United States Coast Guard Eleventh District

Commercial Fishing Vessel Safety Newsletter



Volume 13, Issue 1

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Southern to Central California: -San Diego to Oceanside: 619-278-7249 -Dana Point to Los Angeles: 310-521-3744

-Oxnard to Morro Bay: 805-962-7430 x270

Northern California:

-Santa Cruz to Monterey: 831-647-7357

*-Pillar Point to Bodega Bay: 415-399-7310

**-Fort Bragg to Crescent City: 707-481-0048

* New number as of May'16 **New number as of June '17

Editor's Notes

With more than a few regulatory changes involving the commercial fishing industry in the last few years, (see Pages 8-9 of this newsletter for details), I thought a quick review of how the regulatory process works might be useful.

The process begins when a member of Congress proposes a **bill**. A bill is a document that, if approved, becomes **law**. If both houses of Congress approve a bill, it then goes to the President who has the option to either approve or veto. If approved, the bill becomes a new law called an **act or statute**. Once an act is passed, the House of Representatives standardizes the text of the new law and publishes it in United States Code (U.S.C.) The U.S.C. is published every 6 years. Between editions, annual supplements to the U.S.C. are published to present the most current information. The U.S.C. is made available to the public from the Government Printing Office (GPO), the sole authority for publication.

Once a law is official, here's how it gets put into practice. Laws often do not include all the details needed to explain how an individual business, state or local government, or others, can follow the law. The U.S.C. would not tell you, for example, what the speed limit is in front of your house. In order to make the laws work on a day-to day level, Congress authorizes certain government agencies like the U.S. Coast Guard to create **regulations**. Regulations set specific requirements about what is legal and what isn't. For example, 46 CFR 28.135 is a regulation created by the U.S. Coast Guard detailing the markings required on all lifesaving equipment required to be carried on commercial fishing vessels.

After a new law is passed, the authorizing agency is tasked with researching all the issues surrounding the new law and, if necessary, proposes regulations. This is known as a *Notice of Proposed Rulemaking* (NPRM). Comments are requested and received from the public on the NPRM, the regulation is revised as needed, and a final rule is then issued. The final rule is published in the official docket of the Federal Register on *Regulations.gov*. Once a regulation is completed, it is added to the Code of Federal Regulations (CFR). CFR's are the official record of all regulations created by the federal government. They are divided into 50 volumes called titles, each of which focuses on a particular area, and are revised yearly.

For more details and information on the Commercial Fishing Industry Vessel Safety Act and how these new regulations may impact your vessel, or any other questions or concerns you may have regarding safety and your commercial fishing vessel, please contact with your local CFVS Examiner or myself.

Your USCG Eleventh District (California) CFVS Team looks forward to keeping you informed and safe as we move through the remainder of 2017 and beyond.

Fish Safe!

Peg Murphy Eleventh Coast Guard District Commercial Fishing Vessel Safety Alameda, CA







Review of Major California Commercial Fishing Vessel Casualties – 2016 2016 Major Casualties: 9 Lives Lost 5 Vessels Lost 3 Lives Saved by CFIVSA 11 Sinkings 3 Groundings 2 2 Unknown 0 Capsizing Man Overboard 0 0 Fire Injury/MEDEVAC 2

January 2016: A 73' wood spot prawn/trap vessel with 3 POB ran aground on a sandy beach 1NM south of the Ventura Pier. No significant injuries. Vessel was unsalvageable.

***Safety take-away**: Fatigue has been found to be the leading cause of groundings in the commercial fishing fleet. Normal maritime operations expose the Master and crew to a variety of stressors such as long hours, extreme temperatures and rough seas. At-sea conditions present factors that can degrade the performance and safety of both people and the vessel. Be alert to the signs of performance degradation in yourself and others and take appropriate measures quickly.

<u>February 2016</u>: A 26' fiberglass crab vessel with 2 POB began taking on water and sank with only the bow visible 6.5NM west of Point Bonita due to an unknown cause. The 2 POB entered the water and were rescued by a Good Samaritan with no injuries. Vessel was later salvaged.

A 41' steel stern trawler with 2 POB capsized 15NM west of Ventura Harbor due to instability. The 2 POB entered the water, one inserting his body inside the life ring with 60' of line. The vessel sank in 90' of water, and the POB in the life ring drowned. The other crew member was recovered by a Good Samaritan with no injuries. Vessel was a total loss.

