MARINE AFFAIRS **TECHNICAL REPORT** 6

The Economic Impacts of Piracy on the Commercial Shipping Industry: A Regional Perspective

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Photo: AP/Farah Abdi Warsameh

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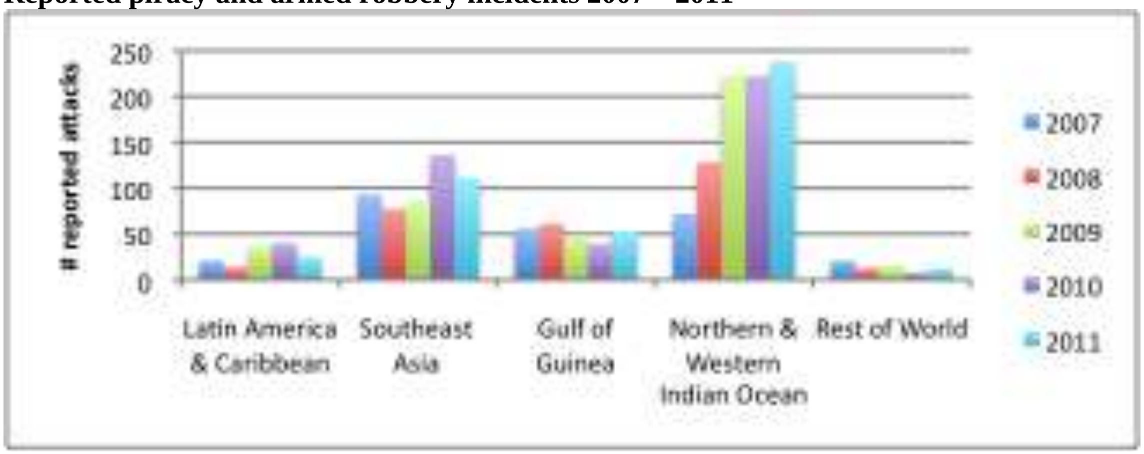
SUMMARY

This report assesses the economic impacts of maritime piracy on the commercial shipping industry. For the purpose of this report this industry consists of maritime transport and fisheries. The maritime transport industry includes the transport of cargo and passengers. Both form an important part of the global economy. For example 75% of the total world trade measured in tonnes and 59% in terms of value is transported by sea (Mandryk, 2009). With regard to the maritime transport of passengers, the cruise industry accommodated an estimated 15 million passengers in 2010 (FCCA, 2011) and 1.7 billion people made use of ferries in 2007 (IMO, 2011). The total amount of persons that make use of maritime transport is even higher when considering the use of yachts around the world. The fishing industry is equally important as it provides over 34 million people employment as fishers and the estimated first-sale value of the captured fish was US$ 93.9 billion in 2008 (FAO, 2010).

In recent years piracy has increasingly become a threat for the commercial shipping industry. There are four geographic regions in which almost all acts piracy and armed robbery occur. These four large regions are: Latin America and the Caribbean (LAC), Southeast Asia (SeA), the Gulf of Guinea (GoG), and the Northern and Western Indian Ocean (NWIO). The development of the reported number of piracy and armed robbery incidents is shown in the figure below.

Reported piracy and armed robbery incidents 2007 – 2011



Source: IMB, 2011, Note: Southeast Asia includes reported incidents in Bangladesh

For these regions this reports assesses both the impacts of the *threat* of piracy and the impacts of *actual* attacks. The economic impacts that are included as a result of the threat of piracy are:

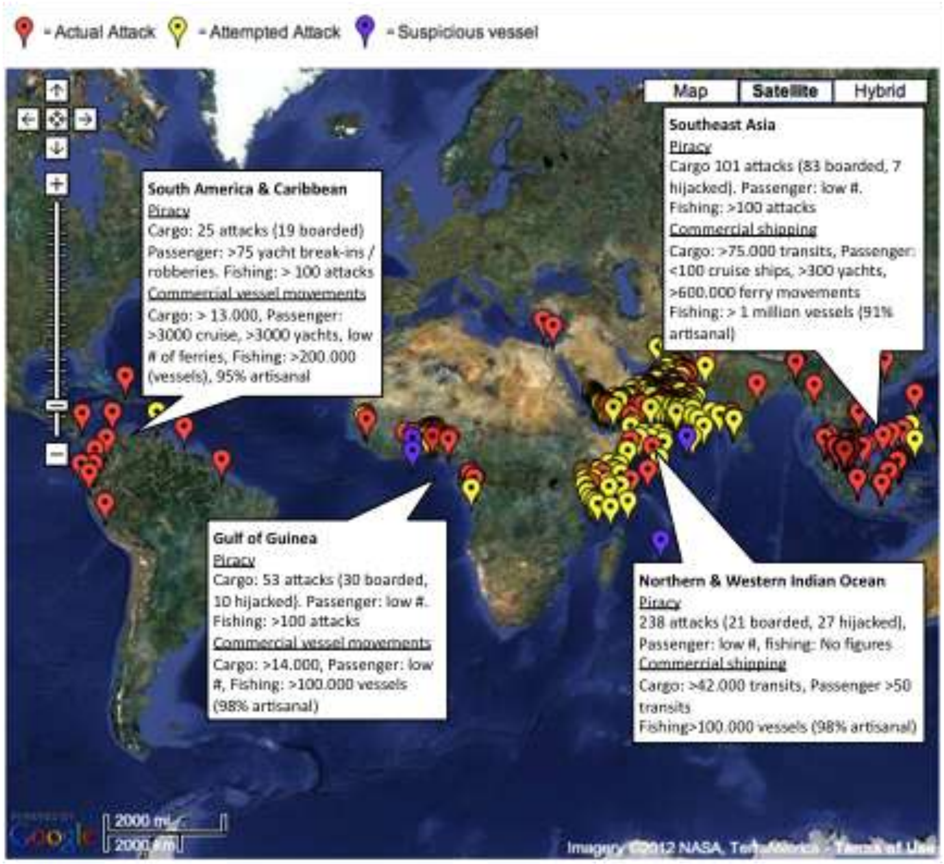
- Cost of fleet/vessel management adjustments
- Cost of security measures onboard the vessel;
- Cost of insurance.

The economic impacts that are included as a result of actual pirate attacks are:

- Cost of uninsured ransom;
- Cost of uninsured damages and losses.

A number of factors complicate quantifying the economic impacts of piracy on the commercial shipping industry. The first complication is the lack of statistical information on piracy activity in the different regions. The second complicating factor is that the commercial shipping industry itself does not provide much detailed information on the costs of piracy. Especially the costs related to insurance premiums and ransom payments often remain undisclosed. For that reason the report provides quantitative information where possible, but provides a qualitative overall assessment of the piracy impact per region. This qualitative assessment is based on a combination of the estimated impact of the individual piracy incidents, the total number of incidents and the presence of vessels in the regions. The figure below provides an indication of the number of vessels in the regions and the number of piracy attacks that took place in 2011.

Key figures of shipping industry and piracy per region[1]



Maritime Cargo Transport

By far the majority of the reported piracy attacks are aimed at cargo vessels. This is not surprising given their abundance around the world and the fact that they cannot avoid risky areas as easily as, for example cruise vessels or yachts.

[1] a) The map and number of pirate attacks on cargo vessels are those that were reported to the IMB in 2011 (map taken from IMB website)
b) The number of break-ins and robberies involving yachts in SA & Caribbean refers to 2010
c) Number of fishing vessels are estimates based on the number of licensed vessels reported by nations to the FAO.
d) Cargo transit numbers in regions are based on the number of transits through the Panama Canal, Straits of Malacca, the Suez Canal and departures from ports in the Gulf of Guinea. Actual numbers could be double when, for example, intra-regional trade is also included.

In all regions, except for NWIO, most of the reported incidents are cases of theft that take place while the cargo vessels are anchored or berthed. The pirates are after the ship's stores and attempt to remain undetected. Pirates in the GoG, especially when the perpetrators are Nigerians, take little effort to remain undetected when onboard and ransack the crew's quarters in search of personal valuables. The financial costs of such attacks are estimated to be 3 at most several thousand dollars.

Apart from these burglary and armed robbery cases, a relatively small number of vessels in SeA, the GoG and LAC region have been hijacked. In SeA and LAC the main reason to hijack the cargo vessel was to sell the vessel on the second hand market or for scrap. In 2010 and 2011, a total of 6 tugs and 1 cargo vessels were hijacked in SeA, but were all recovered and in 2005 a tug was hijacked and never returned in LAC. This shows that the overall costs of vessels being hijacked in SeA and LAC are relatively low. In GoG the number of vessels being hijacked appears to be increasing. There were no reports of vessels being hijacked in 2010 and 10 vessels were hijacked in 2011. In GoG the pirates are after the cargo of the vessel or they hold the crew for ransom. The costs of cargo theft and ransom payments in the GoG are not well documented, but could easily cost the commercial shipping industry millions of dollars per year. A recent newspaper article reports that piracy costs the industry US$ 3 million per year, which probably underestimates the actual costs. However, given the relatively small amount of ships hijacked the direct costs of piracy attacks are still relatively low, but increasing.

The economic impacts of piracy attacks in NWIO are relatively high, because cargo vessels are hijacked far more frequently than in the other regions. The Oceans Beyond Piracy (OBP) (2012) report estimates that Somali pirates received US$ 160 million in ransom payments in 2011. The report estimates that the costs of the negotiations, logistics of the ransom payments, "loss of hire" and damages to the hijacked vessels cost the industry an additional US$ 160 million. In total the direct costs of pirate attacks in the NWIO are therefore estimated at US$ 320 million and the OBP report assumes that 50% of these costs are paid for by insurance companies. Though the insurance companies are faced with some costs, they do seem to profit substantially from piracy in NWIO. According to the OBP (2012) report, the shipping industry paid US$ 635 million in additional insurance premiums in 2011 as a direct result of piracy in the region. Most likely the insurance premiums in parts of SeA and the GoG are also strongly influenced by piracy, as the Joint War Committee has declared them 'high-risk' areas. This means that shipowners need war risk insurance to transit in those areas and pay higher premiums. However, the areas in SeA and those in the GoG declared 'high-risk' areas are far less frequently transited by cargo vessels than in the NWIO region.

Most of the costs of piracy are incurred by cargo vessels when dealing with the threat of piracy. Vessels in the NWIO re-route within in the Indian Ocean to avoid the piracy 'hot spots' and speed up to make it less easy for pirates to board the vessel. OBP (2012) estimates that these vessel management adjustments cost the industry US$ 3.3 billion in 2011. OBP (2012) also estimated that the industry spent an additional US$ 1.1 billion on the installation of security equipment and hiring private security guards to transit the region. In all the other regions, low-cost security measures are being taken onboard vessels. These measures mainly try to prevent burglary from occurring and reports on piracy incidents suggest that only in the GoG region more costly measures, such as armed guards and the installation of citadels are also being taken. However, there is no public information on how widespread these measures are being implemented. The costly vessel management measures appear to only take place in NWIO.

Maritime passenger transport

Overall the number of attacks on passenger vessels has been limited in recent years, because cruise vessels and yachts appear to avoid piracy 'hot-spots'. There has been a small number of high profile cases of attacks on cruise ships and yachts, but, to date, only attacks on yachts have been successful for the pirates. In NWIO several millions of dollars have been paid to free yachters, but given the small number of attacks, the economic impact has been low. In other regions most 'attacks' are actually cases of burglary, which in a few cases have escalated to armed robberies with terrible outcomes. The economic loss per incident is estimated to be at most US$15,000 and overall the economic impact of piracy on maritime passenger transport is relatively low.

Fisheries

There are no good statistics on the number of attacks on fishers, but newspaper articles and studies show that in each region hundreds of attacks take place on fishers each year. Consequently, it appears that in all the analyzed regions fishers are relatively suffering the highest economic losses as a result of piracy attacks.

Both artisanal and industrial fishers are often the victims of pirate attacks. Attacks on trawlers in GoG show that this industry loses millions of dollars each year and many fishers are killed during attacks. Western fishing companies try to avoid the piracy hot-spots and deploy their vessels in other regions. Artisanal fishers appear to be the strongest affected by piracy in all regions. The reduced coastal fish stocks, the limited range of their vessels and their knowledge of the fishing grounds, prevent them from avoiding piracy hot-spots. Attacks on artisanal fishers involve stealing their catch, gear, fuel, personal belongings and, at times, even their vessels. In GoG and NWIO fishers are also used as human shield or camouflage by pirates during their attacks on more lucrative targets. Estimates in LAC show that the average costs of these attacks are around US$ 5,000. Fishers are already faced with the effects of overexploitation of fish and often cannot afford to replace their stolen items. This has forced many fishers to give up their occupation and, given their limited employment opportunities, has forced them engage in illegal activities, including piracy.

The economic impacts of piracy on the commercial shipping industry are summarized in the table on the next pages.

Overview of economic impact of piracy on the commercial shipping industry

Vessel type	Cargo vessels		Passenger vessels		Fishing vessels	
Region	**Threat**	**Attacks**	**Threat**	**Attacks**	**Threat**	**Attacks**
South America & Caribbean **Trend Incidents:** Frequency 0 Violence +	Low impact - Relatively low # of attacks (mostly burglaries) - No indication of higher insurance premiums[2], high costs for security measures or ship management adjustments	Low impact - Main target ship's stores, while vessel anchored/ berthed - No indication of high costs in damages, loss of cargo or vessels	Low impact - Only attacks on yachts (mostly burglaries) - Yachters avoid high risk areas - No indication of higher insurance premiums or costs of security measures	Low impact - Main target personal belongings and outboard motors - Max estimated loss US$15.000[3]	Low impact - No indication that fishers endure high costs as a result of the threat of piracy - Some fishers might stop fishing to avoid piracy	High impact - Lack of statistics, but high number of incidents mentioned in reports and newspapers - Robbery of gear, fish, fuel, motors and vessels. - Fishers often have to stop fishing[4] and some engage in crimes
Southeast Asia **Trend Incidents:** Frequency + Violence +	Moderate impact - Relatively low # of attacks - Implementation of security measures - Parts designated "high-risk" areas by JWC and higher insurance premiums, but no major trade routes included	Low impact - Most attacks are break-ins at anchorages and berths - Hijacking is exceptional, but leads to high costs for ship-owner/operator	Low impact - High volume of ferries in the region, but no reports of attacks - Yachts mainly targeted, but no indication of high costs for security measures - Yachts avoid high-risk areas	Low impact - Yacht break-ins targeted at personal belongings and cash - Max estimated loss $15.000[2]	Moderate impact - Fishers pay organised gangs security money - Some fishers might stop fishing to avoid piracy	High impact - Lack of statistics, but high number of incidents mentioned in reports and newspapers - Robbery of gear, fish, fuel, motors and vessels. - Fishers often have to stop fishing
Gulf of Guinea **Trend Incidents:** Frequency 0 Violence +	Moderate impact - Benin's and Nigeria's waters declared 'high-risk areas by JWC leading to higher	Low Impact - Attacks are often violent and ships are ransacked - In some cases pirates know	Low impact - Number of ferries, yachts and cruise ships relatively	Low impact - Low number of attacks on passenger vessels - Yachts and cruise ships	Moderate impact - Fishing trawlers in Nigeria deal with a high	High impact - High number of attacks cost the industry millions each year

[2] Venezuela is listed as 'high-risk' area by the Joint War Risk Committee, but this is not the result of piracy in the region
[3] The tragic loss of human lives during attacks has not been included as an economic impact
[4] Many fishers have lost their lives during piracy attacks, but this is not included in the economic impacts

Vessel type	Cargo vessels		Passenger vessels		Fishing vessels	
Region	**Threat**	**Attacks**	**Threat**	**Attacks**	**Threat**	**Attacks**
	insurance premiums - Shipowners hire security guards and have installed citadels / safe rooms. Unknown if this is common practice	exactly what cargo is onboard and take the most valuable content or the entire content	low - Few registered attacks on passenger vessels - Some evidence that ferries pay 'security' money to pirate gangs	do not visit the area frequently - In case of an attack the pirates are after the personal belongings of passengers and crew	number of pirate attacks and are faced with higher insurance premiums - Many fishing companies have left the deep-sea fishing industry - Little information on artisanal fisheries and fisheries outside Nigeria	in ransom and entitlements paid to the families of victims of pirates - Fishing vessels are used to attack high value cargo vessels
Northern and Western Indian Ocean **Trend Incidents:** Frequency + Violence +	<u>High impact</u> - JWC declared region a high-risk area - Increased insurance premiums - Many vessels outfitted with security equipment and guards - Shipowners / operators have made fleet management adjustments	<u>Moderate impact</u> - Hijacked vessels released after payment of ransom - Vessels and crew hijacked for several months causing loss of income for shipowner / operator	<u>Low impact</u> - Relatively low number of passenger vessels in the region - Cruise market was not yet developed - Yachters select other regions to visit	<u>Low impact</u> - Attacks on cruise ships have taken place, but unsuccessfully - A small number of yachts has been hijacked and high ransom payments have been made	<u>High impact</u> - Industrial fishers avoid part of the region and vessels are deployed in other oceans - Insurance and security costs have increased for industrial fishers - Many artisanal fishers are too afraid to fish	<u>High impact</u> - Fishing vessels and crew are held for high ransom - Artisanal fishers are robbed of fuel, water, motors, vessels or used as human shields

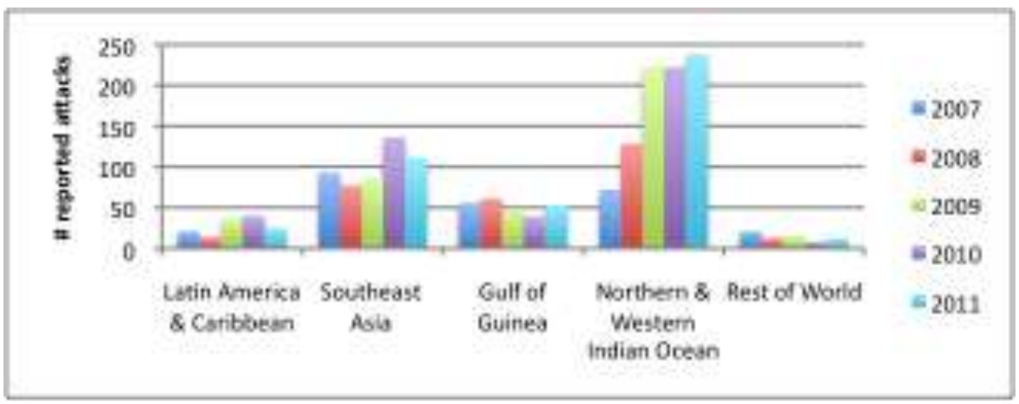
1. INTRODUCTION

This report assesses the economic impacts of maritime piracy on the commercial shipping industry. For the purpose of this report this industry consists of maritime transport and fisheries. The maritime transport industry includes the transport of cargo and passengers. Both form an important part of the global economy. For example 75% of the total world trade measured in tonnes and 59% in terms of value is transported by sea (Mandryk, 2009). With regard to the maritime transport of passengers, the cruise industry accommodated an estimated 15 million passengers in 2010 (FCCA, 2011) and 1.7 billion people made use of ferries in 2007 (IMO, 2011). The total amount of persons that make use of maritime transport is even higher when considering the use of yachts around the world.

The fishing industry is equally important as it provides over 34 million people employment as fishers and the estimated first-sale value of the captured fish was US$ 93.9 billion[5] in 2008 (FAO, 2010).

In several regions across the world maritime transport and fisheries are threatened by maritime piracy and armed robbery incidents. The International Chamber of Commerce’s International Maritime Bureau (IMB) tries to keep track of the number of actual and attempted piracy and armed robbery attacks around the world. The development of the reported number of actual attacks and attempts in recent years is shown in figure 1.

Figure 1 Reported piracy and armed robbery incidents 2007 – 2011



Source: IMB, 2011
Note: Southeast Asia includes reported incidents in Bangladesh

Figure 1 shows that there are four large regions in which almost all the reported piracy and armed robbery attacks take place in the world. This report will assess the economic impacts on the commercial shipping industry for each of these regions.

