UNITED STATES COAST GUARD

INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE LOSS OF THE COMMERCIAL FISHING VESSEL

ADRIATIC

O.N. 579941, EIGHT NM EAST OF BARNEGAT LIGHT, NEW JERSEY ON JANUARY 18, 1999 WITH THE LOSS OF FOUR LIVES

U.S. Department of Transportation
United States Coast Guard

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16732/ MC99000698

AUG 4 2000

COMMANDANT'S ACTION
ON THE FORMAL INVESTIGATION INTO THE
CIRCUMSTANCES SURROUNDING THE LOSS OF THE

COMMERCIAL FISHING VESSEL ADRIATIC, O.N. 579941,

EIGHT NM EAST OF BARNEGAT LIGHT, NEW JERSEY ON JANUARY 18, 1999
WITH THE LOSS OF FOUR LIVES

ACTION BY THE COMMANDANT

The report of the Investigation into the subject casualty has been reviewed. The investigative report, including the findings of fact, conclusions, and recommendations, is approved.

ACTION ON RECOMMENDATIONS

Recommendation #1: Coast Guard efforts should be pursued to raise the standard of care in maintenance and operation of fishing vessels. This could be done through regulations requiring inspection of fishing vessels, or through an expanded scope of the voluntary dockside exam and education program.

Fifth District Commander's Endorsement: Concur with the recommendation in that the standard of care in maintenance and operation of commercial fishing industry vessels must be improved. If initiated, this effort should be through regulations requiring inspection of fishing vessels. Based on the effectiveness of the current dockside examination program, I do not believe an expanded voluntary dockside examination program will have the desired impact.

Commandant's Action on Recommendation #1: We concur with the intent of this recommendation. The Coast Guard submitted a request for legislative authority to inspect commercial fishing vessels to Congress in November, 1992, but the request failed to receive support. Without additional legislative authority, we cannot pursue mandatory examinations or mandatory inspections of commercial fishing vessels, even though it is generally accepted that mandatory exams or inspections would provide a strong defense against accidents such as this one by detecting unsafe conditions and eliminating them before the vessel goes into operation. As a result of this and several other fishing vessel casualties with multiple losses of life on the

East Coast in late 1998 and early 1999, the Coast Guard formed a Fishing Vessel Task Force (FVTF) to examine safety in the commercial fishing industry. The FVTF issued a report with 59 recommendations to improve fishing vessel safety. Two of them called for obtaining the necessary legislative authority to require mandatory examination/inspection of fishing vessels. Based on those recommendations, the Coast Guard is again investigating the possibility of obtaining the necessary legislative authority to require mandatory examinations or inspection, while at the same time continuing to encourage dockside exams.

Recommendation #2: The option for Coast Guard inspection of fishing vessels to raise the standard of care and maintenance is extremely resource intensive, and is being met with resistance from the fishing vessel industry. A phased-in approach could ease the transition and assist both the Coast Guard in implementation and the fishing vessel community in coming into compliance.

Fifth District Commander's Endorsement: Concur with the recommendation in that any conventional initiative to require inspection of fishing vessels would be resource intensive and meet with industry resistance. Therefore, any regulatory initiative should be phased in. An expanded voluntary dockside program would meet with minimal success.

Commandant's Action on Recommendation #2: We concur. New regulations mandating Coast Guard safety examinations or inspections for the commercial fishing industry would be extremely resource intensive to both the Coast Guard and the industry. If such regulations were developed, the Coast Guard would consider a phased in approach for implementation of mandatory examinations or inspections to allow the Coast Guard and fishing vessel community the time to adjust.

Recommendation #3: Should efforts to pursue regulation for inspection of fishing vessels fail, the Coast Guard should seek funding and develop programs and policy to expand the scope of the voluntary dockside examination program to include examination of machinery, hull, weather and watertight fittings, also the witnessing of drills. Exams should be documented and reports sent to the owner/operator.

Fifth District Commander's Endorsement: Concur with the recommendation.

Commandant's Action on Recommendation #3: We concur with the intent of this recommendation. The current voluntary dockside examination program is mainly focused on safety equipment and emergency preparedness. Expanding the scope of this program to include examining the machinery, hull, weather tight and watertight fittings, and witnessing of drills would detect and eliminate additional latent unsafe conditions. Such an expansion would be *de facto* accomplished if the Coast Guard's proposal for the inspection of commercial fishing industry vessels is authorized. If the Coast Guard fails to receive legislative authority for mandatory inspections, we will consider expanding the scope of mandatory or voluntary examinations. Exams are already documented on a checklist, a copy of which is provided to the owner/operator at the end of the exam. This is also true of at-sea boardings through the use of the CG-4100F form. An initiative is underway to allow Commercial Fishing Vessel Safety

Examiners to send a standardized follow-up letter generated by the replacement for the Marine Safety Information System database.

Recommendation #4: The Coast Guard Fishing Vessel Casualty Task Force report recommendation concerning the Stability Regulations Project should be pursued. Stability letters which outline operating conditions and risks associated with stability would enhance a fishing vessel operator's ability to respond to conditions such as those that arose on the F/V ADRIATIC.

Fifth District Commander's Endorsement: Partially concur with the recommendation. Regardless of the results of a stability letter requirement, the Coast Guard should explore opening a formal dialogue with marine insurance underwriters and explore formation of a partnership to improve fishing vessel safety.

Commandant's Action on Recommendation #4: We concur with the intent of this recommendation. The Coast Guard is in the process of developing stability regulations and watertight integrity regulations under 46 USC 4502(d) and (e). In the meantime, the Office of Compliance (G-MOC) and the Office of Design and Engineering Standards (G-MSE) have developed several "hands on" training devices, including stability trainers, which are being used by both district offices and field units to educate fishermen on vessel stability. In addition, a "user friendly" stability booklet has been drafted, through the consolidated efforts of G-MOC, G-MSE, the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC), and the Seventeenth Coast Guard District. Copies of the booklet have been provided to all district offices and field units for further distribution to commercial fishermen. Finally, we will distribute copies of this investigation to vessel examiners and commercial fishermen through district Commercial Fishing Vessel Safety Coordinators.

Recommendation #5: Should efforts to pursue requirements for stability letters fail, the Coast Guard should partner with the insurance companies and encourage them to require stability tests. Insurance companies should also conduct more stringent review of requirements for stability as part of the survey for underwriting the vessel.

Fifth District Commander's Endorsement: We concur with this recommendation.

Commandant's Action on Recommendation #5: We concur with the intent of the recommendation. The Coast Guard will continue to seek input from the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) and consider partnerships with marine insurance underwriters and associations through which we could seek requirements for stability tests. Marine insurance underwriters in many states already require stability tests for vessels.

Recommendation #6: The Coast Guard should pursue regulations for licensing of operators of fishing vessels and certification of crewmembers.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #6: We concur. Requirements for the licensing and certification of commercial fishing industry vessel operators and crewmembers would provide the Coast Guard with the ability to oversee their qualifications, knowledge, and skills. Congress, however, has not authorized the Secretary of Transportation to prescribe licensing regulations for uninspected fishing vessel operators. Pursuant to the Fishing Vessel Safety Act of 1988, the Coast Guard submitted a proposal and plan for the licensing of uninspected fishing vessel operators in 1992, but Congress has not taken any action on that proposal and plan to date. As a result of this and several other fishing vessel casualties with multiple losses of life on the East Coast in late 1998 and early 1999, the Coast Guard formed a Fishing Vessel Task Force (FVTF) to examine safety in the commercial fishing industry. The FVTF issued a report with 59 recommendations to improve fishing vessel safety. Based on recommendations in the FVTF report, the Coast Guard is exploring options other than traditional licensing schemes. One such option is the implementation of a training-based certificate program that would include training and certification of fishermen in vital areas such as damage control, firefighting, and rescue of persons in the water. Comments are being solicited from the industry on what would be involved in such a program, including the types of training and which operators and crewmen would require certification. Even so, we will continue to pursue the legislative authority necessary to require that operators of certain commercial fishing vessels hold an operator's license because we see it as a significant initiative that would have a positive impact on vessel safety.

Recommendation #7: The Coast Guard should partner with the insurance industry to expand their scope of surveys of fishing vessels to include better documentation of crew competencies in areas of damage control, stability, and certification to perform drills.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #7: We concur with the intent of this recommendation. The Coast Guard will continue to seek input form the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) and consider partnerships with marine insurance underwriters and associations through which we could seek to expand the scope of their surveys to include better documentation of crew performance.

Recommendation #8: The Coast Guard should re-evaluate the existing third-party training for certification to conduct drills. A database should be developed with access given to the Fishing Vessel Safety Examiners and the insurance industry for verification of certification to conduct drills. A log system should also be required on fishing vessels to document required monthly drills.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #8: We concur with the intent of this recommendation. As a result of this and several other fishing vessel casualties with multiple losses of life on the East Coast in late 1998 and early 1999, the Coast Guard formed a Fishing Vessel Task Force (FVTF) to examine safety in the commercial fishing industry. The FVTF issued a report with 59 recommendations to improve fishing vessel safety. In its report, the

FVTF recommended that the Coast Guard improve drill enforcement, including a proposal to require logging of monthly emergency drills. It also called for an evaluation of the training and certification of training conductors by third-party organizations. The Coast Guard will continue to pursue these two initiatives. As regards the development of a database, the Coast Guard will re-evaluate this proposal when the above two initiatives have been completed.

Recommendation #9: 46 CFR 28.270(e) and (f), the regulation requiring new crewmembers to receive a detailed safety orientation prior to getting underway should be modified to require logging of the completion of this orientation.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #9: We concur with the intent of this recommendation. As a result of this and several other fishing vessel casualties with multiple losses of life on the East Coast in late 1998 and early 1999, the Coast Guard formed a Fishing Vessel Task Force (FVTF) to examine safety in the commercial fishing industry. The FVTF issued a report with 59 recommendations to improve fishing vessel safety. In its report, the FVTF recommended that the Coast Guard improve drill enforcement, including a proposal to require logging of monthly emergency drills. It also called for an evaluation of the training and certification of training conductors by third-party organizations. We view the logging of the safety orientation required by 46 CFR 28.270(e) and (f) in the same light and will pursue efforts to require documentation of the orientation. As regards the requirement to log the orientation in the vessel's log book, the Coast Guard is conferring with the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) to determine the best process for documentation of safety orientations.

Recommendation #10: The Coast Guard Fishing Vessel Safety examiners should be given instructions on manufacturer's recommendations for lifesaving equipment including requirements for installation of EPIRB hydrostatic releases. This instruction should also be included in training for boarding officers and marine inspectors.

Fifth District Commander's Endorsement: Do not concur with this recommendation. I do not believe it could be managed effectively and may expose the Coast Guard and the Fishing Vessel Examiner to liability. As an example, there are currently more than ten Coast Guard approved EPIRB manufacturers, each with their own design for installation, operation, and maintenance of the hydrostatic release. It is not practical to expect Examiners to maintain a reference library and develop expertise on hundreds of Coast Guard approved equipment items. The EPIRB's mounting container and hydrostatic release is permanently mounted aboard most vessels. To require its removal for servicing would make it that much more difficult for the vessel operator to continue operating with a properly mounted "loaner" EPIRB during the servicing period.

Commandant's Action on Recommendation #10: We concur with the intent of this recommendation. The number and variety of designs and recommendations for installation, operation, and maintenance of lifesaving equipment, including EPIRB hydrostatic releases, is such that to expect Coast Guard Fishing Vessel Safety examiners to maintain an adequate level

of expertise or a reference system is impractical. However, examiners, marine inspectors, and boarding officers should be provided with general training on the proper installation, operation, and maintenance of lifesaving equipment to aid in the detection of unsafe conditions during exams and boardings. To improve that training, a job task analysis is currently being conducted for the Commercial Fishing Vessel Examiner course and a safety training curriculum is being developed for boarding officers. Other efforts, including the improvement of job aids, are being undertaken in an effort to improve the level of expertise. Additionally, fishing vessel operators will be encouraged to consult with the manufacturers and equipment dealers with regard to the installation, operation, and maintenance of lifesaving equipment.

Recommendation #11: The Coast Guard should work with safety gear manufacturers and servicing companies to evaluate an expanded scope of inspection for EPIRBs. Presently, only the battery must be replaced at a servicing facility. Consideration should be given to expand the requirement for the mounting container and hydrostatic release to be serviced and updated at an approved facility.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #11: We concur with the intent of this recommendation. Starting in 2002, The International Convention for the Safety of Life at Sea (SOLAS) will require annual servicing and testing of EPIRBs for vessels on international voyages. The Federal Communications Commission is expected to extend this annual servicing and testing requirement of EPIRBs to larger vessels in domestic services. As regards annual servicing of the mounting container and hydrostatic release, we will re-evaluate the need for estabishing this requirement once the SOLAS requirements have come into effect.

Recommendation #12: The Coast Guard should vigorously pursue funding for upgrades to the National Distress and Response System.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #12: We concur. In the wake of this casualty and the sinking of the sailing vessel MORNING DEW, the Senate Subcommitee on Transportation and Related Agencies discussed this issue and concluded that there is a need to use new technology to improve the Coast Guard's National Distress and Response System (NDRS). The NDRS upgrade project will improve coverage, improve the quality of reception, provide voice recorder replay, and add direction finding capability to improve our ability to locate mariners in distress and to reduce response times. The NDRS upgrade project is expected to begin in 2001.

Recommendation #13: Group/Marine Safety Office Philadelphia should be given a copy of this report for their information and action as they deem appropriate.

Fifth District Commander's Endorsement: Concur with this recommendation.

Commandant's Action on Recommendation #13: We concur. We will provide a copy of this report as recommended.

W. D. RABE
By direction

16732
22 Mar 2000

FIRST ENDORSEMENT on Investigating Officer's ltr 16732 of 23 Jul 1999

From: Commander, Fifth Coast Guard District (Am)
To: Commandant (G-MOA)

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE SINKING OF THE F/V ADRIATIC, O.N. D579941 ON 18 JANUARY 1999

1. Approved, subject to the following comments.

2. It should be noted that a separate Coast Guard investigation was conducted with regard to the mayday call and subsequent overdue report regarding the sinking of the F/V ADRIATIC on 18 January 1999. This report was completed on 2 February 1999 by CDR Dennis Sens. Final action of the Reviewing Authority, Vice Admiral Rufe was completed on 1 July 1999. I have enclosed a copy of this investigation for further background information on the details of this casualty.

3. I concur with recommendation 1 in that the standard of care in maintenance and operation of commercial fishing industry vessels must be improved. If initiated, this effort should be through regulations requiring inspection of fishing vessels. Based on the effectiveness of the current dockside examination program, I do not believe an expanded voluntary dockside examination program will have the desired impact.

4. I concur with Recommendation 2 in that any conventional initiative to require inspection of fishing vessels would be resource intensive and meet with industry resistance, therefore, any regulatory initiative should be phased in. An expanded voluntary program would meet with minimal success.

5. I concur with Recommendation 3.

6. I partially concur with Recommendation 4. Regardless of the results of a stability letter requirement, the Coast Guard should explore opening a formal dialogue with marine insurance underwriters and explore formation of a partnership to improve fishing vessel safety.

7. I concur with Recommendations 5, 6, 7, 8 and 9.

16732
22 Mar 2000

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE SINKING OF THE F/V ADRIATIC, O.N. D579941 ON 18 JANUARY 1999

8. I do not concur with Recommendation 10. I do not believe it could be managed effectively and may expose the Coast Guard and the Fishing Vessel Examiner to liability. As an example, there are currently more than ten Coast Guard approved EPIRB manufacturers, each with their own design for installation, operation and maintenance of the hydrostatic release. It is not practical to expect Examiners to maintain a reference library and develop expertise on hundreds of Coast Guard approved equipment items. The EPIRB's mounting container and hydrostatic release is permanently mounted aboard most vessels. To require its removal for servicing would make it that much more difficult for the vessel operator to continue operating with a properly mounted "loaner" EPIRB during the servicing period.

9. I concur with Recommendations 11, 12, and 13.

10. I recommend this investigation be closed.

J. T. KUCHIN

Copy: CG MSO/Group Philadelphia
CG MSO Wilmington

U.S. Department of Transportation
United States Coast Guard

Commanding Officer
U. S. Coast Guard
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16732
July 23, 1999

From: CDR Mary E. Landry, USCG
To: Commandant (G-MOA)
Via: Commander, Fifth Coast Guard District (Am)

Subj: FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE SINKING OF THE F/V ADRIATIC, O. N. D 579941 ON 18 JANUARY 1999

Ref (a): CCGD5 (Am) Convening Order 16732 dtd 21 Jan 99

1. Per ref (a), subject investigative report is hereby forwarded. The proceedings of the One-Person Formal Investigation commenced on 28 January 1999. The report includes an Executive Summary, Findings of Fact, Conclusions, and Recommendations. There are also transcripts of the proceedings (6 binders total), and 46 Exhibits submitted into evidence. The format of the report follows the recommended outline provided by G-MOA, with minor deviations where sections were not applicable or pertinent to this casualty.

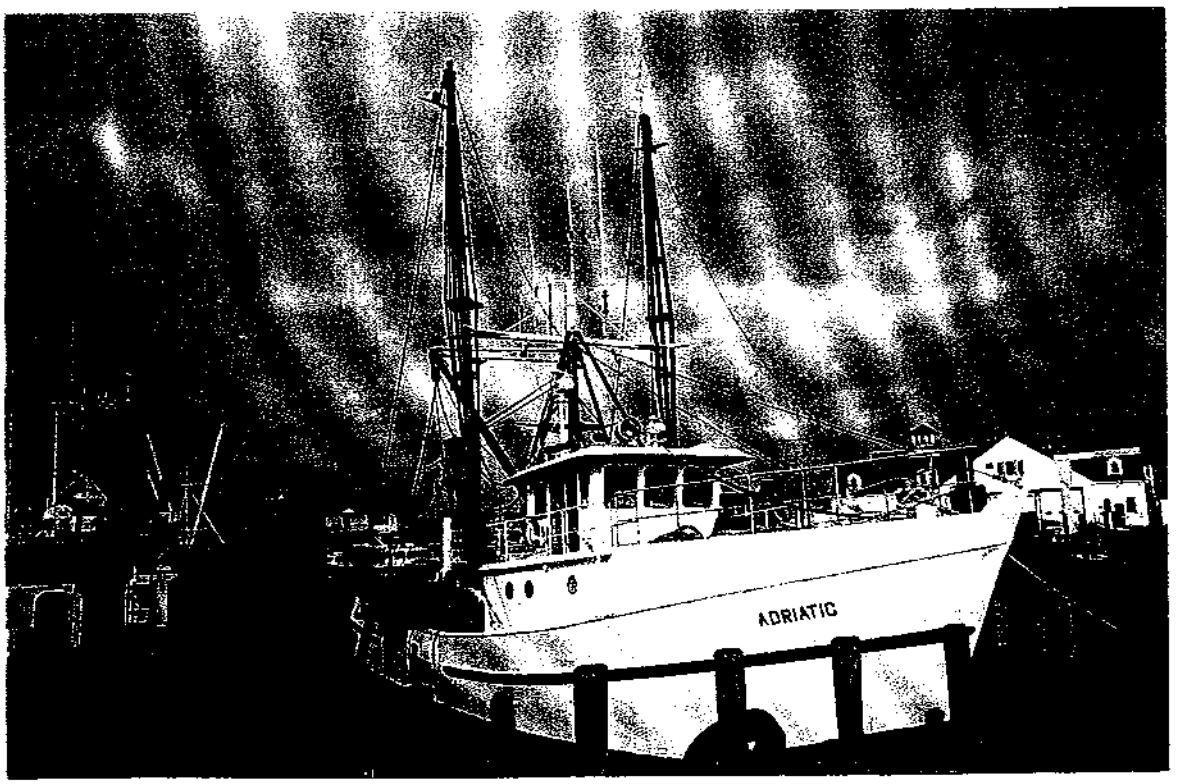
2. I am indebted to several Coast Guard units involved in the support of this investigation and formal proceeding. MSO/Group Philadelphia provided tremendous support. The crew demonstrated themselves to be very professional and hard working, and they were very accommodating as I set up a temporary office to conduct my work. The Coast Guard Marine Safety Center provided pivotal technical support and testimony in analyzing the casualty. In particular, LT Ray and LT McGee dedicated countless hours in providing an extremely professional analysis of this casualty. The Fifth District marine safety, public affairs and legal staffs were always available at a moments notice to provide support and expertise. Group Atlantic City provided support, both in terms of testimony and evidence gathering, and also in providing solace and support to the lost crewmember's families as they dealt with their anguish. Last, but not least, MSO Wilmington provided back-up support to me as I worked numerous hours away from my job as Executive Officer. This was a true "team" effort, and could not have been accomplished without everyone's support and professionalism.