*Safety take-away: Vessels that capsize or sink before the crew are able to access survival equipment can result in lives being lost. A commercial fishing vessel's stability is constantly changing during its voyage due to external forces such as weather and loading. An originally stable vessel can become unstable, or unable to counter current external forces and return to its upright position. The U.S. Coast Guard publishes a Best Practices Guide to Vessel Stability for the commercial fishing fleet at: <u>https://www.uscg.mil/hq/cgcvc/</u> <u>cvc3/references/Stability Reference Guide.pdf</u> This excellent guide provides sound recommendations for stability decisions encountered during day-to-day operations.

March 2016: None.

April 2016: A 38' wood vessel with 3 POB collided with the Ventura south jetty at night. All 3 POB were able to swim ashore with no significant injuries. Vessel was a total loss.

***Safety take-away**: Fatigue is the leading cause of groundings in the commercial fishing fleet. Be alert to the signs of performance degradation in yourself and others, especially at night. Taking appropriate measures to address fatigue before it happens can help prevent an accident.

Review of Major California Commercial Fishing Vessel Casualties – 2016 (continued)



May 2016: A 35' fiberglass urchin vessel with 3 POB in the Channel Islands reported the Master had surfaced from a dive unconscious and barely breathing. The Master was transported and later died.

*Safety take-away: Moments matter in situations such as medical emergencies. All crewmembers should know about any special crew medical needs while onboard, the location of the medical kit/first aid manual, and how to get help in the case of an emergency. Ensure your onboard medical kit is readily accessible and stocked with supplies that can handle a variety of onboard medical emergencies. Review how you and your crew would respond to different medical emergency scenarios. You can never go wrong by reporting any kind of onboard injury or medical emergency to the U.S. Coast Guard on Channel 16 VHF-FM. Local First-Responders work with the USCG shore-side and can quickly respond as needed with ambulances, EMT's, fire trucks, etc.

June 2016: A 28' wood salmon troller with 1 POB was reported overdue from a voyage south of Santa Cruz. Debris with the vessel's name was found in the vicinity of the last known position and the Master was found nearby, deceased.

July, August, September 2016: None.

October 2016: A 30' fiberglass multi-rigged vessel with 1 POB 13NM south of Port San Luis reported crushing his arm while operating a davit. The fisherman self-applied a tourniquet and headed to shore where he was immediately taken to a hospital for surgery to save the arm.

A 32' wood salmon troller vessel with 1 POB in Bodega Bay was reported with a sheen around the vessel. Further investigation found the Master onboard deceased from natural causes.

November 2016: A 238' steel distant-water tuna vessel reported a crewman had been cleaning a tank inport with a gasoline-powered machine and was asphyxiated by the fumes.

***Safety take-away**: Carbon monoxide (CO) is a colorless, odorless, and nonirritating poisonous gas that can rapidly accumulate even in areas that appear to be well ventilated. A build up of CO can reach dangerous or fatal concentrations within minutes. Operation of gasoline-powered engines or tools in enclosed areas should be prohibited unless gasoline engines can be located outside and away from air intakes.

December 2016: None.+

Review of Minor California Commercial Fishing Vessel Casualties

2016 MINOR CASUALTIES:	103
МОВ	0
Fire	1
Disabled—USCG Tow	74
Taking on Water	5
MEDEVAC/Injury	1
Accidental EPIRB	1
Collision/Allision	8
Soft Groundings	2
Sinking (at dock)	11
Pollution	0



January 2016: 2 disabled tows (fuel and engine problems); 1 sinking-at-dock (due to deferred maintenance).

February 2016: 2 disabled tows (engine problems); 1 sinking-at-dock (exact cause unknown).

March 2016: 5 disabled tows (engine and transmission problems); 2 sinking-at-dock (1 cause unknown, 1 overloading with crab pots).

<u>April 2016</u>: 5 disabled tows (4 engine and transmission problems, 1 fouled prop); 1 sinking-at-dock (exact cause unknown); 1 allision (with dock); 1 taking-on-water (exact cause unknown).

<u>May 2016</u>: 8 disabled tows (4 engine and 1 transmission problem, 1 cracked fuel line, 1 fouled prop, 1 loss of steering); 1 allision (with dock); 1 accidental EPIRB activation; 2 taking-on-water (cause unknown).

June 2016: 6 disabled tows (1 fouled prop, 1 engine, 1 broken shaft, 1 out-of-fuel, 1 prop malfunction, 1 transmission problem); 1 injury.

July 2016: 5 disabled tows (3 engine problems, 1 structural problems, 1 disoriented); 1 sinking-at-dock (due to deferred maintenance).

