



OCEANS BEYOND PIRACY

a project of the One Earth Future Foundation



THE STATE OF

MARITIME PIRACY 2014

ASSESSING THE ECONOMIC AND HUMAN COST

APPENDICES

APPENDICES A-L

APPENDIX A – AREAS OF INTEREST

Various costs and considerations assessed by this report are applicable only in specific geographical areas. For example, ship operators must pay an additional war risk premium to maintain coverage if they enter a designated War Risk Area, while several distinct zones all factor into seafarer hazard pay. Consequently, these regions are essential to our analysis, and for clarity this appendix provides the definition of each relevant zone, region, or area.

Western Indian Ocean Region

Best Management Practices Revision 4 High Risk Area

The Best Management Practices Revision 4 (BMP4) High Risk Area (HRA) “defines itself by where pirate activity and/or attacks have taken place,” and consequently defines the area where it is recommended that ship operators apply best management practices.

The BMP4 HRA comprises the Red Sea, Gulf of Aden, Arabian Sea, Gulf of Oman, and the northern portion of the western Indian Ocean. Its precise limits are Suez to the northwest, the Strait of Hormuz to the north, 10°S, and 78°E.¹

Internationally Recognized Transit Corridor

The Internationally Recognized Transit Corridor (IRTC), established effective February 1, 2009, supports United Nations Security Council resolutions 1814 (2008), 1816 (2008), 1838 (2008), and 1846 (2008).²

Though the IRTC is not a formal traffic-separation scheme, much like a freeway, two proximate, parallel lanes conduct traffic along opposite headings: 72° (east-northeast, roughly) for eastbound vessels and 252° (west-southwest) for westerly traffic. The eastbound lane begins at 45°E between 11°48' N and 11°53' N and terminates at 53°E between

14°18' N and 14°23' N. The westbound lane begins at 53°E between 14°25' N and 14°30' N and terminates at 45°E between 11°55' N and 12°00' N.³

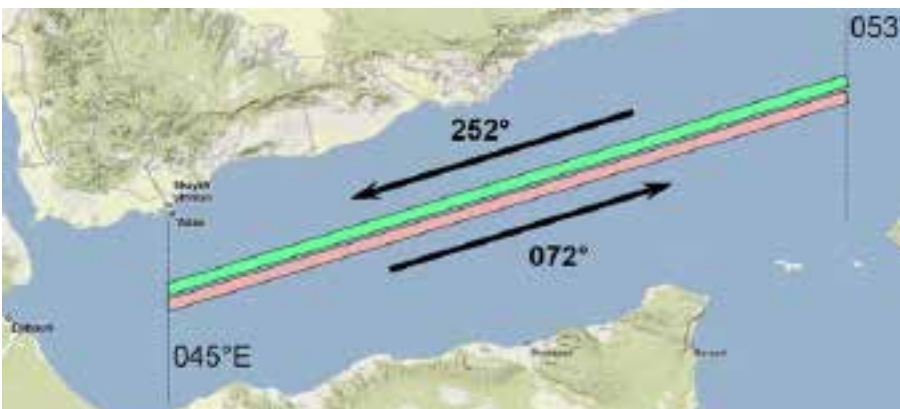


Figure A2: IRTC

1 Witherby Seamanship Intl., *BMP4: Best Management Practices for Protection against Somalia Based Piracy, Version 4* (Edinburgh: Witherby Publishing Group Ltd., 2011), 7, http://www.mschoa.org/docs/public-documents/bmp4-low-res_sept_5_2011.pdf.

2 Lieutenant Dr. Ir. F. J. Sluiman et al., “Naval Vessel Traffic Services,” *Naval War College Review*, v. 63(3) (2010), <https://www.usnwc.edu/getattachment/a3175659-caf1-4f1c-a0c5-f19f51d44ff5/Naval-Vessel-Traffic-Services--Enhancing-the-Safet.aspx>.

3 Ibid.; U.S. Navy, “Special Maritime Advisory for Vessels Transiting Gulf of Aden and Somali Basin,” 19 January 2009, http://www.cusnc.navy.mil/marilo/Guidance/Corridor_files/JAN%2009%20MARAD%20UPDATE.txt.

IBF Areas

The IBF-designated risk areas identify where transiting seafarers are exposed to the risk of piracy and are thus entitled to additional compensation and other protections as a part of collective bargaining agreements. These areas are designated by the International Bargaining Forum (IBF), which brings together the International Transport Workers' Federation and the international maritime employers that make up the Joint Negotiating Group. Depending on the risk assessed by the IBF, seafarers transiting these areas are entitled to varying levels of additional hazard pay, compensation for injury or death, and the option to elect to not transit the area at no expense to themselves.⁴

International Bargaining Forum List of Warlike and High Risk Designations⁵

These are defined as:

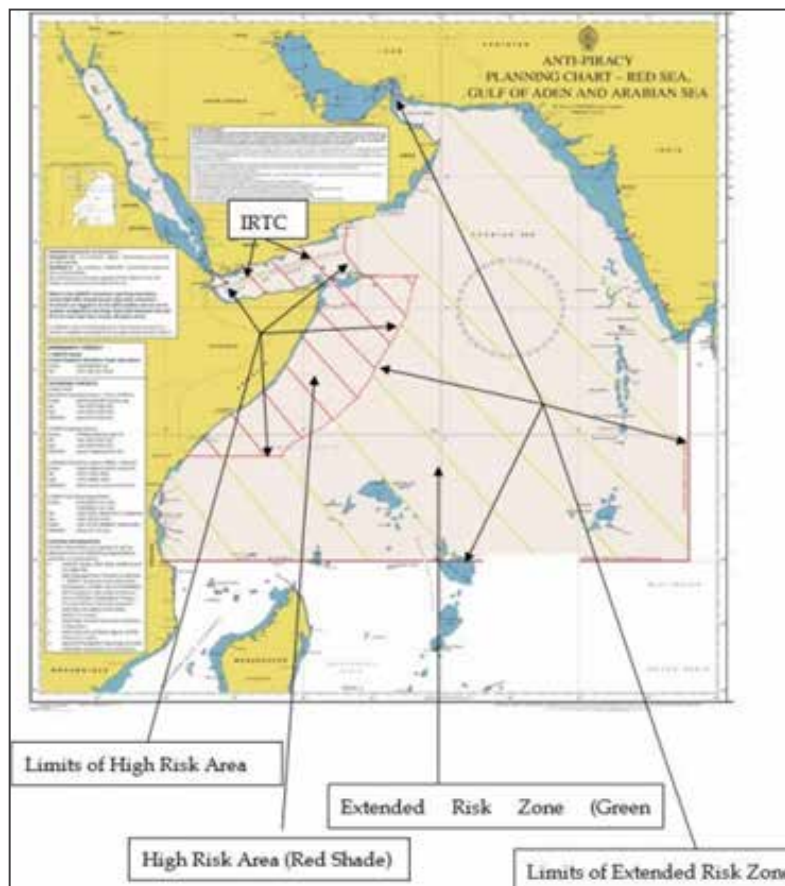
1. IBF WOA

The Warlike Operations Area (WOA) covers Somali territorial waters, which extend 12 nautical miles from the coast. The western boundary runs due north from the Somali–Ethiopian coastal border; the eastern, due north from Cape Guardafui in Puntland.

2. IBF HRA

The High Risk Area comprises the Gulf of Aden, excluding the IRTC, and the waters off the east coast of Somalia, out to 400 nautical miles. The chevron-shaped western boundary runs from the Djiboutian–Somali coastal

border to 11°48'N, 45°E, and from 12°00'N, 45°E to Mayyun Island in the Bab-El-Mandeb Strait. The eastern border runs from Rhiy di-Irisal in Socotra to 14°18'N, 53°E; from 14°30'N, 53°E to the Yemeni–Omani coastal border, and 400 miles off the Somali coast from due east of Socotra to due east of the Kenyan–Somali border.



3. IBF XRZ

The Extended Risk Zone (XRZ) encompasses the HRA and more. The XRZ has the same western boundary as the HRA—from the Djiboutian–Somali coastal border to 11°48'N, 45°E, and from 12°00'N, 45°E to Mayyun Island in the Bab-El-Mandeb Strait—but includes the IRTC. The eastern border is the 78th meridian east (78°E), the northern border is the 26th parallel north (26°N), and the southern border is the 10th parallel south (10°S).

Figure A3: IBF List of Warlike and High Risk Designations

4 "IBF List of Warlike and High Risk Designations, with Main Applicable Benefits (as of 1st July 2014), Addendum 2," IBF, <http://www.itfseafarers.org/files/seealsodocs/33553/IBF%20LIST%20OF%20WARLIKE%20AND%20HIGH%20RISK%20DEFINITIONS%20JULY%202014.pdf>.

5 Ibid.

Joint War Committee Hull War, Piracy, Terrorism and Related Perils Listed Areas

JWC WRA:

The Joint War Committee (JWC) “comprises underwriting representatives...representing the interests of those who write marine hull war business in the London market.”⁶ This insurance industry body meets quarterly to define and review hazardous “war risk areas” (WRAs) around the globe—areas inside of which vessels must pay additional premiums to compensate for the elevated risk; these WRAs are then published as the “Hull War, Piracy, Terrorism and Related Perils Listed Areas” and integrated into hull war risk policies around the world.⁷

Territorial Waters:

- Eritrea, but only south of 15° N
- Somalia

Indian Ocean/Arabian Sea/Gulf of Aden/ Gulf of Oman/Southern Red Sea:

The waters enclosed by the following boundaries:

- On the north-west, by the Red Sea, south of latitude 15° N;
- On the west of the Gulf of Oman by longitude 58° E;
- On the east, longitude 78° E; and
- On the south, latitude 12° S.

This does not include the coastal waters of adjoining territories up to 12 nautical miles offshore unless otherwise provided.⁸

Gulf of Guinea

IBF HRA

The International Bargaining Forum designates only one zone in the Gulf of Guinea: the High Risk Area. There are no West African analogues to the WOA or XRZ near the Horn of Africa. The HRA is composed of the territorial waters of Nigeria and Benin, which extend 12 miles from the coast, as well as their ports and inland waterways—excepting secure berthages and guarded port areas.⁹

6 “Joint War Committee,” *Lloyd’s Market Association*, available at http://www.lmalloyds.com/Web/market_places/marine/JWC/Joint_War.aspx.

7 “Hull War, Piracy, Terrorism and Related Peril Listed Areas,” *Joint War Committee*, JWLA/021, 12 June 2013, available at <http://www.lmalloyds.com/IMIS15/CMDownload.aspx?ContentKey=dfa8eb7f-0832-4bf9-a18e-7bf7f7c87ceb&ContentItemKey=8a6b56bc-7b03-4370-8ad5-2f31e7f2f8de>.

8 “Hull War, Piracy, Terrorism and Related Peril Listed Areas,” *Joint War Committee*, JWLA/021, 12 June 2013, available at <http://www.lmalloyds.com/IMIS15/CMDownload.aspx?ContentKey=dfa8eb7f-0832-4bf9-a18e-7bf7f7c87ceb&ContentItemKey=8a6b56bc-7b03-4370-8ad5-2f31e7f2f8de>.

9 “IBF List of Warlike and High Risk Designations, with Main Applicable Benefits (as of 1st July 2014), Addendum 2,” IBF, <http://www.itfseafarers.org/files/seealsodocs/33553/IBF%20LIST%20OF%20WARLIKE%20AND%20HIGH%20RISK%20DEFINITIONS%20JULY%202014.pdf>.



Figure A4: JWC Listed Area for Indian Ocean (JWC WRA)

JWC WRA

The Joint War Committee War Risk Area in the Gulf of Guinea covers the territorial waters of Nigeria, Benin, and Togo, as well as their exclusive economic zones (EEZs) north of the 3rd parallel north (3°N).



Figure A5: JWC WRA, Gulf of Guinea

APPENDIX B – NAVAL COSTS, EAST AFRICA

Military Assets

The tables below detail the cost calculations described in the main text. First, for naval vessels, helicopters and patrol aircraft, and unmanned aerial vehicles alike, the cost of operating a single unit for one year is estimated. Each such “unit cost” is calculated for an archetypal vessel class or model, which then serves as the cost estimate for all assets of that type. For example, all frigates are treated as Oliver Hazard Perry-class frigates, all helicopters as SA 341 Gazelles, and so on. This approximation is necessary given the variety of assets deployed within multinational forces and by the myriad individual countries. Then, for each archetype, the unit cost is multiplied by the average number of assets of that type conducting counter-piracy operations in the Western Indian Ocean Region during 2014. Note that lower operating costs for independent deployers are factored into the cost calculations. Finally, the costs of these different asset types are summed, giving a grand total cost of operating military assets.

Table B1: Ships

	Frigate ¹⁰ (Oliver Hazard Perry class)	Destroyer (Arleigh Burke class)	Amphibious (Galicia class)	Patrol (Sukanya class)	Support
Daily Fuel Use (gal)	21,640.55 ¹¹	4,909.90908 ¹²	15,372.4 ¹³	4,797.213509 ¹⁴	16,911.8003 ¹⁵
Annual Fuel Use (gal)	6,492,165	1,472,972.724	4,611,720	1,439,164.053	5,073,540.09
Annual Fuel Cost (\$)	24,832,531.13	5,634,120.669	17,639,829	5,504,802.501	19,406,290.85
Personnel Aboard (#)	230	280	350	121	125
Adjustment Factor ¹⁶	1	1.217391304	1.52173913	0.526086957	0.543478261
Monthly Op. Cost (\$)	1,734,071.39 ¹⁷	2,111,043.431	2,638,804.289	912,272.34	942,430.1033
Annual Op. Cost (\$)	20,808,856.68	25,332,521.18	31,665,651.47	10,947,268.08	11,309,161.24
Annual Unit Cost (\$)	45,641,387.81	30,966,641.84	49,305,480.47	16,452,070.58	30,715,452.09
Coalition Units	7.547945205	3.624657534	0.260273973	1.257534247	1.17260274
Coal. Unit Cost (\$)	45,641,387.81	30,966,641.84	49,305,480.47	16,452,070.58	30,715,452.09
Coal. Cost (\$)	344,498,694.3	112,243,471.7	12,832,933.27	20,689,042.18	36,017,023.27
Independent Units	3.243835616	2.978082192	0.405479452	0	2.468493151
Ind. Unit Cost (\$)	15,213,795.94	10,322,213.95	16,435,160.16	5,484,023.527	10,238,484.03
Ind. Cost (\$)	49,351,053.12	30,740,401.54	6,664,119.735	0	25,273,627.7
Total Units	10.79178082	6.602739726	0.665753425	1.257534247	3.64109589
Total Cost (\$)	393,849,747.4	142,983,873.2	19,497,053.01	20,689,042.18	61,290,650.96
Subtotal:	\$638,310,366.70				

10 In recognition of the fact that many navies have lower operating costs than, for example, the United States or the United Kingdom, independent deployer assets are estimated to operate at one-third of the cost of coalition assets.

11 This cost was calculated using data from Navy Site. "The FFG 7 Oliver Hazard Perry-class," Navy Site, <http://navysite.de/ffg/ffg7class.htm> (accessed May 7, 2015).

12 Calculated using data from Global Security. "DDG-51 Arleigh Burke – Specifications," GlobalSecurity.org, <http://www.globalsecurity.org/military/systems/ship/ddg-51-specs.htm> (accessed May 7, 2015); Schuyler Null, "Defense Sustainability: Energy Efficiency and the Battlefield," Global Green USA (2010), <http://www.globalgreen.org/docs/publication-112-1.pdf>.

13 This cost was calculated using data from the Naval Institute. Eric Wertheim, *The Naval Institute Guide to Combat Fleets of the World: Their Ships, Aircraft, and Systems*, 15th ed. (Naval Institute Press, 2007).

14 This cost was calculated using data from the Naval Institute. Ibid.

15 This cost was calculated using data from the Naval Institute. Ibid.

16 This report assumes that operating cost is roughly proportional to crew size. Using the complement and operating cost of a frigate as a baseline, operating costs for other assets can be estimated, provided that the crew size is known. For example, a vessel with twice as many personnel as a frigate would have double the operating cost. The Adjustment Factor is this ratio between asset crew size and frigate crew size. The estimated monthly operating cost of a given asset is thus simply the operating cost of a frigate multiplied by this Adjustment Factor.

17 John Knott cites a frigate monthly operating cost of £1 million. Converting to U.S. dollars using the 2009 average exchange rate, as reported by OANDA, generates a monthly cost of about \$1,584,949. Adjusting for inflation using the U.S. Bureau of Labor Statistics tool yields a final monthly operating cost of \$1,734,071. John Knott, "Somalia: Clan Rivalry, Military Conflict, And the Financial and Human Cost of Piracy," *Mondaq*, 17 March 2009, <http://www.mondaq.com/x/76272/Marine+Shipping/Somalia+Clan+Rivalry+Military+Conflict+And+The+Financial+And+Human+Cost+Of+Piracy>; "Average Exchange Rates," OANDA, <http://www.oanda.com/currency/average> (accessed May 7, 2015); "CPI Inflation Calculator," U.S. Bureau of Labor Statistics, <http://data.bls.gov/cgi-bin/cpicalc.pl> (accessed May 7, 2015).

Table B2: Aircraft

	Patrol Aircraft	Destroyer (Arleigh Burke class)	Amphibious (Galicia class)	Patrol (Sukanya class)
Daily Fuel Use (gal)	6,334.8 ¹⁸	1,900.44	3,357.44	189.54 ¹⁹
Annual Fuel Use (gal)	1,900,440	570,132	1,007,232	56,862
Annual Fuel Cost (\$)	6,917,601.6	2,075,280.48	3,666,324.48	206,977.68
Personnel Aboard (#)	11	2	2	2
Adjustment Factor	0.047826087	0.008695652	0.008695652	0.008695652
Monthly Op. Cost (\$)	82,933.84909	15,078.88165	15,078.88165	15,078.88165
Annual Op. Cost (\$)	995,206.189	180,946.5798	180,946.5798	180,946.5798
Annual Unit Cost (\$)	7,912,807.789	2,256,227.06	3,847,271.06	387,924.2598
Units	4	2	1	13
Annual Unit Cost (\$)	7,912,807.789	2,256,227.06	3,847,271.06	387,924.2598
Annual Total Cost (\$)	31,651,231.16	4,512,454.12	3,847,271.06	5,043,015.378
Subtotal:	45,053,971.71			

Table B3: Unmanned Aerial Vehicles (UAVs)

	Land-based UAV (MQ-1B Predator)	Ship-based UAV (ScanEagle)
Hourly Op. Cost (\$)	3,234 ²⁰	3,612.60 ²¹
Mission Flight Hours	10	10
Missions Per Day	0.333333333	1
Daily Flight Hours	3.333333333	10
Daily Op. Cost (\$)	10,780	36,126
Annual Unit Cost (\$)	3,234,000	10,837,800
Units	0.5	3
Annual Unit Cost (\$)	3,234,000	10,837,800
Annual Total Cost (\$)	1,617,000	32,513,400
Subtotal:	34,130,400	

Table B4: Total

Category	Cost (\$)
Ships	\$638,310,367
Aircraft	\$45,053,972
UAVs	\$34,130,400
Grand Total	\$717,494,738

18 This cost was calculated using data from the United States' Navy Fact File. "United States Navy: Fact File," Department of the Navy, http://www.navy.mil/navydata/fact_display.asp?cid=1100&tid=1400&ct=1; "P-3C Orion Maritime Patrol, United States of America," Airforce-technology.com, <http://www.airforce-technology.com/projects/orion-maritime-patrol/> (accessed May 7, 2015).

19 This cost was calculated using data from Airforce Technology. "Helicopter Specifications," Rotor Leasing, <http://www.rotorleasing.com/Specifications/SA341.html> (accessed May 7, 2015); "Gazelle Multi-Role Helicopter, France," Airforce-technology.com, <http://www.airforce-technology.com/projects/aerospatiale-gazelle/> (accessed May 7, 2015).

20 Lieutenant Colonel Brett M. Clark, "Small Unmanned Aerial Vehicles; DHS's Answer to Border Surveillance Requirements," Strategy Research Project, United States Army War College, March 2013, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA589119>.

21 "Questions in Writing (Question No. 1217)," Parliament of Australia, 9 October 2012, <http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22chamber%2Fhansard%2F5a0ebb6b-c6c8-4a92-ac13-219423c2048d%2F0224%22>.

SHADE

The calculation for SHADE conference costs was straightforward: we estimated the number of delegates traveling to the conferences—excluding those attendees already in the area—and the costs associated with that travel, as well as the cost of accommodations once in Bahrain. The sum of these travel and accommodation costs for a given conference was then multiplied by the number of conferences in 2014, yielding a total cost for the year.

