UNITED STATES COAST GUARD

REPORT OF INVESTIGATION

SINKING OF THE F/V MAJESTIC BLUE IN THE SOUTH PACIFIC OCEAN ON JUNE 14, 2010 WITH LOSS OF TWO CREWMEMBERS

MISLE ACTIVITY NUMBER: 3766101

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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16732
OCT 16 2013

SINKING OF THE F/V MAJESTIC BLUE IN THE SOUTH PACIFIC OCEAN ON JUNE 14, 2010 WITH THE LOSS OF TWO CREWMEMBERS

ACTION BY THE COMMANDANT

The record and the report of the Formal Investigation convened to investigate the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved subject to the following comments.

ACTION ON RECOMMENDATIONS

Recommendation 1: The Coast Guard should develop regulations within 46 CFR Part 28 requiring an "Open" and "Closed" indicator panel on the bridge for each watertight door.

Action: I concur with the intent of this recommendation. While I agree that a panel on the bridge with an open/closed indicator for each watertight door would be beneficial, commercial fishing vessels are not required to have watertight doors below deck unless they are classed or have a loadline. Based on this, requirements for associated indicators in regulation would be inappropriate at this time. However, under new requirements set forth in the Coast Guard Authorization Act of 2010, commercial fishing vessels greater than fifty feet overall in length and built after July 1, 2012 will be required to meet survey and classification requirements. Classification societies are currently developing rules to address these new requirements. Watertight compartments and closures, including watertight doors, below deck and associated indicators are expected to be included in the rules, which would effectively fulfill this recommendation. No further action is directed.

Recommendation 2: The Coast Guard should amend 46 CFR Part 28.265 to include "all emergency instructions should be in a common language of the crew".

Action: I do not concur with this recommendation. While I believe it is important that all crew members on commercial fishing vessels be familiar with the emergency instructions required by 46 CFR 28.265, I do not believe this amendment is necessary. As identified in the investigation, certain vessels, in particular those in the Distant Water Tuna Fleet (DWTF), are exempt from the U.S. citizen crew manning requirements. As a result, the crew often includes multiple nationalities and languages without a "common language of the crew." Even so, masters and individuals in charge of each commercial fishing vessel are required by 46 CFR 28.270 to ensure that drills are conducted and instruction is given to each individual on boat at least once a month and it must ensure that each individual is familiar with their duties and responses to the

contingencies addressed in the emergency instructions. In addition, they must also ensure each crew member receives a safety orientation to each individual on board that explains the emergency instructions required by section 28.265. While having those instructions in a common language of the crew, if there is one, or in the various languages of the crew would help to ensure their understanding, I believe the issue can be effectively addressed by ensuring compliance with the existing requirements for instruction, drills and safety orientation in 46 CFR 270. No further action is directed.

Recommendation 3: The Coast Guard should amend 46 CFR Part 15.730 to remove (a)(3) which exempts fishing vessels from the language requirements when leaving from a U.S. port.

Action: I do not concur with this recommendation. The exemption in 46 CFR 15.730(a)(3) is a direct implementation of an exemption granted by Congress in 46 USC 8702(a)(3). As such, the Coast Guard cannot remove the exemption without a change to the Federal statute enacted by Congress. The Coast Guard does not see a benefit in pursuing this change. No further action is directed.

Recommendation 4: The Coast Guard should seek legislative authority and additional resources to support a mandatory annual inspection program for Commercial Fishing Vessels to include a dry-dock examination.

Action: I concur with the intent of this recommendation. I agree that commercial fishing vessels should be subject to inspection. The Coast Guard has submitted legislative change proposals (LCPs) for such authority numerous times, however, the requests have not been accepted or approved in the legislative process. The Coast Guard Authorization Act (CGAA) of 2010 included language that established a requirement for mandatory safety examinations of commercial fishing vessels that operate beyond three nautical miles of the baseline, but not full inspections. New vessels (greater than 50 feet) constructed after July 1, 2012 will have to meet survey and classification which will include dry-dock examinations. This is step toward inspections of fishing vessels, and through new authority in the CGAA to develop alternate safety compliance programs for older commercial fishing vessels, the Coast Guard may be able to address hull and structural integrity requirements that would be considered or part of an inspection regime.

Recommendation 5: The Coast Guard should ensure that only vessels truly "homeported in American Samoa" are permitted to operate under the citizenship exemptions allowed for Distant Water Tuna Vessels.

Action: I concur with this recommendation. I agree that, while Distant Water Tuna Fleet (DWTF) vessels can be homeported anywhere as with other vessels, only those "operating in and out of American Samoa" are eligible for the manning exemption as stipulated in the law. To assist field units in ensuring compliance with the law, Commandant promulgated policy on May 18, 2011, outlining the eligibility requirements for the manning exemption. Full compliance with the requirements set forth in the law and per the guidance in the Commandant's policy is

being pursued on the DWTF vessels employing foreign officers to meet their manning requirements. Actions on this recommendation are complete.

[redacted]

J. C. BURTON
Captain, U.S. Coast Guard
Director of Inspections & Compliance

U.S. Department of Homeland Security
United States Coast Guard

Commander (dp)
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16732
February 3, 2011

MEMORANDUM

[redacted]

From: H. M. Nguyen, Captain
CGD Fourteen (dp)

Reply to (dpi)
Attn of: CDR Scott Kim

To: COMDT (CG-545)

Subj: F/V MAJESTIC BLUE (O.N. 1212048) INVESTIGATION (ACTIVITY NO. 3766101)

1. The enclosed Report of Investigation is forwarded recommending approval of the findings, conclusions, and recommendations. The casualty occurred on the other side of the International Date Line; therefore, although the investigation refers to June 14, 2010 as the date of the casualty, initial entries made by D14 refer to June 13.

2. The proximate cause of this sinking was the rapid intrusion of sea water into the steering compartment through an unknown breach or breaches in the hull envelope. The vessel sank in waters three miles deep about 2,100 nautical miles southwest of the Hawaiian Islands. Therefore, neither recovery nor examination of the vessel was practicable. As such the actual cause and exact location of the flooding remains unknown. An immediate secondary cause was progressive flooding through open watertight doors. This was caused by human error in that there was a shipboard standard practice, of leaving watertight doors open, ultimately leading to the sinking.

3. Although the loss of the master and the chief engineer is tragic, everyone onboard would have been rescued had they abandoned ship with the rest of the crew. The F/V PACIFIC BREEZE (O.N. 1212040), a company sister ship fishing 88 nautical miles away, immediately headed to the scene and recovered 22 other survivors.

4. In regards to Part 4.0 Safety Recommendations:

4.1. D14 concurs with requiring indictor panel lights denoting the status of watertight doors for larger commercial fishing vessels.

4.2. and 4.3. D14 strongly concurs with Commandant's review of language requirements aboard fishing vessels. In recent years, the Distant Water Tuna Fleet (DWTF) or U.S. purse seine vessels were allowed to employ foreign officers in lieu of U.S. licensed officer, except the master. As a result, the command and control of these vessels have changed. Numerous languages maybe spoken aboard these vessels; in fact, D14 has had to obtain translation and interpreter services for investigations, enforcement actions, and boardings of the DWTF. D14 is especially concerned about communications during emergencies that require extensive crew coordination, such as fire fighting, damage control, and dewatering.

4.4. D14 concurs with requiring a mandatory inspection regime for commercial fishing vessels.

4.5. Commandant (CG-543) published a draft Policy Letter in the Federal Register Notice on January 19, 2011, addressing the manning requirements aboard the DWTF vessels. D14(dpi) will continue to work with CG-543 on this issue.

5. In regards to Part 5.0 Administrative Recommendations:

5.1. D14(dpi) will ensure a copy of this report is delivered to the next-of-kin and the owner/operator of MAJESTIC BLUE once approved by Commandant.

5.2. D14(dpi) will distribute to the DWTF companies existing safety alerts that emphasize watertight integrity while underway.

5.3. D14(dpi) will consider a formal recognition for the F/V PACIFIC BREEZE.

5.4 D14 concurs with Commandant's corresponding with appropriate Republic of Korea agency, documenting the conduct of their licensed officers.