<u>August 2016</u>: 8 disabled tows (6 engine problems, 2 shaft problems); 1 allision with anchored sailboat, 1 fire (at dock).

September 2016: 6 disabled tow (3 engine and 3 fuel problems); 2 allisions (1 with dock, 1 with anchored commercial fishing vessel); 2 groundings (soft); 1 sinking-at-dock (due to deferred maintenance).

October 2016: 3 sinking-at-dock (due to deferred maintenance); 3 disabled tows (engine and fuel problems); 1 taking-on-water (cause unknown); 1 allision (with dock).

November 2016: 13 disabled tows (11 engine problems, 1 bad fuel problem, 1 fouled prop); 1 allision (with dock).

December 2016: 11 disabled tows (7 engine and 1 transmission problems, 3 fouled props); 1 allision (with bunker barge); 1 sinking-at-dock (failed float switch); 1 taking-on water (cause unknown).

"Flooding, automatic bilge alarms not working and pipe work failures were seen as highly significant in the cause of casualties. Lack of maintenance was often the cause of machinery breakdowns, and sleep deprivation/ fatigue the main cause of accidents, including personal injury."

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#09-16 Safety Procedures with Hazardous Gases and Chemicals: Carbon dioxide is a colorless, odorless gas that cannot be detected without the addition of an odor marker (like a wintergreen scent). Installing an odorizing unit into the carbon dioxide extinguishing agent helps to ensure crewmembers are not inadvertently exposed to CO2 and also helps to detect a discharge. Hydrogen sulfide gas is produced by decomposing organic matter such as fish, and is heavier than air, creating a potentially hazardous situation onboard.

#13-16 Inflatable Life Jacket Failure: The USCG reports numerous instances of inflatable life jackets failing to properly inflate. This alert reminds all mariners using inflatable life jackets of the importance to perform periodic maintenance, service and inspection in accordance with manufacturer's instructions to prevent any safety risk. The top three failures of inflatable life jackets are unknown bladder leaks, fabric degradation and improperly installed CO2 cylinders.

#15-16 Samsung Galaxy Note 7 Smartphone: The Consumer Product Safety Commission (CPSC) reported in one month alone 92 incidences of batteries overheating on this model cell phone, resulting in 26 serious customer burns and 55 fires causing customer properly damage. The USCG strongly recommends mariners end all use of Samsung Galaxy Note 7 phones not updated or replaced. Visit the <u>Samsung.com</u> website for more information.

#01-17 Safety Implementation: Recently, a crewman's life was lost due to a series of seemingly small oversights: a line left untended and not tied off to the vessel, the crewman deciding not to wear a PFD, and a known worn line on a Bosun chair that parted under use. The USCG strongly reminds all vessel owners, operators and crew to ensure the adequate onboard supervision of work teams and the proper functioning and use of onboard safety equipment. Mariners are urged to develop a workplace mindset that prepares for a worse-case scenario in all routine shipboard activities and takes all necessary steps toward its prevention.

#04-17 Knowledge of Navigation Rules: It is critical **all** mariners have a good working knowledge of the Navigation Rules before venturing out into a shared waterway. Commercial vessel operators need to know their responsibilities, which includes the Steering and Sailing Rules, Conduct of Vessel in Sight of One Another, and Conduct of Vessels in Restricted Visibility. They also need to be able to recognize the navigational lights and shapes encountered, and be able to understand the message of sound and light signals. Good working knowledge of the Navigation Rules is essential in order to take appropriate actions to prevent collisions at sea.

For more information on navigation rules and maritime communications, visit the USCG Navigation Center website at: https://www.navcen.uscg.gov/?pageName=navRulesContent



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<u>12-15—Clarification to Mandatory Safety Exams for Commercial Fishing Vessels</u>: This notice informed owners and operators of commercial fishing vessels operating beyond *3NM* that mandatory dockside safety exams went into effect October 15, 2015. Exams are required at least 1x every 5 years. Successful completion will result in a Certificate of Compliance (COC). COC's are currently under development. COC's will denote a vessel's compliance with all applicable federal law. CFVS safety decals will stay in effect to denote compliance until COC's are implemented. Exams for commercial fishing vessels operating exclusively inside 3NM remains voluntary.

<u>02-16—Survival Craft for Commercial Fishing Vessels</u>: This notice informed owners and operators of commercial fishing vessels that proposed changes to out-of-the-water survival craft impacting commercial fishing vessels had been cancelled. Simply put, the current regulations (in effect since 1988) for survival craft on commercial fishing vessels stand. Additionally, life floats and buoyant apparatus's continue to be approved for use until amended or revised by future legislation or rulemaking.