Table B5: Attendance²²

Conference	Month	Delegates	Countries
31st	March	90	33
32nd	June	140	32
33rd	September	103	32
34th	December	108	34
Average, Total:		110.25	32.75
Average, International: ²²		82.6875	

Table B6: Travel

Region	Fraction ²³	Count	Flight Cost ²⁴ (\$)	Flight Expenditure (\$)
Europe	0.47	39	793	30,927
N. America	0.22	18	1,238	22,284
Asia	0.12	10	415	4,150
Africa	0.19	16	633	10,128
TOTALS	1	83		67,489

Table B7: Accommodation

	Travelers	Daily Cost (\$)	Days	Accommodation Expenditure (\$)
International	83	272	3	67,728

Table B8: Total

Cost Per Conference ²⁵ (\$)	135,217
Number of Conferences	4
Total Cost (\$)	540,868

22 This number assumes that 75% of participants are international, i.e., must travel to the conference and pay for accommodations.

23 As this information was not available for the conferences in 2014, we used the continental proportions of attendance from the 2012 conferences.

24 This number is based on ticket prices for flights to Bahrain from a representative airport in each region, using the dates of the June conference. Prices represent the cheapest fare returned by a *kayak.com* search conducted in April 2014, although many attendees in fact fly business class and/or get governmental or corporate fares.

25 This is the sum of travel costs and accommodation costs for all international attendees.

APPENDIX C – INCREASED SPEED, EAST AFRICA

Table C1: Speeds and Costs²⁶ (all speeds in knots)

Vessel Length (m)	120–200	200–300	300+
<i>Cargo</i>			
Observed Global Average Speed	12.94	13.21	14.88
Observed Average Speed in WIOR	13.14	14.04	17.4
Increased Speed Margin	0.5	0.75	1.0
Increased Speed Threshold	13.44	13.96	15.88
<i>Tanker</i>			
Observed Global Average Speed	12.77	13.09	12.41
Observed Average Speed in WIOR	13.15	13.19	14.06
Increased Speed Margin	0.5	0.75	1.0
Increased Speed Threshold	13.27	13.84	13.41
380cst bunker, Rotterdam (\$/Tonne)	\$532.14		
380cst bunker, Singapore (\$/Tonne)	\$559.68		
WIOR traffic 380cst bunker, equal-weight average (\$/Tonne)	\$545.91		

The essence of our increased speed cost calculations was a comparison between ships' behavior inside the BMP4 HRA, where piracy is a threat, and the rest of the world, where for the most part it is not.

Utilizing the global set of AIS data for a single day in June 2014, we compiled the average reported speed for each vessel of interest not transiting the HRA.²⁷ To do so, we broke our AIS data into six vessel categories based upon the designated vessel type and length. In the absence of data relating to specific vessel type and dead weight tonnage, we used length as a proxy. This allows us to account for the variation in average steaming speeds between the various vessel types and increases the accuracy of our calculations. Table C2 demonstrates the variation in specific vessel type within the cargo category by length.

Table C2: Cargo Vessel Types By Length²⁸

120–200m	Bulk Carrier Handymax/Handysize PCC Vehicle Carrier General Cargo Small Feeder/Feeder/Feedermax Container
200–300m	Panamax Bulk Carrier Panamax Container PCTC/LCTC/ULVC Vehicle Carrier
300m +	Capemax Bulk Carrier Post Panamax/New Panamax/ULCV Container

In previous reports we did not use vessel length categories, but these divisions provide a more accurate representation

²⁶ All speed data in table was calculated using a global AIS sample containing all AIS reports from June 5, 2014.

²⁷ "Vessels of interest" excludes, as usual, all ships less than 120 meters in length. Here, we also omitted all vessels moving at a speed below 8 knots, in order to eliminate any vessels entering or exiting port, in keeping with the attempt to characterize the behavior of vessels fully underway. Last, we excluded any reported speeds above 25.9 knots as unrealistic for commercial traffic.

²⁸ "Our Fleet," Wallenius Lines, <http://www.walleniuslines.com/Fleet/Fleet-List1/> (accessed May 7, 2015); "GC0491 – General Cargo," Vessel for Sale, <http://www.vesselforsale.net/homepage/dry-cargo/general-cargo/gc0491-general-cargo.html> (accessed May 7, 2015); "General Cargo," Marin, <http://www.marin.nl/web/Ships-Structures/Merchant-vessels-Work-boats/General-Cargo.htm> (accessed May 7, 2015); "Feeder Vessel Data Sheet: Size Comparison," Containership-info.net, http://www.containership-info.com/misc_publ_feedergrowth.pdf (accessed May 7, 2015).

of increased speeds as a proxy for vessel type. This is an attempt to account for the variation in “optimal” steaming speeds between, for example, an archetypal bulk carrier and an archetypal container vessel, two very different types of ships lumped together within the same AIS categorization.

After grouping the observed vessels by type and by length,²⁹ we calculated an average speed for each group, which we identified as the speed ships travel when not threatened by pirates. Ships in the HRA observed traveling above that speed, then, could be considered to be modifying their behavior specifically in response to the risk of piracy. However, in order to ensure that we excluded to the greatest degree possible any ships traveling slightly above the optimum for other purely commercial reasons, we also introduced “threshold” values. Only ships traveling above the empirical optimum by a certain minimum amount—the thresholds—were considered to be definitively increasing speed due to piracy.³⁰ Only ships meeting this criterion were included in our final cost of increased speeds, which was simply the value of the extra fuel these ships burned in order to maintain speeds above the optimum.³¹

Table C3: Speed & Fuel Calculations, 2014 Data

2014	Description	120–200m			200–300m			300m +		
		In-sample	Daily	Annualized	In-sample	Daily	Annualized	In-sample	Daily	Annualized
Cargo	Total Vessels	1319	82.4375	30089.6875	816	51	18615	405	25.3125	9239.0625
	Speeding Vessels	648	40.5	14782.5	520	32.5	11862.5	150	9.375	3421.875
	Fraction Speeding	0.49128			0.63725			0.37037		
	Average Speed of Speeder	13.1596			15.5416			16.8163		
	Average Excess Speed of Speeder	0.2196			2.3316			1.9363		
	Average Excess Fuel Usage Rate of Speeder (tons/hour)	0.4639			1.6824			2.2966		
Tanker	Total Vessels	461	28.8125	10516.5625	698	43.625	15923.125	118	7.375	2691.875
	Speeding Vessels	318	19.875	7254.375	367	22.9375	8372.1875	41	2.5625	935.3125
	Fraction Speeding	0.6898			0.52579			0.34748		
	Average Speed of Speeder	12.6934			13.7402			13.6414		
	Average Excess Speed of Speeder	-0.0766			0.6502			1.2314		
	Average Excess Fuel Usage Rate of Speeder (tons/hour)	0.1542			0.8132			1.4492		
2014 Averages										

²⁹ While AIS data includes some ship type information, most salient here identifying a ship as “cargo” or “tanker”—the categories are very broad. For example, a bulk carrier and an ultra-large vehicle carrier will both be classified merely as “cargo” despite their enormous physical differences. In an attempt to mitigate this problem, we used length as a proxy for type, further differentiating within the “cargo” population. Although this is an inherently imprecise approach, observable discrepancies in behavior between these length groups suggest that it is not entirely misguided. See Table C2 (Cargo Vessel Types by Length) for more.

³⁰ For example, a small (120–200m) cargo vessel has an expected optimum speed of 12.94 knots, and a 0.5-knot threshold. A 120m cargo ship traveling 13.0 knots would not be included in our set of ships modifying their behavior explicitly due to piracy, and as such the excess fuel it expended traveling above the optimum speed would not be tabulated as a “cost of piracy.” That hypothetical cargo ship would need to be traveling at or above 13.44 knots (12.94 + 0.5) in order for its fuel costs to be considered a “cost of piracy.”

³¹ That is, the difference between the amount of fuel expended to maintain the higher speed and the lesser amount of fuel which would be needed to travel at the optimum speed—only the cost of the excess fuel expenditure.

380cst bunker, \$/Tonne, Rotterdam	532.14
380cst bunker, \$/Tonne, Singapore	559.68
WIOR traffic equal-weight average	545.91

To provide a baseline for comparison with the 2013 cost of increased speeds, we have included the tables below. In these tables, we ran the calculations for 2013 increased speed costs in accordance with the vessel length granularity added in the 2014 report, in addition to using the observed global speed as an empirically derived optimum. Using these numbers, we estimate that the cost of rerouting decreased by 40% from 2013.

Table C4: Speed & Fuel Calculations, 2013 Data

2013	Description	120–200m			200–300m			300m +		
		In-sample	Daily	Annualized	In-sample	Daily	Annualized	In-sample	Daily	Annualized
Cargo	Total Vessels	2787	174.1875	63578.4375	1928	120.5	43982.5	356	22.25	8121.25
	Vessels steaming at increased speed	1787	111.6875	40765.9375	1094	68.375	24956.875	253	15.813	5771.5625
	Fraction Vessels steaming at increased speed	0.6412			0.5674			0.7107		
	Average Speed of Vessels steaming at increased speed	12.4713			14.1711			17.7437		
	Average Excess Speed of Vessels steaming at increased speed	-0.1087			1.5711			3.5237		
	Average Excess Fuel Usage Rate (tons/hour)	0.2565			1.1091			3.2263		
Tanker	Total Vessels	965	60.3125	22014.0625	938	58.625	21398.125	375	23.438	8554.6875
	Vessels steaming at increased speed	651	40.6875	14850.9375	617	38.563	14075.3125	240	15	5475
	Fraction Vessels steaming at increased speed	0.6746			0.6578			0.64		
	Average Speed of Vessels steaming at increased speed	11.89356			12.8083			13.1301		
	Average Excess Speed of Vessels steaming at increased speed	-0.3699			-0.5565			0.2101		
	Average Excess Fuel Usage Rate (tons/hour)	-0.0366			0.4886			0.7113		
	Bunker Fuel Prices,	2013 Average								
	WIOR traffic 380cst bunker, \$/Tonne equal-weight average	605								

Table C5: Excess Fuel Cost, 2013

	120-200m		200-300m		300+m	
	Cargo	Tanker	Cargo	Tanker	Cargo	Tanker
Average daily number of vessels	174.1875	60.3125	120.5	58.625	22.25	23.4375
Fraction of vessels speeding	0.6412	0.6746	0.5674	0.6578	0.7107	0.64
Estimated daily number of speeders	111.6875	40.6875	68.375	38.5625	15.8125	15
Average daily excess fuel use (tons)	687.54825	-35.7399	1820.0331	452.1993	1224.38085	256.068
Average daily excess fuel cost	\$415,967	-\$21,623	\$1,101,120	\$273,581	\$740,750	\$154,921
Estimated annual excess fuel cost	\$151,827,842	-\$7,892,263	\$401,908,809	\$99,856,910	\$270,373,901	\$56,546,216
Estimated total annual excess fuel costs, cargo and tankers					\$972,621,416	

APPENDIX D – REROUTING

Western Indian Ocean Region

Gulf of Aden–Southern India Route

The methodology for calculating the cost of rerouting for traffic between the Gulf of Aden and the southern tip of India remained consistent with previous reports. However, we extended our analysis to include the Persian Gulf–South India route, addressed later in this appendix. Our baseline traffic patterns were based on 2004–2005 commercial shipping data from “A Global Map of Human Impact on Marine Ecosystems” by Benjamin S. Halpern et al.³² The 2014 traffic patterns were calculated using AIS data samples purchased from exactEarth. To analyze the Gulf of Aden route, we defined a number of cartographic zones, each a square three degrees of arc in length, along the direct route between the southern tip of India and the Gulf of Aden, and along the indirect route hugging the Indian and Pakistani coastline of the Indian Ocean. We then calculated what percentage of ships in our sample enters each zone, and used those figures to assess relative traffic flows.

Table D1: Zone Definitions

	Vertices (latitude °N, longitude °E)				
	Zone	NW	NE	SE	SW
Direct Route	D1	15, 56	15, 59	12, 59	12, 56
	D2	13.5, 60.5	13.5, 63.5	10.5, 63.5	10.5, 60.5
	D3	12, 65	12, 68	9, 68	9, 65
	D4	11, 69	11, 72	8, 72	8, 69

32 Benjamin S. Halpern et al., “A Global Map of Human Impact on Marine Ecosystems,” *Science*, v. 319 (15 February 2008) 948–952, <http://www.sciencemag.org/content/319/5865/948.full> (login required). The data is freely available at “Data: Impacts,” National Center for Ecological Analysis and Synthesis, <https://www.nceas.ucsb.edu/globalmarine/impacts> (accessed May 7, 2015).

Indirect Route	I1	13, 72.5	13, 75.5	10, 75.5	10, 72.5
	I2	16.5, 71	16.5, 74	13.5, 74	13.5, 71
	I3	20, 70	20, 73	17, 73	17, 70
	I4	21.5, 66.5	21.5, 69.5	18.5, 69.5	18.5, 66.5
	I5	25, 63.5	25, 66.5	22, 66.5	22, 63.5
	I6	25, 60	25, 63	22, 63	22, 60

Table D2: Zone Traffic Percentages³³

		Percentage of total traffic within the sample by zone				
		Zone	Baseline (2004-05)	2012	2013	2014
Direct Route	D1	D1	1.67%	1.46%	3.18%	8.96%
	D2	D2	1.78%	1.19%	2.79%	7.58%
	D3	D3	3.42%	1.05%	2.6%	7.42%
	D4	D4	2.62%	1.08%	3.48%	7.5%
Indirect Route	I1	I1	1.93%	1.71%	0.61%	1.91%
	I2	I2	1.16%	1.41%	0.44%	1.44%
	I3	I3	0.62%	1.01%	0.38%	1.12%
	I4	I4	0.71%	0.59%	0.2%	0.69%
	I5	I5	0.47%	0.36%	0.14%	0.43%
	I6	I6	1.03%	0.42%	0.14%	0.52%

Persian Gulf–Southern India Route

To analyze rerouting trends we divided our AIS data into three groups based on vessel speed: 8–13 knots, 13–17 knots, and 17–25 knots. These were further subdivided into tankers and cargo vessels. We expected to see some difference in behavior between fully laden tankers and those in ballast. To test this we split the tanker data into vessels with northwest and southeast headings, under the assumption that vessels with a southeast heading would be full of petro-product, while those with a northwest heading would be in ballast. This data was then processed by a geospatial analysis program, which was used to generate heat maps of the vessel traffic.

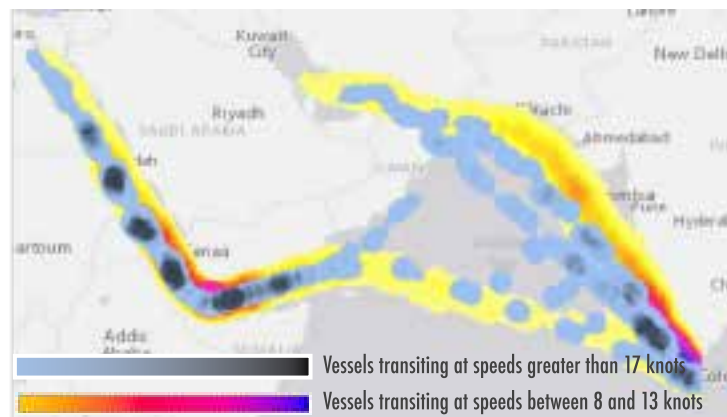


Figure D2: Traffic patterns for both NW- and SE-heading transits demonstrate that slower vessels hug the coastline, avoiding the more direct route.

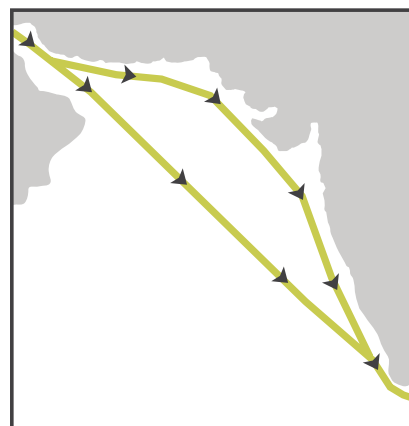


Figure D1: Persian Gulf to Southern India route

We used the average speeds for vessels traveling the direct 1405nm route and that of vessels along the more circuitous 1517nm route to calculate the indirect cost incurred by traveling the shorter distance at higher speeds, rather than steaming at the more fuel-efficient speed over the shorter distance.³⁴

33 The percentage represents the percentage of traffic that falls within each zone as a fraction of the total traffic in our data sample.

34 Jeppesen Integrated Maritime Suite V1.2.0.146.

Table D3: Fuel Calculations

	Cargo (120–200m length)			Tanker (120–200m length)		
	Direct Route	Circuitous Route	Direct Route, Optimal Speed	Direct Route	Circuitous Route	Direct Route, Optimal Speed
Vessel Speed (knots)	15	13	13	14.5	13	13
Hourly Fuel Consumption (tons)	1.497942	0.791518	0.791518	1.673144	1.125888	1.125888
Transit Time (Hours)	93.67	116.69	108.08	96.90	116.69	108.08
Total Fuel Consumption (tons)	140.31	92.36	85.55	162.13	131.38	121.69
Fuel Cost	\$76,598	\$50,421	\$46,701	\$88,507	\$71,722	\$66,430
Per-Vessel Cost	\$3,700			\$5,300		

We calculated a conservative estimate of these rerouting costs using these sums. AIS data was used to calculate the number of transits conducted by vessels within the 8–13 knot vessel speed group. The mean vessel length for these vessels is within the 120–200m group, and this speed group was most evidently engaged in rerouting based on our analysis.

The new analysis of the Persian Gulf to South India route used vessel speeds based upon observed mean speed over ground, as reported in AIS data captured on March 25, 2015,³⁵ for vessels whose transit fell along one of the routes we were examining. From there we utilized maritime navigation software to measure the length of both of these routes.³⁶ The same equations used to calculate the costs associated with increased speeds were used to calculate the fuel costs incurred by small cargo and tanker vessels steaming at the designated speeds along the designated routes. We estimated the cost vessels incur utilizing these behaviors as the difference between the cost of their current practices and the cost of traveling at optimal speeds along the shortest route.

Table D4: Persian Gulf–Southern India Rerouting Calculations

Persian Gulf to Southern India Rerouting Calculations			
Total Number of WIOR Transits	72,600	Selected AIS hits in Area of Interest (AoI)	209,930
Number of AIS hits in WIOR	1,123,311	% of AIS hits in the AoI	18.69%
Number of transits in the AoI		13,568	
% of slow vessels in the AoI	40.9%	Number of slow tanker transits in AoI	2,672
Number of slow vessel transits in the AoI	5,550	Number of slow cargo transits in AoI	2,060
% of transits along direct route in AoI		0.30%	
Number of slow tankers rerouting	1,870	Cost for Slow Tankers	\$9,898,521
Number of slow cargo rerouting	1,442	Cost for Slow Cargo	\$5,364,092
Total Estimated Cost of Rerouting		\$15,263,000	

35 OBP acquired new software tools for observing ship behavior in 2015. Although the central analysis throughout the report relies on AIS data from 2014, in select places observations made in 2015 were used to inform vessel behavior and facilitate analysis of traffic patterns.

36 Jeppesen Integrated Maritime Suite V. 1.2.0.146.

Area of Interest



Direct Route

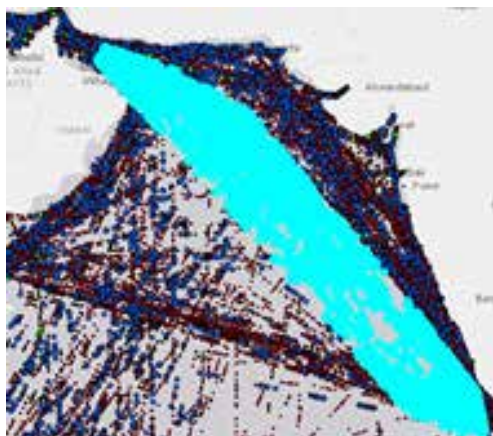


Table D5: Per-Transit Hazard Pay ^{37,38}

Average daily crew cost 2010 ³⁷	Average daily crew cost, accounting for inflation, 2014 ³⁸
\$2,590	\$2,812
Average daily crew cost 2014	Average daily hazard pay per vessel
\$2,812	\$2,812
Average daily hazard pay	\$2,812
Average transit time through IBF HRA	2.6
Hazard Pay per IBF HRA Transit	\$7,311
Grand Total	\$717,494,738

Table D6: Total Hazard Pay³⁹

Hazard Pay per IBF HRA Transit ³⁹	\$7,311
Annual IBF HRA Transits	20,000
Percentage of Vessels Disbursing Hazard Pay	70%
Percentage of Vessels Transiting the IBF HRA through the IRTC	45–55%
Weighted Estimate to Include Non-IBF ITF Agreements	30%
Hazard Pay in 2014 Due to E. Africa HRA	\$71,650,000

37 *Comparison of U.S. and Foreign-Flag Operating Costs*, U.S. Department of Transportation Maritime Administration (2011), 5–6, 13–14, http://www.marad.dot.gov/documents/Comparison_of_US_and_Foreign_Flag_Operating_Costs.pdf.