6. My point of contact is Commander Scott Kim at (808) 535-[redacted].

#

Copy: CG PACAREA (PAC-34)
FEACT
Sector Guam
Sector Honolulu

U.S. Department of Homeland Security
United States Coast Guard

Commander
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16732
January 20, 2011

MEMORANDUM

From: [redacted] LCDR
Lead Investigating Officer

To: CGD Fourteen (DPI)

Thru: CG Activities Far Ea[redacted]

Subj: SINKING OF THE F/V MAJESTIC BLUE IN THE SOUTH PACIFIC OCEAN ON JUNE 14, 2010 WITH LOSS OF TWO CREWMEMBERS

Ref: (a) Letter of Designation as Investigating Officer, dated June 16, 2010
(b) Marine Safety Manual Volume V, Investigations

Preliminary Statement:

In accordance with reference (a), I conducted an informal investigation into the sinking of the F/V MAJESTIC BLUE that occurred on June 14, 2010. LCDR [redacted] (FEACT) was assigned as an interpreter, LT [redacted] (FEACT) was assigned as the recorder and SA [redacted] (CGIS) assisted with interviews of witnesses. LT [redacted] (SEC GUAM) administered a questionnaire to the survivors on behalf of the National Institute for Occupational Safety and Health and the Marine Safety Center (MSC) assisted in developing a post sinking stability analysis. In accordance with reference (b) we were able to gather facts, conduct analysis, draw conclusions and make recommendations to help prevent another tragedy involving the loss of life. Images of the MAJESTIC BLUE within this report were obtained while the vessel was in Guam, May 2010.

Executive Summary:

The casualty occurred in the afternoon of June 14, 2010, while the MAJESTIC BLUE was in the South Pacific Ocean fishing grounds approximately 625 nautical miles northwest of Fiji. The vessel was loaded with 135 metric tons of skipjack, yellowfin and bigeye tuna. The majority of the crew was asleep or resting after a morning haul of fish and subsequent noon meal. The described weather was clear skies, 10 knots of wind and combined seas of 2 – 4 feet. At

approximately 1330, the deck officer (2nd Mate) heard and viewed a steering alarm on the bridge and notified the Captain. Simultaneously, the engineer on watch (2nd Engineer) acknowledged the same alarm in the engine control room and proceeded to the rudder compartment to investigate. The 2nd Engineer discovered flooding in the rudder compartment and observed water flooding into the space forward of the rudder compartment (shaft tunnel). The Captain, Chief Officer and Fish Captain assembled on the bridge and viewed the flooding from a closed circuit TV (CCTV) screen which had its camera mounted in the rudder compartment. The 2nd Engineer left the compartment to notify the Chief Engineer, however he did not close the watertight door upon exiting the space. The watertight doors for both the steering compartment and engine room were open at the time of the incident, as it was a normal practice to use "hold back hooks" or line to secure the doors to the bulkhead. A team consisting of the Chief Engineer, 2nd Engineer, 3rd Engineer and Reefer Engineer returned in an attempt to shut the watertight door located between the rudder compartment and the shaft tunnel. The team was unsuccessful and the Chief Engineer gave an order to go above deck. An abandon ship announcement over the ship public address system was made in both English and Korean by the Fish Master. The skiff boat and net boat were prepared and launched. A satellite phone (INMARSAT) call was made to the F/V PACIFIC BREEZE (O.N. 1212040) a company sister ship. The Fish Master on the MAJESTIC BLUE spoke on the INMARSAT indicating the abandoning of ship, the ship's position and the flooding of the rudder compartment. The crew abandoned the vessel into the boats which were located amidships along the starboard side. The Captain ([redacted] remained on the vessel. Captain [redacted] approached the net boat on at least two occasions, once passing his backpack with personal belongings and secondly passing flares to the crew. He was encouraged by the crew to get off the boat on both occasions. The crew observed Captain [redacted] going into the engine room. The Chief Engineer ([redacted] re-boarded the MAJESTIC BLUE in an attempt to influence Captain [redacted] to abandon the vessel. The Captain and the Chief Engineer were seen exiting the engine room where the crew again yelled for them to abandon ship. The Chief Engineer made a gesture raising an index finger indicating "in a minute". They both proceeded into the bridge through the starboard second deck bridge wing door. Shortly after the bridge door closed behind them, the vessel rolled rapidly to port and sank in less than a minute. The crew in the boats immediately searched the surrounding waters, however did not see any signs of the missing Captain and Chief Engineer.

The F/V PACIFIC BREEZE was 88 nautical miles away and immediately headed to the incident location. Approximately 8 hours later the surviving crewman were recovered. The PACIFIC BREEZE remained on scene and continued to search for the missing crew. The U.S. Coast Guard conducted an aerial search in conjunction with Rescue Coordination Center Fiji's surface search which used 4 nearby purse seine fishing vessels. The search was suspended on June 17 without locating the Captain or Chief Engineer.

Coast Guard Activities Far East conducted an investigation into the matters under the authority of 46 U.S. Code 6301 and 46 Code of Federal Regulations Part 4. A team of investigators traveled to American Samoa and Guam to perform interviews and collect documentation for the purposes of the investigation. The Coast Guard's Marine Safety

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Center performed a time-step analysis to reproduce likely progressive flooding scenarios, of which the details are within this report. The vessel remains on the ocean floor in a location with depths of greater than 15,000 feet and salvage recovery for further analysis is not feasible. Both credible and similar eye witness accounts and incident summaries were gathered by both written statements and interview testimonials. The information gathered was insufficient to develop a likely casualty scenario. Without being able to physically examine the vessel the actual cause and source of flooding remains unknown.

1. FINDINGS OF FACT

1.1 Vessel Particulars

Figure 1

F/V MAJESTIC BLUE	
Flag	U.S.
Official Number	1212048
Document Endorsements	Registry
Service	Fishing Vessel (Purse Seiner)
Vessel Class Society	Not classed
Year Built	1972
Hull	Steel
Built by	Astilleros Maritima Del Musel, Gijon, Spain
Gross Tons	1,172
Net Tons	351
Length	187 ft
Breadth	38.1 ft
Depth	25.9 ft
Color	Blue hull, white superstructure
Propulsion	Diesel, single shaft, 3600 horsepower
Hailing Port	Wilmington, DE
Commercial Fishing Vessel Safety Decal	160154, issued May 20, 2010, Sector Guam
Owner/Operator	Majestic Blue Fisheries, LLC 1026 Cabras Hwy, Suite 113 Piti, GU 96915
Manning	23 crew, 1 fish observer

1.2 Vessel Information

Figure 2 MAJESTIC BLUE in Apra Harbor, Guam

The vessel was built in 1972 by Astilleros Maritima Del Musel, Gijon, Spain as a fishing vessel. The vessel was re-flagged to a U.S. documented vessel from South Korean registry in 2008. Due to the vessel's prior foreign operations and ownership, historical data on modification, repairs and or incidents were not available for review. The MAJESTIC BLUE is a Distant Water Tuna Vessel (DWTF) which utilizes purse seine gear fishing exclusively for highly migratory species under a fishing license issued pursuant to the South Pacific Tuna Treaty (see paragraph 1.4 on DWTF). The manning of the MAJESTIC BLUE was comprised of several nationalities: U.S., Korean, Filipino, Indonesian and Vietnamese. The only U.S. citizen on board was the Master, permitted by Section 421 of the Coast Guard and Marine Transportation Act of 2006, which also allows the Distant Water Tuna Fleet to employ foreign citizens to meet the manning requirement (except for the master). The MAJESTIC BLUE completed a dry-dock maintenance period in Longsheng Shipyard, China from March 7, 2010 to May 5, 2010. The total costs of the repairs and maintenance while in dry-dock was $816,738. It departed China on May 7, 2010 and arrived in Guam on May 13, 2010. While in Guam, USCG Sector Guam conducted a voluntary Commercial Fishing Vessel Safety Exam under Title 46 CFR Part 28 and was issued a decal for compliance with

the regulations. The position of Master was relieved by [redacted] while in Guam. The "fishing grounds" for the MAJESTIC BLUE were in the South Pacific Ocean. The departure on the fishing voyage from Apra Harbor, Guam began on May 20, 2010. The seining operations typically began at first light and would last approximately four to eight hours depending on whether or not a second seining set occurred. The first set of the trip began May 22, 2010. The MAJESTIC BLUE met with two supply vessels on June 13, 2010. A bunker delivery receipt indicated the vessel received 78,430 gallons of fuel from the vessel KOSIAM. The fuel quantity on board was at or near capacity which was 114,651 gallons of diesel. The vessel log showed that the SURUGA 1 supplied the vessel with provisions; however an amount was not recorded in the log or obtained through witness testimony. The vessel was loaded with 135 metric tons of fish. Figure 3 below is the simulated load depicted on vessel drawings; this information was gathered through vessel log entries and witness testimony. The red represents fuel and the light blue is fish, sea water and or brine.