3. I am available for any questions you may have regarding this report.

M E Landry

M. E. LANDRY
Commander, U.S. Coast Guard
Investigating Officer

Encl: (1) Report of F/V ADRIATIC Casualty


ADRIATIC

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FOR THE FORMAL INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE SINKING OF THE F/V ADRIATIC, O.N. D579941 ON 18 JANUARY 1999

Executive Summary

The F/V ADRIATIC, a 74' steel-hulled clamming vessel, departed Point Pleasant, New Jersey at 1230 on 17 January 1999 for a routine fishing trip. (All times are EST + 5 ZoneTime). There were four people on board including the operator of the vessel, Mr. George Evans, and crewmembers Michael Hager, Frank Janicelli, and Douglas Oland. The F/V ADRIATIC had been underway for 26.5 hours when an unintelligible mayday call was received at Coast Guard Station Barnegat Light, N. J. The time was 1501 on 18 January and Station Barnegat and USCG Group Atlantic City, New Jersey watchstanders both made several attempts to hail the vessel that had transmitted the mayday. At this time, no vessels had been reported overdue. After several attempts by the radio watchstanders to identify the source of the mayday, Station Barnegat and Group Atlantic City stood down from the incident. At the time of the mayday call the weather in the vicinity of Station Barnegat was deteriorating. A small craft advisory was in effect with winds ranging from 18 to 33 knots and seas at approximately 5 feet. At 1639 PM EST the weather service upgraded the weather forecast to a special marine warning which could produce winds gusting to over 35 knots and higher waves. There were also bands of thunderstorms and dangerous lightening moving through the area.

At approximately 1842 the evening of 18 January, a worker from Barney's Dock, a fish house in Atlantic City, New Jersey, called USCG Station Atlantic City and reported that the F/V ADRIATIC was overdue. The Barney's Dock employee, Mr. Giverson explained that he had spoken to the operator of the F/V ADRIATIC, Mr. George Evans by cellular phone twice that morning (18 January) at 0930 and 1200 respectively. During the second phone conversation Mr. Evans communicated that he was done fishing and was coming in to offload 30 cages of clams. Mr. Evans stated that he would arrive at Barney's Dock and be ready to offload his catch at approximately 1900. Mr. Giverson attempted to call the F/V ADRIATIC on the cellular phone and radio several times as 1900 approached to get an update on the vessel's arrival, but he did not get an answer on the cellular phone or radio. Mr. Giverson became concerned when he heard crewmembers from other fishing vessels who were offloading at the docks mention that they had heard the Coast Guard calling back a mayday call earlier in the day. Mr. Giverson decided to call the Coast Guard.

After attempts to raise the F/V ADRIATIC on the radio failed, and no response was received to an Urgent Marine Information Broadcast (UMIB), Coast Guard Group Atlantic City commenced a search. Group Atlantic City launched CG 6524 (HH65 helicopter) at 2141, 18 January to do a trackline search along the intended path of the F/V ADRIATIC (Atlantic City to Manasquan). At 2248, CG 6524 located a survival suit in vicinity of 39-38.2 N, 074-01.7 W. Several Coast Guard assets were launched. Searches continued through the night and into the next 3 days. Search crews continued to recover debris from the vessel including a life ring. On day two an oil sheen and orange polypropylene line were sited in position 39-36 N, 074-07W. Volunteer divers dove on the vessel the morning of 19 January. The F/V ADRIATIC was located in 60' of water lying on her port side. The divers examined the exterior of the wreck and reported the liferaft still in the container and lodged under the vessel railing. The vessel's emergency position indication radio beacon (EPIRB) was still in its container mounted in the vicinity of the pilothouse. This EPIRB was removed by the divers and activated upon removal from its container. Neither the EPIRB nor the liferaft launched as they were designed to, when the vessel sank. (The liferaft was eventually freed up from the railing by underwater currents/shifting of the wreck. It was discovered fully inflated on the beach on 24 January at Beach Haven which is approximately 10 nautical miles south of Barnegat Light. The raft was in good condition and was returned to the owner of the F/V ADRIATIC). The search was suspended at 1148 on 21 January 1999. No survivors were located.

Mr. George Evans was operating the F/V ADRIATIC through a lease-to-purchase agreement with the owner, Mr. Bernard Rubin. Mr. Rubin hired Dive Masters to conduct subsequent dives on the vessel. These dives were conducted on 27 January and 2 February 1999. The dives included examination of the exterior and interior of the vessel including the crew spaces and the engine room. Two deceased crewmembers, Michael Hager and Frank Janicelli were located in the vicinity of the crew's quarters. The Captain, Mr. George Evans, and crewmember, Douglas Oland, have not been located and are presumed deceased.

Investigators from the Marine Safety Office in Philadelphia began gathering evidence concerning the casualty on 19 January 1999. National Transportation Safety Board (NTSB) members were also dispatched from Washington, DC to gather evidence concerning the F/V ADRIATIC mayday call. The NTSB was already investigating a Coast Guard Search and Rescue case concerning a sailboat, the MORNING DEW, which sank at the entrance to Charleston, South Carolina with multiple loss of life. Copies of much of the F/V ADRIATIC evidence gathered by the Coast Guard were provided to the NTSB.

On 21 January 1999, a One-Person Formal Investigation into the circumstances surrounding the sinking of the F/V ADRIATIC was convened by the Coast Guard Fifth District Commander (IO Exhibit # 1). The NTSB was offered the opportunity to participate in the formal proceeding, but declined and requested the Coast Guard provide a copy of the final report. On six separate occasions commencing 28 January and concluding 5 March, formal proceedings were held in Philadelphia, PA. Testimony was taken from the following:

- Coast Guard personnel associated with Search and Rescue mission
- Mr. Gary Szatkowski, U. S. National Weather Service
- Captains of fishing vessels operating in area at the time of F/V ADRIATIC casualty
- Dive team personnel from volunteer dive and Dive Masters
- Employees of Laurelton Welding, yard where most recent F/V ADRIATIC repair work had taken place
- Employees of Barney's Dock where the F/V ADRIATIC was to have landed catch
- Former crewmembers who had sailed with Captain George Evans
- Mr. Arlington Setzer, III, marine surveyor for the F/V ADRIATIC
- Mr. Robert O'Sullivan, Flagship Group, Ltd, Insurance Underwriters for F/V ADRIATIC
- Coast Guard active duty and auxiliary personnel associated with Fishing Vessel Safety Program
- Various members of safety gear manufacturing and distribution companies
- Mr. Robert Markle, head of CG Lifesaving and Fire Safety Standards Division, Washington, DC
- Owner of F/V ADRIATIC, Mr. Bernard Ruben
- LT DeWayne Ray, USCG Naval Architect who performed flooding and stability analysis of F/V ADRIATIC
- Other witnesses as necessary

The proceedings included transcript testimony, and 43 exhibits entered into evidence during the formal proceeding, with 3 additional items entered into evidence via letter with agreement from all Parties in Interest (Parties in Interest hereinafter referred to as "Parties"). In the interest of simplifying the logistics of the formal proceeding, the Parties agreed on 5 March 99 to allow additional items of evidence to be entered into the record without reconvening the formal proceeding. This agreement was made contingent upon none of the additional evidence being inconsistent with testimony provided to date. The additional evidence included documentation from the owner, Mr. Bernard Rubin concerning the serial number of the EPIRB he had originally placed on the F/V ADRIATIC. Also included was the information regarding the satellite positioning on the day of the casualty to determine the amount of time it would have taken for the

Coast Guard to be notified of an EPIRB signal, had the EPIRB deployed properly. The final piece of additional evidence was analysis by the Coast Guard naval architect, LT Ray. LT Ray agreed to conduct additional analysis regarding the potential flooding rates in the engine room, the impact and engine room coupling failure load analysis, and the impact on stability of the vessel if the clam dredge shifted on deck from the starboard to the port side of the vessel. In May 1999 all parties had accepted the analysis and agreed that no additional testimony was necessary. No facts were in dispute.

In attempting to piece together the accident and the events leading up to this marine casualty, the investigators encountered several challenges. First and foremost, there were no survivors in this casualty and no witnesses to this tragedy. The report lacks eyewitness accounts and lacks critical details regarding events leading up to the incident. Persons providing background information testified to the fact that Mr. Evans was a capable and responsible fisherman, but that he was also very private about matters relating to his business. Although Mr. Bernard Rubin owned the F/V ADRIATIC, Mr. Rubin stated that he did not involve himself in the day-to-day matters of the F/V ADRIATIC. Investigators have relied on statements and testimony from persons who had worked with Mr. George Evans to identify the working climate onboard the F/V ADRIATIC. Additionally, investigators have relied on testimony from personnel who had direct involvement with the F/V ADRIATIC in the months, weeks and hours leading up to the time when the vessel was reported overdue to the Coast Guard. Finally, the investigators relied on the analysis and testimony of the marine surveyor and naval architects who worked together to determine, as best as possible, the probable cause of this casualty.

All Parties were very cooperative and professional throughout this process. The willingness of the owner, Mr. Bernard Rubin, to fund two dives and to provide all materials in a prompt manner went a long way in facilitating the formal proceeding and this report. Additionally, the witnesses should be thanked for taking time out of their busy schedules to provide timely and thorough testimony.

Media interest in the proceedings was high due to the coincidence of two other fishing vessel casualties that had occurred within 10-days preceding the F/V ADRIATIC casualty. Coast Guard District Five public affairs personnel worked with MSO/Group Philadelphia personnel and successfully managed the public affairs needs associated with the proceedings.

Findings of Fact

Description of the Fishery:

1. The F/V ADRIATIC operated in the surf clam fishery off the New Jersey Coast (IO Exhibit # 38). Fishing vessels in this business use large steel dredges to scrape clams off the ocean floor. A clam pump and piping system facilitates fishing by drawing seawater suction through a clam pump in the engine room, and pumping this seawater out to the dredge through piping connected to a hose on the dredge. Seawater is sprayed from nozzles at the end of the dredge to stir up the ocean bottom and loosen the clams. The clams are then hauled up to the vessel in the dredge and transferred to clam cages which sit in the clam holds on the vessel. These cages when fully loaded, weigh approximately 3,000 pounds. (refer to IO Exhibit # 22 for pictures of F/V ADRIATIC)

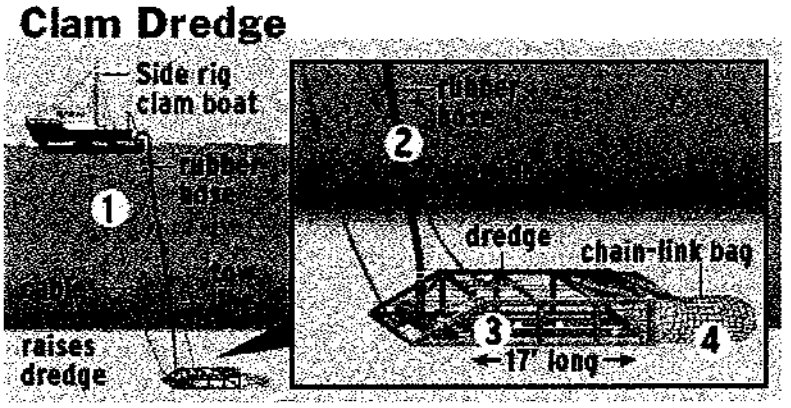


Photo taken from *ABC News* On line

2. The surf clam fishery is managed under the Mid-Atlantic Fishery Management Council; one of eight such councils set up nationwide as a result of the Magneson Fishery Conservation Act. Since 1990, the surf clam fishery has been managed under an Individual Transferable Quota (ITQ) system that allocates shares of the clam resource to fishermen. Quotas are allocated by the National Marine Fisheries Service based on historical catches of clams. The quotas are issued on an annual basis and controlled through a series of specifically numbered tags that go on the clam cages as they are offloaded from the fishing vessel to the fish houses (transcript page 466-471). Holders of the quotas can lease, sell, or transfer their allocation to vessels or other companies. (Exhibit # 38)

Chronology

Before the accident:

3. The F/V ADRIATIC left Point Pleasant, New Jersey at 1230 on 17 January 1999 with 30 empty clam cages. (transcript, page 24, page 471, IO Exhibits 3 and 18)

4. As was required, Mr. Evans had called his departure into the National Marine Fisheries Service and reported that he would be landing his catch at Atlantic City on 18 January 1999. The vessel departed on a trip that normally ranged from 24-30 hours in duration. On a standard fishing trip, the F/V ADRIATC would catch 28-30 cages of clams. (transcript 468-469)

5. On the morning of 18 January 1999, Barney's Dock employee Everett Giverson called Mr. Evans by cellular telephone at 0930 and again at approximately 1200. During the second phone conversation Mr. Evans communicated that he was done fishing and was coming in to offload 30 cages of clams. Mr. Evans stated that he would arrive at Barney's Dock to offload his catch at approximately 1900. (transcript pages 326-333)

6. At approximately 1300, George Evans phoned Barney's Dock and asked Mr. Everett Giverson to arrange for a diver to be available the next morning to check on F/V ADRIATIC's new clam pump. (transcript pages 327-328).

7. Mr. Evans stated to Mr. Everett Giverson that the clam pump was not catching as well as it should, and that a deck hand had not opened the valves. Mr. Evans stated that he had gone down in the engine room and "took a couple more turns on the valve." He stated that the last two tows of the dredge did a little better job and he saw an increase in catch. Mr. Giverson testified that George Evans thought he might have a growth of mussels or something fouling the intake on the clam pump. (transcript page 328-333).

8. During the course of conversations between Mr. Evans and Mr. Everett Giverson on 18 January 1999, no other problems were noted. Mr. Giverson stated that things seemed pretty normal and routine. (transcript page 333)

9. Mr. Robert Giverson, also a worker at Barney's Dock, attempted to call the F/V ADRIATIC via telephone and VHF radio at approximately 1700 on 18 January 1999, but got no answer. The purpose of the call was to get an update on the vessel's arrival. (transcript pages 371-374)

10. Mr. Robert Giverson became concerned about the F/V ADRIATIC at 1800 when he overheard other fishermen on the docks talking about a Mayday callback the Coast Guard had performed over the radio the afternoon of 18 January. He continued his attempts to contact the F/V ADRIATIC. (IO Exhibit # 3 and transcript page 372)

11. Mr. Robert Giverson contacted Coast Guard Station Atlantic City at 1842 on 18 January 1999 to inform them of the status of the F/V ADRIATIC. (IO Exhibit # 3 and transcript pages 372-374)

12. Mr. Gary Szatkowski, meteorologist for the National Weather Service Forecast Office in Mount Holly, New Jersey, testified that the weather in the vicinity of F/V ADRIATIC casualty at 1500 on 18 January 1999. Conditions were: winds from 22-24 knots, gusting 26-28 knots, seas 6 feet and building, with a six second wave period, and a lull in the thunderstorms that had been moving through the area. A small craft advisory was in effect for the area. (IO Exhibit # 4, transcript pages 49-76)

13. The National Weather Service upgraded the forecast from a small craft advisory to a special marine warning at 1639 on 18 January 1999. A special marine warning meant that wind gusts of over 35 knots could be expected and severe thunderstorms were anticipated. (IO Exhibit # 4, transcript pages 49-76)

14. The F/V RICHARD M was transiting into the Atlantic City Inlet at approximately 1500 on the 18th of January 1999. The weather in the inlet was described as "nasty" with seas at a steady 6 feet, with an occasional 8 and 10 footer, with steady 30 mile an hour winds, gusting to fifty. (transcript pages 134-141)

15. Mr. William Parlett was on board the F/V RICHARD M, and testified that the vessel had transited in the vicinity of the F/V ADRIATIC casualty at approximately 1330. The F/V RICHARD M was 18 miles off shore and 28 miles from the inlet. Mr. Parlett testified that visibility was very bad with squall lines coming across very close together. There was

lightening, rain, and wind. Seas were a steady 6 feet and the wind was steady at 25-30 miles per hour. (transcript pages 134-141)

16. The F/V TIMBERLINE was operating approximately 18-22 miles away from the position of the F/V ADRIATIC casualty on the afternoon of 18 January 1999. (transcript pages 380-381)

17. Mr. James Charlesworth was on watch as first mate on the F/V TIMBERLINE between 1300-1800 on 18 January. (transcript pages 380-381)

18. At 1500, Mr. Charlesworth reported that the seas in the vicinity of the F/V TIMBERLINE were 4-7 feet and the winds were 20-30 mph. By 1600 winds had increased to 25-35 mph with seas at a steady 6 feet and an occasional wave of 10 feet, with rainsqualls moving through the area. (transcript page 382)

19. Mr. Charlesworth testified that he heard the Coast Guard broadcast concerning a Mayday at approximately 2030, but did not hear Mayday calls or callbacks earlier in the day on 18 January. (transcript pages 385-386)

20. The F/V WILLIAM LEE was approximately 3 miles off the shore of Atlantic City at 1500 on 18 January 1999. (transcript pages 714-718)

21. The Captain of the WILLIAM LEE, Mr. Harold Meyers, Jr. testified that he heard the Coast Guard come on the radio and state "Vessel calling Mayday come back, vessel calling Mayday come back" at approximately 1445. The transmission was broken up and Mr. Meyers speculated that he might have been too close to the antenna as an explanation for why the transmission was broken up. (transcript pages 714-715)

22. Mr. Meyers stated that he heard the Coast Guard make additional attempts to raise the vessel calling Mayday, but did not hear the F/V ADRIATIC make any Mayday call on 18 January. (transcript page 715)

23. The F/V JERSEY GIRL was docking at Barney's Dock in Atlantic City, New Jersey at approximately 1530. (transcript page 722)

24. The Captain of the F/V JERSEY GIRL, Mr. Joseph Karch, Jr. testified that while he was transiting the Atlantic City Inlet and docking at Barney's Dock, he heard the Coast Guard attempting to raise the vessel that had made a Mayday call. Mr. Karch stated that the radio transmission was badly broken up. He also stated that he never heard the F/V ADRIATIC make a Mayday call. (transcript pages 723-725)

25. The only statement available concerning the route Mr. Evans took while fishing was from Mr. Giverson who testified that George Evans told him over the phone that he had "come out of Point Pleasant and was working up the beach." Mr. Giverson testified that most fishermen don't give a specific location because they have their own spots to fish. (transcript page 338)

Loading Information:

26. No records are available regarding the exact amount of fuel and stores on board. IO Exhibit # 35 shows F/V ADRIATIC loaded 2095.6 gallons of fuel on 16 January 1999 at Point Pleasant. For stability calculations, naval architects assumed that there was a full load of fuel and freshwater, and that 66% of fuel remained in the port and starboard fuel tanks at the time of the casualty. This is a reasonable estimate based on discussions with the crew of a sister vessel, the F/V TINA MARIA that moors in Ocean City, Maryland. (IO Exhibit # 44 with associated calculations)

27. The normal routine for F/V ADRIATIC was to carry 24 cages of clams in the clam holds and have 3-6 remaining cages tied on deck on the port side of the vessel using chains attached to the rail. The vessel was outfitted with 4 clam tanks. The 2 rear clam tanks hold 4 cages each, and the 2 forward clam tanks hold 8 cages each. (IO Exhibit # 9, transcript page 564, 574-575)

Securing for Sea:

28. Just prior to departing for the trip, Mr. George Evans brought the vessel to Laurelton Welding of Point Pleasant Beach, N.J. to install a new clam pump and associated piping. Laurelton Welding had performed previous work on the F/V ADRIATIC over the years. The clam pump and expansion joint (flexible coupling) which were to be installed were provided by Mr. Evans. It was not uncommon for Mr. Evans to provide his own machinery and materials, and then have Laurelton Welding do any work that was too complicated for Mr. Evans. The new line being installed by Laurelton Welding was twelve inches in diameter on the intake line from the sea chest to the pump and ten inches in diameter on the discharge line from the pump to the dredge. The pump installation required that Laurelton Welding rebuild some of the internal framing and foundations for the pump because the existing ones had wastage from salt water dripping from the pump. It was stated that the hull plating was in very good shape, which was surprising given the status of the internal framing. Laurelton Welding replaced four hull frames, fifteen stanchions; four and one half feet of bed for the pump, and a twelve-inch schedule eighty well valve from the suction. They also installed the new clam pump and a new discharge line from the pump to the deck level. The material for the discharge line was ten-inch schedule eighty pipe, and there was a new elbow installed on the deck to connect to the discharge line which ran aft on the port side of the vessel. Laurelton installed a flange with new bolts and a flexible coupling on the engine room clam pump discharge piping between the pump and the through deck fitting. No work was done on the sea chest and the only work Laurelton did on the intake side of the pump was to install hard pipe from the elbow off the sea chest to the pump. Laurelton Welding also patched up some minor holes on the deck of the F/V ADRIATIC and repaired gussets on the dredge towing post on the main deck. Laurelton Welding reports show that work commenced on the F/V ADRIATIC on 26 December 1998 and continued through 16 January 1999. Work was not continuous and some work was performed by crewmembers of the F/V ADRIATIC. At completion of the work, the pump and piping system were tested under full operating conditions. The system ran well. There were no leaks observed with the pump running, and the discharge gauge read over 120 psi, which was considered satisfactory. (IO Exhibit # 20, # 21, #42, transcript pages 485-536 and 931-943)

Practices Underway, Fishing:

With no eyewitness testimony, investigators relied on former crewmembers to testify about typical underway practices onboard the F/V ADRIATIC.