38 "Inflation Calculator," InflationData.com, http://inflationdata.com/Inflation/Inflation_Calculators/Inflation_Calculator.asp (accessed May 7, 2015).

39 This amount is less the IRTC. The HRA is defined as the ITF/IBF High Risk Area which follows a line of 400nm off the Somali coast along East Africa.

Table D7: Captivity Pay

	Number of Hostages	Days in Captivity in 2014	Base Wage per Person	Base Wages Accrued in Captivity	Additional Captivity Pay	Total
<i>Albedo</i>	11	157	\$124	\$214,148	\$74,952	\$289,100
<i>Asphalt Venture</i>	7	303	\$124	\$263,004	\$92,051	\$355,055
<i>Prantalay</i>	4	365	\$124	\$181,040	\$63,364	\$244,404
<i>Naham 3</i>	26	365	\$124	\$1,176,760	\$411,866	\$1,588,626
Total Captivity Pay Owed				\$1,834,952	\$642,233	\$2,477,185

Gulf of Guinea

Table D8: Daily Hazard Pay

Average daily crew cost, 2010 ⁴⁰	\$2,590
Average daily crew cost, 2014 (inflation-adjusted) ⁴¹	\$2,812
Average daily hazard pay per vessel, 2014	\$2,812

Table D9: Per-Transit Hazard Pay

Average Daily Hazard Pay	\$2,812
Average Transit Time through HRA	5 days ⁴²
Total Pay per Vessel per Transit through the HRA	\$14,060

Table D10: Total Hazard Pay

Hazard Pay per IBF HRA Transit	\$14,060
Annual IBF HRA Transits	14,500
Percentage of Vessels Disbursing Hazard Pay	40%
Total Hazard Pay, 2014	\$81,548,000

Table D11: Captivity Pay

Vessel Name	Number of Hostages	Days in captivity in 2014	Average Daily Base Wage per person	Total Base Wages Accrued in Captivity
<i>MT Fair Artemis</i>	24	7	\$124	\$20,832
<i>MT Hai Soon 6</i>	21	8	\$124	\$20,832
<i>MT Kerala</i>	27	8	\$124	\$26,784
<i>OSV Prince Joseph 1</i>	3	4	\$124	\$1,488
<i>MDPL Asha Deep</i>	3	4	\$124	\$1,488
<i>Unknown MT</i>	2	4	\$124	\$992
<i>Unknown OSV</i>	5	4	\$124	\$2,480

40 Comparison of U.S. and Foreign-Flag Operating Costs, U.S. Department of Transportation Maritime Administration (2011), 5–6, 13–14,

41 Inflation calculated using CPI Inflation Calculator from the U.S. Bureau of Labor Statistics. "Inflation Calculator," InflationData.com (Feb. 28, 2014), http://inflationdata.com/Inflation/Inflation_Calculators/Inflation_Calculator.asp.

42 Mary Harper, "Danger Zone: Chasing West Africa's Pirates," *BBC News*, 13 November 2014, <http://www.bbc.com/news/world-africa-30024009>.

<i>OSV Prime Lady</i>	13	1	\$124	\$1,612
<i>OSV Prime Lady</i>	2	4	\$124	\$992
<i>San Miguel</i>	3	2	\$124	\$744
<i>Unknown Tug</i>	2	4	\$124	\$992
<i>OSV Cee Jay</i>	2	4	\$124	\$992
<i>OSV Mariner Sea</i>	2	4	\$124	\$992
<i>MT Basat</i>	2	4	\$124	\$992
<i>MT Ungieshi</i>	2	1	\$124	\$248
<i>SP Boston</i>	16	1	\$124	\$1,984
Total				\$84,400

*For captives held for an unknown amount of time, we've applied the average of those incidents we do know the amount of time of (4).

APPENDIX F – NAVAL COSTS, WEST AFRICA

Naval Acquisitions

Below are naval acquisitions made by Gulf of Guinea states in 2014. Acquisitions are neither generally made in one lump sum nor are vessels delivered the same year that they are ordered. Therefore, it is impossible to determine how much of a payment was made for each purchase in 2014.

Table F1: Delivered Vessels

Buyer Country	Seller Country	Vessel Type	Delivery Year
Benin	United States	1 Metal Shark boat	2014
Cameroon	China	2 32-meter patrol boats	2014
Cote d'Ivoire	France	2 RPB33 patrol boats	2014
		30 inflatable speed boats	2014-2015
Nigeria	Netherlands	5 K-47 boats	2014
	Nigeria	1 Seaward Defence Boat	2014
	Ireland	1 P22 patrol vessel	2014
	South Africa	2 17-meter Sentinel Fast Patrol Vessels	2014
	China	1 P-18N OPV	2014
Senegal	France	1 58-meter 190 Mk II patrol boat	2014
		1 45-meter patrol boat	2014
Togo	France	1 RPB33 patrol boat	2014
	United States	1 Defender	2014
Pending Vessels			
Angola	Brazil	7 Macae-class patrol boats	Unknown
Benin	France	2 LH-10 Ellipse	after 2015
Cote d'Ivoire	France	1 RPB33 patrol boat	2015
		4 12-meter RPB 12 boats	2015
		6 9.3-meter speedboats	2015
Gabon	France	1 P400 patrol boat	2015

		1 OPV50 patrol boat	2016
Nigeria	China	1 P-18N OPV	2015
Togo	France	2 RPB33 patrol boats	2015
Donated Vessels			
Nigeria	United States	1 Hamilton class cutter	2014
		1 Survey Ship	2014

Naval Operating Costs

Our analysis of operating costs for navies in West Africa draws from two reports. The first is from a UN report on Benin and Nigeria's joint operation called "Operation Prosperity." It explains, "Benin's contribution to the operation is estimated at CFA 234,347,490 per month (about \$466,000) which is equivalent to 5% of the total cost of the operation."⁴³ The UN report also noted that Nigeria's contribution was two maritime vessels, two interceptor boats, and two helicopters.

Table F2: Operation Prosperity Contributions

Country	Amount	Share
Benin	\$466,000.00	5%
Nigeria	\$8,854,000.00	95%
Total	\$9,320,000.00	100%

The second source comes from an article where Nigeria's Chief of Naval Staff, Vice Admiral Dele Ezeoba, offers a rare glimpse at operating costs. He noted that "putting eight ships at sea for the exercise for seven days, they were looking at about N600 million, which includes personnel costs, fuel, spare parts and other auxiliary requirements."⁴⁴

Table F3: Daily Operating Cost Calculations

7 days, 8 ships	\$3,634,684.80
1 day, 8 ships	\$519,240.69
1 day, 1 ship	\$64,905.09
30 days, 8 ships	\$15,577,220.57
30 days, 4 ships	\$7,788,610.29
Hazard Pay in 2014 Due to E. Africa HRA	\$71,650,000

These two sources seem to confirm each other, as they are within the same range for four ships in one month. We can extrapolate from this data that it costs \$1,065,389.71 to operate two helicopters. Using the one day, one ship cost of \$64,905.09, OBP built out the cost of deployed naval vessels in West Africa. Our estimation is that Nigeria has between four to seven vessels on patrol a day while Ghana, Cameroon, and Angola all operate one vessel per day on average. Therefore, there are seven to ten vessels operating within the Gulf of Guinea at an annual cost of between \$165,832,504.95 and \$236,903,578.50.

43 Ban Ki Moon, *Report of the United Nations Assessment Mission on Piracy in the Gulf of Guinea*, U.N. Security Council, S/2012/45, 19 January 2012, <http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/AUUN%20S%202012%2045.pdf>.

44 "Navy Can Secure Nigerian Waters – Ezeoba," *Online Nigeria*, 17 November 2012, <http://news.onlinenigeria.com/nigeria-news/5734-navy-can-secure-nigerian-waters-%E2%80%93-ezeoba.html>.

Table F4: Total Operating Cost Calculations

# of Ships	Per Day	Per Month	Per Year
1	\$64,905.09	\$1,947,152.70	\$23,690,357.85
7	\$454,335.63	\$13,630,068.90	\$165,832,504.95
10	\$649,050.90	\$19,471,527.00	\$236,903,578.50

Naval Capacity-Building Deployments

The tables below detail the cost calculations used for foreign naval assets operating in the Gulf of Guinea (GoG). First, for naval vessels and helicopters—there were no patrol aircraft or unmanned aerial vehicles involved in these operations—the cost of operating a single unit for one year is estimated. Each such “unit cost” is calculated for an archetypal vessel class or model, which then serves as the cost estimate for all assets of that type. For example, all frigates are treated as Oliver Hazard Perry-class frigates, all helicopters as SA 341 Gazelles, and so on. This approximation is necessary given the variety of assets deployed by myriad individual states. Then, for each archetype, the unit cost is multiplied by the average number of assets of that type conducting capacity-building operations in the GoG across 2014. Finally, the costs of these different asset types are summed, giving a grand total cost of operating military assets.

Table F5: Ships⁴⁵

	Frigate (Oliver Hazard Perry class)	Destroyer (Arleigh Burke class)	Amphibious (Galicia class)	Patrol (Sukanya class)	Support (Fusu class)
Daily Fuel Use (gal)	21,640.55	4,909.91	15,372.40	4,797.21	16,911.80
Annual Fuel Use (gal)	6,492,165.00	1,472,972.72	4,611,720.00	1,439,164.05	5,073,540.09
Annual Fuel Cost (\$)	24,832,531.13	5,634,120.67	17,639,829.00	5,504,802.50	19,406,290.85
Personnel Aboard (#)	230	280	350	121	125
Adjustment Factor	1.0000	1.2174	1.5217	0.5261	0.5435
Monthly Op. Cost (\$)	1,734,071.39	2,111,043.43	2,638,804.29	912,272.34	942,430.10
Annual Op. Cost (\$)	20,808,856.68	25,332,521.18	31,665,651.47	10,947,268.08	11,309,161.24
Annual Unit Cost (\$)	45,641,387.81	30,966,641.84	49,305,480.47	16,452,070.58	30,715,452.09
Units	0.2795	0.5397	0.4932	0.6719	0.4219
Unit Cost (\$)	45,641,387.81	30,966,641.84	49,305,480.47	16,452,070.58	30,715,452.09
Total Cost (\$)	12,754,579.61	16,713,502.58	24,315,031.46	11,054,439.21	12,959,396.22
SUBTOTAL (\$)					77,796,949.08

Table F6: Aircraft

	Patrol Aircraft (P-3C Orion)	Patrol Aircraft (Fairchild SW3 Merlin)	Patrol Aircraft (Casa CN-235 Vigma)	Helicopter (SA 341 Gazelle)
Daily Fuel Use (gal)	6334.8	1900.44	3357.44	189.54
Annual Fuel Use (gal)	1900440	570132	1007232	56862
Annual Fuel Cost (\$)	6917601.6	2075280.48	3666324.48	206977.68
Personnel Aboard (#)	11	2	2	2
Adjustment Factor	0.047826087	0.008695652	0.008695652	0.008695652
Monthly Op. Cost (\$)	82,933.84909	15,078.88165	15,078.88165	15,078.88165
Annual Op. Cost (\$)	995206.189	180,946.5798	180,946.5798	180,946.5798

⁴⁵ The tables in this appendix are dependent upon a number of statistics and other figures which were also utilized in calculating the cost of military operations in East Africa. For the analysis of these data, please see Appendix B related to the East Africa portion of this report.

Annual Unit Cost (\$)	7,912,807.789	2,256,227.06	3,847,271.06	387,924.2598
Units	0	0	0	2
Annual Unit Cost (\$)	7,912,807.79	2,256,227.06	3,847,271.06	387,924.26
Annual Total Cost (\$)	0.00	0.00	0.00	775,848.52
SUBTOTAL (\$)				775,848.52

Table F7: Total

Category	Cost (\$)
Ships	77,796,949
Aircraft	775,849
UAVs	0
GRAND TOTAL	78,572,798

APPENDIX G – HOSTAGE-TAKING INCIDENTS, GULF OF GUINEA

Table G1: Incidents

Vessel Name (Type)	Attack Date	Hostages (Nationality)	Outcome ⁴⁶	Source
San Miguel (General Cargo)	03-Jan-14	3 - Captain, Mechanic, Welder (all Indian)	Rescued	http://gcaptain.com/nigerian-authorities-free-indian-hostages-in-rare-victory-against-pirates/ ; http://equatorialguineanonline.com/martinez-hermanos-communicates-release-three-held-employees
Kerala (Tanker)	18-Jan-14	27 - Entire Crew (various)	Released	http://www.maritime-executive.com/article/Liberia-Concludes-Kerala-Hijacking-Investigation-2014-05-29
Unknown (Tug)	26-Jan-14	2 - Captain, Engineer (both Nigerian)	Ransomed	MARLO PATS Weekly 29-Jan-14; http://saharareporters.com/2014/01/26/pirates-attack-oil-tugboat-bayelsa-2-abducted
Cee Jay (Offshore Supply Vessel)	29-Jan-14	2 - Captain, Chief Engineer (both unknown)	Ransomed	MARLO PATS Weekly 14-Feb-14
Mariner Sea (Offshore Supply Vessel)	06-Feb-14	2 - Captain, Chief Engineer (both unknown)	Ransomed	MARLO PATS Weekly 14-Feb-14
Prince Joseph 1 (Offshore Supply Vessel)	04-Mar-14	3 - Captain (unknown), Chief Engineer (Panamanian), Chief Officer (Nigerian)	Ransomed	OceanusLive Newsletter Vol. 3, No. 10
Asha Deep (Offshore Supply Vessel)	05-Mar-14	3 - Captain, Chief Officer, Chief Engineer (all Indian)	Rescued	https://maritimesecuritynews.wordpress.com/2014/03/08/nigeria-navy-rescues-3-kidnapped-indians/#more-369
Prime Lady (Offshore Supply Vessel)	06-Mar-14	3 - Captain, Crewman, Crewman (all unknown)	Ransomed	OceanusLive Newsletter Vol. 3, No. 11

⁴⁶ “Rescued,” as a term, indicates hostages were liberated via military intervention, without payment of ransom. “Released” means the hostages were let go after the pirates finished robbing the ship or stealing its cargo. “Ransomed” means hostages were returned after a payment was made to the pirates.

Unknown (Tanker)	12-Apr-14	2 - Captain, Chief Engineer (both unknown)	Ransomed	OceanusLive Newsletter Vol. 3, No. 16
Ungieshi (Tanker)	13-May-14	2 - Crewmen (both unknown)	Released	http://www.suritec.co.za/Suritec_Piracy_Report_May_2014.pdf
Fair Artemis (Tanker)	04-Jun-14	24 - Entire Crew (various)	Released	http://www.spyghana.com/ghana-navy-rescues-3-missing-vessels/
Marine 711 (Fishing Vessel)	05-Jun-14	41 - Entire Crew (various)	Rescued	OceanusLive Newsletter Vol. 3, No. 24
Hai Soon 6 (Tanker)	25-Jul-14	21 - Entire Crew (various)	Released	http://gcaptain.com/pirates-release-tanker-hai-soon-6-hijacked-off-ghana/
SP Boston (Tanker)	27-Aug-14	16 - Entire Crew (various)	Released	OceanusLive Newsletter Vol. 3, No. 36
Unknown (Offshore Supply Vessel)	18-Sep-14	5 - Captain, Trainee Captain, Chief Engineer, Electrician, Crewman (all unknown)	Ransomed	OceanusLive Newsletter Vol. 3, No. 39
Basat (Tanker)	05-Nov-14	2 - Crewmen (both Turkish)	Ransomed	http://dnc.nga.mil/MSISiteContent/StaticFiles/MISC/wwtts/wwtts_20141113100000.txt

APPENDIX H – TRANSITS

A transit, generally speaking, is a passage through a particular, demarcated area, or an entry into the area, and an exit from it. The concept of a “transit” is used as a very specific term throughout this report, because it is not just important for our *ex post facto* analysis, but this term is additionally utilized by maritime stakeholders in the conduct of their business. For example, hull war risk breach premiums are paid on a per-transit basis, just as a PCASP team may be contracted for a single transit. Some labor costs are also tied to transits. Accordingly, determining numbers of transits through various regions is an integral part of our analysis. Because of differences in both shipping patterns and available information, we were required to employ different approaches for calculating transit figures in both East and West Africa.

Automated Identification System (AIS) Data

Statistical analysis of AIS data was the primary method used to calculate transits for the WIOR, and one of three methods used in West Africa. AIS data uses a network of transceivers and geopositioning devices to track and identify vessels, particularly in the interest of avoiding collisions or other maritime accidents. AIS capability is mandatory for vessels over a certain tonnage, but its use is not, and a vessel master can turn the system on or off at will. Each AIS report, or “ping,” typically contains a vessel’s identification information—name, IMO number, vessel type, etc.—along with its position, speed, course, destination, physical dimensions, and hazardous cargo information.

OBP purchased four datasets from exactEarth, each spanning four days in a different quarter of 2014.⁴⁷ These datasets comprise all AIS pings transmitted during those timespans from within our areas of interest off West Africa and in the WIOR.⁴⁸ Additionally, we received a global sample containing all pings from all relevant vessels for one full day in 2014.⁴⁹ These data were supplemented by exactEarth’s ShipView vessel tracking software, which enabled us to observe ship behavior, as reported via AIS, in real time.

47 The four data sets from 2014 covered the following (inclusive) ranges: January 28–31, April 29–May 2, July 14–17, and October 14–17.

48 For a detailed description of these areas, please see Appendix A.

49 Here “relevant vessels” means all ships 120 meters or more in length, as usual, which additionally are traveling no slower than 8 knots, in order to exclude stationary, berthed, and in-port vessels. The sample came from June 15, but that date has no particular significance.

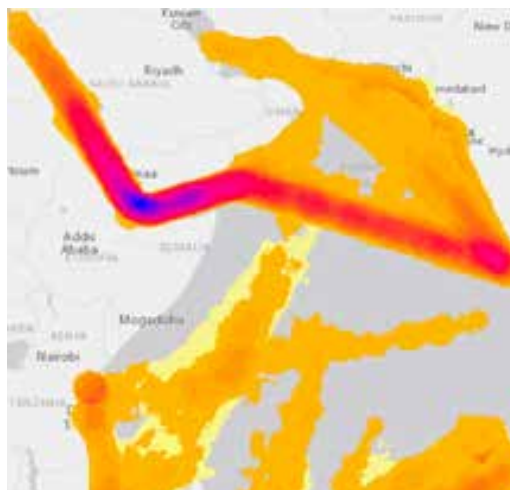
Cleaning the Data

AIS data are inherently “dirty.” The absence of reporting requirements or standards, along with manual entry of information, admits both accidental errors and intentional falsifications. Despite this, AIS remains one of the most reliable avenues for developing a picture of maritime traffic, and is used by industry and governments alike; nonetheless, inconsistencies and inaccuracies within the data do pose hurdles to analysis.

As such, our preliminary task was to clean the data by removing spurious, erroneous, or irrelevant reports. First, we eliminated all pings listing a common “dummy” value for the ship’s Maritime Mobile Service Identity (MMSI): 123456789, 111111111, 222222222, and so on.⁵⁰ Second, any incomplete AIS reports lacking an entry for vessel name, IMO number, or length were excluded. We also removed all pings claiming a vessel length that was either ineligible or implausible, such as below 120 meters or above 400 meters. Last, in keeping with our focus on commercial shipping, we removed all reports listing a vessel type other than “cargo” or “tanker.”⁵¹ The remaining pings constituted our dataset for analysis.

Transits: East Africa

Commercial passages⁵² through the WIOR are for the most part true “transits”: journeys that both originate and terminate elsewhere. Only a small fraction of vessels make port calls or other stops within the area of interest; roughly



speaking, the Gulf of Aden and the western Indian Ocean north of Madagascar.⁵³ As the heat map below shows, most traffic in the region flows to or from the Suez Canal, with by far the greatest density of ships occurring in the Internationally Recommended Transit Corridor, a shipping highway of sorts running the length of the Gulf of Aden, which was created in response to the rise of Somali piracy.⁵⁴ Some traffic rounds the Cape of Good Hope while other ships skirt the southern tip of India, but the essential feature of nearly all traffic in the region is that it is merely “passing through” the area.⁵⁵ This holds true for the tanker-dominated traffic into and out of the Persian Gulf, which contains many active, major ports but lies beyond the BMP4 HRA.

This has important implications for our analysis. In the absence of calls on ports, stays in berthing zones, or other behaviors that would leave a paper trail, our East Africa assessment relies heavily on AIS data. However, we utilized built-to-purpose algorithms, applied via R, for counting both individual vessels and overall numbers of transits, and later consulted with industry experts to confirm the results. For simplicity we have rounded the WIOR transit estimate to 72,600.

