2023

Safety Manual

Alaska Bottom Trawl Surveys

Groundfish Assessment Program

Resource Assessment & Conservation Division

This manual does not cover COVID SOPs.

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At-Sea Safety Aboard AFSC Bottom Trawl Surveys

This manual does not cover COVID SOPs.

The Groundfish Assessment Program of the Resource Assessment and Conservation Engineering (RACE) Division conducts bottom trawl surveys in Alaskan waters every year. By the nature of the fieldwork, personnel work in hazardous environments, operating on small vessels in frigid Alaskan waters, and perform physically demanding work. This manual was modified from the 2016 RACE/REFM At Sea Safety Committee that was originally formed by sea-going employees to investigate the unique risks and solutions of such field work by the individuals closest to the issue. The previous members of the At-Sea Safety Committee are gratefully thanked for developing most of the elements of this manual and for promoting safety at sea.

Employees, supervisors, managers, and contractors are all jointly responsible for creating and nurturing a safe work environment during all sea-going and associated shore-based operations during the field season. This will be accomplished by an environment of communication, an awareness of hazards, training, and action when conditions are unsafe or injuries and illnesses occur.

The Captain of a vessel has the last word in all matters concerned with the safety of all aboard as well as ensuring that all operations aboard are done in the safest manner possible. The Chief Scientist/Field Party Chief, Deck Lead, and Safety Lead directly support safety by good communication and setting a good example of how to work safely. The Field Party Chiefs (FPCs) are responsible for the safety of our science operations.

This manual is consistent with the requirements of National Oceanic and Atmospheric Administration (NOAA) Administrative Order (NAO) 209-125: Management of NOAA Small Boats, as well as NAO 209-1: NOAA Safety Policy.

General Safe Practices During Bottom Trawl Surveys

A Safety Program is a designed environment where each individual is looking out for the safety and welfare of the entire field party.

- If something doesn't seem safe, ask or report the situation immediately (See Something, Say Something).
- All must attend the safety briefing conducted by the Captain or their designee.
- Don't perform a task for which you are not trained.
- Use appropriate Personal Protective Equipment (PPE) to perform a task safely.
- If there is a danger of drowning, wear a Personal Flotation Device (PFD).
- When boarding or exiting the vessel via a ladder or climbing over the boat and pier, wear a PFD and have a buddy watch your transfer.
- Wear a hard hat if there is a potential for head injury from "impacts", falling or flying objects, or electrical shock.
- Be aware that the deck and boat is always a slippery environment, where possible "have one hand for the boat."
- Maintain personal sanitation to a high degree—frequently wash your hands, use sanitizers, and cover your mouth when sneezing or coughing. Follow the directions of the captain and cook in maintaining a sanitary galley and restrooms.
- Report all injuries and illnesses to the FPC. This now includes ergonomic types of injuries or sprains.
- Reporting injuries and illnesses to the FPC will result in the FPC notifying the Safety Lead who will direct you to the appropriate form of documentation. Thorough and prompt documentation is imperative in the event that the event needs to be claimed and treated under workman's compensation. This should be done even when there is no expectation that a claim will be made.
- "Close calls" that don't result in an injury or accident should be considered as an unsafe incident and reported.

Leadership, Roles and Responsibilities

Captain
The captain is responsible for vessel and overall safety. The captain will perform a safety orientation before the vessel departs which will include safe practices, the station bill and mustering stations, procedures for fire, man overboard, and abandoning the vessel, the general alarm, safety equipment, and emergency communication. At least one unannounced drill will be conducted during the cruise. The captain continuously works with the vessel crew and scientists to maintain a safe work environment. The captain also is trained in advanced medical emergencies, and the captain can communicate with a medical advisory service to direct advanced medical care.

Field Party Chief/Chief Scientist
The Field Party Chief (FPC) or Chief Scientist is responsible for safe scientific operations during the cruise and for promoting a safe work environment. The Deck Lead and Safety Leader will work with the FPC to facilitate a safe work environment and that safe work procedures are conducted. The FPC will provide a pre-departure briefing that will include safe procedures and

precautions. The FPC will be the primary person that will communicate with the RACE Directorate to report injuries, illnesses, or near misses.

Deck Lead
The Deck Lead (DL) focuses on the work being conducted to process catches and collect data from species of interest. The DL leads the scientific staff and is often the person to instruct scientific staff on safe procedures in working on the deck and handling the catch as well as insuring that scientific staff act in accordance with Captain's safety protocols since Skipper and FPC are often not on deck when sampling is underway.

Safety Leader
The role of the safety leader is to augment and support the safety culture aboard the vessel. As detailed below, the safety leader will independently assess safety equipment and procedures on the vessel and communicate with the FPC if there are deficiencies. The Safety Lead will also help documenting and reporting any injuries, illnesses, or near-miss incidents including distributing and maintaining hard copies of the required forms. **The Safety Leader along with the FPC and Deck Lead should make an extra effort to be familiar with the contents of this safety manual so that that knowledge can be called upon when appropriate and even before questions come up.**

Biologists
Biologists and all scientific staff are responsible for following safe procedures that they were trained for or that were demonstrated and instructed on during the cruise. All should be situationally aware and react to changing conditions on the vessel such as deteriorating sea conditions, overhead work or any other emergent condition that looks unusual. See Something, Say Something to the Safety Lead, Deck Lead, FPC, Captain, or fishing crew.

Fishing Crew
The fishing crew are professional mariners and fishers who have been trained for emergencies and are constantly aware of vessel and crew safety. Scientific staff should rely on the best judgement of the fishing crew and take direct action when the fishing crew tells them of imminent or perceived danger or unsafe conditions.

Training

Specific safety training is required for all who go to sea. RACE requires that all sea-going personnel attend and have currency in a STCW (Standards of Training, **Certification** and Watchkeeping) or Coast Guard approved course on personal survival techniques and equipment. Regular staff are also expected to be certified in STCW Medical Emergencies At Sea. Volunteers or other staff are highly encouraged to have medical training. FPCs and DLs and other permanent staff also are required to have additional training including Formaldehyde Safety, AFSC Safety Training, Hazardous Communications, and any other training that is required to handle special chemicals, tools, or operations in a safe manner.

This manual assumes the basic medical and personal survival training and will only minimally present basic information. Remember and rely upon your training. Additionally each survey should have a standard operating procedure that details safe catch and chemical handling requirements. These requirements include having the most recent Safety Data Sheets and

these will not be repeated in this manual. Find these sheets and review the chemical safety information.

This manual contains sets of Standard Operating Procedures (SOPs) to perform common tasks processing fish and collecting data. The SOPs identify risks and hazards and general and specific safe procedures. Read and learn them and ask the FPC, DL, or Safety Leader if you have questions.

STCW Safety Training

The International Maritime Organization's Convention on STCW (Standards of Training, Certification, and Watchkeeping) sets qualifications and requires that all mariners receive vessel familiarity and Basic Safety Training (BST).

The AFSC has contracted a private vendor as well as using certified in-house staff to provide a series of personal safety and first aid training classes. This training satisfies the Coast Guard's STCW requirements.

NOAA's policy suggests voluntary compliance with the provisions of STCW, and recommends completing the following modules.

Module 1A	Module 1B	Module 2
Medical Emergencies at Sea 2 Advanced	**Medical Emergencies at Sea 1 Basic**	**Survival at Sea**
Required in 1st year for new hires every 2 years for staff.	Recommended every 2 years.	Required every 5 years.
A remote-duty 16hr first aid course. Course outline includes treatment of major and minor injuries, treatment of the ill or injured, rescue breathing, O_2 Therapy, CPR and use of AED (Automatic External Defibrillator). Additional advanced techniques in I.V. administration, injections, suture, and advanced O_2 therapy.	An 8hr refresher of Medical Emergencies at Sea course including O_2 Therapy, CPR and AED	A 1.5 day (12 hr) course on surviving a shipboard disaster at sea. Course includes cold-water survival training, man overboard drills, survival suit and life raft training, and abandoning ship skills.

Visiting scientists are encouraged to participate in the training sessions if possible, or attend equivalent training in their respective institutions. For more information on classes and scheduling please contact the Survey Coordinator and leadership.

HAZCOM Training

Provides FPCs, DL, and other regular staff information on labeling and communicating hazardous materials information.

Formaldehyde Training
According to OSHA Standards (29 CFR 1910, 1048), employees exposed to formaldehyde at or above 0.1 ppm are required to take formaldehyde training annually. FPCs, DLs, Stomach Samplers, and other staff required to handle formaldehyde will be trained each year before going to sea.

Dangerous Goods Shipper's Training
No employee should pack or ship dangerous goods unless they have taken DOT (or IMDG) training to do so (49 CFR). If you believe you require this training, please work with your supervisor to participate in the next available program.

Back Strain and Prevention
Stretching and warm-up exercises by field personnel at sea should be encouraged. Always ask for help when lifting heavy loads and remember to lift with the knees keeping the back as vertical as possible. Always ask for help in lifting a full fish basket.

Power Tools
Power tools such as portable drills and circular saws are used to prepare the sampling areas of the vessels. OSHA approved training for FPCs and DLs must be completed and valid when operating these tools aboard the charter vessel. Eye and, if appropriate, hearing protection should be worn when using power tools or working in the vicinity where such equipment is in use. If untrained or unfamiliar with the use of a tool, ask.

Sexual Harassment
Mental health and well-being is an important part of maintaining a safe working environment. Vessels chartered by the federal government are governed by the same EEO protections for federal workspaces. You may be required to watch a video prior to departure on preventing sexual harassment and its consequences.

Reporting

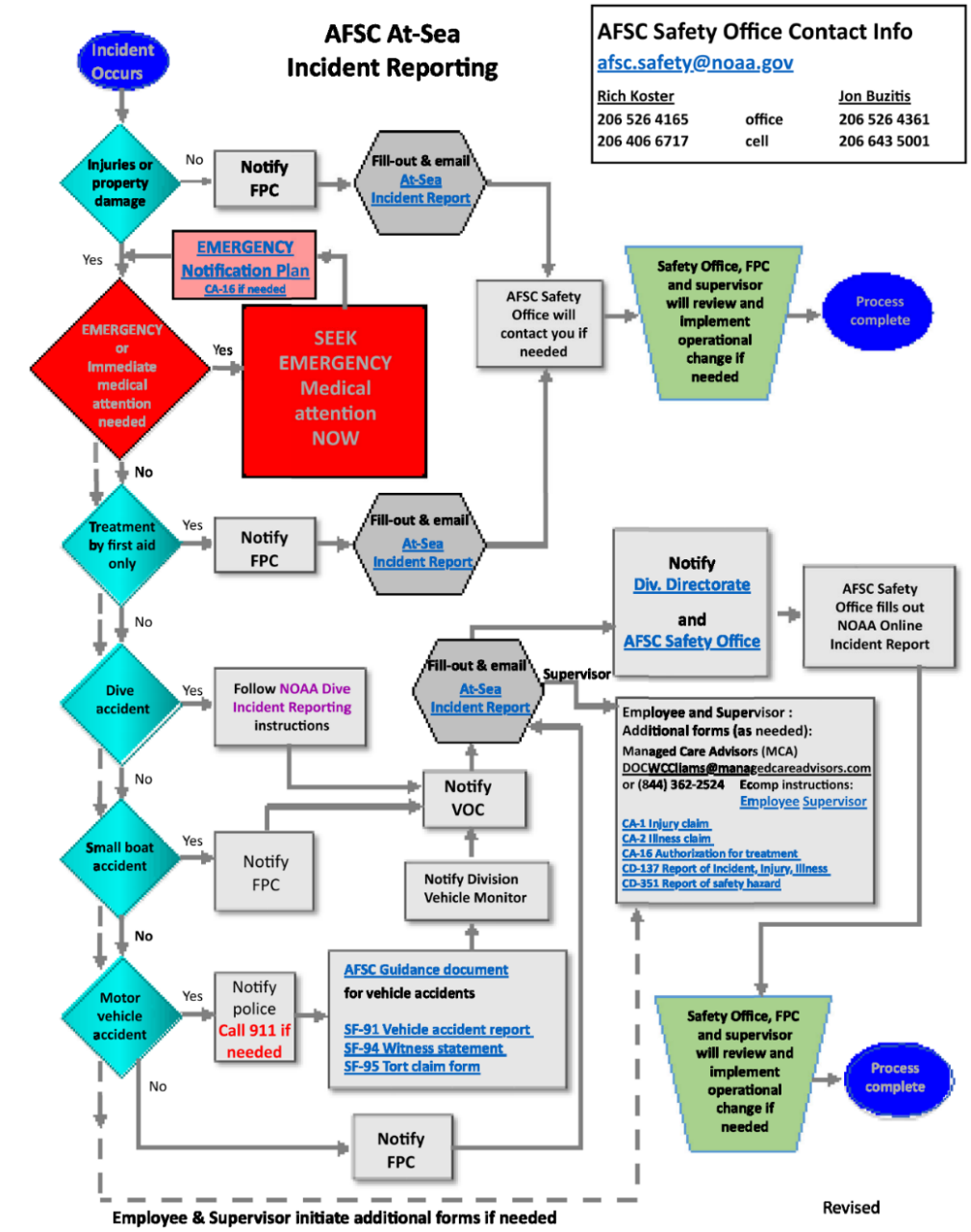
When an incident occurs at-sea, it is the responsibility of the FPC and Safety Leader to work together to report the incident in an accurate and timely manner. Incidents are unexpected, unplanned, unwanted event or occurrence which either results in personal injury or illness and/or property damage. Incidents include accidents with or without injury and any work-related illnesses. Incidents also include near-misses. Phone calls should be made as soon as possible according to the Emergency Notification Plan. The following information is required to be submitted Seattle by e-mail within **24 hrs** of an injury and within **8 hrs** of a serious incident (3 or more hospitalizations, a fatality, or property damage greater than $1 million) or critical injury. Other forms may be required if worker's compensation is likely to be pursued but this can be done when the employee has returned to the office. Recording this information as timely as possible ensures details are not forgotten or distorted.