5 First sale value of both inland and marine capture fisheries

2. METHODOLOGY

The information provided on the economic impacts of piracy on the commercial shipping industry is based on secondary research. Lack of primary data complicates an accurate assessment of the economic impacts. This was also mentioned by Martinez-Zarzoso & Bensassi (2011). They stated that the "lack of systematic data on insurance contracts, salaries paid by ship owners, the proportion on ships rerouted, the investment in defence measures,…" makes it impossible to determine the exact economic costs of piracy. Determining the impacts on the yachting industry is even more complicated given that piracy attacks aimed at yachts are often unreported (Yachtpals, 2009). Under-reporting is also an issue in the fishing industry, because fishers often fear revenge by the pirates or see no advantage in reporting the crime (Liss, 2007). This further complicates an accurate assessment of the economic impact of piracy on the commercial shipping industry.

These complications make it impossible to accurately quantify the economic impacts of piracy on the commercial shipping industry, but where quantitative data is not available; this report will provide a qualitative description of the economic impacts. The only impacts considered in this analysis are the direct impacts on the commercial shipping industry. These impacts can be divided into impacts that occur as a consequence of the threat of piracy attacks and the impacts of an actual attack. These impacts are described in table 1.

Table 1 Description of direct economic impacts of piracy

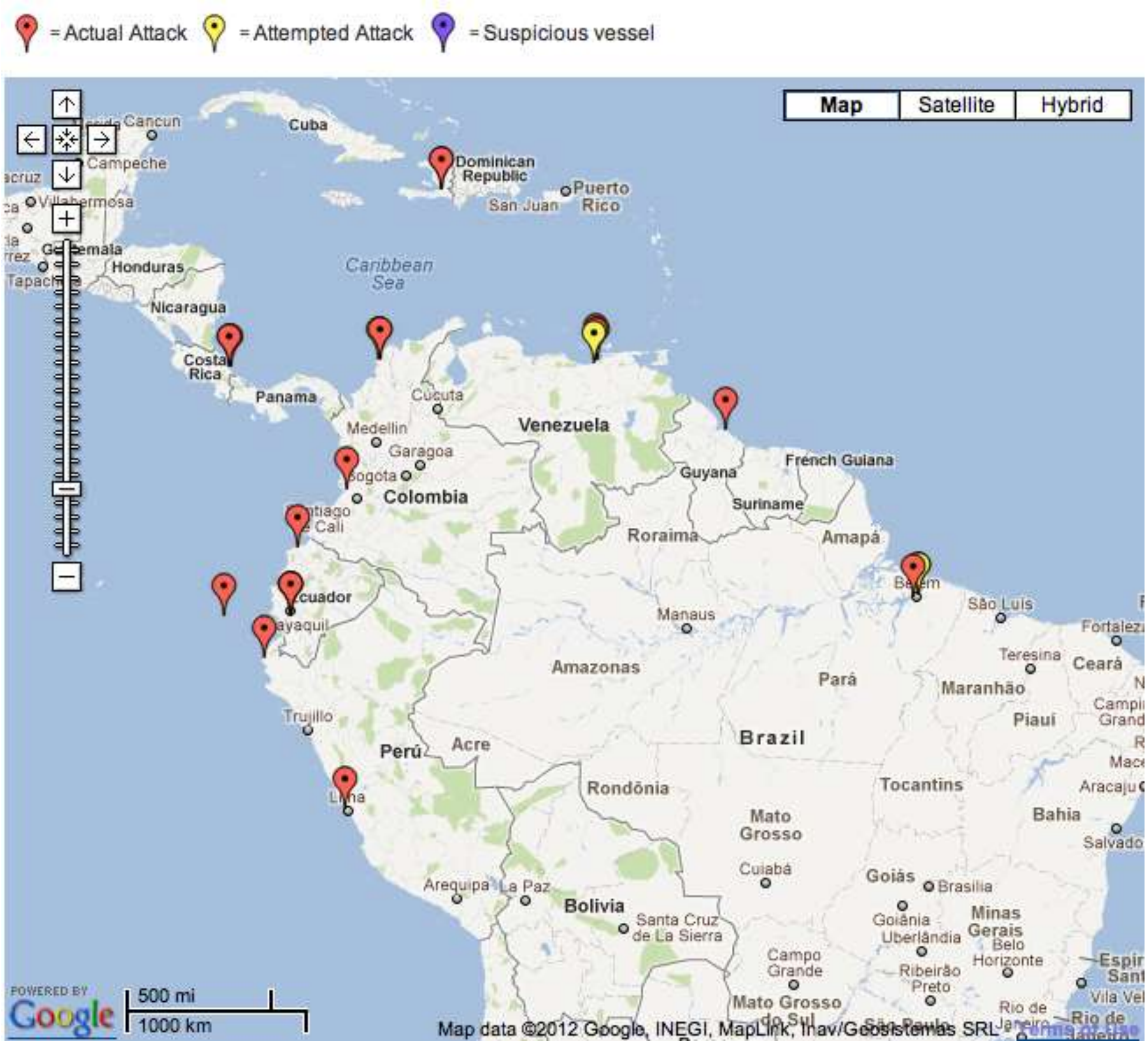
Impact types	Details
Impact of the threat of piracy	
Cost of fleet/vessel management adjustments	Re-routing, speed adjustments, use of additional or less vessels on certain route, use of different vessel types on certain route, schedule adjustments, etc.
Cost of security measures	(Armed) guards, citadel, barbwire, etc.
Cost of insurance	Insurance of hull, cargo, kidnap & ransom, etc.
Impact of actual piracy attacks	
Cost of uninsured ransom	Ransom for kidnapping/hijacking not covered by insurance (otherwise covered in cost of insurance)
Cost of uninsured damages and losses	Damages to or loss of ship and cargo, including costs associated with delays not covered by insurance

In the next chapters the economic impacts of piracy on the commercial shipping industry will be analyzed for the four regions included in this report.

3. LATIN AMERICA AND THE CARIBBEAN

Latin America and the Caribbean (LAC) region is a vast area and includes all countries between Mexico and the tip of South America. The focus of this chapter is on those countries that suffer from piracy attacks. The geographical scope is based on the reported piracy attacks to the IMB in 2011. This scope is shown in figure 2.

Figure 2 Map of LAC region and reported piracy and armed robbery attacks



Source: IMB, 2011
Note: map shows incidents in 2011

This chapter analyses the economic impacts of piracy on the commercial shipping industry in the region shown in figure 2. In order to do so, this chapter starts with a description of the commercial shipping industry in the region. The chapter continues with a brief description of piracy in the region. The last part of this chapter presents the economic impacts of piracy on the commercial shipping industry.

3.1. The Commercial Shipping Industry in LAC

This paragraph describes the three main commercial shipping types as identified for the purpose of this report: maritime cargo transport, maritime passenger transport and fisheries.

3.1.1. Maritime Cargo Transport in LAC

There are two important maritime cargo flows that transit the region. The first is origin-to-destination cargo and the second is the cargo that only passes through the region. The first type of transport is depended on the trade generated by the countries in the region. Table 2 provides an overview of the trade of a number of countries in the region.

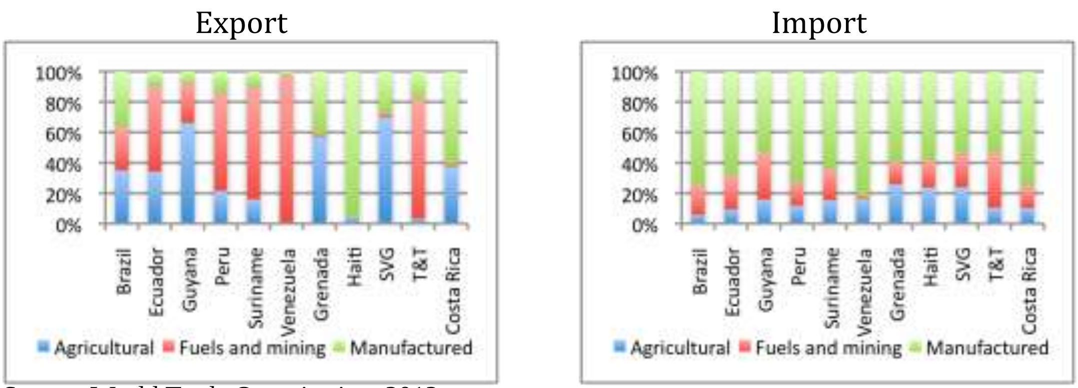
Table 2 Examples of trade size and major trade partners of LAC countries

Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
Brazil	Exp.	201,915	22%	European Union	16%	China	10%	United States
	Imp.	191,491	21%	European Union	15%	United States	14%	China
Venezuela	Exp.	65,786	48%	United States*	…%	Colombia	…%	European Union
	Imp.	40,800	27%	United States	13%	European Union	11%	Colombia
Peru	Exp.	35,565	18%	European Union	16%	United States	15%	China
	Imp.	30,126	19%	United States	17%	China	11%	European Union
Ecuador	Exp.	17,490	35%	United States	13%	European Union	12%	Panama
	Imp.	20,591	28%	United States	10%	Colombia	9%	European Union
Costa Rica	Exp.	9,385	37%	United States	18%	European Union	5%	Hong Kong
	Imp.	13,570	47%	United States	8%	European Union	7%	China
T&T	Exp.	10,590	54%	United States	14%	European Union	5%	Jamaica
	Imp.	6,575	31%	United States	11%	European Union	10%	Colombia
Haiti	Exp.	580						
	Imp.	3,150						
Suriname	Exp.	2,069	29%	Canada	19%	European Union	14%	United Arab Em.
	Imp.	1,443	25%	United States	24%	Trinidad & Tob.	23%	European Union
Guyana	Exp.	877	25%	European Union	22%	United States	18%	Canada
	Imp.	1,400	28%	United States	17%	Trinidad & Tob.	9%	Dutch Antilles
SVG	Exp.	42	21%	Saint Lucia	16%	Trinidad & Tob.	12%	European Union
	Imp.	379	33%	United States	27%	Trinidad & Tob.	10%	European Union
Grenada	Exp.	24	16%	Dominica	16%	United States	16%	European Union
	Imp.	288	31%	United States	25%	Trinidad & Tob.	11%	European Union

Source: World Trade Organisation, 2012
Note: * percentage is based on information from the U.S. Government (2011)

Table 2 shows that especially the United States (U.S.) is an important trade partner for the LAC region. This means that there are important cargo transport flows between North and South America transporting cargo worth billions of dollars. The majority of the goods exported by the LAC countries are agricultural, fuel and mining products, as shown in figure 3. The majority of these exports will be accommodated by bulk carriers and tankers. Especially Venezuela and Trinidad & Tobago (T&T) are strongly depended on their fuel and mining exports. For T&T a large part of these exports comprise of Liquid Natural Gas (LNG). It is the fifth-largest exporter of LNG in the world and the largest supplier of LNG to the U.S., supplying approximately 40% of U.S. LNG imports in 2009 (U.S. Government, 2011a). In the case of Venezuela, the most important export product is oil. It accounted for 95% of the exports in 2010 (WTO, 2012) and the U.S. is the most important customer for Venezuelan oil. Venezuela shipped an average of 1.1 million barrels of crude oil and petroleum products per day to the U.S. in 2009. This accounted for 50% of Venezuelan oil exports and 10.9 % of U.S. oil imports (U.S. Government, 2011b).

Figure 3 Examples of export and import composition of LAC countries

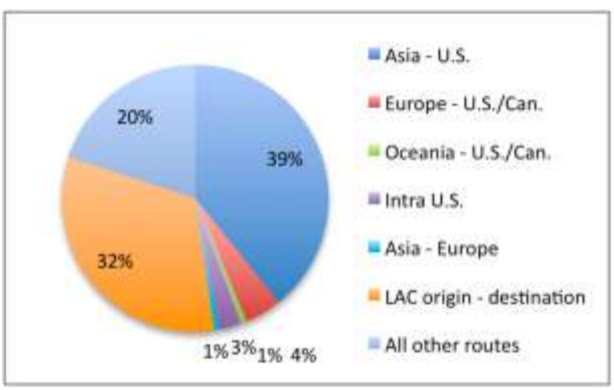


Source: World Trade Organisation, 2012
Note: Saint Vincent and the Grenadines is SVG; Based on 2010 figures

The majority of the imports into the region consist of manufactured goods from the U.S. These imports are mainly accommodated by container carriers, most of which come from U.S. ports.

A second important cargo transport flow in the LAC region is the cargo that transits the region via the Panama Canal. As figure 3 shows, the majority of the cargo that is transported via the Canal does not have its origin or destination in the LAC region.

Figure 4. Cargo volume through the Panama Canal in 2011 per trade lane



Source: Panama Canal Authority, 2012

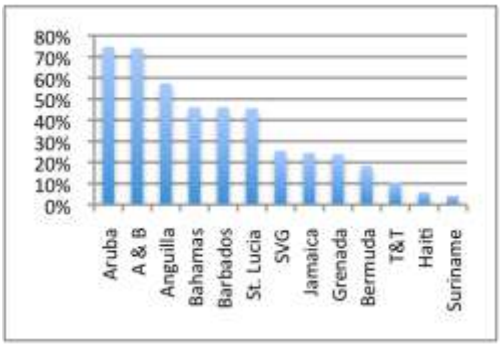
Figure 4 shows that the U.S. is the main user of the Panama Canal. It is either the origin or destination of over 45% of the cargo that passes through the Canal, which represents about 12% of the international seaborne trade of the U.S. (Rodrigue and Notteboom, 2012). 32% of the cargo transported through the Canal has its origin or destination in the LAC region and in total the Canal handles about 5% of the global seaborne trade (Rodrigue and Notteboom, 2012). This 5% of global seaborne trade is carried by some 12.500 transits made by cargo vessels (Panama Canal

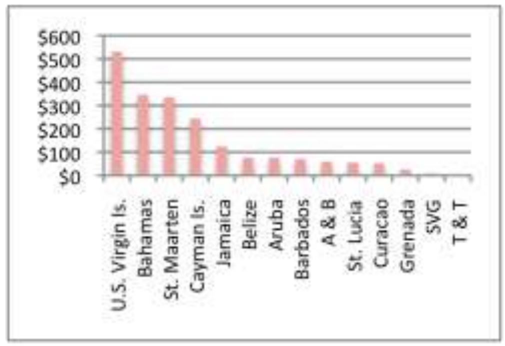
Authority, 2012). Currently, the Panama Canal is undergoing a large-scale expansion program, which will allow it to accommodate larger vessels (Panama Canal, 2011).

3.1.2. Maritime Passenger Transport in LAC

The main form of passenger maritime transport in the LAC region is related to tourism. Ferry transport in the region is not widespread (Wergeland, 2012), but millions of cruise ship passengers and tourists on yachts visit the region each year. Especially the economies of the Caribbean countries are heavily depended on tourism in general and cruise ships generate millions of dollars for these islands. This includes the money spend by the tourists and the crew on the islands, but also the jobs the cruise industry creates. Figure 5 shows the importance of tourism for a number of Caribbean islands and the money generated through cruise ships in the region.

Figure 5 Contribution of tourism to GDP and income from cruise tourism ($M)





Source: World Travel and Tourism Council, 2011; FCCA, 2009
Note: A&B refers to Antigua & Barbuda

Figure 5 shows that many countries in the Caribbean are heavily depended on tourism and cruise tourism is an important part of that. In fact, the Caribbean is the number one destination for cruise holidays. In 2010 the region represented 41.3% of the total capacity of the cruise industry. In 2010 cruise vessels accommodate some 15 million passengers (FCCA, 2011) and this suggests that some 6.2 million passengers visited the Caribbean. The average capacity of a cruise vessel in 2010 was 1700 passengers (Cruise market watch, 2010). Based on these figures it is estimated that cruise vessels make 3600 trips in the Caribbean per year.

Unfortunately similar information on the yachting and pleasure boating industry in the Caribbean is lacking. It is clearly a multimillion dollar industry for the Caribbean, given the amount of 2000+ charter yachts (ECLAC, 2004) in the region and the amount of yachts that sail from other parts of the world to this region. Based on the analysis by Jim Cornell (2011) it could be assumed that the number of yachts in this last group is also in the range of 2000 per year. A large part of these yachts spend a whole season in the Caribbean and provide an impulse for the local economies.

3.1.3. Fisheries in LAC

Apart from thousands of cargo vessels, cruise vessels and yachts, there are also thousands of fishing vessels in the region. Unfortunately, accurate and consistent figures on fishing efforts in the LAC region are generally not available (FAO, 2011). The figures presented in table 3 are mainly based on FAO country profiles which are often estimates. The figures are based on different years and should be interpreted as an indication of the economic role of fisheries in the region.

Table 3 Marine fisheries in LAC

Country	Fisheries/GDP	# fishers	# boats	Consumable kg fish/capita/year
Ecuador	6.3%	74,000	16,444[c]	4.7
Suriname	4.0%[a]	5,163[b]	1,150[b]	16.3
Guyana	2.8%[a]	5,644[b]	1,300[b]	45.7
Haiti	2.5%[a]	50,000	7,000	2.6
St. Vincent & the Gr.	2.0%[a]	3,600[b]	600[b]	15.1
Peru	2.0%[a]	121,000	26,889	22.1
Grenada	1.8%[a]	1,240[b]	276[c]	52.2
Venezuela	0.5%	95,600	21,244[c]	18.1
Brazil	0.4%[a]	195,500[a]	43,444[c]	5.6
Costa Rica	0.3%	8,500	3,000	5.8
Trinidad & Tobago	0.1%	5,100[b]	2,184[b]	14

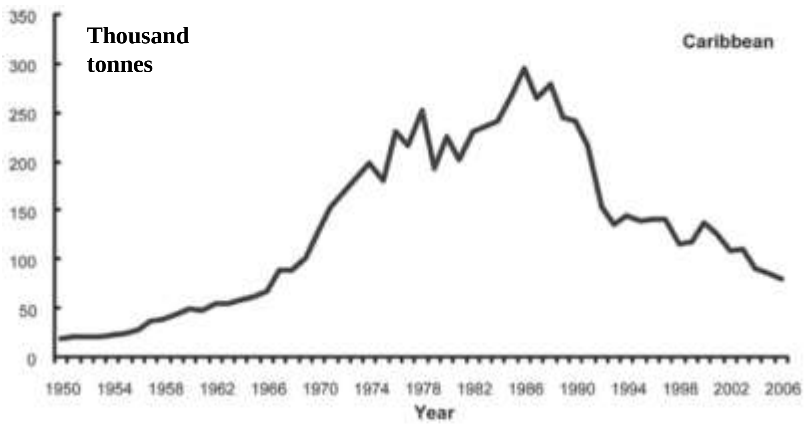
Source: [a]World Bank, 2010; [b]Saul, 2010; FAO, n.d.
Note: [c] Estimates based on the average amount of fishers / boat in the region

Table 3 shows that there are roughly 600,000 fishers in the countries included in the analysis and some 150,000 fishing vessels. This makes this type of vessel the most common vessel in the region.

Table 3 also shows that the contribution of fisheries to the national GDP of most LAC countries included in the analysis is relatively low. Also, the average consumption of fish is far lower than the average consumption of meat in the LAC countries, which was 62 kg per person in 2005 (FAO, 2009). However, for most of these countries fisheries provides employment and an important food resource for coastal communities that otherwise have few other opportunities to generate income (FAO, 2010b).

Looking at the development of the quantity of coastal fisheries landings in figure 6, it is clear that the sector is facing difficult times, especially in the Caribbean.

Figure 6 Landing trends of coastal fisheries in the Caribbean



Source: FAO, 2011 based on data from the Sea Around Us project (2011).

The decline in coastal fisheries means that the LAC region currently has excess fishing capacity (FAO, 2011).