50 For more information about MMSIs, please see “Navigation Center Points of Interest,” U.S. Coast Guard Navigation Center, <http://www.navcen.uscg.gov/?pageName=mtMmsi> (accessed May 11, 2015).

51 The cargo and tanker categories correspond to values 70–79 and 80–89, respectively, for the “Ship Type” field in an AIS report. Other, excluded values cover everything from tugboats, yachts, wingships, naval vessels, etc. For more information, please see “Table 11. Codes for Ship Type” at: Eric S. Raymond, “AIVDM/AIVDO Protocol Decoding, Version 1.50,” April 2015, <http://catb.org/gpsd/AIVDM.html>.

52 As is generally the case throughout this report, our focus on commercial, international shipping means that our analysis excludes all vessels less than 120 meters in length.

53 See Appendix A for a detailed discussion of the various regions considered within this report.

54 “Update to Internationally Recommended Transit Corridor (IRTC),” MARLO, 3 February 2009, <http://www.cusnc.navy.mil/marlo/Guidance/Corridor.htm>.

55 For example, 2014 saw 16,000–17,000 passages through the Suez Canal, yet the Port of Djibouti, one of the largest in the area, recorded only 1,694 calls, of which 17% were naval vessels. Mombasa, another major regional port, had only 1,768 calls in 2013, according to the Kenya National Bureau of Statistics Statistical Abstract. “Monthly Number & Net Ton by Ship Type, Direction & Ship Status,” Suez Canal Traffic Statistics, <http://www.suezcanal.gov.eg/TRstat.aspx?reportId=1> (accessed May 11, 2015); “Vessel Calls Per Category (2010-2014),” Port de Djibouti, <http://www.portdedjibouti.com/PDF/2014%20VESSEL%20CALL%20PER%20CATEGORY.pdf> (accessed May 11, 2015); Kenya National Bureau of Statistics, *Statistical Abstract 2014* (Nairobi: Kenya National Bureau of Statistics, 2014), 174, http://www.knbs.or.ke/index.php?option=com_phocadownload&view=category&download=609:statistical-abstract-2014&id=106:statistical-abstract&Itemid=1177.

Table H1: AIS-Based Transit Estimates

	72,600
WIOR Transits	81,300
	89,800
IBF HRA Transits	17,900
	20,000
	22,000

Transits: West Africa

Calculating West African transits is a complex endeavor given the diversity of traffic and the difficulty of defining what exactly constitutes a “transit” in the Gulf of Guinea. Traffic in the area frequently both originates and terminates within the region. Vessels also commonly make multiple port calls within the gulf, traveling relatively short distances in between. Ships calling on port may also be required to spend extended periods of time drifting or at anchor while waiting for a berth.

Figure H2 illustrates several different types of transits in the GoG, which can be roughly grouped into a few basic categories: vessels transiting between the GoG and Europe or southern Africa; those traveling to and from South America; ships bypassing the region almost entirely as they transit between Europe and the Cape of Good Hope; and, finally, Gulf of Guinea intra-regional traffic, which makes up a significant portion of total traffic volume.

The variety of behavior, long wait times, and multiple port visits make the algorithms used to calculate WIOR transit numbers less viable in West Africa. As a result, we employed several different methods of assessing transit numbers, then cross-checked results against each other. Specifically, we utilize AIS pings, port calls, and estimated secure-area visits.

AIS-Based Estimation

We calculated transit numbers for several precisely-defined zones designated to represent our specific West African areas of interest. These areas are depicted in Figure H3.

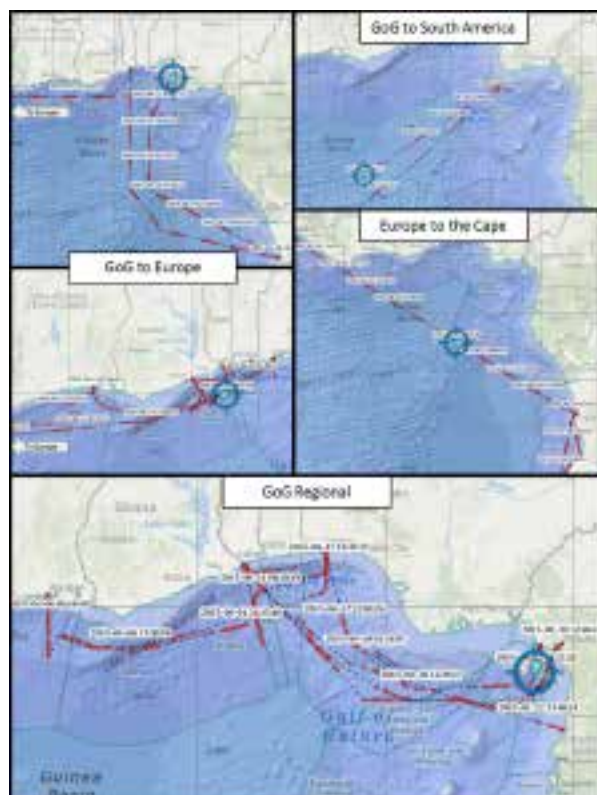


Figure H2: AIS-Based Transit Estimates

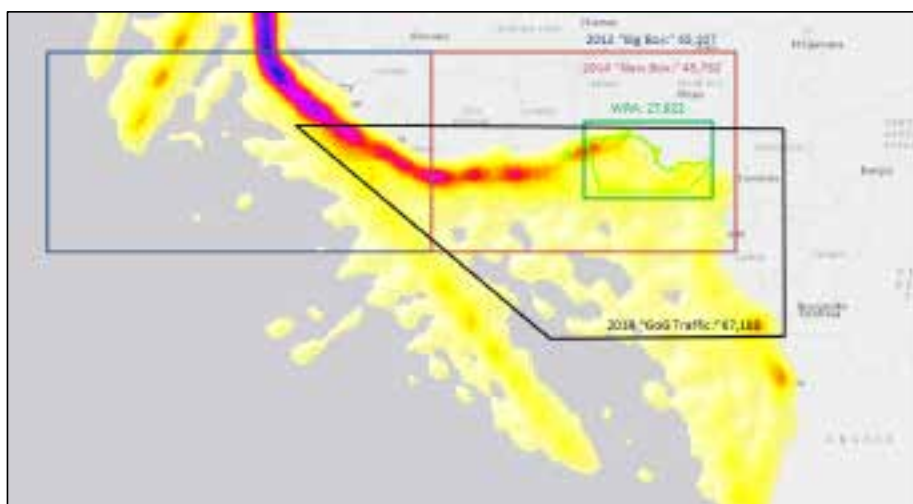


Figure H3: Areas of Interest. The red “New Box” demarcates the Gulf of Guinea, as defined for this report

The 2013 report utilized, as its primary area of interest, the zone labeled in Figure H3 as the blue “Big Box.” We replicated the “Big Box” transit calculations for this year, but ultimately elected to shrink our area of interest to the red “New Box” zone. We determined that the 2013 “Big Box” captured too much traffic going to and from areas unaffected by piracy and far from the piracy risk areas. We also tested the zone bounded by the black, 2014 “GoG Traffic” box, but rejected it as also capturing an excess of unrelated traffic. The other area for which we calculated transit numbers is the Lloyd’s Joint War Committee WRA, identified by the smaller green rectangle in Figure H3.

ExactEarth reporting standards dictate that a three-day period without AIS reporting indicates that a vessel has made a port call or otherwise concluded its trip. OBP similarly considered a transit to be terminated after 72 hours without an AIS report. Herein lies a methodological limitation for the Gulf of Guinea, as vessels calling on ports in the region frequently experience berth waiting times in excess of four days. This wait period can result in unintentional double-counting, as a single transit may register twice: once when traveling from origin to berth waiting area, and again several days later going from waiting area into port. This in turn can inflate transit numbers, particularly for AIS pings sent from within the WRA and near ports. We also note that AIS data has limited accuracy due to the propensity of vessels, in accordance with the “Guidelines for Owners, Operators, and Masters for Protection against Piracy in the Gulf of Guinea Region,” to turn off their AIS transmitters when in piracy-prone waters. These limitations underline the importance of employing multiple means of calculation.

Our AIS-based estimates of transits are 27,900 for the WRA and 45,800 for the refined GoG “New Box”, for which we allow a 10% margin of error above and below this value. The IBF HRA is simply too small to practically attempt a transit calculation on the basis of AIS reports. In the interest of a conservative estimate, we use the lower bound as our final estimate.

Table H2: AIS Transit Estimates

Gulf of Guinea Transits	41,000
	45,800
	50,500
WRA Transits	25,000
	27,900
	30,800
IBF HRA Transits	N/A
	N/A
	N/A

Port-Visit-Based Estimation

The second method we used to calculate transits in the Gulf of Guinea was analysis of port visits. OBP bought 2014 port-call data from Genscape’s Vesseltracker service for 16 major West African ports. The data included individual vessel counts, as well as total port visits, broken down by vessel type and length. Given the nature of vessel traffic in the Gulf of Guinea, a single call on port should be a serviceable proxy for a single transit. The data were cleaned to exclude all vessels not categorized as cargo, tanker, unknown, or other. We then summed the number of visits to the ports enclosed in each zone to estimate the number of transits in the Gulf of Guinea, the JWC WRA, and the IBF HRA. Port visit numbers are mapped in Figure H4.

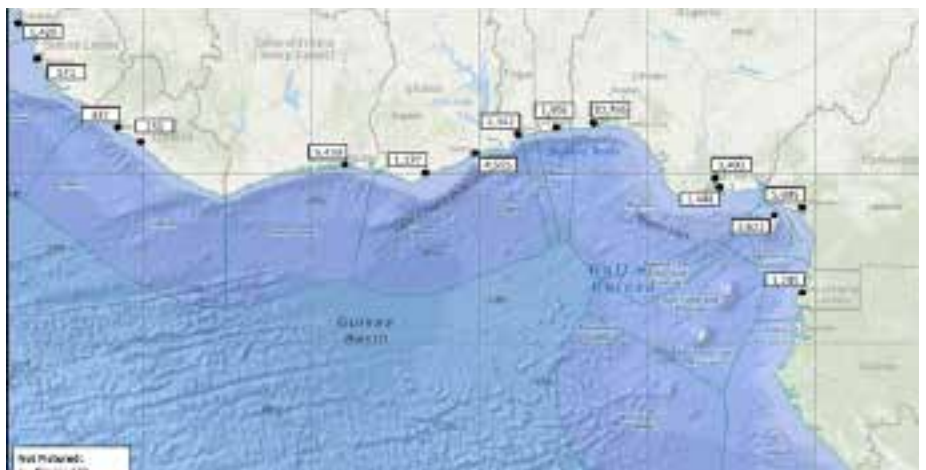


Figure H4 – Ports and Visits

Table H3: Port Visit Data

Port	Vessel Type	Vessel Length (meters)	Vessel Count	Total Port Visits	100+ Including Unknown	100+ Excluding Unknown	WRA 100+ Including Unknown	IBF HRA 100+ Including Unknown	WRA 100+ Excluding Unknown	IBF HRA 100+ Excluding Unknown
Abidjan	Cargo ship	0to99	530	7128	5450	5335				
	Cargo ship	100to200	2827							
	Cargo ship	201to300	1723							
	Other type of ship	0to99	664							
	Other type of ship	100to200	46							
	Other type of ship	201to300	1							
	Tanker	0to99	21							
	Tanker	100to200	781							
	Tanker	201to300	4							
	Unknown type of ship	0to99	463							
	Unknown type of ship	100to200	57							
Unknown type of ship	201to300	11								
Bata	Cargo ship	0to99	1777	6718	1245	214				
	Cargo ship	100to200	129							
	Cargo ship	201to300	4							
	Tanker	0to99	381							
	Tanker	100to200	80							
	Tanker	301+	1							
	Unknown type of ship	0to99	3315							
	Unknown type of ship	100to200	201							
	Unknown type of ship	???	830							
	Cargo ship	0to99	13							
Bissau	Cargo ship	100to200	144	187	173	173				
	Cargo ship	201to300	12							
	Other type of ship	0to99	1							
	Tanker	100to200	11							
	Tanker	301+	6							
	Cargo ship	0to99	19							
	Cargo ship	100to200	173							
Buchanan	Cargo ship	201to300	78	270	251	251				
	Cargo ship	100to200	173							
	Cargo ship	201to300	78							

Conakry	Cargo ship	0to99	148	1635	1420	1407				
	Cargo ship	100to200	1085							
	Cargo ship	201to300	207							
	Tanker	0to99	1							
	Tanker	100to200	115							
	Unknown type of ship	0to99	66							
	Unknown type of ship	100to200	9							
	Unknown type of ship	???	4							
	Cargo ship	0to99	73							
	Cargo ship	100to200	1178							
Cotonou	Cargo ship	201to300	616	2360	1991	1949				1949
	Other type of ship	0to99	237							
	Other type of ship	100to200	7							
	Other type of ship	201to300	12							
	Tanker	0to99	26							
	Tanker	100to200	147							
	Tanker	301+	8							
	Unknown type of ship	0to99	33							
	Unknown type of ship	100to200	22							
	Unknown type of ship	201to300	1							
Douala	Cargo ship	0to99	803	12750	5095	2775				
	Cargo ship	100to200	1675							
	Cargo ship	201to300	511							
	Cargo ship	301+	19							
	Other type of ship	0to99	1876							
	Other type of ship	100to200	151							
	Other type of ship	201to300	10							
	Tanker	0to99	19							
	Tanker	100to200	469							
	Tanker	301+	101							
Unknown type of ship	0to99	4957								
Unknown type of ship	100to200	322								
Unknown type of ship	201to300	28								
Unknown type of ship	???	1809								

Freetown	Cargo ship	0to99	14	744	571	559	10766	10766	10092	10766	10092	10092
	Cargo ship	100to200	490									
	Cargo ship	201to300	64									
	Other type of ship	0to99	61									
	Tanker	100to200	5									
	Unknown type of ship	0to99	98									
	Unknown type of ship	100to200	12									
	Cargo ship	0to99	248									
	Cargo ship	100to200	4336									
	Cargo ship	201to300	3118									
Lagos	Cargo ship	301+	2	13146	10766	10092	10766	10766	10092	10766	10092	10092
	Tanker	0to99	145									
	Tanker	100to200	2580									
	Tanker	201to300	56									
	Unknown type of ship	0to99	1987									
	Unknown type of ship	100to200	273									
	Unknown type of ship	201to300	40									
	Unknown type of ship	???	361									
	Cargo ship	0to99	209									
	Cargo ship	100to200	1191									
Lomé	Cargo ship	201to300	893	2588	2342	2312	2342	2342	2312	2342	2312	2312
	Tanker	0to99	2									
	Tanker	100to200	227									
	Tanker	201to300	1									
	Unknown type of ship	0to99	35									
	Unknown type of ship	100to200	10									
	Unknown type of ship	201to300	18									
	Unknown type of ship	???	2									

Malabo	Cargo ship	0to99	910	6280	2622	690			
	Cargo ship	100to200	606						
	Cargo ship	201to300	1						
	Tanker	0to99	70						
	Tanker	100to200	73						
	Tanker	301+	10						
	Unknown type of ship	0to99	2678						
	Unknown type of ship	100to200	804						
	Unknown type of ship	??	1128						
Monrovia	Cargo ship	0to99	53	606	427	411			
	Cargo ship	100to200	324						
	Cargo ship	201to300	9						
	Other type of ship	0to99	118						
	Tanker	0to99	1						
	Tanker	100to200	78						
	Unknown type of ship	0to99	7						
	Unknown type of ship	100to200	16						
	Cargo ship	0to99	2127						
	Cargo ship	100to200	454						
Onne	Cargo ship	201to300	1057	12681	2448	1712			
	Cargo ship	??	5						
	Other type of ship	0to99	4263						
	Other type of ship	100to200	114						
	Other type of ship	201to300	5						
	Other type of ship	??	10						
	Tanker	0to99	264						
	Tanker	100to200	174						
	Tanker	??	22						
	Unknown type of ship	0to99	3579						
	Unknown type of ship	100to200	359						
	Unknown type of ship	201to300	2						
	Unknown type of ship	301+	142						
	Unknown type of ship	??	104						

Port Harcourt	Cargo ship	0to99	403	4455	3402	1075	3402	3402	1075	1075	17140
	Cargo ship	100to200	653								
	Cargo ship	201to300	1								
	Cargo ship	???	1								
	Other type of ship	0to99	604								
	Other type of ship	100to200	41								
	Other type of ship	201to300	1								
	Other type of ship	???	4								
	Tanker	0to99	42								
	Tanker	100to200	419								
	Tanker	201to300	1								
	Unknown type of ship	0to99	1512								
Unknown type of ship	100to200	248									
Unknown type of ship	???	525									
Takoradi	Cargo ship	0to99	490	2539	1177	1145	1145	1145	1145	18607	17140
	Cargo ship	100to200	895								
	Cargo ship	201to300	106								
	Tanker	0to99	3								
	Tanker	100to200	142								
	Tanker	201to300	2								
	Unknown type of ship	0to99	869								
	Unknown type of ship	100to200	29								
	Unknown type of ship	201to300	3								
	Cargo ship	0to99	124								
	Cargo ship	100to200	2696								
	Cargo ship	201to300	1456								
Cargo ship	301+	1									
Other type of ship	0to99	64									
Other type of ship	100to200	27									
Other type of ship	201to300	22									
Tanker	0to99	22									
Tanker	100to200	345									
Tanker	201to300	8									
Totals			78852	78852	43935	34606	20949	18607	17140		

Analysis of port data yielded an estimated number of transits between 34,606 and 43,935 for the Gulf of Guinea as a whole. For the WRA, the range is 17,140–20,949 while the IBF HRA totals 14,842–18,607 transits. It is worth noting that some of the listed ports fall outside the geographic area employed in the AIS-based transit calculations. It is equally important to note that the 16 ports for which we have data are not the only ports within our area of interest. Consequently, the estimate for transits within the entire Gulf of Guinea may be inflated, while those for the WRA and IBF HRA may understate traffic levels.

Table H4: Port Visit Transit Estimates

Gulf of Guinea Transits	43,900
	34,600
WRA Transits	20,900
	17,100
IBF HRA Transits	18,600
	14,800

The dataset also included the number of individual vessels that called at each port. This data was cleaned and organized in a manner identical to the port visit data. The total number of individual vessels relevant to our report is between 5,797 and 6,058. The average number of port visits per vessel for 2014 is estimated at 7.5.

Secure-Area-Based Estimation:

The final method used to estimate transit numbers utilized AIS observation of vessels within secure areas in the Gulf of Guinea. OBP used ShipView to download data for stationary and drifting commercial vessels⁵⁶ in the Gulf of Guinea on ten days within the first quarter of 2015.⁵⁷ In this specific context we utilized data from 2015, as the 2014 equivalent was not available, and we presume that vessel behavior did not shift dramatically in the first quarter of 2015 as compared to 2014.

Using geospatial analysis software, we identified how many vessels appeared within each secure area; we averaged and then annualized these figures, as displayed in Table 5. This method estimates 19,400–16,600 transits for the Gulf of Guinea, 18,800–16,000 in the WRA, and 11,400–13,000 in the IBF HRA. Note that in these calculations, the only difference between the WRA and the GoG is the inclusion of Ghanaian secure areas, as all others examined fall within the WRA.

Table H5: Secure Area Transit Estimates

Gulf of Guinea Transits	19,400
	16,600
WRA Transits	18,800
	16,000
IBF HRA Transits	13,000
	11,400

Analyzing this data requires recognizing that the number of vessels that exit and enter these areas each day is some function of the total number of vessels in the area each day. This function is assumed to be related to the average number of days that vessels spend in each area. We estimate the average stay in the Nigerian Secure Anchorage Area (SAA) to be five days, and the average stay in the other secure areas to be between four and five days. STS zone visits are likely to last only a single day, as that is sufficient time to conduct a ship-to-ship transfer. Variation 1 and Variation

⁵⁶ “Drifting commercial vessels” refers to those vessels at least 120 meters in length reporting a speed no greater than 4 knots.

⁵⁷ This data was captured on the following dates: 12/30/2014, 1/1/2015, 1/8/2015, 1/16/2015, 2/2/2015, 2/12/2015, 2/25/2014, 3/3/2015, 3/11/2015, and 4/6/2015.

2 represent the most reasonable assumptions, based on our research. It is important to note that these estimates represent the lower bound of transit numbers, since a significant percentage of vessels do not utilize the secure areas despite the security advantages they provide.