The AFSC Safety and Environmental Compliance Officers (SECOs) have specific reporting protocols that comply with or serve to meet the NOAA and Federal Reporting Requirements for injuries, illnesses, and near-miss incidents while at work at NOAA facilities including charter vessels. The flow chart below will be used to report incidents that require more than simple first aid and will be used for NOAA employees, volunteers (volunteers will be treated as employees), contractors, and observers. The At-Sea Injury, Illness, and Accident Reporting form is the form

used to document and report incidents. This includes ergonomic injuries or illnesses and near misses. Additional reporting or copies of reports will be required for the managers of contractors and observers. Because of the remote and challenging nature of communication aboard charter vessels in Alaska, the communication pathway will be the FPC reporting to the RACE Directorate who will then assume the responsibility of filling out the AFSC incident reporting form. The Emergency Notification Plan is used to inform parties of a serious accident, injury, or illness.

If immediate medical attention at a hospital, clinic, or emergency room is required for federal employees or registered volunteers, then a CA-16 form must accompany the injured to the facility. The FPC should communicate with the Directorate to obtain a signed, authorized copy of the CA-16 or receive permission to sign the form. The CA-16 is available in the RACE AT-SEA application. DO NOT DELAY seeking medical attention for any life-threatening condition.

NOTE: Ergonomic Injuries and Illnesses will be reported using the At-Sea Incident, Injury, Illness and Accident Report Form. The former Ergonomic Injury Form will no longer be used.



file://nmfs.local/akc-public/Dropbox/RACE Survey App/accidents/accident.htm

At-Sea Incident, Injury, Illness and Accident Report Form

Report should include following info & be **emailed to afsc.safety@noaa.gov within 24hrs:**

- The following report should be filled out any time an accident or near miss occurs whether or not it resulted in injury. Please fill out all applicable fields.
- **In the event of an accident that involves injury the form must be sent within 24 hours.**
- A hard copy of this report should also be printed and put into the safety documents envelope on the boat.
- Names of those involved will remain confidential at all times.

The purpose of this report is to fulfill government wide requirements of incident, injury and illness reporting in order to address safety in the field by understanding relative hazards.

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1. Reason for Report:

- ☐ **Accident w/ injury**
- ☐ **Near miss or Accident w/out injury**
- ☐ **Illness**

2. Name:

3. Date/Time of Accident/Illness:

4. FPC on board:

5. Vessel captain:

6. Location/ Vessel where incident occurred:

7. Description of incident:

8. Extent of Injury or Illness

9. Description/identification of damaged property and extent of damage (include estimate of monetary damage)

10. Preventative Actions implemented in response to mishap:

11. Date/Time form completed/submitted:

12. Medical supplies used:

13. Describe medical treatment applied:

14. Amount of work time lost:

RACE Division Field Operations Emergency* Notification Plan
Shellfish Assessment Program

***Emergency:** Any accident, injury, illness, or other incident that seriously threatens the health or safety of a field sampler or otherwise requires that a field sampler be transported to shore or removed from his/her temporary duty work assignment.

Group 1

MUST PROVIDE INFORMATION FROM FORM ON BACK TO GROUP 2 CONTACTS

First notification of an emergency typically reported by a member of this group

Chief Scientist - Field Party Chief - Vessel Captain - Vessel Representative

RACE.survey@noaa.gov **is the group email address that is monitored regularly for survey vessels and is the best contact method if phone or other method of contact cannot be made.**

Group 2

MUST COMPLETE INFORMATION FORM ON BACK

First person notified in this group contacts others in this group by phone and with a follow-up email

Division Directorate
Lyle Britt, Director
W: (206)526-4501
C: (206)434-9680

Program Manager
Mike Litzow, S.A.P.
W: (907)481-1711 C:
(907)654-7784

Program Manager Stan
Kotwicki, G.A.P.
W: (206)526-6614
C: (203)446-4561

Division Deputy Director
Michael Martin, Deputy Director
W:(206)526-4103
C: (425)286-3367

Program Supervisor
Alix Laferriere, S.A.P.
W: (907)481-1735
C: (802)503-5964

Program Manager
Ned Laman, G.A.P.
W: (206)526-4832
C: (425)-275-3491

Program Supervisor
Duane Stevenson, G.A.P.
W: (206)526-4468
C:(206)992-0213

Group 3

Notified by Division Directorate or designee via phone or email

Robert Foy, Science Director	W: use cell phone	C: (907) 482-0026	AFSC Director
Jeremy Rusin, Deputy Director	W:(206)526-4194	C: (858) 245-1764	Deputy AFSC Director
Richard Koster, Safety Officer	W:(206)526-4165	C: (206) 406-6717	AFSC SECO
Jon Buzitis, Safety Officer	W:(206)526-4361	C: (206) 643-5001	AFSC SECO
See BT_Survey_Vessel_Contacts	For other supervisors		

Group 4

Notified via phone by Survey Coordinator, Division Directorate, or designee

Affected Person's Family Contact: *Refer to Emergency Contact Information Form on file in Seattle or onboard Vessel.*

Duties of a Safety Leader

The Safety Leader facilitates an increased level of safety awareness aboard survey vessels. This volunteer (preferably someone other than the FPC or DL) will be responsible for monitoring and reporting safety and hazard concerns during their leg of the survey. While the ultimate responsibility for safety falls on everyone aboard, the Safety Leader is in a unique position to focus on promoting a culture of safety, rather than other mission goals. The Safety Leader helps instruct scientific personnel on safety precautions, maintains safety information (various forms), and alerts the crew to potential hazards. The Safety Leader works closely with the FPC and DL.

Volunteering as the Safety Leader for a groundfish survey demonstrates leadership as well as the respectful concern for your fellow shipmates. Though simple, your duties are an important part of establishing a culture of safety aboard the vessel.

Accidents and near-misses may occur at any time, and the better we document these incidents, the better we can prevent them in the future.

Safety onboard vessel at beginning of survey leg

1. **Safety Tour:** Commencing a leg of the survey, especially prior to setting up the vessel on the first leg of a charter, the Safety Leader will verify that all crew and science team are aware of the potential hazards on the vessel and that they have had a safety tour of the vessel. The Safety Lead should confirm with the Captain and FPC that the science crew is aware of the specific hazards on the vessel. The Safety Leader Checklist in this Safety Manual is a guide to make the science crew aware of the vessel hazards.

2. **Vessel Safety Orientation:** Prior to departing the dock, the Captain will conduct a thorough safety discussion with all members of the science team. The Safety Leader and the FPC should verify that all scientists are in attendance, and that the required Charter Vessel Emergency Procedure Form is signed, which verifies the meeting took place.

3. **Safety Equipment:** The Safety Leader should verify the proper stowage of safety equipment including: medical kits, O_2 kit, AED, survival suits, PLBs, PFDs, safety goggles, hardhats, the eyewash station, and small boat kits. These locations should be made known and available to all vessel personnel.

4. **Chemicals:** The Safety Leader should coordinate with the FPC and/or Deck Boss to properly secure chemicals on the vessel, with close attention to ignition sources and possible spill responses.

Safety on vessel during the survey leg

1. **Safety Information:** The Safety Manual and forms can be found in digital format on any at-sea science computer under RACE Survey App or in the Safety Folder in Files for Boats.

2. **Accident Report Form:** Should an injury, accident, or illness occur, the Safety Leader will verify with the FPC that the At Sea Injury, Illness, and Accident Report is e-mailed to the RACE Directorate (lyle.britt@noaa.gov, michael.martin@noaa.gov).

3. **Near Miss Incident:** Sometimes a “Near Miss” situation may occur where an injury or accident did not result but the potential was there for a more serious outcome. Please complete the At Sea Email Injury Report Form and identify “Near Miss” on the form.

4. **Ongoing safety monitoring:** The Safety Leader, the deck boss, and the FPC will communicate with each other regarding any unsafe situations and/or practices during the survey leg and make necessary adjustments to ensure the safety of the vessel personnel.

Safety at completion of survey leg

1. **End of Leg:** At the completion of a survey leg, the Safety Leader will see that all operations follow the guidelines described in Safety Manual. See End of Leg Cleanup (p. 34).

2. **Getting safety information to Seattle:** All physical or electronic versions of safety forms (Injury, Near Miss and Evaluation) will be returned to Seattle by the Safety Leader, FPC, or DL. Documents should be given to the SECO.

Safety Checklists

The following safety checklists are meant to be completed by the Safety Leader, but safety is the responsibility of everyone on board. Every member of the scientific party should be familiar with the following equipment and procedures. If you notice a hazard or deficiency, please notify the Safety Leader as soon as possible. These checklists should be printed out and filled for each leg of a survey.

Safety Leader Incoming Checklist

Upon arriving at the boat for the beginning of a leg, complete the following (this is especially important if this is the first leg of a charter and should be given priority before setting up the vessel):

✓	Action	Comments
	Locate hard hats for each member of the scientific party.	
	Locate eye protection (googles/full face) for catch processing, power tool use and chemical handling.	
	Set up or locate the eye wash station. If the permanent site is not available, set up at a temporary site.	
	Identify the location of the scientific party's muster station.	
	Ensure scientific personnel have read the safety manual.	
	Ensure captain has updated the station bill.	
	Ensure all scientific personnel have completed the Emergency Information form if they choose to.	
	Ensure a safe embarkation/debarkation environment.	
	Locate Safety Leader packet and reporting forms, these are available electronically.	
	Coordinate with the FPC/Deck Boss to conduct a science safety orientation for field party and crew.	

Safety Leader Outgoing Checklist

Prior to departing the vessel, complete the following:

✓	Action	Comments
	Review contents of the First Aid and Trauma kits, and report needed replacements to RSST. Ensure chemicals and samples are correctly labeled.	
	Ensure hard hat, safety glasses, PLB and life vest inventory is correct and clean.	

Safety Tour Checklist

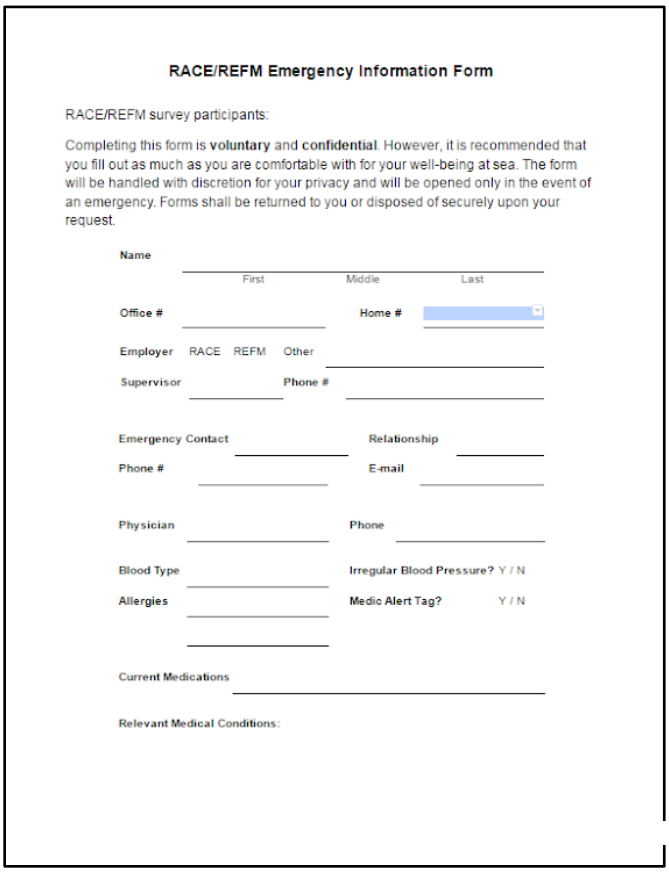
As soon as practical, conduct a safety tour with the scientific personnel. This tour is separate from the Captain's Safety Orientation and is meant to address work hazards. It is especially important to do this prior to setting up the vessel at the beginning of a charter.

✓	Action	Comments
	Discuss overhead load hazards and precautions.	
	If possible, familiarize scientific personnel with alarms.	
	Understand operation of doors and hatches.	
	Locate vessel exits forward and aft.	
	Delineate safe working zones on deck. Discuss procedures for working outside these zones.	
	Establish safe embarkation/debarkation methods, determine individual comfort levels.	
	Discuss seasickness and safe procedures for vomiting.	
	Discuss injury and near-miss reporting.	
	Discuss safe lifting methods.	
	Locate and discuss muster stations.	

	Safety Tour Checklist - Continued	
	Additionally, locate the following.	
✓	**Safety Equipment**	**Comments**
	Station Bill and assignments	
	Fire Extinguishers	
	Eyewash Station	
	Deck hose and operation	
	Personal Flotation Devices (PFD)	
	Life Rings and retrieval equipment	
	Hazardous Material storage and spill equipment	
	(Material) Safety Data Sheets [(M)SDS]	
	Oxygen Kit	
	Trauma Kit	
	Small First Aid Kit	
	Automated External Defibrillator (AED)	
	Survival Suits	
	Personal Locator Beacons (PLB)	
	Search and Rescue Transponder (SART)	
	Radios and Distress Call instructions	

Personal Emergency Information

In the event of an illness or accident, the afflicted individual may not have the capacity to communicate pertinent information (current medications, pre-existing conditions, etc.) to those providing treatment. The Safety Committee strongly recommends that each survey participant complete the **Emergency Information Form** (p. 58), however, providing this information is entirely voluntary.



RACE/REFM Emergency Information Form

RACE/REFM survey participants:

Completing this form is **voluntary** and **confidential**. However, it is recommended that you fill out as much as you are comfortable with for your well-being at sea. The form will be handled with discretion for your privacy and will be opened only in the event of an emergency. Forms shall be returned to you or disposed of securely upon your request.

Name _____ (First) (Middle) (Last)

Office # _____ Home # _____

Employer RACE REFM Other _____

Supervisor _____ Phone # _____

Emergency Contact _____ Relationship _____

Phone # _____ E-mail _____

Physician _____ Phone _____

Blood Type _____ Irregular Blood Pressure? Y / N

Allergies _____ Medic Alert Tag? Y / N

Current Medications _____

Relevant Medical Conditions:

If an individual is not comfortable having this information available, an alternative is to use this form to provide the contact information for an emergency contact who has access or personal knowledge of important health issues.