46 U.S.C. §4502(b)(2)(B) requires the USCG to prescribe regulations requiring commercial fishing vessels that operate beyond 3NM from shore to carry out-of-the-water survival craft for all person onboard. Final rulemaking to implement this regulation is currently underway. (Please see Pages 8 and 9 in this newsletter for more information.)

<u>01-17—USCG Certificate of Documentation Services</u>: This notice serves to remind mariners that the **National Vessel Documentation Center (NVDC)** located in Falling Waters, West Virginia, is the **only** entity authorized to issue USCG Certificates of Documentation (COD). A Certificate of Documentation is required for vessels over 5 net tons engaged in commercial trade and are valid for one year from date of issue.

Mariners are urged to be aware of third-party providers. These are commercial entities that offer to manage certification/ renewal processes on behalf of vessel owners for a fee. *The USCG does not endorse any of these companies, and the companies do not operate on behalf of the USCG in any way.* Any fees charged beyond the \$26 renewal fee, to include other fees found in title 46 CFR 67.550, or other agreements offered by such companies are in **no way** associated with the NVDC certification process. In addition, these companies are **not** authorized to issue any form of documentation, including travel letters and/or permits that authorize operation of any vessel.

The **USCG NVDC** website can be accessed at: <u>http://www.uscg.mil/nvdc/</u>. *Note: The only legitimate USCG website for COD's uses a "**mil**" domain name. Web domains using ".us", ".com", ".org", etc., are **not** authorized. The USCG NVDC can also be contacted at: (800) 799-8362 or (304) 271-2400, from 0900-1500 EST.

<u>06-17–</u> Fuel Spray Fire: This notice discusses fuel spray fires (fuel leaks that contact hot surfaces and then ignite) and documents several recent cases on commercial vessels that led to significant damage onboard. Mariners are strongly urged to check unmanned machinery spaces at least daily and develop a mindset to detect anomalies. Regularly check for system vulnerabilities, such as loose or missing pipe clamps, wear or chaffing due to vibration, and piping or tubing that may be insufficiently secured. Be aware of all hot spots, and make sure plastic piping is not too close. Maintain all insulation and lagging. Minimize the use of non-metallic flexible hoses in systems carrying flammable liquids in engine areas where a leak could find a hot spot and cause a fire. Pay special attention to engine exhaust piping and where it proceeds into other spaces. Numerous fires have occurred in these other spaces due to hot spots.

Changes to the Commercial Fishing Industry Vessel Safety Act of 1988 (Past, Present, and Future)

There have been a number of proposed and implemented changes to CFIVSA since 2010. To help clarify these changes, they are presented below in three parts: **Past, Present** and **Future**.

PAST:

The Coast Guard Authorization Act of 2010 and the Coast Guard and Maritime Transportation Act of 2012 (hereafter referred to as "Acts") made significant changes to Chapters 45 and 51 of Title 46 United States Code (USC), Changes to the law will be reflected in amended regulations (Parts 28 and 42 of Title 46 Code of Federal Regulations (CFR). The following is a summary of the changes:

Coast Guard Authorization Act of 2010

- 1. Replaces the Boundary Line with the 3 nautical mile line as the demarcation line for operating areas and certain equipment carriage standards.
- 2. Requires periodic mandatory examinations for all commercial fishing vessels operating beyond 3 nautical miles.
- 3. Establishes design, construction, and maintenance standards on new fishing vessels built after July 1, 2012.
- 4. Requires a load line on new fishing vessels over 79 feet built after July 1, 2012.
- 5. Establishes two grant programs for training and research regarding safety in commercial fishing.
- 6. Changes the name of the Commercial Fishing Industry Vessel Safety Advisory Committee to the Commercial Fishing Safety Advisory Committee.
- 7. Requires an alternate safety compliance program (ASCP) plan for certain older fishing vessels.
- 8. Establishes parity for all commercial fishing vessels operating beyond 3 nautical miles. All vessels must carry the same safety equipment.
- 9. Requires periodic safety training of commercial fishing vessel operators operating beyond 3 nautical miles.
- 10. Requires all commercial fishing vessels operating beyond 3NM to maintain a "Safety Log Book", or a written record of all equipment maintenance, emergency drills and instruction conducted onboard a vessel.
- 11. Requires all commercial fishing vessels operating beyond 3NM to carry survival craft that keeps all parts of the body out of the water. Life floats and buoyant apparatus' will no longer be accepted as survival craft.
- 12. Eliminates exemptions for survival craft on commercial fishing vessels less than 36 feet operating inside 12NM with less than 3 persons onboard.
- 13. Clarifies some existing safety equipment requirements (such as "marine" radio).
- 14. Requires fishing vessels less than 50 feet in length, built after January 1, 2010, to meet equivalent construction and safety standards for recreational vessels.

