Chapter 2

At Sea

Potential Dangers
This section discusses potential risks to a vessel when at sea.

- Weather
  - Wind
    - Know the boat’s limits.
    - Strong winds can increase the height of waves and exacerbate any instability of the boat.
  - Ice: 2 or 3 miles from shore, ice builds rapidly when a fine spray from choppy seas freezes as a result of colder overland air temperatures. In contrast, offshore (15 miles or so) seas breaking on the vessel minimize ice build-up.
    - Affects stability. After heeling over, the boat rights itself more slowly as the center of gravity shifts.
    - Experienced captains can feel the boat’s roll period slow down, so they often require the crew to break the ice off the rigging.

Note
Avoid dangerous situations by being prepared
The importance of paying attention to potential dangers in order to avoid them is critical. Avoid the need for medevac or losing a trip by an early return!
While experienced captains and crew are well aware of potential dangers, safety trainers advised including reminders as a precaution and potential conversation starter. Avoiding accidents is preferable to recovery!
However, if the ice is significant, breaking ice low could make the boat top heavy and lead to rolling over. With fewer experienced captains running boats, more are likely to have problems. Can also make the deck slippery, leading to man overboard.

- **Fog**
  - Reduces visibility and can lead to collisions
  - Learn the conditions that produce fog (i.e., the relationship between dew point and temperature). See CFN FISH SAFE July 2015

- **Fire risks common on vessels:**
  - Hot exhaust in a dry exhaust system hitting wood or other flammable material
  - Many flammable items on a boat
  - Oil or hydraulic fluid leak
    - Cover hydraulic hoses with a second layer of hoses that are split so they can be wrapped around the hydraulic hoses
    - A pinhole in a hydraulic fluid tube can lead to a mist being discharged, a spark can ignite the mist, but pooled fluid (under a cover) is less likely to suddenly ignite.
  - Stack fire—turbo charger ignites oil in the exhaust pipes
  - Clothes left to dry on the engine or too near an electric heater
  - Chaffed wiring
  - Battery should be uncovered, but the positive terminal should be covered with a rubber cap (or other insulating material).

**Fire**: Because it can go from being nothing to very serious very quick. Especially fire. When there’s smoke, there’s fire. You got to be real careful with that.

— Fisherman

The size of a fire expands twenty-five times in the first minute, one hundred times in three minutes, and doubles every minute thereafter.

— Safety instructor

- **Flooding**
  - Fishing vessels are constructed with scuppers to let seawater flow off the deck when a dripping net is brought up or when heavy seas pour over. Blocking the scuppers can lead to flooding.
  - Vessels also have watertight doors leading to the engine room and to galley/bunks. These should be kept closed and latched to minimize flooding dangers.
  - Flush hatches checked and secured

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**Note**

Experience and new technology help keep vessels safe

For example, tests of a new paint that minimizes the build-up of ice are promising.

Ask the Coast Guard’s Commercial Fishing Vessel Safety Examiner for a copy of:

* A Best Practices Guide to Fishing Vessel Stability…
* Guiding Fishermen Safely into the Future

For detection of toxic gases in fish holds, the Coast Guard recommends a four-gas meter.
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- Wires or ropes on deck
  - Wires or ropes are a tripping and/or entanglement hazard on any size vessel and have been responsible for man-overboard incidents.

- Toxic gases in fish hold
  - Herring/menhaden/squid have a short shelf life. If they can’t be pumped out in a timely fashion, even small quantities can decay and produce toxic fumes (hydrogen sulfide).
  - Bilges and fish holds should be cleaned regularly to prevent the accumulation of decaying fish tissue and the build-up of extremely toxic hydrogen sulfide.
  - US Coast Guard Fishing Vessel Safety Examiners recommend a four-gas meter to ensure spaces are safe for entry/occupation.

- Collision hazards
  - Barge tow line
    - Because towlines can stretch a long distance between tugboat and barge, they are difficult to see, especially at night or in fog. If a fishing boat hits a towline, the boat may flip over.
  - Tanker
    - The large size of tankers or container ships reduces their ability to change course quickly. They also may not see a fishing boat crossing their path.
  - Fog
    - Reduces visibility for both the fishing boat and for other vessels.
  - To help avoid collisions, maintain watch-keeping rules.

- Fatigue
  - Many boats go farther out to sea, and stay longer with fewer crew than in the past, to generate more income.
  - Scallop boats are only allowed a seven-man crew, but it was a fatiguing job even when there were ten to eleven men. The smaller crews simply work longer hours to haul and shuck the same size catch as the larger crew.

- Falls overboard
  - Tripping on wires, ropes, etc.
  - Slippery decks
    - Use nonskid covering in working areas such as nonskid deck paint, rubberized or other coatings, or deck tiles.

- Insufficient maintenance of personal safety equipment
  - Zipper of survival suit must be “waxed” with nonpetroleum-based material.
  - EPIRB needs to be tested monthly and NOAA registration kept updated.
  - Raft must be repacked every year.