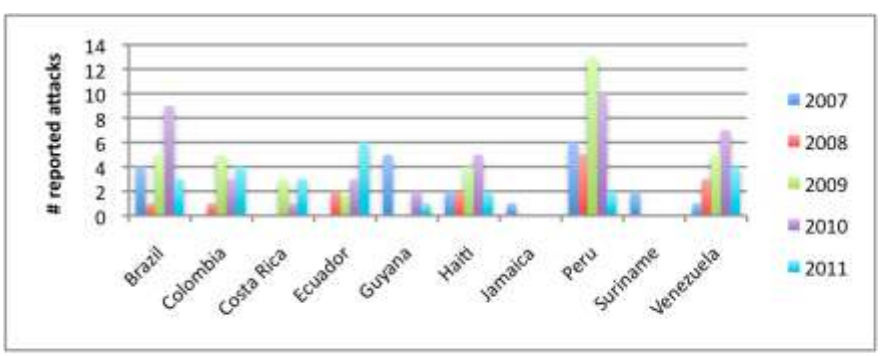
3.2. Piracy in LAC

At the beginning of this chapter it was indicated that several piracy attacks in the LAC region were reported to the IMB in 2011. These reports only included acts of piracy against cargo vessels, but attacks on passenger vessels and fishing vessels have been reported in the media. This paragraph provides a brief overview of the types of piracy attacks in the region.

3.2.1. Piracy and Maritime Cargo Transport in LAC

The piracy attacks, 6 of which were unsuccessful attempts, reported to the IMB in 2011 all involved cargo vessels. Figure 7 shows the number of reported attacks for the period 2007 – 2011. The figure shows that the amount of attacks has decreased in 2011 to 25 reported attacks compared to 37 attacks in 2009 and 40 attacks in 2010. Especially the number of attacks in Brazil and Peru decreased strongly, while Ecuador saw an increase in the number of attacks in 2011.

Figure 7 Reported piracy attacks in LAC region 2007 - 2011



Source: IMB, 2011

In almost all cases the pirates tried to board the vessel while it was at anchor. They were after the ship's stores and tried to remain undetected. In case the pirates were detected by the crew, they tried to flee the scene immediately. This explains why none of the piracy attacks in the region in 2011 resulted in injuries to the crew, though in two incidents in Costa Rica the crew was assaulted. The reports that include information on type of arms that were used during the attacks show that in 2011 guns were only used in two incidents in Ecuador (IMB, 2011).

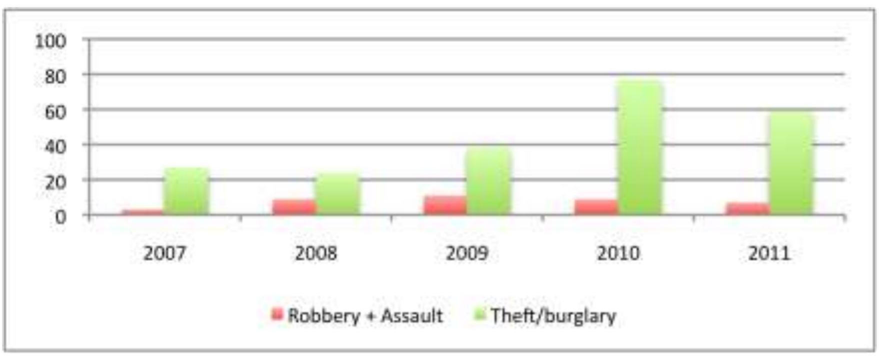
A more serious attack occurred in 2005 when armed men attacked a tug boat and barge while transiting in the Caribbean. The tug was later found in Haiti in the possession of armed pirates and the owner was unable to get the vessel back (Julien, 2011)

3.2.2. Piracy and Maritime Passenger Transport in LAC

No reports of attacks on cruise ships or ferries were encountered during the research for this report, but several incidents involving yachts have been reported.

The Caribbean Safety and Security Net (CSSN) provides information on incidents of theft, burglary, robbery and assault involving yachts in the region. Figure 8 shows that in most cases yachts were victim of theft or burglary. The outboard engines, fuel and personal belongings were the most frequently targeted. The crimes were usually committed when the vessel was anchored and no crew members were onboard. By far the largest number of these crimes was perpetrated in the waters of Trinidad & Tobago in 2010 and Saint Vincent & the Grenadines in 2011. However, most cases of robbery and assault in the period 2007 – 2011 took place in the water of Venezuela. In some cases where there were crewmembers onboard, the outcome of the attack was tragic. Reported assault in the region let to the death of four yacht crewmembers in 2010 and in 2011 this number dropped to one (CSSN).

Figure 8. Reported theft, burglaries, robberies & assaults involving yachts



Source: CSSN, 2012

Figure 8 shows that the total number of robberies and assaults is limited per year. On average for the period 2007 – 2011, 7 cases were reported by the CSSN and in 2011 there were 6 of such incidents.

3.2.3. Piracy and Fisheries in LAC

Attacks on fishing vessels form a problem in the whole region, but statistics on these attacks were not found in the course of this research. However, newspaper articles in the region have made notice of numerous attacks in the region. The total number most likely far outweighs any other type of piracy. For example in Trinidad & Tobago reports have been made of 6 fishing vessels being attacked on the same day (Shah, 2010). Another example took place in Guyana and Suriname waters, where three men armed with shotguns attacked and robbed 7 fishing vessels in one day (Knews, 2011a). An organisation representing artisanal fishers in Ecuador stated that in 2011 approximately 200 pirate attacks took place on fishers (Andes, 2011). In Venezuela an estimated 25 attacks were reported in 2010, but the actual number of attacks in this country is expected to be much higher (El Nacional, 2011). The chairman of a fishers' co-operative in Jamaica stated that robbery at sea was at "intolerable levels", indicating that piracy is also a problem in Jamaica (Thompson, 2008). These examples show that the total number of piracy attacks on fishers in the region is probably in the hundreds per year.

Fishers are often robbed of high valued lobster and other valuable species, outboard engines, batteries, navigation equipment and communication devices. They are also robbed of vessels, fishing gear and supplies such as clothing and food (Phillips and Gabriel, 2010). Tragically, many fishers have died during such piracy attacks. For example in Guyana pirates have murdered an estimated 18 fishers at sea in 2008-2009 (Stabroek, 2010). The reports suggest that in the last several years the number of pirate attacks on fishers is increasing in the region and attacks are becoming more violent.

3.3. Economic Impacts of piracy in LAC

This paragraph provides an overview of the economic impacts of piracy in the LAC region. Given the limitations of the information found on the number and details of attacks in the region, this paragraph will mostly present qualitative information. For all types of maritime transport, the paragraph assesses the following economic impacts:

- Cost of fleet/vessel management adjustments;
- Cost of security measures onboard the vessel;
- Cost of insurance;
- Cost of uninsured ransom;
- Cost of uninsured damages and losses.

3.3.1. Economic Impacts on Maritime Cargo Transport in LAC

As could be seen in figure 7, cargo vessels in the LAC region have been the victim of criminal activity in the region for years. Almost all of these criminal activities were limited to theft of ship's stores while the vessel was at anchor. There have been attempts to break open containers and a 2005 incident showed that sporadically vessels are stolen.

The relatively low number of reported attacks and the relatively minor impacts of attacks on the vessel and crew have not resulted in fleet or vessel management adjustments. It did result in crew being more alert in certain areas in the LAC region in order to prevent theft from occurring. Impacts on insurance premiums are consequently assumed to be relatively low, though no information was found on potential impacts of piracy on insurance premiums in the region.

At first glance maritime cargo transport in Venezuela's Exclusive Economic Zone (EEZ) appears to be more strongly affected by piracy. The Joint War Committee[6] has classified this area as 'high risk', which undoubtedly has an impact on the insurance premiums for foreign cargo vessels

[6] "…any vessel intending to maintain War Risk Insurance during a breach of the War Risk Trading Warranties (i.e. by sailing to a place listed as a Current Exclusion) is required to obtain prior agreement from War Risk underwriters and, if so required, pay an Additional Premium." (FP Marine Risks, 2012)

operating in the Venezuelan waters. However, the reason for this classification was the nationalisation of foreign assets in Venezuela (BMI, 2009). In 2009 Hugo Chavez nationalized 70 local and foreign oil service firms including an estimated 350 vessels, 30 barges, 60 diver boats (Labrut, 2009).

No reports were found of piracy incidents in the LAC region which involved hijacked vessels and ransom demands in recent years. However, a 2005 incident does show that sporadically vessels are stolen. The insurance company that had insured the tug boat and barge that were stolen in the 2005 incident, were ordered by a Trinidad court to pay the owners US$679,000 (Julien, 2011). However, this case was an exception and overall damages to vessels and the value of the ship's stores are expected to be relatively limited.

Attacks on cargo vessels are most likely under-reported, because the captains of the vessel do not want to go through the hassle of reporting an incident to the local authorities out of fear of costly delays (Vaknin, 2011). This shows that the costs of the attacks themselves are relatively minor compared to the operational and 'loss of hire' costs as a result of delays of cargo vessels. The overall economic impacts of piracy on the maritime transport of cargo in the LAC region are therefore estimated to be low.

3.3.2. Economic Impacts on Maritime Passenger Transport in LAC

Based on the publicly available information it is concluded that no attacks have taken place on cruise ships in the region. This part will therefore focus on the economic impacts of piracy on yacht owners and commercial operators.

The number of thefts and burglaries involving yachts in the region has increased sharply in 2010 and 2011, but are still relatively low compared to the total number of yachts in the region. Almost all successful theft and burglary attempts resulted in theft of personal electronics, cash and outboard motors. Incidents of robbery and assault also occur in the region, but have remained fairly constant around 10 per year in the last 5 years. These incidents can have tragic outcomes and have resulted in the deaths of crew members. There is some evidence suggesting that severe assault cases can cause yachters to avoid certain areas. For example, an attack in 2006 in St. Lucia in which the captain was severely beaten and his wife raped caused the number of yacht visits to drop by half in the next year (Williams, 2008). This is likely to have led to a shift of yacht traffic within the region and not a decline in the overall number of yachters that visit the LAC region.

Several incidents described by the CSSN show that the crew is taking safety measures, such as keeping the yachts, outboard engines and dinkies locked. In few incidents the crew keep arms onboard, but flare guns have also been used to deter pirates. The overall economic impacts of these safety measures are estimated to be relatively low.

There was no public information found on the impacts of piracy on yacht insurance premiums or examples of yachts being hijacked in the last 5 years. However, there was one case in Panama in 2011 in which the crew was robbed and the vessel stolen. The pirates already painted a new name on the vessel, but were seized by the police before they could get away (CSSN, 2012). Such cases are very rare and overall the damages as a result of theft, burglary and robberies are estimated to range from a couple of hundred to a couple of thousand dollars. This means that the overall economic impact of piracy in the LAC region on maritime passenger transport in the region is low.

3.3.3. Economic Impacts on Fisheries in LAC

Though there are no statistics kept on piracy attacks on fishing vessels, but reports from individual countries suggest that this is the most widespread form of piracy in the region. This form of piracy is often characterised by extreme violence and many fishers have died during such attacks.

In most cases the pirates take all valuable items from the fishers they rob. The costs of such an attack are often more than US$5000 (Knews, 2011).These piracy attacks have led many fishers to abandon their livelihoods. In some cases this is due to fear of being attacked and in other cases the cost of replacing stolen engines or boats is more than they can afford (FAO, 2011).

On national level some figures on economic impacts exists. For example in Ecuador, the costs of piracy attacks on artisanal fishers is estimated at US$1.3 million in 2011 (Andes, 2011). In the Bahamas the estimated loss to fishers from praedial larceny, which includes piracy, is estimated at US$16 million (Phillips and Gabriel, 2010). In the 16 attacks reported in Venezuela for the period January – October 2010, the total costs amounted to an estimated US$65.000 (El Nacional, 2010).

For Guyana no overall quantification of the economic impact of piracy on the fishing industry has been made, but the impact on the sector has been significant enough for the government to set up a US$25.000 anti-piracy revolving fund. This fund is intended to compensate fishers and other boat owners who are victims of piracy. However, in order to benefit from the fund, boat owners are required to pay an annual fee of 0.25% of the evaluated value of their vessel, fishing gear and engine. For most fishers this would mean a fee of US$30 dollars per year (Stabroek News, 2010). Apart from the revolving fund in Guyana, no other information on similar initiatives in the region or insurance premium increases was found.

The described costs in this paragraph are also partly a source of income for fishers in the region. There are several reports of fishers attacking other fishers. Another issue is that the pirates steal fishing gear and outboard motors, which indicates that there is a market for these items. Most likely other fishers benefit from the availability of these items. The attacks can also be related to the drug trade in the region. For example in some cases pirates who attack fishers in Trinidad and Tobago use the stolen items to trade them for marijuana in SVG (The Trinidad Guardian, 2010).

3.4. Conclusions

Maritime transport forms an essential part of the LAC’s economies. Especially the tourist industry and the fishing industry provide jobs and livelihoods to millions of people in the region.

The statistics on piracy attacks in the region, when available, do not show the actual number of attacks. Under-reporting is common, because the victims of such attacks often still fear the pirates or do not want to go through the burden of reporting an incident.

The reports that are publicly available suggest that the economic impacts on maritime cargo transport in the region are relatively low. There are more incidents reported of thefts, burglaries and robberies involving yachts. This forms a substantial economic loss for the victims, but in overall terms does not represent a strong economic impact on yacht owners or operators in the region.

However, figures on the impact of piracy on insurance premiums for cargo and passenger vessels were not found. This could potentially be a significant impact, though the relatively low number of incidents does not make a strong impact on insurance premiums likely.

The group most affected by piracy are the fishers. Though there are no regional statistics on piracy attacks, newspaper articles indicate that every year there are several hundred piracy attacks on fishers. This often leads to the loss of engines, gasoline, fish and gear, which has a very strong impact on the livelihood of these fishers. The total economic impact is several million US dollars, but many of the perpetrators themselves are fishers.

An important impact that is not included in this economic impact analysis is the severe impact that piracy attacks can have on the lives of the victims. In numerous cases the victims did not survive a piracy attack.

Table 4 Estimated economic impacts of piracy in LAC

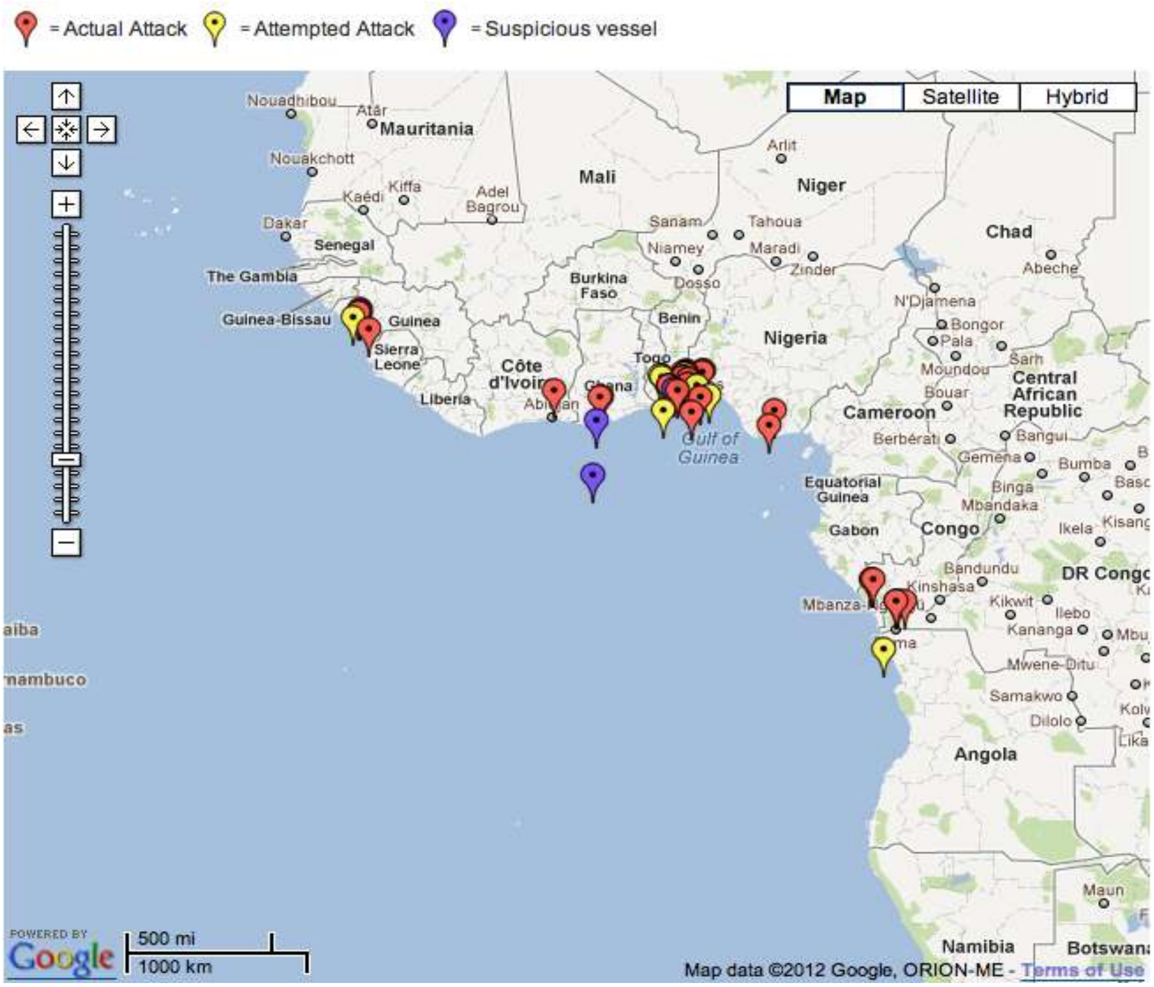
Impact type	**Vessel type**		
	Cargo	**Passenger**	**Fishing**
Impact of the threat of piracy			
Cost of fleet/vessel management adjustments	Low	Low	Low
Cost of security measures	Low	Low	Low
Cost of insurance	Low	Low	Low
Impact of actual pirate attacks			
Cost of uninsured ransom	None	None	None
Cost of uninsured damages and losses (cargo and ship)	Low	Low	High

4. GULF OF GUINEA

The Gulf of Guinea (GoG) is roughly 1.3 million km² and contains an enormous amount of natural resources. The region has vast amounts of oil and natural gas reserves, which generates substantial amounts of maritime cargo transport and the rich marine ecosystem attracts thousands of fishing vessels (Raidt and Smith, 2010).

The geographical scope of this chapter is based on the reported piracy and armed robbery incidents in 2011. Figure 9 shows that this includes all coastal states between Senegal in the north and Angola in the south.

Figure 9 Map of GoG region and reported piracy and armed robbery attacks



Source: IMB, 2011
Note: map shows piracy incidents in 2011

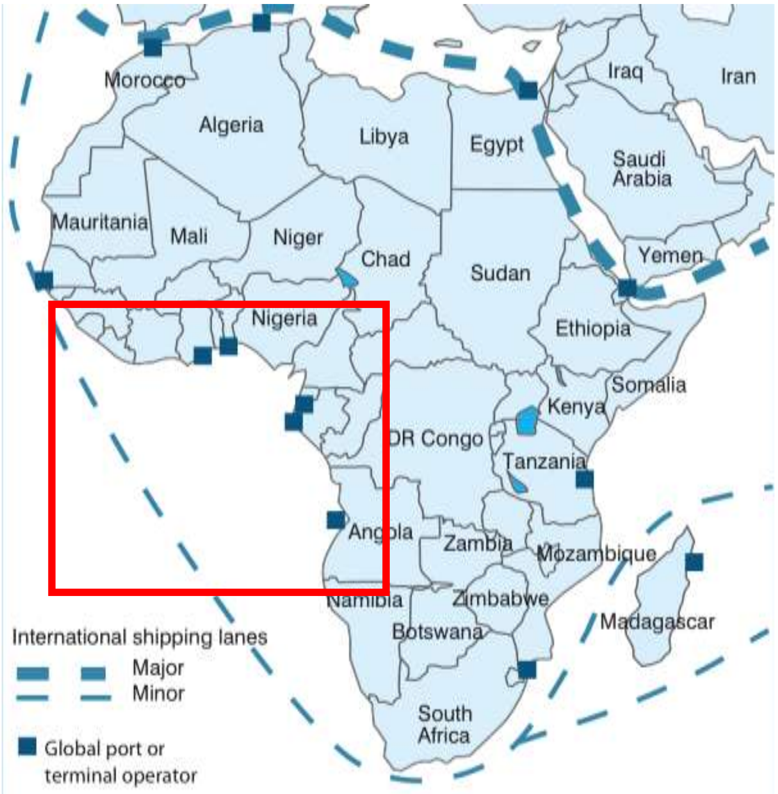
Paragraph 3.1 provides an overview of the commercial shipping activities in the GoG region. This is followed by paragraph 3.2. which describes the piracy activities in the region. Paragraph 3.3 assesses the economic impacts of piracy in the region based on the information presented in the preceding paragraphs.

