

The Port Official for the Old Dhow port, Mombassa Kenya says:

The Small vessel sector is “very important because it helps small boat sailors and small traders who cannot afford formal maritime transport; this industry is very important to the coastal residents of Kenya, Tanzania and Somalia.”²¹

This port loads approximately 30 000 tons of cargo onto small vessels per annum, and receives approximately 2 000 tons from the dhows per annum. It has an average of 25 dhows calling per month. It provides no facilities of any nature for the seafarers, even though most of its revenues are earned from the small vessel sector. The port does have a dhow inspector who checks radios and fire fighting equipment²². On average 2 - 3 dhows are lost per year, and 6 seafarers are known to have lost their lives in 1997.

Revenues are collected on the basis of tonnage of the vessel and the amount of cargo loaded and unloaded. Sailing dhows do not pay navigation dues, only port fees. Motorised dhows must pay both port and navigation fees.

The Port Official for the Dhow port, Dar-es-Salaam; Tanzania:

“They (the small vessel sector) have a major role in our economy, and are especially important during the rainy season when the southern region roads are not passable.”

“Unfortunately this area has been neglected by the authority. If this area had been given funds to improve we could have reaped a lot more than we are getting today. The Authority is only interested in collecting funds available here and not improving the area. Fortunately you have seen the area, also, we lack tools to simplify our work.”²³

This port loads approximately 139 627 tons onto dhows per annum. On average 120 dhows call here per month. The port provides a rescue service for dhows in emergency situations, but no facilities for the seafarers,²⁴ other than personnel to clean the quay. Dhow losses are on average 10 - 15 vessels per year, losing some 30 to 50 seafarers per annum. Dhows are subject to the Port Authority regulations whilst

²¹ Quote from the port official answer to the question “How important is the SVS to the local economy” in the studies questionnaire on the port authorities views about the SVS.

²² The inspector can’t be doing a very good job, as no sailing dhows have either a radio or a fire fighting pump, only buckets!

²³ Quote from the port official answer to the question “How important is the SVS to the local economy” in the studies questionnaire on the port authorities views about the SVS.

²⁴ The Dhow port allegedly provides greater revenues for the port authority than the port serving formal shipping.

in port. Port fees are charged on the amount of cargo loaded and unloaded. Stevedores must be used when loading or discharging.

The Port Official for Zanzibar, Tanzania:

“It (the small vessel sector) is very important, its more than 30% of the islands economy”²⁵

The port unloads about 90 000 tons of cargo per annum, and loads approximately 47000 tons all of which are transported by the SVS. There are approximately 250 SV calls per month. The port provides seafarers with medical and communication facilities. Usually between 3 to 5 dhows and about 20 seafarers are lost per annum. The dhows are subject to Zanzibar port rules. Zanzibar offers qualifications for dhow skippers, to a maximum tonnage of 150 GRT.²⁶ Port fees are charged on the basis of LOA and length of stay. Stevedores must be used, the charge for which is \$1.96 per ton.

Economic and Social importance

The importance of this sector should no longer be under estimated. Based on this study's findings from this limited investigation, we now know that at minimum, approximately 5 000 people are directly employed on the small vessels. These seafarers support a further 16 500 dependants. When one takes into account the estimated number of 1200 small vessels registered and the corresponding estimated 14000 crew employed on small vessels, each with an average of 3.3 dependants, it is clear that this informal maritime sector is a large and important economic entity, directly supporting some 60 000 people in the region (14 000 seafarers + 46 200 dependants). Further, there are numerous supporting industries that rely on this sector for their personnel's livelihoods, i.e. boat building and repair, stevedores, port officials, agents, small traders, and business concerns which use this sector for its transport. In some places, and for many during the wet season, this is the only form of transport available. This sector acts as a feeder service for formal shipping, and proves Africa does already have a large maritime transport sector, without which the economic system of the East African coast might well collapse. It needs to be developed in the interests of the seafarers who work in it and those that depend on it for their livelihood.

²⁵ Quote from the port official answer to the question “How important is the SVS to the local economy” in the studies questionnaire on the port authorities views about the SVS.

²⁶ The qualification level is basic, one must know the “rules of the road” and be able to coastal navigate.

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