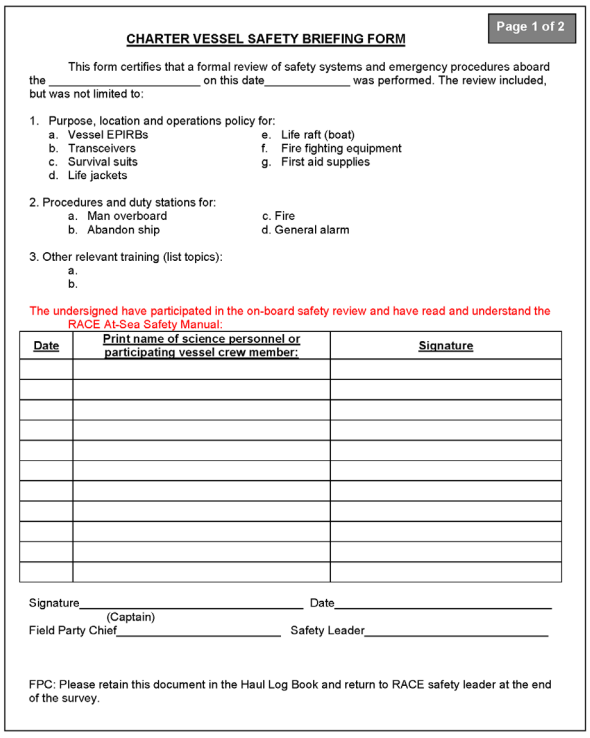
This form can be found in the appendix of the Safety Manual, in the FPC Filebox, or from the RACE Survey App found on the wheelhouse and catch data entry computers. If you need help locating this form, please ask the designated Safety Leader.

It is the responsibility of each individual to notify the FPC of a medical condition that may become serious if not properly treated. Privacy is taken seriously, but you may choose to not disclose health information. However, not disclosing pertinent health information may result in higher risk during your time at sea.

Charter Vessel Safety Briefing Form

The following form can be found in several locations: in the Appendix of this Safety Manual, in the RACE Survey App located on the wheelhouse and catch data entry computers (under Forms - Safety Briefing), and in Files for Boats. At the beginning of each leg, prior to departure, the Captain will conduct a safety briefing with the scientific crew. Safety is a priority on all vessels, and while each member of the field party is responsible for general safety, the Captain has the ultimate authority and accountability for all safety measures and conditions aboard the vessel.

At the Captain's safety briefing, all vessel emergency procedures and safety policies will be discussed. During the briefing, scientists will be required to demonstrate competency in donning survival suits, examining them for deficiencies and storing them properly. Before stowing survival suits, the serial numbers, sizes and Personal Locator Beacon (PLB) serial numbers should be recorded on the Charter Vessel Emergency Procedure form (p. 55). The FPC should ensure the information is sent to the appropriate shore-based coordinator (usually the RACE Division Director) by either mailing a hard copy prior to departure or by transmitting the information electronically. Please pay close attention to any survival suit rotation between vessels or shore-based storage.



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CHARTER VESSEL SAFETY BRIEFING FORM

This form certifies that a formal review of safety systems and emergency procedures aboard the _____ on this date_____ was performed. The review included, but was not limited to:

1. Purpose, location and operations policy for:
   a. Vessel EPIRBs
   b. Transceivers
   c. Survival suits
   d. Life jackets
   e. Life raft (boat)
   f. Fire fighting equipment
   g. First aid supplies

2. Procedures and duty stations for:
   a. Man overboard
   b. Abandon ship
   c. Fire
   d. General alarm

3. Other relevant training (list topics):
   a.
   b.

The undersigned have participated in the on-board safety review and have read and understand the RACE At-Sea Safety Manual:

Date	Print name of science personnel or participating vessel crew member:	Signature

Signature_____ Date_____
(Captain)
Field Party Chief_____ Safety Leader_____

FPC: Please retain this document in the Haul Log Book and return to RACE safety leader at the end of the survey.

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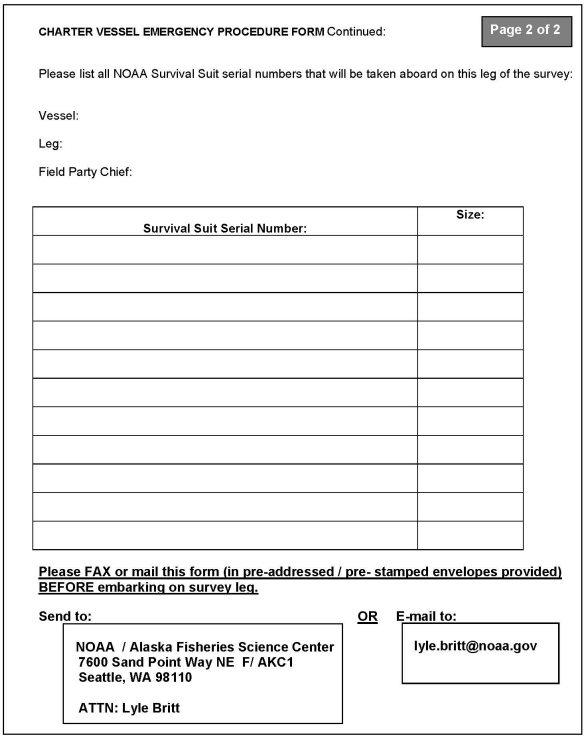

CHARTER VESSEL EMERGENCY PROCEDURE FORM Continued:

Page 2 of 2

Please list all NOAA Survival Suit serial numbers that will be taken aboard on this leg of the survey:

Vessel:

Leg:

Field Party Chief:

Survival Suit Serial Number:	Size:

Please FAX or mail this form (in pre-addressed / pre- stamped envelopes provided) BEFORE embarking on survey leg.

Send to:

NOAA / Alaska Fisheries Science Center
7600 Sand Point Way NE F/ AKC1
Seattle, WA 98110

ATTN: Lyle Britt

OR **E-mail to:**

lyle.britt@noaa.gov

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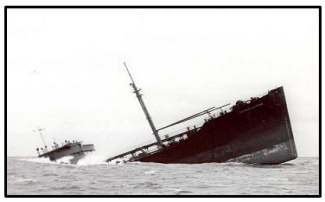
Emergency Communications At Sea

When emergency situations arise at sea, it is critical to alert potential rescuers as soon as possible, given the remoteness of the field work and the difficulties in providing assistance. While 911 services are not available outside of developed ports, there are several options for communicating your emergency to those with the capability to help you.



The following is a list of various tools for communicating emergency situations at sea. The availability and operation of this equipment may be particular to the vessel you are on, so you should familiarize yourself with its location and use prior to departure. The Captain will instruct you on the location of available equipment and on emergency communication protocols during your safety orientation.

In the event of an emergency, it will be the vessel Captain or crew making the distress call, however you should be able to perform this task if directed to by the Captain.

1.) **Radio** Distress Call (MAYDAY)/Coast Guard
- Marine VHF radio channel 16
- Marine Single Sideband radio (SSB) channel 4125, 6215, 8291, & 12290

2.) **Emergency Medical Assistance**
- A 24-hr on-call service is available via satellite phone in case of a medical emergency or if treatment advice is required. In the event of a medical emergency you will be instructed by the Captain how to contact the medical service.

4.) **Satellite Phone**
- This phone line operates over the satellite internet system and works like a land line.
- The phone number is normally registered in Seattle, so dialing 911 **will NOT work**. Instead dial USCG Rescue directly: **(907) 463-2000**

4.) **Satellite Phone** (Inmarsat-C)
- Most vessels are equipped with a satellite transmission phone. If available, the Captain will instruct you on its use for emergency calls during the safety briefing.

5.) **Vessel Monitoring System** (VMS)
- If operational, VMS can send a distress signal in case of an emergency.

6.) **Emergency Positioning Indicating Radio Beacon** (EPIRB):
- Can be turned on manually or will activate automatically.
- Transmits a continuous signal that can be picked up by search and rescue craft.

Special Safety Equipment At Sea

NOAA and the Safety Committee are constantly in search of the latest technology in safety and emergency equipment available. We introduced two pieces of safety equipment in 2008 that will provide extra assurance and precaution to our seagoing personnel:

ACR AquaFix™ 406 GPS Personal Emergency Position Indicating Radio Beacon

The AquaFix 406 PLB units transmit on 406 MHz via COSPAS-SARSAT satellite system with a registered unique, digitally coded distress signal and 121.5 MHz SAR local homing frequency. When activated, the unique identification code in each PLB is linked to the registration database so that authorities can retrieve valuable information about each individual.

Each unit will be registered with the service per vessel and attached to each personal immersion suit provided for each scientist.

Familiarize yourself with its operation using the instructions located under the yellow flap.

Automated External Defibrillator (AED) by Heartstream

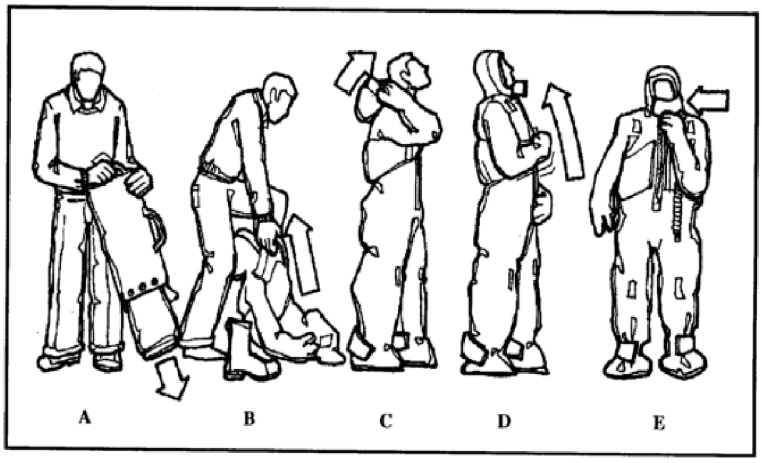
Automated External Defibrillators provide emergency first responders with an effective means to treat victims in sudden cardiac arrest. This defibrillator is easy to use and lightweight. It has a two-button operation and voice prompts to guide the user through protocol. It evaluates patient ECG and signal quality to determine if shock is appropriate. It automatically optimizes therapy for each patient and runs on long life maintenance free lithium batteries for reliability and performance. Its patented SMART Biphasic waveform is the most patient-friendly technology available today.

Noise Cancelling Headphones

Some vessels are particularly noisy especially on deck. Those vessels will be equipped with electronic noise-cancelling headphones that will reduce noise levels but still allow person to person communication. Make sure they have a functioning battery, are clean, and fit completely around the ear. Turn them on and adjust sound level as needed.

Cold Water Immersion Suits

Donning Immersion Suit



(A) Remove suit from stowage bag by holding bag with snaps down and giving it a sharp tug toward the deck.

(B) Don suit in the same fashion as donning coveralls. It may be easier to step into legs from the seated position, then turn onto knees to finish donning suit.

(C) Don the hood before you zip up the suit. It is recommended you leave one arm out of the sleeve to help pull hood over head - then complete inserting arm into sleeve.

(D) Close the zipper completely. To avoid problems zipping up the suit, arch your body backwards to straighten and align the zipper.

(E) Close the spray shield and inflate the collar for additional flotation before entering water.

Storing Immersion Suit

- **Stowage bag**
  - Check condition of snaps on bag for ease of operation.
- **Survival suit**
  - Lay out suit on a flat clean surface with front up and arms out.
  - Make sure entry zipper is in the open position; toggle up ~2” from bottom.
  - Roll suit (do NOT fold), feet first, up to chin, making sure not to wrinkle water valves.
  - Fold arms horizontally across roll.
  - Place suit in bag and close snaps.
  - Stow bag with handle exposed.

- **Zipper**
  - Work zipper up and down to check for ease of operation. If zipper is excessively rough, wipe with a soft, clean, lint-free cloth and lubricate with the wax lubricant designed for zippers.

- **Strobe light**
  - Make sure the survival light is operational and has not expired.

Stowing Immersion Suit

- **Store suit in a dry, well-ventilated locker**, with container handles exposed, or according to manufacturer's directions.

- **Immersion suits are intended for "abandon ship" use.** Stow them so they are readily accessible to the individuals for whom they are intended. This is to prevent searching throughout the vessel to find them in an emergency.
- **Do not stack or sit on suits.** Excessive stacking can compress suits at the bottom of the pile, eventually damaging the buoyant insulating foam. Folds and tears can lead to leaks which may compromise survival for the user.

Shore Visits and Small Boats

RACE no longer allows shore excursions using the small boats of the charter vessel to get to shore during mid-leg breaks or during other cruise times. However, if a safe and serviceable pier is available, then a shore visit is possible. The FPC must work with the Captain to work out a communication plan, visit protocol, and a firm return to the vessel time. Serviceable piers may include those in developed ports, at fish processing facilities where permission has been granted to moor, or at piers such as on Amchitka Island if landing permission has been obtained from the US Fish and Wildlife Service beforehand. The FPC must communicate the shore visit plan with the RACE Directorate in enough time to obtain approval. The following are guidelines for a shore visit plan:

- Date
- Specific Location
- Time Leaving the Vessel
- Return Time to the Vessel
- Communication Plan (In developed ports with cell phone communication no contact schedule maybe needed; In remote areas, a periodic VHF check-in schedule with the vessel is required).
- Will the emergency shore kit be deployed, and if so where?
- How many parties, what will be their destination?
- What are the hazards on shore? How will they be avoided?

The FPC and Captain will brief and orient the shore party to the details and requirements. At least two people must hike or travel together. Once the shore visit is completed, the FPC will immediately communicate to the RACE Directorate that all are on board and their condition.

In exceptional circumstances, the small boat of the vessel may be required to carry personnel to shore for an emergency or a significant business reason. In such case, the vessel and small craft operator will be in charge and the operation will be conducted under the auspices of the charter vessel. However, the FPC will immediately communicate with the RACE Directorate the need and circumstances of such use of the small boat.

Standard Operating Procedures

The following is a list of Standard Operating Procedures for tasks encountered on a typical groundfish bottom trawl survey. Each box contains a specific task or activity that is performed at least once during a survey and described as the **operation**. The corresponding **hazards** associated with each operation are then identified, followed by the recommended **operating procedures** that should be used in order to minimize the risk of those hazards.

1. Boarding/disembarking vessel:

Hazards: Drowning, falling into water; slipping; bumping into hard items.

Operating procedures:

- Use gangway when available.
- Use handrails on gangway.
- If gangway is not an option, use extreme caution when crossing or climbing and use a PFD if appropriate. Ask someone to observe you cross and be able to provide assistance if necessary.
- Before you leave the boat, communicate your departure, destination, and expected return by informing the captain and/or FPC and completing a Departure Log.
- If you feel unsafe, communicate to the Captain, FPC or crew. There are other methods to get you on and off the vessel. For example: use another person for assistance, use a safety net between the boat and dock.
- Be aware that the boat may move. Ask for assistance and do not cross alone.
- Most embarking/disembarking will be a personal judgement call, remember that you are responsible for your own safety. If conditions are unsafe, do not cross.