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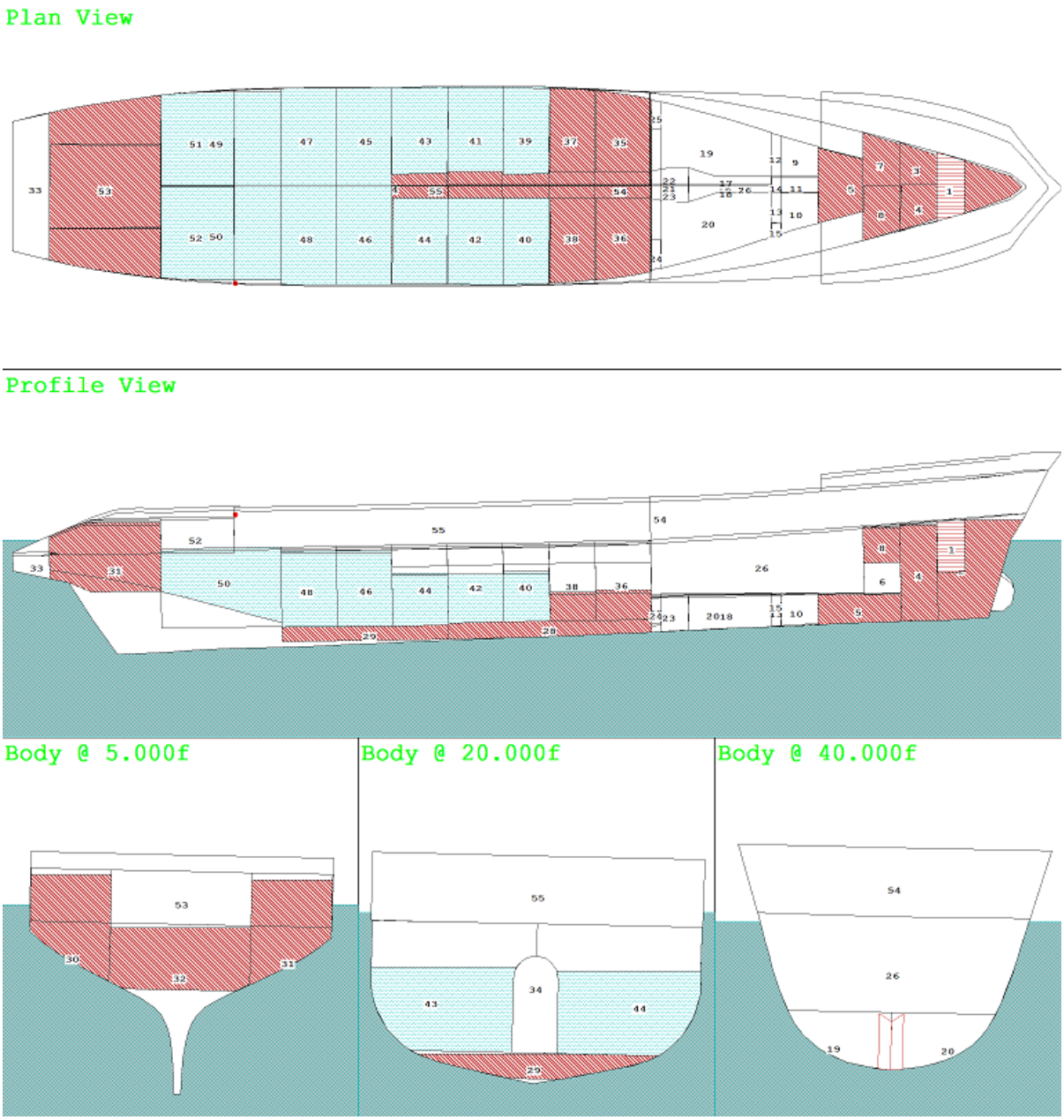
Figure 3 Casualty load condition.



1.3 Vessel Manning

The MAJESTIC BLUE is a self-propelled, uninspected, documented vessel of more than 200 gross tons; therefore, is required to be manned by a master, a mate in charge of navigation and maneuvering, and a chief engineer if so employed or engaged (46 CFR Part 15.805,.810, and .820 respectively). Since the master (and operating company) had established an engineering watch, any individual in charge of that watch was also required to hold a merchant mariner credential endorsed for service as an assistant engineer (46 CFR 15.825).

Figure 4 crew list

NAME	COUNTRY	POSITION	YRS IN INDUSTRY	TIME ON VESSEL	LICENSE	STATUS
[redacted]	U.S.	Captain	Professional Mariner 13yrs	2nd Voyage 6 months	Master	Missing
[redacted]	Korea	Ch. Engineer	Unk	3 months	Ch. Engineer	Missing
[redacted]	Korea	Fishing Master	20 years	3 months	Ch. Radio Officer	No injuries
[redacted]	Korea	Ch. Officer	23 years	3 months	Master	No injuries
[redacted]	Korea	2nd Officer	20 years	3 months	Master	No injuries
[redacted]	Korea	3rd Officer	3 months	3 months	Master	No injuries
[redacted]	Korea	Radio Officer	30 years	3 months	Ch. Radio Officer	No injuries
[redacted]	Korea	Bosn	20 years	18 months	None	No injuries
[redacted]	Vietnam	Ordinary	7 years	2 months	None	No

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[redacted]		Seaman				injuries
[redacted]	Vietnam	Ordinary Seaman	4 years	2 months	None	No injuries
[redacted]	Indonesian	Ordinary Seaman	13 years	2 years	None	No injuries
[redacted]	Philippines	Ordinary Seaman	5 years	2 months	None	No injuries
[redacted]	Philippines	Ordinary seaman	5 years	2 months	None	No injuries
[redacted]	Philippines	Ordinary seaman	3 years	2 months	None	No injuries
[redacted]	Korea	2nd Engineer	16 years	3 months	None	No injuries
[redacted]	Indonesian	3rd Engineer	10 years	8 months	None	No injuries
[redacted]	Korea	Assistant Engineer	11 years	3 months	None	No injuries
[redacted]	Philippines	Reefer Engineer	15 years	2 months	None	No injuries
[redacted]	Philippines	Electrician	5 years	14 months	None	No injuries
[redacted]	Philippines	Electrician	2 years	2 months	None	No injuries
[redacted]	Indonesia	Oiler	6 months	2 months	None	No injuries
[redacted]	Philippines	Oiler	5 years	2 months	None	No injuries
[redacted]	Korea	Cook	18 months	2 months	None	No

[redacted]						injuries
[redacted]	Palau	Observer	6 years	2 months	None	Bruises

The ship was adequately manned revealing no individual stood more than 2 watches per day and each watch was limited to 4 hours in length. Although the vessel was not required to meet the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, it would have been within compliance of the act as STCW requires at least 10 hours of rest per day. The previous 96 hours consisted of:
14 June - a single 5 hour set (letting out and collecting the seine net)
13 June – two 2 hour re-provision at sea operations (fuel and supplies)
12 June – two sets one of 4 hours and the other for 3 hours
11 June – two sets one of 2.5 hours and the other for 3.5 hours
10 June - a single 4 hour set

The crew all indicated that there was good relations and fair treatment among the crew and adequate food, water and berthing arrangements. This information was confirmed by a Palauan Observer who was not a crewmember and merely on board to observe, record and count the fish brought on board.