29. Former crewmember Eugene Ashton testified that he served on the F/V ADRIATIC from 1979 to 1988. Mr. Harry Clark owned the vessel at that time. (transcript page 560, IO Exhibit # 22)

30. During the time Mr. Ashton served on board the F/V ADRIATIC with Mr. Clark, he witnessed the vessel carrying anywhere from 26 to 52 cages of clams. The clams would be carried in 26 cages in the clam tanks and the rest would be on deck. (transcript page 562)

31. Mr. Ashton served onboard the F/V ADRIATIC with Mr. George Evans from June 1996 to January 1997. During that time, the usual crew compliment was George Evans, Michael Hager, and Gene Ashton. Mr. Ashton stated that a fourth member of the crew was not employed because the three (George Evans, Michael Hager, and Gene Ashton) worked well together and could do the job without the extra person. (transcript pages 558-559, 588)

32. Mr. Ashton stated that one change on the vessel from the time he left in 1988 until the time he went back in June 1996 was that the F/V ADRIATIC clam holds were modified to only allow 24 cages in the clam holds. (transcript page 564)

33. Mr. Ashton never observed F/V ADRIATIC carrying more than 30 cages while Mr. George Evans operated the vessel. (transcript page 564)

34. Five months worth of Point Pleasant Packing, Inc. landing records for the F/V ADRIATIC between July and December 1998 indicate that on 19 occasions, the off load for a fishing trip on F/V ADRIATIC was 30 cages. On 6 occasions during this period, the vessel offloaded fewer than 30 cages. There were no landings where more than 30 cages were offloaded. (IO Exhibit # 18, transcript pages 466-470)

35. Mr. Ashton testified that he started working with Mr. George Evans on the F/V MISS TOBY in 1989 and that between the F/V MISS TOBY and F/V ADRIATIC, Mr. Aston worked a total of five years with Mr. Evans. (transcript pages 559)

36. Mr. Ashton testified that a normal fishing trip with Mr. Evans lasted 30 hours in duration. (transcript page 589)

37. Prior to testimony, Mr. Ashton reviewed the video footage from the 27 January Dive Masters dive tape. (IO Exhibit # 5, transcript page 567–568)

38. Mr. Ashton testified that the F/V ADRIATIC was generally arranged as seen on the video. He did not note any changes since his time crewing on the vessel in 1996. (IO Exhibit # 5, transcript page 567–568)

39. Mr. Ashton testified that Mr. Evans' practice was to use the clam pump and piping system to provide ballast water in the clam tanks for trimming the vessel while underway. (This point is disputed in later testimony from the marine surveyor who last inspected the F/V ADRIATIC. The surveyor testified that the F/V ADRIATIC had an electric pump and that you pump the clam tanks with the electric pump, not the clam pump. (transcript pages 565–566, page 904-905)

40. Mr. Ashton testified that the condition of the vessel, its equipment, and controls in the dive tape led him to believe the vessel had finished fishing and was heading back to offload. (IO Exhibit # 5, transcript page 567 –578)

41. Mr. Ashton testified that he noted one discrepancy with the vessel dredge. He noted that the rope that retrieves the dredge would normally be wrapped around the winch, and then half-hitched and tied off to a cleat just underneath the winch. In the dive tape, the rope is not attached to the cleat, leading Mr. Ashton to believe that the rope was not tied off to the cleat. This was an additional securing measure for keeping the dredge in position on deck after it was hauled in from fishing. (IO Exhibit # 5, transcript page 567-569)

42. Mr. Ashton judged from the dive tape that the outriggers were deployed as is normal while the vessel is underway because the cable on the starboard winch was slack in the tape. Mr. Ashton testified that if the outriggers were upright, there would not have been so much slack in the cable. (IO Exhibit # 5, transcript page 567–569)

43. Mr. Ashton testified that Mr. Evans would occasionally talk with the crew about survival suits, safety procedures for abandoning ship, and the location of the safety equipment on the vessel. (transcript page 585)

44. Mr. Ashton testified that Mr. Evans never had him demonstrate putting on a survival suit, but merely asked him if he knew how to do it. Mr. Ashton testified that he told George Evans that he knew how to put a survival suit on. (transcript pages 587 and 588)

45. Mr. Ashton testified that he never observed Mr. Evans or Michael Hager conduct drills with the crew of the F/V ADRIATIC. (transcript pages 587-588)

46. Mr. Kevin Krausse served as a crewmember aboard the F/V ADRIATIC from the end of 1994 until the beginning of 1997. (transcript page 680)

47. Mr. Krausse testified that Mr. Evans did not conduct any drills for the crew while Mr. Krausse served on the vessel. Mr. Krause stated that the first mate gave him a "run down" on what he should do such as showing him where the survival suits were. (transcript page 682)

48. The insurance survey report lists Michael Hager as certified to conduct safety drills. (IO Exhibit # 9)

49. Records from the Mid-Atlantic Safety Survival Training Association (MASSTA) do not list Michael Hager or George Evans as having the required Fishing Vessel Drill Conductor certification. (transcript page 874-877)

The Accident Timeline:

50. At 1458 on 18 January 1999, the Group Atlantic City Operations Center received an unclear radio transmission over VHF FM Channel 16, with only the words "Mayday Mayday" being clearly understood by the watchstander. (IO Exhibits # 2, # 3, transcript pages 19-21)

51. The Coast Guard watchstander from Group Atlantic City attempted four callbacks to the vessel in distress between 1458 and 1500, but received no response. At this time the vessel identity was unknown. The Coast Guard transmission was "Vessel in distress, vessel in distress, this is Coast Guard Group Atlantic City channel 16 over." (IO Exhibits #2, # 3 and transcript pages 20-21)

52. A Coast Guard watchstander from Station Barnegat Light also heard the Mayday call, but could not determine who or where it came from. The Station Barnegat watchstander also attempted three callbacks to the vessel in distress between 1458 and 1500, but received no response. (IO Exhibits #2, # 3 and transcript pages 20-21)

53. The watchstander from Group Atlantic City and the watchstander from Station Barnegat Light conferred with each other via intercom at 1500:06. Discussions revealed that neither could discern what vessel had called in a distress, and that the available high site on 16 was already in use and watchstanders were still unable to get any additional information. (IO Exhibit # 3 and transcript pages 20-21)

54. At 1508:30 and urgent marine information broadcast (UMIB) was issued by Coast Guard Group Atlantic City and stated "A distress call was received on VHF-FM channel 16. Name, position, and nature of distress are unknown. Any vessel with additional information is requested to contact any Coast Guard Station." (IO Exhibits # 2, # 3, and transcript pages 21)

55. The UMIB was repeated two more times at 1529 and 1558, and was cancelled at 1620. (IO Exhibit # 3 and transcript page 21)

56. At 1850 on 18 January 1999, Station Atlantic City received a phone call from a dockworker, Mr. Robert Giverson, at Barney's Dock reporting that the F/V ADRIATIC was not at the dock for a scheduled 1900 off load. (IO Exhibit # 3)

57. At 1900, Station Atlantic City conducted call outs to attempt to raise the F/V ADRIATIC by radio, but they were unsuccessful. They also conducted phone calls via landline to the F/V ADRIATIC cellular phone number that had been provided by Barney's Dock. The Coast Guard also spoke with National Marine Fisheries Service concerning the schedule of the F/V ADRIATIC. (IO Exhibit # 3, transcript page 22-24)

58. At 1921, a Station Atlantic City 21-foot boat (CG212053) spotted an inbound fishing vessel off Atlantic City. The Coast Guard 21 footer was unable to establish communication with the fishing vessel. It was later determined that this fishing vessel was not the F/V ADRIATIC. (IO Exhibit # 3, transcript page 22-24)

59. At 2036 Group Atlantic City conducted call outs and at 2100 issued an Urgent Marine Information Broadcast (UMIB) with negative response to all inquiries. (IO Exhibit # 3)

Coast Guard Rescue Effort:

60. At 2141 a Coast Guard helicopter (CG6524) was launched from Atlantic City to conduct a search for the F/V ADRIATIC. A trackline search was conducted from Atlantic City to Manasquan and at 2248 a survival suit with strobe light was located in position 39-38 N, 074-01 W. (IO Exhibit # 3)

61. The Coast Guard launched the following additional assets to assist with the search effort (IO Exhibit # 3) :

    - 2325 additional helicopter, CG6580 airborne
    - 2334 small boat, CG47227 underway
    - 2340 CGC ADAK recalled to assist with search and on scene at 0330, 19 January
    - 19 January 0012 Coast Guard Cutter BATAN underway and on scene at 0337

62. At 0002, CG6580 reports an empty ring buoy in the water. CG47227 is approximately one mile from the position of the survival suit and reports a strong smell of diesel fuel. (IO Exhibit # 3)

63. At 0030 on 19 January 1999, the Coast Guard placed a data marker buoy in position 39-38.2 N, 074-01.7 W. (IO Exhibit # 3)

64. At 0043, CG47227 picked up a ring buoy with F/V ADRIATIC marking in area of data marker buoy. Other debris was located in the water, and there was oil sheen observed in position 39-36.4 N, 074-06.9 W. (IO Exhibit # 3)

65. Coast Guard assets continued searching the area for survivors. The Coast Guard had determined that there were four people on board the F/V ADRIATIC; Mr. George Evans, Mr. Michael Hager, Mr. Frank Janicelli, and Mr. Douglas Oland. (IO Exhibit # 3, transcript pages 26-27)

66. At 0256 on 19 January, Group Atlantic City reported that based on several hours of manipulating the recorded data from the 18 January Mayday call, they suspected a correlation between the 1500, 18 January Mayday call and the F/V ADRIATIC. (IO Exhibit # 3, transcript pages 32-35)

67. At 0342 on 19 January, the Coast Guard relocated the data marker buoy to position 39-38.2 N, 074-01.4 W. (IO Exhibit # 3.

68. The Coast Guard Atlantic Area Situation Report (SITREP) One reported the plan to continue to search with air and surface assets assuming a 36 hour survival time for a person in a heavy weather survival suit. Additionally, Chief Quartermaster Peck testified that initially there were reports that the F/V ADRIATIC had two life rafts on board. The owner of the F/V ADRIATIC later clarified that there was only one life raft on board. (IO Exhibit # 3, transcript page 107)

69. Coast Guard Group Atlantic City continued to coordinate search efforts for potential survivors of the F/V ADRIATIC throughout the day on 19 January 1999 with no survivors located. (IO Exhibit # 3)

70. At 0847, 19 January CGC PT BATAN located some orange polypropylene line secured to something under the surface in position 39-36 N, 074-07 W. (IO Exhibit # 3)

71. On the morning of 19 January, Budget Boat Towing and Salvage Co. volunteered to dive in the location of the orange line. They contacted Mr. Steve Gatto to see if he could assist with the dive. This dive was a volunteer effort to assist with the Search and Rescue case and was not directed by the owner of the F/V ADRIATIC. (IO Exhibit # 3, transcript pages 243-244)

72. Sea-Tow vessel INVINCABLE reported a vessel on the bottom using their depthfinder. Divers from Budget Towing, including Mr. Gatto, dove at 1610 on 19 January and confirmed vessel was the F/V ADRIATIC lying on her port side on the ocean bottom in 60' of water. (IO Exhibit # 3, # 7, # 24, transcript pages 244-245)

73. Mr. Gatto testified that there was a life ring still attached to the vessel and a life raft still in its container on the F/V ADRIATIC. The life raft was caught up in the starboard railing aft of the wheelhouse. He read the marking reading "six passenger" on the container. Mr. Gatto provided a drawing of the vessel that he had made with the life ring and life raft locations identified. (IO Exhibit # 8, # 24, transcript pages 245-249, 262-263)

74. Budget Boat Towing and Salvage report identified a painter still attached to the life raft container and traced it to an area forward of the divers position. It was not noted if the painter was attached to a cradle that was observed forward of the wheelhouse. (IO Exhibit # 24, transcript pages 245-249)

75. The Budget Boat Towing report identifies the starboard outrigger as appearing like it had been forced into its bracket from the vessel rolling over, due to the fact that it was off center and not retracted by its cable. (IO Exhibit # 24)

76. Mr. Gatto noted a survival suit still in its bag in the wheelhouse. He also noted an empty clam cage just behind the wheelhouse on the starboard side, and diesel fuel coming out of the wheelhouse. (transcript pages 250-253)

77. Mr. Gatto testified and the Budget Boat Towing stated that at the time of the dive there was a very heavy surge on the ocean bottom. (IO Exhibit # 24, transcript page 254)

78. A second member of the Budget Towing Dive team, Mr. Thomas Packer testified that he was asked by the Coast Guard to recover the F/V ADRIATIC Emergency Position Indicating Radio Beacon (EPIRB). Mr. Packer stated that the EPIRB was mounted along the port side of the wheelhouse roof in a fore and aft position. (IO Exhibit # 24, transcript pages 279-280)

79. Mr. Packer stated that the EPIRB unit was mounted intact on the vessel with the rod protruding through the hole of the outer container and the wire with the clip on it still attached. Mr. Packer stated that he manually removed the clip and the outer casing of the EPIRB. (IO Exhibit # 24, transcript page 281)

80. Mr. Packer testified that the angle of the vessel sitting on the bottom on its port side kept the buoyant EPIRB in its casing even after the outer lid was removed. As soon as he lifted the EPIRB from its mounting, and turned it vertical, it began flashing. It was also buoyant and Mr. Packer had to place it in a bag so that it would not float to the surface. (transcript page 281-287)

81. The Budget Boat Towing report states that the dive team finished at the wreck site at 1900. No evidence of the crew was found. (IO Exhibit # 24)

82. At 1830 on 19 January, Search and Rescue Mission Coordinator duties were turned over to the Coast Guard Fifth District Rescue Coordination Center (RCC) who had been monitoring the case from the beginning. (IO Exhibit # 3, transcript page 98)

83. Search and Rescue Coordination was turned over to the 5th District RCC because of their technical capabilities through a computer aided search program to expand the search beyond the first 24 hours. (transcript page 99)

84. The 5th District RCC continued to coordinate search efforts through 1148 on 21 January 1999. The Search and Rescue case was closed with no survivors found. (IO Exhibit # 3, transcript pages 106-109)

Post Casualty Dive Team Results:

85. The owner of the F/V ADRIATIC hired Dive Masters Inc. of Toms River, New Jersey to conduct dives on the F/V ADRIATIC. The first dive took place on 27 January 1999. (IO Exhibit # 5, transcript pages 173-175)

January 27, 1999 Dive

86. Prior to Dive Masters Inc. departing their mooring to commence the first dive, the owner and the Coast Guard Investigator both provided a thorough list of items Dive Masters was instructed to examine in support of the casualty investigation. The lists from the owner and the Coast Guard were approximately 80% redundant. (transcript page 175)

87. Mr. John Masters testified that the company added a few items they felt were pertinent for investigative purposes to the instructions for the divers. (transcript page 175)

88. Conditions during the 27 January dive were very favorable with a reasonable amount of visibility and a fairly calm sea state. (transcript page 175)

89. The 27 January dive revealed the following with regard to the status of the vessel prior to the casualty (IO Exhibit # 5, transcript pages 143-198, page 493, page 904):

    - The vessel controls are in the "ahead slow" position.
    - There is a small piece of line tied of to the throttle lever to keep it from slipping out of gear.
    - The rudder is 20 degrees to port.
    - There is no evidence of damage to the rudder.
    - The dredge hose is disconnected from the vessel connection coupling indicating the vessel was not engaged in fishing at the time of the casualty.
    - The dredge connection coupling is in "good shape" indicating no damage.
    - No damage such as cracks, fractures, or insets are evident on the visible sections of the hull (stern, bottom plate, keel, stabilizers, starboard side, starboard bow) indicating no failure of the hull of the vessel. Mr. John Masters testified that the port side of the vessel

above the chine was unavailable for examination, but that the remaining 90% of the bottom plate was examined.

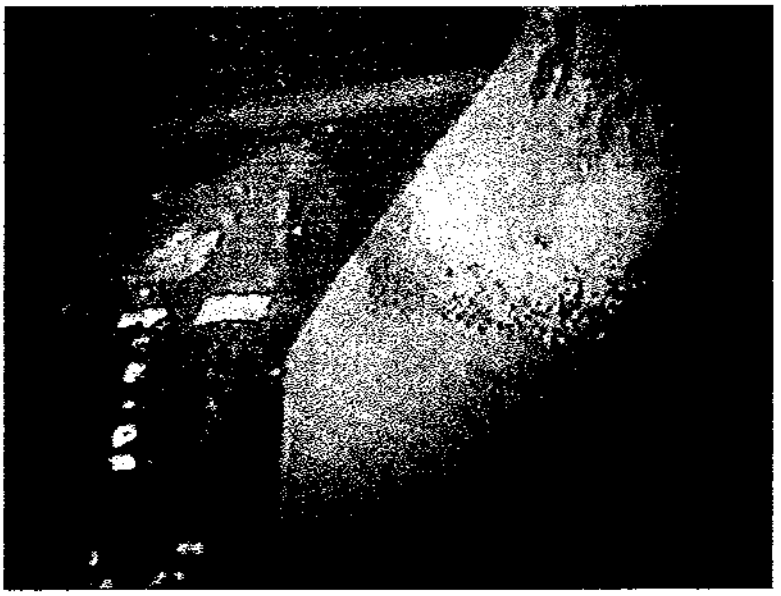
- The main sea suction valve strainer on the bottom hull plating appears to have been previously cut away. It looks like it had been burned off underwater by divers at some point prior to the casualty, leaving the main sea suction valve to the clam pump system without a strainer.

90. Additional details gathered by divers on 27 January include the following (IO Exhibit # 5, transcript pages 143-198):

    - The port side of the vessel is not accessible because the vessel is lying on its port side, and buried in sand. A good section of the port side is buried, leaving just the numbers on the wheelhouse visible (divers estimate four feet of the port side of the wheelhouse buried in mud or sand.)
    - The port side wheelhouse windows were broken and had been broken inward with more glass inside the wheelhouse than outside.
    - The starboard stabilizer or outrigger is in good shape, and its chain is dogged off to a cleat. The wire to the outrigger was slack indicating it was in a down position, which is the normal position when the vessel is underway outside the harbor. The port outrigger is broken and the attachment point to the vessel is buried below the mud line.
    - The galley is partially filled with sand. The refrigerator was upside down, and it appeared to have been thrown around. The stove was upside down.
    - The port side clam hold doors were lying on the bottom, and the other doors to the clam holds were hanging vertically from the holds.
    - There were only three clam cages remaining in the clam holds of the vessel. These three cages were empty and in the forward port clam hold and were held in place by a lip in the calm hold. One additional clam cage was observed hung up in the rigging on the deck of the vessel.
    - The remaining cages were not observed by divers, indicating that the boat capsized and the cages fell out. (Statement made by Diver Rodney Pendry, transcript page 160).
    - There were no documents or logs found on the vessel. The divers only found the ship's radio license, and the Coast Guard fishing vessel safety decal
    - The dredge is found empty sitting on the ocean bottom sixty feet from the F/V ADRIATIC off the port corner with the hose and towline still attached.

