



# RACE / REFM 2011

# At Sea Safety Manual

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**Alaska Fisheries Science Center**  
NATIONAL MARINE FISHERIES SERVICE

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# MISSION OF THE AT-SEA SAFETY MANUAL

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The Alaska Fisheries Science Center (AFSC) conducts fieldwork in a potentially dangerous environment: on small vessels floating in a very cold ocean. Working closely together in the field, we naturally develop relationships where we depend on each other to get our jobs done. This mutual dependency also leads us to care about each other's welfare.

This **At-Sea Safety Manual**, developed by the RACE/REFM Groundfish Program's Safety Committee, will help all of us protect each other and ourselves from injury while working in this inhospitable environment. The manual identifies unsafe situations and practices that we face in our everyday field activities. Rules and strategies have been devised to minimize the dangers they present. Awareness of hazards and following these rules will help reduce the chance of injury to you and those around you. The manual will be a "living" document, incorporating suggestions from all who use it.

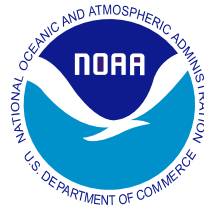
The Captain of a vessel has the last word in all matters concerned with the safety of all aboard as well as ensuring that all operations aboard are done in the safest manner possible. Our Field Party Chiefs are responsible for the safety of our science operations; however, it is ultimately the responsibility of all of us who go to sea to be aware of hazardous situations and to look after each other. The Safety Committee is committed to supply the information and recommendations necessary to facilitate awareness and sound decisions while at sea.

This manual is consistent with the requirements of National Oceanic and Atmospheric Administration (NOAA) Administrative Order (NAO) 217-103: Management of NOAA Small Boats, as well as NAO 209-1: NOAA Safety Policy.

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The Safety Committee welcomes comments and suggestions on this document and any other safety concern. Please contact:

Bill Flerx- Committee Chairperson: (206) 526-6643 or [bill.flerx@noaa.gov](mailto:bill.flerx@noaa.gov)



# WHAT IS A SAFETY PROGRAM?

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A Safety Program is a designed environment where everyone is looking out for the safety and welfare of each other. The most dangerous portion of our jobs, of course, involves the time we spend on vessels at sea. The best Safety Program that a workgroup can design for itself is the one that best meets its needs. Consequently, our initial program has been put together by some of the people who use it, and everyone in our workgroup who uses it should shoulder the responsibility of building on and improving the program.

For a Safety Program to be effective:

- Management must be committed to providing the resources and support necessary to carry it out.
- It must refer to the safety philosophy of the organization and clearly state its goals and objectives.
- It must establish the line of responsibility for safety, which should include everyone in the organization at some level. While each one of us has to keep safety issues foremost in our minds, there must be someone in charge to effectively direct the program on the vessel.
- It should establish an organizational structure through which all employees can address and influence how safety issues are resolved. Periodic feedback and revision of procedures is crucial. Periodic audits of the work area and equipment during each leg will further minimize danger.
- It should address all hazardous situations and practices and develop rules and procedures to mitigate danger to employees.
- It should provide for supportive safety experts and safety training for all employees.
- The program has to be clearly communicated to everyone it is intended to protect, which is the express purpose of this Manual. Each member of the field party will be asked to review the Manual at the beginning of the survey leg.
- “Close calls” should really be viewed as incidents. One outcome is just as likely as the other and only chance dictates whether you walk away (wiping the sweat from your brow) or are carried away on a stretcher. These incidents and the conditions that lead to them must be documented as carefully as the accidents that actually result in an injury. Only then can we improve the procedures that protect us all.

Finally, we must be motivated to take this Safety Program seriously. Our motivation should be that we care about the people we work with. None of us want to see anyone subjected to the pain and suffering resulting from an injury, especially if there is anything we can do to prevent it from happening. All accidents can be prevented, and hopefully this Safety Program will prevent accidents that may have happened had it not been implemented.

**Remember: Safety First!**



## CHECKLIST FOR FPC & SAFETY LEADER

The following is a checklist for Field Party Chiefs (FPC) AND Safety Leaders (SL) (see following section) to be used at the beginning of each survey leg. It is designed to help identify all safety/emergency equipment on board as well as any potential hazards and safety issues aboard the vessel. The FPC and/or the SL will assure that these issues have been properly communicated to all science personnel.

Either the Field Party Chief or the Safety Leader should initial completed tasks:

Leg 1	Leg 2	Leg 3	Leg 4	<b>All Science Personnel / FPC / and Safety Leader:</b>
				Shall read this safety manual and sign the Charter Vessel Emergency Procedure Form (provided by FPC) during the onboard safety meeting at the beginning of each survey leg.
				FPC will assign a Safety Leader (see following section)
				FPC and Safety Leader will conduct tour of vessel with Science Personnel and identify any additional boat specific safety hazards. Discuss possible solutions to potential hazards.

Leg 1	Leg 2	Leg 3	Leg 4	<b>All Science Personnel:</b>
				<b>Be familiar with location &amp; operation of the following items:</b>
				Fire extinguishers
				Muster station
				Life rafts
				Radios and radio procedures
				EPIRB (Emergency Position Indicating Radio Beacon)
				Survival suits (their own and spares)
				HazMat location & storage
				Eyewash stations
				MSDSs (Material Safety Data Sheet)
				O <sub>2</sub> kit and Trauma / First Aid kit
				AED (Automated External Defibrillator)

## CHECKLIST FOR FPC & SAFETY LEADER continued:

Leg 1	Leg 2	Leg 3	Leg 4	<b>All Science Personnel: Must have an understanding what to do in the event of:</b>
				Man overboard
				Fire
				Abandon ship
				Sounding of alarms (General alarm, bilge alarm, fire, etc)

Leg 1	Leg 2	Leg 3	Leg 4	<b>All Science Personnel need to complete:</b>
				Viewing of back care safety video
				Viewing of Cold Water Survival video (for those w/o classes)
				Sign Charter Vessel Emergency Procedure Form
				Practice donning survival suits and record serial numbers
				Emergency Information Form
				NOAA Health Services Questionnaire

Leg 1	Leg 2	Leg 3	Leg 4	<b>Field Party Chief and Safety Leader need to assure:</b>
				All science equipment is properly stowed/securely tied down.
				Test the functionality of all emergency & safety equipment.
				All sampling gear on deck is secured/stowed
				Chemicals are mixed and buckets/barrels secured
				All sampling gear is ready for first tow
				Hard hats & float coats are available
				Complete: Charter Vessel Emergency Procedure Form before departing shore; mail or FAX to Seattle office (see pg 13).





## DUTIES OF A SAFETY LEADER

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Participating in a Groundfish Survey has its own inherent hazards as have been delineated in this manual. The level of vessel experience between the crew and science teams can vary greatly. From year to year a vessel might be altered in a way that may present a new hazard, which even a seasoned veteran of the surveys may be unaware.

With the increased level of awareness of safety issues aboard the vessels, the Safety Committee has created the volunteer position of a Safety Leader (SL). This person (a willing participant - preferably other than the Field Party Chief) will be responsible for safety and hazard concerns during their leg of the survey and maintaining safety concerns as a priority. Ultimate responsibility for safety falls on everyone aboard the vessel; however, a SL will assist the FPC who along with the Captain is responsible for the crew's safety. The SL will help instruct the crew on safety precautions, maintain safety information (various forms), and alert the crew to any potential hazard.

Volunteering to become the Safety Leader for one or more of the Bering Sea or Gulf of Alaska Groundfish Surveys legs is an honorable position. Your duties and responsibilities can be considered minor, but the outcome from your work will be great.

Accidents happen and near-miss accidents may very well occur- we need to document and prevent as many as we can. The duties of a Safety Leader are as follows:

### **Safety onboard vessel at beginning of survey leg:**

1. **Safety Tour:** Commencing a leg of the survey, the Safety Leader will verify that all crew and science team are aware of the potential hazardous situations on the vessel. This includes giving a "safety tour" of the boat to new scientists upon their arrival and pointing out hazards. Use the FPC checklist in this Safety Manual to help guide the tour.
2. **Safety Videos:** The Safety Committee supplies each vessel with a set of Safety At Sea instructional videos. It will be the Safety Leader's responsibility to verify that all members of the science team have viewed the videotapes.
3. **Safety Talks:** At the beginning of each survey leg, the Captain of the vessel 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. At this time it is often customary to double-check all survival suits, practice donning suits, and find appropriate stowing locations, which the Safety Leader can also verify.
4. **Safety Drills:** The Safety Leader will coordinate with the Captain of the vessel and the FPC on conducting safety drills which shall be performed during each leg of the survey.
5. **Emergency Forms and Health Questionnaire:** It will be the Safety Leader's responsibility to coordinate with the FPC on the stowage location for all medical and emergency forms from the science team. All forms should be completed prior to leaving dock.
6. **Safety Equipment:** The Safety Leader and the FPC should coordinate on the stowage locations for the medical kits, O<sub>2</sub> case, AED, survival suits, life jackets and/or Mustang jackets, hardhats, and small boat kits. These locations should be made known to all vessel personnel.