Coast Guard and Maritime Transportation Act of 2012

1. Changed the implementation date on new builds to July 1, 2013. Changed the implementation date on load lines to July 1, 2013. Changed the implementation date on out-of-the-water survival craft to February 26, 2016.



PRESENT:

As of May 30, 2017, the following regulations have been put into effect, as noted. Other changes pend.

- 1. Replaces the Boundary Line with the 3 nautical mile line as the demarcation line for operating areas and certain equipment carriage standards. *Applicable only to mandatory exams. See NPRM for more details.
- Requires periodic mandatory examinations for all commercial fishing vessels operating beyond 3 nautical miles.
 *Implemented October 15, 2016. Exams are to be conducted *at least* 1x every 5 years beginning January 1, 2013.
- 3. Establishes design, construction, and maintenance standards on new fishing vessels built after July 1, 2013. *Implemented July 1, 2013.
- 4. Requires a load line on new fishing vessels over 79 feet built after July 1, 2013. *Implemented July 1, 2013.
- 5. Establishes two grant programs for training and research regarding safety in commercial fishing. ***Implemented in 2010.**
- 6. Changes the name of the Commercial Fishing Industry Vessel Safety Advisory Committee to the Commercial Fishing Safety Advisory Committee. ***Implemented in 2010.**
- Requires an alternate safety compliance program (ASCP) plan for certain older fishing vessels.
 *Suspended July 20, 2016. Changed to the *Voluntary Safety Initiatives and Good Marine Practices*. This initiative now includes all vessels and is completely <u>voluntary</u>. Public Guidelines available January 20, 2017.
- 8. Establishes **parity** for all commercial fishing vessels operating beyond 3 nautical miles. All vessels must carry the same safety equipment. *Complete parity between state and documented commercial fishing vessels as not been implemented. Pends further review.
- 9. Requires periodic safety training of commercial fishing vessel operators operating beyond 3 nautical miles. ***Pends development of a national standard.**
- Requires all commercial fishing vessels operating beyond 3NM to maintain a "Safety Log Book" or a written record of all equipment maintenance, emergency drills and instruction conducted onboard a vessel.
 *In final rulemaking process. See the NPRM for more details.
- 11. Requires all commercial fishing vessels operating beyond 3NM to carry survival craft that keeps all parts of the body out of the water. Life floats and buoyant apparatus' will no longer be accepted as survival craft. ***In final rulemaking process. See the NPRM for more details.**
- 12. Eliminates exemptions for survival craft on commercial fishing vessels less than 36 feet operating inside 12NM with less than 3 persons onboard..*In final rulemaking process. See the NPRM for more details.
- 13. Clarifies some existing safety equipment requirements (such as "marine" radio). *In final rulemaking process. See the NPRM for more details.
- 14. Requires fishing vessels less than 50 feet in length, built after January 1, 2010, to meet equivalent construction and safety standards for recreational vessels. *In final rulemaking process. See the NPRM for more details.

FUTURE:

The Notice of Proposed Rulemaking (NPRM) closed for comments on December 18, 2016. For complete information on these regulatory changes, comments received from the public, as well as the USCG's responses to those comments, go to: https://www.regulations.gov/document?D=USCG-2012-0025-0001.◆



Bodega Bay: Station Bodega Bay (707) 875-3596

Fort Bragg: Station Noyo River (707) 964-6612

Eureka: Station Humboldt Bay (707) 443-2213



<u>CFIVSA—Notice of Proposed Rulemaking (NPRM)</u>: In 2010, the President signed into law a number of changes to the *Commercial Fishing Industry Vessel Safety Act (CFIVSA) of 1988*. This Act contains the current set of federal safety regulations that pertains to all commercial fishing vessels operating in the U.S. A number of factors, including comments from the commercial fishing industry, resulted in changes to some of the 2010 laws as written—some were changed, others postponed, one was suspended, amended and now resurrected. The dust has (mostly) settled on this legislation and on June 21, 2016, the U.S. Coast Guard published an amended Notice of Proposed Rulemaking (NPRM) in the CFR's notifying the public of the intended changes to CFIVSA and its corresponding laws. The public comment period is closed December 18, 2016. Pages 8 and 9 of this newsletter summarizes the changes in terms of Past, Present and Future. Please take a look. The Final Rule on these changes now pends due to Executive Order 13771 and 13777 (see below).