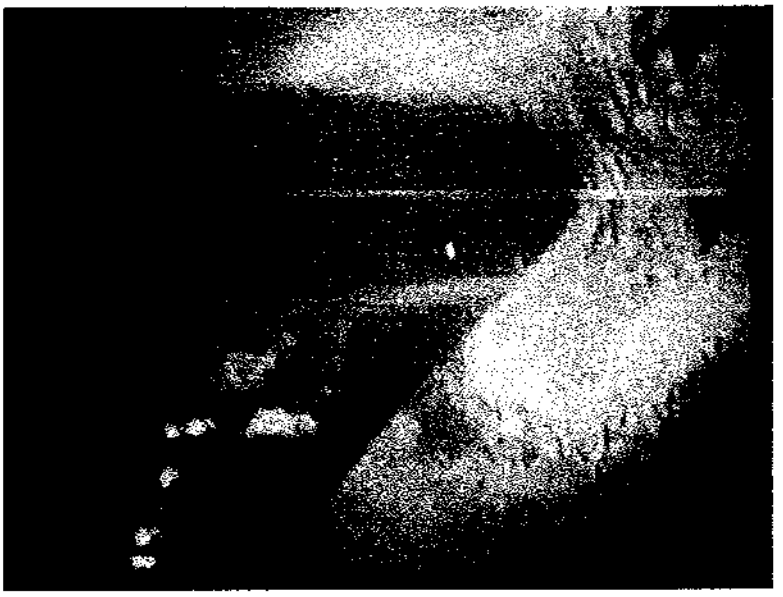
91. The divers entered the forepeak area of the F/V ADRIATIC to attempt to access the crews quarters. On entry into the forepeak, the divers moved some debris and found the first victim on the right side. The second victim was found under additional debris in the forepeak area. The divers searched the crews quarters, but no additional victims were found. (IO Exhibit # 5, transcript pages 159-160, 162)

92. The dive tape also revealed a section of the dredge hose folded over a blade of the propeller of the F/V ADRIATIC. It is not clear whether this happened prior to the casualty or after the casualty. There is a shroud around the propeller and it is intact and not distorted at all, even though a small section of dredge hose is folded over a blade of the propeller. (IO Exhibit # 5, transcript pages 168, 177, and 255)



Digital photo from dive video: *The dredge hose is the black object with silver like markings on the left of the picture, the propeller blade is yellowish in color and on the right side of the picture.*

Digital photo from dive video: *A view of the dredge hose from a different angle. The dredge hose appears in the center/right of the picture and has an orange marking on it. The propeller is on the left/lower side of the picture.*



Digital photo from dive video: *This picture shows the dredge hose in between two blades of the propeller. The dredge hose is the dark object with silver markings in the center of the picture.*

93. From the details in the dive tape, it is former crewmember Gene Aston's opinion that the clam hose did not get fouled in the propeller prior to the casualty, and that it happened as part of the vessel settling on the bottom of the ocean. He based his conclusion on the examination of the dive tape and clam dredge hose orientation at the site of the casualty. (IO Exhibit # 5, transcript pages 581–582)

94. The dive team was unable to access the engine room on the 27 January dive. (transcript page 176)

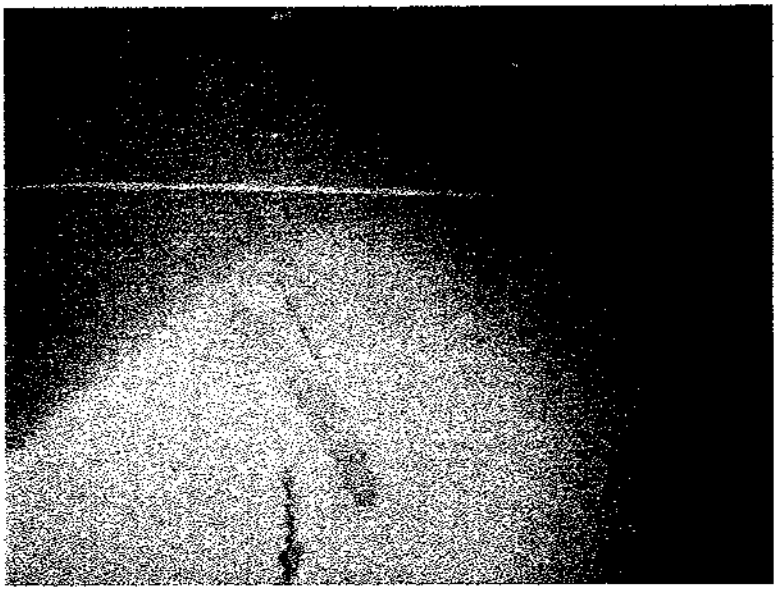
February 2, 1999 Dive

95. On 2 February Dive Masters dove again at the site of the F/V ADRIATIC and cut a hole in the hull plating to access the engine room. (IO Exhibit # 41, transcript pages 904-927)

96. Details uncovered by the divers when accessing the engine room include the following (IO Exhibit # 41, transcript pages 904-927):

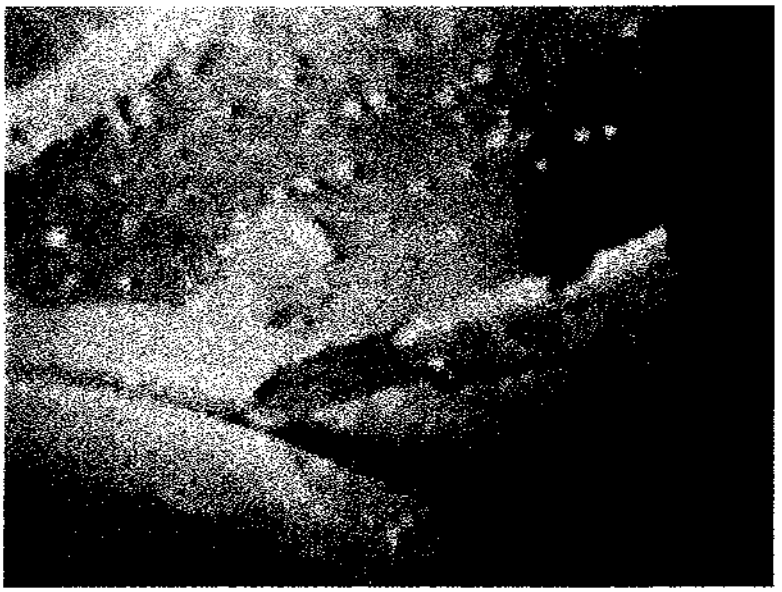
    - The watertight door to the engine room was not dogged closed. This was the first access to this space by divers and they found the upper and lower dog in the open position. Upon the diver's arrival at the entrance to the engine room, the engine room door was closed due to gravity and the position of the F/V ADRIATIC on the bottom, but the watertight door was able to be lifted open without having to undog the door.

Digital photo from dive video: *Upper dog on engine room door*

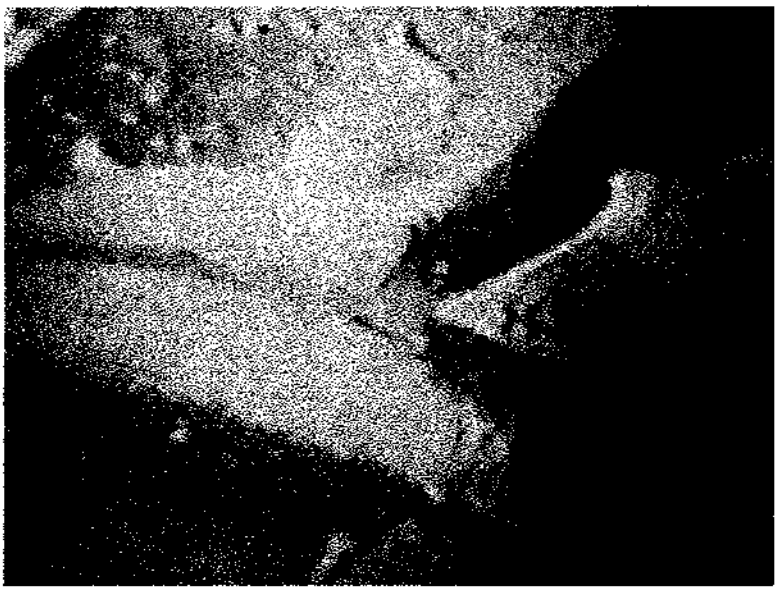


Digital photo from dive video: *Lower dog on engine room door*

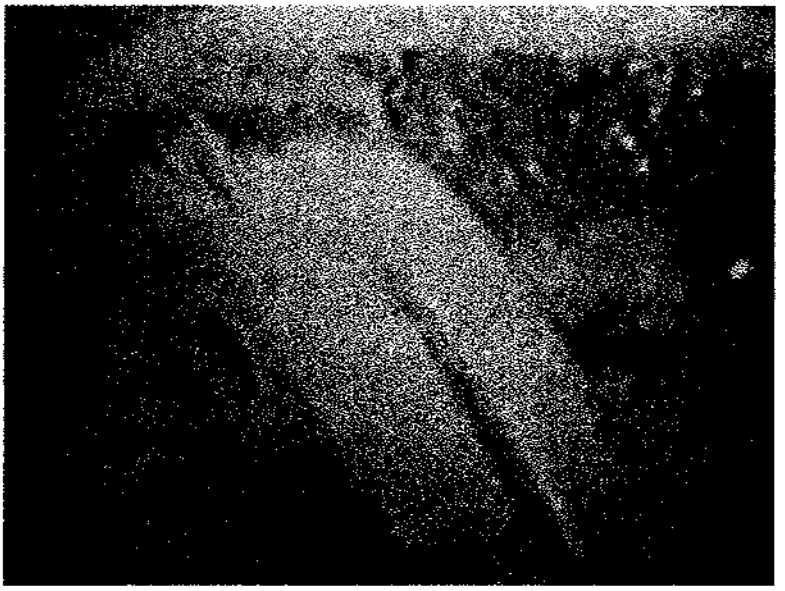
- The clam pump and piping system in the engine room were carefully examined. It was noted that the first flange on the discharge side of the clam pump had a bolt missing and three additional bolts were not secured tightly. The rubber gasket of the flange is also missing in the area of the missing/loose bolts. This flange is located approximately three to four feet below the waterline in the engine room, and the missing bolts left a 1/4" gap in the flange.



Digital photo from dive video*: Diver inserting knife in gap of flange.*
Loosened bolt is discernable above the knife blade.

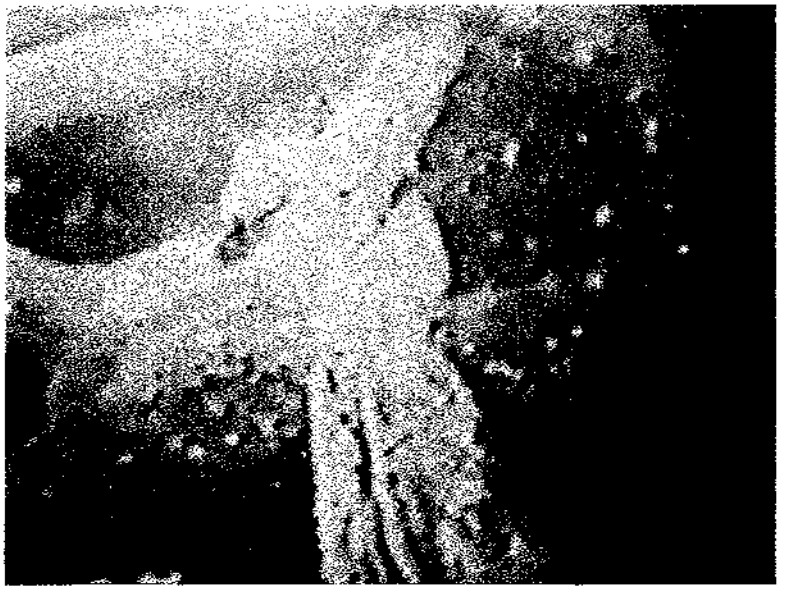


Digital photo from dive video*: Diver inserting knife in gap of flange, loosened bolt in background.*
Note that rubber gasket is missing in way of gap.
The remaining rubber gasket is barely discernable in photo and is to the right of the diver's knife.
Gasket is more readily identifiable in dive tape.

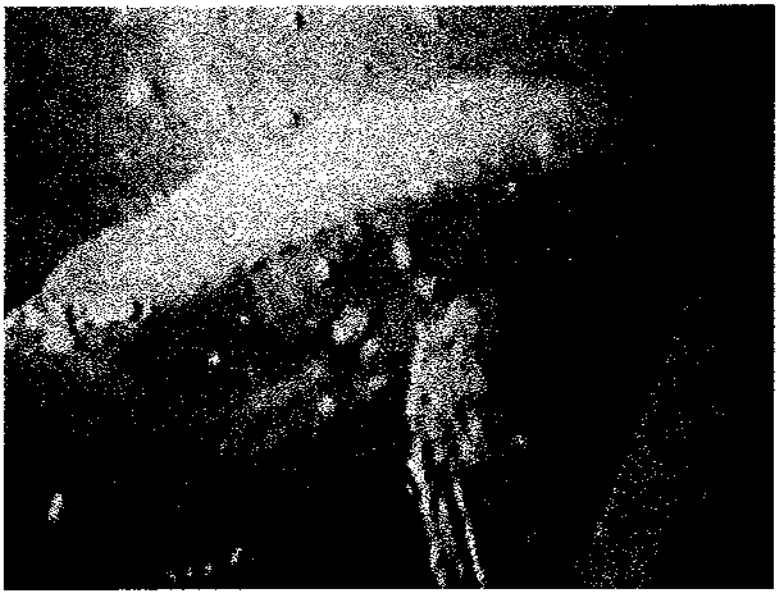


Digital photo from dive video*: Flange gap with removed bolt to the right and center of the picture.*

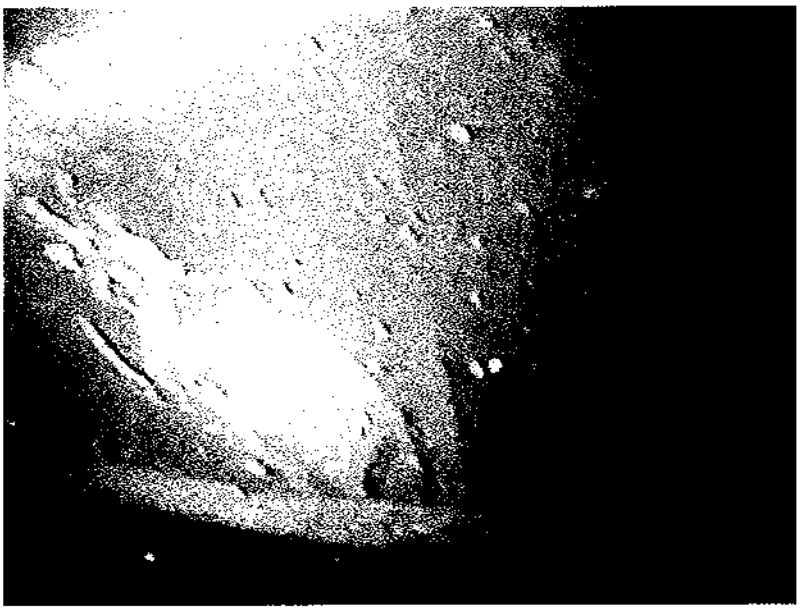
- The main valve on the discharge side of the clam pump was fully opened and tied off with a "comealong" to maintain it in the open position.



Digital photo from dive video*: Comealong secured to valve handwheel.*

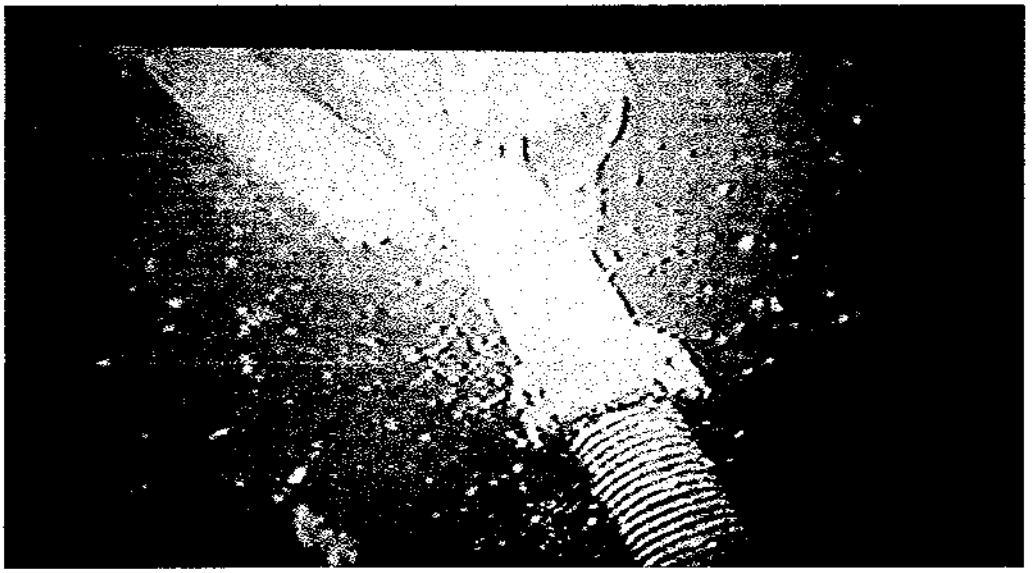


Digital photo from dive video*: Main sea suction valve tied off with a comealong*



Digital photo from dive video*: Other end of comealong attached to permanent fixture*

- The nut casing for the valve stem of the main valve on the discharge side of the clam pump was supposed to be welded to support angles. These support angles were parted from the nut, leaving the nut inoperable. There was no way to close the valve.



Digital photo from dive video: Nut casing from sea chest valve (same valve that was tied open with a comealong).

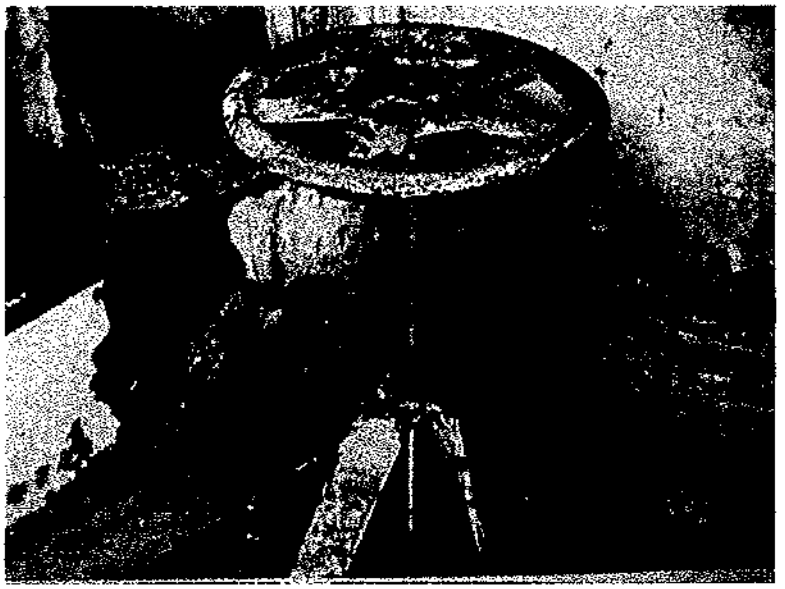
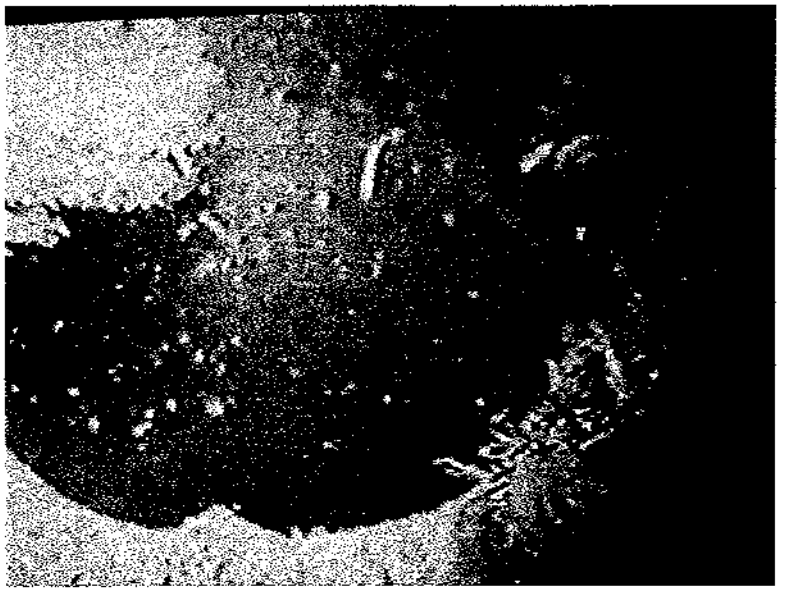
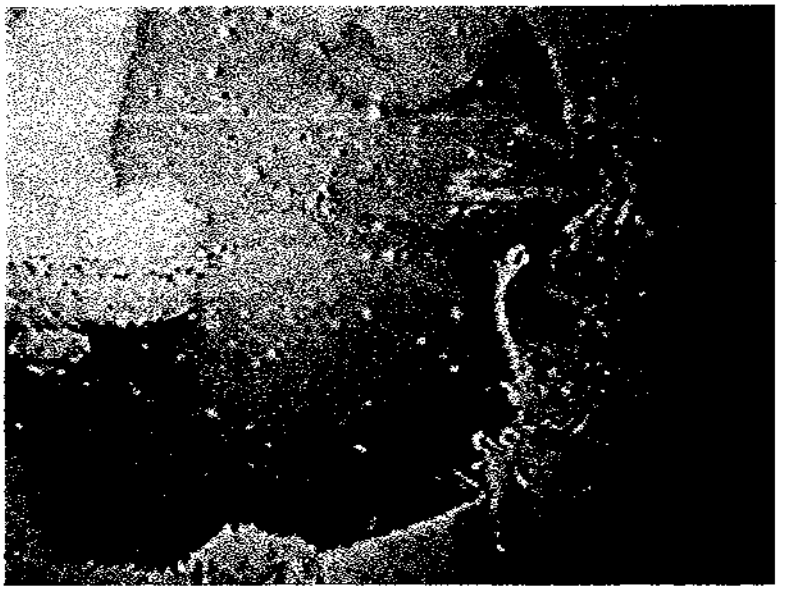


Photo of valve and nut casing assemply taken by marine surveyor October 96

- There was a flexible coupling in a section of the clam pump piping discharge line in the engine room. This coupling was between the clam pump and the welded through-deck penetration of the clam pump piping system. This flexible coupling had completely failed, and the two tie-rods which held the flexible coupling together to the hard pipe, were parted. Additionally, it was noted that the two sections of pipe held together by the flexible coupling were misaligned by almost a full diameter of the pipe indicating significant displacement of the pipe.