## DUTIES OF A SAFETY LEADER continued:

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7. **Chemicals:** The Safety Leader should coordinate with the FPC and/ or Deck Boss as to proper stowage and use of sampling chemicals aboard the vessel.

### **Safety on vessel during the survey leg:**

1. **Safety Information:** can be found in digital format on any at-sea science computer under RACE Survey App (which replaces our Operations manual).
2. **Accident Report Forms:** Should an injury, accident, or illness occur, NOAA and the Safety Committee have supplied various forms to be completed after the situation is under control. It will be the Safety Leader's responsibility to verify that all forms have been completed properly and that they get returned to Seattle.
  - a.) RACE/REFM At Sea Email Injury Report Form → send to [Jay.Kennedy@noaa.gov](mailto:Jay.Kennedy@noaa.gov)
  - b.) CD-137: Report of Accident / Illness Form

Copies of both forms can be found in the Appendix as well as on the RACE survey App.

3. **Close Call Incident:** Sometimes a "close call" situation may occur where an injury did not result but the potential was there for a more serious outcome. Please complete the RACE/REFM At Sea Email Injury Report Form and check "Close Call" on 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.
5. **Shore Excursions:** If a shore excursion occurs, the Safety Leader will be responsible for completing a float plan and verifying all required equipment is included with the shore excursion party. Please see section on Shore Excursions and Float Plan pgs 26-27.
6. **New in 2011: Safety Leader at-sea personnel recording form:** use this form to record conditions of science crew not reported on injury forms i.e. ergonomic injuries, seasickness, etc. (see pg 95-97 for form and instructions).

### **Safety at completion of survey leg:**

1. **End of Leg/ Survey:** 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 Clean Up (pg 28), and Haz Mat Chemical Shipping Guidelines (pg 40-44)
2. **Safety Evaluation:** The Safety Committee has provided a Safety Evaluation form to be completed at the end of the survey leg by the FPC and any other scientist who might have a comment or suggestion to the Safety Committee regarding vessel safety.
3. **Getting safety information to Seattle:** All electronic versions of safety forms (Injury, Near Miss, Float Plan, Evaluation) will be copied to a CD and returned to Seattle by the Safety Leader, or alternatively can be given to FPC to return to Seattle. Documents should be given to Bill Flerx- Safety Committee Chairperson.

# HEALTH FORMS / MEDICAL EMERGENCY FORMS

All sea-going scientists need to complete an **Emergency Information Form** (Fig. 1) and a **NOAA Health Services Questionnaire** (Fig. 2) before leaving Seattle, WA.

A sample of each of the forms follows. They can both be found in the Appendix of this manual.

AFSC employees can access the RACE Intranet at: <http://afscportal/race> and locate the forms under: At Sea Health Forms.

Additionally electronic blank versions of the forms can be found on the [Safety & Emergency Documents CD](#) provided to all survey vessels.

The purpose of these forms is to provide pertinent personal information in the event of an at-sea medical emergency or other at-sea emergency situation. A copy of each form is sealed for confidentiality and filed with the Division Director in the home office of AFSC, Seattle, WA. A second sealed copy of each form is also sent out with the Field Party Chief to the respective boat where the scientist is scheduled for deployment. The forms are either returned to their owners or destroyed at the end of the survey cruise.

At this time we have no protocol to verify these forms for accuracy or validate the physical fitness of the individuals for sea duty. The work at sea can be physically demanding in remote locations without immediate access to an emergency medical response. Therefore it is strongly advised by the Safety Committee that each individual complete the forms accurately for faster emergency care should it become necessary.

**It is the responsibility of each individual to notify their FPC of any medical condition that may have a potential of becoming serious if not properly treated at sea. Confidentiality can be maximized, but your health and well-being can only be assured if others know how to take care of you in the event of an emergency.**

DATE \_\_\_\_\_

**EMERGENCY INFORMATION FORM**

RACE field project participants - complete form annually and return a copy to Field Party Chief and Safety Officer before departure.

NAME \_\_\_\_\_

EMPLOYED BY RACE  REFM  OTHER \_\_\_\_\_

OFFICE ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_

OFFICE PHONE \_\_\_\_\_ HOME PHONE \_\_\_\_\_

NAME OF IMMEDIATE SUPERVISOR \_\_\_\_\_

IN EMERGENCY NOTIFY \_\_\_\_\_ RELATIONSHIP \_\_\_\_\_

PHONE \_\_\_\_\_ ADDRESS \_\_\_\_\_ E-MAIL: \_\_\_\_\_

YOUR BLOOD TYPE \_\_\_\_\_ MEDIC ALERT TAG? YES  NO

YOUR USUAL BLOOD PRESSURE \_\_\_\_\_

ALLERGIES: Antibiotics \_\_\_\_\_ Anesthesia \_\_\_\_\_

CURRENT MEDICATION \_\_\_\_\_

OTHER RELEVANT MEDICAL CONSIDERATIONS \_\_\_\_\_

DO YOU WEAR CONTACT LENSES? YES  NO

YEAR OF MOST RECENT TETANUS SHOT? \_\_\_\_\_

PERSONAL MEDICAL COVERAGE PLAN? \_\_\_\_\_

TELEPHONE OF PLAN REPRESENTATIVE \_\_\_\_\_

NAME OF PHYSICIAN \_\_\_\_\_ PHONE \_\_\_\_\_

SURVIVAL SUIT SIZE (circle one) INTERMEDIATE  REGULAR  JUMBO

WCFEMF-5/02

**Fig. 1 NOAA/ RACE Emergency Information Form.**

See Appendix for full sized version also available as a PDF in RACE Survey App on at sea computers.

# HEALTH FORMS / MEDICAL EMERGENCY FORMS continued:

Appendix II (rev 7-03) **NOAA Health Services Questionnaire** Page 1

Name \_\_\_\_\_ E-Mail \_\_\_\_\_  
 Program \_\_\_\_\_  
 Position \_\_\_\_\_ Scientist Teacher-at-Sea Other \_\_\_\_\_

Last First MI  
 Birth Date: mm/dd/yy Sex:  M  F  
 Work Address \_\_\_\_\_ Phone \_\_\_\_\_ (W) \_\_\_\_\_ (H) \_\_\_\_\_

Cruise dates: \_\_\_\_\_ SSN: \_\_\_\_\_  
 Citizenship: \_\_\_\_\_ Passport No. \_\_\_\_\_  
 Next of kin: \_\_\_\_\_ Next of kin relationship: \_\_\_\_\_  
 Address of next of kin: \_\_\_\_\_  
 Emergency Contacts (name and phone no.):  
 #1 \_\_\_\_\_ #2 \_\_\_\_\_  
 Medical Insurance Company: \_\_\_\_\_ Policy No. \_\_\_\_\_

**HEALTH INFORMATION**

General State of Health:  Excellent  Good  Fair  Poor  
 Presently under the care of a physician?  No  Yes  
 Month/Year of most recent Physical Exam? \_\_\_\_\_ (mm/yy)  
 Month/Year of most recent Chest X-Ray? \_\_\_\_\_ (mm/yy) Result \_\_\_\_\_

List current medications (prescription and non-prescription):  
 None  1. \_\_\_\_\_ 4. \_\_\_\_\_  
 2. \_\_\_\_\_ 5. \_\_\_\_\_  
 3. \_\_\_\_\_ 6. \_\_\_\_\_

List Allergies: Allergy Reason  
 None  1. \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_

List ALL active health problems:  
 None  1. \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_

Major Surgeries / Hospitalizations / Emergency Room visits  
 None  1. Year \_\_\_\_\_ Reason \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_

List Any Dietary Restrictions: Restriction Reason  
 None  1. \_\_\_\_\_  
 2. \_\_\_\_\_

Report form

Appendix II **NOAA Health Services Questionnaire** Page 2

Name: \_\_\_\_\_

**GENERAL SCREENING**

As an adult, have you had or experienced?