2. Loading/offloading:

Hazards: Overhead hazards such as getting hit by the crane hook; falling into a hatch; tripping hazards; lifting strains; carrying heavy items up and down stairs; use of motor vehicles.

Operating procedures:

- When overhead loads are being transferred, scientists should remain off-deck or they should wear hard hats until the overhead load is secured.
- The FPC or Deck Boss will designate where the equipment is to be stowed in accordance with the vessel's Captain.
- It is the responsibility of each crewmember to identify and clearly communicate deck hazards (i.e. open hatches) to all. If possible, block traffic around open hatches and other hazardous areas.
- Review proper lifting techniques in the Safety Manual.
- **Do not** lift heavy loads by yourself: get help, break up loads to lighten.
- When operating a motor vehicle around the docks check for possible obstacles around it before departing.
- Before leaving the dock FPC/Deck Boss should check the deck to make sure that everything is stowed and secured properly. Scientists with special collections should conduct similar checks of their gear.

3. Setting up equipment:

Hazards: Operating power tools; electrical shock; chemical burns; heavy loads; improper stowage.

Operating procedures:

Emergency/ First Aid Equipment:

- Designate an accessible location to store medical case, oxygen kit, AED, eye wash, and drench shower.
- Communicate this location to all scientific crew.

Power Tools:

- Be trained in the use of power tools.
- Ask for training or assistance if you are unfamiliar, inexperienced or uncomfortable with a power tool. Do not operate any tools if you feel unsafe or unsure.
- Always wear eye protection whenever there is a risk of small particles getting into eyes (i.e. sawdust in eyes).
- Protect yourself from electric shock by using a Ground Fault Interrupt (GFI or GFCI) circuit with electrical outlets on deck. Be aware that both fresh and salt water can cause an electrical short, which can cause shock or fire. Watch for water around electrical equipment. Seal all electrical connections that are at risk of getting wet with rubber splicing tape.

Chemicals:

- FPC and/or Deck Boss will designate one person responsible for working with chemicals.
- Before working with chemicals, read provided (M)SDS [(Material) Safety Data Sheet] and SOP (Standard Operating Procedures) for each chemical. (M)SDS for all chemicals should be easily accessible for all on board and FPC will designate their location. For Formalin, Ethanol, and Glycerol-Thymol solution also see section on Essential Hazardous Material Information (p. 60 - 68).
- Wear Personal Protective Equipment (PPE): impervious protective clothing, including boots, gloves, rain gear to prevent skin contact.
- Use chemical safety goggles (vapor proof) and/or a full face shield where splashing is possible. Be familiar with location of eyewash fountain and quick-drench facilities prior to working with chemicals.
- Use provided pumps for transferring chemicals from big to small containers or pour to premarked level on chemical container within the overflow containers that are provided.
- Always work in a well-ventilated area i.e. open deck.
- For accidental spills or skin contact: consult (M)SDS for particular chemical; also see section on Essential Hazard Material Information (p. 40) from (M)SDS for specific chemical.

- Communicate your activities to those around you who may or may not be wearing Personal Protective Equipment.

Setting up Equipment – Chemicals Continued:

- Educate yourself on the location and use of the eye wash station and drench shower prior to use of chemicals.
- Conduct all transferring and mixing of chemicals when weather/vessel is calm (i.e. at dock, when anchored, when drifting in the evening).
- Chemicals should be stored either on deck, in science lab/shack or other secured areas where flammable liquids may be stored. Never store chemicals or specimen samples below deck or in living quarters.

Proper Stowage:

- Keep heavy objects and boxes low to deck to maximize stability.
- Do not stack items high since they may become unstable in rough weather.
- Secure all loose equipment on deck, wheelhouse, office room, science lab and personal items in state rooms by either stowing away, tying to a fixed item, or otherwise securing to prevent rolling and sliding in rough weather.
- Specimen buckets/ barrels should be securely tied down at all times (Ties to the bucket handles are not adequate as buckets may slide and flip over).

4. General on-deck activity:

Hazards: Slippery deck conditions; noise from vessel engine, loudhailers, bells, alarms.

Operating Procedures:

- Wear appropriate shoes on deck for slippery/wet conditions, such as rubber boots, deck shoes.
- Keep decks clear of slippery materials; if you see a spill notify crew and clean it up.
- Hose off deck after each tow and at end of day.

Hose off deck during large or slimy catches.

- When entering noisy areas (i.e. the decks of some vessels or the engine room) wear ear protection such as noise cancelling headphones or other noise protection devices.
- Avoid standing under alarm bells or speakers or wear ear protection if unavoidable.
- Know the difference between the various alarms / bells.

Orientation:

- The FPC will provide general vessel orientation with scientific personnel to identify all potential hazards.
- The vessel's Captain will also give an orientation addressing emergency procedures and alarm bells.

5. Setting the net:

Hazards: Slack wires, deploying net instruments.

Operating Procedures:

- Slack Wires: Scientific crew should remain in designated areas whenever winches are paying out/ hauling in wire.
- Stay clear of wires, net-reels, pulleys and blocks during trawl operations.
- Before venturing out on either the aft decks or bow to deploy or retrieve instruments, notify Captain or crew member in charge of area.
- Wear PFD, hardhat and non-skid shoes when going out to aft deck to deploy or retrieve net instruments.
- When carrying instruments up and down stairs use handrails for support or get help.

6. Fishing (sampling):

Hazards: Wires under tension, doors.
Potential injury from gear malfunctions: broken cables, crossed wires, lost door.

Operating Procedures:

- During trawl operations, FPC will identify potentially hazardous areas to avoid in case of gear malfunction.
- The science crew is to stay clear of these areas (i.e. under net reels, winches, trawl blocks, main wire, etc) as much as possible during trawl operations.
- Use of hardhats is recommended if science crew needs to continue working on deck outside of shelter deck during trawl operations or when cables are under load.
- In the event of trawl gear malfunctions: science crew should leave deck until deck crew and captain consider conditions safe.

7. Haul back:

Hazards: Broken cables, wires, and doors; retrieving net mensuration instruments.

Operating Procedures:

- See SOP #5: Setting the net.
- If FPC needs to view net from aft of boat as it's reeled in: get guidelines from Captain; remain visible; communicate your actions; stay clear of operations.

8. Deploying gear over the side (hydrophone, plankton net):

Hazards: Lines in the water can be under significant load; leaning out risks falling overboard; lines on deck present tangling/tripping danger, equipment may foul vessel propeller.

Operating Procedures:

- Always notify captain before deploying gear overboard.
- Utilize PFDs.
- Have someone observe you.
- Be aware of where a line will snap taut (the "bight") if you lose control or it comes under strain.

9. Weighing catch:

Hazards: Tripping/ Slipping, getting hit / crushed by swinging cod end, carrying the load cell, crane hook. Volumetric measurements: slipping or other injury when in fish bin.

Operating Procedures:

- Wear appropriate clothing: raingear, gloves, safety goggles, boots, PFD, hard hat.
- Use caution when fish are spilled on deck, the conditions can become more slippery.

Load Cell (cargo scale):

- To avoid back strain lift with a 2 person team or crane.
- Beware of swinging equipment from ship's motion.

Volumetric measurements:

- When volumetric estimates of fish bin are necessary, use a wide board laid across the top of the fish catch to stand on when measuring depth of fish in bin; be very cautious of slippery conditions and boat motion.

10. Dumping catch onto sorting table or into splitting bin:

Hazards: Swinging cod end, splitting net, and totes. Hazardous species (large fish, wolffish, rockfish). Heavy rocks, debris.

Operating Procedures:

- Stay under the shelter deck until the catch is dumped on the sorting table or into the splitting bin.
- Exercise caution when rocks and debris or thorny fish, large fish, wolffish, or other potentially dangerous organisms are present in catch.
- See Basic First Aid At Sea (p. 69 - 70) techniques section for treatment of open wounds from fish spines, fish teeth, etc.

11. Sorting catch, handling baskets:

Hazards: Repetitive motion problems, back strain, slipping.

Operating Procedures:

Sorting Catch:

- Do not throw fish across someone else's sorting path.
- Do not put hands where you cannot see them, there may be a spiny fish or invertebrate where you cannot see them.
- Stretch often, take breaks, switch tasks, and avoid repetitive motions.
- Hose off deck during large or slimy catches.

Lifting:

- **Use two people to lift heavy baskets.**
- Avoid lifting and twisting movements.
- See SOP #2: Loading/Offloading.

Dragging baskets:

- Avoid dragging baskets while bent over.
- Use a line or hook to drag baskets.

Bin Sorting:

- Bin can be slippery, use caution.
- Always sort with two or more people in bin.
- Use a shovel to help push fish out.

12. Weighing baskets:

Hazards: Back strain, slipping, dragging baskets, dumping baskets.

Operating Procedures:

- Use 2 people to lift heavy baskets.
- **Do not** overfill baskets.
- Lift with your legs, not your back.
- Use a line or hook to pull baskets across deck.
- Avoid lifting and twisting movements.
- Watch fingers caught in basket handles when dumping fish.

13. Collection of length-frequency data:

Hazards: Repetitive motion problems, back strain, scalpel hazards.

Operating Procedures:

- Avoid repetitive motion problems and back strain.
- See SOP #1: Sorting catch, handling baskets
- Use Sharps container to change/ dispose of old or broken scalpel blades.
- See Basic First Aid At Sea (p. 69 - 70) section to treat minor injuries (cuts, fish spines,

14. Collection of other biological data (otoliths, stomachs, etc.):

Hazards: Repetitive motion problems, back strain, scalpel and knife hazards, chemical spills.

Operating Procedures:

General:

- Avoid repetitive motion problems and back strain.
- See SOP #11: Sorting catch, handling baskets.
- Use Sharps container to change/ dispose of old or broken scalpel blades, knife blades, syringe needles.
- Use Basic First Aid At Sea (p. 69 - 70) techniques section to treat minor cuts.

Chemicals:

- Always keep lids on chemical containers tightened (including all collection containers, buckets, specimen jars, otolith vials, etc.).
- Consult the (M)SDS for the particular chemical. Also see section on Essential Hazardous Material Information (p. 60 - 68).

15. Preserving specimens:

Hazards: Onboard use, storage and shipping of chemicals; chemical spills & splashes. Back strain.

Operating Procedures:

- Chemical use: See SOP #3: Setting up equipment.
- Chemical spills: consult the (M)SDS for the particular chemical. Also see section on Essential Hazardous Material Information (p. 60 - 68).
- Chemical shipping: **Only properly trained individuals should pack and ship Dangerous Goods**.
- Back strain: See SOP #11: Sorting catch, handling baskets.

16. Entering confined spaces (i.e. engine room, storage rooms):

Hazards:
Loud equipment such as engines and heavy machinery can permanently damage hearing; hazardous chemical fumes can build up in machine rooms or small storage rooms; lazarette, engine room hatch/doors can be heavy, or self-closing; slips and head bumps can be common in confined spaces; negotiating entering and exiting can involve challenging ladders or stairs.

Operating Procedures:

- Communicate to someone before entering a confined space such as an engine room, lazarette, or other confined storage space. Keep water from entering aft lazarettes.
- Always wear ear protection when entering engine room or other loud machinery room.
- Work in teams of 2 to facilitate task and safety (1 in, 1 out).
- Keep one hand free for rail use when carrying loads on stairs. Engine/ machinery rooms can be slippery due to oils and grease residue on floors- use caution and use proper foot wear.

17. Personal activities (i.e. daily living on the vessel):

Hazards:
Bunks; stairs on vessels; showers can be slippery; seasickness can become serious if left untreated; fatigue.

Operating Procedures:

- Bunks can be difficult to negotiate. Choose/ assign bunks with consideration to occupant's height, proneness to seasickness, and ability to climb in and out of top bunks in a dark stateroom.
- Stairs and ladders are often steep and slippery and can be more dangerous when vessel is rolling and pitching. Use caution and hold on to rails. Find someone to help you carry loads up and down stairs and ladders.
- During rough weather, it is not advised to use the shower facilities due to slipping hazards.
- Seasickness can become serious if left untreated, over medicated, or unsupervised. If prolonged, the person can become dehydrated. See section Seasickness-Information (p. 50 - 51).
- Avoid fatigue; it can lead to reckless behavior and increase hazard potentials; be considerate

NOTE: Use of personal medication: It is advised you bring all your prescription medication (including seasickness prescriptions) and continue to use them on a regular basis as directed by your physician while at sea. Often during long shifts, or night shifts, days can easily be confused and thus cause a falling-off a regular schedule of medication. Be sure to travel with all prescription drugs on you, or in your carry-on. There is a possibility your checked bags may not arrive at your destination with you.

18. End of leg clean up:

Hazards: Use of power tools/equipment; hand strain w/ brushes; open hatches; electrical shock; "All Brite" acid wash.

Operating Procedures:

- Avoid use of power tools/ electrical equipment without a GFI (Ground Fault Interrupt) on wet deck. See SOP #3: Setting up Equipment.
- Do not perform hand-aggravating action (such as scrubbing) for prolonged period of time. If hand strain develops: switch tasks with someone. Use pressure washer if available for clean-up. Note that gas-powered or vessel-supplied pressure washers can be dangerous and can cause serious injuries. Use the electric-powered pressure washers supplied by RACE.
- Always use caution during clean-up operations. Vessel crew may also be performing tasks and may inadvertently leave hatches open that are normally closed.
- When using electrical equipment on deck (such as pressure washer, power tools, etc) always use GFI (Ground Fault Interrupt) and use caution around wet decks.
    - Part of vessel cleaning by crew at the end of a leg involves the use of a degreasing chemical (often called "All Brite"). This substance is caustic and a skin and eye irritant. Always request that crew notify scientific crew on deck prior to use. Avoid contact by retreating to indoor duties while crew is using this product. In the event of skin contact rinse affected area with water. If contact is with eyes flush with eyewash for minimum of 15 minutes; see Basic First Aid at Sea Techniques (p. 69 -70) and notify your FPC.