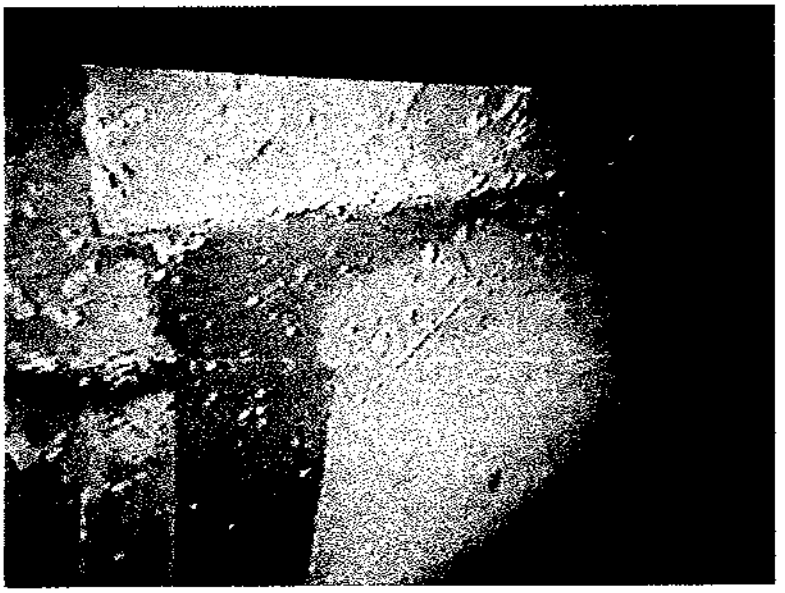


Digital photo from dive video: *Parted flexible coupling, this was the only flexible coupling installed in the engine room clam pump piping. It was installed between the clam pump and the welded through-deck penetration. This opening in the photo is a view into the clam pump piping. The shredded pieces surrounding the opening identify the coupling failure.*



Digital photo from dive video*: view of parted flexible coupling, more evidence of coupling failure.*

- There was a noted crack in the elbow between the through hull fitting (intake) and the sea chest of the clam pump.



Digital photo from dive video*: Crack appears as white line at turn of elbow*

- The sea chest itself was in tact.

97. Except for the problems with the engine room clam pump and piping system, no other possible means of flooding were observed in the dive tape. (IO Exhibit # 44)

98. Testimony from a worker at Laurelton Welding who worked on the installation of the new clam pump and piping system stated that the main discharge valve was not tied off with a comealong and operated properly during testing of the system just prior to this last fishing trip. Additionally, there were no bolts missing from the flange in the discharge line. The bolts installed on the flange were new and properly tightened as evidenced in the testing of the system. (Transcript pages 948, 949)

99. Mr. Arlington (Bud) Setzer III, the most recent marine surveyor of the F/V ADRIATIC, testified after reviewing the dive tape of the engine room that the flexible coupling that had failed more likely parted on the vessel's impact with the ocean bottom. He based that conclusion on the fact that the pump was not likely to be running because the F/V ADRIATIC had finished fishing. With the centrifugal clam pump not running, it is highly difficult to generate enough

pressure on the piping system to blow the coupling apart the way it appeared in the video. (Excessive vibration of the pump, or movement of the pump foundation could have impacted the coupling, but there were no signs in the video or testimony during the proceeding that would indicate these problems. Although there were receipts showing Mr. Evans had workers align the F/V ADRIATIC's clam pump on a few occasions over the last few years, Laurelton Welding workers testified that the pump alignment was exceptional when tested at the dock. The foundation was also well supported and tied into the hull based on the work done with the clam pump installation.) Mr. Setzer also testified that even if the pump was running, it was his opinion that the pressure would not be great enough to do the damage to the coupling that appears in the video. Mr. Setzer also expressed confusion as to why any crewmember would attempt to work on the engine room flange of the clam pump piping system, and the main valve off the sea chest of the clam pump while underway. (IO Exhibit # 41, transcript pages 904 – 917)

Naval Architecture Analysis:

100. Lieutenant Jerry DeWayne Ray, a Naval Architect from the Coast Guard Marine Safety Center in Washington, D.C. was qualified as an expert witness with no objections from the Parties. LT Ray conducted a post-casualty analysis of the stability of the F/V ADRIATIC. LT Steven McGee of the Marine Safety Center staff assisted with the analysis, which was reviewed and approved by the Commanding Officer of the Marine Safety Center, Captain J. G. Lantz. The analysis was completed in two phases, the first analysis being dated 4 March 1999, Serial: H1-9900697, and the second analysis being completed 26 March 1999, Serial: H1-9900946. (IO Exhibit # 44)

101. Due to the fact that no stability information, design drawings, or current drawings were available of the F/V ADRIATIC, LT Ray conducted a sister-vessel analysis using the F/V TINA MARIA of Ocean City, Maryland. The F/V TINA MARIA was built at the same yard (Master Marine, Inc.) and to the same dimensions as the F/V ADRIATIC. It was noted that the F/V TINA MARIA had made a modification from the original design of one clam pump, clam pump piping system, and starboard side dredge, to a two clam pump, clam pump piping system, and port and starboard dredges set up. This change was accounted for in the measurement and analysis of the F/V ADRIATIC. (IO Exhibit # 44, transcript pages 1011 – 1072):

102. The computer model General Hydrostatics (GHS) developed by Creative Systems was used to complete the calculations. (IO Exhibit # 44)

103. "Downflooding " is defined in 46 CFR 28.510 as the entry of seawater through any opening into the hull or superstructure of an undamaged vessel due to heel, trim, or submergence of the vessel.

104. LT Ray testified to the following. (IO Exhibit # 44, transcript pages 1011 – 1072):

- Under an intact analysis (the hull was intact), the F/V ADRIATIC met established stability criteria for uninspected fishing vessels. Calculations showed that the vessel's intact stability met both the Righting Energy criteria of 46 CFR 28.570 and the Severe Wind and Roll criteria of 46 CFR 28.575.
- The analysis calculated a thirty-cage load of clams, which was the normal load for the F/V ADRIATIC. (It was communicated to LT Ray that there had been a stability work up for the sister vessel F/V TINA MARIA several years ago that approved the vessel for a thirty-clam cage load. Unfortunately, the owner of the F/V TINA MARIA could not produce any documentation of this stability test.)
- Any unchecked or uncontrolled flooding in the engine room would result in capsizing the vessel. The analysis indicated that once the flooding reached the bottom of the engine

room watertight door in the forward bulkhead (which would lead to progressive flooding forward), the vessel would ultimately capsize. This distance from the keel to the bottom of the watertight door was estimated to be five feet.

- There is a potential that a loss of power would precede the capsizing because of the water level in the engine room, and its effect on air intakes to the engine and problems with the generator.
- Further analysis showed that if the flexible coupling on the discharge side of the clam pump failed while the vessel was afloat, the vessel would capsize in 2 to 6 minutes with the clam pump running, and 4 to 9 minutes if the clam pump was not running.
- It was initially thought that the F/V ADRIATIC clam pump foundation may have been displaced, which would have resulted in a failure of the flexible coupling of the clam pump piping system. This theory would also explain the crack that was observed in the clam pump piping at the elbow between the sea intake and the clam pump. This initial misunderstanding of the engine room foundation was based on drawings provided by Mr. Crane of Laurelton Welding (IO Exhibit # 20), which did not indicate sufficient brackets to prevent lateral motion. Once Mr. Crane clarified the installation, LT Ray determined it was not likely that the clam pump foundation was displaced.
- LT Ray agreed to perform an impact analysis to determine what force would be required on the clam pump piping system, to cause the engine room flexible coupling to fail, and cracks to develop in the piping. This analysis determined that if the vessel, after sinking, landed on its port side, the impact force of the hull could reasonably cause the discharge pipe to be displaced as it is shown in the dive video. Due to the piping layout, very small displacements of the discharge pipe on the main deck would result in large displacements at the flexible coupling. This could explain why there was no noticeable deformation of the pipe and/or bulwark at the stern.
- The flooding rate in engine room resulting from the ¼" gap in the flange was calculated with the more likely scenario of the clam pump not running. The analysis with the clam pump not running determined that the vessel's stability becomes critical approximately 40 minutes after the onset of flooding. As always, the stability would be further compromised by the effects of winds and waves, which are not accounted for in the calculations. After 90 minutes, the vessel would undoubtedly capsize under any sea state.
- It is unclear whether the missing and loosened bolts in the engine room flange were stripped or had been manually removed/loosened.
- The dive tape reveals that the engine room watertight door is not dogged closed indicating that someone hurried out of the engine room. The door would be either tied open or dogged closed under normal circumstances to keep it from banging excessively. Divers who examined the watertight door explained that there was no evidence that the door had been tied in the open position. Also, the dogs were not in the closed position and divers were able to open the door immediately.
- Testimony from LT Ray regarding the bilge alarm system indicates that it is common practice by fishermen to ignore the bilge alarms in rough seas because any water in the bilges that is sloshing around causes these alarms to go off. F/V ADRIATIC did not have a video system to monitor the engine room water level. (transcript pages 1038-1039).
- With earlier testimony concerning the possibility that the dredge shifted on the deck of the F/V ADRIATIC, LT Ray conducted analysis concerning the impact a shift of the dredge would have on the stability of the vessel. The analysis indicates that the subject vessel would be heeled over 16 degrees if the clam dredge were to shift from the starboard side (where it is normally stored) to the port side of the vessel. While this is a significant heel angle, it would not cause the vessel to immediately capsize without the presence of sufficient external forces (e.g. wind, wave).

105. LT Ray testified that regardless of whether or not the flooding was a result of the gapped flange, or the flexible coupling failure, the ship would capsize if the engine room flooded. LT Ray was unable to say with 100% certainty that the engine room flooding was caused by the

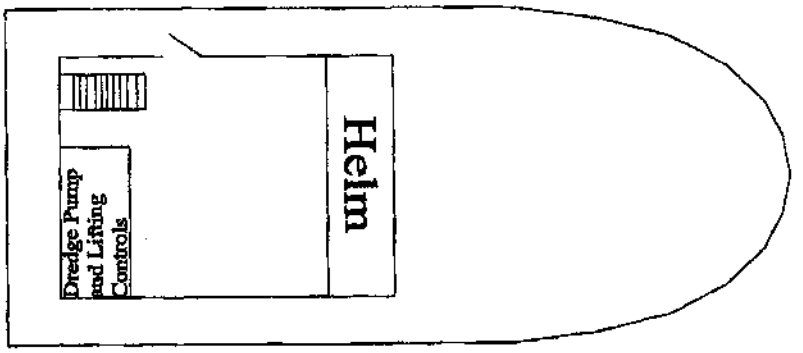
failure of the flexible coupling on the surface of the water. It is a possible scenario. Either scenario, the engine room coupling failure or the engine room gapped flange, had the potential to flood the engine room, with the difference being the amount of time in which the engine room would flood to the point where the vessel became unstable. (IO Exhibit # 44, transcript pages 1016-1017)

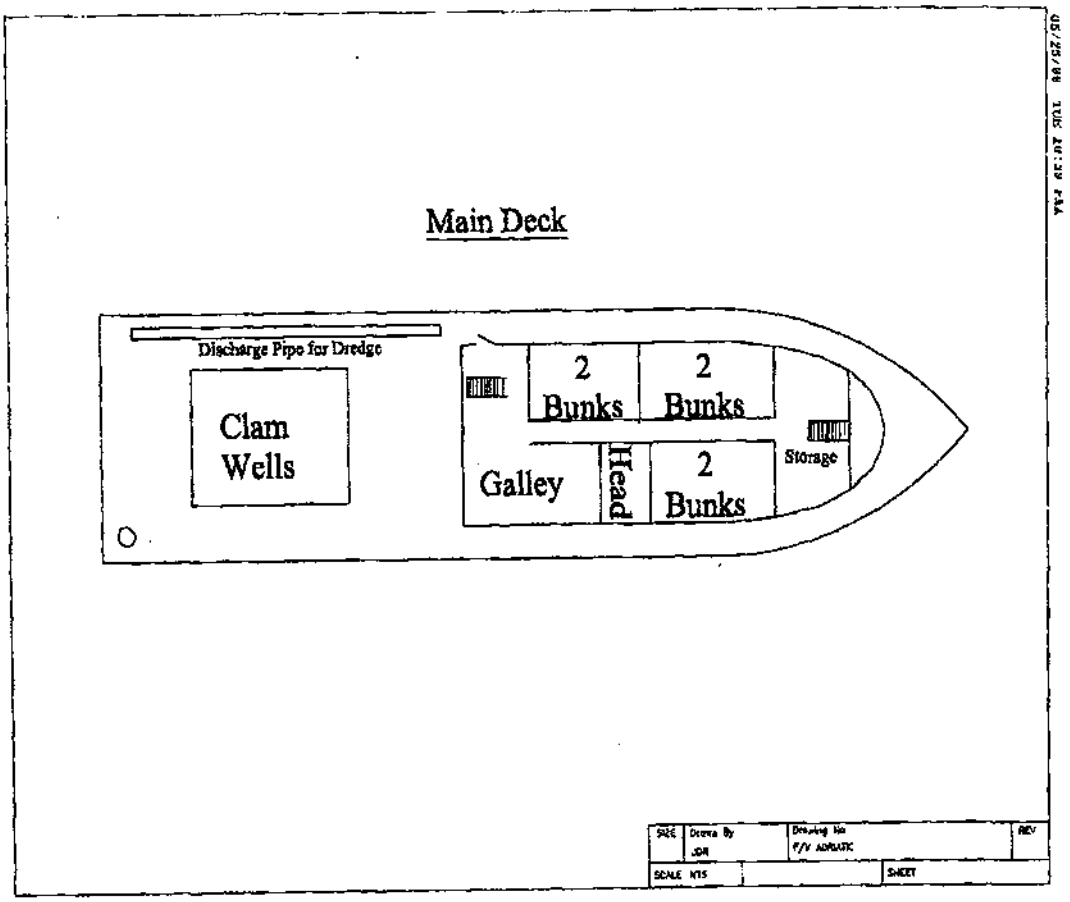
Description of Vessel

106. Basic Information is provided from IO Exhibit # 9 and Coast Guard Marine Safety Information Systems database (MSIS):
- Name - ADRIATIC
- Official Number – D579941
- Service – Commercial Fishing/Clamming
- Document / State Number – D579941
- Gross Tons - 134
- Net Tons - 95
- Length – 74.1 feet
- Breadth – 22 feet
- Depth – 11.2 feet
- Built – 1977, Master Marine, Inc. Bayou La Barte, AL. Hull # 189
- Hull – Steel

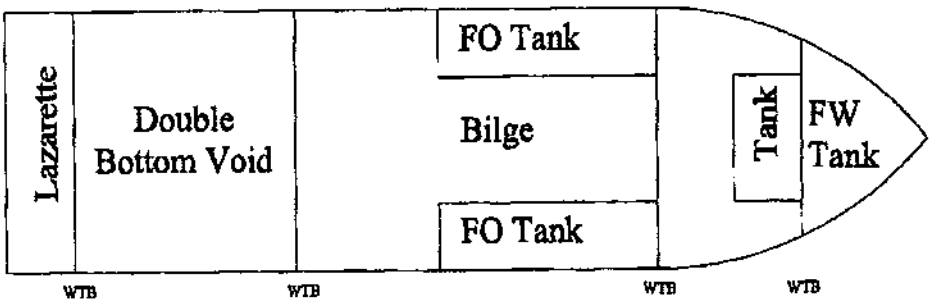
107. General Arrangement is provided from IO Exhibit # 9 and # 44:
- General Description – Conventional Hull/ Well Deck, Side Rigged Sea Clammer . LT RAY of the Coast Guard Marine Safety Center provided diagrams. These drawings were developed after visiting the sister-vessel F/V TINA MARIA, and they compensate for differences in the arrangement between the F/V TINA MARIA and the F/V ADRIATIC.

Pilothouse

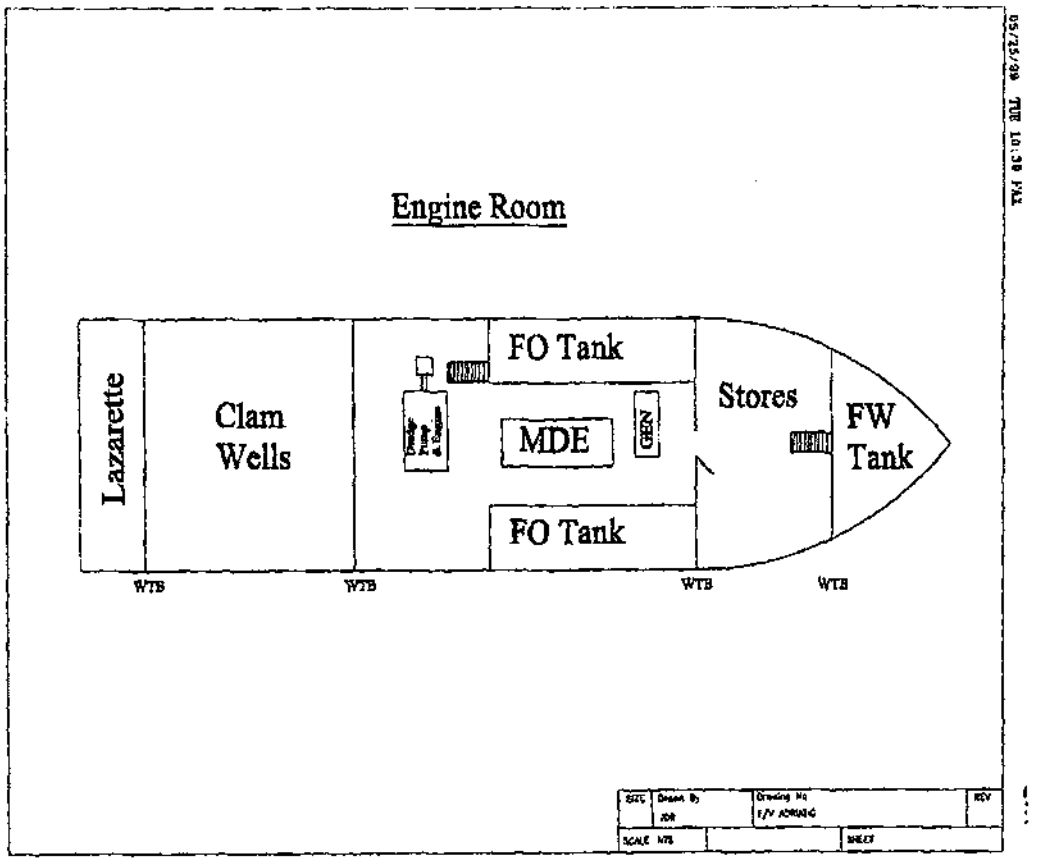



Main Deck
Discharge Pipe for Dredge
Clam Wells
2 Bunks
2 Bunks
Galley
Head
2 Bunks
Storage
SIZE
Drawn By
JDR
Drawing No
F/V ADRIATIC
REV
SCALE NTS
SHEET

Tank Plan



SIZE	Drawn By	Drawing No	REV
	JDR	F/V ADMIRAL	
SCALE NTS			SHEET



- Hatches – 4 semi watertight clam tanks with steel deck covers. (Testimony describes covers as being made of scrap steel with nothing to hold them down. Transcript pages 520-521)
- Cargo Loading – 4 clam tanks; 2 rear tank holds carry 4 cages each with the 2 forward tank holds carrying 8 cages each (IO Exhibit # 9, transcript page 564, 574-575).
- Watertight Subdivision – see diagrams on previous pages
- Fuel, Stores, Water Loading – 2 (1 port, 1 starboard) – 6,000 gallon fuel tanks integral with the hull. 1 sludge tank, 1 – 200 gallon lube oil tank
- Bilge and Ballast System – Manifold system with 2" electric bilge pump hooked to engine room manifold and 4" electric bilge pump hooked to clam tank manifold.
- Machinery Installation – 2 V-12-71 N Main engines, 1 Detroit Diesel 3-71, 30 KW phase 3 generator.
- Propulsion – Diesel engine
- Horsepower - 365
- Gear Type – Clam Dredge Winch, Manual Hathaway. Main Deck Winches, Manual
- Rig Type – Side rigged clam dredge
- New Clam Pump installed December 1998, Fairfield pump (page 985 transcript).