4.1. The Commercial Shipping Industry in GoG

4.1.1. Maritime Cargo Transport in GoG

The main source of maritime cargo transport in the GoG region is origin-to-destination transport. There is an important international shipping lane that passes along side the African west coast, but this lane bypasses the GoG. Figure 10 shows the location of this international shipping lane and as can be seen the route is far from the coast of Nigeria (more than 1000km), but is fairly close to the coasts of Liberia, Sierra Leone and Guinea.

Figure 10 Shipping routes and international port/terminal operators in Africa



Source: UNCTAD, 2009

The origin-to-destination maritime cargo flow are generated by the exports and imports of the countries in the GoG region. This trade is predominantly transported by cargo vessels and table 5 provides an overview of the value of the trade and the main trade partners in the GoG region.

Table 5 Examples of trade size and major trade partners of GoG countries

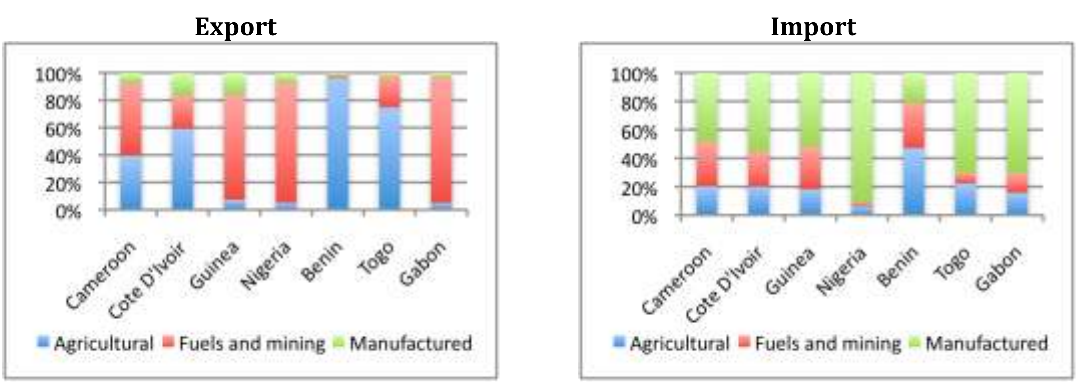
Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
Nigeria	Exp.	82,000	34%	United States	22%	European Union	10%	India
	Imp.	44,235	22%	European Union	18%	United States	17%	China
Cote D'Ivoir	Exp.	10,320	48%	European Union	8%	United States	7%	Nigeria
	Imp.	7,830	29%	European Union	21%	Nigeria	7%	China
Gabon	Exp.	9,371	59%	United States	18%	European Union	8%	China
	Imp.	2,983	65%	European Union	7%	United States	5%	China

Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
Congo	Exp.	8,200						
	Imp.	2,900						
Congo DR	Exp.	5,300						
	Imp.	4,500						
Cameroon	Exp.	4,000	55%	European Union	9%	Chad	8%	China
	Imp.	4,850	32%	European Union	18%	Nigeria	11%	China
Benin	Exp.	1,200	24%	China	11%	European Union	9%	Nigeria
	Imp.	2,200	37%	European Union	9%	China	7%	Côte d'Ivoire
Guinea	Exp.	1,250	50%	European Union	19%	Switzerland	11%	Russian Federation
	Imp.	1,100	54%	European Union	7%	China	5%	United States
Togo	Exp.	800	13%	Niger	11%	Benin	10%	India
	Imp.	1,550	43%	European Union	16%	China	4%	United States
Sierra Leone	Exp.	338						
	Imp.	770						

Source: World Trade Organisation, 2012

Table 5 shows that the value of the imports and exports of Nigeria are by far the highest in the region. As a result Nigeria accounts for more than 65% of the total seaborne traffic in the region (Mbekeani and Ncube, 2011). Figure 11 shows that Nigeria's, Gabon's and Guinea's exports almost entirely consist of fuels and mining products. In the case of Guinea this is mainly due to its large mining industry. In the case of Nigeria and Gabon this is the result of their large oil reserves (U.S. Government, 2011c; 2012). Given the large oil and gas reserves in the region, the majority of the cargo vessels that depart from the ports in the region are tanker vessels. These make up roughly 25% of the total departures of 40 per day (Raidt and Smith, 2010).

Figure 11 Examples of export and import composition of GoG countries



Source: World Trade Organisation, 2012. Based on 2010 figures

4.1.2. Maritime Passenger Transport in GoG

The research performed for this chapter did not result in any evidence of a large maritime passenger transport sector in the region. According to Tor Wergeland (2012), the number of ferry passengers in Africa is relatively low and a search on Expedia's "Cruise ship center" shows that there are only four cruises planned to visit the region in 2012. Most of these cruises only visit Senegal and Ghana, though Princess cruises also visits Benin and Togo (Expedia, 2012).

The number of yachts and pleasure boasts in the region are expected to also be very low. Websites with information for yachters worn for the dangers in the area and a website where yachters can post pictures, videos and blogs shows almost no yachting activity in the region (Yachtpals, 2012). Unfortunately statistics on the amount and types of passenger vessel in the region could not be obtained for the purpose of this report.

4.1.3. Fisheries in GoG

A large part of the Gulf of Guinea known as the "Guinea Current Large Marine Ecosystem" is considered a Class I or highly productive ecosystem (Susan and Donkor, 2010). This productivity has led to a large fishing industry in the region.

The artisanal sector dominates the fisheries industry in terms of employment. Typically artisanal fishers use traditional wooden boats, sometimes motorized, with a variety of gear types. Industrial fishing is conducted mainly in the offshore waters and often relies on non-African trawlers and fleets (WASSDA, 2008).

Table 6 provides an overview of the fisheries sector in a number of countries in the GoG region. These figures are mainly estimates and based on information from different years. Table 6 should therefore only be considered as an indication of the importance of fisheries in the region.

Table 6 Marine fisheries in GoG

Country	**Fisheries/GDP**[a]	**# fishers**	**# boats**	**Consumable kg fish/capita/year**
Guinea	1.8%	81,700	23,453[b]	14.3
Cote D'Ivoir	0.8%	9,000	2,584[b]	16.2
Nigeria	1.2%	947,100	271,878[b]	9.9
Cameroon	0.2%	22,000	7,500	15.5
Congo	0.1%	3,000	1100	17.4
Benin	0.2%	5,200	1,493[b]	10.8
Togo	4.0%	5,270	407	9.2
Gabon	0.2%	3,200	1500	37.2
Sierra Leone	9.4%	31,000	8000	19
Guinea	1.8%	81,700	23,453	14.3

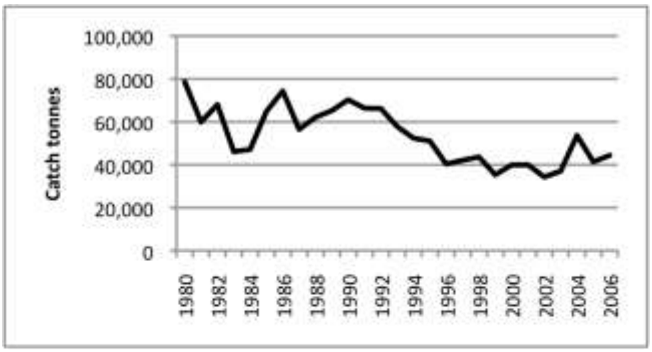
Source: [a]World Bank, 2010 and adjusted to estimated marine fisheries; FAO, n.d.
Note: [b]Estimates based on the average amount of fishers / boat in the region

Table 6 shows that Nigeria has the largest fleet and number of fishers in the region. These fishers are responsible for 23% of the total regional fish production, which makes Nigeria the largest country in terms of fish production in the region (WASSDA, 2008).

For most countries in the region, fisheries is relatively a small part of the economy in terms of its share in GDP. However, it is an important source of income and food for impoverished rural communities. In countries such as Nigeria, Guinea and Congo more than 70% of the population lives in poverty[7] (World Bank, 2012), which makes any form of employment and food production very important. Though fish consumption appears to be low in the region, it is in fact an important form of animal protein. In all of the countries included in table 5, except for Congo, Benin and Gabon, fish consumption per capita is higher than the consumption of meat (FAO, 2009).

However, the fishers in the region are faced with several problems, which includes large scale illegal fishing. Amongst the industrial fleets as much as 60% of the fishing trawlers off the coast of the Gulf of Guinea are said to be unlicensed. These vessels include European and Asian fleets (Raidt and Smith, 2010). Another concern is overfishing in the region. The catch of targeted inshore fish species has declined steadily in recent years as is shown in figure 12.

Figure 12 Inshore fisheries catches in Guinea Current



Source: Sea Around Us Project, 2011

Note: The figures include the fish species targeted by inshore fisheries according to FAO country profile of Nigeria and for which the Sea Around Us project provides information. The fish species include Croakers. Big eyes, Jacks and Horse Mackerels.

Fisheries are also faced with the consequences of unregulated ocean dumping of toxic waste and piracy in the region (Tesch, 2011). This last problem is further discussed in the next paragraph.

4.2. Piracy in the GoG

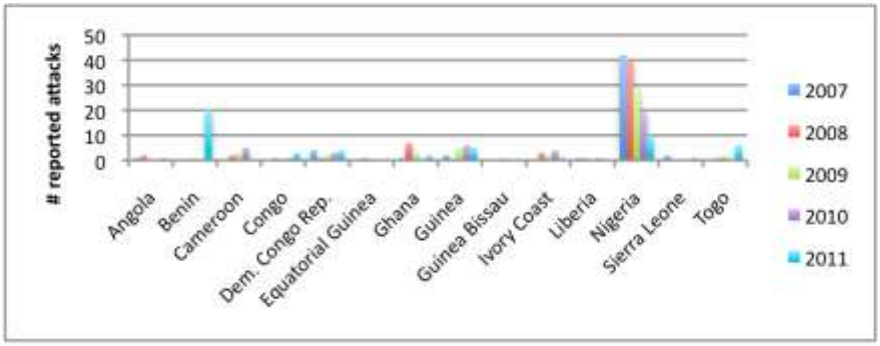
In previous sections of this chapter it was already indicated that pirates are active in the GoG region. This paragraph provides a brief overview of the piracy attacks on cargo vessels, passenger vessels and fishing vessels.

4.2.1. Piracy and maritime cargo transport in GoG

The vast majority of piracy incidents reported to the IMB involve cargo vessels. Figure 13 shows that the majority of the attacks take place in Nigerian waters.

[7] The percentage of the population living on less than $2.00 a day at 2005 international prices (World Bank, 2012)

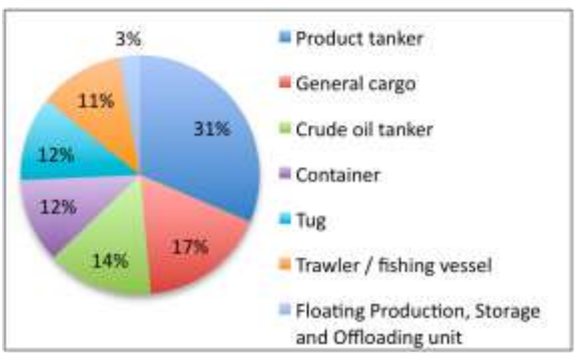
Figure 13 Reported piracy attacks in GoG region 2007 - 2011



Source: IMB, 2011

It appears that the number of attacks in Nigeria have decreased strongly since 2008. However, figure 13 only shows the reported attacks and the actual attacks could be twice as high (Saul and John, 2011). Though the number of attacks might have decreased in Nigeria, the attacks in neighbouring Benin have increased sharply in 2011. Also, the decrease in the number of attacks is mainly the result of less attacks on anchored and berthed vessels. The number of reported successful attacks on vessels while steaming remained almost constant. In 2010, the majority of the attacks reported in Nigeria were on tanker vessels. This is not surprising given the relatively large amount of tankers in the region.

Figure 14 Reported piracy attacks in Nigeria per vessel type



Source: RiskIntelligence, 2011
Note: Based on piracy incidents in 2010

Pirates in Nigeria are increasingly operating further offshore (Nincic, 2009), with one incident in November 2011 reported 97 km offshore (SaharaReporters, 2011). Not only are Nigerian pirates attacking ships further offshore, they are also operating in the waters of neighbouring countries. For example, the pirates off the coast of Benin are thought to be mostly Nigerians, because all pirates that have been picked up by Benin authorities were Nigerians (Reuters, 2011).

Based on the IMB statistics it can be concluded that most of the attacks in Nigeria and its neighbouring countries involve armed robberies while the vessels are at anchor. The pirates carry guns and especially in Nigeria violence is used against the crew of the vessel. According to sources from the oil industry, attacks on vessels off the West Coast of Africa killed more than 70 crew members in 2008 (One Earth Future, 2011).

Apart from the violence used, the pirates responsible for attacks in Nigeria and Benin have also become more involved in hijacks. Where previous to 2011 the main goal was to steal valuable cargo and personal belongings onboard the vessel, the pirates are increasingly focusing on opportunities for ransom income. However, usually crew members are kidnapped for ransom, not the vessel itself (ASI Global, 2011). This may be due to the fact that Nigeria still has some law and order, making it more difficult to hold a ship on shore for more than a few days (Gladstone, 2011).

Another characteristic of piracy attacks in the Gulf of Guinea is that some belief that pirates are aided by corrupt officials. Pirates often know exactly the content of containers onboard a ship (IRIN, 2011) or receive forged bills of lading from officials after stealing oil (Raidt and Smith, 2010).

Attacks in other parts of the GoG region appear to differ in tactics used. Table 7 provides an overview of the characteristics of the 2010 reported attacks in the region per country.

Table 7 Characteristics of reported piracy attacks in GoG

Country	**Characteristics of piracy attacks**
Guinea	Five or more robbers armed with guns board ships while at anchor and threaten crew or take them hostage. They steel personal belongings from cabins. No reported deaths, cargo looting or hijacks.
Cote d'ivoir	All attacked ships were at anchor when boarded by pirates with knives. In one case a crew member was taken hostage. In all cases the pirates were after the ship's stores. Pirates attempt to remain unnoticed.
Nigeria	Pirate attacks in Nigeria are often violent and result in injured crew members. The pirates board the vessel in large groups5 - 20 and carry guns. They take their time onboard the ship and in several cases ransacked all crew member cabins. In one incident part of the cargo was offloaded en in several cases the master of the vessel was kidnapped.
Cameroon	The pirates board the vessels in large groups 10 - 20 and in all three cases kidnapped the master or crew members. They stole the personal belongings of the crew and the ship's cash.
Congo & DR Congo	Two or three pirates boarded the vessels and tried to steel the ships' stores unnoticed. Crew was not harmed.

Source: Based on incidents reported to the IMB in 2010

The piracy attacks in Nigeria and neighbouring countries posed the biggest threat for cargo vessels. The number of pirates per attack and the violence used was much higher than in the other countries.

4.2.2. Piracy and maritime passenger transport in GoG

None of the statistics on piracy attacks in the GoG region show the number of attacks on passenger vessels. However, from newspaper articles it is clear that the pirates in the region do not shy away from attacking passenger vessels. For example in 2011 pirates attacked four speed boats in Bayelsa State, Nigeria. The passengers were ordered to give up valuables that they carried on them, but luckily all passengers survived the attack (Ochai, 2011; Oyadongha, 2011).

Also in 2011, seven heavily armed pirates attacked and boarded a Cameroonian vessel with 150 people on board off the coast of Nigeria. The captain was taken hostage and the passengers were told that the captain had to pay a monthly “security tax”. The pirates also asked the passengers to “voluntarily” give them money, which everybody did (Yaounde, 2011). In the course of the research for this chapter no information was found to suggest that attacks on passenger vessels is widespread in the GoG region.

4.2.3. Piracy and fisheries in GoG

Most of the information found on attacks on fishers in the GoG region involve attacks on fishers in Nigeria. The attacks include minor harassment, financial shakedowns, theft of fish, engines and other electronic gadgets[8]. Apart from robbing the fishers, pirates will also use fishing vessels as platform to attack oil tankers and other vessels (Ochai, 2011) or kidnap the fishers for ransom (Douda, 2011)

The reported number of attacks to the IMB and national governments show a relatively small amount of attacks on fishing vessels in the GoG. However, according to the Nigerian Trawlers Owners Association (NITOA) there have been 293 attacks on fishing trawler from 2003 to 2008. During these attacks fishing trawlers were often hijacked, fishers dispossessed of their fish and other valuables (APO, 2008). Fishers have also lost their lives during these attacks. According to NITOA, 15 fishers have lost their lives during pirate attacks between 2006 and 2009 (Ships and Ports, n.d.). NITOA claims that in January 2011 there were already 30 attacks on fishing vessels, killing two fishers (Aderibigbi, 2012). This suggests that the situation is not improving for the fishers in Nigerian waters.

Apart from sporadic reports of attacks on fishers in other countries in the region, for example an attack on a Chinese fishing vessel in Cameroon in 2008 (Reuters, 2010), there is little information that indicates that attacks on fishers are widespread in the region.

4.3. Economic Impacts of Piracy in GoG

Unfortunately accurate statistics on piracy attacks in the GoG are lacking and the information provided on the attacks does not provide detailed information on the costs of the attacks. However, the information that is available shows that especially the Nigerian oil industry, local fisheries and regional trade has been affected (Mbekeani and Ncube, 2011).

According to the Permanent Representative of Nigeria to the United Nations, the estimated loss as a result of piracy is US$2 billion. This is not only related to the commercial shipping sector, but also to offshore oil and fishing industry (Ogwu, 2011). No details were provided on what calculations were made for this estimate.

Not only Nigeria is confronted with the economic impacts of piracy. For example, Equatorial Guinea had to resort to private companies for surveillance of their marine resources. It awarded a U.S. based company a US$250 million contract to perform this task (Bergen Risk Solutions, 2010).

[8] Radar, radios and echo sounder

Benin has requested the UN to assess the scope of the piracy threat in the Gulf of Guinea and make recommendations for possible United Nations support in tackling this issue. The UN is currently undertaking an assessment mission during which input is gathered, amongst others, from the Economic Community of West African States and the Economic Community of Central African States (UN, 2011). This is likely to provide more quantitative data on the scale and impacts of piracy in the region.

Based on the currently available information, this paragraph assesses the following economic impacts:

- Cost of fleet/vessel management adjustments;
- Cost of security measures onboard the vessel;
- Cost of insurance;
- Cost of uninsured ransom;
- Cost of uninsured damages and losses.

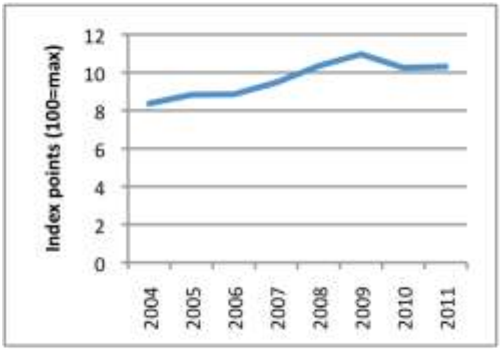
4.3.1. Economic impacts on maritime cargo transport in GoG

There is some anecdotal evidence that suggests that as a result piracy in the region, more and more shipowners and operators are avoiding the GoG.