EMERGENCY CARE CENTER CONTACT NUMBERS

Adak
Adak Volunteer Fire Department
(907) 592-4145
Adak Clinic (907) 592-8383

Akutan
Akutan First Responders
(907) 698-2208
24hr dispatch (907) 698-2315

Atka
Atka City EMS
(907) 839-2214

Chignik
Chignik Bay Subregional Clinic
(907) 749-2282

Cordova
Cordova Community Medical Center
(907) 424-8000

False Pass
False Pass First Responders
(907) 548-2232
False Pass Health Clinic
(907) 548-2241
Stand-by on VHF ch.6

Homer
South Peninsula Hospital
(907) 235-8101

Ketchikan
Ketchikan General Hospital
(907) 225-5171

USCG Base Ketchikan Health Services Clinic
(907) 228-0320

Kodiak
Kodiak Fire Department
(907) 486-8040

Providence Kodiak Island Medical Center
(907) 486-3281

Seward
Seward Volunteer Fire Department
(907) 224-3445
24hr dispatch (907) 224-3338

Sitka
Sitka Fire Department
24hr dispatch (907) 747-3245

Sitka Coast Guard Air Station
Medical Officer (907) 966-5430

St. George Is.
St. George Traditional Clinic
(907) 859-2254

St. Paul Is.
St. Paul Health Center (907) 546-8300
24hr Public Safety (907) 546-3130

Sand Point
Sand Point Medical Clinic (907) 383-3151
Sand Point Public Safety (907) 383-4707
Sand Point Volunteer Fire Department
(907) 383-3700

Unalaska (Dutch Harbor)
Unalaska Public Safety
24hr dispatch (907) 581-1233
Iliuliuk Family and Health Services (907) 581-1202

Yakutat
Yakutat Volunteer Fire Department
(907) 784-3544
Yakutat Public Safety
(907) 784-3206

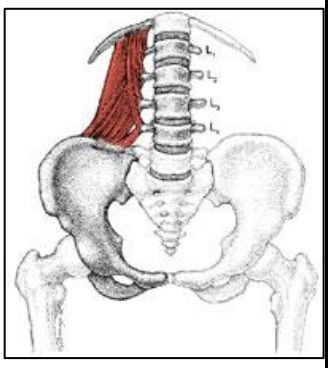
For Emergencies At Sea
(907) 463-2000

USCG Rescue Coordination Center, Juneau
24-hour Hotline

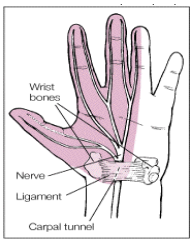
Common Injuries and Illness to Avoid at Sea

Repetitive Motion Injuries & Back Strain

Repetitive motion and lower back injuries are among the most common injuries in the United States. Repetitive strain injuries make up over 50% of all athletic-related injuries seen by doctors and result in serious loss in terms of cost to the workforce.



Repetitive strain disorders develop because of microscopic tears in the tissue. When the body is unable to repair the tears in the tissue as fast as they are being made, inflammation occurs, leading to the sensation of pain.



The most common types of repetitive motion injuries are tendonitis and bursitis. Lower back injuries as a result from improper lifting techniques are also common. All are predictable and preventable injuries. The following section helps define the injury types and their causes. The section that follows offers some advice on how to prevent these injuries.

When to seek medical attention:

When to call the doctor:

- Pain with movement of arms and legs.
- Tenderness over a joint or where a tendon connects. Redness and increased warmth over joint.
- Pain that wakes you from sleep.
- Inability to sleep on affected side.
- Inability to carry on normal activities of daily living (such as brushing your teeth or taking a shower).

When to go to the hospital:

- Certain signs and symptoms may mean that you have an infection and should be seen by a doctor immediately.
- Joint pain or tenderness that is associated with fever, chills, nausea, or vomiting.
- If more than 1 joint is involved at the same time or the joint pain migrates from 1 joint to another.
- Any severe joint pain also needs a visit to your hospital's emergency department.

Repetitive Motion Injuries Treatment and Prevention

Self-Care at Home

- Home care for a painful or swollen joint should include: “RICE”= Rest, ice, compression, and elevate injured limb. Ice can be used for relief of pain and swelling but never direct contact (wrap in cloth).
- Most authorities recommend icing 2-3 times a day for 20-30 minutes each time.
- Wrap ice or a bag of frozen vegetables in a towel and place it on the area.
- If your shoulder is involved, you should not keep it immobile for more than 24-48 hours because your shoulder may become frozen and have decreased range of motion.
- Tendonitis is best treated with immobilization and ice during the early phase and moist heat during the long-term phase.
- Nonsteroidal anti-inflammatory drugs (NSAIDs, such as aspirin, naproxen, or ibuprofen) may be used to reduce the inflammation. All NSAIDs should be taken with meals to avoid stomach upset.
- You should begin graduated range-of-motion exercise once your symptoms begin to improve.

Prevention

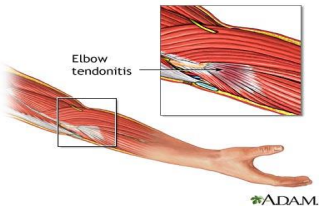
- The prevention of tendonitis and bursitis is similar in most respects.
- Do adequate warm-up and cool-down maneuvers (crucial to proper tendon and bursae health).
- Avoid activity that makes your injury flare up. This will speed healing of both tendonitis and bursitis.
- Practice range-of-motion exercises, especially in tendonitis. These are important to ensure minimal decrease in function.
- Use splints or bands to decrease the strain on a tendon that occurs with sporting activities, such as tennis and golf. These devices may be bought over-the-counter or obtained from your doctor.

Tendonitis

The most common symptom associated with tendonitis is pain over the site involved. Tendonitis is made worse by active motion of the inflamed tendon. The skin overlying the inflamed tendon may be red and warm to the touch.

- **Biceps**: The painful spot is usually in the groove where the arm meets the shoulder. You can reproduce the pain by flexing your elbow at 90° and trying to turn your hand palm up (called supination) against resistance.
- **Tennis elbow**: This pain is in the elbow and is reproduced by cocking your wrist back (extending the wrist) as if you are bringing a tennis racket back to hit the ball.
- **Golfer's elbow**: This pain also occurs in the elbow but is made worse by flexing the wrist forward as if you are hitting a golf ball.
- **Rotator cuff**: Raising your arm out to the side reproduces this pain. The painful area is usually over the affected shoulder.
- **Achilles Tendonitis**: Begins as a mild ache in the back of the leg or above the heel.
- **Posterior Tibial Tendonitis**: Sharp pain in the arch of the foot, sore to the touch.

How Tendonitis Occurs



A tendon is the end part of a muscle that attaches the muscle to the bone. The normally very elastic and soft muscle tapers off at the end to form the much more dense and stiff tendon. While this density makes the tendons stronger, the lack of elasticity of the tendon and the constant pulling on its attachment to the bone with movement, makes it much more susceptible to a low level of tearing at a microscopic level. This tearing will produce the inflammation and irritation known as tendonitis. Tendonitis is usually seen after excessive repetitive movement with which the tendon gradually becomes tighter until the fibers start to tear.

Tendonitis Treatment:
Tendonitis treatment must begin by avoiding aggravating movements. This may mean taking a break from the aggravating activity for a period of time, but this is a necessary step to allow the inflamed tendon to heal. It is also recommended in tendonitis treatment to try alternative activities.

With proper care for the area, the pain in the tendon should lessen over three weeks, but it should be noted that the healing of the area continues and doesn't even peak until at least six weeks following the initial injury. This is due to scar tissue formation, which initially acts like the glue to bond the tissue back together. Scar tissue will continue to form past six weeks in some cases and as long as a year in severe cases.

It is important to minimize any inflammation. This can be done topically if a pain reliever has the ability to penetrate the skin barrier and contains anti-inflammatory agents. A topical formula that contains natural menthol will not only relieve pain, but also dilate the blood vessels. This allows for relief of the tendonitis, without causing any stiffening of the tissue. Ice can relieve inflammation, but will constrict the blood vessels and further stiffen the tendon. Cortisone injections can reduce inflammation, but unfortunately are very caustic and can cause a weakening of the tendon structure and create more scar tissue.

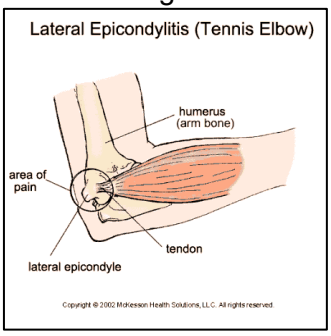
After the scar tissue has begun to accumulate, it will be important to perform procedures that help break down the scar tissue in the tendon tissue. While exercise is appropriate for breaking down scar tissue once the area has healed, it may further irritate the area during the initial stages. Therefore, other methods that can be performed by your healthcare provider, such as ultrasound and massage, may be safely used to accomplish this early on in the injury. Light stretches may also be performed if they do not cause any further irritation to the area.

Tendonitis Prevention:
Prevention of this condition requires stretching the muscle on a regular basis and thereby lengthening the tendon connection. This will allow less pulling on the tendon attachment to the bone. When tendonitis does occur, it is important to treat it immediately, and thereby prevent it from reaching a stage that is more severe.

The key to avoiding problems such as tendonitis and bursitis is to slowly increase the intensity of your exercise, vary the types of activities you perform, and try not to cycle between periods of activity and inactivity. People who tend to experience tendonitis are seasonal exercisers, who focus too much on one activity. When you begin to experience early symptoms of tendonitis, back off from the aggravating activity, and try something new.

If you do experience tendonitis, you are more likely to have symptoms again down the road, but with an intelligent approach to your exercise or activity routine, this problem can often be avoided.

What is Tennis Elbow?
Tennis elbow, or lateral epicondylitis, is the most common injury in patients seeking medical attention with the complaint of elbow pain. Exactly what causes tennis elbow is unknown, but it is thought to be due to small tears of the tendons that attach the muscles of the forearm to the arm bone at the elbow joint. The muscle group involved, the wrist extensors, function to cock the wrist back.



What are the symptoms of tennis elbow?

- Patients with the tennis elbow syndrome experience pain on the outside of the elbow that is worsened by grasping objects and cocking back the wrist.

- The pain associated with tennis elbow usually has a gradual onset, but may also come on suddenly.

What is the problem occurring in tennis elbow?
No one knows for certain, but there are several ideas. It is known that tennis elbow is not simply an "inflammation" of the tendons around the elbow. Rather, the problem is thought to be more of a degenerative process either the result of aging, or repetitive use. The symptoms may be the result of an incomplete healing response in an area that does not have good blood flow, and

therefore difficulty accessing nutrition and oxygen necessary for healing. This leads to degeneration of the tendon causing small tears and ruptures.

How do you treat tennis elbow?
There are several available treatments for tennis elbow. These usually start off conservatively, and work to more involved treatments. Non-operative treatment is successful in over 90% of patients.

- **Lifestyle Modification**
  Lifestyle modification is important if tennis elbow does not resolve or if it recurs. With athletes, often an improvement in technique (for example, fixing your tennis swing) can resolve the problem.
- **Anti-inflammatory Medications**
  Anti-inflammatory medications are often used to help control pain and inflammation. The oral forms of these medications are easy to take, and often help control the inflammation as well as manage the pain associated with tennis elbow.
- **Cortisone Injections**
  If these conservative measures fail, a steroid (cortisone) injection is a reasonable option.
- **Elbow Brace**

  An elbow orthosis, called an elbow clasp, can be worn. The theory behind using this elbow clasp is that the brace will redirect the pull of misaligned muscles. Patients often find relief of pain when using the clasp during activities.

- **Exercises**
  Some simple exercises can also be helpful in controlling the symptoms of tennis elbow. These exercises should not cause pain, and if they do the exercises should not be done until the pain resolves. By strengthening the muscles and tendons involved with tennis elbow, you can help prevent the problem from returning.

  1.) ***Finger Extension.*** Place a rubber band around all five fingertips. Spread fingers 25 times, repeat 3 times. If resistance is not enough, add a second rubber band or use a rubber band of greater thickness, which will provide more resistance.

  2.) ***Ball Squeeze****.* Place rubber ball or tennis ball in palm of hand, squeeze 25 times, and repeat 3 times. If pain is reproduced squeeze a folded sponge or piece of foam.

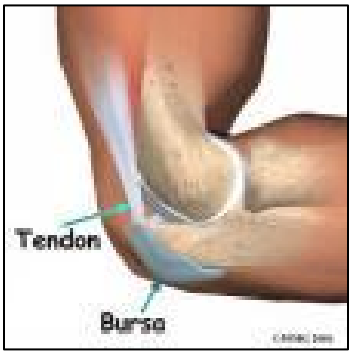
  For both exercises perform 10 repetitions 3-5 times a day until you feel fatigue. Use pain as your guide - all exercises should be pain free.

Bursitis

Common symptoms include pain, tenderness, and decreased range of motion over affected area. Redness, swelling, and a crunchy feeling when the joint is moved (crepitus) may also be found.

- **Knee:** This condition involves swelling over the bottom part of the kneecap that is red and warm to the touch. Usually, the range of motion of the knee will be less because of the pain that bending and straightening the knee causes.
- **Elbow:** Pain, swelling, and redness are found over the elbow. The pain gets worse when you flex and extend your arm at the elbow.
- **Hip:** Your pain is increased by walking or by lying on the affected side. Bringing your leg away from and toward the midline of the body can also reproduce the pain.

What is a bursa?
Every person has hundreds of bursa scattered throughout the body. The function of a bursa is to decrease friction between two surfaces that move in different directions. You tend to find a bursa at points where muscles and tendons glide over bones. Without the bursa between these surfaces, movements would be painful.



What is bursitis?
Bursitis is the inflammation of a bursa. Normally, the bursa provides a slippery surface that has almost no friction. A problem arises when a bursa becomes inflamed. The bursa loses its gliding capabilities, and becomes more and more irritated when it is moved.

When the condition called bursitis occurs, the normally slippery bursa becomes swollen and inflamed. The added bulk of the swollen bursa causes more friction within an already confined space. Also, the smooth gliding bursa becomes gritty and rough. Movement of an inflamed bursa is painful and irritating.

What causes bursitis?
Bursitis usually results from a repetitive movement or due to prolonged and excessive pressure. Patients who rest on their elbows for long periods or those who bend their elbows frequently and repetitively can develop elbow bursitis.

Another cause of bursitis is a traumatic injury. Following trauma, such as a car accident or fall, a patient may develop bursitis. Usually a contusion causes swelling within the bursa. The bursa, which had functioned normally up until that point, now begins to develop inflammation, and bursitis results. Once the bursa is inflamed, normal movements and activities can become painful.