Evaluation of Existing Coast Guard Regulations: Executive Order 13771, dated January 30, 2017, ordered that for every **one new regulation issued**, **at least two prior regulations must be identified for elimination**. With Executive Order 13777, dated February 24, 2017, the President ordered enforcement of this regulatory reform agenda. All agencies were directed to take specific steps to identify and alleviate any and all unnecessary regulatory burdens on the American people.

To this end, the U.S. Coast Guard is seeking comments from the public on any USCG regulations, guidance documents, interpretive documents and collection of information Americans believe should be repealed, replaced or modified.

USCG regulations fall within three general categories in the Code of Federal Regulations (CFR's): Navigation, Navigable Waters, Shipping, and Transportation. The three corresponding CFR titles are: 33 CFR Chapter 1 (Parts 1-199); 46 CFR Chapters I (Parts 1-199) and III (Parts 400-499); and 49 CFR Chapter IV (Parts 400-499).

Comments can be made anonymously, and all comments received will be posted without change on the docket. The best way to comment is through the Federal eRulemaking Portal at <u>http://www.regulations.gov</u>. Please reference docket number **USCG-2017-0480** in your comment as well as the specific regulation, guidance document, interpretive document or collection of information commented on. Please provide any specific details and/or supporting data. *All comments and related materials must be received on or before July 10, 2017*.

<u>Reciprocity</u>: Current federal law states: "When a vessel is removed to a new State of principal operations, the issuing authority of that State shall recognize the validity of the number issued by the original State for 60 days." (33 CFR 173.17(b) and Section 12302(d) of Title 46, United States Code). If your commercial fishing vessel has been registered in Washington or Oregon and is operating in California for 60 days or more, California is considered your place of principal operations. Your vessel will need to be registered with the State of California to be in compliance with federal law and issued a CFVS decal.

Approval of Hammar H20 Small Raft HRU: The USCG completed initial approval of Hammar H20 Small Raft Model hydrostatic release unit. The unit has a green plastic link and is for float-free liferaft installation on non-SOLAS, 4-person liferafts with a painter attachment. The unit has a break-free force of 1.2 kN, and is for release at water depths of not more than 4 meters (13.2 feet). The device is intended to be disposed of after 2 years and is not subject to annual testing. USCG COA Number 160.062/14/0, dated April 4, 2017♦





Today's container ships, bulk carriers and cruise ships make an average speed of about 20 knots at sea. This means these ships can cover 2 nautical miles in about 6 minutes. Full-astern, it can take up to 1 nautical mile for them to stop. If the height of your bridge is 10 feet above the water, you can see a large ship's waterline at 3.7 nautical miles away. This means at 20 knots, the ship you're seeing off in the distance will be at your position in about 10 minutes.

The Coast Guard urges all mariners to be aware of large ship movements and large ship maneuverability restrictions. Avoid crossing a large ship's bow-take their stern instead. Monitor VHF 16 and be aware of the large ships in your area. Use Channel 13 when necessary to communicate your position, the name of your vessel and your intentions. Be clear about your intentions with your vessel's movement.

Remember that *a constant bearing and decreasing range = a collision course*. Refresh your and your crew's understanding of Navigation Rules 5, 7 and 8. The main point of all the Navigation Rules is to prevent a collision at sea.♦

The 1-10-1 Principle

The USCG classifies **cold water** as "any waters where the average monthly temperature is 59 degrees Fahrenheit or less." This describes most of the waters off the California coast year-round. **1-10-1** is a simple way to remember the phases of cold water immersion and the approximate time each phase takes. Dr. Gordon Giesbrecht coined the phrase **1-10-1**, and has researched the effects of cold water immersion over many years on hundreds of subjects, including himself. He has personally experienced the effects of cold water immersion over 30 times.

1 - Cold Shock. An initial, deep, and sudden gasp followed by hyperventilation that can be as much as 600-1000% greater than normal breathing. It is critical to keep your airway clear during this phase or run the risk of drowning. Cold Shock will pass in about **1 minute**. During that time, concentrate on avoiding panic and getting control of your breathing. **Wearing a lifejacket during this phase is critically important to keep you afloat and breathing.*

10 - Cold Incapacitation. Over approximately the next 10 minutes, you will lose the effective use of your fingers, arms and legs for any meaningful movement. Concentrate on self-rescue initially, and if that isn't possible, prepare to have a way to keep your airway clear while waiting for rescue. *Swim failure will occur within these critical minutes, and if you are in the water without a lifejacket, drowning will likely occur.