For example, at a regional seminar on maritime security in Benin at the end of 2011 it was stated that there had been a 70 percent decrease in ship activity in the local port (IRIN, 2011). Another example came from the Managing Director of Ocean Glory Shipping Agency, Mr. Peter Cole, who said in an interview that “the level of pilferage has gotten to an alarming rate as most shipowners do not want their vessels to come to Nigeria any more” (Bergen Risk Solutions, 2010).

If this information is true, it has not led to an overall decline in the amount of maritime traffic and cargo shipped to the region. Figure 15 shows the shipping connectivity index, the amount of oil loaded and the amount of dry cargo off-loaded in the GoG region. The region appears to be better integrated into global shipping liner services in 2011 than in 2004. The figure also shows the amount of dry cargo off-loaded in the region increased and the amount of oil loaded and this last category decreased after 2008. The decrease in the shipping connectivity index and the amount of oil loaded could be related to piracy, but it is more likely that this is due to global economic situation.

Figure 15 West African Liner shipping connectivity index[9] and cargo flows



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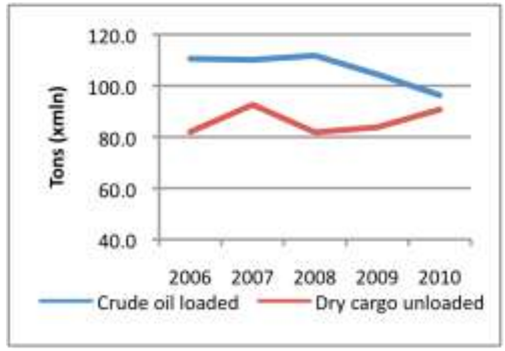


UNCTAD, 2012

There is evidence that suggests that shipowners are taking security measures to reduce the chances of pirates boarding their vessels. For example, the private security firm VLC Securité works on approximately five percent of vessels in the Lomé anchorage (Togo). Given the risks and the training required for the guards working on vessels their salaries have increased to 10 times higher than usual according to the owner of VLC Securité (IRIN, 2011).

Also the description of a number of piracy attacks, reported to IMB, in the region show that shipowners have invested in security measures such as razor wire and sonic deterrent equipment. Some incidents where the pirates boarded the vessel show that the vessel was equipped with a citadel or safe room. How widespread the use of these type of security measures is in the region is unknown.

Another economic impact for cargo vessels is the increase in insurance premiums as a result of piracy in the region. Nigeria and Benin have been declared a 'high risk area' by the Joint War Committee (JWC). This means that the JWC advises maritime insurers that they should charge higher premiums to vessels that transit through the region (FP Marine Risks, 2012). This most likely has had a strong effect on the premiums for war risk insurance, kidnap and ransom insurance, cargo insurance and hull insurance. How much these insurance premiums have increased for the region has not been made public.

Most of the attacks on cargo vessels in the region did not involve hijacking or kidnapping. In the few instances where the captain, crew or ship was held for ransom, the demanded and paid ransom amount have not been revealed. A recent article in Bloomberg Businessweek made mention of a "multimillion-dollar ransom payment" (Wiese Bockmann and Sheridan, 2012). The same article also states that pirates in and around Nigeria are mainly after the cargo. After they hijack a tanker, they take their time onboard to off-load the cargo and sell it in Nigeria or Benin. The economic costs of such attacks could be millions of dollars[10]. It has also been suggested that pirates that attack dry cargo vessels are aided by corrupt officials and often exactly know what is on board (IRIN, 2011). This means that they only attack and steal valuable cargo. Another economic impact is the damage that the pirates cause to the vessels they attack. Often the vessels are vandalized in search of valuables. To which degree the ship owners or operators are held

[9] An indicator of the liner services offered to a country. The indicator in the graph is an un-weighted average of the liner shipping connectivity of the countries in the GoG region.

[10] Figure PM shows that roughly 95 million tons of oil are loaded in the region. Aproximately 3500 tankers depart from ports in the region every year. This means that the average load of the tankers is around 27,500 tons. Assuming that there are 7 barrels to the ton and 1 barrel of oil is worth $100 dollars, the average value of the cargo is US$ 19,250,000.

responsible for the loss of cargo depends on the arrangements made between the shipper and the shipping line.

In Nigeria alone the resulting loss caused by the reported pirate attacks in 2011 was estimated at over US$ 3 million. This included the costs as a result of injuries, cash pilfering, and cargo vandalism (Aderibigbi, 2012).

4.3.2. Economic Impacts on Maritime Passengers Transport in GoG

Though there is some evidence suggesting that there have been piracy attacks on passenger vessels in the region, there is no information that indicates how common this is. The few incidents on which public information is available show that the pirates steal the personal belongings of the passengers and that in once case a vessel captain had to pay 'security money' to the pirates.

The biggest economic impact on maritime passenger transport is possibly the fact that piracy makes it difficult to attract tourists to the region.

For example, the amount of cruise ships and yachts visiting the region is minimal and these forms of tourism could potentially become an important sector in the region.

4.3.3. Economic Impacts on Fisheries in the GoG

According to NITOA, Nigerian trawler owners have incurred losses amounting to several billion naira[11] since 2002 as a result of piracy attacks. This broad estimate includes the entitlements paid to families of fishers that were killed during pirate attacks and ransom payments made to free kidnapped fishers. The NITOA claims that what started out as "ordinary stealing" has now developed into frequent hijacks of fishing vessels. The pirates threatening to blow them up if ransom is not paid. The NITOA does not provide information on the exact amount of ransom paid, but states that they are "huge" for the trawler owners (Douda, 2011). Other costs of attacks include the costs of stolen gear, electronic gadgets and, in some cases, the vessel. NITOA estimated that these costs amounted to US$ 18 million for the period 2006 – 2009 (Ships and Ports, n.d.)[12].

In 2008, the crew of fishing trawlers in Nigeria went on strike as a direct result of the high number of pirate attacks (Raidt and Smith, 2010). The strike led to huge losses for the Nigerian industry and as a result of the pirate attacks a lot of fishing companies left the industry. According to NITOA up till 2004 there were over 30 fishing companies operating some 200 fishing trawlers in Nigeria and in 2011 there were less than 10 companies operating less than 120 fishing trawlers (Aderibigbi, 2011). The Nigerian trawlers are also faced with increased insurance premiums as insurance companies become more reluctant to insure the fishing vessels (Ezem, 2011).

The biggest problem for the industry is caused by the violence that is used by the pirates against the fishers. This often results in the death of the captain of the vessel, with tragic consequences for their relatives and a reduction of the number of well-trained captains (Ezem, 2011).

It is unclear what the impacts of piracy are on the artisanal fishers in the region. Perhaps they are also the victims of piracy or maybe there are more valuable targets readily available for the pirates. To what extent fishers outside Nigerian waters are affected by piracy is also unclear.

[11] A billion naira is just over US$ 6 million
[12] It is unclear if this amount is additional to the ransom costs paid or that it includes all costs.

4.4. Conclusion

Overall there is a substantial negative economic impact caused by piracy in the region. The costs of damages and loss of cargo incurred by cargo vessels in Nigeria alone is already estimated at US$ 3 million per year. The costs of increases in insurance premiums and security expenses are most likely even higher, but information on these costs was not found for the purpose of this report.

The number of incidents involving passenger vessels in the GoG region appears to be minimal. However, cruise and yacht tourist avoid the area, which means a huge untapped income source for the region.

The fishing industry is faced with strong negative economic impacts as a result of piracy in the region. They are the victims of hundreds attacks per year and the annual loss for trawler owners in Nigeria is estimated by the NITOA at more than US$ 6 million.

The lack of statistics on piracy attacks in the region makes it impossible to assess the impacts of piracy on artisanal fishers, fishers outside Nigerian waters and ferry operations in the region. Information on insurance premiums, security measures, ransom payments and value of stolen goods is very limited. This has made it impossible to make an quantitative estimation of the economic impacts of piracy in the region. Therefore, table 8 provides an qualitative estimation of these impacts.

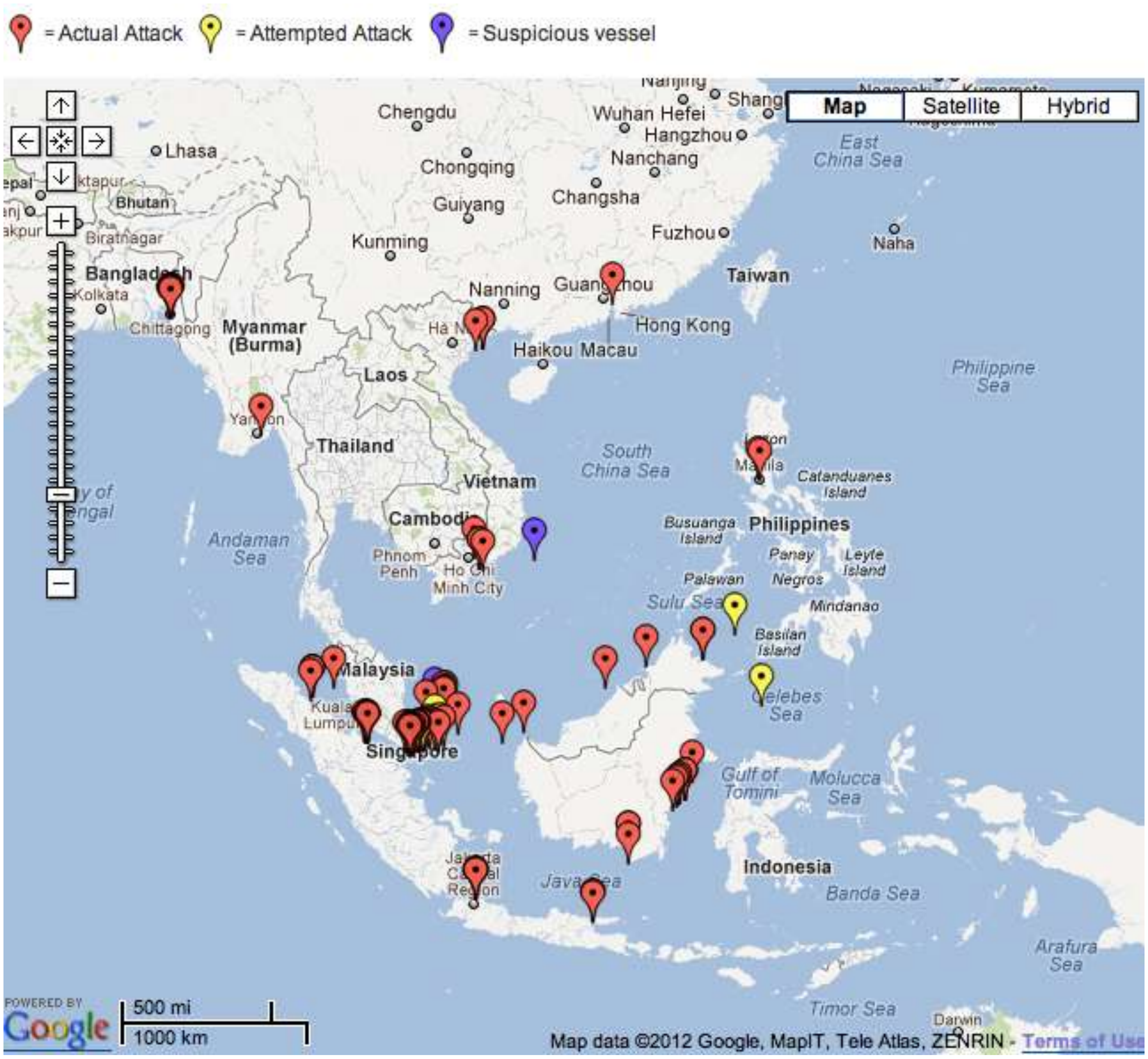
Table 8 Estimated economic impacts of piracy in the GoG

Impact type	Vessel type		
	Cargo	Passenger	Fishing
Impact of the threat of piracy			
Cost of fleet/vessel management adjustments	Low	Low	High
Cost of security measures	Medium	Low	Low
Cost of insurance	High	Low	Medium
Impact of actual pirate attacks			
Cost of uninsured ransom	Medium	Low	High
Cost of uninsured damages and losses (cargo and ship)	Medium	Low	High

5. SOUTHEAST ASIA

Southeast Asia (SeA) is a truly maritime region as a result of its archipelagic nature and relative lack of land-based transport infrastructure (Bateman, Ho and Chan, 2009). The region includes more than 24,000 islands spread across 5,200 km from east to west and 3,400 km from north to south (Trace, Frielink and Hew, 2009). This means that maritime transport is extremely important in the region, both for the transport of cargo and persons (Bateman, Ho and Chan, 2009). Figure 16 show the region analysed in this chapter and the reported piracy attacks that took place in the region in 2011. For the purpose of this report, Bangladesh is also included in the chapter on SeA.

Figure 16 Map of SeA and reported piracy attacks and armed robbery attacks



Source: IMB, 2011
Note: Map shows 2011 piracy incidents

The next paragraphs present an overview of the commercial shipping activities, the piracy activities and the economic impacts of these piracy activities on commercial shipping in SeA.

5.1. Commercial shipping industry in SeA

For a large part of the SeA population, especially the inhabitants of the archipelago's, the sea forms a critical link and resource. The sea provides employment to millions in cargo transport, tourism and fisheries. Maritime transport is for many the only affordable method of travelling to other areas and to ship or receive cargo. This section provides an overview of the commercial shipping industry in the region

5.1.1. Maritime Cargo Transport in SeA

Every year billions of tonnes of cargo are transported by sea in SeA. Large part consists of cargo between Europe and Asia. Another important maritime transport flow is the transport of oil from countries in the Middle East to Asia.

The vessels carrying this cargo have to pass a "choke point" between the Indian and Pacific Oceans. There are two main options: The Straits of Malacca and the Lombok / Makassar Strait (Bateman, Ho and Chan, 2009).

The Straits of Malacca are a narrow 805 km stretch of water between Peninsular Malaysia, Singapore and Indonesia. About one-quarter of the world's traded goods and a quarter of all oil carried by sea passes through the straits annually. This cargo is transported by 8,678 vessels making 75,500 passages in 2006. The total number of passages included approximately 26 tankers per day. These vessels carried in total 3 billion tonnes of cargo which was worth a total of US$390 billion (Bateman, Ho and Chan, 2009).

The Lombok / Makassar Strait is important for vessels moving between Australia and East Asia. It is also important for fully-laden tankers of more than 200,000 deadweight tons traversing from the Indian Ocean to the Pacific Ocean, because they cannot make use of the Straits of Malacca. The Lombok Strait in Indonesia is wider, deeper, and less congested than the Straits of Malacca. Most vessels transiting the Lombok Strait also pass through the Makassar Straits. About 604 passages were made annually by 418 ships which carried in total 36 million tonnes of cargo valued at US$40 billion annually (Bateman, Ho and Chan, 2009).

Most of the cargo that passes through these straits has its origin or destination in China. The SeA countries themselves also produce significant amounts of trade, which far outweigh the trade volumes in the LAC and GoG regions.

An overview of the trade flows is presented in table 9, which also includes China.

Table 9 Examples of trade size and major trade partners of SeA countries

Country	**Type**	**Trade $M**	**Nr 1 Trade partner**		**Nr 2 Trade partner**		**Nr 3 Trade partner**	
China	Exp.	1,577,824	20%	European Union	18%	United States	14%	Hong Kong
	Imp.	1,395,099	13%	Japan	12%	European Union	10%	Korea, Republic
Singapore	Exp.	351,867	12%	Malaysia	12%	Hong Kong	10%	China

Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
	Imp.	310,791	12%	European Union	12%	Malaysia	11%	United States
Malaysia	Exp.	198,801	13%	Singapore	13%	China	11%	European Union
	Imp.	164,733	13%	Japan	13%	China	11%	Singapore
Thailand	Exp.	195,319	11%	European Union	11%	China	10%	Japan
	Imp.	182,400	21%	Japan	13%	China	8%	European Un.
Indonesia	Exp.	157,818	16%	Japan	11%	European Union	10%	China
	Imp.	131,737	15%	China	15%	Singapore	12%	Japan
Vietnam	Exp.	72,192	20%	United States	16%	European Union	11%	Japan
	Imp.	84,801	22%	China	10%	Singapore	10%	Japan
Philippines	Exp.	51,496	15%	Japan	15%	United States	14%	European Un.
	Imp.	58,229	12%	Japan	11%	United States	9%	Singapore
Bangladesh	Exp.	19,191	51%	European Union	26%	United States	4%	India
	Imp.	27,819	16%	China	13%	India	10%	European Un.
Myanmar	Exp.	8,749		1. ...		2. ...		3. ...
	Imp.	4,807		1. ...		2. ...		3. ...

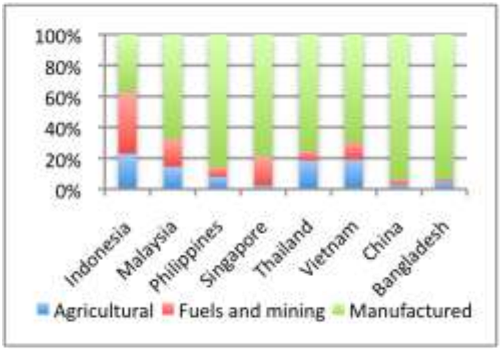
Source: World Trade Organisation, 2012

Table 9 shows that trade worth billions of dollars are exported to and imported from the European Union. The chapter on the LAC region showed that a small percentage of the maritime trade between Europe and Asia will travel through the Panama Canal, but by far the largest part will be transported through SeA and the Malacca Straits.

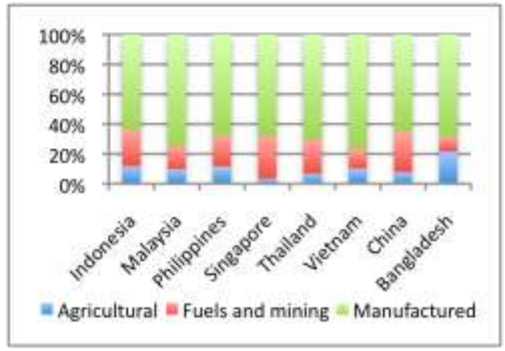
The majority of the trade to and from the region, in terms of value, is carried by container vessels. For a country such as Indonesia, tankers and bulk carriers are also an important form of transportation for their exports. Exports of natural resources, such as oil and gas, coal and crude palm oil made up around 60% of Indonesia's exports in 2010.

Figure 17 Examples of export and import composition of SeA countries

Export



Import



Source: World Trade Organisation, 2012 (based on 2010 figures)

5.1.2. Maritime Passenger Transport in SeA

According to ShipPax Information, there were over 2 billion ferry passenger around the world in 2008. Southeast Asia is the region with the most ferry passengers and accounted for 43.5% of the total amount of ferry passengers. Especially in the archipelago's of the Philippines and Indonesia a lot of people make use of ferries. Singapore is a large market for high speed ferry operations (Wergeland, 2012).

In contrast to the large number of ferry passengers, the number of cruise passengers visiting SeA was relatively limited. The amount of cruise passengers is increasing strongly, but with 1,145,000 beds/day it is only 1% of the total capacity of the cruise industry (CLIA, 2011).

Not only the amount of cruise passengers is relatively low, also the amount of pleasure boat and yacht usage in the region is somewhat limited. Asians view boats as being mainly for commercial use or as a means of transport, rather than being for leisure or sport. There are approximately 3,200 registered boats in Singapore and there are around 60 marinas in SeA. In total there are 11 marinas in Thailand, Myanmar, Laos, Vietnam and Cambodia. Overall the SeA leisure boating market is still relatively small (NZTE, 2009). Foreign yachts do transit the region and Indonesia is an important cruising hub and gateway into the Indian Ocean for yachters. The Ministry of Foreign Affairs issued 615 cruising permits for visiting yachts in 2010 (Cornell, 2011).