How is bursitis diagnosed?
Bursitis is almost always diagnosed on physical examination. Findings consistent with bursitis include:

- Tenderness directly over the bursa
- Pain with movement of overlying muscles and tendons
- Swelling of the bursa

Treatment:
Below is some advice for bursitis treatment and avoiding recurrences of this problem. As with any treatment program, talk with your doctor before you begin bursitis treatment.

Rest and Protect The Area
The first steps of bursitis treatment are to keep pressure off of the affected area, and try to limit your activity of that joint. Some individuals benefit from placing an elastic bandage (Ace wrap) or immobilizing brace around the joint until the inflammation subsides. Movement and pressure of the inflamed area will only cause exacerbation and prolongation on symptoms.

- **Apply an Ice Pack**
  Icing the area of inflammation is an important aspect of bursitis treatment. The ice will help to control the inflammation and decrease swelling. By minimizing inflammation and swelling, the bursa can return to its usual state and perform its usual function.
- **Anti-Inflammatory Medications**
  Nonsteroidal anti-inflammatory medications include a long list of possibilities such as Ibuprofen, Motrin,and many others. Bursitis treatment can be improved by these medications that will decrease pain and swelling. Be sure to talk to your doctor before starting these medications.
- **Cortisone Injections**
  If the symptoms of bursitis are persistent, an injection of cortisone may be considered. Cortisone is a powerful anti-inflammatory medication, but instead of being given by mouth, it is injected directly to the site of inflammation. This can be extremely helpful for situations that are not improved with rest.

Prevention:

- **Strengthening and Physical Therapy**
  Proper strengthening technique can help you avoid bursitis by using your muscles in a safe, more efficient manner. For example, patients with shoulder bursitis can learn ways to move the shoulder that will not cause inflammation. *Do not begin exercises until the inflammation of bursitis has resolved!*

- **Take Breaks**
  Alternate repetitive tasks with breaks to relieve pressure. Don't perform one activity continuously for hours at a time.

- **Cushion Your Joints**
  If your work involves an activity such as prolonged kneeling, use protective cushions. These can be purchased at hardware stores--ask for roofers pads.

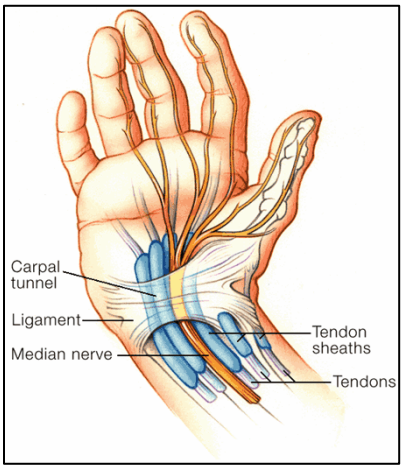
Carpal Tunnel

A commonly occurring consequence of repetitive movement with hands and wrists. Caused by pressure on the median nerve. Symptoms may include:

- **Numbness and tingling** in the hands, especially when these symptoms occur at night and after use of the hands.
- **Decreased sensation** in your thumb, index, and long finger.
- **Recurrence** of these symptoms by holding your wrists in a bent down position for one minute.

What is Carpal Tunnel Syndrome?

At the base of the palm is a tight canal or "tunnel" through which tendons and nerves must pass on their way from the forearm to the hands and fingers. The nerve that passes through this narrow tunnel to reach the hand is called the Median Nerve. The bottom and sides of this tunnel are formed by wrist bones and the top of the tunnel is covered by a strong band of connective tissue called a ligament. This tunnel also contains nine tendons that connect muscles to bones and bend your fingers and thumb. These tendons are covered with a lubricating membrane called synovium, which may enlarge and swell under some circumstances. If the swelling is sufficient it may cause the median nerve to be pressed up against this strong ligament which may result in numbness, tingling in your hand, clumsiness or pain described above.



What causes Carpal Tunnel Syndrome?

Anything that causes swelling, thickening or irritation of the synovial membranes around the tendons in the carpal tunnel can result in pressure on the median nerve.

- repetitive and forceful grasping with the hands
- repetitive bending of the wrist
- broken or dislocated bones in the wrist which produce swelling.
- arthritis, especially the rheumatoid type
- thyroid gland imbalance
- sugar diabetes

What is the treatment for carpal tunnel syndrome?

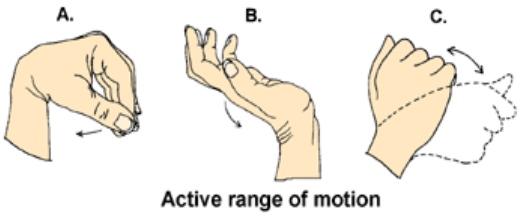
Most importantly, discontinue - as much as you can - whatever is causing it. If the activity is a hobby or sport that you can avoid entirely for a while, that may be all that is needed.

If you must continue to use your wrist in your work:

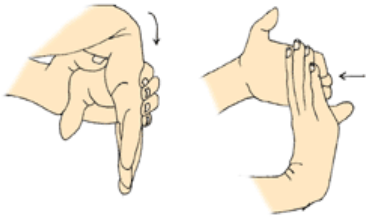
- Try to let your arm and shoulder share in the stress.
- Use both hands to lift things.

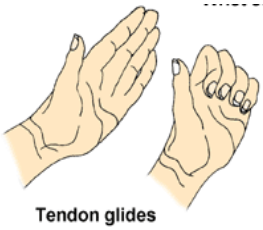
- Keep your wrist straight as much as you can.
- Wearing a wrist splint, especially at night, may be helpful.
- Take frequent breaks to rest or shake your hand, and massage the palm and back of the hand.
- Cut down on caffeine and smoking, which reduce blood flow to the hand.
- Take anti-inflammatory drugs or corticosteroids as instructed to reduce swelling.
- Carpal tunnel can be treated by stretching and strengthening exercises (see below).
- In more severe cases, your doctor may advise a cortisone injection into the carpal tunnel. This medicine spreads around the swollen synovial membranes surrounding the tendons and shrinks them, and, in turn, relieves the pressure on the median nerve.
- In patients who do not gain relief from these non-surgical measures it may be necessary to perform surgery. The site of the operation is made pain-free by local anesthesia injected either into the wrist and hand or higher up in the arm. The surgery itself is called a "release" - cutting the ligament that forms the roof of the carpal tunnel to relieve the pressure on the median nerve. The surgery is usually performed in an outpatient facility and you are generally not required to stay over night.

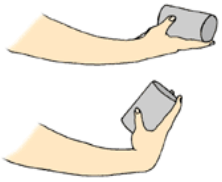
Carpal Tunnel Syndrome Exercises

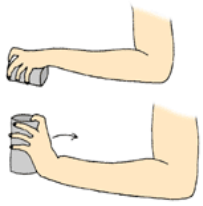


Active range of motion


Wrist stretch

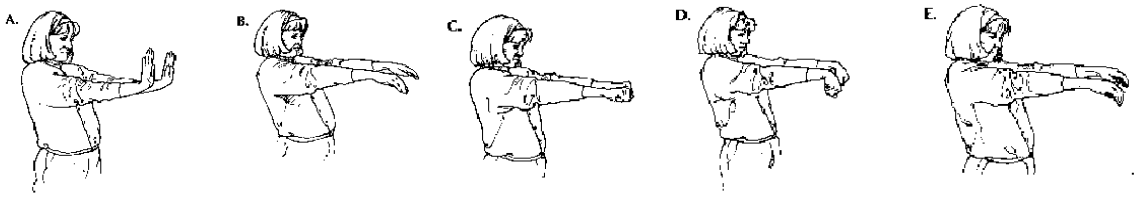

Tendon glides


Wrist flexion exercise

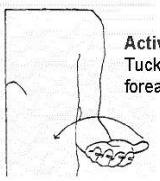

Wrist extension exercise


Grip strengthening

Hold each hand position for a count of 5. Repeat 10 times, then hang arms loosely at side and shake them.



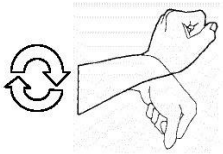
Sore Wrist Exercises

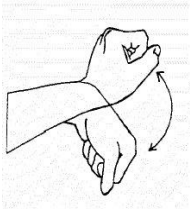


Active Forearm Supination/Pronation
Tuck elbow against side of body; turn forearm palm up; turn forearm palm down.

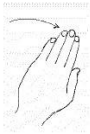
Wrist Extension Passive Stretch (alternative method)
Press palms together in "prayer position"; Pull hands downward keeping palms together.

Active Wrist Composite Motions
Make circles with wrist in both directions.





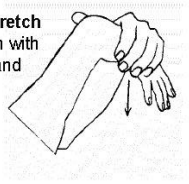
Active Wrist Flexion/Extension
With a loosely closed fist, bend wrist forward and backward.



Active Wrist Radial and Ulnar Deviation
Place hand flat on table; Bend wrist toward thumb side; Wrist motion should be side to side only.

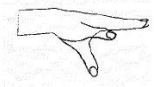
Place hand flat on table; Bend wrist toward little finger side; Wrist motion should be side to side only.

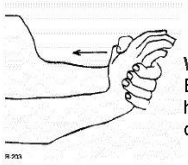
Wrist Flexion Passive Stretch
Bend wrist forward; stretch with other hand; hold position and remove other hand.



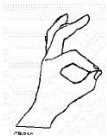
Active Radial Abduction
Pull thumb away from side of hand.

Active Thumb Palmar Abduction/Adduction
Pull thumb away from palm.





Wrist Extension Passive Stretch
Bend wrist back; stretch with other hand; hold position and remove other hand.



Active Opposition
Touch thumb tip to each fingertip alternately.

∗ Please do not use this handout as sole treatment. If you are experiencing any possible symptoms of carpal tunnel syndrome, seek medical attention ASAP! ∗

These exercises are not to be the sole treatment. If you are experiencing any possible symptoms of carpal tunnel syndrome seek medical attention.

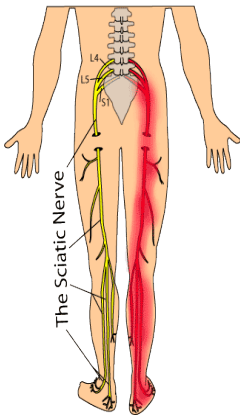
Sciatica

The sciatic nerve runs from the lower spine to the buttocks and down through the legs and into the feet. It supplies sensation and strength to leg and foot muscles. The nerve can become irritated if it gets “pinched” from a tight muscle (such as the piriformis muscle in the buttocks) or a herniated or bulging disc in the back.

- **Shooting pains** from the buttock, down the leg.
- **Tingling** or pins-and-needles sensations in the legs and thighs.
- **Burning sensations** in the thigh. In addition, patients with sciatica may notice a worsening of their symptoms with maneuvers such as squatting or coughing.
- **Sudden onset** that may be attributed to overexertion or a back injury.

What are the causes of sciatica?

The most common cause of sciatica is a herniated spinal disc. When this happens, the normal cushion between the vertebra of your spine ruptures. This causes the disc to push out into areas normally occupied by these nerves. The nerves are compressed and people then experience the symptoms of pain, weakness, and numbness.



What treatments are available for sciatica?
Treatment is initially aimed at addressing the inflammation associated with sciatica. Rest, anti-inflammatory medications (such as Motrin or Ibuprofen), and muscle relaxers are often good places to start. Some patients require a more powerful anti-inflammatory treatment and are given oral steroids (often called a Medrol Dose-Pak).

Once the pain subsides, exercises and physical therapy are helpful. Many people find that heat packs and ice packs soothe the muscles that are painful in sciatica.

Will I get better from sciatica?
This is the good news. Most people (80-90%) fully recover from sciatica without surgery. In most cases the nerve is not permanently damaged, and individuals recover in the 3-week to 3-month time frame. Sciatica is not a medical emergency. However, if you experience difficulty with bowel or bladder function, decreased sensation around the genitals, or progressive leg weakness, *contact your doctor or go to the emergency room immediately.*

Lumbar Strain

Muscle strains and lumbar sprains are the most common causes of low back pain. A low back muscle **strain** occurs when the muscle fibers are abnormally stretched or torn. A lumbar **sprain** occurs when the ligaments, the tough bands of tissue that hold bones together, are torn from their attachments. Differentiating a strain from a sprain can be difficult, as both injuries will show similar symptoms. In general, it doesn't matter what you call the problem because the treatment and prognosis for both back strains and sprains is the same.

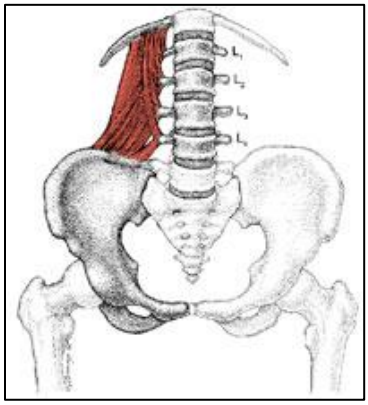
Common symptoms

- **Pain** around the low back and upper buttocks.
- **Muscle spasm** in the lower back.
- **Aggravated** by activity and generally **relieved** with rest.

Severe symptoms

- Loss of control of bladder or bowels.
- Progressive lower extremity weakness.
- Severe, constant pain.

What causes these symptoms of low back pain and spasm?



When the lumbar spine is strained or sprained, inflammation of the soft-tissues results. This inflammation causes pain and can cause muscle spasm. People are often surprised at how painful and debilitating a lumbar strain or sprain can be--these are not small injuries. They often force patients to remain in bed for a day or two, and can cause intermittent symptoms for weeks. That said, over 90% of patients are completely recovered from an episode of lumbar muscle strain or sprain within one month. Some well-known factors that contribute to low back pain include:

- Poor conditioning
- Obesity
- Smoking
- Improper use/lifting technique

If you have persistent problems with your lumbar spine, consider these issues. If you smoke, are overweight, or do not perform regular back strengthening exercises, then you have steps that you can take to help control your symptoms.

What is the appropriate lumbar muscle strain treatment?
It is important that if you are not sure of the cause of low back pain, that you are evaluated by a physician. There are low back conditions that require immediate treatment.

- **Step 1: Rest:**
  The first step in the treatment of a lumbar muscle strain is to rest the back. This will allow the inflammation to subside and control the symptoms of muscle spasm.
- **Step 2: Medications:**
  Two groups of medications are especially helpful in treating the acute symptoms of a lumbar back strain.

  1.) Anti-inflammatory medications. These medications help control the inflammation caused by the injury, and also help to reduce pain.