1.4 Distant Water Tuna Fleet

In general only a citizen of the United States may serve as master, chief engineer, radio officer, or officer in charge of a deck or engineering watch on a documented vessel (46 USC 8103(a)). However, the MAJESTIC BLUE was a vessel of the Distant Water Tuna Fleet and Section 421, of the Coast Guard and Marine Transportation Act of 2006 provided an exemption from 46 USC 8103 (a): United States purse seine fishing vessels fishing exclusively for highly migratory species…may engage foreign citizens to meet the manning requirement (except for the master) in the 48-month period beginning on the date of enactment of this Act if, after timely notice of a vacancy to meet the manning requirement, no United States citizen personnel are readily available to fill such vacancy." This provision is limited to vessels operating in and out of American Samoa.

1.5 Environmental Conditions

The weather conditions on scene at the time of the incident were described as mostly calm conditions. The following conditions were reported by crewmembers on board:
Skies – Clear
Seas – 2 – 4 feet
Winds – 10 knots
Visibility – unlimited
Air Temperature – 78 F
Water Temperature – 75 F.

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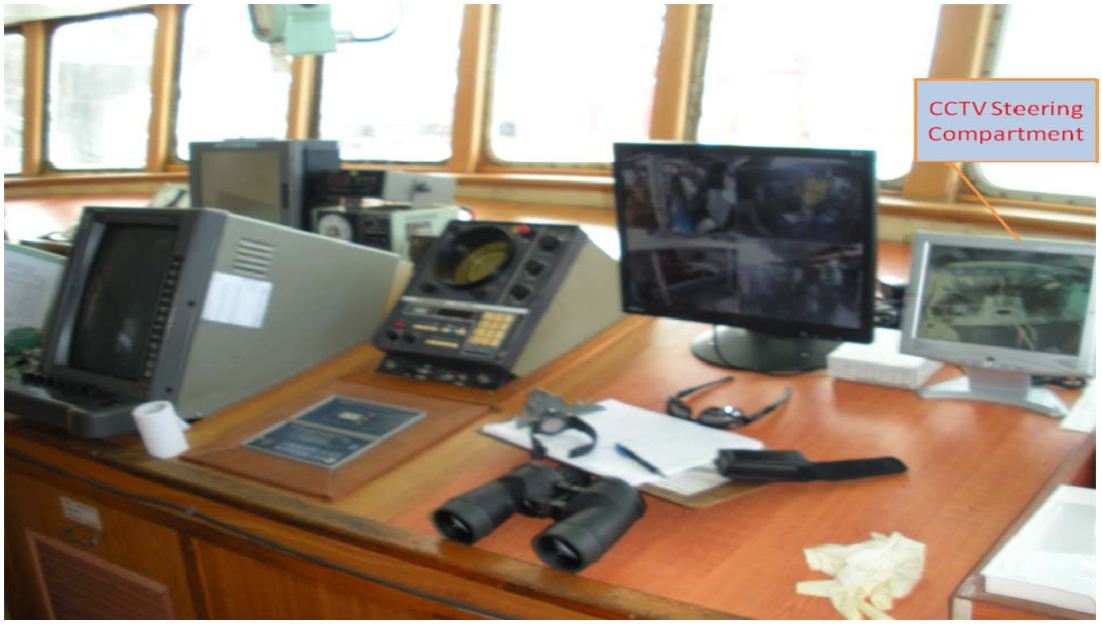
1.6 Timeline of Events

*All times and locations are approximate and in local standard time (+12 GMT). On June 14, the MAJESTIC BLUE had completed a morning set, with a total catch of 30 metric tons. The vessel was proceeding on auto-pilot and the majority of the crew was resting after the noon meal.

0921-1200 - The crew had a meal and members not on watch returned to common areas or berthing to rest.
1200 - The vessel is underway on autopilot, motoring at approx 10 knots, course unknown, with the 2nd Officer ([redacted] on bridge watch and the 2nd Engineer ([redacted] as the engineer on watch.
1320 - The 2nd Engineer performed a round which included entering the steering compartment. He observed no evidence of flooding and all systems operating satisfactorily.
1330 - The 2nd Officer heard the steering alarm on the bridge and the 2nd Engineer heard the same alarm in the engine control room. The electric panel for the steering motor short circuited due to the water spray in the rudder compartment. The 2nd Officer looked at the CCTV monitor located on the bridge (Figure 5) and observed water spraying in the rudder compartment. The 2nd Engineer walked to the rudder compartment to investigate, when he entered the shaft tunnel space, he observed water coming down the steps from the rudder compartment into the shaft tunnel. The 2nd Engineer enters the rudder compartment observes water spraying up to the ceiling.

Figure 5 shows an image of the bridge with CCTV monitors



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1335 - The 2nd Engineer departed the rudder compartment, but did not close the watertight door upon leaving the space. The Captain ([redacted] and Fish Master ([redacted] arrived on the bridge and observed the flooding through the CCTV.
1338 - The Chief Engineer, 2nd Engineer, 3rd Engineer and Refer Engineer returned to the shaft tunnel and attempted to close the watertight door to the rudder compartment. They were unsuccessful and could not secure the door due to the water pressure flowing out of the rudder compartment.
1340 - The Chief Engineer ordered all "engineman up" and notified the bridge of the situation. The PACIFIC BREEZE received a satellite phone call from the MAJESTIC BLUE indicating that they were abandoning ship and gave the position of the sinking as South 7-43 East 174-11.
1342 - The Captain announced abandon ship in English over the PA system, followed by an abandon ship announcement in Korean made by the Fish Master.
1345 - The skiff (Figure 6) and net boat (Figure 7) were launched by the crew and placed along the starboard side of the vessel.

Figure 6 skiff

Figure 7 net boat

1350 - Captain [redacted] passed his personal backpack with passport and laptop to the crewmembers aboard the skiff.
1355 - Twenty-three crewmembers were on board either the skiff or the net boat. Captain [redacted] remained on board the MAJESTIC BLUE and was observed going down to the engine room. The Observer ([redacted]) stated he overheard Captain [redacted] say "this is my responsibility; I want to know what happened".
1400 - [redacted] the Chief Engineer, re-boarded the MAJESTIC BLUE and was observed to go into the engine room. The other 22 crewmembers remained aboard the 2 smaller boats which were alongside the MAJESTIC BLUE.
1405 - Captain [redacted] and [redacted] were observed exiting the engine room and proceeding along the starboard side up to the bridge wing, they were both seen wearing life jackets. Captain [redacted] entered the bridge and exited with flares that he passed to the skiff.

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1406 - Captain [redacted] and Chief Engineer [redacted] both entered the bridge from the starboard bridge wing door and [redacted] closed the door behind him.
1410 - The MAJESTIC BLUE rolled rapidly to its port side and began sinking.
1411 - The vessel capsized. The propeller and rudder was the last portion of the vessel observed.
1412 - The MAJESTIC BLUE was no longer visible. The surviving crewmembers remained in the vicinity of the sinking and continued to search among the debris that was floating to the surface.
1449 - Coast Guard PACAREA is notified via the SARSAT system of an energized EPIRB registered to the MAJESTIC BLUE. The exact time that the EPIRB was energized is unknown.
1505 - F/V PACIFIC BREEZE contacted Joint Rescue Coordination Center Hawaii via satellite telephone and reported that they received a call from the MAJESTIC BLUE reporting the vessel is sinking and all crew is abandoning ship. The PACIFIC BREEZE also reported that they are 88 nautical miles away and have changed course to intercept and render assistance.
1730 - F/V PACIFIC BREEZE contacted JRCC Honolulu and reported that they are 46 nautical miles from the sight of sinking.
2050 - F/V PACIFIC BREEZE reported seeing parachute flares in the distance and returned the signal by launching their own parachute flare.
2113 - F/V PACIFIC BREEZE established VHF radio contact with the skiff and received information that the Captain and Chief Engineer are missing. This information is then passed to JRCC Honolulu by email and via satellite telephone.
2130 - Twenty-two MAJESTIC BLUE crewmembers are recovered from a skiff and net boat by the PACIFIC BREEZE.