5.1.3. Fisheries in SeA

The most important form of fisheries in SeA, in terms of number of people employed and vessels deployed, is artisanal fishing. These operations are typically family-based and these fishers produce 50% of total fisheries production in the region (Ymata, 2009). Overall roughly 15% of the population in SeA depends on fishing as a significant source of income (Ymata, 2009), but the region suffers from severe negative socio-economic impacts due to overfishing. Throughout the region, the reduction and collapse of the fisheries has led to a widespread loss of income and employment (GIWA, 2006).

Table 10 provides an overview of the fisheries sector in a number of countries in the SeA region. These figures are mainly estimates and based on information from different years. Table 10 should therefore only be considered as an indication of the importance of fisheries in the region.

Table 10 Marine fisheries in SeA

Country	Fisheries/GDP[a]	# fishers	# boats	Consumable kg fish/capita/year
Malaysia	1.7%[a]	111,000	36,136	52.1
Thailand	0.2%[a]	495,000[a]	58,119	31.1
Philippines	1.1%[a]	780,000[a]	200,931[b]	28.8
Myanmar		122,281[b]	31,500	23.4
Viet Nam	3.5%[a]	430,000	98,000	21.3
Indonesia	1.8%[a]	1,845,690[a]	549,100	21.3
Bangladesh	2.3%[a]	167,000	44,000	13.3

Source: [a]World Bank, 2010 and adjusted to estimated marine fisheries; FAO, n.d.

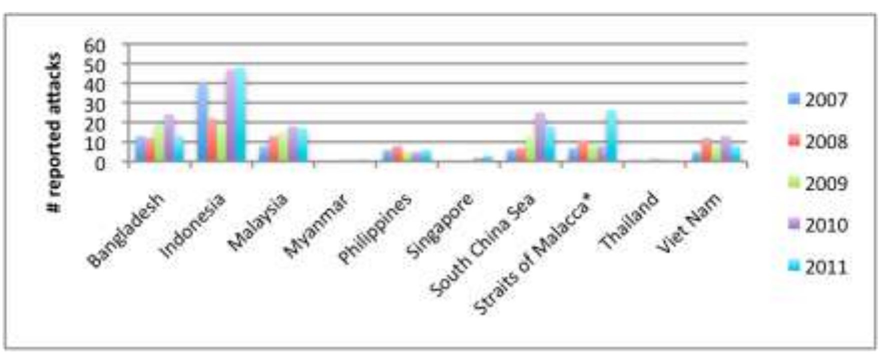
Note: [b]Estimates based on the average amount of fishers / boat in the region. In the case of Myanmar the number of fishers is based on the number of reported fishing vessels; the number of fishers is much lower than the number estimated in FAO, 2010. Perhaps many marine fishers do not use vessels to fish (these fishers would not be impacted by piracy) or the number of vessels is too low.

Table 10 shows that millions of fishers and over a million fishing vessels are present in this large region. Fish provides an important source of nutrition for the region, as the consumption of fish is relatively high compared to the global average and the other regions analysed in this report. In all the listed countries, except Viet Nam, the consumption of fish per capita is higher than the consumption of meat based on the 2005 figures of meat consumption provided by FAO (2009).

5.2. Piracy in SeA

The Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) provides information on piracy and armed robbery attacks in Asia. Figure 18 is based on ReCAAP figures and shows the number of reported attacks and attempts in the period 2007 – 2011 for the SeA countries and Bangladesh.

Figure 18 Reported piracy attacks in SeA 2007 - 2011



Source: ReCAAP, 2011a. Note: * Includes the Singapore Strait

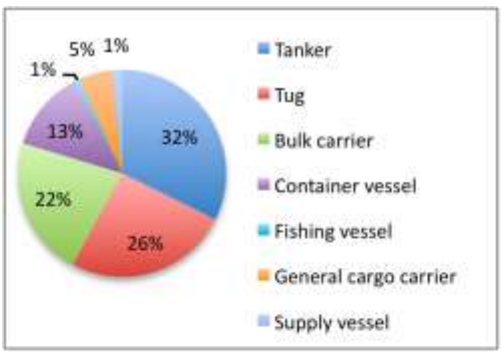
Figure 18 shows that number of incidents has increased strongly over the last 5 years. There were 86 reported incidents in 2007 and 140 in 2011. When excluding the attempts and only including the actual attacks, the number increased from 67 incidents in 2007 to 125 in 2011 (ReCAAP, 2011a). This means that either attempted piracy attacks are less frequently reported, or the pirates are becoming more effective in the region.

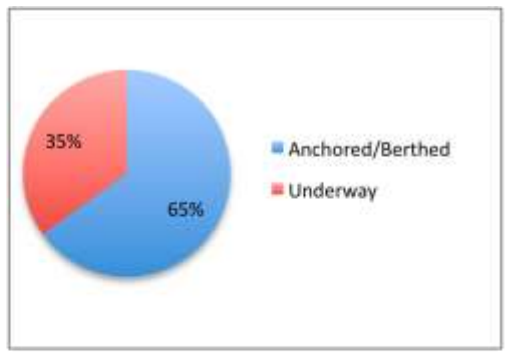
5.2.1. Piracy and Maritime Cargo Transport in SeA

Almost all incidents reported to ReCAAP involved cargo vessels. Based on the 2011 ReCAAP figures it is clear that tankers are the most often targeted by pirates in the region. The number of attacks on tugs in the region is also relatively high. According to ReCAAP this can be explained by the fact that they tend to operate nearer to coast, move relatively slow, have a low free board and less crew onboard. Most of the attacks on tugs were aimed at the valuables onboard, but some attacks targeted the tug itself. The difference in price ($0.5 million) between new and used tug boats ensures that there is a market for selling hijacked tugs after they have been repainted and renamed (ReCAAP, 2011b).

Figure 19 shows the how often the different types of cargo vessels are targeted, based on the 2011 ReCAAP figures and if the vessels were anchored or underway.

Figure 19 Piracy and armed robbery attacks per type and status of vessel





Source: ReCAAP, 2011a

Figure 19 shows that in 65% of the incidents reported in 2011, the vessels were anchored or berthed when attacked. In 35% of the reported incidents the vessels were underway, mostly in the Straits of Malacca and Singapore, and the South China Sea (ReCAAP, 2011a). Table 11 provides an overview of the characteristics of piracy and armed robbery attacks per country or area.

Table 11 Characteristics of piracy in SeA

Country/Area	Characteristics
Bangladesh	No specific type of ship targeted; Robbers after ship's stores and other valuables encountered; Pirates attempt to remain undetected and flee when detected; In a few incidents crew has been threatened with knives, but no injuries
Indonesia	Incidents in ports and anchorages similar to Bangladesh
Vietnam	Incidents in ports and anchorages similar to Bangladesh

Malaysia	Robbers carry guns in most cases; Robbers hold crew hostage and steal personal belongings;
Straits of Malacca	Most attacks occurred at night; more than 7 pirates in 25% of the incidents; No injuries to the crew; Pirates target cash and personal belongings; 18 out of the 24 incidents involved tugs
South China Sea	6 out of 12 incidents occurred during daylight; large groups of pirates >7 in 50% of the incidents; In almost 60% of the cases the crew was assaulted; Pirates target cash and personal belongings; 6 out of 12 incidents involved tugs

Source: Based on ReCAAP (2011a) incident reports

Though the number of vessels hijacked in SeA is relatively low, such incidents do take place. In 2011, 3 vessels were hijacked in the South China Sea, but in all incidents the crew was save and the vessel was recovered by authorities. In the Straits of Malacca a fishing vessel was hijacked and a crew member of a cargo ship was taken hostage. In both cases the pirates were apprehended and the crew rescued (ReCAAP, 2011a).

5.2.2. Piracy and Maritime Passenger Transport in SeA

In 2011, there were no piracy attacks on passenger vessels reported in SeA. Though this might be true for cruise ships and ferries, the website for yachters 'Noonsite' mentions one burglary case in Malaysia (Noonsite, 2011). The website reports more such attacks took place in recent years. However, reported piracy attacks or robberies on yachts in the past could very well not have been actual pirate attacks. Sometimes such incidents are just very unofficial looking encounters with local officials. These officials often do not speak English and feel that they have to right to receive compensation for the fact that a yacht is in their 'territory' (Hein and Neuman, 2007)

5.2.3. Piracy and Fisheries in SeA

Fishing vessels in SeA are frequently attacked by pirates, though these attacks are not included in the statistics on piracy incidents. Most attacks are not reported, either out of fear of revenge by the pirates, a lack of education, or because the fishers concerned believe that filing a report does not provide them with any benefits. Another reason for the fishers not to file a report could be that the attack took place in waters where they were not permitted to fish, such as national marine parks or those of a foreign country (Liss, 2007).

As a result of the lack of statistical data on attacks on fishers in the region, it is impossible to determine the scale of piracy incidents involving fishing vessels. However anecdotal evidence suggests that attacks on fishers take place in most SeA countries. For example, in a small village of 200 artisanal fishermen and their families in the southern Philippines almost 50 fishers lost their boats or engines to pirates (Liss, 2007).

The fishers often carry cash to buy supplies or pay-off officials in order to fish in certain areas. The pirates are often after this cash, their fish, gear or even the vessels. In order to intimidate the fishers, the pirates that attack smaller fishing vessels are in most cases armed, carrying knives, small arms, or light weapons.

In many cases the pirates are fishers themselves that attack fishers from another nationality. More organised forms of pirate gangs are also active in the region and at times it has been reported that, for example the Indonesian, naval authorities collect 'fines' for illegal fishing from fishers from neighbouring countries. The fishers regard this as acts of piracy where the involved authority sees this as the legitimate collection of fees (Liss, 2007).

In recent years some worrisome trends have emerged, with regards to piracy attacks on fishers in SeA. Fishers are increasingly forced to make up-front payments to gangs in order to fish safely in certain areas and the number of fishers hijacked is increasing according to Carolin Liss (2007).

5.3. Economic Impacts of Piracy in SeA

Based on the information presented in the previous paragraphs, this paragraph assesses the following economic impacts:

- Cost of fleet/vessel management adjustments;
- Cost of security measures onboard the vessel;
- Cost of insurance;
- Cost of uninsured ransom;
- Cost of uninsured damages and losses.

5.3.1. Economic Impacts on Maritime Cargo Transport in SeA

In relative terms the total amount of reported piracy attacks on cargo vessels represents around 0.1% of the total amount of cargo vessels that transit through the region each year[13].

Although the chances of an attack are relatively low cargo owners and shipowners have hired private security companies to provide (armed) guards onboard their vessels in areas where pirate attacks on cargo vessels occur relatively frequently (Liss, 2009). These companies are also hired for risk assessment, consulting, training of crews, investigation and recovery of hijacked vessels and cargoes, and the rescue of kidnapped crew members (Liss, 2009). How widespread the use of private security companies is in the region is not mentioned and based on the description of the 2010 piracy attacks it seems that the use is not widespread in the region. In only two incidents the term “anti-piracy crew” was mentioned in the IMB (2010) reports. The description of the attacks reported to the ReCAAP do not make mention of any “anti-piracy crew”. However, given that only a small percentage of the cargo vessels in the region are attacked and vessels with security personnel do not form easy targets, it is impossible to draw any conclusions on the use of private security companies.

In five IMB reports of piracy attacks in the region in 2010 there is mention of “anti piracy” measures, the 2011 ReCAAP reports do not mention such measures at all, but it does make mention of crew standing guard. It appears that shipowners and operators are taking (low-cost) measures in the region to protect their vessels. On the other hand Rosenberg (2009) argues that shipowners and insurance companies have little economic incentive to implement antipiracy measures, because of the small risk of an attack.

Though the risk of an attack is relatively low, the piracy attacks have led to increased insurance premiums in the region (Banlaoi, 2011). Especially in 2005 when the Joint War Committee (JWC) listed the Straits of Malacca and certain areas in the southern Philippines as “high-risk”

[13] Based on the 2006 ReCAAP piracy figures and the transits through the Straits of Malacca, Lombok and Sunda

areas. The Straits were delisted in 2006 after regional governments implemented several security measures (Rosenberg, 2009). Today certain parts of the Philippines, Indonesia and Malaysia are still considered "high risk" areas by the JWC (2011).

The losses endured during piracy attacks have for the most part been limited to the loss of cash, personal belongings of the crew and the ship's stores. However, three hijack incidents took place in 2010 and four in 2011. Six of these incidents involved tugs, which were all retrieved. Most likely the intention of the pirates was to sell the vessels. They renamed and repainted the vessels and in one incident the pirates admitted, after they were caught, that they were paid $US 35.000 to bring the vessel to Thailand. This shows that there is a small but, based on 2011 hijacking figures, increasing number of piracy attacks organized by criminal groups.

New-built and used tugs can costs several million dollars and the daily rates for chartering a tug are often more than US$ 10.000 (Marcon, 2011). This means that for the shipowner or insurance company the loss of a tug could cost them millions of dollars, depending on the specific characteristics of the tug. The shipowner or operator also loses thousands of dollars per day when it is unable to fulfil its contract obligations.

5.3.2. Economic Impacts on Maritime Passenger Transport in SeA

In 2010, there were a small number of piracy attacks (break-ins) on yachts in SeA. There were no incidents reported of attacks on ferries or cruise ships in the region.

Though the number of attacks have been minimal, tourist travelling by yacht most likely avoid 'hot-spots' of piracy in the region. They are advised which areas to avoid by websites providing information on attacks on yachts and by the IMB.

Given the relative small pleasure boating and cruise industry in the region, the overall economic impact of insurance premium increases and safety measures is most likely low.

The economic loss of yachts boarded in the region is also relatively low. According to Hympendahl's research on contemporary pirate attacks on yachts around the globe, the greatest financial loss suffered in such an attack amounted to about US $15,000, with stolen items including cash and navigational equipment (Liss, 2007).

5.3.3. Economic Impacts on Fisheries in SeA

Throughout Southeast Asia all types of fishing vessels are attacked by pirates. In most cases they are after the cash, personal belongings and fish, but in other cases they also take the gear or even the vessel. There are also reports of crew being kidnapped for ransom. All these attacks have a serious economic impact on the fishing industry in the region and especially on the artisanal fishers who risk losing their entire income when gear or engines are stolen.

Given the fact that large parts of SeA's fish populations are overfished fishers have less possibility to avoid areas prone to pirate attacks. They have to fish in certain areas in order to make a living and risk being attacked. However, they do take safety measures. Most fishers in SeA carry knives and in certain high risk areas some may even have firearms onboard (Liss, 2007).

The Malaysian fishing vessels in the north of the Straits of Malacca are tempting targets for pirates as they carry a minimum of US $250 to US $1,370, in order to bribe Indonesian officials and for emergency repairs. These fishers usually do not carry firearms and the Malaysian owners of vessels often have sufficient financial resources to pay substantial ransoms for the recovery of their vessels and crew. For example, in 2004 pirates demanded US $27,400 ransom after hijacking a shipping vessel, worth US $232,000, and two crew members. In other hijack cases the vessel owners paid between US $3,850 and US $8,190 in order to free the vessel and crew. Pirates appear to accept substantially lower ransom payments than that they demand at first and in some cases where the vessel owners can not pay, they take off with all valuable assets onboard (Liss, 2007).

Apart from the relatively large sums of money that are being paid as ransom, the negotiations between the, predominantly Indonesian, pirates and a shipowner or the victim's family can take between three to four months. This means substantial income loss for the shipowner, but especially for the fisher and its family. Not in all hijacking cases the pirates are after ransom. There are several cases in recent years where the fishing vessel was hijacked to be repainted and renamed with the intention to be sold. In those cases the shipowners suffered relatively large economic losses (Liss, 2007).

Though there is little information to be found on insurance premiums paid by (industrial) fishers in the region, there are some vessel owners that pay protection money to pirate gangs and, in one village pay around US $125 per month to pirates operating in the area (Liss, 2007).

The fishers do not only suffer losses due to piracy, but are often the perpetrators themselves. For example, Malaysian fishers have been attacked by Indonesian or Thai fishers that are mainly interested in the catch of the targeted boat. Thai fishers often use similar gear as Malaysian fishers and therefore Thai pirates often try to steal the gear of Malaysian fishers. The Thai fishers or shipowners buy the gear from the pirates in Thailand, which would be cheaper than buying the gear new.

5.4. Conclusion

Every year cargo worth billions of dollars is transported through SeA. An important part of this cargo consists of manufactured products that are transported from Asia to Europe and oil shipped from the Middle East to Asia.

There are also many passenger vessels present in the region. These are mainly ferries in the archipelagos of Indonesia and the Philippines, but also include a number of cruise ships and yachts. However, the amount of cruise ships and yachts is small compared to the Caribbean. The coastal waters accommodate over a million, mostly artisanal, fishing vessels.

All these type of vessels have been targeted by pirates and robbers. The attacks ranged from burglaries to vessels being hijacked. Especially cargo vessels have been the victim of piracy attacks, though as a percentage of the total number of vessels transiting the area the number of attacks on cargo vessels is relatively low. By far the most incidents involve burglaries in which the pirates are after the ship's stores and sometimes the personal belongings of the crew. Attacks on ferries and cruise ships have not been reported in 2010 and 2011, but attacks on yachts do occur in certain areas in Southeast Asia. These attacks are mostly limited to relatively low impact burglaries.

Private security companies operate in the region onboard a number of ships, though the exact number is not disclosed. Shipping companies have in some cases also taken low-cost anti-piracy measures, though given the relatively low risks in the area it could be assumed that the costs for such measures are relative low. Vessels transiting the area will in most cases not transit areas that are listed as a "high risk" area by the Joint War Committee. Only vessels transiting the Lombok Strait and subsequently going passed the Sulu archipelago could be subject to higher war risk insurance premiums. A number of ports and areas in Indonesia and Borneo, are classified as 'high risk' areas and vessels that need to be in those locations could also face higher insurance premiums[14].

In a number of incidents cargo vessels and especially tugs have been hijacked. In 2010 and 2011 all hijacked vessels were recovered, but in recent years some were never returned to their rightful owners. Shipowners have lost thousands of dollars in charter rates and potentially millions of dollars due to the loss of the vessel. Overall the number of hijackings of cargo vessels is relatively small and it does not appear to pose a substantial economic impact.

The fishers are most likely themost affected by piracy in the region. All types of fishing vessels are attacked by pirates, but statistics are not kept. Anecdotal evidence suggests that throughout the region fishers are faced with the risks of an attack. Pirates are most often after cash and fish, but in some cases also the fishing gear or the entire vessel. Hijacking of fishing vessels does take place frequently and the pirates are either after ransom or want to sell the vessel. These type of attacks are mostly undertaken by organised pirate gangs. Some gangs also demand up-front payments from fishers in order to guarantee their safety in certain areas.

Overall it is clear that fishers in the region are strongly economically impacted by piracy in the region. However, fishers themselves are often the perpetrators of the more opportunistic robberies of cash and fish. It are also fishing vessel owners and fishers that buy stolen fishing gear. This saves them money compared to buying the equipment new.