Table H6: Secure Area Observations and Calculations

	Variation 1: All 5; Exceptions: STS 1, Zone 4, STS Ops Area		Variation 2: All 4; Exceptions: SAA 5, STS 1, Zone 4, STS Ops Area				
Region	((VPD avg(365))/4)	((VPD avg(365))/5)	((VPD avg(365))/3)	((VPD avg(365))/2)	((VPD avg(365))/1)	Variation 1	Variation 2
Nigeria							
SAA	Total in Sample:	84					
Per/Day Avg	8						
Vessels per Year	767	613	1022	1533	3066	613	613
STS Zone	Total in Sample:	114					
Per/Day Avg	11						
Vessels per Year	1040	832	1387	2081	4161	4161	4161
NPA Anchorage	Total in Sample:	68					
Per/Day Avg	7						
Vessels per Year	621	496	827	1241	2482	496	621
No Anchorage Area	Total in Sample:	765					
Per/Day Avg	77						
Vessels per Year	6981	5585	9308	13961	27923	5585	6981
Benin							
Zone 1	Total in Sample:	0					
Per/Day Avg	0						
Vessels per Year	0	0	0	0	0	0	0
Zone 2	Total in Sample:	2					
Per/Day Avg	0						
Vessels per Year	18	15	24	37	73	15	18
Zone 3	Total in Sample:	71					
Per/Day Avg	7						
Vessels per Year	648	518	864	1296	2592	518	648
Zone 4 (STS)	Total in Sample:	1					
Per/Day Avg	0						
Vessels per Year	9	7	12	18	37	37	37
Togo							
Togo Waiting Zone	Total in Sample:	0					
Per/Day Avg	0						
Vessels per Year	0	0	0	0	0	0	0
Lomé Berthing Zone	Total in Sample:	624					
Per/Day Avg	62						
Vessels per Year	5694	4555	7592	11388	22776	4555	5694

Ghana							
Tema Anchorage	Total in Sample:	11					
Per/Day Avg	1						
Vessels per Year	100	80	134	201	402	80	100
STS Operation Area	Total in Sample:	15					
Per/Day Avg	2						
Vessels per Year	137	110	183	274	548	183	183
Total SAA Visits	16014	12812	21353	32029	64058	16243	19055
WRA	15777	12622	21036	31554	63109	15980	18772
IBF HRA	10083	8067	13444	20166	40333	11425	13078

Final Transit Estimation:

To reach the final figures for Gulf of Guinea transits we averaged the estimates from each of the three methods. We used the high and low bounds for all but the AIS transit estimate, for which we used the lower bound. The final estimate for the number of transits in each area is listed in Table H7.

Table H7: Transit Estimation Summary

	AIS Estimate	Port Visit Estimate		Secure Areas Estimate		Final Estimate
Gulf of Guinea Transits	41,000	43,900	34,600	19,400	16,600	30,900
WRA Transits	25,000	20,900	17,100	18,800	16,000	19,600
IBF HRA Transits	N/A	18,600	14,800	13,000	11,400	14,500

APPENDIX I – INSURANCE

The methodology used in this year's report represents a slight departure from last year's, which was based on transits rather than a share of the insurance market. The method used this year is simpler, but produces a comparable final total. This year's assessment of 2013 War Risk insurance costs estimated the cost to within \$4-\$7 million of last year's methodology for the WIOR and GoG respectively.

Cost of War Risk Insurance

WIOR

The first step in extrapolating the cost of War Risk insurance in the WIOR was to calculate the total amount of premiums paid by Hellenic War Risk Club (HWR) members in the WIOR WRA. In 2013, the HWR covered 2,259 member vessels. The breach premiums paid for vessels that transited a designated WRA totaled \$17.69 million, constituting 88.5% of all premiums.⁵⁸ According to the HWR, of the 6,000 total WRA transits declared by its members worldwide in 2013, about 50% were through the WIOR WRA.⁵⁹ Thus, assuming that all breach premiums are similar, the total cost of transiting the WIOR WRA for HWR members was approximately \$8.845 million.

The second step was to estimate the HWR's share of all breach premiums in the WIOR WRA. For this section's purposes, only vessels with a volume of least 5,000 gross tons are considered. The Baltic and International Maritime Council (BIMCO) estimates that there were approximately 27,827 such vessels globally in 2014, giving the HWR members' 2,259 vessels a global market share of 8.1%. Based on this number, and the estimated value of \$8.845 million collected from HWR members in the WIOR, the total amount of war risk premiums in the WIOR WRA was approximately \$109 million in 2013.

GoG

The first step in extrapolating the cost of War Risk insurance in the Gulf of Guinea was to calculate the total amount of premiums paid by HWR members in the GoG WRA. In 2013, the HWR covered 2,259 member vessels. The breach premiums paid for vessels transiting a designated WRA totaled \$17.69 million, constituting 88.5% of all premiums.⁶⁰ According to the HWR, of the 6,000 total WRA transits declared by its members worldwide in 2013, about 900, or 15%, passed through the Gulf of Guinea WRA.⁶¹ Thus, assuming that all breach premiums are similar, the total cost of insuring passages through the GoG WRA for HWR members was approximately \$2.65 million.

The second step is to determine the HWR's share of the total market for breach premiums in the Gulf of Guinea. For this section's purposes, vessels transiting the Gulf of Guinea and needing War Risk Insurance are defined as vessels 5,000 gross tons and above. BIMCO estimates that there were approximately 27,827 such vessels globally in 2014, giving the HWR members' 2,259 vessels a global market share of 8.1 percent. Based on this number and the estimated \$2.65 million collected from HWR members, the total amount of breach premiums in the Gulf of Guinea would be approximately \$32,687,000 million in 2013.

58 Hellenic War Risks, *Building on Success – Review of the Year for the year ended 31 December 2013* (Bermuda: Thomas Miller (Bermuda) Ltd., 2013), http://www.hellenicwarrrisks.com/fileadmin/uploads/hellenic/Docs/PDFs/2014-HWR_Review__8pp_VW.pdf; Hellenic War Risks, *Focused on the Future* (Bermuda: Thomas Miller (Bermuda) Ltd., 2013), <http://www.hellenicwarrrisks.com/fileadmin/uploads/hellenic/Docs/PDFs/2014-HWR-R-A-web.pdf>.

59 Ibid.

60 Hellenic War Risks, *Building on Success – Review of the Year*; Hellenic War Risks, *Focused on the Future*.

61 Hellenic War Risks, *Building on Success – Review of the Year*.

Cost of K&R Insurance

According to K&R market leader Hiscox, the company commands a 60–70% global market share by premium income.⁶² Based on their 2014 annual report, out of a total income in 2013 of \$3.28 billion, a total of 6%, equal to \$196.3 million, came from their specialty business, which includes kidnap and ransom, contingency, and personal accident insurance.⁶³ This equates to a global market of between \$280.4 million and \$327 million in this segment. Another estimate from August 2014 claims that global K&R premiums, including non-piracy threats, totaled “at least” \$250 million.⁶⁴ Because the Hiscox specialty business includes more than K&R products, it would appear realistic to assess the global K&R market as being between approximately \$250 million and \$292 million.

APPENDIX J – WEST AFRICAN LAWS RELATED TO PROSECUTING PIRACY

OBP has begun to research West African laws related to each regional country’s ability to prosecute acts of piracy, whether they occur in their territorial waters or on the high seas. Initially, OBP has reviewed the domestic legislation of 11 countries within the region. Our conclusions related to each country’s ability to prosecute acts of piracy and the limitations of jurisdiction are briefly assessed in the table below. OBP intends to review the remaining countries’ laws within the region. However, for purposes of this report, an analysis of the 11 countries’ laws demonstrates that only Liberia and Angola possess legislation that would allow them to prosecute acts of piracy regardless of where those acts occur. Conversely, the remaining nine countries do not currently have the ability to prosecute acts of piracy outside their territorial waters, save a few exceptions (usually if the piratical acts occur onboard a vessel with that country’s flag or are against that country’s nationals). The table below provides a cursory analysis of each country’s ability to prosecute acts of piracy.

62 “Kidnap and Ransom Insurance: Syndicate 33,” HISCOX, <http://www.assicuro.nl/media/94.pdf> (accessed May 6, 2015).

63 HISCOX, Hiscox Ltd Report and Accounts 2014 (Bermuda: Hiscox Ltd., 2014), 1, <http://www.hiscoxgroup.com/~media/Files/H/Hiscox/content-pdf/annual-report-2014.pdf>.

64 David Kravitz & Colm O’Molloy, “The Murky World of Hostage Negotiations: Is the Price Ever Right?,” *The Guardian*, 25 August 2014, <http://www.theguardian.com/world/2014/aug/25/murky-world-hostage-negotiations-price-ever-right-insurance>.

Angola			
Ratified UNCLOS ⁶⁵	Ratified SUA ⁶⁶	Territorial Sea Claim	EEZ Claim
Yes	Yes	12 nm ⁶⁷	200 nm ⁶⁸
Piracy Legislation:	Allows jurisdiction to prosecute any person who, by violent means, takes over the command of a ship to commit theft or violent acts, or plunders a ship for personal gain, regardless of where the act occurs. ⁶⁹		
Criminal Law:	Criminalizes attempts, manslaughter, murder, assault, using firearms against another person, threatening others with violence, kidnapping, hostage-taking, hijacking ships, theft, robbery, and damaging others' property. ⁷⁰ Limits Angola's jurisdiction over criminal acts to those committed in Angola's territory or on an Angola-flagged vessel (with a few other exceptions if perpetrator is arrested in Angola's territory). ⁷¹		
Miscellaneous Laws:	None		
Ability to Prosecute:	Angola can prosecute:- Acts of piracy in territorial waters or on the high seas involving a vessel hijacking or robbery of a vessel. - Acts of piracy falling under the criminal law occurring within 12 nm or on Angola-flagged ships. Angola cannot prosecute:- Acts of piracy on the high seas where there was not an actual hijacking of a vessel or robbery (or attempted robbery), such as an attack simply for purposes of kidnapping the crew.		
Benin			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	200 nm ⁷²	None
Piracy Legislation:	Limits prosecution of piracy to acts of "violence" committed by or against Benin-flagged ships. ⁷³ The law states that "convicted" pirates shall be prosecuted and punished under Benin's criminal law, potentially limiting any applicability of this law. ⁷⁴		
Criminal Law:	Criminalizes murder, assault, theft, kidnapping, and destruction of property. ⁷⁵ Does not criminalize robbery, conspiracies, or acts by accomplices or accessories. ⁷⁶		

65 U.N. Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397, art. 100, available at https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&lang=en (accessed May 11, 2015).

66 "Status of Conventions," International Maritime Organization, <http://www.imo.org/About/Conventions/StatusOfConventions/Pages/Default.aspx> (accessed May 11, 2015).

67 "Maritime Claims," The CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/fields/2106.html> (accessed May 15, 2015).

68 Ibid.

69 Angola: LAW 7/78 of 26 May 1978, Law on Crimes Against State Security, Article 15, available at <http://www.issafira.org/cdct/mainpages/pdf/Terrorism/Legislation/Angola/Angola%20Laws%20on%20Crime%20Against%20State%20Security.pdf>.

70 Angola: Penal Code, Articles 20, 140, 147-48, 149, 154, 159, 162, 164, 288, 378-80, 384, 387-89, 396, available at http://www.safiii.org/ao/legis/num_act/cp76.pdf. An English version, and preliminary draft of this law, can be found at <http://www.sme.ao/attachments/article/249/ANTEPROYECTO%20DE%20C%3%93DIGO%20PENAL.EN.pdf>.

71 Ibid., Article 4-5.

72 Benin: Decree No. 76-92 extending the territorial waters of the People's Republic of Benin to 200 nautical miles, 1976, available at http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/BEN_1976_Decree.pdf.

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73 National Assembly, Republic of Benin: Loi N. 2010-11, Portant Code Maritime en Republique du Benin, Articles 643-44, 22 September 2011, available at <http://www.ilo.org/dyn/natlex/docs/MONOGRAPH/88026/100542/F240680817/BEN-2010-L-88026.pdf>.

Miscellaneous Laws:	None	Benin can prosecute:- Acts of piracy occurring on the high seas committed by or against Benin-flagged ships.- Acts of piracy falling under the criminal law occurring on or against any vessel within 200 nm. Benin cannot prosecute:- Acts of piracy committed outside of 200 nm against non-Benin-flagged vessels.- Acts by pirates occurring within 200 nm against non-Benin-flagged vessels that were not direct acts, but instead were merely in support of the criminal enterprise.	
Cameroon			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	No	12 nm ⁷⁷	200 nm ⁷⁸
Piracy Legislation:	Limits prosecution of piracy to situations where: 1) Act committed by Cameroon citizen; 2) Act occurred in Cameroon's territorial sea; or, 3) The individual who committed the act is arrested in Cameroon. ⁷⁹		
Criminal Law:	Criminalizes conspiracies, criminal attempts, torture, use of explosive substances, murder, manslaughter, negligent or reckless homicide, assault, battery, kidnapping/false imprisonment, destruction of property, theft, and robbery. ⁸⁰		
Miscellaneous Laws:	Terrorism law which discusses "piracy," but actually only applies to civil aviation and aircraft and, thus, is not applicable. ⁸¹		
Ability to Prosecute:	Cameroon can prosecute:- Acts of piracy on the high seas if committed by a Cameroon citizen, or if a pirate is arrested in Cameroon.- Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm. Cameroon cannot prosecute:- Acts of piracy on the high seas where the pirates are non-Cameroonians, or if the pirates are arrested on the high seas or anywhere outside Cameroon's territory.		
Congo			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	No	12 nm ⁸²	200 nm ⁸³
Piracy Legislation:	Limits prosecution of piracy to acts of "violence" committed by or against Congolese flagged ships. ⁸⁴		
Criminal Law:	Criminalizes attempts, murder, manslaughter, kidnapping, theft, robbery, and threatening others. ⁸⁵		
Miscellaneous Laws:	None		
Ability to Prosecute:	Congo can prosecute:- Acts of piracy occurring on the high seas committed by or against Congo-flagged ships.- Acts of piracy occurring on the high seas against any vessel, as long as the accused is in Congo, unless there is an obligation to extradite.- Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm. Congo cannot prosecute:- Acts of piracy committed outside of 12 nm against non-Congo-flagged vessels where the accused is not found in Congo.		
Côte d'Ivoire			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	12 nm ⁸⁶	200 nm ⁸⁷
Piracy Legislation:	Limits prosecution of piracy to acts of "violence" committed by or against flagged Côte d'Ivoire ships. ⁸⁸		
Criminal Law:	Criminalizes murder, assault, kidnapping, false imprisonment, theft, and destruction of property. ⁸⁹ Prohibits exercise of prosecutorial jurisdiction for acts occurring on ships, even in territorial waters, unless Côte d'Ivoire authorities responded to the crime, the offense was considered a "disturbance of public order," or the perpetrator or victim was Ivorian. ⁹⁰		

Miscellaneous Laws:	None	Côte d'Ivoire can prosecute:- Acts of piracy occurring on the high seas committed by or against Ivorian flagged ships.- Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm if, and only if, Côte d'Ivoire authorities responded to the crime, the offense was considered a "disturbance of public order," or the perpetrator or victim was Ivorian.	
Ability to Prosecute:	Côte d'Ivoire cannot prosecute:- Acts of piracy committed outside of 12 nm against non-Côte d'Ivoire-flagged vessels.- Acts of piracy committed within 12 nm if Côte d'Ivoire authorities failed to respond to the crime, the offense was not considered a "disturbance of public order," or none of the perpetrators or victims were Ivorian.		
Gabon			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	No	12 nm ⁹¹	200 nm ⁹²
Piracy Legislation:	None		
Criminal Law:	Criminalizes attempts, murder, assault and battery, manslaughter, kidnapping, theft, robbery, and use of explosives. ⁹³		
Miscellaneous Laws:	None		
Ability to Prosecute:	Gabon can prosecute:- Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm. Gabon cannot prosecute:- Acts of piracy which occurred outside of 12 nm.		
Ghana			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	12 nm ⁹⁴	200 nm ⁹⁵
Piracy Legislation:	Ghana's Criminal Code permits Ghana to prosecute acts committed on a crew member's own ship, to acts by a ship owner or master, or where a crew member throws goods overboard of another vessel after forcibly boarding. It is likely Ghana has jurisdiction over these very limited types of acts on the high seas beyond its territorial waters. ⁹⁶		
Criminal Law:	Criminalizes criminal attempts, abetting, conspiracy, threatening others, murder, manslaughter, "causing harm" to others, "use of an offensive weapon," assault and battery, kidnapping, and robbery. ⁹⁷		
Miscellaneous Laws:	None		
Ability to Prosecute:	Ghana can prosecute:- Acts committed on a crew member's own ship, to acts by a ship owner or master, or where a crew member throws goods overboard of another vessel after forcibly boarding, wherever these acts occur.- Acts of piracy occurring within 12 nm. Ghana cannot prosecute:- Acts of piracy occurring outside of 12 nm, other than those 3 limited acts described above.		
Liberia			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	200 nm ⁹⁸	None ⁹⁹
Piracy Legislation:	Liberia's Penal Law fully allows Liberia to prosecute acts of piracy with a definition nearly identical to that of UNCLOS, and also authorizes universal jurisdiction over acts of piracy. ¹⁰⁰		
Criminal Law:	Criminalizes murder, negligent homicide, manslaughter, kidnapping, assault, robbery, burglary, theft, accomplice acts, criminal attempts, acts of conspiracy, terrorism, armed robbery, and hijacking. ¹⁰¹		
Miscellaneous Laws:	None		

Ability to Prosecute:	Liberia can prosecute:- Any act of piracy occurring on the high the high seas, in its EEZ, or in its territorial waters. Liberia cannot prosecute:- Not applicable because Liberia can prosecute any act of piracy, unless it occurs in another state's territorial waters.		
Nigeria			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	12 nm ¹⁰²	200 nm ¹⁰³
Piracy Legislation:	None ¹⁰⁴		
Criminal Law:	Criminalizes murder, manslaughter, theft, false imprisonment, kidnapping individuals and taking them outside of Nigeria, conspiracy, assault, and molesting crews of ships. ¹⁰⁵		
Miscellaneous Laws:	House Bill 21:- Criminalizes requesting, negotiating, or collecting ransoms on kidnapped or abducted people. ¹⁰⁶ Prevention of Terrorism Bill:- Any act which can be considered to force a government or international organization to carry out any act of terrorism. ¹⁰⁷		
Ability to Prosecute:	Nigeria can prosecute:- Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm. - Any member of a pirate action group which conspired to commit piracy, regardless of where they are located, as long as a single criminal act occurred within 12 nm. Nigeria cannot prosecute:- Acts of piracy which occurred outside of 12 nm.		
Sierra Leone			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	No	12 nm ¹⁰⁸	200 nm ¹⁰⁹
Piracy Legislation:	None		
Criminal Law:	The criminal law criminalizes murder, conspiracy to commit murder, shooting or attempting to shoot at others with the intent to do grievous bodily harm, assaulting a "seaman," and battery. ¹¹⁰ The Larceny Act criminalizes theft, larceny, and robbery. ¹¹¹ The Criminal Procedure Code notes that trials for piracy, "as defined by the law of nations" are not required to be authorized by the Attorney-General (which is normally required for acts occurring against non-citizens in territorial waters). ¹¹²		
Miscellaneous Laws:	None		
Ability to Prosecute:	Sierra Leone can prosecute: - Acts of piracy falling under the criminal law occurring on or against any vessel within 12 nm. Sierra Leone cannot prosecute: - Acts of piracy committed outside of 12 nm.		
Togo			
Ratified UNCLOS	Ratified SUA	Territorial Sea Claim	EEZ Claim
Yes	Yes	30 nm ¹¹³	200 nm ¹¹⁴
Piracy Legislation:	Limits prosecution of piracy to acts of "violence" committed by or against Togo-flagged ships. ¹¹⁵		
Criminal Law:	Criminalizes homicide, manslaughter negligent homicide, assault, battery, kidnapping, theft, and destruction of property. ¹¹⁶		
Miscellaneous Laws:	None		
Ability to Prosecute:	Togo can prosecute:- Acts of piracy occurring on the high seas committed by or against Togo-flagged ships.- Acts of piracy falling under the criminal law occurring on or against any vessel within 30 nm. Togo cannot prosecute:- Acts of piracy committed outside of 30 nm against non-Togo-flagged vessels.		