	No	Yes		No	Yes
Cancer	<input type="checkbox"/>	<input type="checkbox"/>	Severe Depression	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	Paralysis	<input type="checkbox"/>	<input type="checkbox"/>
Asthma	<input type="checkbox"/>	<input type="checkbox"/>	Epilepsy	<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis	<input type="checkbox"/>	<input type="checkbox"/>	Impaired Mobility	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Cough	<input type="checkbox"/>	<input type="checkbox"/>	Severe Hearing Loss	<input type="checkbox"/>	<input type="checkbox"/>
Coughed up Blood	<input type="checkbox"/>	<input type="checkbox"/>	Severe Visual Impairment	<input type="checkbox"/>	<input type="checkbox"/>
Recent unexplained weight gain or loss of 20 or more lbs.	<input type="checkbox"/>	<input type="checkbox"/>	Periods of Unconsciousness	<input type="checkbox"/>	<input type="checkbox"/>
Female only: Are you pregnant?	<input type="checkbox"/>	<input type="checkbox"/>	Severe Motion Sickness	<input type="checkbox"/>	<input type="checkbox"/>
			Date of last menstrual period		

Please explain all YES answers below or on continuation sheet:

**CARDIAC SCREENING**

As an adult, have you had or experienced?

	No	Yes		No	Yes	(and value if known)
Abnormal ECG	<input type="checkbox"/>	<input type="checkbox"/>	Hypertension	<input type="checkbox"/>	<input type="checkbox"/>	recent reading _____
Sedentary Life Style	<input type="checkbox"/>	<input type="checkbox"/>	Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	HgA1c _____
Family History of Heart Attack before age 45	<input type="checkbox"/>	<input type="checkbox"/>	High Cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	recent reading _____
Heart Attack	<input type="checkbox"/>	<input type="checkbox"/>	Tobacco Use	<input type="checkbox"/>	<input type="checkbox"/>	packs/day _____
Shortness of Breath	<input type="checkbox"/>	<input type="checkbox"/>	Prolonged Chest Pain	<input type="checkbox"/>	<input type="checkbox"/>	
			Fainting spells/Syncope	<input type="checkbox"/>	<input type="checkbox"/>	

Please explain all YES answers below or on continuation sheet:

Report form

Appendix II **NOAA Health Services Questionnaire** Page 3

Name: \_\_\_\_\_

**IMMUNIZATION SCREENING**

Please list the date(s) you obtained immunizations/prophylaxis against the following diseases:

PPD (TB test) - must be within last 12 months:	Date	Type	Result	Date unknown	None
Tetanus <sup>1</sup>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis A Series: Dose 1	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dose 2	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis B Series: Dose 1	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dose 2	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dose 3	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cholera	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria <sup>1</sup>	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influenza (most recent)	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immunoglobulin (IG)	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Malaria	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Measles, Mumps, Rubella (MMR)	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polio	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Typhoid Fever	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yellow Fever	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other: Please provide complete information on Continuation Sheet

<sup>1</sup>May be given as part of TD vaccination

Are you aware of any other medical condition(s) that may affect your suitability for sea duty?  No  Yes  
 If yes, please explain on the continuation page

If you have any questions, please contact the appropriate Health Services Office:  
 Marine Operations Atlantic (757) 441-6320 Marine Operations Pacific (206) 553-8704  
 Continuation page attached?  No  Yes

The information provided is complete to the best of my knowledge.

Signature \_\_\_\_\_ Date (mm/dd/yy) \_\_\_\_\_  
 Forward to the following ship: 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

MEDICALLY CLEARED FOR SEA DUTY BY HISTORY  YES  NO  NEED MORE INFO

MOA/ MOP Regional Director of Health Services \_\_\_\_\_ Date (mm/dd/yy) \_\_\_\_\_

Report form

Page 3 of 3 **NOAA Health Services Questionnaire Continuation Page**

Name: \_\_\_\_\_

Report form

**Fig. 2 NOAA/ RACE Health Services Questionnaire.** This form can be found as a PDF (RACE Survey App) and is included in the Appendix of this manual.





# 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 to provide a series of Safety / First Aid training classes. This training satisfies the Coast Guard's STCW requirements (*Document #2001 07 EJF Fleet Operating Principles/ memorandum on Basic Safety Training*).

Courses include four modules: basic first aid, personal survival techniques, basic fire fighting, and personal safety and social responsibility. NOAA's policy suggests voluntary compliance with the provisions of STCW, and recommends **completing module #1 A or B (Medical) and #2 (Survival at Sea)**. In addition either module #3 (Fire Fighting) or #4 (Shipboard Living) should be completed.

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 2-3 years for staff.	Recommended every 2 years.	Required every 2-5 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 <sub>2</sub> Therapy, CPR and use of AED (Automatic External Defibrillator). Additional advanced techniques in I.V. administration, injections, suture, and advanced O <sub>2</sub> therapy.	An 8hr refresher of Medical Emergencies at Sea course including O <sub>2</sub> 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.

Module 3	Module 4
Fire Fighting	Shipboard Living
Optional every 5 years.	Required every 5 years
An 8-hr course designed to teach the basics of on-board fire fighting, the various types of equipment, extinguishers, and gear. Techniques on various types of fires.	An 8-hr course designed to teach the special challenges of living aboard a small vessel with other people for extended periods of time.



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 RACE/REFM Safety Training Manager: Erika Acuna at 206.526.4606 or by email: erika.acuna@noaa.gov.

# ADDITIONAL EMERGENCY TRAINING

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## **Additional Recommended Training:**

- **Hazardous Materials Handling, Storage and Transportation (DOT):**

All field personnel shall complete this course. Task leaders should encourage staff completion of the training.

**Who should attend:** Any individual responsible for the packing and shipping of hazardous materials or working with hazardous materials at anytime in performance of their job shall complete the annual training requirements associated with these tasks.

If you have not completed the required annual training of shipping and handling of hazardous materials you are not authorized to pack, ship, or sign the shipment manifest for these items.

- **Back Strain and Prevention:**

Instructional videotapes featuring proper lifting techniques and back care will be provided on each RACE vessel. Stretching and warm-up exercises by field personnel at sea should be encouraged.

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# EMERGENCY CALLS AT SEA



While at sea you may feel isolated from the common conveniences we have on land, and the luxury of being able to pick up the phone to call 911 when an emergency situation arises. Emergency information can still, however, be sent from the vessels in an expeditious manner

What methods do we have available to us for emergency situations while at sea miles from shore or 911? The following is a list of various emergency distress communication means that may be available to us for the sole purpose of getting a message out that the vessel is in distress. Specific operation of this equipment, as well as its location on your vessel and protocol may be different from vessel to vessel. The vessel's Captain prior to departure will instruct you on the specifics during your safety tour and instruction session.

Keep in mind that in the event of an emergency it will most likely be the vessel Captain or crew sending the distress information, however it is prudent for you to familiarize yourself with the equipment should you be tasked to use it.

## 1.) Radio Distress Call (MAYDAY) / Coast Guard:

- Marine VHF radio channel 16
- Marine Single Sideband radio (SSB) channel 4125 and 2182  
You will be shown the location and operation of both marine radios on your vessel and how to make a distress call.

## 2.) Emergency Medical Assistance / Coast Guard:

- A 24 Hr medical on call service is available to all vessels in Alaskan waters 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 vessel Captain how to contact the medical service.

## 3.) INMARSAT-C:

- Most Alaskan commercial vessels are equipped with INMARSAT-C email capabilities. In addition to transmitting electronic messages via satellite, the equipment has an emergency button to send an immediate distress signal.  
You will be instructed on the position and use of the INMARSAT-C.

## 4.) Satellite phone:

- Most vessels are equipped with a satellite transmission phone.  
By entering: **grp01 enter** you will reach an emergency operator.

## 5.) Vessel Monitoring System: (Bering Sea Only/ GOA does not use during survey)

- NMFS Trawlers exceeding 60ft in length must be equipped with a VMS (Vessel Monitoring System).
- Position information can be transmitted to a NMFS office at all times that the VMS is operating.
- A distress signal can also be sent in case of a shipboard emergency.  
You will be instructed on the location, operation, and position of the VMS on your vessel.

## 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

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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:**

As the International COSPAS-SARSAT System ceased satellite processing of 121.5/243 MHz beacons as of 1 February 2009, these units replaced the 121.5/243 MHz ACR MiniB class B Personnel EPIRBs used by RACE Division scientists for use at sea. 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.

### **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.

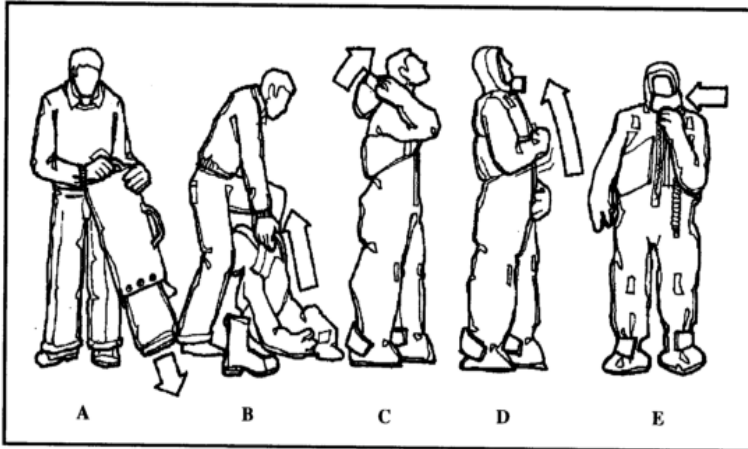


Training for operation of this unit is provided in several courses: NOAA offers CPR/AED training several times a year; the 2 day NPFVOA Medical Emergencies at Sea course (Med-2) as well as the 8hr Med-1 both also provide AED training. It is important that all sea-going personnel educate themselves on the operation of the AED unit- anyone of us could be called to react in an emergency situation- the more people trained- the faster and better the response.