  2.) Muscle relaxing medications. Again, there are several options that you may discuss with your doctor. These medications are often sedating, so they need to be used with care.
- **Step 3: Physical Therapy / Exercises:**
  Proper conditioning is important to both avoid this type of problem and recover from this injury. By stretching and strengthening the back muscles, you will help control the inflammation and better condition the lumbar back muscles. The exercises should not be painful.

  It is also important to understand that even if you are "in good shape," you may have weak low back muscles. When you have a low back muscle injury, you should perform specific exercises that stretch and strengthen the muscles of the low back, hips and abdomen. These exercises are relatively simple, do not require special equipment, and can be performed at home.
- **Step 4: Further Evaluation**
  If your symptoms continue to persist despite treatment, it is appropriate to return to your doctor for further evaluation. Other causes of back pain should be considered.

How To Lift Properly:

- **Plan ahead before lifting.**
  Knowing what you're doing and where you're going will prevent you from making awkward movements while holding something heavy. Clear a path, and if lifting something with another person, make sure both of you agree on the plan.

- **Lift close to your body.**
  You will be a stronger, and more stable lifter if the object is held close to your body rather than at the end of your reach.

- **Feet shoulder width apart.**
  A solid base of support is important while lifting. Holding your feet too close together will be unstable, too far apart will hinder movement. Keep the feet about shoulder width apart and take short steps.

- **Bend your knees and keep your back straight.**
  Practice the lifting motion before you lift the object. Focus on keeping your spine straight--raise and lower to the ground by bending your knees.

- **Tighten your stomach muscles.**
  Tightening your abdominal muscles will hold your back in a good lifting position and will help prevent excessive force on the spine.

- **Lift with your legs.**
  Your legs are many times stronger than your back muscles--let your strength work in your favor. Keeping your eyes focused upwards helps to keep your back straight.

- **If you're straining, get help.**
  If an object is too heavy, or awkward in shape, make sure you have someone around who can help you lift.

Tips:

1. **Never bend your back to pick something up.**
   It's just not worth the damage that improper lifting technique can cause.
2. **Hold the object close to your body.**
   You are a much more stable lifter if you're not reaching for an object.
3. **Don't twist or bend.**
   Face in the direction you are walking. If you need to turn, stop, turn in small steps, and then continue walking.
4. **Keep your eyes up.**
   Looking slightly upwards will help you maintain a better position of the spine.

Sea Sickness: Information and Treatment

When the human body is put into motion, be it in a boat, car, or airplane, motion sickness can be a side effect. The cause of motion sickness and its associated unpleasant symptoms are not well understood. Most medical information explains the symptoms as a result of the brain experiencing sensory confusion when the signals your brain receives from your sense of balance contradict what your eyes are seeing. The vestibular system of the inner ear sends messages to the brain about the body's position, but the changing position of the body contradicts the information relayed by the eyes. Over time most people adjust to the motion that is making them sick, once the brain determines that the confused sensory signals are the "norm" and it shuts down the nausea, cold sweats, drowsiness, and other symptoms.

The more you move around, the sooner you become accustomed to the motion of the boat. Lying down does not help you adapt, even though it may allow you to feel better temporarily. Doing anything that requires close visual focus such as reading will make symptoms worse and should be avoided.

There are many remedies for seasickness, some tried and true, others more eclectic. How a specific drug either over-the counter or prescription will affect you is unpredictable- what works for some people may not work for others. The only way to know for sure is to try it. Start with a non-prescription drug because they usually have less drowsiness side effects. If the non-prescription drugs are not effective see your doctor and request a prescription drug.

Most of the anti-nausea medication should be taken 1-2 hours before leaving the dock. Like all drugs seasick preventatives can have side effects. If you have a history of drug side effects be sure to consult your family doctor, and if possible try the drug on land before you use it at sea.

The following is a list of some of the more tested seasick remedies:

Natural Remedies:

Ginger: Raw ginger, ginger tea (made from fresh slices of ginger), pills or tablets (available in health food stores), ginger ale, ginger candy, and ginger snaps. Ginger has a natural anti-nausea effect, which seems to alleviate some of the symptoms.

Calm Seas™: Contains natural ingredients including ginger.

Chemical Remedies:

Bonine: Over the counter Meclizine.

Scopolamine: Marketed as a transdermal patch worn behind the ear.

Dramamine: Over the counter Dimenhydrinate; comes in non-drowsy formulas.

Coast Guard Cocktail: Prescription combination of 25mg each of Ephedrine and Promethazine. Also prescribed as 25mg Promethazine and 60mg Pseudoephedrine. Promethazine (also called Phenergan) is an antihistamine that prevents the motion sickness, and pseudoephedrine acts as a stimulant that counteracts the side effect of drowsiness.

Physical Remedies:

Minimize motion of boat: keep to the middle of the boat. If you have a window or view try to keep your vision focused on the horizon.

Sea Bands ™: Wristbands available in nautical stores, naturopathic health stores, and some pharmacies. They work on acupressure nausea points on the wrists (called the neikuan point).

Food:

An empty stomach actually makes most people feel worse. However, try not to fill your stomach with anything you wouldn't want to see again! Ginger ale and saltine crackers or toast seem to be benign.

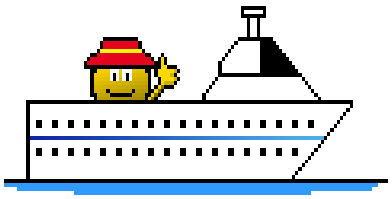
Added Precautions:

The need to vomit is a common symptom of being nauseated. Sometimes people feel much better after doing so. Keep in mind that if you need to go out on deck or to the rail to vomit, **let someone know you are going outside**!

Although seasickness is not life threatening, if left untreated it can become serious. A few people will simply not recover from the constant nausea. Dehydration is a side effect that should be taken into account. If a person has been seasick for over 3 days, has vomited constantly, and has not eaten or drank they should be encouraged to take in fluids as much as possible. It may be necessary to get this person off the boat and to medical attention.

Seasickness is a normal consequence of putting the body into unnatural motion, and it happens to almost everybody. Keep that in mind. In most cases it does get better after a few days at sea, and symptoms lessen each time you venture out on a boat.

Smooth Sailing!



ANNUAL SAFETY PLAN REVIEW PROCEDURE

After each cruise leg, it is the Safety Leader's responsibility to solicit the completion of the Safety Evaluation Form and to return these to the AFSC SECO in Seattle. These data will be compiled anonymously and will be used in assessing the efficacy of the Safety Program.

After the completion of the field season, the Safety Committee will meet with the SECO and discuss the summarized results. An online questionnaire will be administered to all fieldwork participants and those results will be summarized. All of these resources will be presented by the Safety Committee at the Post-Cruise Safety Debriefing.

Major liabilities will be identified through this process, which will direct the agenda of the Safety Committee for the next field season, or as needed.

Your cooperation in establishing and maintaining a safe work environment is critical to the future of RACE/REFM fieldwork, and not only helps to preserve the workforce, but also enhances the continuity of survey data and our ability to collect it effectively.

Remember: Safety First!

APPENDIX

List of Forms:

Safety Briefing Form

At-Sea Incident Flow Chart

RACE At-sea Injury, Illness, and Accident Report Form

RACE Emergency Notification Plan

Authorization for Examination or Treatment **CA-16**

CHARTER VESSEL SAFETY BRIEFING FORM

This form certifies that a formal review of safety systems and emergency procedures aboard the _____ on this date_____ was performed. The review included, but was not limited to:

1. Purpose, location and operations policy for:
   a. Vessel EPIRBs
   b. Transceivers
   c. Survival suits
   d. Life jackets
   e. Life raft (boat)
   f. Fire fighting equipment
   g. First aid supplies

2. Procedures and duty stations for:
   a. Man overboard
   b. Abandon ship
   c. Fire
   d. General alarm

3. Other relevant training (list topics):
   a.
   b.

The undersigned have participated in the on-board safety review and have read and understand the RACE At-Sea Safety Manual:

Date	Print name of science personnel or participating vessel crew member:	Signature

Signature_____ Date_____
(Captain)
Field Party Chief_____ Safety Leader_____

FPC: Please retain this document in the Haul Log Book and return to RACE safety leader at the end of the survey.

CHARTER VESSEL EMERGENCY PROCEDURE FORM Continued:

Please list all NOAA Survival Suit serial numbers that will be taken aboard on this leg of the survey:

Vessel:

Leg:

Field Party Chief:

Survival Suit Serial Number:	Size:

Please FAX or mail this form (in pre-addressed / pre- stamped envelopes provided) BEFORE embarking on survey leg.

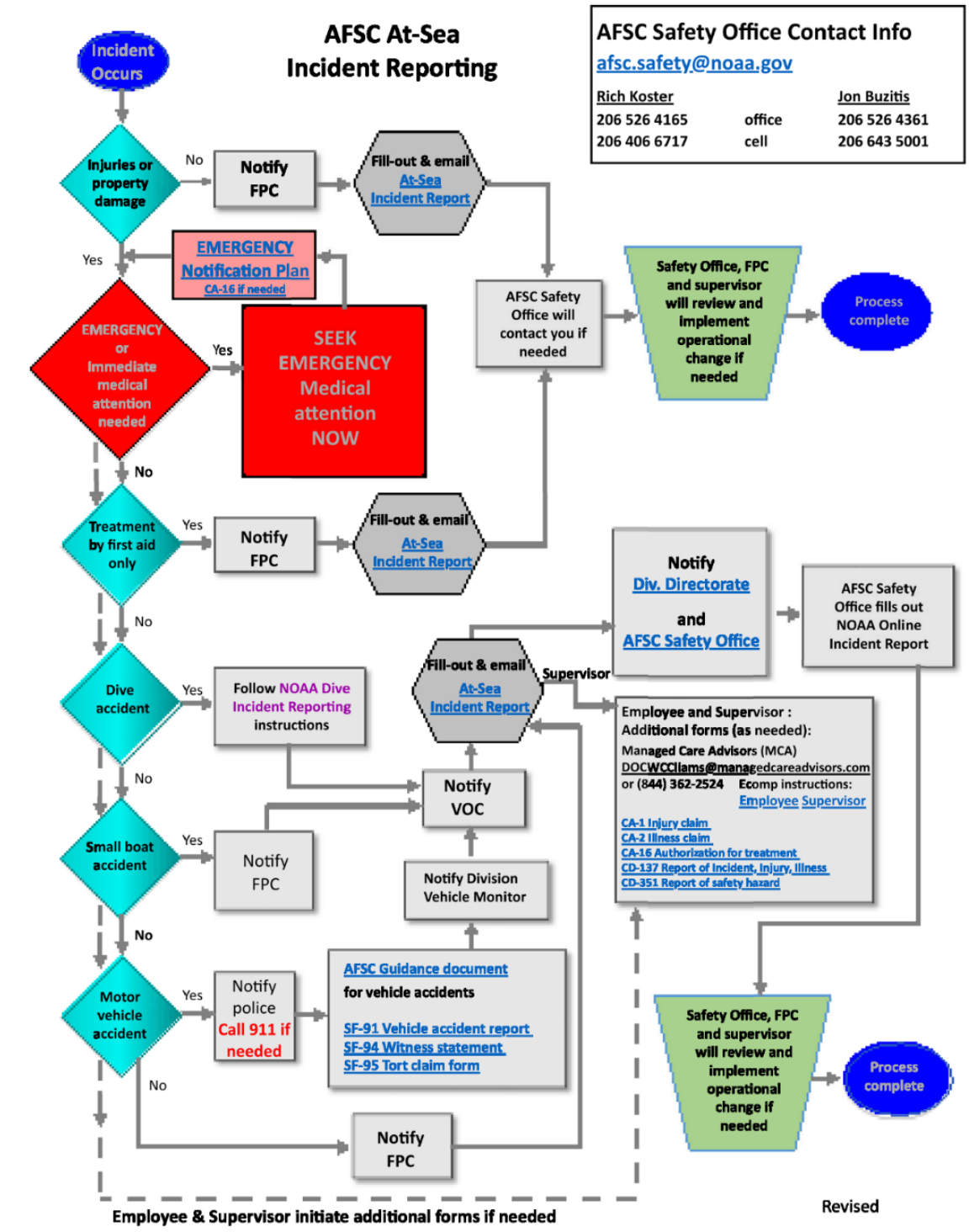
Send to:

NOAA / Alaska Fisheries Science Center
7600 Sand Point Way NE F/ AKC1
Seattle, WA 98110

ATTN: Lyle Britt

OR **E-mail to:**

lyle.britt@noaa.gov



file://nmfs.local/akc-public/Dropbox/RACE Survey App/accidents/accident.htm

At-Sea Incident, Injury, Illness and Accident Report Form

Report should include following info & be **emailed to afsc.safety@noaa.gov within 24hrs:**

- The following report should be filled out any time an accident or near miss occurs whether or not it resulted in injury. Please fill out all applicable fields.
- **In the event of an accident that involves injury the form must be sent within 24 hours.**
- A hard copy of this report should also be printed and put into the safety documents envelope on the boat.
- Names of those involved will remain confidential at all times.

The purpose of this report is to fulfill government wide requirements of incident, injury and illness reporting in order to address safety in the field by understanding relative hazards.

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1. Reason for Report:

- ☐ **Accident w/ injury**
- ☐ **Near miss or Accident w/out injury**
- ☐ **Illness**

2. Name:

3. Date/Time of Accident/Illness:

4. FPC on board:

5. Vessel captain:

6. Location/ Vessel where incident occurred:

7. Description of incident:

8. Extent of Injury or Illness

9. Description/identification of damaged property and extent of damage (include estimate of monetary damage)

10. Preventative Actions implemented in response to mishap:

11. Date/Time form completed/submitted:

12. Medical supplies used:

13. Describe medical treatment applied:

14. Amount of work time lost:

RACE/REFM Emergency Information Form

RACE/REFM survey participants:

Completing this form is **voluntary** and **confidential**. However, it is recommended that you fill out as much as you are comfortable with for your well-being at sea. The form will be handled with discretion for your privacy and will be opened only in the event of an emergency. Forms shall be returned to you or disposed of securely upon your request.