1.7 Search and Rescue Efforts

On June 14, 2010 the Fourteenth Coast Guard District Command Center (D14CC) received notification that the EPIRB registered to the F/V MAJESTIC BLUE had been activated indicating a position of South 7-43-0, East 174-11-0, and approximately 625 nautical miles northwest of Fiji. Rescue Coordination Center Fiji assumed the role as the Search and Rescue Coordinator. Initial information reported that all 24 crewmembers abandoned ship, and the F/V PACIFIC BREEZE was 88 nautical miles away and proceeding to the location of the sinking to recover the crew. F/V PACIFIC BREEZE arrived within VHF radio communication distance and received information that the Captain and Chief Engineer are missing. The F/V PACIFIC BREEZE passed the missing crewman information to D14CC. D14CC tasked CG1711, a C130 aircraft to launch at first light to search for the two missing crewmembers. The fishing vessels PACIFIC BREEZE, LADY MARION, COSMOS KIM and OCEAN MASTER conducted surface search patterns at the direction of Rescue Coordination Center Fiji (RCC Fiji). The C-130 conducted four Search and Rescue search patterns over a three day period, covering approximately 1,650 square nautical miles, with no signs of the missing. On June 17th, it was determined that the window of

survivability for the two missing crewman had passed and the search and rescue efforts by both D14CC and RCC Fiji were suspended. The surviving crewman who abandoned ship via a net boat and skiff remained in the immediate vicinity of the sinking. They observed various materials floating to the surface however no signs of the 2 missing crewmembers.

1.8 Lifesaving Equipment

The lifesaving equipment met the requirements of 46 CFR Part 28: visual distress signals, personal floatation devices (PFD), ring life buoys, life raft and EPIRB.

The visual distress signals were used by the MAJESTIC BLUE crew while on board the skiff to signal their location. Parachute flares were seen by the PACIFIC BREEZE which aided in locating and recovering the crew. All individuals that abandoned the vessel donned a PFD. The ring life buoys were not used at any time. The life raft was not prepared for deployment nor used by the crew for survival. Following the sinking, crew members witnessed the life raft surface and inflate. The EPIRB was activated and signal received by rescue centers, which was correctly registered to the MAJESTIC BLUE.

1.9 Training and Drills

As a part of the requirements in 46 CFR Part 28, monthly drills and instruction are required to be given to each individual on board. The vessel log indicates that a fire drill was performed on May 14, 2010, an abandon ship drill on May 16, 2010 and a fire and an abandon ship drill on May 18, 2010. Coast Guard inspectors in Guam witnessed a fire drill on May 17, 2010 in Apra Harbor and deemed it unsatisfactory. Captain [redacted] requested additional time to conduct more training and perform drills at the next CG visit. On May 19, 2010 the CG witnessed a fire and an abandon ship drill, which both were deemed satisfactory. Drills for the month of June had not yet been performed or recorded in the logbook of the MAJESTIC BLUE.

1.10 Communications

1.10.1 Equipment - The F/V MAJESTIC BLUE was outfitted with a Global Maritime Distress Safety System consisting of:
Emergency Position Indicating Radio Beacon (EPIRB)
NAVTEX – marine information text receiver
INMARSAT – satellite phone service
1 VHF – very high frequency radio with digital selective calling (DSC)
3 VHF – very high frequency handheld radio
2 SART – search and rescue transponders
HF-SSB – high frequency single side band radio

The Radio Officer ([redacted] was responsible for the communications system. After hearing the abandon ship announcement he used the INMARSAT to call the F/V

PACIFIC BREEZE and handed the phone to Captain [redacted] Shortly after Captain [redacted] spoke, Park observed the fish master talking on the INMARSAT and pass "this is an emergency, we are likely abandoning ship and the longitude and latitude" in Korean. The radio officer brought 2 SARTS, 2 handheld VHF radios and the EPIRB to the skiff. The PACIFIC BREEZE was approximately 88 miles away. The Captain of the PACIFIC BREEZE ([redacted] indicated that he did not receive any calls or notifications from the MAJESTIC BLUE other than via the INMARSAT call. The call was answered by the Fishing Master (Korean) on the PACIFIC BREEZE who passed the information to Captain [redacted]

The EPIRB was activated by the crew and was placed in the water at the sight of the sinking. The signal was received by CG LANTAREA and passed to CG PACAREA. The hand held VHF radios were used when the PACIFIC BREEZE approached the skiff and satisfactory communications were established. The radios are only capable of communications when in line of sight of the receiving station. This distance was approximately 7 miles.

1.10.2 Instructions - The written language on board the ship varied between English and Korean. Figure 8 shows a light panel on the bridge with an emergency signal chart with both languages on display. Electronic copies of other emergency procedures such as abandon ship, man overboard, fire, damage control and distress signaling were obtained from a previous Captain and were only written in English.

Figure 8 bridge panel

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1.11 Drug and Alcohol Program

At the time of the Coast Guard inspection (May 2010), the owner's Drug and Alcohol Program for the MAJESTIC BLUE was in compliance with federal requirements. Upon recovery of the twenty-two crewmembers the Captain of the PACIFIC BREEZE ([redacted] collected samples from five individuals which he determined to be directly involved (Chief Officer, Fish Master, Radio Officer, 2nd Officer and 2nd Engineer). Samples of both breath and urine were taken for analysis. The PACIFIC BREEZE shares the same operating company as the MAJESTIC BLUE. The urine samples were collected and analyzed in accordance with DOT regulations. The results all returned [redacted] for the presence of the five panel test for THC, PCP, cocaine, opiates and or amphetamines. Breath samples were taken using the Alcomate Model AL6000, which is an approved DOT product for alcohol screening. Of the five crewmen tested, two were determined to have alcohol in their system: [redacted]

The [redacted] both stated that they consumed a beer while in the skiff waiting for the PACIFIC BREEZE. Other crewmember testimony supports their statements. Crew testimony varied on the shipboard policy regarding the consumption of alcohol. Some stated that alcohol consumption is not allowed yet others indicated that Korean Soju is typically set out by the cook on the dining tables at mealtimes. One individual stated that on the day of the incident during the noon meal several bottles of Soju were consumed by the crew to include the [redacted].

1.12 Coast Guard Activity History

1.12.1 Coast Guard Activities with COSTA DE MARFIL - The MAJESTIC BLUE was previously flagged under Korean registry as the COSTA DE MARFIL. From 1987 to 2005 the vessel was boarded and examined by the Coast Guard in Guam and Hawaii. A summary of the deficiencies found are as follows:

Figure 9

System	Date Issued	Issued By	Description
Unknown	07/01/1987	SEC Hono	ALL CONNECTIONS IN OIL TRANSFER SYSTEM WERE NOT LEAK FREE.
Unknown	07/01/1987	SEC Hono	POLLUTION PLACARD NOT POSTED IN MACHINERY SPACES.
Accommodation/Occupational Safety	07/01/1987	SEC Hono	VESSEL DID NOT HAVE AN INSTALLED MSD.
Unknown	07/01/1987	SEC Hono	VESSEL HAD NO BILGE MONITIOR CONTINUOUS DISCHARGE RECORDER.
Engineering	07/01/1987	SEC Hono	OIL TRANSFER HOSE WAS NOT ADEQUATE OR PROPERLY MARKED.
Unknown	07/01/1987	SEC Hono	NO DISCHARGE CONTAINMENT EQUIPMENT OF ANY KIND DURING LUBE OIL TRANSFER.
Unknown	07/01/1987	SEC Hono	OIL RECORD BOOK NOT MAINTAINED FOR 3 YEARS.