# COLD WATER IMMERSION SUITS

---

## Donning Survival Suit:



*Steps for donning survival suit*

(A) Remove suit from stowage bag with a sharp jerk of the carrying bag.

(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 back to remove wrinkles in the fabric.

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

---

## Storing Survival Suit:

Stowage bag: Check condition of snaps on bag for ease of operation.

### 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.

Survival light: Make sure the survival light is operational and has not expired.

### Stowage.

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

# STANDARD OPERATING PROCEDURES

The following is a list of Standard Operating Procedures for tasks encountered on a typical groundfish 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:

Falling into water; slipping; bumping into hard items.

### Operating procedures:

- Use gangway when available.
- Use handrails on gangway.
- If gangway is not an option (due to level differences between the deck and the dock or rough weather) use extreme caution, be aware that the boat can move. Ask for assistance, or ask vessel crew to set up the cargo net as a safety net (if appropriate) between the boat and dock.
- Before you leave the boat, communicate your departure by informing the captain and/or FPC and write a message on the message board including time, destination, and approximate return.
- If you feel unsafe, communicate to the Captain, FPC or crew. There are other ways to get you on and offboard. For example: use other persons for assistance, use of a crane.
- Discuss your safety concerns with the crew. They may know a better, safer way, or you may help them find a better way.
- Most embarking / disembarking will be a personal judgement call, remember that you are responsible for your own safety.

## 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 (including forklifts).

### Operating procedures:

- Hardhats shall be worn when overhead loads are being transferred.
- The FPC (Field Party Chief) 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.

### Lifting:

- View required training video on proper lifting techniques and/or attend training.
- When lifting heavy loads: get help, break up loads to lighten.

### **Loading/ Offloading Continued:**

- Only certified operators will operate forklifts.
- 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.

## **3. Setting up equipment:**

### **Hazards:**

Power tools; electrical shock; chemical burns; lifting heavy loads; improper stowage.

### **Operating procedures:**

#### **Emergency/ First Aid Equipment:**

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

#### **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 can be hazardous).
- Protect yourself from electric shock by using a GFI device (Ground Fault Interrupt) when using outside deck electrical outlets. Be aware that water (both fresh and sea water) can cause an electrical short, which can cause shock or fire. Watch for water around electrical equipment. Always seal all electrical connections that are at risk of getting wet.

#### **Chemicals:**

- FPC and/or Deck Boss will designate 1 person responsible for working with chemicals.
- Before working with chemicals read provided MSDS (Material Data Safety Sheet) and proper handling procedure for each chemical. MSDS 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 (pg 31).
- Wear Personal Protective Equipment (PPE): impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
- 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.
- Use provided pumps for transferring chemicals from big to small containers.
- Always work in a well-ventilated area i.e. open deck.
- For accidental spills or skin contact: consult MSDS for particular chemical; also see section on Essential Hazardous Material Information (pg 31) from MSDS for specific chemical.
- Communicate your activities to those around you who may not be wearing Personal Protective Equipment.

### **Setting up Equipment – Chemicals Continued:**

- Educate yourself on the location and use of the eye wash station.
- 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. Original cardboard packaging box for 1gal and 5 gal Formalin bottles should be kept dry.

### **Lifting:**

- View required training video on proper lifting techniques and / or attend training. When lifting heavy loads: get help, break up loads to lighten, lift with legs not your back.

### **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.

## **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.
- When entering especially loud areas (i.e. the engine room) wear ear protection.
- Avoid standing under alarm bells or speakers/ 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 float coat or life jacket, 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. Surface seawater collection (GOA survey only):

**Hazards:** Heavy load when bucket is full; line may injure you if body parts are in its way when tossing bucket overboard; loose bucket may be in the way, potential tripping hazard.

### Operating Procedures:

- Surface seawater collection should only be done after the doors are up and secured and wires have gone slack and vessel is NOT underway.
- Tie a safety line from the bucket to rail. When launching bucket stay clear of the line and be cautious of fingers to avoid a crushing/pinching injury.
- If the 5-gallon bucket is too heavy to pull alone, get help or replace with a 3-gal bucket.
- Secure empty bucket and line away from walk ways when not in use.

## 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:

- Scientific crew should always remain under the shelter deck unless FPC/Deck boss needs assistance in reading load cell weight.
- Wear appropriate clothing: raingear, gloves, and boots.
- 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 (pg 45) 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:

- Stretch often, take breaks, switch tasks, and avoid repetitive motions.

#### 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:

- Watch training video on proper lifting techniques.
- **Use 2 people to lift heavy baskets.**
- Avoid overfilling baskets.
- Lift with your legs, not your back.
- Use a line or hook to pull baskets across deck.
- Avoid dragging baskets while bent-over; use your legs for pulling.
- 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 (pg45) section to treat minor injuries (cuts, fish spines,etc.)



## 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.
- Use Basic First Aid At Sea (pg 45) 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 MSDS for the particular chemical. Also see section on Essential Hazardous Material Information (pg 31).

## 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 MSDS for the particular chemical. Also see section on Essential Hazardous Material Information (pg 31).
- Chemical shipping: See Hazardous Material Chemical Shipping Guidelines (pg 40).
- 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; engine room hatch/doors can be heavy, or self closing; slips and head bumps can be common in confined spaces if not careful; 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.
- Do not store bulk chemicals in confined spaces or below deck under any circumstances.
- 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.
- 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](#) (pg 62).

**NOTE: Use of personal medication:** It is advised you assure yourself all your prescription medication (including seasickness prescriptions) are continued 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.

- Avoid fatigue; it can lead to reckless behavior and increase hazard potentials; be considerate of the long working hours.
- Assure science crew is getting enough rest.

## 18. Shore excursions:

### Hazards:

Minor/ major first aid injuries, weather, stranding on shore, lack of food / water, hypothermia, skiff engine trouble, capsizing, wildlife, disorientation, lack of communication.

### Operating Procedures:

Shore excursions have their own inherent hazards associated with them apart from life aboard the vessels. Excursions are often in remote, unpopulated locations. Resources for communication and first aid can be limited. Shore excursions should not be taken lightly, and should be treated as any formal mountaineering expedition. A minor injury can quickly become life threatening if left untreated. To minimize mishaps and injuries, precautions should be taken before and during the excursion ashore to ensure the safety of everyone involved.

As per the AFSC small boat safety program a detailed [Float Plan](#) (pg 29) shall be completed before embarkation of a small boat operation. The following recommendations should serve as a checklist: Also see: [Recommended List of Personal Essentials](#) (pg 30).

### Weather:

- Only undergo shore excursions when weather permits. Rely on FPC and Captain's discretion.
  - Pack sensibly when going ashore, take extra clothing and rain / wind protection.

### Communication:

- When departing from vessel dockside: science crew and FPCs should use message board to communicate whereabouts of personnel, and update departure & return times.

**Shore Excursions / Communication continued:**

- Complete an AFSC Small Boat Float Plan (pg 29) before departing mothership. This should include:  
deployment and shore departure times and locations of beach landings to and from shore; location of base camp; location and operation of VHS radio; location of first aid kit; and intended teams and routes of hiking parties.
- Always establish a contingency plan between the Captain of the vessel, its crewmembers, the FPC, and scientific team before departing to shore.

**Skiff engine trouble-capsizing:**

- Always assure yourself that the skiff operator is experienced and responsible; decline the shore party otherwise.
- It is advised that 2 skiffs be available at any time of a shore excursion (i.e. if 2 vessels are anchored for shore party, each vessel should have an operational skiff).
- Wear a flotation device such as: life jacket, float coat, or Mustang suit when traveling in skiff.
- Assure emergency oars, boat kit, and sea anchor are in skiff and secured before departing in the event of outboard motor malfunction.
- It is advised to use waterproof bags for personal belongings taken to shore, as most items in skiff will get wet.

**Minor / major first aid injuries:**

- Take Mini First Aid Kit and Shore Kit on shore excursions. Leave at base camp.
- See Basic First Aid at Sea Information (pg 31).

**Food / water:**

- Take extra food/ water in the event of a prolonged stay ashore.