1 - Hypothermia. Even in ice water, it can take approximately **1 hour** before a person will become unconscious due to hypothermia. Cause of death from hypothermia is not loss of consciousness, it is the heart stopping. Body temperature can drop another 3-5 degrees after you become unconscious before the heart will stop. **This is an important reason to wear a life jacket—with nothing to keep your head above water, once incapacitated, you will drown*.

Understanding the difference between cold water immersion and hypothermia is important for changing the dynamics of how a person reacts once in cold water. Keeping calm and the airway open during the first minute of immersion is critical to survival. Understanding that once strength and coordination are lost, it will not come back. You have to **use what you can**, when you can, over the first 10 minutes after immersion for self-rescue.

*The best thing you can do if you find yourself in the water is to get to something that will keep you afloat as long as possible. Most deaths from cold water immersion occur in the first 2 phases above, long before hypothermia sets in. **Wearing a low-profile PFD on deck has been found to greatly improve survival rates among fishermen who end up in the water.



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Turn your digital multi-meter into a corrosion meter for under \$15.00

By Manny Ramirez, CFVS Examiner, Sector San Francisco

Galvanic and stray current corrosion, commonly but improperly referred to as electrolysis, connects your vessel to all the boats in your marina by the ground wire in your shore-tie cable. Your vessel can fall victim at any time to problems in the electrical wiring of other vessels. You can't do away with the green ground wire, as it will create a serious safety problem with respect to electrical shock hazards. But what about all those steel pilings that hold the docks in place and the boat a few slips down running extension cords with more electrical splices than you can count? Troubling to be sure, but how can you know if it is affecting your vessel? It's easy to check if your boat is adequately protected by taking a few simple hull potential readings with a corrosion meter. Unfortunately, a good corrosion meter costs about \$300.00. If you already own a digital multimeter, you can make it into a corrosion meter for about \$15.00 with minimal effort. *A digital multi-meter works best, but you can use an analog multimeter as long as the meter movement has an impedance rating of over 20,000 ohms/volt. This information is usually printed on the face of an analog meter. Less impedance may result in unreliable readings.

List of what you will need: One 3/8" pencil zinc, one 1/2" long 316 SS #10/38 machine screw with nut and washer, one Anchor marine grade crimp-on #10 ring terminal connector for 14-16 AWG wire, 15' of test lead cable, one male banana jack, 3" piece of heat shrink, and liquid electrical tape. (Use electrical test lead wire, otherwise you will run into problems coiling/uncoiling the wire.) I purchased all these items except the banana jack and test lead wire at my local West Marine store for under \$8.00. The test lead and banana jack I got for about \$7.00 at an electrical supply store. The tools needed are: a hacksaw, electric drill with 3/16" drill bit, screwdriver, electrical terminal crimping tool, and a

small crescent wrench. *When you buy water, e.g., the one most likely to be the zinc anode, make sure it meets deteriorated by galvanic or stray cur-U.S. Military Specification MIL-A- rent activity. *Aluminum is usually the 18001K

Making the Meter: File flat two sides of the zinc anode threaded portion 90° apart. Measure 1/4" down from this For example, if the vessel has an outend of the anode and drill a hole through the flattened face with a 3/16" drill bit. Take a hacksaw and saw a slit down the center between the two flat spots to 1/16" below the bottom of the hole. Slide a piece of heat shrink that is just barely large enough to go over the #10 connector shank onto the wire. Crimp the #10 ring connector to one end of the wire. Slide the heat shrink over the connector and apply heat to seal. (This not only seals the connection, but also provides strain-relief on the wire and terminal.) Insert the ring terminal end into the slit in the anode and pin in place with the #10/38 machine screw. Install the lock washer and nut and tighten firmly. Apply some liquid electrical tape over all the screw hardware and electrical terminal to make it waterproof. Allow tape to dry. Finally, install the banana jack on the other end of the test lead wire. You now have an inexpensive reference cell for taking hull potential readings.