Details of Vessel Surveys and Repairs: (IO Exhibit # 9)

108. The F/V ADRIATIC was last surveyed on October 30, 1996 while in the water at Point Pleasant, New Jersey. Mr. Arlington Setzer III of Bud's Sea/Land Enterprises, Inc., an

independent marine surveyor, conducted the survey and made the following statements in his report:

- All USCG 46 Commercial Fishing Vessel regulations satisfied.
- Vessel Condition: FAIR
- Housekeeping: GOOD
- Maintenance: GOOD
- Comments: "In the past, this vessel has carried 30-47 clam cages with no problems. Now it will carry 28 at most, two truck loads. The new owner is restoring the vessel to good condition. Many improvements have been noted. The only remaining area of the vessel that needs immediate attention is the lazarette. It is heavily rusted and the hatch should made watertight."
- The survey report had two recommendations: (1.) Fire extinguishers need to be serviced. (2.) Lazarette hatch needs to be made watertight.

109. A note from Mr. George Evans to The Flagship Group, Ltd., stamped received by Flagship on February 18, 1997 stated the fire extinguishers had been serviced and the watertight hatch would be installed within 30 days. (IO Exhibit # 9)

110. In a letter dated September 18, 1996 from Marilyn Jobe, Producer Assistant to Mr. George Evans and Mr. Bernard Rubin, it was outlined that an out of the water survey and a stability test of the F/V ADRIATIC were required by Sunderland Marine Mutual Insurance Company, Ltd. within 60 days. This was a requirement for the insurance policy effective September 6, 1996 to September 6, 1997. (IO Exhibit # 9)

111. Mr. Setzer's survey report lists October 1996 as the last time the F/V ADRIATIC was hauled out. There is no record that a stability test was ever performed. (IO Exhibit # 9)

Date/Place/Results of Dockside Exam:

112. Coast Guard Commandant Instruction 16711.14 dated March 3, 1993 and titled "Commercial Fishing Industry Vessel Safety Training and Qualification" promulgates uniform Coast Guard policies regarding training and qualification of personnel providing voluntary dockside examination services and conducting at-sea boardings of commercial fishing industry vessels. (IO Exhibit # 11)

113. Mr. Ted Lowy, Coast Guard Auxiliary was certified to conduct commercial fishing vessel safety exams for Marine Safety Office/Group Philadelphia. His qualification letter was dated July 3, 1997 and signed by the Commanding Officer, Captain John E. Venteer. (IO Exhibit # 14)

114. Mr. Lowy testified that he conducted a commercial fishing vessel safety exam on the F/V ADRIATIC on October 11, 1998, while the vessel was moored at Point Pleasant, NJ, decal #98-71361 was issued. Additionally, 22 Aug 97, Point Pleasant, NJ, decal # 69162 issued. (Transcript pages 418-460)

115. Marine Safety Information System (MSIS) contact information for the F/V ADRIATIC:

- MSIS history showed a total of twenty-six cases for the F/V ADRIATIC.
- Seventeen were vessel documentation cases dating back to 04 May 1988 (4 May 1988 listed as a renewal.)
- Three cases were inspections for commercial fishing vessel safety exams dated 22 August 1997, 24 July 1998, and 11 October 1998, all from Group/MSO Philadelphia.
- There was one marine casualty case for a grounding in Manasquan Inlet, NJ on 3 August 1997. This was an intentional grounding because of failure of a hydraulic line and loss of steerage. The master let the F/V ADRIATIC drift aground and did the necessary

troubleshooting to make repairs. The case notes list a contributing factor as "painting of the hydraulic lines and fittings thus disguising and accelerating deterioration of the hydraulic line."

- There is a marine violation case with a warning issued for an incident that occurred on 25 January 1996. F/V ADRIATIC owner/operator was cited for expiration of hydrostatic release on 4/94. The case does not specify if the release was for the liferaft or the EPIRB.
- There is a personnel casualty case dated 23 October 1995. Kevin Krauss, a crewmember on the F/V ADRIATIC, suffered a skull fracture after being struck by a hook and tending line that became detached from the frame of a clam dredge while the dredge was being retrieved. No safety clip, snap, or other retaining device was used on the hook. The case additionally outlined testimony from two crewmembers, Kevin Krauss and Mark Matta who stated the F/V ADRIATIC was run with no training provided to the crew. This case listed a recommendation to have the Commercial Fishing Vessel Exam coordinator review the case and pass lessons learned to the fishing vessel fleet.

Stability Information:

116. The F/V ADRIATIC is 74 feet and, therefore, a Stability Letter was not required. There was no evidence for any former stability test being completed. A sister vessel stability analysis was completed using the F/V TINA MARIE in the water at Ocean City, Maryland. This analysis was conducted by the Coast Guard Marine Safety Center to facilitate the investigation of the F/V ADRIATIC casualty. (IO Exhibit # 44)

Lifesaving Gear:

117. According to the survey report signed by Mr. Arlington Setzer III, and as evidenced by issuance of CG decal # 71361, all gear required by 46 CFR Part 28 was on board the F/V ADRIATIC. This gear included a 4-Person Givens survival raft with SOLAS A pack (stored IO Exhibit # 22, transcript page 563), ring buoys with lanyards, survival suits, first aid box, flares, escape hatch through wheelhouse, ACR EPIRB with hammer hydro release, air horn, 12" bell, search light, general alarm system, high water alarms, and an independent emergency battery system. (IO Exhibits # 9 and # 13)

118. The USCG fishing vessel safety examination results report detail that the following discrepancies were noted when Mr. Ted Lowy, the Coast Guard Fishing Vessel Safety examiner visited the F/V ADRIATIC at Point Pleasant, NJ on July 24, 1998: Liferaft was due for inspection, EPIRB Hydrostatic release was expired, and the NOAA Registration expired on March 31, 1998. Mr. Evans provided documentation via fax to Mr. Lowy on October 9, 1998 that the discrepancies had been corrected. (IO Exhibit # 13)

119. Mr. Lowy visited the F/V ADRIATIC at Pt Pleasant, NJ on October 11, 1998. Mr. Lowy testified that during this visit Mr. Evans showed the corrections to discrepancies and also showed that the vessel flares were current, and that the EPIRB battery had been replaced. The expiration date on the EPIRB battery was now 2004. The report shows a hammer hydrostatic release with an 8/1/00 date. This hydrostatic release on the fishing vessel safety report is not the same hydrostatic release found on the F/V ADRIATIC EPIRB casualty. Mr. Lowy could not explain this. Also, the report does not show evidence that the expired NOAA registration had been resolved. (IO Exhibit # 13, transcript pages 419–462)

120. Testimony from Mr. Charles Barto, owner of Sea Gear Marine Supply, Cape May, N.J. concluded that the Hammer hydrostatic release unit sold to Mr. George Evans on 28 July 1998 was provided by Win-tron Electronics. This was not the same unit on the F/V ADRIATIC EPIRB at the time of the sinking. (IO Exhibit # 13, transcript pages 805-808)

121. NOAA records provided for the proceeding show that Mr. George Evans was the registered owner of CAT 1, ACR RLB EPIRB, NOAA ID # ADCD022D7840401. The first registration date by Mr. Evans is 3/8/96 and the expiration date listed is 3/8/98. NOAA has no other registration information for this EPRIB. Mr. Lowy testified that if the registration is expired he gives the owner a "little slack." He provides them with a copy of the registration for NOAA and asks them to send it in to NOAA. Mr. Lowy does not hold up the decal for this discrepancy. (IO Exhibit # 34, transcript pages 425–426)

122. During Mr. Lowy's testimony he outlined his methodology for conducting a fishing vessel safety exam. He stated that he reviews the vessel carefully in accordance with a checklist that he designed, but that he does not witness drills during fishing vessel safety exams. His practice is to provide a handout on safety instructions and mention to the Captain that drills are required monthly. (transcript page 432-433)

123. Mr. Lowy was shown the EPIRB and hydrostatic release recovered from the F/V ADRIATIC while he was testifying. When asked to read the expiration on the hydrostatic release, Mr. Lowy testified after looking at the hydrostatic release that it was not expired. This testimony was given after he had noted that there are two dates scratched on the hydrostatic release (one being Dec 98 and one being Dec 99 – refer to page 7, 11, & 12 of IO Exhibit # 26 for a picture of this). Mr. Lowy then testified that if he sees a scratch that is Aug/98 that means the EPIRB is good until Aug/2000. (Transcript page 441-443, 454)

124. The details provided by divers of the first dive by Budget Diving and Salvage indicated that the EPIRB was still in its mounting case and attached to the F/V ADRIATIC on January 19, 1999. When the diver manually removed the EPIRB from its mounting casing and held it upright, a signal was generated. (IO Exhibit # 7, transcript pages 279-285)

125. Mr. Peter O'Shea from Sea Safety International was asked to testify concerning lifesaving gear recovered from the F/V ADRIATIC. Mr. O'Shea is the sales manager for Sea Safety International, a company that is a life raft survival station for inspection of life rafts, EPIRBs, gas monitors, and other safety equipment for the marine industry. Mr. O'Shea was a former marine inspector in the Coast Guard and had received qualification as a commercial fishing vessel safety examiner. He also received training on safety gear from Sea Safety and from ACR Electronics for the ACR EPIRB. Mr. O'Shea examined both the F/V ADRIATIC EPIRB and the survival suit recovered from the accident scene. He testified to the following: (IO Exhibit # 23, transcript pages 619-678) (Note that throughout testimony the words pin and rod are used interchangeably)

- That the EPIRB battery on the F/V ADRIATIC was valid until 2004. Sea Safety International was the company that installed the battery. Sea Safety is authorized by ACR to change out the battery. The battery is the only part of the unit that must be changed out at an authorized company. The hydrostatic release and associated pin (rod) can be purchased off the shelf and installed by the fishing vessel owner/operator.
- That the hydrostatic release on the ADRIATIC EPIRB should function to release the cover off the EPIRB casing when the device is submerged underneath the water between five and fifteen feet.
- That the white pin (rod) on the hydrostatic release unit of the ADRIATIC EPIRB was not the rod sold with the most recently installed hydrostatic release unit. This is based on the fact that the white rod was not sold after 1992, and was replaced by two different generations of rods that go with the Hammer hydrostatic release. These newer designed rods are black to distinguish them from the outdated white rod. When a hydrostatic release is sold from a distributor, the instructions state that the rod is supposed to be replaced with the hydrostatic unit. The hydrostatic release unit on the ADRIATIC had come from a distributor in 1997, and would have been sold with a black rod.

- The problem with the white rod is that there were problems with the razor cutting through the rod. If the razor did not cut completely through the rod, the cover would not come off and the EPIRB would not launch. (refer to IO Exhibit # 26 for a picture of white rod)
- That there have also been instances where EPIRBs have not launched because the outer cover of the casing was warped. In these instances, the hydrostatic release functions properly and the rod is severed, but the lid still does not come off because the casing is warped. In the case of the F/V ADRIATIC, the diver's ability to easily lift the cover off once the pin was removed, is indicative that there was not a problem with the lid of the EPIRB casing.
- That the survival suit recovered from the debris on the surface of the water in the vicinity of the F/V ADRIATIC casualty site is in good overall condition, except for the reflective tape which needed to be replaced. The flotation bladder was in good condition, the zipper functioned properly, and there were actually two lights attached vice one that is required.

126. The F/V ADRIATIC Emergency Position Indicating Radio Beacon, ACR RLB-23, NOAA ID # ADCD022D7840401, with Hammer hydrostatic release, serial number C65404, manufactured 96-03 was sent to Imanna Lab, Inc., Rockledge, Florida for testing and analysis. Test report # 14576-1A dated February 23, 1999 revealed the following (IO Exhibit # 26):

- The hydrostatic release did actuate at some point prior to the inspection at the lab.
- The hydraulic release had a small amount of sand inside the case at the time of the inspection.
- The hydraulic release had water in it at the time of the inspection.
- The time of the inspection is within three years of the manufacture date of the hydraulic release.
- The knife blade did not completely sever the white hydraulic pin.
- The knife blade was in tact, indicating that the knife blade was not broken prior to, or during the activation of the device.

127. Mr. Robert Markle, Chief of the Coast Guard's Lifesaving and Fire Safety Standards Division, Coast Guard Headquarters, Washington, D.C. testified concerning the report from Imanna Lab and the background on the white rod that was installed on the ADRIATIC EPIRB hydrostatic release. Mr. Markle pointed out the following in testimony (transcript pages 767-801):

- ACR/RLB-23 Instruction Manual Y1-03-0059 Rev. A, paragraph 4.1.6 reads "The hydrostatic release must be replaced by the date indicated on the unit, the release rod should also be replaced at that time."
- The hydrostatic release unit on the F/V ADRIATIC EPIRB did release, however the knife began to cut through the nylon (plastic) rod, but did not go all the way through the rod.
- If the nylon rod is not severed, then the case for the EPIRB does not come apart, and the unit cannot float free.
- The Hammer hydrostatic release unit is designed and approved to work with several brands of EPIRBS and different manufacturers work with different varieties of pins. All manufacturers require that the pin be changed when changing out the hydrostatic release.
- The original design of the Hammer hydrostatic release sold with the ACR RLB-23 EPIRB had a nylon pin designed by ACR Electronics that was designed to work with the Hammer release. This pin was made of white nylon material.
- In 1992 Hammer changed the design of the knife holder, the part that is actually designed to sever the release rod. The Coast Guard discovered through tests that were run by Hammer under the supervision of the Swedish Administration (acting on the Coast Guard's behalf-IO Exhibit # 29, 30, 31), that the Hammer new design would not reliably cut this ACR white release rod.

- ACR and Hammer worked together to come up with a new design for the release rod that would work properly with the new knife. The redesigned release rod was tested, and validated. The easiest way to distinguish between the old design and the new rod was that the new rod is black and the old rod is white.
- This change from the old white release rod to the new black release rod was implemented in summer of 1993.
- The F/V ADRIATIC EPIRB was manufactured in 1992 and consequently was built with the white rod. If the EPRIB and assembly had been sold sometime before the summer of 1993, it would have gone out with the white pin.

128. Mr. Barto of Sea Gear Marine Supply had testified that he had received the hydrostatic release unit that he sold Mr. Evans in July 1998 from Win-tron Electronics (see finding of fact # 120). Mr. Winder of Win-tron Electronics, an authorized distributor for ACR and Hammer products, testified that his company does not track serial numbers of Hammer hydrostatic releases. He testified to the packaging of the Hammer hydrostatic releases he presently had in stock and stated that they come in a sealed poly-bag. Looking through the bag, he noted that it contained the "hockey-puck like" unit along with the associated black pin, and a set of instructions. Mr. Winder testified that the practice was to send the unit to dealers in its packaging. He was not asked to open the package. (Transcript pages 822-824)

129. Mr. Bernard Rubin, the co-owner of the F/V ADRIATIC testified that he could provide the receipt for the EPIRB he purchased for the F/V MISS TOBY in 1992. This same EPIRB was the one Mr. Rubin provided to Mr. Evans when he leased the F/V ADRIATIC to Mr. Evans on December 1, 1994. The receipt provided by Mr. Rubin shows EPIRB RLB-23, Serial Number ADCD022D7840401 was purchased from Outfitters USA, Annapolis, MD. On June 5, 1992. Mr. Rubin also testified that he "absolutely" registered his EPIRB with NOAA. However, NOAA records do not show Mr. Rubin having registered this EPIRB. The first record NOAA has of registration of this EPIRB is with Mr. Evans in 3/8/96. (see finding of fact #120). (IO Exhibit # 45, transcript pages 832-834)

130. The F/V ADRIATIC EPIRB hydrostatic release unit fell into this segment of time when the Hammer release unit had been redesigned, but the white nylon rod was still being sold with the ACR unit. Mr. Markle continued to testify concerning the details of how the Coast Guard, Hammer, ACR Electronics, and the marine industry worked to resolve the discrepancy with the white nylon rod. He testified to the following (transcript pages 767-801):

- The Coast Guard issues approvals for various types of lifesaving equipment such as hydrostatic releases, life rafts, and other items of life saving equipment. The Federal Communications Commission provides acceptance of radio related equipment such as the EPIRB.
- The Hammer Hydrostatic release has a Coast Guard approval number that is stenciled on the front face of the release unit. Hammer and ACR were required to notify the Coast Guard about the discrepancy with the rod to satisfy remaining on the Coast Guard Equipment approval list.
- The hydrostatic release units have an expiration date of two years from the time they are put in service, so the process is supposed to be that a new pin is installed in the unit with a new hydrostatic release. Hammer has provided all of its distributors with a list of the different EPIRBS so they're depending on their distributors to make sure the replacement hydrostatic release units are paired up with the right rod. ACR Electronics and other EPIRB manufacturers, as they assemble the EPRIBS also make sure the right rod is in the device.
- Regulations on commercial fishing vessels require that lifesaving equipment be maintained in accordance with manufacturer's maintenance guidelines.
- ACR EPIRBs with Hammer hydrostatic release units are designed to be in service for two years, and when replaced, the rods must be replaced with the release unit.

- The hydrostatic release unit must have a Coast Guard approval number on it, and they can be bought off the shelf.
- Once ACR and Hammer worked out a redesign of the nylon rod, ACR sent out a service bulletin to all its distributors and dealers explaining the changes, and offering to issue a rod replacement kit free of charge to anyone. The bulletin also explains that all NOAA registered ACR EPIRB owners would be sent a kit directly. (IO Exhibit # 32).
- Hammer also sent a bulletin to its distributors. (IO Exhibit # 33).
- ACR placed notices in periodicals such as *National Fisherman*, and other periodicals that were widely circulated in the commercial fishing vessel industry. These notices identified the problem with the release unit rods and offered free replacement kits to anyone with the unit.
- Mr. Markle was not positive it was a requirement that EPIRBs be registered with NOAA at the time of this incident. He recalled that the requirement came at a later date, but that NOAA estimated the voluntary registration rate to be 70%.
- Mr. Markle continued to state: "We thought that ACR and Hammer acted very responsibly once the problem had been identified, we felt that they made a very thorough effort to identify all of the units that were affected and to make sure that all of them would get replacement release rods. ...Furthermore, because it is a requirement to change the hydrostatic release unit and the pin every two years and we knew that that was going to happen, we understood that in a period of time, very quickly that if there wasn't anyone who had not - - or if there was someone who had not received the replacement kit, they would be replacing their hydrostatic release unit and should also be replacing the rod at that time and of course they would be supplied with the correct rod at that time so we felt that certainly, within the space of a year and certainly no more than two years, they would all be changed out and the - - it would no longer be an issue."
- Mr. Markle was surprised that there was a release with one of these old rods still out there.
- Mr. Markle could not state specifically what action was taken internally in the Coast Guard to alert Fishing Vessel Safety Coordinators about this rod situation. He stated that ACR had this recall prominently displayed at the Fish Expos which were attended by Coast Guard Fishing Vessel safety coordinators.