**Stranding:**

- Always fully charge and test VHF radios before leaving boat to go ashore.
- Pack survival suits in shore excursion supplies in the event of a prolonged stay onshore.
- Check Shore Kit for survival supplies before leaving vessel (see Content List pg 31).

**Hypothermia:**

- Consult first aid manual for prevention and treatment.
- See section on Emergency Contact Numbers for more advice (pg 47).

**Wildlife:**

- Communication with shore party is essential. In the event of bear activity in the vicinity all shore party members should be made aware. Make noise to deter an attack, shout, sing, use whistle.
- Stay away from wildlife. Bears, fur seals, walruses, sea lions can be encountered depending on location of shore excursion. They can be dangerous. Do not provoke!

**Disorientation:**

- Prevention is key. Travel in teams with an experienced partner; if venturing alone take a VHF radio and / or whistle to alert someone in the event of trouble.

## 19. 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.
- 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 (pg. 45) and notify your FPC.


# FLOAT PLAN

The following Survey Float Plan (Fig. 4) and Equipment List (Fig. 5) complies with the AFSC (Alaska Fisheries Science Center) Small Boat Safety Program requirements.

A Float Plan needs to be completed before any departure ashore via skiff or other small boat on shore excursions and the items on the equipment list need to be verified. These forms can be found on the Race Survey App provided to survey vessels. An electronic copy or a hard copy of completed forms should return to Seattle. A copy of these forms can also be found in the Appendix of this manual.

**PAGE 1 of 2** RACE Survey Float Plan

National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Alaska Fisheries Science Center



Date: \_\_\_\_\_ Vessel: \_\_\_\_\_

Name of Captain: \_\_\_\_\_

Name of FPC: \_\_\_\_\_

Name of Safety Leader: \_\_\_\_\_

Names of personnel on shore excursion:	Able to swim? (yes/ no)	Departure / Return (Time & Location)
1. _____	Y N	_____
2. _____	Y N	_____
3. _____	Y N	_____
4. _____	Y N	_____
5. _____	Y N	_____
6. _____	Y N	_____
7. _____	Y N	_____
8. _____	Y N	_____
9. _____	Y N	_____
10. _____	Y N	_____

Small boat description:	
Model:	
Length:	
Width:	
Draft:	
Engine type:	
Fuel on board:	
Boat operator:	
Experience level:	
Additional Information:	

**Equipment Checklist**  
**(Required by U.S. Coast Guard)**

\_\_\_\_\_ PFD's  
One Coast Guard Approved type I, II, or III life preserver or buoyant vest for each person aboard.

\_\_\_\_\_ EPIRB

\_\_\_\_\_ Anchor  
7 ½ lb. with 6ft chain lead, and anchor line

\_\_\_\_\_ Oars or Paddles  
or other means of secondary propulsion.

\_\_\_\_\_ Medical Kit (check shore kit)

\_\_\_\_\_ Whistle or Horn  
One hand, mouth, or power operated whistle or horn, audible at least ½ mile.


\_\_\_\_\_ Bilge pump  
or hand bailer.

**Fig. 4 RACE Summer Survey Float Plan.**

## FLOAT PLAN Continued:

**Page 2 of 2**      **RACE Survey Float Plan Suggested and Recommended Equipment List by AFSC:**

National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Alaska Fisheries Science Center



**Survival suits** (not necessary for dockside transport/ only for shore excursions)

**Radar reflector/ transponder (SART)**

**Additional Radios:** (frequency monitored: \_\_\_\_\_)

**Orange flag w/pole to mark base camp**

**Hand held EPIRB unit**

**Fire extinguisher**

**Extra food**

**Extra water**

**AFSC Small Boat (Shore) Kit:**

**AFSC Shore Kit Contents:**


1. VHS Radio: verify full charge and Frequency monitored: \_\_\_\_\_
2. Flashlight: take extra batteries
3. Emergency blankets
4. First Aid supplies
5. Scissors
6. Signaling flares
7. Distress flag
8. Signaling mirror
9. Whistle
10. Knife
11. Compass
12. Leatherman tool
13. Fishing hooks and line
14. Toilet paper
15. Fire starters
16. Sterno cooking fuel & stove
17. Boullion cubes
18. Snare Wire
19. 4 MRE (Meals Ready to Eat)
20. Mess kit and utensils
21. Potable water tables.
22. 3L drinking water
23. McMurdo Personal EPIRB

**Fig. 5 RACE Survey Float Plan Equipment List.** An electronic copy or hard copy of completed form should return to Seattle. Also see Appendix.

## RECOMMENDED PERSONAL ESSENTIALS FOR SHORE EXCURSIONS:

**~Be prepared to spend the night!**

1. Raingear and rubber boots
2. Daypack
3. Whistle
4. Extra clothes with synthetic insulating layer including socks, gloves and a hat!
5. Plastic garbage bags, visqueen, duct tape,
6. Light line or cord
7. Matches in waterproof container



8. Fire starter sticks
9. Waterproof flashlight
10. Emergency food
11. Water
12. Space blanket
13. Toilet paper, packed in zip lock bag
14. Personal first aid kit
15. Knife or Leatherman type tool
16. Watch
17. Compass

# ESSENTIAL HAZARDOUS MATERIAL INFORMATION

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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)**

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### 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.

## FORMALDEHYDE continued:

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### **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 (pg 45), and Emergency Contact Information (pg 47).

### **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!



## FORMALDEHYDE continued:

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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° 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** See section on Hazardous Chemical Material Shipping Guidelines (pg 40).

**Disposal** See Survey Operations Manual for proper disposal.



## ETHANOL (ethyl alcohol) 95% & 10%

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### **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 (pg 45).

#### **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:**

See section on Hazardous Chemical Material Shipping Guidelines (Pg 40).

**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.

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# GLYCEROL

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

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## 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.

## GLYCEROL continued:

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### **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 (pg 45).

### **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:**

See section on Hazardous Chemical Material Shipping Guidelines (pg 40).

### **Disposal:**

See Survey Operations Manual for proper disposal.

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## 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 (pg. 45).

**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:**

See section on Hazardous Chemical Material Shipping Guidelines (pg 40).

**Disposal:**

See Survey Operations Manual for proper disposal.

# HAZARDOUS CHEMICAL MATERIAL SHIPPING GUIDELINES

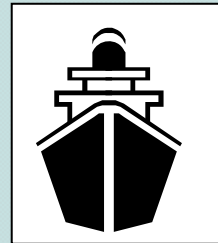


The guidelines below are provided to ensure that you safely transport and ship hazardous materials (such as specimen samples stored in Ethanol, Formalin, or Glycerol-Thymol solution) and comply with applicable federal regulations.

**REMEMBER:** Only personnel that have completed the annual training for shipping and transporting hazardous materials should be packing and shipping these materials.

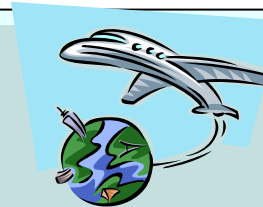
## **Chemicals on board ~ Transporting HazMat Chemicals by water:** **(i.e. by boat during field operations)**

- Ensure that hazardous materials are properly packaged and stored.
- Clearly label and mark containers that hold hazardous materials.
- Provide MSDS information.



## **Shipping HazMat Chemicals By Air:**

In general, NOAA discourages staff from traveling with or shipping hazardous materials by air. However, if air transport is required, the following guidelines apply:



1. Hazardous Materials (Chemicals) may not be packed in checked or carry-on baggage or taken aboard a commercial flight. For more information, contact the airline you are using.
2. Specific requirements must be followed when **air cargo** shipping dangerous goods. The requirements include the proper classification of hazardous material, proper packaging, labeling, and documentation. Commercial airlines will hold you responsible and liable for any damages, contamination, or costs associated with any spill or leakage. See examples in next section for proper labeling.
3. For “Limited Quantities” of certain chemicals the shipping/ cargo companies will take packages providing:
  - You state the contents
  - The amount of ethanol totals a “limited quantity” which is acceptable for shipping.
  - Each vial is sealed and within an overpack container which are wrapped inside a plastic bag within the cardboard shipping box.
4. If you plan to use a commercial air cargo carrier to ship dangerous goods, (such as coolers or buckets containing samples that are preserved in ethanol), please follow the guidelines in the section.
5. For information on approved and prohibited items that can be taken aboard a commercial airplane please visit the Transportation Security Administration web page at: [www. TSATravelTips.us](http://www.TSATravelTips.us) or call the Consumer Response Center toll-free 1-800-866-289-9673.



**Shipping HazMat Chemicals by ground transport (Barge):**

FTS

Using a barge-shipping courier to ship HazMat chemicals is the safest, most economical method.