Table 12 Estimated economic impacts of piracy in SeA

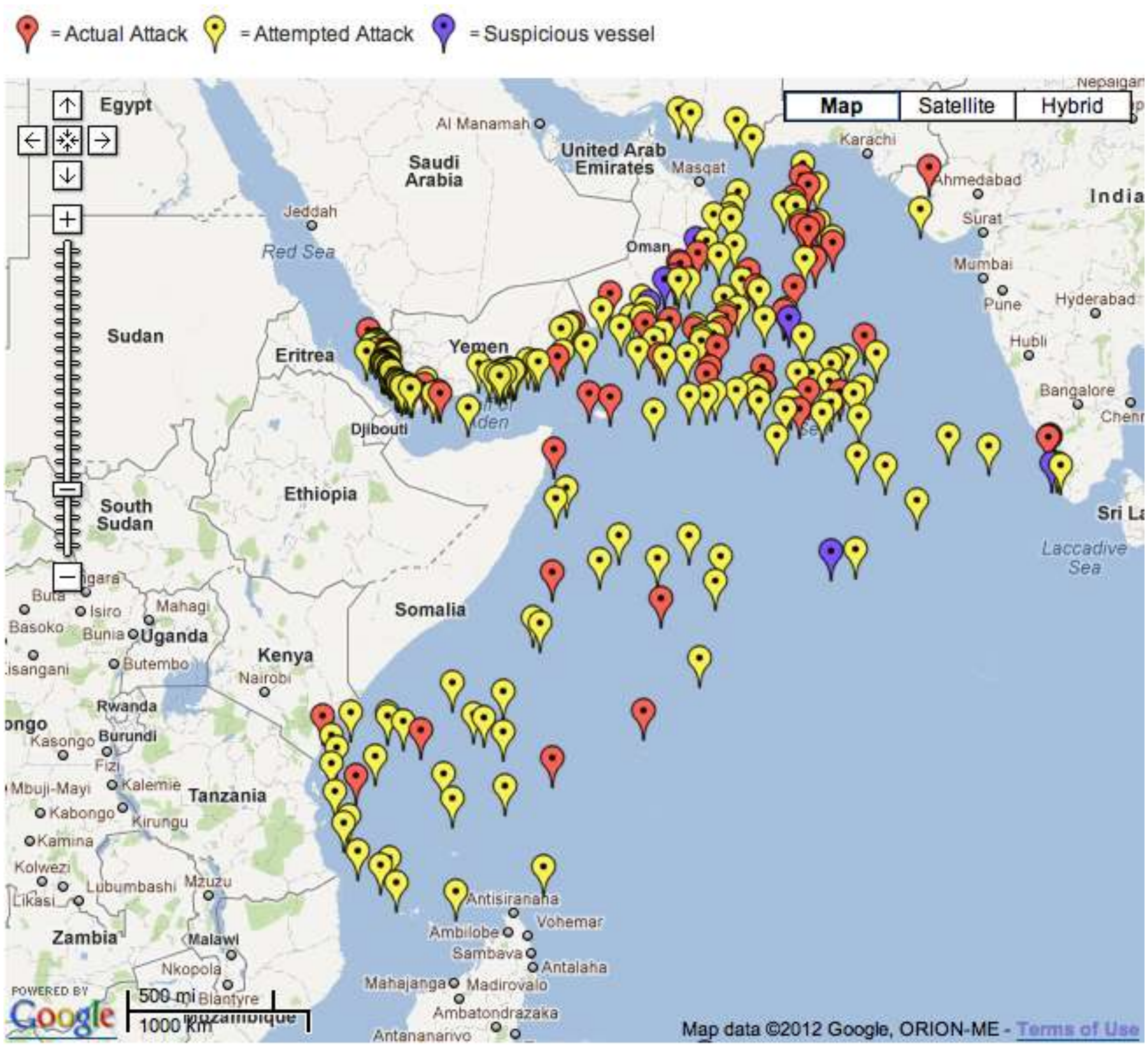
Impact type	Vessel type		
	Cargo	Passenger	Fishing
Impact of the threat of piracy			
Cost of fleet/vessel management adjustments	Low	Low	Low
Cost of security measures	Low	Low	Low
Cost of insurance	Medium	Low	Low
Impact of actual pirate attacks			
Cost of uninsured ransom	Low	Low	Medium
Cost of uninsured damages and losses (cargo and ship)	Low	Low	High

[14] See JWC, 2011 for a detailed list

6. THE NORTHERN AND WESTERN INDIAN OCEAN

The region of the Northern[15] and Western Indian Ocean (NWIO) analyzed in this chapter covers a vast area in which commercial shipping operations play a vital role. Most countries in the region depend heavily on foreign trade, which is mainly accommodated through maritime transport (UNCTAD, 2011). Figure 20 shows the geographical scope and piracy attacks reported to the IMB in 2011 in the region.

Figure 20 Map of NWIO region and reported piracy and armed robbery attacks



Source: IMB, 2011
Note: Map shows reported piracy incidents in 2011

This chapter analyzes the economic impacts of piracy on the commercial shipping industry in the region shown in figure 20. In order to do so, this chapter starts with a description of the commercial shipping industry in the region and continues with a brief description of piracy in the

[15] The Gulf of Aden and the Arabian Sea

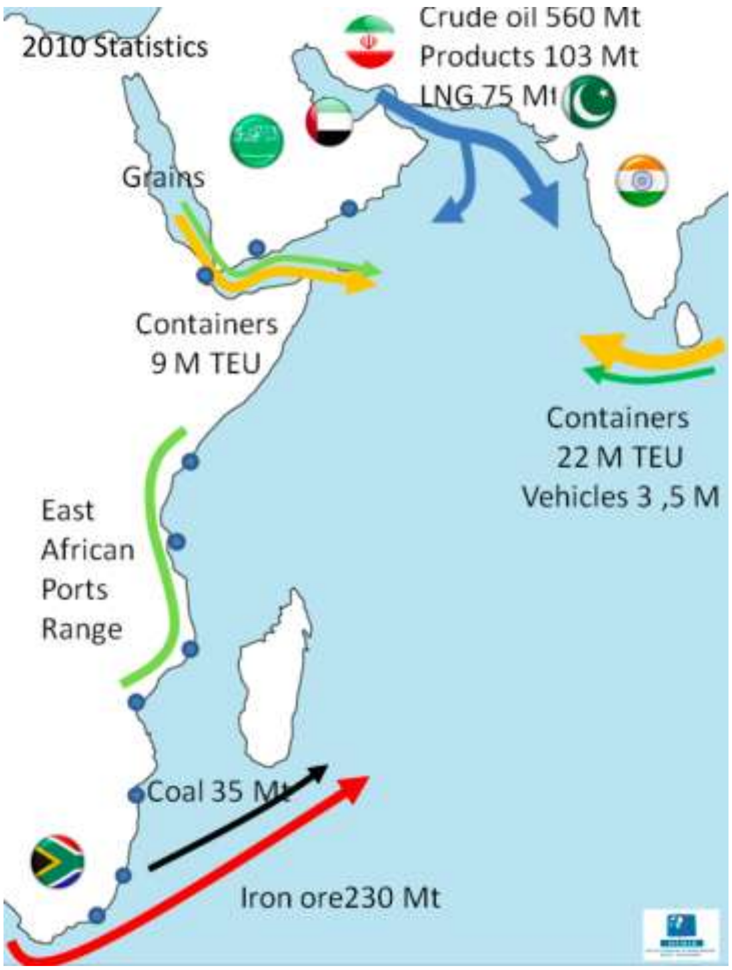
region. The last part of this chapter presents the economic impacts of piracy on the commercial shipping industry.

6.1. Commercial shipping industry in NWIO

6.1.1. Maritime Cargo Transport in NWIO

The region is a strategic for maritime cargo transport, because key trade routes pass through it. This includes both the trade generated by the countries in the region as the trade between, for example, Europe and Asia. Figure 21 gives an overview of the main products transported through the region in 2010.

Figure 21 Overview cargo transport in NWIO

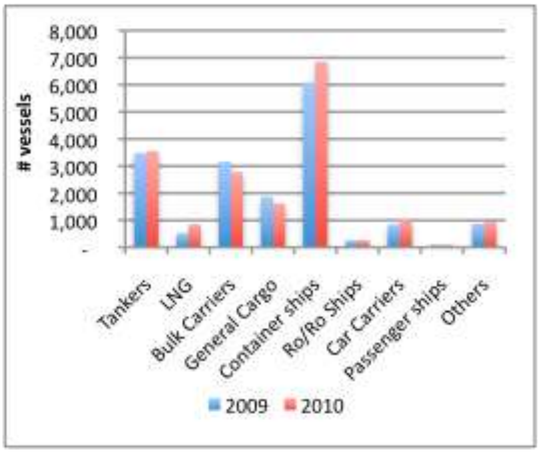


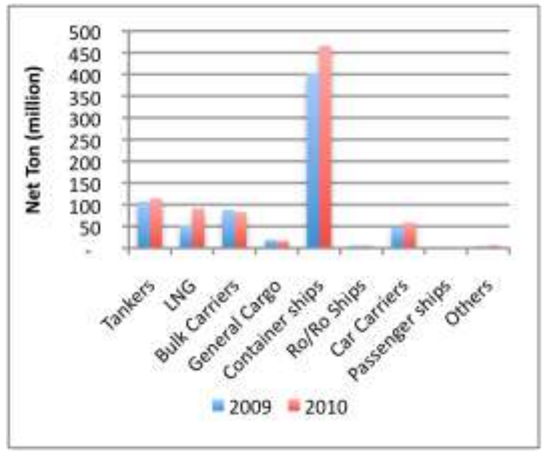
Source: Tourret, 2011

Figure 21 shows that much of the trade that passes through the region has its origin and destination outside the region. Especially important is the transport of containers between Europe and Asia, as it accounts for 75% of the manufactured goods that arrive in Europe. Half of all cars produced in Asia transit the region to their final destinations and other important cargo flows include the supply of coal, iron and oil from countries such as Brazil and South Africa to Asia (Tourret, 2011)

The transit figures of the Suez Canal give a good indication of the importance of the region for maritime cargo transport, although they do not include the intra-regional transport flows nor the vessels that enter the region via Cape of Good Hope. In total almost 18.000 ships transited the Suez Canal in 2010 and figure 22 shows the different vessel types and their net tonnage.

Figure 22 Number and net tonnage[16] of vessels transiting the Suez Canal





Source: Suez Canal Authority, 2010

Figure 22 shows that container vessels make up the largest part of the traffic through the Suez Canal. In the Indian Ocean the share of each vessel type in the total amount of vessels could change somewhat, especially due to the tankers transiting from the Persian Gulf to Asia. However, the region itself also generates substantial trade flows. Especially India is a large trading partner for the European Union (E.U.) and United Arab Emirates (U.A.E.), which is shown in table 13.

Table 13 Examples of trade size and major trade partners of NWIO countries

Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
India	Exp.	219,959	21%	E.U.	14%	U.A.E	11%	U.S.
	Imp.	327,230	14%	E.U.	12%	China	7%	U.A.E
Oman	Exp.	36,601	6%	U.A.E	3%	India	2%	China
	Imp.	19,870	27%	U.A.E	14%	E.U.	5%	China
Pakistan	Exp.	21,410	24%	E.U.	17%	U.S.	9%	U.A.E
	Imp.	39,044	14%	U.A.E	14%	China	11%	E.U.

16 Suez Canal Net Tonnage

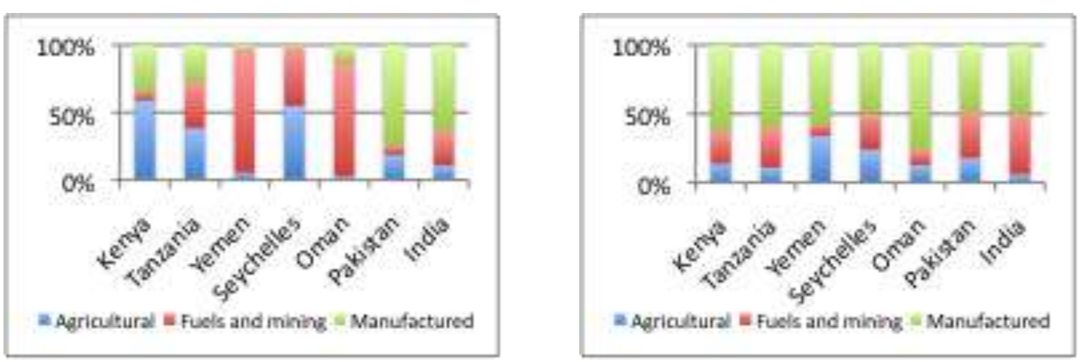
Country	Type	Trade $M	Nr 1 Trade partner		Nr 2 Trade partner		Nr 3 Trade partner	
Yemen	Exp.	8,700	25%	China	20%	India	18%	Thailand
	Imp.	9,700	15%	E.U.	10%	U.A.E	9%	China
Kenya	Exp.	5,151	27%	E.U.	13%	Uganda	9%	Tanzania
	Imp.	12,090	19%	E.U.	11%	U.A.E	11%	India
Tanzania	Exp.	3,687	18%	Switzerland	16%	China	13%	E.U.
	Imp.	7,830	14%	E.U.	11%	India	11%	China
Seychelles	Exp.	400	41%	E.U.	27%	Saudi Arabia	1%	Switzerland
	Imp.	650	30%	E.U.	17%	U.A.E	14%	Saudi Arabia
Eritrea	Exp.	12		1. ...		2. ...		3. ...
	Imp.	690		1. ...		2. ...		3. ...

Source: World Trade Organisation, 2012

The majority of the trade to and from the region is generated by India and Oman. The exports of India mainly consist of manufactured products that are, for the most part, transported by container vessels. The exports of Oman mainly consist of oil, which is transported in tankers. The maritime transport flows generated by the trade of the East African countries is relatively small. Kenya is the largest exporter of the countries included in this analysis and mainly exports tea, horticultural products and coffee (U.S. Government, 2011d). The composition of the exports and imports included in table 12 are shown in figure 23.

Figure 23 Examples of export and import composition of NWIO countries

Export **Import**



Source: World Trade Organisation, 2012 (based on 2010 figures)

6.1.2. Maritime Passenger Transport in NWIO

There are several types of passenger vessels present in the region. These include cruise ships, pleasure boats and ferries. This last type of passenger vessel can mostly be found in the Red Sea and Persian Golf. In 2008 ferries in the region transported almost 78 million passengers, which is 3.7% of the global amount of ferry passengers. Ferry operations in Africa are still small scale (Wergeland, 2012).

Statistics on other passenger vessels in the region are lacking. However, in 2010 100 passenger vessels transited the Suez Canal. Assuming that each passenger vessel made a round-trip a total of 50 passenger vessels entered the region. This could be both pleasure boats and cruise ships, because the Suez Canal Authority does not specify the type of passenger vessels that transit the Canal. The figure does suggest that the amount of cruise ships that transit the region is most likely lower than 50 per year. Though the number of cruise ships is very limited there are also pleasure boats / yachts that are permanently situated in the region. These comprise of vessels that are owned by inhabitants of the different countries in the region and tourists that transit the area in their own or chartered vessels. The importance of the industry differs per country. For example in India the pleasure boat industry is in an embryonic stage with less than 300 vessels registered in 2009 (Ace Private Global Limited, 2009). In a number of countries in the Persian Gulf, the pleasure boat industry is substantially larger. In total there are an estimated 12.000 yachts and pleasure boats in the Persian Gulf. This includes the U.A.E. in which there are an estimated 2000 yachts. Almost 80% of boat owners in the U.A.E. are first time owners and because of a lack of nautical skills a high number of yachts never leave the marinas (Italian Trade Commission UAE, 2011)

The number of tourist with there own or chartered yachts that transited the Indian Ocean was approximately 1000 in 2010. Most of these yachters avoided the northern part of the Indian Ocean, because of pirate threats. More southern parts saw exceptionally high number of yachts in their waters (Cornell, 2011).

6.1.3. Fisheries in NWIO

In the NWIO region many people are dependent of fisheries for employment and as a source of food. Most countries in the region suffer from substantial overfishing and illegal fishing practices. Consequently fish populations have declined and the livelihoods of many fishers are threatened (ASCLME, n.d.; FAO, 2007a; FAO, 2008; UNESCWA[17], 2007). Table 14 provides an overview of the importance of the fishery sector in a number of countries in the NWIO region. These figures are mainly estimates and based on information from different years. Table 14 should therefore only be considered as an indication of the importance of fisheries in the region.

Table 14 Marine fisheries in NWIO

Country	Fisheries/GDP[a]	# fishers	# boats	Consumable kg fish/capita/year
India (West Coast)[b]	0.3%	558,867	166,541	4.8
Yemen	15.0%	41,500	9,300	6.5
Oman	0.6%	35,543	13,943	27.7

[17] United Nations' Economic and Social Commission for Western Asia (UNESCWA)

Country	Fisheries/GDP[a]	# fishers	# boats	Consumable kg fish/capita/year
Kenya	0.1%	10,000	2,400	2.8
Eritrea	2.0%	3,000	560	2.95
Seychelles	30.0%	1,750	420	61

Source: [a]World Bank, 2010 and adjusted to estimated marine fisheries; FAO, n.d.

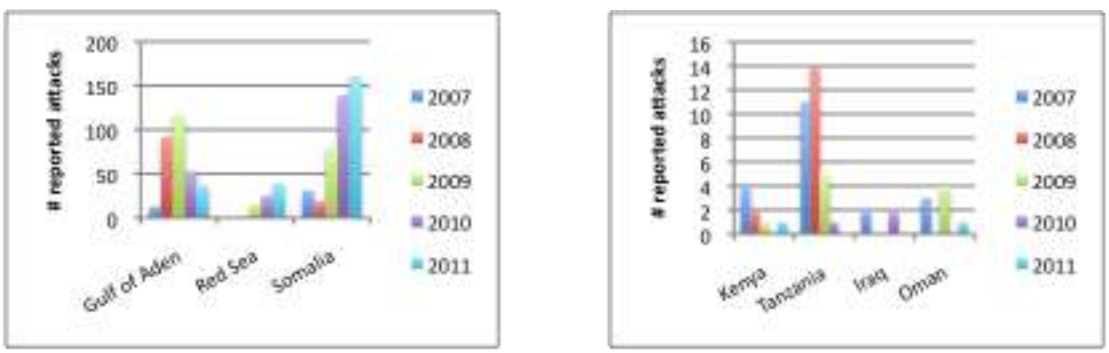
Note: [b] According to FAO country profile of India, 63% of the production of India's fisheries occurs on the West Coast. The assumption is made that this also applies to the contribution of fisheries to and to the number of fishers and vessels in the region.

Table 14 shows that marine fisheries on the East Coast of Africa are relatively small in terms of number of fishers, fishing vessels and the consumption of fish. For the Seychelles and Yemen, fisheries are a very important part of their GDP. Over half a million fishers from India's West Coast are depended on the Indian Ocean for their income.

6.2. Piracy in NWIO

Contemporary piracy in the NWIO originated in Somalia and developed from fishers that wanted to protect their fisheries against foreign poachers to mafia-style organised pirate gangs (Nincic, 2009; Percy and Shortland, 2011). This explains why most of the attacks in the region take place relatively near on in Somali waters. The number of attacks in other countries in the region have been low compared to the Gulf of Aden, Red Sea and Somalia, but also linked to Somali pirates. Occasionally persons from Yemen (Zagger, 2011) and Kenya (Maclean, 2011) have been accused of joining Somali pirate gangs. The development in the reported attacks is shown in figure 24.

Figure 24 Reported piracy attacks in NWIO 2007 - 2011



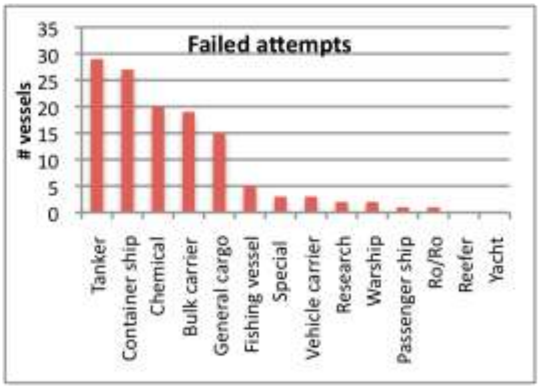
Source: IMB, 2011

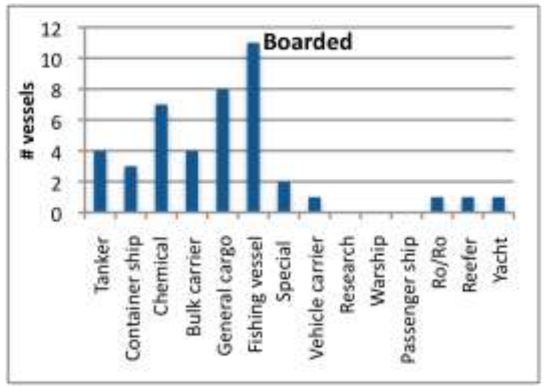
Though the figures suggest that the pirate attacks are moving back to Somali waters, they are in fact spreading further into the Indian Ocean. Pirate attacks are now taking place off Kenya, off Tanzania, off Seychelles, off Mozambique, off Oman and off India (IMB, 2011). International naval control mechanisms that have been implemented made attacking vessels in the Gulf of Aden much harder for pirates. Consequently pirates have, invested in better equipment and moved further offshore (Percy and Shortland, 2011).