Accommodation/Occupational Safety	10/21/1988	SEC Guam	INOPERABLE TYPE I, II, OR III MSD AS REQUIRED BY 33 CFR 159.7 (C).
Accommodation/Occupational Safety	03/26/1992	SEC Guam	NO MARPOL V PLACARD ON BOARD.
Lifesaving	03/26/1992	SEC Guam	NO EPIRB ON BOARD.
Fire Fighting	03/26/1992	SEC Guam	ALL FIRE EXTINGUISHERS NEEDED INSPECTION.
Accommodation/Occupational Safety	03/26/1992	SEC Guam	NO MARPOL V WASTE MANAGEMENT PLAN ON BOARD.
Documentation	03/30/1995	SEC Guam	THE VESSEL'S OIL TRANSFER PROCEDURES WERE MISSING 06 ITEMS.
Fire Fighting	05/03/2000	SEC Guam	Obtain 2 B-II Fire Extinguishers for non-engineroom spaces. 46CFR25.30- 20(b)
Accommodation/Occupational Safety	05/03/2000	SEC Guam	Obtain operator's manual and chemicals for MSD. 33CFR159
Accommodation/Occupational Safety	05/03/2000	SEC Guam	Provide proof Marine Sanitation Device USCG certified.
Engineering	05/03/2000	SEC Guam	Obtain fixed 1/2 barrel fuel/lube oil spill containments
Fire Fighting	05/03/2000	SEC Guam	Provide proof of annual fire extinguisher servicing. 46CFR25.30-20
Documentation	05/03/2000	SEC Guam	Provide copy of new IOPP certificate.
Accommodation/Occupational Safety	05/03/2000	SEC Guam	Provide Label/Placard for MSD (Marine Sanitation Device). 33CFR159
Engineering	05/03/2000	SEC Guam	Provide proof of oil piping hydro (pressure) test to 1.5 MAWP
Documentation	10/05/2001	SEC Guam	Include gasoline in transfer procedures.
Documentation	10/05/2001	SEC Guam	Log gasoline transfers in oil record book. 33 CFR 151.25
Documentation	10/05/2001	SEC Guam	Incorporate vessel-to-vessel procedures in oil transfer procedures.
Engineering	10/05/2001	SEC Guam	Install new gasoline tank.
Engineering / Documentation	02/18/2005	SEC Guam	Cleared outstanding deficiencies

1.12.2 Coast Guard Activities with MAJESTIC BLUE - In 2008 the vessel changed registry to U.S. under the DWTF program and continued as a commercial fishing vessel. CG regulations for commercial fishing vessels are codified in 46 CFR Part 28. In 1995 CG established a voluntary dockside examination program. This program involves a Commercial Fishing Vessel Exam (CFVE) which is designed to promote fishing vessel safety. It is a voluntary program and the vessel operator must initiate the request for examination. If the vessel successfully completes the examination, a decal is issued. Non-compliance with any of the regulations that are discovered during the examination are documented and notification given to the operator. The deficiencies discovered are not considered violations as the exams are no-fault and non-adversarial. The MAJESTIC BLUE successfully completed a CFVE in June of 2008 while in Guam and was issued a decal.

In July 2008 Sector Guam performed an investigation into a crew injury (crushed hand) while the vessel was in Pohnpei, Federated States of Micronesia. A Letter of Warning was issued for failure to immediately notify the CG and failure to perform post accident drug and alcohol testing for the directly involved individuals.

In October 2009 Marine Inspection Detachment Singapore performed a pollution prevention examination on the vessel and issued an International Oil Pollution Prevention

certificate for properly operating equipment. The inspector noted procedural violations pertaining to MARPOL requirements and advised the crew on proper procedures. Enforcement actions were not pursued for improper procedures. During the examination, which took place in Tarawa, Kiribati, the U.S. Captain made accusations of a mutiny on board the MAJESTIC BLUE. Coast Guard Investigative Service agents from Honolulu flew to Tarawa and performed an investigation. No evidence to support the allegations of mutiny was discovered and the U.S. Captain departed the vessel. A new Captain (was hired by the company and took over responsibilities as the U.S. Captain. This was Captain initial voyage aboard the MAJESTIC BLUE.

In May of 2010 while in Apra Harbor Guam the MAJESTIC BLUE successfully completed a CFVE and was issued a decal for compliance with the regulations. On May 17th, the Marine Inspector in Guam documented water intrusion through the vessel's rudder packing. The rate was estimated at approximately 10 gallons per hour and issued this as a work list item to be corrected. The Marine Inspector requested assistance from his supervisor to attend the vessel and get a second opinion on the leak. On May 20th the rudder packing was observed to still have a leak but had slowed to 5 gallons per hour. A meeting occurred with the vessel manager (Captain USCG Sector Guam's Chief of Inspections and the Marine Inspector regarding the leak. An operational test of the steering motor and rudder were performed. The test consisted of swinging the rudder from full port to full starboard. No abnormalities in the way of excessive vibration, slow movement or noise were observed; the rudder appeared to operate as designed.

All were in agreement that the leak was manageable, could easily be discharged through the installed bilge pumps, and that it is not abnormal to have some water seepage through the rudder packing gland. Captain was required by the vessel manager to perform a daily check of the leak and report his findings. Captain communicated to the vessel manager on Guam via an e-mailed daily noon report (Figure 10). From May 22 thru June 01 Captain sent each report indicating "Rudder packing OK". On June 01 the vessel manager notified the Captain that he was no longer required to indicate the condition of the rudder packing unless the leak got worse. There was no mention of the rudder packing in any of the noon report e-mails from June 2 thru June 14.

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Figure 10 daily noon report e-mail

FV Majestic Blue Daily Noon Report

Local Date: 10610 ddmmyy
Noon Position: LAS S02-00 ddmm; LOE E167-45
Crew Statu: OK — Enter **OK** for Good or **NG** for Not good. If NG explain below.

Fish Caught previous 24 hours:	Skipjack	Yellowfin	Other	
		40		mT
Total Fish On Board:	10	40		mT Total: 50 mT

Positions where caught:

Set Num	1	LAS	01-31	ddmm
		LOE	167-41	ddmm
Set Num	2	LAS	01-54	ddmm
		LOE	167-54	ddmm
Set Num	3	LAS		ddmm
		LOE		ddmm
Set Num	4	LAS		ddmm
		LOE		ddmm
Set Num	5	LAS		ddmm
		LOE		ddmm
Set Num	6	LAS		ddmm
		LOE		ddmm

Jurgen,

high seas still closed to fishing?
Rudder packing ok
David

2. ANALYSIS

2.1 Human Factors

2.1.1 Language - The language requirements of 46 USC 8702, which generally requires the spoken orders of the officers to be understood by the crew, do not apply to fishing vessels. There were communication barriers on board the MAJESTIC BLUE. The varied nationalities on board the MAJESTIC BLUE were U.S. (1), Korean (10), Vietnamese (2), Indonesian (3), Filipino (7) and Palauan (1). During the interview process the individuals that were able to speak, read and write English were all 7 Filipinos, the Palauan Observer and 1 Indonesian. All Korean crewmembers interviewed needed an interpreter to communicate and only a few were able to speak or understand a limited amount of English words. Emergency instructions were obtained electronically from a previous Captain ([redacted] and were only written in English. Based on interviews, only 10 of the 24 crewmembers on board the vessel could read the instructions. Per 46 CFR Part 28.265 (d)(6)(i) the emergency instructions should list the procedures for flooding "such as…close all watertight and weathertight doors". Vietnamese, Indonesian and Korean were not spoken or understand by any individual not of the respective nationality. Written statements

obtained from the crew regarding the incident that was in other than English were translated via court recognized commercial services. The majority of the crew reported to the vessel in March of 2010 while Captain [redacted] and an Ordinary Seaman reported in May of 2010. The crew had worked together for a 3 month time span. Captain [redacted] was limited by the lack of English comprehension by at least half of the crew. Captain [redacted] satellite phone call to the PACIFIC BREEZE was answered by the Korean Fish Master who also only spoke Korean. Captain [redacted] could not communicate any information or intention over the INMARSAT phone and had to pass the phone to the Fish Master ([redacted] in order to communicate with the PACIFIC BREEZE.