SeaLand

Western Pioneer

Sampson Tug & Barge

- ~ Samples shipped in 10% Formalin are unregulated by DOT therefore can be shipped in any amount (i.e. REFM stomach collection buckets, RACE voucher collection specimen).
- ~ Samples shipped in flammable liquids (Ethanol and EtoH Solution):
  1. Can be in standard plastic (Nalgene) or glass containers.
  2. Lids must be sealed tight with plastic tape (not applicable for otolith vials).
  3. Sample bottles must be packed in another container (overpack), such as a cooler for larger containers or plastic bag tightly sealed (i.e. otolith trays).
  4. Single Packaging (each discrete package): drums and pails, that are DOT approved. Each single packaging must not exceed 7 gallons in volume (or 30kg/ 66lbs in gross weight).
  5. Above contents must be shipped in a cardboard box, with proper labeling (see pg 43). Note: consult specific specimen-shipping preferences by principal investigator. Alternative methods for shipping may be acceptable, such as draining ethanol from specimen prior to shipping and inserting moist paper towels between specimen samples.
  6. When shipping Hazardous Material to and from NOAA / NMFS by barge (land or sea) a Dangerous Goods Declaration Form must be completed. The form contains pertinent information of shipped HazMat. Chemtech (#800-424-9300) traces the shipment 24hr/7 days.

**Packing Groups and Limited Quantities (for ground shipping/ transportation):**

- The Packing Group for a chemical indicates the degree of hazard associated with its transportation. The highest group is Group I (great danger); Group II is next (medium danger), while Group III chemicals present the lowest hazard (minor danger). Packing Groups are often shown on MSDS data sheets for chemicals under the heading "Transport Information".
- Limited Quantities are the maximum allowable quantities of certain designated hazardous materials that can be shipped. Specific guidelines apply; please see the following sections for more detail instructions on packaging and labeling.

**Packing Groups:**

**Limited Quantities:**

**Glycerol** = Not regulated by DOT  
**Thymol** = Packing group III  
**Formaldehyde (37%)** = Packing Group III / Hazard Class 3  
**Formalin (10%)** = Not regulated by DOT / Hazard Class 9  
**Ethanol (>10%)**= Packing Group II / Hazard Class 3

none  
 60L Air Cargo  
 60L Air Cargo  
 none  
 60L Air Cargo

**Labeling and Marking Requirements for Ethanol:**

**Ethanol (>10%):**

- Limited quantity (maximum allowable) containers can be either glass or nalgene.
- Individual containers must be labeled and lids sealed with tape (i.e. electrical tape) does not apply for otolith vials.
- Containers must be packed in strong, DOT approved secondary container (i.e. 5 gal bucket w/ uncut lid), Or:
- Outer cardboard packing must be DOT approved cardboard box and must be labeled properly (see below).
- All shipped flammable liquids must be declared in shipping papers or cargo manifests.

**Step 1: Packaging Otolith Trays:**

- Scrub and Dry each otolith tray before packing.
- Place 2-3 paper towels inside each tray to absorb any moisture. Tape each tray shut.
- Place 3 or fewer otolith trays inside a provided plastic bag, seal and insert into packing box.

**Step 2: Labeling:**

- Complete and affix to package the following:

**(a.) Flammable Liquid Label:**



**(b.) Mailing Label:**

NOAA/ WRC  
7600 Sand Point Way NE  
F/ AKC 1  
Seattle, WA 98115  
ATTN: Erika Acuna Bldg.4

**Contents: Biological Samples in  
50% Ethanol Solution 6.3L**

**(c.) Cargo Only Label:**



This “Danger-Do Not Load In Passenger Aircraft” label provides a quick reference for shipping personnel. Label meets the requirements in IATA, ICAO and 49CFR for containers accepted by **cargo air only**.

**(d.) Excepted Limited Quantity Label:**

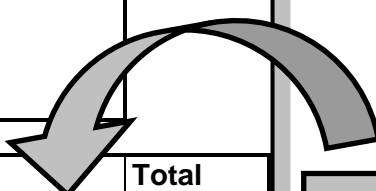
This label complies with the IATA (International Air Transport Association) requirements for shipping dangerous goods in excepted limited quantities.



### Step 3: Shipping:

Use Penn Air- Air Cargo and tell them you are a “Known Shipper” for NOAA/ NMFS. The package contains acceptable limited quantity of Haz Mat chemical (<60 L) and Biological Samples which are properly packaged. Fill out a Shipping Paper (given to you by the air cargo office):

#### Example of a Shipping Label:

<div style="border: 1px solid black; padding: 5px; width: fit-content;">                 Penn Air Air                  Cargo 1234                  Ship Lane                  Dutch Harbor,                  AK 12345             </div>	<p><b>Shipping To:</b></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><u><b>NOAA / WRC</b></u></p> <p><i>7600 Sand Point Way NE</i></p> <p><i>F/ AKC 1</i></p> <p><i>Seattle, WA 98115</i></p> <p><i>ATTN: Erika Acuna Bldg 4</i></p> </div>		
			
<b>Item</b>	<b>Num. Units</b>	<b>Shipping Description</b>	<b>Total Quantity</b>
<i>1</i>	<i>1</i>	<i>Ethanol Solution, 3, UN1170, PG II</i>	<i>6.3L</i>
		<i>Biological Samples in 50% EtoH</i>	

**Ensure proper HazMat Shipping codes.**

**Each boxed package of otolith trays contains a maximum of:**

- 140 vials @ 15ml each / per tray = 2.1L total volume of EtOH per tray.
- X 3 trays per box = **6.3L Total Volume EtOH** per shipping box.

#### Relevant Shipping Information Phone Numbers:

**Alaska / Penn Air/ Air Cargo (Anchorage): 907-266-7804**

**Alaska Air: 800-252-75247**

## Labeling and Marking Requirements for Formalin:

### *10% Formalin*

- Not regulated by DOT in diluted 10% strength.
- Combination packaging is recommended to minimize the possibility of release.
- Containers should be tightly sealed (i.e. 5 gal bucket sealed with an un-cut lid)
- No overpack required.
- Each single packaging must not exceed 7 gallons in volume (or 30 kg /66 lbs in gross weight).
- Label contents.


Example of Bucket Label:

<p style="text-align: center;"><b>10% Formalin</b></p> <p style="text-align: center;"><b>P.Cod Stomach Samples</b></p> <p style="text-align: center;"><u>Vessel (Arcturus) -Cruise Year (2004-01)</u></p> <p style="text-align: center;"><b>Collector: John Doe</b> <b>NMFS / REFM</b></p>
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### *37% Formaldehyde (full strength Formalin)*

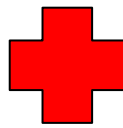
- Each single packaging must not exceed 7 gallons in volume (or 30 kg /66 lbs in gross weight).
- If original manufacturers packaging is intact, it may be re-used for shipping.
- Label with DOT code.

Example of proper shipping label:



Flammable Liquid Label

<p><b>Contents:</b> 37% Formaldehyde</p> <p><b>Hazard Class:</b> 3, UN1198, PG III</p> <p><b>Quantity:</b> 3x 1L bottles = 3L Total</p>	<p>What is it?</p> <p>DOT code?</p> <p>How much?</p>
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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 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 Report of Injury, Illness, Accident or Fatality Form (CD-137) 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.



## Emergency Care Center for Various Alaskan Ports:

The following information is provided for use in the event of an injury or illness that requires additional medical advise from a medical professional. Most survey vessels come equipped with cell phone capability that can be used to contact these numbers.

### Adak

Adak Voulunteer 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 Medical Center  
(907) 424-8000

### False Pass

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

### Homer

Providence Kodiak Is. Medical Center  
(907) 486-3281

### Ketchikan

Ketchikan General Hospital  
(907) 228-8300 x 7300

USCG Emergency Support  
(907) 228-0320

### Kodiak

Kodiak Fire Department  
(907) 486-8040

Kodiak Hospital  
(907) 486-9578

### Seward

Bear Creek Fire Service  
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 Clinic  
(907) 859-2254 or 2260

### St. Paul Is.

St. Paul Clinic (907) 546-2310  
24hr Public Safety (907) 546-3130

### Sand Point

Sand Point EMS  
(907) 383-3700 or 4111

### Unalaska (Dutch Harbor)

Unalaska Fire / EMS  
24hr dispatch (907) 581-1233  
Unalaska Clinic (907) 581-1202

### Yakutat

Volunteer EMS Rescue  
(907) 784-3206



**By dialing 1-800-478-5555**

**on a TAG phone or**

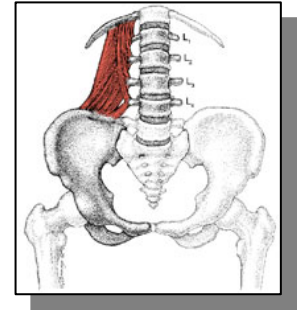
**\*CG on a cell phone**

**you can be connected to the  
USCG Search and Rescue  
Center in Alaska.**

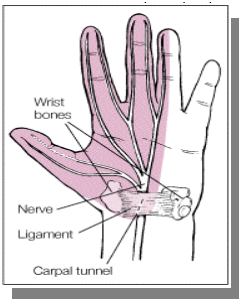


# REPETITIVE MOTION INJURIES & BACK STRAIN

Repetitive motion and lower back injuries are among the most common injuries in the United States. All of these disorders are made worse by the repetitive actions of daily living or working. Repetitive motion injuries make up over 50% of all athletic-related injuries seen by doctors and result in huge losses in terms of cost to the workforce.