In relation to the economic impacts of piracy on the shipping industry this geographic spread of piracy attacks is an important factor. Another important characteristic of piracy in the NWIO region is that pirates try to hijack the vessel and the crew. They are well equipped to do so with automatic weapons, rocket-propelled grenades and AK-47s (Hurlburt, 2011). Piracy attacks appear to have become more violent and 8 seafarers lost their lives in 2010 and another 8 in 2011 as a result of Somali piracy attacks (IMB, 2010; IMB, 2011).

Figure 25 shows that the majority of the attacks in the NWIO region are targeted at cargo vessels. Fishing vessels and passenger vessels have also been attacked in 2010, but less frequently (or less frequently reported). Based on the relatively high number of cargo vessels in the region and the low number of passenger vessels, it is not surprising that there is a large difference in the number of attacks on these different types of vessels.

Figure 25 Failed piracy attacks and vessels boarded per vessel type





Source: IMB, 2010

The next sections provide further information on pirate attacks on the different types of vessels.

6.2.1. Piracy and Maritime Cargo Transport in NWIO

As was shown in figure 25, by far the majority of the attacks in the NWIO region are targeted at cargo vessels. This is the result of the high volume of cargo vessels transiting the region.

All the attacks on vessels in the Red Sea, Gulf of Aden and Somali waters took place while the vessels were steaming. In all these incidents the pirates were armed with guns and their goal was to hijack the vessels. In 2010, they hijacked 26 cargo vessels and 20 in 2011 hijacked (IMB, 2010; Oceanus, 2011). In 2010, 16 vessels managed to avoid being hijacked by using citadels or safe rooms. In 2011, another 17 cargo vessels avoided being hijacked, but the pirates managed to break into two citadels (Oceanus, 2011). It is interesting to note that all but two cargo vessels that avoided being hijacked in 2011 after being boarded, did so with help of a citadel or safe room.

6.2.2. Piracy and Maritime Passenger Transport in NWIO

The 2010 figures show that pirates do not frequently attack passenger vessels. In that year one failed attack took place on a cruise vessel and one yacht was hijacked.

The cruise vessel was on its way from Mombasa to the Seychelles with 750 passengers onboard. Somali pirates approached the vessel, but were discouraged by the rolls of razor wire all over the stern rail and bundles of logs to be released to fall on any vessel attaching itself to the hull (Snailham, 2010).

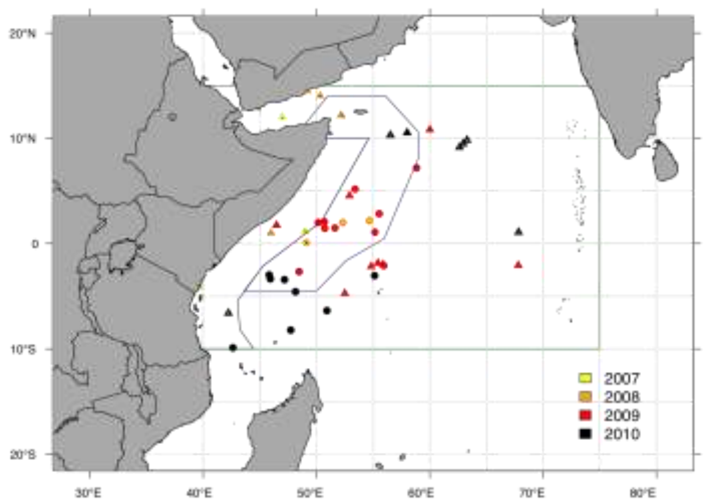
In 2011, three yachts were hijacked and one yacht was boarded (Oceanus, 2011). This low number of attacks can be explained by the relatively low amount of passenger vessels in the region. Though the absolute number of attacks on passenger vessels may be limited, four Americans and one crew member of a French yacht did loose their lives after their yacht were hijacked by Somali pirates in 2011 (Oceanus, 2011).

A large amount of people make use of ferries in and near the region, i.e. the Red Sea and Persian Gulf, but to date, no piracy attacks on ferries in the region have been reported to the IMB.

6.2.3. Piracy and Fisheries in NWIO

Given the high number of fishing vessels in the NWIO region, their share in the total number of hijacked vessels is substantial. In 2010, 11 of the 38 vessels reported being hijacked were fishing vessels (IMB, 2010). In 2011, 8 of the 31 hijacked vessels were fishing vessels (Oceanus, 2011). Most likely the majority of the attacks on fishing vessels go unreported. For example, no attacks on Somali fishers were reported though fishing communities in Somalia have claimed losses of vessels, engines, gear, personal belongings and even fishers have been kidnapped to work for the pirates (Somalia report, 2011). Somali pirates have used Yemen fishers as human shields while carrying out their pirate attacks and they have used the hijacked vessels to store their weapons (Kasinof, 2009). Another reason mentioned for attacks on fishers is that pirates at times run out of water, fuel or provisions while at sea and steal these from fishers that they encounter (Termansen, 2011). There are no statistics kept on piracy attacks on artisanal fishers in the region. On the one hand it could be assumed that attacks on these fishers do not occur often, because the ransom that these fishers could pay is far less than what international cargo vessels could fetch the pirates. On the other hand the newspaper articles show that the fishers are targeted when the pirates can use them for attacks on more lucrative targets. Figure 26 shows the location of the reported attacks on fishing vessel in the period 2005 – 2010.

Figure 26 Map of reported piracy attacks on fishing vessels in NWIO[18]



Source: Chassot *et al*, 2010

[18] Period is May 2007 – May 2010. The circles represent attacks of European purse seiners. Attacks on other fishing vessels are indicated by triangles. The small stars in a number of the circles and triangles indicate attacks resulting in hijacking

Figure 26 shows that most of the reported attacks involved deep-sea fishing vessels relatively far off the Somali coast.. The figure shows that attacks on fishing vessels are taking place further from the Somali coast and are expanding to the south.

6.3. Economic impacts of piracy in NWIO

In recent years several studies and papers have been written of the economic impacts of Somali piracy. The estimates of the costs for the commercial shipping industry vary strongly. For example Mickhail (2011) estimates the annual costs at US$ 500 million and the Oceans Beyond Piracy (OBP) (2012) between US$ 5.3 and US$ 5.5 billion. None of these estimates include the costs of piracy for maritime passenger transport or fisheries. This paragraph will also assess the costs of piracy on those industries, which could include:

- Cost of fleet/vessel management adjustments;
- Cost of security measures onboard the vessel;
- Cost of insurance;
- Cost of uninsured ransom;
- Cost of uninsured damages and losses.

6.3.1. Economic Impacts on Maritime Cargo Transport in NWIO

This section will be based on the work of the OBP (2012) project, which has estimated the costs of Somali piracy on the shipping industry.

The costs of fleet/vessel management adjustments that OBP included in its 2012 report are the costs of re-routing vessels and the costs of increasing the speed of vessels in the region. The total estimated costs as a result of these measures are between US$ 3.2 and US$ 3.4 billion per year.

The increased speeds with which vessels transit the region is the highest cost that the shipping industry faces as a result of piracy in the region. The authors of the OBP (2012) report have analyzed AIS[19] data of vessels in the NWIO region and concluded that the average speed of vessels increases when transiting the Indian Ocean towards the Gulf of Aden. The only logical explanation seems to be that vessels increase their speed to avoid piracy attacks, but as a result they burn more fuel. For container vessels alone, the additional costs is estimated at US$ 2.7 billion for 2011.

The shipping industry is also faced with costs as a result of re-routing. The number of vessels that are re-routed via the Cape of Good Hope are expected to be minimal as a result of the high fuel costs (OBP, 2012). Vessels are re-routed within the Indian Ocean to avoid piracy ‘hot spots’ in the region. According to OBP (2012) most vessels choose the route that ‘hugs’ the Indian coast line, which results in a longer route. The OBP report estimates the cost of re-routing to be around US$ 486 - US$ 680 million in 2011.

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[19] With regard to AIS systems, regulation 19 of IMO’s SOLAS Convention requires AIS to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size. This requirement became effective for all ships by 31 December 2004 (IMO, n.d.).

The OBP (2012) report estimates that the shipping industry spent and an estimated US$ 1.06 and US$ 1.16 billion in 2011 on security equipment and guards.

The costs for security measures are based on the measures recommended in the fourth (latest) version of Best Management Practices for Protection against Somalia Based Piracy (BMP4). OBP (2012) estimates that 80% of the vessels that transit the region are compliant with part of the BMP4 recommended measures. They assume that all BMP4 compliant vessels have sandbags and barbed wire onboard, and that 5 – 15% have electrified barriers and acoustic devices installed to deter pirates. The total costs associated with these measures is estimated between US$ 534 – US$ 629 million per year. These estimates are based on advertised prices for the measures and shipowners are likely to be able to negotiate substantial lower prices. However, the OBP (2012) report did not include the costs of constructing citadels. The use of such compartments onboard vessels appears to be widespread. In 2011, 45% of the hijacked and boarded cargo vessels had a citadel or safe room installed (Oceanus, 2012). The costs of installing a citadel could be as high as US$ 180,000 and more than US$ 450,000 to make it bullet-proof (Breakbulk Online, 2011). Though it is clear that the use of citadels is widespread in the region, it is not clear if ship owners install such costly citadels or make relatively low cost adjustments to existing compartments of their vessels.

Apart from the safety measures described above, the OBP (2012) report estimates that 25% of all vessels transiting the region make use of private security guards. It estimates that during 10,612 transits private security is employed at an average cost of $50,000 per transit. This means that the total cost of private security is estimated at $530.6 million in 2011.

According to the OBP (2012) report, the additional insurance cost that shipowners have to pay as a result of piracy was US$ 625 million in 2011. This includes the additional costs for ‘War Risk’ insurance and ‘Kidnap & Ransom (K&R) insurance. The Joint War Committee designated the Red Sea, the Gulf of Aden, the Gulf of Oman and large part of the Indian Ocean a ‘high-risk’ area. As a result vessels transiting the region have to pay a war risk premium, which OBP (2012) estimates to be 0,10% of the hull value of the vessel. This rate is lower for vessels that also have K&R insurance and/or private armed security guards and most vessels will receive a ‘no claims’ bonus. The OBP report estimates that the total amount of ships that transit the region was approximately 42,000 in 2011. It assumes that 50% of the vessels have K&R insurance and 25% have private armed guards onboard. There is very little public information on the percentage of shipowners or operators that have K&R coverage or private armed security guards, which does not make it possible to verify these figures.

According to the Oceans Beyond Piracy (2012) project, there were 31 vessels set free by Somali pirates in 2011 after ransoms were paid. The total amount of these payments was around $160 million. The average ransom was approximately $5 million, with ransom payments ranging from US$ 200.000 for a product tanker to US$ 13.5 million for an oil tanker (OBP, 2012). The ransom payments are not the only costs associated with hijacked vessels. Another important cost for the ship owners or operators is the costs of “loss of hire”. The average charter rate[20] in November 2011 was approximately US$ 12,000 per day (Clarksons, 2011). The average duration of negotiating the release of a vessel was 178 days in 2011 (OBP, 2012). This means that the cost of “loss of hire” would cost an additional US$ 2 million. Other costs included the damages to the

[20] The Clarksea Index is a weekly indicator of weighted average earnings for all main commercial vessel types (tankers, dry bulk carriers, container vessels, gas carriers), based on the number of vessels of each type.

ship and cargo, the costs of negotiations and the logistic costs of the ransom payments. The OBP (2012) report estimates that all these costs associated with hijacked vessels amounted to another US$ 160 million in 2011. It also makes the assumption that the ransom payments are covered by the insurance companies and that the remaining costs are borne by the shipping industry.

A last cost component for the shipping industry assessed in the OBP (2012) report is the additional labour cost in high risk areas. The report assumes that 30% of the vessels that transit the region pay the crew 'risk premiums'. Both the International Transport Workers' Federation and the Philippine government require seafarers to receive double pay when transiting high risk areas (OBP, 2012). The OBP report estimates that the total cost of this additional compensation was $195 million in 2011. An overview of the costs borne by the shipping industry in 2011 is shown in figure 27.

Figure 27 Estimated costs of piracy for maritime cargo transport in NWIO

Source: OBP, 2012

6.3.2. Economic Impacts on Maritime PassengerTtransport in NWIO

The number of pirate attacks on passenger vessels in the region has been limited. Marine tourists try to avoid the region when possible and this has led to a shift in pleasure boat and yacht traffic. For example, 2010 was the first year when more yachts appeared to have taken the Cape of Good Hope route than to have sailed across the northern Indian Ocean to the Red Sea and Suez Canal (Cornell, 2011).

The number of cruise ships destined for East Africa was already low before the increase in piracy in the region.

The cruise ships that do transit the region take security measures such as the use of barbed wire and other deterrents. They are likely also faced by high insurance costs, because of the high number of passengers and associated liability risks. However, the main economic impact is not so much on the cruise ships, they have plenty of other destinations, but more so on the local economies. Only two cruise ships called Kenya in 2010 and clearly large part of the tourism potential remains untapped in East Africa (Mwakio, 2011; Mbekeani and Ncube, 2011). Tourism is already a major source of income to for the Seychelles and Mauritius and these countries claim to suffer substantial economic losses as a result of piracy (Mbekeani and Ncube, 2011).

6.3.3. Economic Impacts on Fisheries in NWIO

The origin of the modern piracy in the region was a response to illegal foreign fishing practices in Somali waters. Some estimates show that every year between US$ 90 million and 300 million worth of fish was fished illegally in Somali waters by more than 700 vessels (Schofield, 2009). At least part of this illegal fishing has stopped as a result of piracy. Apart from illegal fishing operations in the region, the number of licensed fishing vessels in the region has also decreased. For example the number of the European purse seine fishery vessels decreased from 48 in 2005 to 38 in 2010 and a reduction of Gross Tonnage of 25% (Chassot et al., 2010). The main reasons for the reduction in the number of vessels were the threat to the crew, increased costs as a result of security measures and a reduction of area where the fishers could fish. This has also been a reason for Asian fishers to avoid the region (Chassot et al., 2010)

It is difficult to determine the economic impact for the fishing companies that deploy their vessels in the Indian ocean, as many have moved these vessels to the Atlantic and Pacific Oceans (Chassot et al., 2010). It is clear that national governments have suffered economic losses as a result of piracy. The reduction of foreign fishing vessels reduces the income of the sale of fishing licenses (EBCD, 2012).

Local fishing companies have also suffered economic losses as a result of piracy. For example, a prawn trawler of the Spanish-Mozambican fishing company Pescamar was hijacked in 2010 and used as a mother ship in the Arabian Sea for three months, which would have led to a substantial loss of income. The Indian navy freed the ship after a gun battle after which 9 crewmembers were believed to have drowned. Apart from the most important loss, that of human lives, the ship also suffered damages and the company paid US$ 5 million ransom (OBP, 2012) to free two Spanish fishers that were taken to Somalia. The company tried to offset part of these costs by firing the 12 crew members that survived the ordeal of being taken hostage for 3 months (Mozambique News Agency, 2011).

Artisanal fishers have also been affected by the piracy activities in the region. In the Seychelles the number of small artisanal boats has been strongly reduced (Chassot et al., 2010) and in Yemen fishers have lost substantial part of their income. In the Hadramawt Administrative Division fishers are said to have lost US$150.000 in half a year, because many of them were too scared to venture into their fishing grounds (Kasinof, 2009). As a result of piracy many fishers feel forced to engage in illegal activity such as arms, drugs, and human trafficking in order to provide for their families (Termansen, 2011).

Fishers are not only faced with loss of income, but many are also faced with the costs of the actual attacks. In 2008, 22 fishermen were hijacked in a single incident. Because the fishers could not pay the US$75,000 ransom demanded by the pirates, all their belongings were stolen and they were sent home in only one small boat (Kasinof, 2009).

There are no statistics kept of the number of attacks on fishers in the region, but newspaper articles and other reports suggest that attacks in artisanal fishers also occur in Somalia, Kenya, Tanzania, Madagascar and Oman.

Not all fishers in the region complain about piracy. A recent article on fishers in Kenya reports that Kenyan fishers belief that piracy has resulted in increased catches for the artisanal fishers. They claim that fish stocks have been up "enormously – across all species" (Straziuso, 2010).

Overall it appears that the fishers are suffering the most from piracy in the region, but not only at the hands of the pirates. For example, two Yemeni fishers were killed in the Red Sea by an international warship in 2009 (Kasinof, 2009) and two Indian fishers were killed in 2012 by armed guards on an Italian tanker (The Maritime Executive, 2012). In both cases the fishers were presumably mistaken for pirates.

6.4. Conclusions

Maritime transport plays a vital role in the Northern and Western Indian Ocean (NWIO). The area hosts the main maritime trade route from Europe to Asia and intraregional transport is growing. The OBP (2012) report estimates the total number of transits in 2011 to be around 42.000. By far the most transits are made by cargo vessels, especially tankers and container vessels. Passenger vessels are relatively scarce in the region, because the cruise ship market has not yet been developed and yachts try to avoid the area. Fisheries supports millions of people in the region and by far the majority of the vessels in the region are artisanal fishing vessels. Foreign fishing companies, especially from Europe and Asia, have industrial fishing vessels in the region.

Somali pirates aim to hijack vessels and hold the vessel and crew for ransom. Because of the current lack of governance in Somalia, these vessels and crew can be kept captive near the Somali coast or at berths for months. The threat of attacks and the actual attacks themselves are costing the commercial shipping industry billions of dollars per year.

The limited amount of attacks on passenger vessels has had a strong impact on maritime tourism in the region, but this industry was already relatively undeveloped. Cruise ships and yachters now avoid the area and the potential for maritime tourism remains untapped.

Arguably the largest economic impact is on the artisanal fishers in the region. They do not have the ability, as industrial fishers have, to fish in 'saver' regions. Statistics on the attacks on artisanal fishers are lacking, but reports in newspapers suggest that they are targeted frequently by pirates. Pirates attack the fishers to use them to attack more lucrative foreign fishers or cargo vessels. In the process the artisanal fishers are robbed of their water, fuel, engines, vessels or they are used as human shields. Fishers have been killed by pirates, anti-piracy navy forces and private armed guards. The artisanal fishers are collectively losing millions of dollars, which is substantial if considering that their average income is very low. Some suggest that consequently fishers themselves are forced take up illegal activities in order to make a living.

Apart from income losses in some areas, in other areas fishers say they are catching more fish than ever. They suggest that the decrease in foreign industrial fishers, as a result of the threat of piracy, has reduced pressure on the fish stocks. These signs of positive impacts for artisanal fishers in the region appear to be strongly outweighed by the negative economic impacts.

Table 15 shows the overall economic impacts for the commercial shipping industry in the region.

Table 15 Estimated economic impacts of piracy in NWIO

Impact type	Vessel type		
	Cargo	Passenger	Fishing
Impact of the threat of piracy			
Cost of fleet/vessel management adjustments	Medium	Low	Low
Cost of security measures	Medium	Low	Low
Cost of insurance	High	Low	Low

Impact of actual pirate attacks			
Cost of uninsured ransom	Medium	Low	High
Cost of uninsured damages and losses (cargo and ship)	Low	Low	High

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