131. The F/V ADRIATIC 4 person Givens liferaft had been most recently serviced in June 1998. This liferaft did not initially deploy because it was caught up in the railing of the vessel, as noted by the volunteer diver the morning after the casualty. This raft did surface on the beach on 24 January at Beach Haven, which is approximately 10 nautical miles south of Barnegat Light. It was found fully inflated and in good condition. The raft was returned to the F/V ADRIATIC owner, Mr. Bernard Rubin. (IO Exhibit # 24, transcript pages 248-249)

132. The survival suit located in the initial search and rescue case had a properly operating strobe light that facilitated locating the casualty site. (Transcript page 36)

133. LT Espinosa of the Coast Guard Fifth District Command Center testified about survivability as outlined in the National Search and Rescue Manual. He used the given water temperature at the time of the casualty which was 43 degrees Fahrenheit and stated the following (transcript pages 995-1000):

- that the survivability table outlines ranges for persons in the water in three categories; (1) a slow cooler (someone who has a high body weight, wearing heavy clothing, using survival gear, or huddling procedures), (2) a fast cooler (low body weight, children for example), and (3) an average cooler (someone that falls right in the middle).
- Survival time at the time of the F/V ADRIATIC casualty was estimated for an average person to be somewhere between one hour and one half to an hour and three quarters. Survival time for a fast cooler would be between half an hour and one hour. Survival time for a slow cooler would be three to three and half-hours.

134. LT Espinosa also testified that if an EPIRB signal is emitted, and the position is calculated, search and rescue assets can be launched in a matter of minutes. LT Espinosa also testified that the EPIRB signal alert gets relayed from the U. S. Mission Control Center to the Coast Guard, and he could not specify how long it takes to get that notification. (transcript pages 995-1000)

135. Mr. Robert Carlton Patton, III of the United States Mission Control Center or COSPAS-SARSAT, Suitland, Maryland testified concerning the satellite detection of emergency beacons and the relay of the EPIRB transmission signal to the Coast Guard. He testified that the F/V ADRIATIC EPIRB transmission was received on 19 January at 2321 GMT by a geostationary satellite and relayed to the Rescue Coordination Center (RCC) in Boston at 2333 GMT. (This is the signal emitted when the diver retrieved the EPIRB from the F/V ADRIATIC on the day after the casualty). The signal was also detected by a polar orbiting satellite at 2332 GMT and was relayed to the RCC in Boston and the RCC in Portsmouth, Virginia at 2344.

136. Mr. Patton provided a letter which clarified that the Cospas-Sarsat System was operating normally between 1445 EST and 1615 EST on 18 January 1999. The letter states that, hypothetically, had the radio beacon from the F/V ADRIATIC activated during that time frame on 18 January, there is no reason to believe it would not have been detected by the Cospas-Sarsat system, and a distress alert be relayed to the U. S. Coast Guard. (IO Exhibit # 46)

Vessel Management

Regulatory Environment:

137. The F/V ADRIATIC is a documented vessel that operated beyond the boundary line in cold water. The following subparts of 46 CFR 28 apply to the ADRIATIC:
- Subpart A -- General Provisions
- Subpart B - Requirements for all Vessels
- Subpart C - Requirements for Documented Vessel that Operate Beyond the Boundary Line

138. Licensed or documented mariners are only required on inspected fishing vessels or fishing vessels in excess of 200 GT. Since the F/V ADRIATIC was 134 GT, the vessel crewmembers were not required to hold licenses or documents. The only manning requirement is that the master must be a U.S. citizen.

Applicable safety regulations:

139. High Water Alarms, 46 CFR 28.250. On a vessel 36 feet (11.8 meters) or more in length, a visual and audible alarm must be provided at the operating station to indicate high water level in each of the following normally unmanned spaces:
- A space with a through-hull fitting below the deepest load waterline, such as the lazarette;
- A machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from seawater piping within the space; and
- A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

140. The four clam tanks on the ADRIATIC were spaces with non-watertight hatches on the main deck. There were no high water alarms in the clam tanks.

141. Emergency Instructions, 46 CFR 28.265 (d) (4) through (6) specify the following:

- The emergency instructions required by this section must identify at least the following information, as appropriate for the vessel:

(4) Procedures for making a distress call, such as:

(i) Make sure your communication equipment is on.

(ii) Select 156.8 MHz (VHF channel 16), 2182 kHz, or other distress frequency used in your area of operation. Note: VHF channel 16 and 2182 kHz on SSB are for emergency and calling purposes only.

(iii) Press microphone button and speaking slowly--clearly--calmly say: ``**Mayday--Mayday--Mayday"**

(iv) Say: ``This is the M/V (Insert name of your vessel), (Insert name of your vessel), (Insert name of your vessel), Over."

(v) Release the microphone button briefly and listen for acknowledgment. If no one answers, repeat steps in paragraphs (d)(4) (iii) and (iv) of this section.

(vi) If there is still no answer, or if the Coast Guard or another vessel responds, say: ``Mayday--This is the M/V (Insert Name of Your Vessel)."

(vii) Describe your position using latitude and longitude coordinates, LORAN coordinate, or range and bearing from a known point.

(viii) State the nature of the distress.

(ix) Give number of individuals aboard and the nature of any injuries.

(x) Estimate the present seaworthiness of your vessel.

(xi) Describe your vessel: (Insert length, color, hull type, trim, masts, power, and any additional distinguishing features).

(xii) Say: ``I will be listening on Channel 16/2182 (or other channel monitored)."

(xiii) End message by saying: ``This is (insert vessel's name and call sign)."

(xiv) If your situation permits, stand by the radio to await further communication with the Coast Guard or another vessel. If no answer, repeat, then try another channel.

(5) Essential action that must be taken in an emergency by each individual, such as:

(i) Making a distress call.

(ii) Closing of hatches, airports, watertight doors, vents, scuppers, and valves for intake and discharge lines which penetrate the hull, stopping of fans and ventilation systems, and operation of all safety equipment.

(iii) Preparing and launching of survival craft and rescue boats.

(iv) Fighting a fire.

(v) Mustering of personnel including–

(A) Seeing that they are properly dressed and have put on their lifejackets or immersion (survival) suits; and

(B) Assembling personnel and directing them to their appointed stations.

(vi) Manning of fire parties assigned to deal with fires.

(vii) Special duties required for the operation of fire fighting equipment.

(6) The procedures for rough weather at sea, crossing hazardous bars, flooding, and anchoring of the vessel, such as:

(i) Close all watertight and weathertight doors, hatches and airports to prevent taking water aboard or further flooding in the vessel.

(ii) Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.

(iii) Align fire pumps to use as bilge pumps, if possible.

(iv) Check all intake and discharge lines which penetrate the hull for leakage.

(v) Personnel should remain stationary and evenly distributed.

(vi) Personnel should don lifejackets and immersion suits if the going becomes very rough, the vessel is about to cross a hazardous bar, or

when otherwise instructed by the master or individual in charge of the vessel.

142. Instructions, Drills and Safety Orientation, 46 CFR 28.270

(a) Drills and instruction. The master or individual in charge of each vessel must ensure that drills are conducted and instruction is given to each individual on board at least once each month. Instruction may be provided in conjunction with drills or at other times and places provided it ensures that each individual is familiar with their duties and their responses to at least the following contingencies:
(1) Abandoning the vessel;
(2) Fighting a fire in different locations on board the vessel;
(3) Recovering an individual from the water;
(4) Minimizing the affects of unintentional flooding;
(5) Launching survival craft and recovering lifeboats and rescue boats;
(6) Donning immersion suits and other wearable personal flotation devices;
(7) Donning a fireman's outfit and a self-contained breathing apparatus, if the vessel is so equipped;
(8) Making a voice radio distress call and using visual distress signals;
(9) Activating the general alarm; and
(10) Reporting inoperative alarm systems and fire detection systems.
(b) Participation in drills. Drills must be conducted on board the vessel as if there were an actual emergency and must include participation by all individuals on board, breaking out and using emergency equipment, testing of all alarm and detection systems, donning protective clothing, and donning immersion suits, if the vessel is so equipped.
(c) Training. No individual may conduct the drills or provide the instructions required by this section unless that individual has been trained in the proper procedures for conducting the activity.
(d) The viewing of videotapes concerning at least the contingencies listed in paragraph (a) of this section, whether on board the vessel or not, followed by a discussion led by an individual familiar with these contingencies will satisfy the requirement for instruction but not the requirement for drills in paragraph (b) of this section or for the safety orientation in paragraph (e) of this section.
(e) Safety orientation. The master or individual in charge of a vessel must ensure that a safety orientation is given to each individual on board that has not received the instruction and has not participated in the drills required by paragraph (a) of this section before the vessel may be operated.
(f) The safety orientation must explain the emergency instructions required by Sec. 28.265 and cover the specific evolutions listed in paragraph (a) of this section.

143. Captain Evans talked with his crew about emergency situations. Drills were not conducted in accordance with 46 CFR 28.270. No drills were conducted as if there was an actual emergency. This was not done on a regular schedule, nor was it logged. (See previous findings of fact from former crewmembers, IO Exhibit # 38)

144. 46 CFR 28.270 requires that the master or individual in charge of each vessel ensure that drills are conducted monthly. In particular, 46 CFR 28.270 (c) states that no individual may conduct the drills or provide the instruction required unless that individual has been trained in the proper procedures for conducting that activity. Navigation and Vessel Inspection Circular (NVIC 07-93) clarifies that after September 1, 1994, individuals conducting drills required by 46 CFR 28.270 must be trained in the proper procedures for conducting these activities or must be an individual licensed for operation of inspected vessels of 100 gross tons or more. There is no evidence that George Evans, Michael Hager, Frank Jannicelli, or Douglas Oland

were trained to conduct these drills. (IO Exhibit # 10, Finding of fact # 45, 47, transcript pages 872-880)

145. The owner, Mr. Bernard Rubin testified that he had registered the F/V ADRIATIC EPIRB with NOAA. Although the mandatory requirement for registration outlined in 47 CFR 80.1061 did not come into force until September 13, 1994, it was estimated that 70% of EPIRB owners were registered. NOAA does not show evidence of registration of the F/V ADRIATIC EPIRB with associated serial number until 1996. The change of the rod and subsequent notification by the manufacturer took place in summer of 1993. The Latent Unsafe Conditions Creating the Hazardous Preconditions

Lifesaving Equipment: See Lifesaving Gear section above

Applicable Fisheries Management Regulation Limitations:

146. Individual Transferable Quota (ITQ) system. Each cage is required to have a tag attached to it prior to offloading each trip. Tags are issued annually by the National Marine Fisheries Service, and those tags may be used, sold or leased by the person or entity to which they were issued. (Transcript pages 465-472, IO Exhibit # 38)

Regulatory Recommended Practices:

147. Commercial Fishing Vessel Safety Examination program. The F/V ADRIATIC participated in this voluntary examination program and was last issued a Fishing Vessel Safety Decal on October 11, 1998. This is a voluntary program. (IO Exhibit # 13)

Insurance Environment:

148. Flagship Group, Ltd. insured F/V ADRIATIC, with the insurance policy being renewed on September 6, 1998 for a term of one year. The F/V ADRIATIC annual premium was $23,100.00. The policy number AF0464/98, with the Sunderland Marine Mutual Insurance Company, Ltd., was issued to Cape Cod Packing of Delaware, Inc. in the names of Bernard Ruben and George Evans. Previous policies for 1997 and 1996 were also provided as evidence for the proceeding. (IO Exhibit # 9)

149. The F/V ADRIATIC insurance papers outlined a trade warranty recap as follows:

The F/V ADRIATIC is warranted confined to the United States coastal, inland, and tributary waters including but not limited to any area unusual and customary to American Fishing Fleet within the boundaries of: "Coastal Waters of Virginia and Maryland – not to exceed 40 miles offshore. Coastal Waters of New Jersey, Delaware and New York – not to exceed 30 miles offshore." (IO Exhibit # 9)

150. Mr. Robert O'Sullivan, Executive Vice President of Flagship Group Ltd. testified to the following:

- that Mr. Bud Setzer was hired by Flagship to conduct a survey of the F/V ADRIATIC for underwriting the insurance policy. Mr. Setzer visited the vessel while it was in the water on October 30, 1996. The results of the survey stated that the vessel was last dry-docked in October 1996, but Mr. Setzer was not in attendance.
- that the preference is to conduct surveys while the vessel is in drydock, but sometimes owners neglect to let the company know when they have the vessel out of the water, or sometimes a surveyor is not available. Flagship tries to get dry-dock surveys every four or five years, and in the water surveys every one or two years.
- Company policy at Flagship is to have a stability test from each owner of a clamming vessel on file for the underwriter. It was asked for via letter from the company to the

owners of the F/V ADRIATIC, but was not provided. No actions were taken regarding this discrepancy by Flagship, or the underwriters. How this was overlooked could not be explained.

Owner Information (IO Exhibits # 38 and 40):

151. The F/V ADRIATIC was operated under a lease-to-purchase agreement between Mr. George Evans, the operator of the F/V ADRIATIC and Mr. Bernard Rubin, the owner of the vessel. The legal definition of ownership and the details of the leasing agreement are outlined in the Lease Agreement (IO Exhibit # 40). The agreement specifically states:

The Lease Agreement ("Lease") is made...by and between Cape Cod Packing Company of Delaware Inc., a Delaware corporation, (hereinafter referred to as the "Owner"), and F/V ADRIATIC Inc., a Delaware corporation (hereinafter referred to as "Lessee"). I
That the Owner hereby leases with an option to purchase to the Lessee and the Lessee hereby rents from the Owner with the option to purchase the following described vessel ("Vessel"), subject to the following terms and conditions:

The agreement goes on to describe the "Vessel" as the F/V ADRIATIC and outlines the following terms and conditions:

1) "The Lease is to begin December 1, 1994 ("Lease Start Date") and end at 12 midnight on July 31, 2001 ("Lease End Date") unless otherwise terminated as provided herein.
2) The Lessee hereby agrees to pay the Owner the sum of $3,569.26) per month, in arrears, as rent during the term of this Lease ("Rent"). Rent is payable on the first day of each rental month beginning January 1, 1995.
3) Lessee hereby agrees to pay all operating costs of said Vessel, including all taxes, insurance, repairs and maintenance. Lessee agrees to keep Vessel in a constant state of good repair, ordinary wear and tear excepted, and, if the Purchase option is not exercised, at the end of this Lease to return said Vessel to Owner in substantially the same condition said Vessel was in at the beginning of this Lease, ordinary wear and tear excepted. Lessee has the right to install equipment on said Vessel during the term of this Lease and to remove said equipment and improvements at the end of this Lease, provided such improvements are not an integral part of said Vessel, having been installed to replace other integral parts of said Vessel," etc....

The terms continue with stipulations, some of which include:

- that the owner will pay the insurance, but be reimbursed by the Lessee.
- the Lessee will first harvest surf clams with the federal surf clam tags it leases from Schoffler & Sons, Inc., as when such tags are received, before utilizing any other surf clam tags available to it, and be paid seven days after landing and billing.
- Lessee agrees to schedule its trips for harvesting in accordance with the Agreement between Sea Watch International, Ltd., signed on July 28, 1994, and Cape Cod Packing of Delaware, Inc.
- Owner agrees during the term of the Lease to lease to Lessee National Marine Fisheries permit #330240 and to make available to Lessee the certain harvest rights and obligations granted to Adriatic Inc., a Maryland corporation, under the terms of the allocation permit which have been conveyed to Owner in a agreement between Adriatic Inc, and Owner. (Mr. Bernard Rubin explained that Adriatic Inc., of Maryland was the company name set up by former owner of the F/V ADRIATIC, Mr. Harry Clark. Mr. Rubin purchased ADRIATIC from Mr. Clark in December 1992.)
- The Lessee has the option to purchase the vessel by August 1, 2001 for the purchase price of $10,750.00.

The Lease continues with further details and is signed by Mr. George Evans, President of F/V Adriatic, Inc., a Delaware corporation and Mr. Bernard Rubin, President of Cape Cod Packing Co. of Delaware Inc., a Delaware corporation.

152. In addition to the lease details, Mr. Bernard Rubin testified to the following:

- There was no oversight of Mr. Evans' operation of the F/V ADRIATIC other than the lease contract. Mr. Rubin did not have anything to do with the daily operation of the vessel.
- Mr. Rubin "trusted in his (Mr. Evans) ability, his judgment when we went into the contract, and that's how we left it."
- Mr. Rubin had no input or never saw any paperwork or the corporate records of Adriatic, Inc. of Delaware
- Mr. Rubin was not a partner or an advisor in any capacity.
- Mr. Evans was known to Mr. Rubin to be a "very private person, and his affairs were his affairs."
- Mr. Rubin has never been employed on a clam boat, he went on clam boats as a volunteer worker.
- The last time Mr. Rubin saw the F/V ADRIATIC was in October 1996 when the vessel was at the railway at Gallaghers in Point Pleasant.
- Mr. Evans did work the F/V ADRIATIC as an employee of Mr. Rubin's company from July 1993 until he began the lease arrangement in December 1994.
- Mr. Rubin had a long history of observing Mr. Evans operating various fishing vessels. Mr. Evans worked for Mr. Rubin on the F/V MISS TOBY, and Mr. Rubin knew that Mr. Evans had operated a vessel for Sea Transporter. Mr. Rubin clarified that he had a long history of seeing how very cautious and careful Mr. Evans was in completing his duties. In Mr. Rubin's book "he was the best."
- Mr. Evans operated F/V ADRIATIC under Individual Transferable Quotas (ITQ) tags that were actually owned by ADRIATIC of Maryland, the original owner of the vessel when the ITQ system came into use. ADRIATIC of Maryland leased the quotas to Cape Cod Packing of Delaware Inc., who in turn leased them to ADRIATIC of Delaware. Mr. Rubin clarified that George Evans also fished under other tags. His annual catch was estimated at probably 60,000 to 70,000 bushels per year, but Cape Cod Packing of Delaware Inc., only leased tags for 26,100. Mr. Rubin knew that George Evans was leasing tags from Seawatch International, but he did not know whom else George Evans might be leasing from.

*Note – when it is mentioned that Mr. Evans worked for Mr. Rubin, the legal interpretation would be that of working for the company, of which Mr. Rubin was president. The same applies when referring to Mr. Evans. Mr. Evans is the president of F/V Adriatic Inc. of Delaware. It is easier to understand the testimony using the names of the persons rather than companies. This should not be given a legal interpretation as Mr. Evans working for Mr. Rubin.

Crew Information:

153. George Evans - Captain (Master) of the F/V ADRIATIC. 51 years old. He is presumed drowned as a result of this casualty. His body has not been recovered. A Presumption of Death Letter was issued from MSO/Group Philadelphia to Mr. Evans' son, Mr. Andrew Barnes on 11 March 1999. The following information was gleaned from exhibits and testimony:

- Qualifications and Experience – Mr. Evans was considered to be a very experienced fisherman. The surveyor report (IO Exhibit # 9) listed George Evans as Captain with 25 years experience in fishing.
- Degree of Control over Vessel Operations – Mr. Evans exercised primary control over vessel operations.
- Master's Repair Practices and Policies – It was stated that Mr. Evans would often do repairs himself, unless the job was too complex whereby he would bring the vessel to

places such as Laurelton Welding. IO Exhibit # 43 outlines expenses for F/V ADRIATIC Inc. from January through December 1998. The expense account details $3,526.18 to Laurelton Welding. Mr. Gallagher of Laurelton testified that Mr. Evans had not paid the bill for the final clam pump installation because he planned to come back for more work. This figure is provided to give a sense of the amount of work done by entities other than Mr. Evans and his crew.