Repetitive motion 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.

### How Tendonitis Occurs:

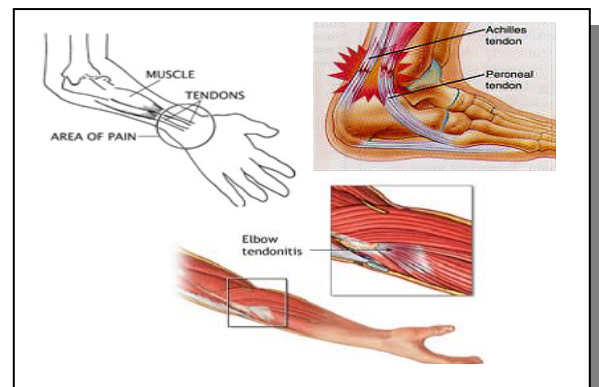
A tendon is the end part of a muscle that attaches the muscle to the bone. The normally very elastic and soft muscle tapers off at the end to form the much more dense and stiff tendon. While this density makes the tendons stronger, the lack of elasticity of the tendon and the constant pulling on its 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.

### Common Areas of Tendon inflammation:

The most common tendon areas that become inflamed are the elbow, wrist, biceps, shoulder (including rotator cuff attachments), leg, knee (patellar), ankle, hip, and Achilles. Of course, tendonitis will vary with each person, as it strikes the areas you use most.

Some common type of tendonitis include:

- Rotator Cuff Tendonitis
- Wrist Tendonitis
- Tennis Elbow - Elbow Tendonitis
- Posterior Tibial Tendonitis
- Achilles Tendonitis



**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:**

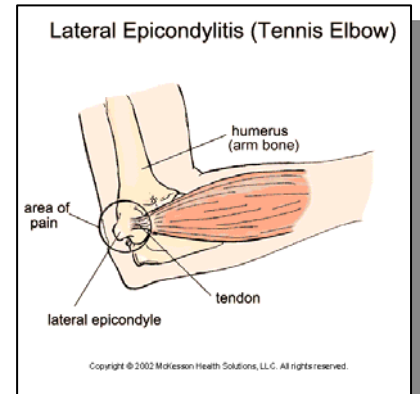
Prevention of this condition requires stretching the muscle on a regular basis and thereby lengthening the tendon connection. This will allow less pulling on the tendon attachment to the bone. When tendonitis does occur, it is important to treat it immediately, and thereby prevent it from reaching a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

### What is the treatment of 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 and Exercises**  
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 malaligned muscles. Patients often find relief of pain when using the clasp during activities.



Some simple exercises can also be helpful in controlling the symptoms of tennis elbow.

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:

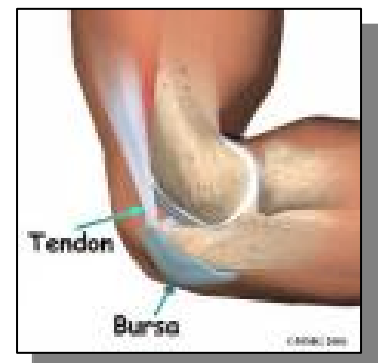
- Common symptoms include pain, tenderness, and decreased range of motion over affected area. Redness, swelling, and a crunchy feeling when the joint is moved (crepitus) may also be found.
  - **Knee:** This condition involves swelling over the bottom part of the kneecap that is red and warm to the touch. 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.

### **To prevent the return of bursitis symptoms:**

- **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:

- Numbness and tingling in the hands, especially when these symptoms occur at night and after use of the hands.
- Decreased feeling in your thumb, index, and long finger.
- The presence in your hand of an electric-like shock or tingling.
- The reproduction of your symptoms by holding your wrists in a bent down position for one minute.

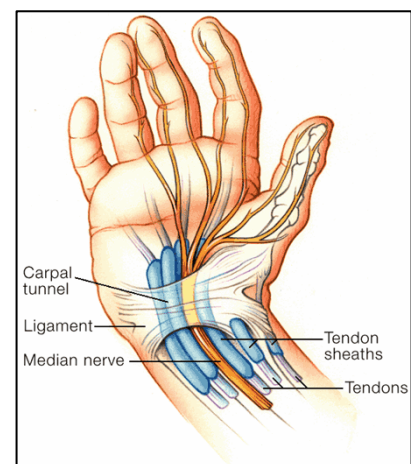
### What is Carpal Tunnel Syndrome?

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

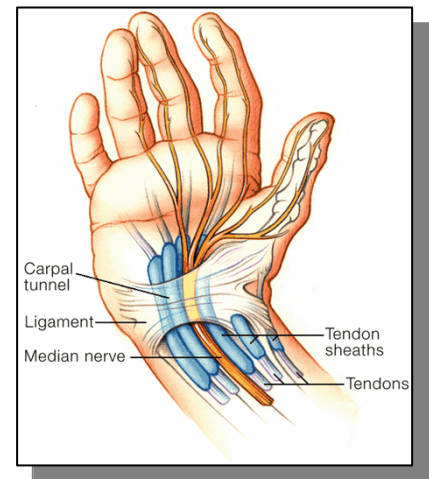


### What is the treatment for carpal tunnel syndrome?

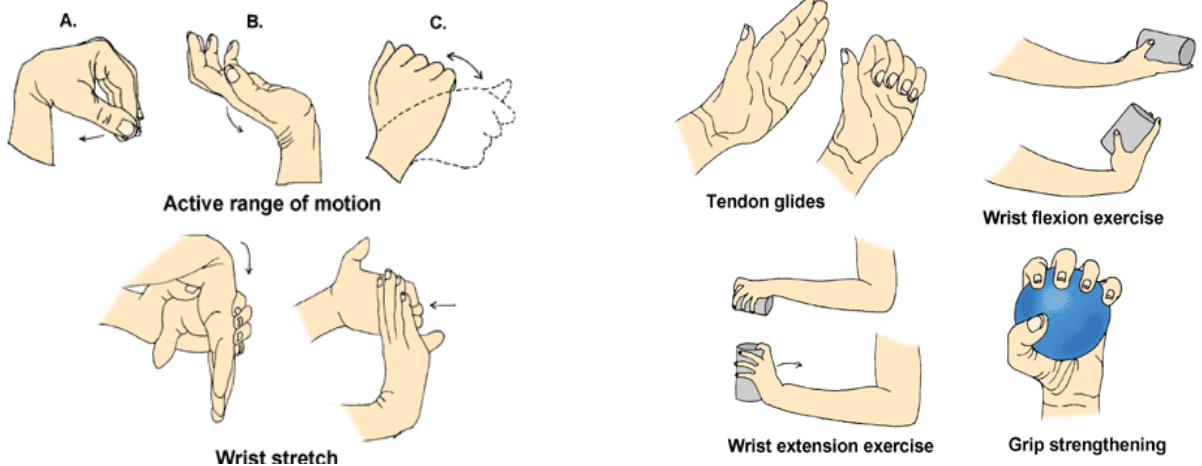
Most important, discontinue--as much as you can--whatever is causing it. If the activity is a hobby or sport that you can avoid entirely for a while, that may be all that is needed.

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 those 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.



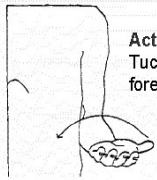
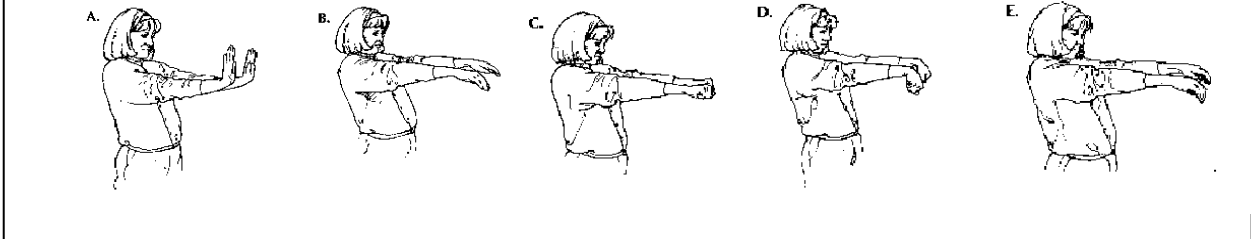
### Carpal Tunnel Syndrome Exercises



97 Clinical Reference Systems



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



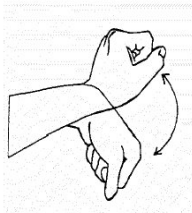
**Active Forearm Supination/Pronation**  
Tuck elbow against side of body; turn forearm palm up; turn forearm palm down.