Note

Keep up with changes in PFD design so crew will wear them
See Appendices for a list of the types of PFDs currently available.
• Gear entangled in propeller
  ▶ Currents and tides or uncharted obstructions on the sea bottom tend
  to be the most common causes of gear shifting too close to the propel-
  ler, resulting in entanglement.
• Open watertight doors and/or hatches can lead to flooding (noted above).
  ▶ Check gaskets.
  ▶ Free all dogged handles.
• Gear hanging up on obstruction on sea bottom
  ▶ Not all obstructions appear on fishermen’s charts. Sunken vessels,
    large boulders, or other sea bottom features can catch fishermen’s
    gear.
• Heavy equipment on a moving deck
  ▶ Hooks
  ▶ Winches (entanglement hazards)
  ▶ Trawl (otter boards or other gear) shifting along the rails
  ▶ Scallop dredges
    ▸ Awareness of the potential for sudden shifts of the gear is
      essential.
• Inexperience of crew and captains
  ▶ The danger potentially associated with each of the hazards noted is
    increased in the case of inexperienced crew and captains.
  ▶ Each boat is different, so it is important for those most familiar with
    the boat to teach new crewmembers how best to stay safe while
    working.

_We have a saying [in the Coast Guard] that routine does not equate to low risk._
— Coast Guard

**Some Safety Implications of Fisheries Management Regulations**

While some of the effects of regulations actually pertain to choices made be-
fore going to sea, they are all listed here to remind both managers and fish-
ermen that responses to regulations can have serious safety consequences.

• Quotas and “Days at Sea” (DAS) regulations
  ▶ Restrict how much catch of a certain species could be landed during
    a specific time period. Fishermen who anticipated staying at sea long
    enough to match their catch with the allotted time have remained at
    sea even in sudden storms in order to avoid illegal landings (and there-
    fore forfeiture of their catch).
• Closed areas

**Note**

Be aware of the possible safety impacts of management regulations

Management regulations may have direct and indirect effects on safety at
sea, because of the choices captains and/or owners make in an effort
to both abide by the regulations and to make sufficient profit to support
themselves and their crew.
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Similar to quotas and DAS, in the recent past, closed areas could not be transited even when a boat was trying to get back to port as quickly as possible due to bad weather. Eventually, regulations for most species were amended to permit transiting with the gear stowed.

- Safe Harbor rule is paramount.

**Inactivity**

- Tying up the boat for long periods of time leads to rust that may compromise critical wires and other metal parts, dry gaskets, sludge in fluids, and even diminish battery power if the generator is not running consistently.

**Lower income**

- If a boat is not making sufficient money, maintenance of equipment may be minimal.
  - Shackles, wires, seacocks, and other equipment can break.

**Crew size limits**

- Seven-man crew on scallop boats means that the captain or mate help shuck the scallops, so their attention is divided (they’re not just watching out for the safety of the boat and crew).

**Fleet consolidation**

- Many fewer vessels are fishing at any one time, and most vessels have fewer crewmembers. With fewer vessels fishing, there are fewer boats to come to another’s rescue.

*You know, for one moment I realized I was all by myself. All the way out there. There was nobody near me. That if anything happened, there was no way of saving ourselves.*

— Fisherman

**Fewer skilled applicants for jobs**

- Because fewer jobs are available, fewer young people are moving into the fishery and the pool of skilled workers is smaller.
- Scallop vessel crew positions are the most sought after, since they have the highest compensation. If a scallop fisherman is injured, he will try to take a trip off to heal, rather than seek insurance coverage, or in some cases, medical attention.

*The fact that jobs are so few and scarce that a lot of injuries go unreported or self-medicated, because they don’t want to antagonize the owner or insurance on the boat.*

— Former fisherman, community leader
Actions for Fishermen to Take in an Emergency

- For a MAYDAY call, say these things:
  - “MAYDAY” (Repeat three times)
  - Boat name (Repeat three times)
  - Location (i.e., position: latitude and longitude and/or heading and a widely known geographical point)
    - This also alerts nearby fishermen.
  - Number of people on board (POBs)
  - The nature of the problem and when it started (e.g., flooding, grounding, etc.)
  - Description of the vessel
    - Type of gear
    - Color of hull and pilot house
    - Identifying characteristics such as outriggers or smoke (if there is a fire)
  - Estimated time of sea worthiness (e.g., if engine room flooding and pumps are not keeping up)
  - Any injuries (give specifics)
- Abandoning ship
  - All crew put on immersion suits
    - Tell the Coast Guard (so they know that no one is in civilian clothes and can look for the orange suit and reflective patches).
- Man overboard
  - Throw anything that floats over as a marker and something to hold onto.
- Emergency, but not yet critical
  - Contact the Coast Guard; they may set up a communication plan for the boat to report at specified intervals. If communication ends suddenly, the Coast Guard knows there’s a serious problem.
  - Putting on an immersion suit should not occur only when the fisherman has given up and is ready to abandon ship. It can be a good precaution.

Safe practice

- Use the buddy system.
  - Set up a communications plan with a nearby vessel.
  - Make sure you each know where the other is and check in periodically.
- Communicate changes in plans
  - If float plan changes (where going, expected return), contact the vessel owner or shore support.
- Direct shore support to contact families of crew.
- Personal flotation devices (PFDs) are now much easier to work in. Deaths from man-overboard could be reduced if captains and crew routinely wore PFDs.

They’re working vests. If you can find a way at all to wear one, all you’re doing is maximizing your chances of survival. And the Coast Guard is going to do everything we can to rescue anybody in distress. The other side of that equation is that person needs to keep themselves alive until we can get there. The Coast Guard will look longer for someone who they know is wearing a survival suit or PFD.

— Coast Guard