Taking Hull Potential Readings: Plug

your electric shore-tie cable in and turn on the equipment you normally leave on. Lower the reference cell into the water from the stern to about 1' below the surface and about 6" away from the outdrive or propellers and tie off to the rail. Plug reference cell test lead into the negative jack of the meter. Plug the positive test lead to meter's positive jack as normal and connect it to the negative terminal on the starting battery. Turn the multi-meter selector switch to D.C. voltage. Observe and record the reading, be sure to note if it is positive or negative. (The reading should also have a period in front of the display figures to denote it is reading in milli-volts.) Now turn off your shore tie, unplug it from the vessel, and take another reading. What the readings mean depends on the underwater metals involved. The range of readings you are interested in are those for the least noble metal in the

least noble, followed by steels, bronzes, and stainless steels, in that order.

drive, the readings for aluminum would be what you are concerned with, as it is the least noble metal. Compare the readings to the table of solution potentials listed below:

Bronzes, Nickels, Monel, Lead, and 300 series Stainless Steels:

0 to +.480	Over-protected
+.480 to +.640	Safe protection zone
+.640 or higher	Under-protected

Steel Alloys and Iron:

0	or negative	Over-protected
0	to +.250	Safe protection zone
+.25	0 or higher	Under-protected

Aluminum Alloys (Marine Structural):

0 oi	negative	Over-protected
0 to	+.150	Safe protection zone
+.150 c	r higher	Under-protected

*Source: Electro-Guard, Inc. Readings are for normal flowing seawater; readings may vary in brackish and fresh water.

Readings in over-or-under-protected zones may indicate problems. The most common problems are associated with the shore-tie. If you suspect the source of trouble is on your vessel, follow the procedure again, but this time systematically turn on each circuit on the AC and DC panels, noting the reading after energizing each circuit. Doing one circuit at a time reduces chances for confusion as to which one may be causing the problem.

A large change of 150mV in hull potential in either direction when a circuit is energized indicates there may be a problem with the equipment on that circuit. Regardless, if you experience abnormal readings with any of the above procedures, it is time to call an expert in marine corrosion to verify there is a problem and to recommend solutions.

Non-Rechargeable and Non-Refillable Fire Extinguishers

These are typically white aluminum canisters with plastic handles.

Annual maintenance may be performed by vessel owner, operator, person-in-charge or a designated member of the crew. Must be replaced when 12 years old. Date on tag must be within the last 12 months.



Rechargeable and Refillable Fire Extinguishers

These are typically red or yellow steel canisters with metal handles.

Annual maintenance may be performed by a person certified/licensed by a state or local jurisdiction. Dry Chemical and Halogenated Agent extinguishers must undergo an internal visual examination and agent replacement every 6 years and a hydrostatic test every 12 years. Portable CO2 extinguishers must undergo a hydrostatic test every 5 years. Date on tag must be within the last 12 months.



New Fire Extinguisher Requirements For Commercial Fishing Vessels

For Fishing Vessel Under 65 Feet in Length:			
Less than 26 feet in length	One UL Rated 5-B	Note 1	
26 feet to less than 40 feet in length	Two UL Rated 5-Bs	Note 2	
40 feet to less than 65 feet in length	Three UL Rated 5-Bs	Note 3	

<u>Note 1</u>: Outboard boats less than 26 feet in length are **not** required to carry fire extinguishers if their construction will not permit the entrapment of explosive gases or vapors.

Note 2: One UL Rated 20-B (or larger) may be substituted for two UL Rated 5-Bs.

<u>Note 3</u>: Vessels with a CG-Approved Fixed Fire Extinguisher System in their engine room may reduce their required number of portable fire extinguishers by one.

For Fishing Vessels 65 Feet or More in Length:

Space Aboard Vessel	Minimum Rating	Quantity and Location
Safety Areas, Communication Corridors	2-A	1 in each main corridor not more than 150 feet apart (May be located in stairways)
Pilothouse	20-B-C	2 in the vicinity of the exit
Service Spaces, Galleys	40-B-C	1 for each 2,500 square feet or fraction thereof suitable for the hazards involved.
Paint Lockers	40-B	1 outside the space in the vicinity of the exit
Accessible Baggage and Storage Rooms	2-A	1 for each 2,500 square feet or fraction thereof located in the vicinity of the exits, either inside or outside the spaces
Workshops and similar spaces	2-A	1 outside the space in the vicinity of the exit
Machinery Spaces, Internal Combustion Propelling Machinery	40-B-C	1 for each 1,000 brake horsepower or fraction thereof but not fewer than 2 or more than 6
Electric Propulsion Motors or Generator Unit of Open Type	40-B-C	1 for each propulsion motor generator unit
Auxiliary Spaces	40-B-C	1 outside the space in the vicinity of the exit
Internal Combustion Machinery Spaces	40-B-C	1 outside the space in the vicinity of the exit
Electric Emergency Motors or Generators	40-B-C	1 outside the space in the vicinity of the exit