As indicated in section 1.4, DWTF vessels may engage foreign citizens to meet the manning requirement when operating in and out of American Samoa. The vessel departed Guam in May of 2010 and vessel records indicate port calls in Honiara and Tarawa between Oct 2009 and Feb 2010. There is no documented evidence of the vessel operating in and out of American Samoa. Further, there is no evidence that the company advertised for the need of a Chief Engineer. The website http://mabpab.com/sub_employment.asp of the operating company merely listed an employment opportunity for a "US captain for F/V Majestic Blue from June 20th 2009". The website was viewed on 07/01/2010.

2.1.2 Crew actions - Upon discovery of the flooding the ships general alarm was energized in a timely manner. Damage control efforts consisted of an attempt by four members of the engineering department to close the watertight door leading into the rudder compartment. The attempt was unsuccessful. There were no other damage control measures taken or dewatering actions performed by the crew. During the flooding emergency the 2nd Engineer left the rudder compartment after initially investigating the flooding without closing the watertight door, as he did on each of his hourly rounds during his watch. Further, following the unsuccessful attempt by the crew to close the rudder compartment door, the crew departed the shaft tunnel compartment in order to abandon ship without closing the shaft alley/engine room watertight door. The analysis shows that if either of the doors was closed and the flooding isolated to only the rudder compartment and or the shaft tunnel compartment the vessel would have maintained its intact stability. It is only after all three compartments (rudder, shaft tunnel, engine room) flood, that the vessel rapidly loses its intact stability and further allowed the flooding water to migrate onto the main deck area through the engine room stairway access. With 50% of the vessels main deck flooded the vessel is at immediate risk of capsizing and shown below in Figure 11.

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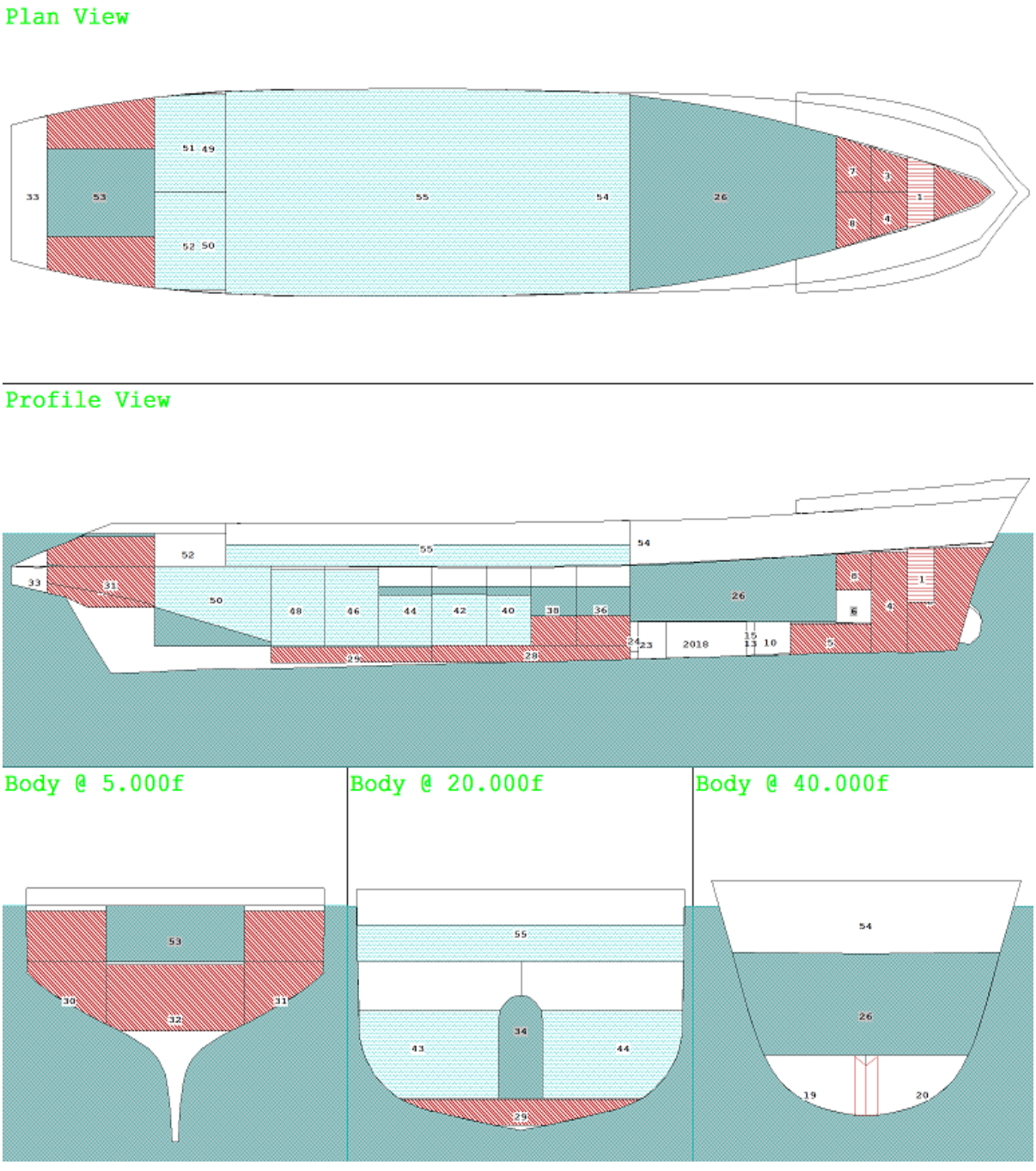
Figure 11 all below deck compartments flooded and 50% of the main deck



The Engineering department was responsible for performing hourly rounds in the machinery spaces below the main deck to inspect systems and general safety. They followed a poor rule in that each watertight door was left in the open position at all times and held open with a hook or line.

The abandon ship announcement occurred 28 minutes prior to the vessel sinking. An emergency distress notification had been made and received by the PACIFIC BREEZE. The skiff and net boat were rapidly deployed and positioned alongside the MAJESTIC BLUE for approx 20 minutes. All crewmen other than Captain [redacted] abandoned the vessel to the boats. The Chief Engineer re-boarded the MAJESTIC BLUE after he was in one of the boats, in an attempt to assist or retrieve Captain [redacted]

2.2 MSC Stability Evaluation and Flooding Scenarios

At the request of this investigative authority, MSC performed an analysis based on the available information pertaining to the weighted condition of the vessel, the testimonials regarding source and progressive nature of the flooding, and the amount of time elapsed before the vessel sank.

The MAJESTIC BLUE did not have to meet the intact stability criteria/requirements for fishing vessels in 46 CFR 28.570 and it did not have a stability book or stability information available for review. The analysis used the criteria contained in 46 CFR 28.570 as the objective standard for an intact stability comparison. Upon departure from Guam and at its pre-casualty condition, the vessel would have met the intact stability criteria. The complete MSC stability analysis is included as an enclosure to this report.

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2.3 Source of Flooding

All witness testimony indicates the rudder compartment as the source and origin of flooding; there was no evidence or testimony to the contrary. The rudder post was the only thru-hull opening in the compartment. Witness testimony indicates that the rudder post was and remained intact throughout the incident. The first individual who investigated the flooding was the 2nd Engineer ([redacted] who stated that he seen the rudder shaft within the rudder compartment. Although not all crewmembers can recall seeing the rudder from the boats after the vessel capsized, they can't confirm whether or not it was missing. Testimony by a Filipino seaman [redacted] indicated that he seen the rudder in place after capsizing. A complete failure of the rudder packing would have resulted in an area of a 16.6 square inch gap. MSC analysis indicates that the rate of flooding required which filled and capsized the vessel in the reported time frame would have been from an area of 106 – 176 square inches. The vessel was designed with a "balanced rudder" which includes a lower "shoe" that supports the rudder at its base (as long as this normally very strongly attached support is properly in place it would be impossible for the rudder to drop out altogether). A breech of the hull is the only other possible source of flooding. A breech could have occurred due to striking an object, a fatigued or damaged hull in the vicinity of the aft boat ramp or a failed repair. No crewmembers reported feeling or hearing the striking of an object. No crewmember or witness was able to offer any information regarding any of

the hull repairs made at the shipyard. The only evidence or data regarding the repairs in the aft region was an image of an insert taken by the vessel manager (Figure 12) and the work order for hull repairs while at the shipyard. There was no USCG oversight at the shipyard regarding survey of the hull or examination of repairs. The image also shows that the rudder was removed. The rudder and steering system was, according to records, disassembled, cleaned, inspected and repaired while in the shipyard.