- 74 Ibid., Article 644.
- 75 France: Penal Code of 1810, Original edition uncut, published under the title: Code Offences and Penalties, [Law decreed February 15th, 1810, promulgated February 25th, 1810], Articles 295, 309, 341, 379, 434–35, *available at* http://www.napoleon-series.org/research/government/france/penalcode/c_penalcode3b.html.
- 76 See *ibid.*
- 77 Cameroon: Law No. 2000-2 of 17 April 2000 relating to Maritime Areas of the Republic of Cameroon, *available at* https://www.cncc.cm/pdf/reglementation/TEXTES%20NATIONAUX/Loi_Espaces_maritimes_republique_Cameroun.pdf.
- 78 “Cameroon, Summary of Claims,” U.S. Navy Judge Advocate General’s Corps, April 2013, *available at* <http://www.jag.navy.mil/organization/documents/mcrm/Cameroon2013.pdf>.
- 79 Cameroon: Code Penal, n° 67/LF/1, Journal Officiel de la Republique du Cameroun, 12 juin 1967, Articles 10–11, *available at* http://www.vertic.org/media/National%20Legislation/Cameroon/CM_Code_Penal_Cameroun.pdf.
- 80 Ibid., Articles 9, 94–95, 132 bis, 229, 275, 278, 289–30, 291, 316, 318, 320.
- 81 Cameroon: Law No. 2001-19 of 18 December 2001 on the Punishment of Crimes and Acts Against the Safety of Civil Aviation, Article 1, *available at* <https://www.unodc.org/tldb/showDocument.do?lng=fr&documentUid=7520&country=%20CMR>.
- 82 “Maritime Claims,” The CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/fields/2106.html> (accessed May 15, 2015).
- 83 Ibid.
- 84 Congo: Loi 30-63 du 4 juillet 1963 portant Code de la Marine Marchande, Articles 270–73, *available at* <http://www.cesbc.org/congo/Lois/Loi%2030-63.pdf>.
- 85 Code Penal Congolais, 30 November 2004, Articles 4, 43–48, 52, 67, 80, 81–82, 160, *available at* <http://www.wipo.int/edocs/lexdocs/laws/fr/cd/cd004fr.pdf>.
- 86 Côte d’Ivoire: Law No. 77-926 delimiting the Maritime Zones placed under the National Jurisdiction of the Republic of Ivory Coast of 17 November 1977, Article 1, *available at* http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/CIV_1977_Law.pdf.
- 87 Ibid., Articles 2–3.
- 88 Côte d’Ivoire: Le Code de la Marine Marchande, Loi N° 61349 du 9 Novembre 1961, Relative a l’Institution a d’un Code de la Marine Marchande, Articles 228–38, *available at* <http://www.loidici.com/codemarine/codemarine.php>.
- 89 Côte d’Ivoire: Code pénal [Côte d’Ivoire], 1981-640; 1995-522, 31 July 1981, Articles 26–27, 164, 342, 345, 373, 392, 423, *available at* <http://www.refworld.org/cgi-bin/texis/vtx/rwmain?page=category&category=LEGAL&publisher=&type=&coi=CIV&docid=3ae6b5860&skip=0>.
- 90 Ibid., Article 15.
- 91 “Maritime Claims, The World Factbook,” CIA, <https://www.cia.gov/library/publications/the-world-factbook/fields/2106.html> (accessed May 15, 2015).
- 92 Ibid.
- 93 Loi n° 21/63 du 31 mai 1963, telle que mise à jour jusqu’en novembre 1994, portant Code Penal, Articles 6, 223-24, 230-31, 232, 246-49, 250-54, 292, 295-96, 327, *available at* <http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/58661/116713/F703827742/GAB-58661.pdf>.
- 94 Ghana: Maritime Zones (Delimitation) Act, 1986, P.N.D.C.L. 159, Section 1, *available at* [http://www.ghanamaritime.org/assets/photos/forms/GMA_Laws/Ghana%20Maritime%20Zones%20\(Delimitation\)%20Act%201986%20\(PNDCL%20159\).pdf](http://www.ghanamaritime.org/assets/photos/forms/GMA_Laws/Ghana%20Maritime%20Zones%20(Delimitation)%20Act%201986%20(PNDCL%20159).pdf).
- 95 Ibid., Section 5.
- 96 Ghana: Criminal Code, 1960 (Act 29), Section 193, *available at* http://www.africanchildforum.org/clar/Legislation%20Per%20Country/ghana/ghana_criminal_1960_en.pdf; see also Ghana: Courts Act 1993 (Act 459), Sections 17, 56, 120(2), *available at* <http://www.wipo.int/edocs/lexdocs/laws/en/gh/gh033en.pdf>.
- 97 Ghana Criminal Code, Sections 17–18, 20, 23, 46–48, 50–51, 69–70, 72, 74–76, 84–87, 89–90, 149–50.
- 98 Liberia: Act to approve the Executive Order issued by the President of Liberia on 24 December 1976, approved 16 February 1977, *available at* http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/LBR_1977_Act.pdf; see also Act to establish and delimit the territorial sea and contiguous zone of the Republic of Liberia, approved 24 June 1968, *available at* http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/LBR_1968_Act.pdf.

- 99 See *ibid.*
- 100 Title 26 of the Liberian Code of Laws Revised, An Act Adopting a New Penal Law and Repealing Sections 31.3 & 32.1 of the Criminal Procedure Law, July 19, 1976, vol. IV, p. 725, Sections 1.4(1), 15.31(1), available at <http://www.icla.up.ac.za/images/un/use-of-force/africa/Liberia/Penal%20Code%20Liberia%201978.pdf>.
- 101 *Ibid.*, Sections 3.1, 10.1, 10.4, 14.1–14.3, 14.20, 14.21, 14.54, 14.50, 14.52, 15.20, 15.30, 15.32, 15.33, 15.51; see also An Act to Amend Chapters 14 and 15 Sub-Chapter(C), Title 26 of the Liberian Code of Laws Revised, Known as the Penal Law of 1976, by Adding thereto Four New Sections thereby Making it the Crimes of Armed Robbery, Terrorism and Hijacking, Respectively, Capital Offenses, and Providing Punishment Thereof, 22 July 2008, available at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/LBR_national_legislation.pdf.
- 102 “Nigeria,” The CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html> (accessed May 14, 2015).
- 103 *Ibid.*
- 104 See John Iwori, “Nigeria: Bill to Domesticating Treaties on Piracy, Waterways Robbery Underway,” *This Day Live*, 21 October 2011, <http://www.thisdaylive.com/articles/bill-to-domesticate-treaties-on-piracy-waterways-robbery-underway/100993/>; “Tackling the Perils of Piracy,” *International Law Office*, 28 November 2012, <http://www.internationallawoffice.com/newsletters/Detail.aspx?g=f1e2890f-eac5-4703-ad34-c78b4349547c>; Stephen Spark, “Nigeria Seeks a Legal Finish to Counter-Piracy Actions,” *IHS Maritime 360*, 22 November 2014, <http://www.ihsmaritime360.com/article/15543/nigeria-seeks-a-legal-finish-to-counter-piracy-actions>.
- 105 Nigeria: Criminal Code Act, (1990) Cap. (77) Sections 252–53, 306–18, 364–65, 383, 397, 401, 501(c)-(d), available at http://www.ilo.org/dyn/natlex/natlex_browse.details?p_lang=en&p_country=NGA&p_classification=01.04&p_origin=COUNTRY&p_sortby=SORTBY_COUNTRY.
- 106 Nigeria: An Act to Amend the Criminal Code Act, Cap. C38 Laws of the Federation of Nigeria, 2004, by Providing Punishment for the Offence of Kidnapping; and Matters Concerned Therewith (2011), Section 516.
- 107 Nigeria: An Act to Provide for Measures to Combat Terrorism and for Related Matters (2011), Section 2, available at <http://www.nass.gov.ng/nass2/legislation2.php?search=An+Act+to+Provide+for+Measures+to+Combat+Terrorism+and+for+Related+Matters&Submit=Search>.
- 108 National Provisional Ruling Council of Sierra Leone, Decree no. 11, The Maritime Zones (Establishment) Decree, June 6, 1996, Article 2, available at <http://www.sierra-leone.org/Laws/1996-NPRC11.pdf>.
- 109 *Ibid.*, Article 8.
- 110 Sierra Leone: An Act to consolidate and amend the Statute Law of England and Ireland relating to Offences against the Person, 1861, Articles 1, 4–5, 9, 11, 15, 18, 20, 40, available at <http://www.irishstatutebook.ie/1861/en/act/pub/0100/print.html>.
- 111 The Larceny Act, 1916, [6 & 7 GEO. 5. Ch. 50.], Articles 1–2, 14, 23, available at http://www.legislation.gov.uk/ukpga/1916/50/pdfs/ukpga_19160050_en.pdf.
- 112 Sierra Leone: The Criminal Procedure Acts, 1965, Article 53, available at <http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/65811/61760/F1739154701/SLE65811.pdf>
- 113 Togo: Ordinance No. 24 delimiting the Territorial Waters and creating a protected Economic Maritime Zone of 16 August 1977, Article 1, available at http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/TGO_1977_Ordinance.pdf.
- 114 *Ibid.*, Article 2.
- 115 Togo: Code de la Marine Marchande, Ordonnance No 29. du 12-8-71, Articles 147–57, available at http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/TGO_marine_marchande.pdf.
- 116 Code Pénal du Togo (révisé en Avril 2000), Articles 6, 44-49, 51–53, 60, 97–102, 126, 132, 224 available at http://www.wipo.int/wipolex/en/text.jsp?file_id=201335.

APPENDIX K – SEAFARER SURVEY

Participant Recruitment and Participation

Seafarers recruited for the study were identified through two pathways. Seafarers in the Philippines known by MPHRP to have been held hostage by pirates were directly approached to participate. In addition, a comparison sample of seafarers not known to have been attacked by pirates was approached by members of the research team in person at manning and training agencies in the Philippines.

175 seafarers agreed to participate in this study, including 37 seafarers known to have been attacked by pirates and 138 not known to have been attacked.

Coding for Post-traumatic Stress Disorder (PTSD) and Depression

PTSD was assessed using the Posttraumatic Checklist–Civilian scale,¹¹⁷ modified to ask specifically about piracy rather than a general traumatic experience. The PCL–C can be coded for the presence of probable PTSD by using an overall score for symptom severity, by coding for the presence of symptoms meeting the criteria for PTSD, or by both. We used the most restrictive approach of both: respondents were coded for probable PTSD if they had scores of 3 or greater on at least one item from the DSM-IV Axis B category for PTSD symptomatology, at least three items from Axis C, and at least two from Axis D; and also had an overall score for symptom severity of 35 or higher.

Probable depression was scored using the Center for Epidemiological Studies–Depression scale, a long-standing scale frequently used to assess depression.¹¹⁸ The CES-D has been used internationally and is accepted as a measure of depression for international samples, but there is a known issue that Southeast Asian populations tend to have higher mean scores on the CES-D than European populations.¹¹⁹ Data specific for what cutoff scores were appropriate for Filipino populations was not available, but recommended cutoff points for other Asian populations include using a score of 24 to diagnose probable depression in Korean populations¹²⁰ and a score of 19 in Japanese populations,¹²¹ compared to a typical cutoff score of 16 in American populations. In order to maximize the specificity of this assessment, a cutoff score of 24 was used to code for probable depression.

117 Frank W. Weathers et al., *PCL-M for DSM-IV* (National Center for PTSD–Behavioral Science Division, 1994).

118 Lenore Sawyer Radloff, “The CES-D Scale a Self-Report Depression Scale for Research in the General Population,” *Applied Psychological Measurement*, v. 1 (1977), 385–401.

119 Andrew Mackinnon et al., “The Center for Epidemiological Studies Depression Scale in Older Community Samples in Indonesia, North Korea, Myanmar, Sri Lanka, and Thailand,” *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, v. 53 (1998), P343–52.

120 Maenge Je Cho and Kye Hee Kim, “Use of the Center for Epidemiologic Studies Depression (CES-D) Scale in Korea,” *Journal of Nervous and Mental Disease*, 186, 304–10.

121 Koji Wada et al., “Validity of the Center for Epidemiologic Studies Depression Scale as a Screening Instrument of Major Depressive Disorder among Japanese Workers,” *American Journal of Industrial Medicine*, 50 (2007), 8–12.

APPENDIX L – MASTER LIST OF EVENTS

Key:

Successful Incident
Unsuccessful Incident

The incidents in the tables below were drawn from a variety of sources. Many of them were open-source news articles, for which the reporter name is listed. Upon request, OBP can provide these exact citations. The majority of sources, however, were from several reporting bodies. These specific citations are provided below. To access these databases, many require either login information or a subscription. Here are the full names and citations for those sources which are not from news articles:

- **IMB:** ICC International Maritime Bureau, Live Piracy & Armed Robbery Report 2014¹²²
- **IMO:** International Maritime Organization, Piracy and Armed Robbery Database ¹²³
- **MARLO:** U.S. Maritime Liaison Office (MARLO) Weekly, Piracy Analysis and Threat to Shipping (PATS)¹²⁴
- **NGA:** National Geospatial-Intelligence Agency, Anti-Shipping Activity Messages¹²⁵
- **ONI:** Office of Naval Intelligence, Worldwide Threat to Shipping (WTS) Report¹²⁶
- **ReCAAP:** Regional Cooperation Agreement on Combatting Piracy and Armed Robbery Against Ships in Asia Information Sharing Center¹²⁷
- **Suritec:** Independent Global Incident Analysis, Piracy Report¹²⁸

122 “Live Piracy & Armed Robbery Report 2014,” ICC International Maritime Bureau, <https://www.icc-ccs.org/piracy-reporting-centre/live-piracy-report> (accessed December 15, 2014). The 2014 incidents are no longer available. For a complete list of these, please contact the IMB or OBP.

123 “GISIS Public Area, Piracy and Armed Robbery Database,” International Maritime Organization, <https://gis.imo.org/Public/PAR/Search.aspx> (accessed May 15, 2015). You must create an account as a public user; once on the page select “search incidents” and search by date.

124 These reports can often be found online by searching for the name of the report, as well as adding on the pertinent year. To receive these reports on a regular basis requires a subscription. To subscribe, visit the website for the office’s contact email. “Essential Contact Information,” Maritime Liaison Office Bahrain, <http://www.cusnc.navy.mil/marlo/guidance.html> (accessed May 15, 2015).

125 “Anti-Shipping Activity Messages,” National Geospatial-Intelligence Agency, http://msi.nga.mil/NGAPortal/MSI.portal?_nfpb=true&_pageLabel=msi_portal_page_65 (accessed November 10, 2014). To access, you must use the date filter in the query box, and narrow the date range to 2014.

126 One can access these reports through the National Geospatial-Intelligence Agency’s website. “Worldwide Threat to Shipping Reports,” National Geospatial-Intelligence Agency, http://msi.nga.mil/NGAPortal/MSI.portal?_nfpb=true&_pageLabel=msi_portal_page_64 (accessed May 15, 2015).

127 OBP acquired information from ReCAAP’s various incidents reports, which can be accessed through ReCAAP’s website. “Incident Reports,” ReCAAP, <http://www.recaap.org/AlertsReports/IncidentReports.aspx?EntryId=11> (accessed May 15, 2015).

128 To subscribe to the monthly reports, email Lydelle Joubert at info@PiracyReport.co.za.

Western Indian Ocean Region Piracy and Maritime Crime Incidents Database*

*The Suspicious Incidents Database can be made available upon request

Date	Ship Name	Ship Type	Flag State	Activity Type	Number of Hostages	Sources
10/01/2014	<i>Shane Hind</i>	Dhow	India	Hostage/All Crew, Mothershipped	11	Oceanus; Znews; defenceWeb
17/01/2014	<i>Nave Atropos</i>	Tanker	Marshall Islands	Failed Boarding		NGA; Oceanus; IMB; MARLO; ANI News; IMO
08/02/2014	<i>Geise</i>	General Cargo	Gibraltar	Failed Boarding		NGA; IMB; MARLO; IMO
13/02/2014	<i>Andrea</i>	Ro-Ro	Sierra Leone	Failed Boarding		NGA; CRIEnglish.com; IMB; MARLO; IMO; Oceanus
03/03/2014	Unknown			Failed Boarding		Oceanus
07/03/2014	<i>Jolly Quarzo</i>	Ro-Ro	Italy	Failed Boarding		Oceanus; IMB; IMO
30/03/2014	<i>Album</i>	Tanker	Panama	Failed Boarding		Oceanus; Bloomberg; IMB; IMO
30/03/2014	Unknown			Failed Boarding		Oceanus
17/04/2014	<i>Flag Thenia</i>	Bulk Carrier	Malta	Failed Boarding		NGA; IMB; MARLO; IMO
22/05/2014	<i>Mesouth</i>	Dhow	Bahrain	Robbery	6	Gulf Daily News; Times of India; Suritech
08/06/2014	<i>Orinco Star</i>	Tanker	UK	Failed Boarding		Moran Security Group
06/08/2014	Unknown			Failed Boarding		Oceanus
12/08/2014	Unknown	Tanker	India	Failed Boarding		Oceanus
16/08/2014	Unknown			Failed Boarding		Oceanus
18/08/2014	<i>Priceless Sea</i>	Bulk Carrier	Liberia	Failed Boarding		NGA; IMB; MARLO
25/09/2014	<i>Ocean Queen</i>	Tanker	Singapore	Failed Boarding		Oceanus; IMB; IMO
16/10/2014	Unknown			Failed Boarding		Oceanus
30/12/2014	<i>Captain Nikolas I</i>	Tanker	Malta	Failed Boarding		IMO; Oceanus; IMB; IMO
Related Incident						
10/07/2014	<i>Semlow</i>	General Cargo	Kenya	Hostage/All Crew, Robbery	11*	World Bulletin; Qarancusub.com; Africa News Post; Harar24news

* Kenyan ship stranded from mechanical difficulties, looted by local fishermen. Al-Shaba'ab took possession of crew. Crew taken hostage, including captain and engineer. The exact number of hostages is not entirely clear. They appear to have been released 9 days later.

West African Piracy and Maritime Crime Incidents Database*

*Riverine Incident Database can be made available upon request

Date	Ship Name	Ship Type	Flag State	Activity Type	Number of Hostages	Theft Estimate	Sources
02/01/2014	<i>Super League</i>	Tanker	Singapore	International	Failed Boarding		NGA; IMB; MARLO; IMO
03/01/2014	<i>San Miguel</i>	General Cargo	Equatorial Guinea	International	Hostage/Kidnapping, Robbery	Crew's phones, and destroyed navigational system	Odimtc; NGA; MARLO; This Day Live; Equatorial Guinea Gov.; Oceanus
16/01/2014	<i>Skytark</i>	Tanker	Liberia	Territorial	Failed Boarding		IMO
18/01/2014	<i>Kerala</i>	Tanker	Liberia	International	Oil Theft, Vessel Hijack	\$8,000,000 (Approximately 12,271 metric tons of cargo)	NGA; Reuters; Oceanus; Naharnet; IMB; MARLO; gCaptain; Dryad Maritime; IMO
26/01/2014	Unknown	Tug	Nigeria	Territorial	Hostage/Kidnapping, Robbery	Crew's belongings	Oceanus; Sahara Reporters; MARLO; NGA
29/01/2014	<i>Cee Jay</i>	Offshore Supply Vessel	Nigeria	International	Hostage/Kidnapping, Robbery	Crew's belongings	NGA; MARLO; Oceanus
30/01/2014	<i>Lamalco Hawk</i>	Tug	Cyprus	International	Failed Robbery, Successful Boarding		NGA; MARLO; IMO; Oceanus
04/02/2014	<i>UAL Lobito</i>	General Cargo	Netherlands	Territorial	Robbery	Ship's stores	NGA; IMB; MARLO; IMO; Oceanus
05/02/2014	<i>Suez Vasilis</i>	Tanker	Marshall Islands	International	Failed Boarding		NGA; MARLO; Oceanus; SAA ppt; IMO
06/02/2014	<i>Cher</i>	Tanker	Panama	International	Robbery	Ship's stores and crew's belongings	NGA; IMB; MARLO; IMO; SAA ppt; Oceanus
06/02/2014	<i>Mariner Sea</i>	Offshore Supply Vessel	Barbados	International	Hostage/Kidnapping, Robbery	Unknown	NGA; OPINTEL; MARLO; SAA ppt; Oceanus
08/02/2014	<i>Sabina 2</i>	General Cargo	Switzerland	International	Failed Boarding		Oceanus
19/02/2014	<i>Masters Force 2</i>	Tanker	Liberia	International	Failed Boarding		NGA; POINTEL; IMB; MARLO; IMO; SAA ppt.; Oceanus
20/02/2014	<i>Maersk Handler</i>	Offshore Supply Vessel	UK	Territorial	Robbery	Ship's property	NGA; IMB; MARLO; IMO; Oceanus
03/03/2014	Unknown	Offshore Supply Vessel		International	Mothershipped, Robbery, Vessel Hijack	Ship's property and crew's belongings	NGA
04/03/2014	<i>SSI Pride</i>	Bulk Carrier	Marshall Islands	International	Failed Boarding		IMO; NGA; IMB; MARLO; SAA ppt; Oceanus
04/03/2014	<i>Prince Joseph 1</i>	Offshore Supply Vessel	Nigeria	International	Hostage/Kidnapping		NGA; MARLO; SAA ppt; Oceanus