- Interaction with Other People – Mr. Evans was said to be a very good man. He was described as keeping to himself, cautious and not one to take unnecessary risks with weather or fishing practices. The Becica's who operated the Point Pleasant Packing enterprise which was adjacent to F/V ADRIATIC's slip, stated that Mr. Evans was a very good fisherman. They trusted their son to sail with Mr. Evans. In conversations with Mr. Hager, father of deceased crewmember Michael Hager and Mr. Jannicelli, father of deceased crewmember Frank Jannicelli III, a similar description emerges.
- Hiring Practices – Mr. Evans exercised control over crewing F/V ADRIATIC. Financial records (IO Exhibit # 43) show the following crewmembers paid by F/V ADRIATIC Inc. between January and December 1998; Michael Hager (39,167.25), Frank Jannicelli ($24,495.06), and Sean Domingo ($6,563.20). Records for previous years again list Michael Hager back to 1996, and also list Gene Ashton ($17,764.80), Vincent Rubino ($11,625.60), Russ Necklin ($2,374.40), Clarence Moree ($2,195.20), Les Nagy ($2,240.00), Kevin Krauss ($5,726.68), Andrew Killian ($3,152.00), Timothy Foxwell ($2,038.40), and Sean Becica ($7,692.00). Amounts are provided to represent an estimate of how much time and work these people must have performed for F/V ADRIATIC. The pattern is that George Evans and Michael Hager were the two steady employees on F/V ADRIATIC and others came and went.
- Physical Limitations – There were no known physical problems with Mr. Evans, proceedings did not inquire into details concerning most recent physicals or information of that nature.
- Interaction with Gear (if appropriate)
- Standing Policies / Directives – No evidence of any standing policies or directives is available.
- Disposition- quote from Mr. Rubin (page 16 of his testimony) "This arrangement was done on the basis of a very deep mutual trust. George had worked before, and he knew what to do. There was no need for me to tell him how many cases to put on that boat. He's a very cautious and very conservative person. Very, very thorough, very meticulous water person."

154. Michael Hager – Crewmember of F/V ADRIATIC. 30 years old. Dive Masters personnel during the 27 January dive found Michael Hager's body. See Ocean County Medical Examiner Report of Postmortem Examination, IO Exhibit # 25. Report lists Cause of Death as Asphyxia due to Drowning and Manner of Death: Accident. The report continues with:

"CLOTHING/PERSONAL EFFECTS: The body is received refrigerated and clad with the following items: A black rubber boot on the left foot, two pairs of gray socks. A pair of dark blue/black denim pants and white jockey style shorts. In the left front pocket of the pants is an improvised pipe made out of aluminum foil and a clear plastic wrapper containing green/brown leaves appearing to be marijuana leaves...

BODY: The body is that of a well nourished, well developed, tall, slender, white male measuring 6'1". and weighing 181 pounds with clothes...

EXTERNAL EVIDENCE OF INJURIES...the exterior of the body reveals multiple minor abrasions...No evidence of significant traumatic injuries is seen on the exterior of the body."

RESULTS OF TOXICOLOGY REPORT: No alcohol or drugs were detected.

Additional details derived from the proceedings:

- Qualifications and Experience – Mr. Hager was considered to be a very experienced fisherman, and was considered to be Mate of the F/V ADRIATIC. He was well known around the docks and his father was a fisherman before him. He was known to relieve George Evans at the helm during fishing trips.
- Physical Limitations – There were no known physical problems with Mr. Hager.

155. Frank Jannicelli, III – Crewmember of F/V ADRIATIC. 24 years old. Dive Masters personnel during the 27 January dive found Frank Jannicelli's body. See Ocean County Medical Examiner Report of Postmortem Examination, IO Exhibit # 25. Report lists Cause of Death as Asphyxia due to Drowning and Manner of Death: Accident. The report continues with:

"CLOTHING/PERSONAL EFFECTS: The body is received refrigerated and clad with the following items: A pair of black sweat pants with a draw string, a pair of boxer shorts, a white T-shirt soaked with bloody liquid...No shoes are on the body.
BODY: The body is that of a well nourished, well developed, white male weighing 167 pounds with clothes, measuring 69"...
EXTERNAL EVIDENCE OF INJURIES:...the exterior of the body reveals multiple minor abrasions and contusions..."
RESULTS OF TOXICOLOGY REPORT: No alcohol or drugs were detected.

Additional details derived from the proceedings:

- Qualifications and Experience – Mr. Jannicelli had been clamming for two years and was considered a crewmember of the F/V ADRIATIC.
- Physical Limitations – There were no known physical problems with Mr. Jannicelli.

156. Douglas Oland - Crewmember – 21 years old. Missing and presumed dead, Presumption of Death Letter issued from MSO/Group Philadelphia to Father, Robert Oland on 11 March 1999.

- Qualifications and Experience – This was Douglas Oland's second trip on a clamming vessel. He had worked on a small passenger vessel, the NORMA KAE that operated out of Point Pleasant. Mr. Oland was trying to earn money to return to college. He had attended Barry University in Miami, and was a certified diver.
- Physical Limitations – There were no known physical problems with Mr. Oland.

Conclusions

1. The fishing vessel ADRIATIC capsized and sank in 63' of water 8 miles off the shore of Barnegat Light, New Jersey on January 18, 1999. Four crewmembers were on board the vessel at the time of the casualty. There were no survivors.

2. The proximate cause of this casualty was flooding of the F/V ADRIATIC engine room resulting in the vessel becoming unstable and ultimately capsizing and sinking.

3. The contributing cause to this casualty was failure of the clam pump piping system in the engine room.

4. The evidence available limits the ability to ascertain with 100% certainty, the sequence and timing of specific failures in the clam pump piping system. The evidence shows, and analysis by the Coast Guard Marine Safety Center Naval Architect supports two possible scenarios that could have caused the failure of the clam pump piping system and subsequent flooding of the engine room. Both scenarios involve material failure.

5. The first possible scenario is that the engine room flooding was caused by the material condition of the clam pump piping flange located in the engine room and on the discharge side of the clam pump, three to four feet below the waterline. There was a ¼ inch gap in the flange caused by lack of/or loosened bolts and missing rubber gasket material. This gap allowed the ingress of seawater into the engine room, which ultimately caused the vessel to become unstable and capsize. The Coast Guard Marine Safety Center Naval Architect analyzed the minimum length of time it would take to flood the engine room. The analysis was done factoring the clam pump not running. Evidence revealed that the vessel had completed fishing and it was assumed that the clam pump was not running at the time of the casualty. The stability factor was evaluated with the engine room flooding only, and did not factor in wind and waves. (The naval architect was unable to analyze the additional impact caused by wind and waves, which were estimated to be 6' seas and building, and 25-30 knot winds.) The time it would take for the ingress of seawater to reach the level in the engine room that would render the F/V ADRIATIC unstable was 40-90 minutes.

6. The second possible scenario is that the clam pump piping system flexible coupling, located in the engine room 3-4 feet below the water line, failed while the vessel was transiting to Barney's Dock. This failure of the flexible coupling would result in a significant ingress of seawater into the engine room, and the resultant flooding would render the F/V ADRIATIC unstable within 4-9 minutes.

7. The naval architect analysis details a possibility that the flexible coupling discussed in conclusion # 6 actually failed when the F/V ADRIATIC hit the bottom after capsizing and sinking, and not prior to the casualty. An impact load analysis revealed that it would not take a significant amount of force to be imparted on the on-deck clam pump piping, to transfer that impact to the flexible coupling in the engine room. The clam pump piping was welded at all joints of piping which run along the port side of the vessel, through the main deck, and into the engine room. The only sections of the piping system (which runs from the dredge hose connection on the stern of the vessel to the clam pump in the engine room) that were not hard welded were the flexible coupling and the flange, both which show evidence of failure. The F/V ADRIATIC landed on its port side on the ocean bottom, and therefore there is a

possibility that the parting of the flexible coupling took place on the vessel's impact with the ocean bottom, and not while the vessel was transiting to the dock.

8. A contributing cause to this casualty was the condition of the main valve off the sea chest. This valve was tied in the fully open position with a comealong, and the stem of the valve was inoperable rendering the crew unable to close the valve and secure the flow of seawater into the engine room. This valve problem would have a severe negative impact on either scenario outlined in conclusion # 5 and # 6.

9. The weather and sea conditions (6' seas and 25-30 knot winds) contributed to the casualty. The two possible scenarios outlined in conclusions # 5 and # 6 would both have been aggravated by heavy weather. The weather conditions could have accelerated the time frame before the vessel capsized. The exact amount of time cannot be determined with the available information.

10. There is a possibility that the F/V ADRIATIC experienced a loss of power prior to the casualty. The rising seawater level in the engine room could have resulted in the generator shutting down. Engine room flooding resulting in a loss of power would complicate the two scenarios outlined in conclusions # 5 and # 6. The loss of power would limit the operator of the vessel's ability to maneuver the vessel in the 6' seas, and this could accelerate the time before the vessel capsized. The exact amount of time cannot be determined with the available information.

11. The root cause of this casualty is the lack of a high standard of care in maintenance and operation of the F/V ADRIATIC. Details are as follows:

    - While operating the F/V ADRIATIC in August 1997, Mr. Evans reported an intentional grounding of the F/V ADRIATIC in Manasquan Inlet because of a steering failure. The steering failure occurred due to failure of a hydraulic line (hose) which had been painted over. The painting over of the hydraulic line created an inability to monitor or examine the hose material condition and accelerated the hose's failure.
    - On 25 January 1996, Mr. Evans was cited for operating the F/V ADRIATIC with an expired hydrostatic release on a primary lifesaving system item (either the life raft or the EPIRB). This release had expired on 6/94 and the vessel was cited while underway on 1/96.
    - NOAA records for registration of the F/V ADRIATIC EPIRB document that is was first registered in 1996, even though the requirement for registration became effective on September 13, 1994.
    - The EPIRB hydrostatic release was not properly installed in accordance with manufacturer's recommendations which state that you should change out the pin when the hydrostatic release is changed out.
    - It is also clear that one of the crewmembers or George Evans, rigged a comealong to the main sea suction valve on the clam pump leaving it in the full open position. At the time of the casualty, evidence shows that the vessel had finished fishing, and the clam pump was likely to be turned off. Even though the clam pump was off, the comealong was still on the main valve handle and the valve was in the full open position. This practice of leaving the main valve open is not indicative of a high standard of care.

12. There is evidence of negligence in this casualty. Negligence is defined in 46 CFR 5.29 as follows:

"Negligence is the commission of an act which a reasonable and prudent person of the same station, under the same circumstances, would not commit, or the failure to perform an act which a reasonable and prudent person of the same station, under the same circumstances, would not fail to perform."

13. There is evidence that Mr. George Evans was negligent in failing to ensure proper maintenance and due care of the F/V ADRIATIC clam pump piping system. The installation of a comealong on the main sea suction valve, which resulted in an inability to close the valve in a timely manner, left the vessel vulnerable to flooding and capsizing. There is also evidence that the flange on the discharge side of the clam pump was not tightened down and was missing a bolt. It is unclear whether or not this was done manually, or through a system failure, but it is highly unlikely that this happened when the vessel made impact with the bottom. The condition of the valve and the flange are highly suspect in this casualty, and are not indicative of a high attention to duty in vessel operations.

14. There is evidence that the crew was not aware of the serious flooding condition on the F/V ADRIATIC, and that they did not have adequate time to react and employ damage control measures in this casualty. Two deceased crewmembers were found in the vessel and neither of them had donned lifesaving gear indicating that there was little warning about the casualty. The Mayday call that was received by the Coast Guard was brief and unintelligible.

15. There is evidence that the F/V ADRIATIC was equipped with the required high-level alarm system for the bilges. When Mr. Evans called into Barney's Dock in the early afternoon on the day of the casualty, he did not mention anything about a flooding problem, and Mr. Giverson testified that he did not hear any alarms going off in the background or any unusual background noise. The naval architect testified that in conversations he had with fishermen on the docks, it was not unusual for fishermen to silence the alarms in heavy weather because the movement of the vessel in the seas would trigger the alarms when the vessel was not really flooding. It is not clear from evidence, whether or not the bilge pumps failed or could not keep up with the flooding. The bilge pumps were on a separate battery system. If the crew silenced the alarms, they may not have been aware of the flooding of the engine room.

16. There is evidence that one of the crewmembers committed an error in judgment in not closing the watertight door of the engine room on the F/V ADRIATIC. This resulted in the subsequent downflooding of the vessel after the engine room flooding level reached the watertight door. This door being left open had tragic consequences and severely hampered the time available for the crew to respond in this casualty. It is uncertain whether or not this was done as a result of a panic situation where the crewmember had little time to react in exiting the engine room, or if leaving this watertight door open was standard practice for the crew of the F/V ADRIATIC. There is no evidence that the door was tied in the open position prior to the casualty.

17. A contributing factor in this casualty is lack of drills and certification to conduct drills by crewmembers of the F/V ADRIATIC. Drills were not conducted on a regular basis and there is no record of certification of any F/V ADRIATIC crewmembers to conduct drills. The lack of routine training may have contributed to the crews' inability to minimize the consequences of the accident.

18. The vessel surveyor who surveyed the F/V ADRIATIC in October 1996 on behalf of the insurance company did not conduct drills with the crew, or verify that Michael Hager was actually trained to conduct these drills. It is difficult to determine if this failed defense mechanism had any impact on the accident, since the survey occurred over 2 years before the accident.

19. There is evidence of violation of regulation as follows:

    - Drills were not conducted on a monthly basis in accordance with 46 CFR 28.270.

20. A contributing cause to this casualty and loss of life was the failure of lifesaving gear to deploy as designed. Testimony from the Coast Guard Search and Rescue staff concluded that survivability in this casualty ranged between a minimum of .5 hours to 1 hour and a maximum of 3 to 3.5 hours depending on use of survival gear, clothing worn, and other factors. If a liferaft was deployed and crewmembers were able to get inside, this time frame would be much greater. The two crewmembers who went down with the vessel were not likely to have been saved, but the proper deployment of the liferaft and transmission of an EPIRB signal may have saved the two crewmembers who were not found.

21. The F/V ADRIATIC liferaft did not deploy until well after the casualty because it got fouled in the vessel railing. There is not evidence that the liferaft installation was improper. The raft was mounted high up on the vessel forward of the wheelhouse and in an open area. The fouling in the railing could have been a result of how quickly the vessel overturned.

22. The Emergency Position Indicating Radio Beacon (EPIRB) did not deploy as designed due to a faulty pin in the hydrostatic releasing mechanism. Analysis of the EPIRB and testimony from divers showed that the beacon unit itself functioned properly when deployed by divers the day following the casualty. However, the float free releasing mechanism designed to deploy the EPIRB upon the vessel sinking, did not operate properly.

23. The contributing factor in the EPIRB releasing mechanism malfunction was Mr. Evans' failure to follow manufacturer's instructions when updating the hydrostatic release. The instructions state that the releasing unit and its associated pin should be changed out every two years. The hammer hydrostatic release was actually expired at the time of the casualty (expired December 1998), and the associated pin was white in color indicating that it had not been changed since 1993 when the white pins were last manufactured. It should be noted that although the hydrostatic release was expired, it did function as designed. The failure of the release unit was a direct result of the white pin being too thick and brittle for the razor in the release to cut through. Had the proper pin (black one) been installed on the vessel, it is highly likely that the EPRIB would have deployed properly.

24. There is evidence of a latent unsafe condition created by the owner, Mr. Bernard Rubin who testified that he had registered the F/V ADRIATIC EPIRB with NOAA when he bought the F/V ADRIATIC. Although the mandatory requirement for registration outlined in 47 CFR 80.1061 did not come into force until September 13, 1994, it was estimated that 70% of EPIRB owners were registered with NOAA. Hammer and ACR Electronics used the NOAA database to notify owners of the changes to the hydrostatic release and associated pin. NOAA does not show evidence of registration of the F/V ADRIATIC EPIRB with associated serial number until 1996. This lack of registration information led to the F/V ADRIATIC EPIRB being overlooked in the notice to owners concerning the faulty pin. This would not

have been a factor in this casualty had the present operator, Mr. George Evans' followed manufacturer's recommendations in updating the hydrostatic release and its associated pin.

25. There is evidence that the Coast Guard Auxiliarist, Mr. Ted Lowy who conducted the voluntary dockside safety examination and issued the Coast Guard Safety Decal to the F/V ADRIATIC did not know how to properly examine the EPIRB hydrostatic release. Mr. Lowy testified that the markings of the F/V ADRIATIC Hammer hydrostatic release with the December 1998 date scratched off meant that the release was good until December 2000. This is incorrect. The scratched date is actually the date of expiration , and this hydrostatic release was expired at the time of the casualty. Additionally, Mr. Lowy testified that he examined the F/V ADRIATIC EPIRB hydrostatic release while visiting the vessel on 11 October 1998, and observed a new release installed that Mr. Evans had purchased from Sea Gear Marine Supply. The release expiration date was 8/1/00. There is evidence of a receipt for the purchase of the release by F/V ADRIATIC, but this was not the release installed on the vessel at the time of the casualty. Mr. Lowy could not explain the discrepancy.

26. Although the dockside fishing vessel safety examination program is designed to assist fishing vessel operators with being ready for sea, it does not remove the operator's responsibility to ensure all lifesaving gear is in order prior to getting underway. The decal provided by Mr. Lowy is evidence of compliance with applicable safety regulations only at the time of the dockside examinations.

27. Contributing factors in this casualty were Mr. Evan's inability to get a complete Mayday distress call off, and the limitations of the Coast Guard's existing national distress and response communications system. The Coast Guard watchstander heard "mayday, mayday," and nothing further. The F/V ADRIATIC mayday call was unintelligible, and only after hours of reviewing and slowing down the tape of the radio transmission was the radio operator able to discern the word "ADRIATIC." Even with the word ADRIATIC, the Coast Guard would not have been able to discern a position of the vessel at the time of the casualty.

28. It is unknown if fatigue was a contributing factor in this casualty. The vessel had been underway over 24 hours at the time of the casualty, departing shortly after noon on 17 January 1999, and issuing a mayday call at approximately 1500 on 18 January 1999. With no survivors, it is difficult to determine what the sleep and work schedules were on board F/V ADRIATIC just prior to the casualty.

29. The F/V ADRIATIC was not operating in an overloaded condition. The F/V ADRIATIC had adequate stability for the load of clams on aboard at the time of the casualty based on analysis of a sister vessel, the F/V TINA MARIA.

30. There is no evidence of structural failure of the F/V ADRIATIC hull.

Recommendations

1. Coast Guard efforts should be pursued to raise the standard of care in maintenance and operation of fishing vessels. This could be done through regulations requiring inspection of fishing vessels, or through an expanded scope of the voluntary dockside exam and education program.

2. The option for Coast Guard inspection of fishing vessels to raise the standard of care and maintenance is extremely resource intensive, and is being met with resistance from the fishing vessel industry. A phased-in approach could ease the transition and assist both the Coast Guard in implementation and the fishing vessel community in coming into compliance.

3. Should efforts to pursue regulation for inspection of fishing vessels fail, the Coast Guard should seek funding and develop programs and policy to expand the scope of the voluntary dockside examination program to include examination of machinery, hull, weather and watertight fittings, also the witnessing of drills. Exams should be documented and reports sent to the owner/operator.

4. The Coast Guard Fishing Vessel Casualty Task Force report recommendation concerning the Stability Regulations Project should be pursued. Stability letters which outline operating conditions and risks associated with stability would enhance a fishing vessel operator's ability to respond to conditions such as those that arose on the F/V ADRIATIC.

5. Should efforts to pursue requirements for stability letters fail, the Coast Guard should partner with the insurance companies and encourage them to require stability tests. Insurance companies should also conduct more stringent review of requirements for stability as part of the survey for underwriting the vessel.

6. The Coast Guard should pursue regulations for licensing of operators of fishing vessels and certification of crewmembers.

7. The Coast Guard should partner with the insurance industry to expand their scope of surveys of fishing vessels to include better documentation of crew competencies in areas of damage control, stability, and certification to perform drills.

8. The Coast Guard should re-evaluate the existing third-party training for certification to conduct drills. A database should be developed with access given to the Fishing Vessel Safety Examiners and the insurance industry for verification of certification to conduct drills. A log system should also be required on fishing vessels to document required monthly drills.

9. 46 CFR 28.270(e) and (f), the regulation requiring new crewmembers to receive a detailed safety orientation prior to getting underway should be modified to require logging of the completion of this orientation.

10. The Coast Guard Fishing Vessel Safety examiners should be given instructions on manufacturer's recommendations for lifesaving equipment including requirements for installation of EPIRB hydrostatic releases. This instruction should also be included in training for boarding officers and marine inspectors.

11. The Coast Guard should work with safety gear manufacturers and servicing companies to evaluate an expanded scope of inspection for EPIRBs. Presently, only the battery must be replaced at a servicing facility. Consideration should be given to expand the requirement for the mounting container and hydrostatic release to be serviced and updated at an approved facility.

12. The Coast Guard should vigorously pursue funding for upgrades to the National Distress and Response System.

13. Group/Marine Safety Office Philadelphia should be given a copy of this report for their information and action as they deem appropriate.

Some information in this report is being withheld under 5 U.S.C. Section 552(b)(6).