Figure 12 image taken of hull while in Longsheng Shipyard, China

The vessels rudder packing (graphite rope) was observed to be leaking water. Every available witness that observed the rudder packing leak was asked to demonstrate the rate of leak by adjusting a sink faucet. The rate was measured and the amounts recorded. While the vessel was moored pier side in Guam a rate of 5 to 10 gallons per hour was cited by CG Inspectors and the vessel manager. During the fishing voyage crewmembers indicated rates between 6.5 gallons per hour to 120 gallons per hour. The rudder packing is adjusted by tightening or loosening the nut fasteners on six bolts. Tightening was performed on the packing during the voyage to slow the leak. The shipboard bilge pumps consisted of a bilge manifold system powered by the main engine and was also outfitted with electric powered submersible bilge pumps. According to engine room watch-standers the electric submersible bilge pumps located in the shaft tunnel were turned on every twenty minutes to an hour for approximately 4 to 6 minutes. The bilge alarm would sound if the pumps were not turned on. The water in the bilge was generated from leaks at both the rudder post seal and the shaft seal. The Coast Guard Captain of the Port in Guam had the authority per 46 CFR Part 160.111 to restrict or direct vessel operations if they could justify a substandard condition of the vessel. A decision to restrict the vessels operation was not deemed applicable as the vessels steering was satisfactorily operationally tested and the leak was not deemed a

hazardous circumstance as the observed rate of leak could easily be handled by the bilge water discharge pumps.

3.0 CONCLUSIONS

The proximate cause of this sinking was the rapid intrusion of sea water into the steering compartment through an unknown breach or breaches in the hull envelope of approximately 106 – 176 square inches. The vessel sank in the South Pacific in waters 3 miles deep, some 2,100 NM southwest of Hawaii and 625 NM northwest of Fiji. As such neither the examination nor recovery of the vessel is feasible and the actual cause and exact location of the flooding is unknown and unknowable. The recent shipyard repair work and hull survey was not under CG oversight therefore no documentary evidence is available regarding the outer structural integrity of the hull and or quality of repairs.

An immediate secondary cause was progressive flooding through open watertight doors. This was caused by human error in that there was a shipboard practice of leaving these doors open; ultimately leading to the sinking. Had these doors been closed and thereby maintaining compartmentalization and subdivision, MSC's modeling indicates the vessel would have retained sufficient stability to prevent a capsize event.

Given the rapidly deteriorating situation, Captain [redacted] decision to abandon ship was appropriate and his timely order saved 22 lives.

Chief Engineer [redacted] re-boarding of the MAJESTIC BLUE in an attempt to retrieve Captain [redacted] was commendable.

The reason for Captain [redacted] decision to remain onboard is unknown. However, clearly he intended to leave the vessel as he handed off his personal backpack and flares to the crew in the skiff. However, it is likely he did not fully recognize how rapidly the vessel was losing stability. Had Captain [redacted] and Chief Engineer [redacted] abandoned the vessel along with the other crewmembers, they would have survived.

After an extensive search and rescue effort, within a closely known datum, Captain [redacted] and Chief Engineer [redacted] remain missing and are presumed dead.

There is evidence the Captain, Chief Engineer and the engineering watch officers violated good marine practices by routinely navigating and operating with watertight doors in the open position. The shipboard practice of continuously leaving the watertight doors open while underway did not provide the crew with an instinctive process of closing these doors, even in an emergency. Further, the engineering officers could not read English and would not have been familiar with the emergency instructions required by regulation listing procedures to close watertight doors during a flooding emergency.

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There is evidence that the 2nd Engineer was negligent in not closing two watertight doors in the engineering spaces upon discovery of the flooding. By the time the damage control team returned, it was too late to secure the doors.

There is evidence that members of the crew violated the company's policy prohibiting the consumption of alcohol. Although alcohol was detected on the breath of two crewmembers following rescue, their actions or lack thereof were not deemed as a contributing factor in the casualty. Chemical testing was not possible for the missing crew therefore the effects, if any, of drugs and or alcohol can't be determined.

The vessel did not sink due to loss of the rudder. Early emails from a vessel representative in Guam, speculated that the vessel flooded due to rudder damage are not supported by this investigation. Witness testimonies and rudder design support that the rudder was in place when flooding was discovered and when the vessel rolled approximately 40 minutes later. A complete failure of the rudder packing material would have resulted in an open space of only 16.6 square inches, which according to MSC's modeling was an area insufficient to produce the volume of water needed to sink the vessel in 40 minutes. Since the rudder packing was reported as leaking at varied rates, it did contribute to the flooding. The rate and amount is unknown however, not considered as the primary flooding source.

There was no evidence of misconduct or unskillfulness by the U.S. Coast Guard personnel in Guam during the vessel's May 2010 inspection. A Marine Inspector identified water leaking through the packing material around the rudder post. However, after testing the rudder, examining the rudder design and discussing the issue with the ship's Captain and vessel manager, the Chief of Inspections placed reasonable monitoring requirements by the crew on the vessel. After 10 days of the Captain reporting "Rudder packing OK" the vessel manager suspended reporting requirements and no further mention of the rudder packing was made by the Captain in his daily email reports to the vessel manager.

The communication and safety equipment required by 46 CFR Part 28, Requirements for Commercial Fishing Industry Vessels, operated as designed and directly contributed to saving 22 lives.

It appears the MAJESTIC BLUE was not operating in and out of American Samoa, it may not have been entitled to substitute U.S. Officers with foreign mariners as described in Section 421, Coast Guard and Marine Transportation Act of 2006. It is not possible to determine if having U.S. licensed engineers would have ensured a policy of keeping the watertight doors closed or a more efficient response to the flooding.

There was no evidence of criminal acts or activity.

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The following factors were determined to neither cause nor contribute to the casualty: crew fatigue, weather, vessel propulsion, bridge navigation systems, vessel traffic, or navigation aids.

4.0 SAFETY RECOMMENDATIONS

4.1 The Coast Guard should develop regulations within 46 CFR Part 28 requiring an "Open" and "Closed" indicator panel on the bridge for each watertight door.

4.2 The Coast Guard should amend 46 CFR Part 28.265 to include "all emergency instructions should be in a common language of the crew".

4.3 The Coast Guard should amend 46 CFR Part 15.730 to remove (a)(3) which exempts fishing vessels from the language requirements when leaving from a U.S. port.

4.4 The Coast Guard should seek legislative authority and additional resources to support a mandatory annual inspection program for Commercial Fishing Vessels to include a dry-dock examination.

4.5 The Coast Guard should ensure that only vessels truly "homeported in American Samoa" are permitted to operate under the citizenship exemptions allowed for Distant Water Tuna Vessels.

5.0 ADMINISTRATIVE RECOMMENDATIONS

5.1 A copy of this report should be provided to the families of the next-of-kin and the owner of the F/V MAJESTIC BLUE.

5.2 Coast Guard District 14 should re-issue CG Safety Alert 1-08 to the Distant Water Tuna Fleet drawing attention to the MAJESTIC BLUE's failure to maintain all watertight doors in the closed position while underway.

5.3 Coast Guard District 14 should present the F/V PACIFIC BREEZE with a Public Service Award for their immediate response and recovery of twenty-two persons.

5.4 The Coast Guard should issue a letter to the S. Korean Ministry of Land, Transport and Maritime Affairs, reporting that Second Engineer [redacted] (Passport # [redacted] license unavailable) did not close watertight doors in engineering spaces during a flooding emergency and [redacted] ([redacted] License [redacted] issued 02 Oct 2006) and [redacted] ([redacted] License [redacted] issued 16 May 2006), improperly consumed alcohol while in charge of two lifeboats awaiting rescue.

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5.5 This case/investigation should be closed, agency action complete.

6.0 ENCLOSURES

Enclosure 1 MSC's Post Sinking Stability Analysis
Enclosure 2 CG District Fourteen Search and Rescue Summary