Name _____
First Middle Last

Office # _____ **Home #** _____

Employer RACE ☐ REFM ☐ Other _____

Supervisor _____ **Phone #** _____

Emergency Contact _____ **Relationship** _____

Phone # _____ **E-mail** _____

Physician _____ **Phone** _____

Blood Type _____ **Irregular Blood Pressure?** Y ☐ N ☐

Allergies _____ **Medic Alert Tag?** Y ☐ N ☐

_____

Current Medications _____

Relevant Medical Conditions:

RACE Division Field Operations Emergency* Notification Plan
Shellfish Assessment Program

***Emergency:** Any accident, injury, illness, or other incident that seriously threatens the health or safety of a field sampler or otherwise requires that a field sampler be transported to shore or removed from his/her temporary duty work assignment.

Group 1

MUST PROVIDE INFORMATION FROM FORM ON BACK TO GROUP 2 CONTACTS

First notification of an emergency typically reported by a member of this group

Chief Scientist - Field Party Chief - Vessel Captain - Vessel Representative

RACE.survey@noaa.gov **is the group email address that is monitored regularly for survey vessels and is the best contact method if phone or other method of contact cannot be made.**

Group 2

MUST COMPLETE INFORMATION FORM ON BACK

First person notified in this group contacts others in this group by phone and with a follow-up email

Division Directorate
Lyle Britt, Director
W: (206)526-4501
C: (206)434-9680

Program Manager
Mike Litzow, S.A.P.
W: (907)481-1711 C: (907)654-7784

Program Supervisor
Stan Kotwicki, G.A.P.
W: (206)526-6614
C: (203)446-4561

Division Deputy Director
Michael Martin, Deputy Director
W:(206)526-4103
C: (425)286-3367

Program Supervisor
Alix Laferriere, S.A.P.
W: (907)481-1735
C: (802)503-5964

Program Supervisor
Ned Laman, G.A.P.
W: (206)526-4832
C: (425)-275-3491

Program Supervisor
Duane Stevenson, G.A.P.
W: (206)526-4468
C:(206)992-0213

Group 3

Notified by Division Directorate or designee via phone or email

Robert Foy, Science Director	W: use cell phone	C: (907) 482-0026	AFSC Director
Jeremy Rusin, Deputy Director	W:(206) 526-4194	C: (858) 245-1764	Deputy AFSC Director
Richard Koster, Safety Officer	W:(206) 526-4165	C: (206) 406-6717	AFSC SECO
Jon Buzitis, Safety Officer	W:(206) 526-4361	C: (206) 643-5001	AFSC SECO
See BT_Survey_Vessel_Contacts	For other supervisors		

Group 4

Notified via phone by Survey Coordinator, Division Directorate, or designee

Affected Person's Family Contact: *Refer to Emergency Contact Information Form on file in Seattle or onboard Vessel.*

ESSENTIAL HAZARDOUS MATERIAL INFORMATION

The following pages contain pertinent information taken from MSDS (Materials Safety Data Sheets) concerning the most often used chemicals during AFSC surveys. These pages are intended to be used for educational purposes only by the scientific crew and should not be used instead of MSDS. Read the MSDS before working with the chemicals and refer to them in an emergency situation.

FORMALDEHYDE

100% FORMALIN (full strength) = (37% FORMALDEHYDE)
10% FORMALIN (diluted) = (~4% FORMALDEHYDE)

Hazards Identification:

POISON! DANGER! SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. VAPOR HARMFUL. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. STRONG SENSITIZER. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR. (10% FORMALIN CONSIDERED COMBUSTIBLE).

Potential Health Effects:

The perception of formaldehyde by odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. This can lead to overexposure if a worker is relying on formaldehyde's warning properties to alert him or her to the potential for exposure.

Inhalation:
May cause sore throat, coughing, and shortness of breath. Causes irritation and sensitization of the respiratory tract. Concentrations of 25 to 30 PPM cause severe respiratory tract injury leading to pulmonary edema and pneumonitis. May be fatal in high concentrations.

Ingestion:
Can cause severe abdominal pain, violent vomiting, headache, and diarrhea. Larger doses may produce decreased body temperature, pain in the digestive tract, shallow respiration, weak irregular pulse, unconsciousness and death. Methanol component affects the optic nerve and may cause blindness.

Skin Contact:
Toxic. May cause irritation to skin with redness, pain, and possibly burns. Skin absorption may occur with symptoms paralleling those from ingestion. Formaldehyde is a severe skin irritant and sensitizer. Contact causes white discoloration, smarting, cracking and scaling.

Eye Contact:
Vapors cause irritation to the eyes with redness, pain, and blurred vision. Higher concentrations or splashes may cause irreversible eye damage.

Chronic Exposure:

Frequent or prolonged exposure to formaldehyde may cause hypersensitivity leading to contact dermatitis. Repeated or prolonged skin contact with formaldehyde may cause an allergic reaction in some people. Vision impairment and enlargement of liver may occur from methanol component. Formaldehyde is a suspected carcinogen (positive animal inhalation studies).

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. Previously exposed persons may have an allergic reaction to future exposures.

First Aid Measures:

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

If swallowed and the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Any organic material will inactivate formaldehyde. Keep affected person warm and at rest. Get medical attention immediately. If vomiting occurs, keep head lower than hips.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Consult MSDS. Get medical attention immediately; **continue flushing eyes**. See sections on Basic First Aid at Sea (p. 69 - 70), and Emergency Contact Information (p. 11).

Spill Release Procedures:

If spill occurred on outside deck of ship, and quantity of formalin spilled is less than 5gal you may dilute spill and wash chemical from deck using a water hose. Use caution and avoid splashing and spreading chemical.

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8 of MSDS. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible (unless washed from deck). Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as sawdust. Do not flush to sewer!

Section 102a of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires the reporting of hazardous substance spills and releases to soil, water and air in excess of reportable quantities (RQ). In the case of Formaldehyde the RQ is 100 Lbs (45.4Kg), which translates to approximately 12.5 gal. Any spill at sea larger than this amount must be reported.

The toll free number for the US Coast Guard National Response Center is (800) 424-8802. If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

Handling and Storage:

Store in a tightly closed container. Protect against physical damage. Store in a cool (no less than 50^{o} F), dry, well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles such as acids and oxidizers. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be Non Smoking designated areas.

Use non-sparking type tools and equipment. Wear special protective equipment (Sec. 8 MSDS. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace.

Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Exposure Controls/Personal Protection

Skin Protection:
Wear impervious protective clothing, including boots, gloves (rubber, neoprene, PVC or equivalent), lab coat, apron or coveralls, PVC raingear, as appropriate to prevent skin contact.

Eye Protection:
Always use chemical safety goggles (vapor proof) and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Other Formaldehyde Control Measures:
See OSHA Standard for more information on personal protective equipment, engineering and work practice controls, medical surveillance, record keeping, and reporting requirements. (29 CFR 1910.1048)

Shipping Only properly trained individuals should pack and ship Dangerous Goods.

Disposal See Survey Operations Manual for proper disposal.

ETHANOL (ethyl alcohol) 95% & 10%

Potential Health Effects:

Ethanol is highly flammable. Target organs: eyes, liver, kidneys, nerves. Acute: concentrations below 1,000 PPM usually produce no signs of intoxication. Exposure to concentrations over 1,000 PPM may cause headache, irritation of the eyes, nose, and throat, and if continued for an hour, drowsiness and lassitude, loss of appetite and inability to concentrate.

First Aid Measures:

Eye Contact:
Flush with water for 15 minutes, raising and lowering eyelids occasionally. Get medical attention if irritation persists. See section on Basic First Aid at Sea (p. 69 - 70).

Skin Contact:
Remove contaminated clothes. Wash exposed skin area thoroughly for at least 15 minutes. Get medical attention if irritation persists. Launder contaminated clothing before reuse.

Inhalation:
Move to fresh air. Give oxygen if breathing is difficult. Give artificial respiration if breathing has stopped. Get medical attention.

Ingestion:
If conscious, give plenty of water. Get immediate medical attention or call poison control for assistance.

Exposure Controls / Personal Protection:

Protective gloves:
Rubber, neoprene, PVC or equivalent.

Eye protection:
Splash proof chemical safety goggles should be worn at all times.

Other protective equipment:
Lab coat, eye wash station and safety shower.

Work hygienic practices:
Wash hands after handling and before eating, drinking, or smoking. Launder contaminated clothes before reuse.

Spill Release Procedures:

Eliminate all sources of ignition. If spill occurred on outside deck of ship, and quantity of Ethanol spilled is less than 5gal you may dilute spill and wash chemical from deck using a water hose. Use caution and avoid splashing and spreading chemical.

Ventilate area of spill. Contain spilled material (unless otherwise rinsed off). Dilute to nonflammable
mixture with water. Contain and collect for disposal.

Handling and Storage:

Store in tightly closed containers. Keep away from heat, sparks, and open flame. Store in a cool, dry, place.

Shipping:

Only properly trained individuals should pack and ship Dangerous Goods

Disposal:

According to the USCG and State of Alaska Department of Environmental Conservation (DEC) requirements, ethanol can be discharged in waters more than 3 miles offshore (dilution not necessary). In waters less than 3 miles offshore, ethanol cannot be discharged and must be retained for proper disposal.

GLYCEROL

(At sea as 50% Glycerol- 0.5% Thymol Solution)

Hazards Identification

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY AFFECT KIDNEYS.

Potential Health Effects

Inhalation:
Due to the low vapor pressure, inhalation of the vapors at room temperatures is unlikely. Inhalation of mist may cause irritation of respiratory tract.

Ingestion:
Low toxicity. May cause nausea, headache, and diarrhea.

Skin Contact:
May cause irritation.

Eye Contact:
May cause irritation.

Chronic Exposure:
May cause kidney injury.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists. See section on Basic First Aid at Sea (p. 69 - 70).

Spill Release Measures:

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8 of MSDS. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as sawdust. Do not flush to sewer!

If spill occurred on outside deck of ship, and quantity of Glycerol-Thymol Solution spilled is less than 5gal you may dilute spill and wash chemical from deck using a water hose. Use caution and avoid splashing and spreading chemical.

Exposure Controls / Personal Protection:

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Handling and Storage:

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances such as strong oxidizers. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Shipping:

Only properly trained individuals should pack and ship Dangerous Goods

Disposal:

See Survey Operations Manual for proper disposal.

THYMOL

(At sea as 50% Glycerol- 0.5% Thymol Solution)

Hazards Identification

WARNING! HARMFUL IF SWALLOWED. MAY BE HARMFUL IF INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

Potential Health Effects :

This compound resembles phenol in its systemic actions, but is less toxic because it is almost insoluble.

Inhalation:
May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. May be absorbed into the bloodstream with symptoms similar to ingestion.

Ingestion:
Produces abdominal pain, nausea, vomiting, central hyperactivity (e.g., talkativeness), and occasionally convulsions, coma and cardiac and respiratory collapse. Oils and alcohols may promote absorption into the body. May cause kidney and liver damage.

Skin Contact:
May cause irritation with redness and pain.

Eye Contact:
May cause irritation, redness and pain.

Chronic Exposure:
No information found.

Aggravation of Pre-existing Conditions:
No information found.

Note:

The AFSC uses Thymol mixed into a solution called Otolith Solution. It is a preserving medium for storing fish otoliths and is comprised of 50% glycerol, 50% ethanol, and trace (0.5%) amount of thymol.

First Aid Measures:

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention**.**

Ingestion:
Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists. See section on Basic First Aid at Sea (p. 69 - 70).

Spill Release Measures:

Remove all sources of ignition. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8 of MSDS. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

If spill occurred on outside deck of ship, and quantity of Glycerol-Thymol Solution spilled is less than 5gal you may dilute spill and wash chemical from deck using a water hose. Use caution and avoid splashing and spreading chemical.

Exposure Controls / Personal Protection:

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Handling and Storage:

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Shipping:

Only properly trained individuals should pack and ship Dangerous Goods.

Disposal:

See Survey Operations Manual for proper disposal.

BASIC FIRST AID AT SEA

Daily routine activities at sea, associated with biological sampling and routine on-deck activities; incur a certain number of “common” but minor injuries. These injuries are defined as non-life threatening. The following section provides a quick reference for such mishaps. In all cases, regardless how minor they seem initially, maintain a diligent watch over the wound / injury; report to your FPC if injury/ wound worsens in condition; seek medical attention should the condition not improve.

1. Cuts & wounds:

Stop the bleeding as soon as possible by applying pressure to the wound with clean dry gauze. If direct pressure does not stop the bleeding, elevate the affected limb. Continue to apply pressure and continue to apply gauze until the bleeding stops (do not remove blood soaked gauze, but keep applying new gauze on top of old.)

After bleeding stops clean the wound thoroughly with antiseptic soap such as Hibiclens or hand soap and water. Apply antibiotic ointment such as Neosporin to and around the wound and apply clean dressing gauze. Bandage the wound with clean dry roller gauze and protect the wound from contamination.

Change dressings daily and note any negative change in the wound condition (such as severe pain, redness, swelling, or puss accumulation) to your FPC. Seek medical attention once in port.

2. Foreign object in eyes:

Fish scales are an occasional problem when they get into the eyes, and can be quite painful. Flush the affected eye with the eyewash bottles provided until the scale is out. A small 4-ounce eyewash bottle should be provided to the injured party for follow up flushing. Maintain vigilance that affected eye does not become infected. If persistent irritation does not subside seek medical attention once in port.

Sawdust: Similar to fish scales, sawdust from power saws can easily get into eyes without proper eye protection. Treatment is the same as above: flush out eyes with eyewash solution.

Chemicals: Any accidental eye contact with chemicals should be immediately flushed with eye wash solution for a minimum of 15 minutes. Acquire the MSDS for that particular chemical and follow the first aid measures. If the chemical is formalin continue flushing and contact emergency medical personnel.
Do not stop flushing the eyes; continue with fresh drinking water when eye wash solution runs out. Some chemicals can have a prolonged effect on the eyes; do not underestimate the amount of flushing required. Seek medical attention once in port.

3. Reporting Injuries:

Do not conceal work-related injuries, report them to your FPC and get medical attention. A minor injury can turn serious if left unattended, or improperly treated. The Safety Committee is tracking “near misses” by way of the RACE/REFM Injury At Sea Report Form (p,56) to assess potential hazards at sea and to revise this safety document.

4. Additional Information:

Instructions for treating more serious injuries are in the First Aid Manual in your First Aid Kit.

5. Injury report forms:

NOAA RACE/REFM Injury At Sea Report Form (p.57) needs to be completed with as much information as possible. In addition, the vessels may have company injury claim forms that will also be required to be completed.