05/03/2014	<i>Capt Gregory</i>	Tanker	Liberia	International	Failed Boarding	Oceanus
05/03/2014	<i>MDPL Asha Deep</i>	Offshore Supply Vessel	Nigeria	Territorial	Hostage/Kidnapping	NGA; MARLO; Oceanus
06/03/2014	<i>Prime Lady</i>	Offshore Supply Vessel	Nigeria	International	Hostage/Kidnapping, Mothershipped, Robbery, Vessel Hijack/Crew Release	Crew's belongings and ship's property
06/03/2014	<i>Apollogracht</i>	General Cargo	Netherlands	Territorial	Robbery	Ship's property
20/03/2014	<i>MT Crete</i>	Tanker	Liberia	International	Failed Boarding	NGA; IMB; MARLO; IMO; SAA ppt.; Oceanus
12/04/2014	Unknown	Tanker		Territorial	Hostage/Kidnapping	Oceanus
17/04/2014	<i>Neya 3</i>	Offshore Supply Vessel	Nigeria	International	Failed Boarding	Oceanus
20/04/2014	Unknown	LNG	Bermuda	International	Suspicious Activity	NGA; MARLO; IMB; SAA ppt.; Oceanus
23/04/2014	<i>Hellespont Progress</i>	Bulk Carrier	Marshall Islands	Territorial	Failed Boarding	NGA; IMB; MARLO; IMO; SAA ppt.; Oceanus
29/04/2014	<i>SP Brussels</i>	Tanker	Marshall Islands	International	Failed Oil Theft, Successful Boarding	Vanguard; Neptune Maritime Security; gCaptain; Oceanus; IMB; MARLO; IMO; SAA ppt; NGA
13/05/2014	<i>Ungieshi</i>	Tanker	Panama	Territorial	Robbery	Mooring ropes and some cargo
21/05/2014	<i>Ungieshi</i>	Tanker	Panama	Territorial	Failed Boarding	NGA; IMB; MARLO; IMO; Oceanus
02/06/2014	<i>Lu Hai</i>	Bulk Carrier	China	Territorial	Soft Approach	NGA; IMB; MARLO; IMO; SAA ppt; Oceanus
03/06/2014	<i>Sampatiki</i>	Tanker	Liberia	International	Robbery	Suritec; IMO
04/06/2014	<i>MT Fair Artemis</i>	Tanker	Liberia	International	Oil Theft, Mothershipped, Robbery, Vessel Hijack	gCaptain; NGA; Spy Ghana; news24; Reuters; The New Age; African News; IMB; MARLO; IMO; Oceanus
05/06/2014	<i>Marine 711</i>	FV	Ghana	International	Oil Theft, Mothershipped, Robbery, Vessel Hijack	50 tons oil, 10 tons fish
10/06/2014	<i>Stadt Sevilla</i>	Container	Antigua and Barbuda	Territorial	Failed Boarding	NGA; IMB; MARLO; IMO; Oceanus

30/06/2014	<i>Jandavid S</i>	Container	Antigua and Barbuda	Territorial	Robbery	Ship's stores	NGA; IMB; MARLO; IMO; Oceanus
03/07/2014	<i>Sampatiki</i>	Tanker	Liberia	International	Robbery	Food (Forced crew to cook meal)	Suritec; Spyghana
25/07/2014	Unknown	Tanker	Panama	Territorial	Suspicious Activity		NGA; MARLO; IMO; Oceanus
25/07/2014	<i>MT Hai Soon 6</i>	Tanker	Kiribati	International	Oil Theft, Robbery	Some amount of cargo	NGA; gCaptain; Straits Times; Asia One Singapore; IMB; MARLO; IMO; Oceanus
04/08/2014	<i>Castlegate</i>	Bulk Carrier	Liberia	Territorial	Failed Robbery		NGA; IMB; MARLO; IMO; Oceanus
09/08/2014	<i>BW Lena</i>	Tanker	Singapore	International	Failed Boarding		IMO; SAA ppt; IMB
11/08/2014	<i>Skandi Singapore</i>	Offshore Supply Vessel	Norway	Territorial	Failed Robbery		IMB; IMO; Oceanus
14/08/2014	<i>Odin Finder</i>	Research Vessel	Italy	Territorial	Successful Boarding		IMB; MARLO; IMO; NGA
20/08/2014	<i>Blizzard</i>	Tug	Netherlands	Territorial	Failed Robbery, Successful Boarding	Attempted to steal the outboard engine	IMB; MARLO; IMO; NGA
26/08/2014	<i>Sea Sterling</i>	Tanker	Nigeria	International	Failed Hostage-taking, Successful Boarding		Oceanus; IMB; MARLO; IMO; SAA ppt; NGA
26/08/2014	<i>Huascar</i>	Tanker	Panama	International	Failed Boarding		Oceanus; IMB; MARLO; IMO; SAA ppt; NGA
27/08/2014	<i>SP Boston</i>	Tanker	Marshall Islands	International	Robbery	Money, personal belongings, and equipment - plus destruction of ship's navigational system	Oceanus; IMB; MARLO; IMO; Reuters; NGA
14/09/2014	Unknown	General Cargo		Territorial	Failed Boarding		Oceanus
18/09/2014	Unknown	Offshore Supply Vessel	Kiribati	International	Hostage/Kidnapping		Maritime Security Review; SAA ppt.; Oceanus
29/09/2014	<i>Lauren Foss</i>	Tug	US	Territorial	Failed Robbery, Successful Boarding	Padlocks to the main deck door broken and lashings cut	NGA; Oceanus; IMB; MARLO; IMO
25/10/2014	<i>Strider</i>	Tanker	Nigeria	Territorial	Oil Theft, Robbery	Some cargo was stolen	Oceanus; IMO; IMB; NGA
04/11/2014	Unknown	Tanker		International	Successful Boarding		Oceanus
04/11/2014	<i>LT Irenes Logos</i>	Container	Panama	International	Failed Boarding		IMO; IMB; Oceanus
05/11/2014	<i>Ithaki</i>	Tanker	Malta	International	Successful Boarding		Oceanus
05/11/2014	<i>Basat</i>	Tanker	Malta	International	Hostage/Kidnapping, Robbery	Crew's valuables	LSS; Sea News; Sabah; ONI; Vessel Finder; Oceanus; Daily Sabah
06/11/2014	Unknown			Territorial	Failed Boarding		Oceanus; NGA

08/11/2014	<i>Lady Elizabeth</i>	Tanker	Liberia	International	Failed Boarding		Oceanus; IMO; IMB; NGA
11/11/2014	<i>Conger</i>	Tanker	Marshall Islands	International	Failed Boarding		IMO; Oceanus
12/11/2014	Unknown			International	Soft Approach		Oceanus; NGA
16/11/2014	Unknown	Tanker		Territorial	Robbery	Stole ship's property, crew's personal belongings, and damaged ship's equipment	Oceanus; IMO; IMB; NGA
21/11/2014	Unknown	Tanker		Territorial	Failed Robbery, Successful Boarding		Oceanus; NGA
27/11/2014	<i>Torm Republican</i>	Tanker	Denmark	Territorial	Successful Boarding		Oceanus
30/11/2014	Unknown	Tanker		International	Failed Boarding		Oceanus
08/12/2014	Unknown	Tanker	Malta	Territorial	Soft Approach		Oceanus
09/12/2014	Unknown	Tanker		International	Failed Boarding		NGA
13/12/2014	<i>Odin Finder</i>	Research Vessel	Italy	Territorial	Robbery	Stole ship's property from engine room	IMO; Oceanus; IMB; NGA
14/12/2014	<i>Front Clyde</i>	Tanker	Marshall Islands	Territorial	Failed Boarding		IMO
14/12/2014	Unknown	Tanker		International	Suspicious Activity		Oceanus

Southeast Asian Piracy and Maritime Crime Incidents Database

Date	Ship Name	Ship Type	Flag State	Activity Type	Number of Hostages	Theft Estimate	Sources
03/01/2014	<i>Giovanna Iuliano</i>	Bulk Carrier	Italy	Anchorage	Robbery	Duty crewman's personal effects and ship's property	NGA; IMB; Oceanus; ReCAAP; IMO
03/01/2014	<i>Lady Cordelia</i>	Tanker	Marshall Islands	Anchorage	Robbery	Ship's property	NGA; IMB; Oceanus; ReCAAP; IMO
06/01/2014	<i>Jo Spruce</i>	Tanker	Panama	Anchorage	Failed Robbery, Successful Boarding		NGA; Oceanus; IMB; IMO
07/01/2014	<i>Fairchem Stallion</i>	Tanker	Panama	Anchorage	Robbery	Ship's stores	NGA; IMB; Oceanus; ReCAAP; IMO
09/01/2014	<i>ER Brighton</i>	Other	Liberia	Anchorage	Failed Robbery, Successful Boarding		NGA; IMB; Oceanus; ReCAAP; IMO
16/01/2014	<i>AU CO 01</i>	General Cargo	Vietnam	Anchorage	Robbery	Engine spare parts	Oceanus; ReCAAP; NGA; IMB; IMO
18/01/2014	<i>Oriental Sapphire</i>	Bulk Carrier	Panama	Anchorage	Robbery	Personal belongings and ship's property (and dents found in the ship)	NGA; IMB; Oceanus; ReCAAP; IMO
31/01/2014	<i>Tango, Lewek Lea</i>	Tug	Singapore	Open Water	Robbery	Cargo from two containers on a barge under tow	IMO; IMB; Oceanus
01/02/2014	<i>Global Frontier</i>	Bulk Carrier	Panama	Open Water	Successful Boarding		ReCAAP; IMO
01/02/2014	<i>BSS Pride</i>	Tanker	Liberia	Anchorage	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB;
05/02/2014	<i>Kota Berkat</i>	General Cargo	Singapore	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMO; IMB; RECAAP
05/02/2014	<i>Kota Intan</i>	General Cargo	Singapore	Open Water	Robbery	Engine spares and the electrical officer's mobile phone	ReCAAP; IMO; IMB; Oceanus
05/02/2014	<i>NCC Huda</i>	Tanker	Saudi Arabia	Open Water	Robbery	Ship's stores	NGA; IMO; ReCAAP; IMB; Oceanus
10/02/2014	<i>Prosperity</i>	Bulk Carrier	Liberia	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
14/02/2014	<i>Karin Rambow</i>	Container	Barbuda	Anchorage	Robbery	Ship's stores	NGA; IMO; ReCAAP; IMB; Oceanus
23/02/2014	<i>Juara</i>	Barge and Tug	Malaysia	Open Water	Robbery	Scrap iron from the barge being towed by the tug	Oceanus; IMB; IMO; ReCAAP; NGA
28/02/2014	<i>River Globe</i>	Bulk Carrier	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		IMO
03/03/2014	Unknown	Tanker		Open Water	Failed Robbery, Successful Boarding		NGA
06/03/2014	<i>Sea Voyager</i>	Tanker	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus

06/03/2014	<i>Orpheas</i>	Tanker	Liberia	Open Water	Robbery	Engine spare parts, ship's property	NGA; IMO; ReCAAP; IMB; Oceanus
10/03/2014	<i>Cape Veni</i>	Bulk Carrier	Cyprus	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
20/03/2014	<i>PAC Schedar</i>	Container	Marshall Islands	Anchorage	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
29/03/2014	Unknown	Tanker	Denmark	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; IMB; Oceanus
29/03/2014	<i>Nordic Anne</i>	Tanker	Denmark	Open Water	Robbery	Engine spare parts	ReCAAP; IMO
31/03/2014	<i>Samos</i>	Tanker	Bahamas	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
31/03/2014	<i>Mystic</i>	Bulk Carrier	Malta	Open Water	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus
01/04/2014	<i>Centaur</i>	Container	Panama	Port	Failed Robbery, Successful Boarding		NGA; IMO; IMB; Oceanus
02/04/2014	<i>Pacific Galaxy</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
04/04/2014	<i>Ridgebury John B</i>	Tanker	Marshall Islands	Open Water	Robbery	Ship's stores	IMO; ReCAAP; IMB; Oceanus
06/04/2014	<i>Masakuni</i>	Other	Japan	Open Water	Robbery	Crew's personal belongings and ship's property	IMO; Oceanus
07/04/2014	<i>Budget "18"</i>	Barge and Tug	Malaysia	Open Water	Robbery	10 tons of scrap metal	IMO; ReCAAP; Oceanus
09/04/2014	<i>Blackfin</i>	Bulk Carrier	Bahamas	Anchorage	Robbery	Ship's property	NGA; IMO; ReCAAP; IMB; Oceanus
16/04/2014	<i>SCF Altai</i>	Tanker	Liberia	Anchorage	Robbery	Engine spare parts	IMO
17/04/2014	<i>Sri Phang Nga</i>	Tanker	Thailand	Open Water	Oil Theft, Robbery, Vessel Hijack	450,000 liters of fuel and crew's personal belongings, GPS, VHF, and walkie talkies - also damaged windlass hydraulic control piped, M/E compressed air pipes, and communication systems.	NGA; IMO; ReCAAP; IMB; Oceanus
18/04/2014	<i>Vishva Nidhi</i>	Bulk Carrier	India	Anchorage	Failed Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
19/04/2014	<i>New Sailing 2</i>	General Cargo	Panama	Anchorage	Robbery	Personal belongings of duty crewman	NGA; IMO; ReCAAP; IMB; Oceanus
20/04/2014	<i>SN Frederica</i>	Tanker	Italy	Open Water	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus

21/04/2014	<i>SKS Darent</i>	Tanker	Bahamas	Open Water	Robbery	Engine spare parts and personal property	NGA; IMO; ReCAAP; IMB; Oceanus
22/04/2014	<i>Naniwa Maru 1</i>	Tanker	St Kitts-Nevis	Open Water	Oil Theft, Hostage/Kidnapping	3,000,000 liters diesel of the 4.5 million liters on board (2,500 metric tons)	NGA; IMO; ReCAAP; IMB; AP; Sun Daily; Star Online; Khabar; Oceanus
30/04/2014	<i>Zhongji No. 1</i>	Tanker	China	Open Water	Robbery	Engine spare parts	Oceanus; IMB; IMO; ReCAAP; NGA
01/05/2014	<i>Jan Van Gent</i>	General Cargo	Netherlands	Open Water	Failed Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
01/05/2014	<i>Prime Express</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		Oceanus; ReCAAP; IMB; NGA
02/05/2014	<i>MSC Melatide</i>	Container	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; Oceanus
03/05/2014	<i>Bomar Prelude</i>	Container	Panama	Anchorage	Failed Robbery, Successful Boarding		IMB; IMO
03/05/2014	<i>Zhongji No. 1</i>	Tanker	China	Open Water	Failed Boarding		ReCAAP; IMB; NGA
04/05/2014	<i>Harbour Oscar</i>	Tug	Malaysia	Open Water	Robbery	Stole items from 3 containers which held baby toys and shoes	IMO; ReCAAP; IMB; Oceanus; NGA
04/05/2014	<i>Iver Express</i>	Tanker	Netherlands	Open Water	Robbery	Engine spare parts	Oceanus; IMB; IMO; ReCAAP; NGA
07/05/2014	<i>Maple Express</i>	Tanker	China	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; NGA
12/05/2014	<i>Baltic Galaxy</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMO; IMB; NGA
14/05/2014	<i>Sea Bay</i>	Tanker	Hong Kong	Anchorage	Failed Boarding		IMO; IMB; ReCAAP; Suritec; Oceanus
22/05/2014	<i>Nordic Agnetha</i>	Tanker	Singapore	Anchorage	Robbery	Ship's property	NGA; IMB; IMO; ReCAAP; Oceanus
23/05/2014	<i>Maratha Paramount</i>	Bulk Carrier	Marshall Islands	Anchorage	Robbery	Ship's property	NGA; IMO; ReCAAP; Oceanus
25/05/2014	<i>New Glory</i>	Tanker	Singapore	Open Water	Robbery, Vessel Hijack	Cash, crew's personal effects, provisions, and damaged equipment	Oceanus; IMB; IMO; ReCAAP; IHS Maritime; NGA
27/05/2014	<i>Independence</i>	Other	Singapore	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
27/05/2014	<i>Orapin 4</i>	Tanker	Thailand	Open Water	Oil Theft, Robbery, Vessel Hijack	370mt of ADF, crew's belongings, damaged the communication equipment	NGA; IMO; ReCAAP; IMB; Oceanus; New Strait Times; Bangkok Post; Sea Ship News; Oceanus
28/05/2014	<i>Ore Vitoria</i>	Bulk Carrier	Liberia	Open Water	Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA

29/05/2014	<i>Kien San 1</i>	Barge and Tug	Malaysia	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMO; ReCAAP; NGA
29/05/2014	<i>Eastern Star</i>	Bulk Carrier	Vietnam	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
31/05/2014	<i>Lucas</i>	Tanker	Panama	Open Water	Failed Oil Theft, Failed Robbery	Ship's property and crew belongings, destroyed communication equipment	NGA; IMB; Oceanus; IMO; ReCAAP; Suritec
31/05/2014	<i>Avra</i>	Bulk Carrier	Greece	Open Water	Robbery	Ship's stores, engine spares	IMO; IMB; Oceanus
03/06/2014	<i>Ocean Bird</i>	General Cargo	Denmark	Open Water	Failed Boarding		Oceanus; IMO; IMB; NGA
03/06/2014	<i>Gemina</i>	Tanker	Panama	Open Water	Robbery	Ship's property	IMO; ReCAAP; IMB; Oceanus
03/06/2014	<i>Gallant Pescadores</i>	General Cargo	Panama	Anchorage	Robbery	Crew's belongings (mobile phones, laptops, watches, camera, DVD player)	IMO; ReCAAP; IMB; Oceanus
03/06/2014	<i>Kim Hock Tug 8</i>	Barge and Tug	Singapore	Open Water	Robbery	Scrap metal from barge	IMO; ReCAAP; Oceanus
07/06/2014	<i>Kweichow</i>	General Cargo	Hong Kong	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
07/06/2014	<i>Budi Mesra Dua</i>	Tanker	Malaysia	Open Water	Oil Theft, Robbery, Vessel Hijack	100 metric tons (10 million liters) of oil and crew's valuables, as well as destroyed communication equipment	NGA; IMO; ReCAAP; IMB; Star Online; Oceanus
09/06/2014	<i>Manypius 12</i>	Barge and Tug	Malaysia	Open Water	Robbery, Vessel Hijack/Crew Release	Crew cash and belongings, and the tug boat, as well as damaged barge containers	Oceanus; IMB; IMO; ReCAAP; NGA
10/06/2014	<i>Ronald</i>	FV	Philippines	Port	Robbery, Vessel Hijack/Crew Release	Ship's equipment and a fishing vessel	NGA; IMO; IMB; Oceanus
14/06/2014	<i>Mt Ai Maru</i>	Tanker	Honduras	Open Water	Oil Theft, Robbery	700,000 liters (620 tons) of oil and crew's personal belongings, including cash and mobile phones	NGA; IMO; ReCAAP; IMB; Daily Express; Star Online; Oceanus
16/06/2014	<i>Orion T1202</i>	Barge and Tug	Singapore	Open Water	Robbery	Sea anchor	ReCAAP; Oceanus
17/06/2014	<i>Bulk Ecuador</i>	Bulk Carrier	Panama	Anchorage	Robbery	Ship's stores	NGA; IMB; Oceanus; IMO; ReCAAP; Suritec; ONI
18/06/2014	<i>Galuh Pusaka</i>	Tanker	Indonesia	Open Water	Hostage/All Crew, Mothershipped, Vessel Hijack		Old Salt Blog; IHS Maritime 360; Maritime Security Review; Vessel Finder; Oceanus; ONI
25/06/2014	<i>NCC Tihama</i>	Tanker	Saudi Arabia	Open Water	Robbery	Ship's stores	NGA; IMO; ReCAAP; IMB; Oceanus

25/06/2014	<i>Torm Helene</i>	Tanker	Marshall Islands	Open Water	Robbery	Engine spare parts	NGA; IMB; IMO; ReCAAP; Oceanus
26/06/2014	<i>An May</i>	Bulk Carrier	Hong Kong	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; Oceanus
26/06/2014	<i>RHL Calliditas</i>	Container	Liberia	Open Water	Failed Boarding		NGA; IMB; IMO; ReCAAP; Oceanus
27/06/2014	<i>Piera</i>	Bulk Carrier	Indonesia	Anchorage	Robbery	Ship's stores	NGA; IMB; IMO; ReCAAP; Oceanus
29/06/2014	<i>Minerva Maya</i>	Tanker	Greece	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; Oceanus
30/06/2014	<i>Mercury</i>	Bulk Carrier	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
30/06/2014	<i>Challenge Procyon</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		IMO;
30/06/2014	<i>Barcelona</i>	Car Carrier	Panama	Anchorage	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus
30/06/2014	<i>G Commander</i>	LNG	Republic of Korea	Open Water	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus
30/06/2014	<i>Hanjin Qingdao</i>	Container	Panama	Open Water	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus
02/07/2014	<i>Pacific Dawn</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		NGA; IMB; Oceanus; IMO; ReCAAP; ONI
04/07/2014	<i>MT Moresby 9</i>	Tanker	Honduras	Open Water	Oil Theft, Vessel Hijack	2200 metric tons of cargo and damaged communication equipment	NGA; IMB; Oceanus; IMO; ReCAAP; Seatrade Global
05/07/2014	<i>Glenn Mar-B</i>	FV	Philippines	Open Water	Failed Hostage-taking		NGA; IMO; IMB; Oceanus
09/07/2014	<i>Kmarin Mugunghwa</i>	Bulk Carrier	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
09/07/2014	<i>Vinalines Glory</i>	Tanker	Vietnam	Open Water	Failed Robbery, Successful Boarding		NGA; IMB; IMO; ReCAAP; Oceanus
09/07/2014	<i>Harbour Hornbill</i>	General Cargo	Malaysia	Open Water	Robbery	Master's belongings	NGA; IMO; ReCAAP; IMB; Oceanus
13/07/2014	<i>C.P. 41</i>	Tanker	Thailand	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
15/07/2014	<i>Oriental Glory</i>	Tanker	Malaysia	Open Water	Oil Theft, Robbery, Vessel Hijack/Crew Release	2,500 tons oil and crew's personal property, also damaged communication equipment and main engines	Oceanus; IMB; IMO; ReCAAP; Oceanus; NGA
15/07/2014	<i>Stella Kosan</i>	LNG	Singapore	Open Water	Robbery	Ship's stores and engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus

19/07/2014	<i>Pacific Silver</i>	Tanker	Marshall Islands	Anchorage	Robbery	Ship's property	IMO; IMB; ReCAAP; Oceanus; NGA
25/07/2014	<i>JBU Opal</i>	Tanker	Hong Kong	Anchorage	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
25/07/2014	<i>Sea Dias</i>	Bulk Carrier	Marshall Islands	Anchorage	Robbery	Ship's stores	NGA; IMO; ReCAAP; IMB; Oceanus
25/07/2014	<i>Ji Xiang</i>	Tanker	Mongolia	Open Water	Robbery	Crew's belongings, cash and ship's stores	NGA; IMO; ReCAAP; IMB; Malay Mail Online; Oceanus
02/08/2014	<i>Pentradar</i>	Tanker	Malaysia	Open Water	Failed Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
04/08/2014	<i>BW Tokyo</i>	LNG	Singapore	Open Water	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
08/08/2014	<i>Giuseppe Mauro Rizzo</i>	Bulk Carrier	Italy	Anchorage	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
10/08/2014	<i>Ephesus</i>	General Cargo	Marshall Islands	Anchorage	Failed Robbery, Successful Boarding		IMO
10/08/2014	<i>Dews 3</i>	Tanker	Mongolia	Open Water	Failed Oil Theft, Robbery	Communication equipment and crew's belongings	IMO; ReCAAP; IMB; Oceanus
11/08/2014	<i>Bomar Prelude</i>	Tanker	Marshall Islands	Anchorage	Failed Robbery, Successful Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
15/08/2014	Unknown	FV	Vietnam	Open Water	Robbery	Ship's equipment, GPS, radio, fish detectors, fish, and fuel	NGA; Oceanus
19/08/2014	<i>Challenge Procyon</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; NGA; IMB; Oceanus
20/08/2014	<i>Lake Dahlia</i>	Bulk Carrier	Panama	Anchorage	Robbery	Mooring ropes	NGA; IMO; ReCAAP; IMB; Oceanus
22/08/2014	<i>Zealand Amsterdam</i>	Bulk Carrier	Netherlands	Open Water	Failed Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
22/08/2014	<i>Kota Juta</i>	Container	Hong Kong	Open Water	Robbery	Engine spare parts	NGA; IMO; ReCAAP; IMB; Oceanus
24/08/2014	<i>Lincoln Express</i>	Livestock Carrier	Philippines	Open Water	Robbery	Engine room spares and crew's personal cash	IMO; ReCAAP; Oceanus
25/08/2014	<i>Bro Vario</i>	Tanker	Singapore	Anchorage	Failed Boarding		NGA; IMO; ReCAAP; IMB; Oceanus
27/08/2014	Unknown	Bulk Carrier	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		IMO; IMB; Oceanus
28/08/2014	<i>V.L. 14</i>	Tanker	Thailand	Open Water	Oil Theft, Robbery, Vessel Hijack	1,296 tons lube oil, crew's belongings and damaged communication systems	NGA; IMO; ReCAAP; IMB; Straits Times; Oceanus
17/09/2014	<i>Orapin 2</i>	Tanker	Thailand	Open Water	Oil Theft, Vessel Hijack/Crew Release	Gas Oil siphoned by two other smaller oil tankers	NGA; Oceanus; IMO; ReCAAP; IHS Maritime; IMB

17/09/2014	Unknown	Tanker	Marshall Islands	Anchorage	Robbery	Ship's stores	NGA; IMB;
19/09/2014	<i>Pacific London</i>	Tanker	Marshall Islands	Anchorage	Robbery	Paint drums	ReCAAP; IMO
22/09/2014	<i>Ocean Osprey</i>	Tanker	Dominican Republic	Open Water	Failed Oil Theft, Robbery	Crew personal effects and money	NGA; Oceanus; IMO; IMB
22/09/2014	<i>Pentradar</i>	Tanker	Malaysia	Open Water	Oil Theft, Robbery, Vessel Hijack	Full cargo, crew's cash and personal belongings	NGA; IMO; Oceanus; NGA
24/09/2014	<i>Zilos</i>	Bulk Carrier	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
25/09/2014	<i>Stena Superior</i>	Tanker	Bermuda	Open Water	Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
25/09/2014	<i>Sentek 23</i>	Tanker	Singapore	Open Water	Robbery	Crew's belongings (mobile phones, laptops, cash)	IMO; ReCAAP; IMB; Oceanus
01/10/2014	<i>Hai Jie 1</i>	Tug	Belize	Open Water	Robbery	Ship's navigation equipment	IMO; ReCAAP; Oceanus
02/10/2014	<i>Sunrise 689</i>	Tanker	Vietnam	Open Water	Oil Theft, Robbery, Vessel Hijack	1,500 tons gas oil, engine parts, and crew belonging's	Oceanus; IMB; IMO; ReCAAP; Tuoitrenews.vn; NGA
05/10/2014	<i>Clipper</i>	LNG	Indonesia	Anchorage	Robbery	Ship's property (One reconditioned shaft blade)	Oceanus; IMO; IMB; NGA
09/10/2014	<i>Srikandi 515</i>	Tanker	Indonesia	Open Water	Robbery, Vessel Hijack/Crew Release	Entire ship with 3,100 tons of palm oil; has not been recovered	IMO; ReCAAP; IMB; Vessel Finder; NGA
09/10/2014	Unknown	Tanker	Indonesia	Open Water	Robbery	Crew's belongings (mobile phones, cash, and other valuables)	IMO; Oceanus
12/10/2014	<i>Venus</i>	Bulk Carrier	Bahamas	Anchorage	Robbery, Successful Boarding	Ship's stores and property	Oceanus; IMO; IMB; NGA
14/10/2014	Unknown	LNG	Singapore	Anchorage	Failed Robbery, Successful Boarding		Oceanus; IMB; NGA
14/10/2014	<i>Veronique D</i>	Bulk Carrier	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
15/10/2014	<i>Suratchanya</i>	Tanker	Thailand	Open Water	Oil Theft, Vessel Hijack	2,100 metric tons of gasoline and destroyed communications equipment	IMO; ReCAAP; IMB; Oceanus
17/10/2014	<i>Bulk Singapore</i>	Bulk Carrier	Singapore	Anchorage	Robbery	Engine spare parts	Oceanus; IMO; IMB; NGA
18/10/2014	<i>SC Tianjin</i>	Tanker	Hong Kong	Open Water	Robbery	Engine spare parts	IMO; IMB; Oceanus

19/10/2014	<i>Lycaste Peace</i>	Tanker	Panama	Open Water	Robbery	Engine spare parts	Oceanus; IMB; IMO; ReCAAP; NGA
19/10/2014	<i>Saigon Bridge</i>	Container	Panama	Open Water	Robbery	Paint drums	IMO; ReCAAP; Oceanus
20/10/2014	<i>Spar Taurus</i>	Bulk Carrier	Norway	Open Water	Robbery	Engine spare parts	Oceanus; IMB; IMO; ReCAAP; NGA
21/10/2014	<i>Irenes Reliance</i>	Container	Greece	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
21/10/2014	<i>Swiber Raven</i>	Tug	Singapore	Open Water	Robbery	Deck cargo	IMO; ReCAAP; Oceanus
21/10/2014	<i>FV Chuan Yu Tsai No. 1</i>	FV	Taiwan	Open Water	Robbery	Boat's fishing gear	Oceanus; IMB; IMO; ReCAAP; NGA
21/10/2014	<i>Yufeng 6</i>	Tanker	Hong Kong	Open Water	Failed Oil Theft, Robbery, Vessel Hijack	Ship's cash and crew valuables; damaged deck machinery	Oceanus; IMB; IMO; ReCAAP; NGA
22/10/2014	<i>Aruna Hulya</i>	Bulk Carrier	Marshall Islands	Open Water	Robbery	Ship's property	Oceanus; IMB; IMO; ReCAAP; NGA
23/10/2014	<i>Glory Sun</i>	Bulk Carrier	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
25/10/2014	<i>Fred</i>	Container	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		ReCAAP; NGA; IMB; Oceanus; IMO
26/10/2014	<i>Jade Palms</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; IMB; Oceanus
26/10/2014	<i>Hyundai Stride</i>	Container	Panama	Anchorage	Robbery	5 immersion suits, two breathing apparatuses, and 2 cylinders	ReCAAP; Oceanus
27/10/2014	<i>Pavian</i>	Bulk Carrier	Liberia	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
27/10/2014	<i>Pioneer 89</i>	Barge and Tug	Singapore	Open Water	Robbery	Crew's personal belongings (cash, mobile phone, and a gold ring) and damaged communication equipment	ReCAAP; IMO
04/11/2014	Unknown	Bulk Carrier		Open Water	Failed Robbery, Successful Boarding		NGA
04/11/2014	Unknown	Tanker		Open Water	Failed Robbery, Successful Boarding		NGA
04/11/2014	<i>Bluster</i>	Tug	Netherlands	Open Water	Robbery	Padlocks on storeroom doors broken and few items were missing	Oceanus; IMO; IMB; NGA
07/11/2014	<i>Winstar Grace</i>	Barge and Tug	Singapore	Open Water	Robbery	Crew's personal belongings and VHF radio destroyed	IMO; ReCAAP; Oceanus

08/11/2014	<i>Galissas</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
08/11/2014	<i>Vishva Nidhi</i>	Bulk Carrier	India	Anchorage	Robbery	Ship's property and crewmen's belongings	Oceanus; IMB; IMO; ReCAAP; NGA
13/11/2014	<i>Tip Top 1</i>	Barge and Tug	Malaysia	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; Oceanus
13/11/2014	<i>Ephesos</i>	Tanker	Greece	Open Water	Failed Robbery, Successful Boarding		Oceanus, IMO; IMB; NGA
15/11/2014	Unknown	Tanker		Open Water	Failed Robbery, Successful Boarding		NGA
16/11/2014	<i>Crystal Dream</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
16/11/2014	<i>Berge Kangchenjunga</i>	Tanker	UK	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
16/11/2014	<i>Beatrice</i>	Bulk Carrier	Marshall Islands	Open Water	Robbery	Ship's property	Oceanus; IMO; IMB; NGA
17/11/2014	<i>Ever Alpha</i>	Barge and Tug	Malaysia	Open Water	Robbery	Crew's personal belongings (cash, phones)	IMO; ReCAAP; Oceanus
17/11/2014	<i>Sol 1005</i>	Tug	Indonesia	Open Water	Robbery	Crew's personal belongings	IMO; ReCAAP; Oceanus
19/11/2014	<i>Aral Sea</i>	Tanker	Singapore	Open Water	Robbery	Deck watch- keepers portable radio	Oceanus; IMB; IMO; ReCAAP; Oceanus; IMO; NGA
19/11/2014	<i>King Bruce</i>	Container	Marshall Islands	Open Water	Robbery	Ship's stores	Oceanus; IMO; IMB; NGA
20/11/2014	<i>Gas Aries</i>	LNG	Liberia	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
21/11/2014	<i>New Emerald</i>	Bulk Carrier	Panama	Open Water	Failed Boarding		IMO; ReCAAP; Oceanus
22/11/2014	<i>Alpine Maya</i>	Tanker	Hong Kong	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
22/11/2014	<i>Norgas Sonoma</i>	Tanker	Singapore	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; NGA
23/11/2014	<i>River Eternity</i>	Tanker	Panama	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP
23/11/2014	<i>Cape York</i>	Bulk Carrier	Hong Kong	Open Water	Robbery	Spare engine parts	Oceanus; IMB; IMO; ReCAAP; NGA
24/11/2014	<i>MOL Maneuver</i>	Container	Marshall Islands	Open Water	Failed Boarding		IMO; ReCAAP
02/12/2014	Unknown	FV	Vietnam	Open Water	Failed Boarding		Oceanus

04/12/2014	<i>Olympic Gemini</i>	Bulk Carrier	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
04/12/2014	<i>Gaschem Pacific</i>	LNG	Liberia	Open Water	Failed Robbery, Successful Boarding		IMO; ReCAAP; IMB; Oceanus
06/12/2014	Unknown	Tanker		Open Water	Failed Robbery, Successful Boarding		NGA
07/12/2014	<i>Semua Berjaya</i>	Tanker	Malaysia	Open Water	Failed Robbery, Successful Boarding		Oceanus; IMO; IMB; NGA
07/12/2014	<i>VP Asphalt 2</i>	Tanker	Vietnam	Open Water	Failed Oil Theft, Robbery	All valuables on the vessel	Oceanus; IMB; IMO; ReCAAP; Tuoitrenews.vn; NGA
19/12/2014	<i>Pendulum</i>	Bulk Carrier	Marshall Islands	Open Water	Failed Robbery, Successful Boarding		ReCAAP; IMO
20/12/2014	<i>Komati</i>	Container	Panama	Anchorage	Robbery	Broke open forepeak storeroom and paint room padlocks, stole ship's stores and property	IMO; IMB; Oceanus; ReCAAP; NGA
20/12/2014	<i>Los Andes Bridge</i>	Container	Panama	Open Water	Robbery	Engine spare parts	IMO; Oceanus; IMB; NGA
20/12/2014	<i>UMT 6</i>	Barge and Tug	Singapore	Open Water	Robbery	Crew's personal belongings and ship's property	ReCAAP; IMO
20/12/2014	<i>Maersk Mediterranean</i>	Tanker	Singapore	Anchorage	Robbery	Broke open the engine storeroom's padlock and stole engine spares and ship's property.	IMO; IMB; Oceanus; ReCAAP; NGA
21/12/2014	<i>Madeira</i>	Bulk Carrier	Malta	Open Water	Failed Robbery, Successful Boarding		ReCAAP; IMO
23/12/2014	Unknown			Open Water	Failed Robbery, Successful Boarding		Oceanus; NGA
25/12/2014	<i>Bulk India</i>	Bulk Carrier	Singapore	Open Water	Failed Robbery, Successful Boarding		Oceanus; ReCAAP; IMO
25/12/2014	<i>Billion Trader II</i>	Bulk Carrier	Philippines	Open Water	Failed Robbery, Successful Boarding		Oceanus; ReCAAP; IMO
25/12/2014	<i>Ephesus</i>	Bulk Carrier	Marshall Islands	Port	Robbery	Ship's property	IMO; IMB; Oceanus; ReCAAP; NGA
25/12/2014	<i>Alabra</i>	Tanker	Singapore	Open Water	Robbery	Engine spare parts	IMO; IMB; Oceanus; ReCAAP; NGA
28/12/2014	<i>Svenja</i>	General Cargo	Antigua and Barbados	Anchorage	Robbery	Engine spare parts	IMB; IMO

Bangladesh Piracy and Maritime Crime Incidents Database

*Open Water, Port, and Anchorage are used instead of International or Territorial for Southeast Asia

Date	Ship Name	Ship Type	Flag State	Activity Type	Number of Hostages	Theft Estimate	Sources
05/02/2014	<i>Phoenix Nereid</i>	Bulk Carrier	Panama	Anchorage	Robbery	Mooring ropes, ship's stores	IMO; ReCAAP; IMB; Oceanus
20/02/2014	<i>SG Victory</i>	Tug	Singapore	Open Water	Robbery	Ship's property	NGA; IMO; ReCAAP; IMB; Oceanus
21/02/2014	<i>SG Victory</i>	Tug	Singapore	Open Water	Robbery	Items from the scrap vessel, including paint and cables	ReCAAP
24/02/2014	<i>Alpine Mia</i>	Tanker	China	Anchorage	Robbery		NGA; IMO; ReCAAP; IMB; Oceanus
01/03/2014	<i>Latmar</i>	Bulk Carrier	Marshall Islands	Anchorage	Failed Robbery		NGA; IMO; ReCAAP; IMB; Oceanus
24/04/2014	<i>Loyalty</i>	Bulk Carrier	Liberia	Port	Robbery	Ship's property	NGA; IMO; ReCAAP; IMB; Oceanus
30/04/2014	<i>Njord Thyra</i>	Tanker	Singapore	Anchorage	Robbery	Ship's property	Oceanus; IMO; IMB; ReCAAP; NGA
05/05/2014	<i>Histria Agata</i>	Tanker	Malta	Anchorage	Robbery	Mooring lines and a lifebuoy	NGA; IMB; Oceanus; IMO; ReCAAP; Suritec
10/05/2014	<i>Front Avon</i>	Tanker	Marshall Islands	Anchorage	Failed Boarding		IMO; Suritec; IMB; Oceanus
29/05/2014	<i>Alpine Monique</i>	Tanker	Singapore	Anchorage	Failed Robbery, Successful Boarding		NGA; IMB; Oceanus; IMO; ReCAAP; Suritec
08/06/2014	<i>Gas Batam</i>	LNG	Singapore	Anchorage	Robbery	Ship's stores, fire wire, mooring ropes	NGA; IMO; ReCAAP; IMB; Oceanus
24/07/2014	<i>Golden Adventure</i>	Tanker	Liberia	Anchorage	Robbery	Ship's property	IMO; IMB; ReCAAP; Oceanus; NGA
31/07/2014	<i>Amur River</i>	Container	Cyprus	Anchorage	Robbery	Ship's stores	NGA; IMO; ReCAAP; IMB; Oceanus
21/08/2014	Unknown	FV	Bangladesh	Open Water	Failed Robbery, Successful Boarding		Oceanus; ONI; Dhaka Tribune; ONI
22/08/2014	<i>Navios Oriana</i>	Bulk Carrier	Panama	Anchorage	Robbery	Mooring ropes	NGA; IMO; ReCAAP; IMB; Oceanus
25/08/2014	Unknown	FV	Bangladesh	Open Water	Robbery	Looted 3 fishing trawlers	Oceanus; Financial Express; NGA
18/09/2014	<i>Golden Fan</i>	Car Carrier	Bangladesh	Anchorage	Robbery	Mooring ropes	NGA; Oceanus; IMO; IMB
27/09/2014	<i>Front Arrow</i>	Tanker	Marshall Islands	Anchorage	Robbery	Ship's stores and duty crewman's radio	Oceanus; IMO; IMB; NGA
08/10/2014	<i>Arizona</i>	Bulk Carrier	Liberia	Anchorage	Robbery	Ship's property	Oceanus; IMB; IMO; ReCAAP; NGA
15/10/2014	Unknown	Bulk Carrier	Malta	Open Water	Robbery	Ship's provisions	Oceanus; IMB; NGA

20/10/2014	<i>Mimi Selmer</i>	Bulk Carrier	Marshall Islands	Anchorage	Robbery	Ship's property and mooring ropes	IMO; IMB; Oceanus
23/10/2014	<i>Mimi Selmer</i>	Bulk Carrier	Marshall Islands	Open Water	Robbery	3 mooring ropes	IMO; Oceanus
24/10/2014	<i>Shropshire</i>	Bulk Carrier	Malta	Anchorage	Robbery	Ship's property	Oceanus; IMB; IMO; ReCAAP; NGA
04/11/2014	Unknown	FV	Bangladesh	Port	Hostage/Kidnapping, Robbery, Vessel Hijack/Crew Release	Stole one of the fishing boats, fish, and nets	Oceanus; Dhaka Tribune; NGA
20/11/2014	Unknown	Bulk Carrier		Open Water	Robbery	Ship's property	NGA
23/11/2014	<i>Kimolos Trader</i>	Container	Singapore	Anchorage	Failed Robbery, Successful Boarding		Oceanus; IMB; IMO; ReCAAP; Dhaka Tribune; NGA
14/12/2014	<i>Barry Trader</i>	Container	Singapore	Anchorage	Robbery	200 meters of mooring rope	ReCAAP; NGA
17/12/2014	<i>CS Summer</i>	Tanker	Panama	Anchorage	Failed Robbery	Ship's stores	IMO; Oceanus; IMB; NGA