## Sore Wrist Exercises



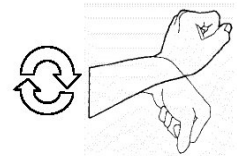
**Wrist Extension Passive Stretch (alternative method)**

Press palms together in "prayer position"; Pull hands downward keeping palms together.



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

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



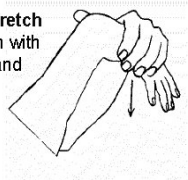
**Active Wrist Radial and Ulnar Deviation**

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.



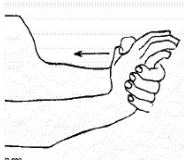
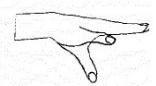
**Wrist Flexion Passive Stretch**  
Bend wrist forward; stretch with other hand; hold position and remove other hand.



**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.



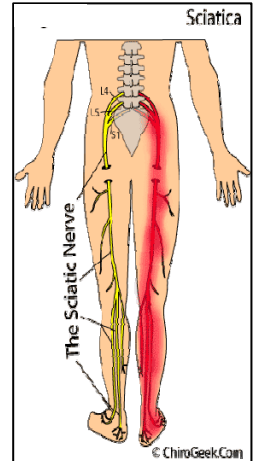
**Active Opposition**  
Touch thumb tip to each fingertip alternately.

\* 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:

- Shooting pains from the buttock, down the leg.
- Tingling, or pins-and-needles sensations in the legs and thighs.
- A burning sensation in the thigh. In addition, patients with sciatica may notice a worsening of their symptoms with maneuvers such as squatting or coughing.
- Often there is a sudden onset that may be attributed to over-exertion or a back injury. The diagnosis of 'sciatica' means that there is an inflammation of the sciatic nerve, the largest peripheral nerve in the body. This large nerve is formed from the lower segments of the spinal cord; it is made up from the lumbar and sacral nerve roots from the spinal cord. The sciatic nerve exits the lower part of the spinal cord (lumbosacral region), passes behind the hip joint, and runs down the back of the thigh.



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.*

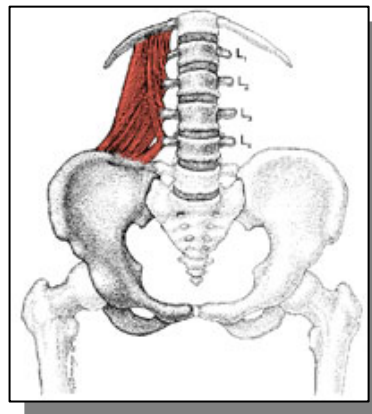
# LUMBAR STRAIN

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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.

Almost all of these low back injuries are due to injuries of the muscle or ligament. If you don't know the cause of your back pain, you should have it evaluated by a doctor. Some warning signs of a serious injury to the spine include:

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



## What are the symptoms of a low back injury?

Most lumbar muscle strains and sprains cause symptoms isolated to the low back, usually they do not cause problems in the legs like some other spine conditions. The most common symptoms of a lumbar strain or sprain are:

- Pain around the low back and upper buttocks
- Low back muscle spasm
- Pain associated with activities, and generally relieved with rest

## 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.

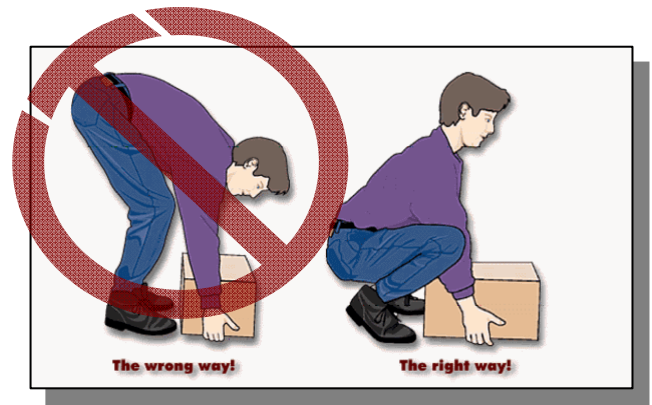
It is also important to understand that even if you are "in good shape," you may have weak low back muscles. When you have a low back muscle injury, you should perform specific exercises that stretch and strengthen the muscles of the low back, hips and abdomen. These exercises are relatively simple, 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.



# SEASICKNESS: INFORMATION AND TREATMENT

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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.

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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<sup>TM</sup>: 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.

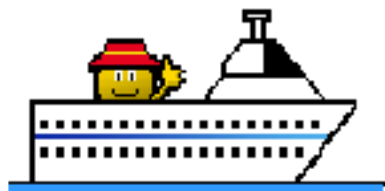
## **Added Precautions:**

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!***



# INJURY, ILLNESS, ACCIDENT OR NEAR-MISS REPORTING

When an injury or serious illness occurs at-sea, it is the FPC's (and/or Safety Leader's) duty to assure the appropriate forms are completed and that the relevant information gets forwarded to Seattle for notification of the authorities. The following information is required to notify Seattle by ship's email. This information must be relayed within **24hrs** of the injury. In addition completion of CD-137 Report of Injury, Illness, Accident or Fatality Form is required.

Attention: This form contains information relating to employee health and other privacy concerns and must be used in a manner that protects the confidentiality of employees to the fullest extent possible while the information is being used for occupational safety and health purposes.

<small>FORM CD-137 (REV. 7/04) DAO 208-3</small>	<small>U.S. DEPARTMENT OF COMMERCE</small>	Case: _____ Control: _____
		Date Received: _____
		Type/Source: _____ / _____
		Org. Code: _____

<b>Report of Injury, Illness, Accident or Fatality</b> <b>SAFETY &amp; HEALTH MANAGEMENT INFORMATION</b>	
<b>Section 1 Information About the Employee</b>	
Reason for Report: <input type="checkbox"/> Injury <input type="checkbox"/> Illness <input type="checkbox"/> Accident <input type="checkbox"/> Other	
Name: _____ <small>(Last, First, MI)</small>	Date of Birth: _____
Occupation: _____	Phone: _____
	Sex: <input type="checkbox"/> Male
Date/Time of Accident/Illness: _____	Time: _____
Duty Station Address, including Line Office and Region: _____	Location of Incident: _____
Description of Incident: _____	
Extent of Injury or Illness and Body Parts Affected: _____	
<b>Section 2</b>	
Was Medical Treatment provided? <input type="checkbox"/> Yes <input type="checkbox"/> No If so, describe? (e.g., medication, treatment, procedures, etc.) _____	
Was this a recordable injury? <input type="checkbox"/> Yes <input type="checkbox"/> No Did employee lose time away from work? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Did this incident result in employee being placed on restricted or light duty, or transfer to another job? If so, describe. <input type="checkbox"/> Yes <input type="checkbox"/> No	
Supervisor's Name: _____	Investigator's Name: _____
Findings: _____	
Did this incident result in the death of one or more persons, or hospitalization of three or more persons? If so, notify the Departmental Office of Occupational Safety and Health immediately at (202) 482-4933.	
Was injury caused by employee's willful misconduct, intoxication, or intent to injure self or another? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Was the incident a result of violation of established safety policies? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, explain (Use reverse side) _____	
Has the employee received training to perform this procedure safely? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, explain (Use reverse side) _____	
Are changes necessary in the operations or procedures to prevent this type incident in the future? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Amount of Property Damage: \$ _____	
<b>Section 3 Describe corrective action taken:</b>	
Date of Completion of corrective action: _____	
Supervisor's Signature: _____	Date: _____
Title: _____	Phone: _____

Distribution: Employee, Employee Supervisor, Safety Representative, Departmental Office of Occupational Safety and Health

<b>RACE / REFM AT-SEA INJURY REPORT FORM</b>
<b>Mishap and Illness report:</b> <b>Email this information within 24hrs:</b>
<ul style="list-style-type: none"> <li>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 and send to Jay.Kennedy@noaa.gov or Russ.Nelson@noaa.gov</li> <li>In the event of an accident that involves injury the form must be sent within 24 hours.</li> <li>A hard copy of this report should also be printed and put into the safety documents envelope on the boat.</li> <li>Names of those involved will remain confidential at all times.</li> </ul>
<p>The purpose of this report is to fulfill government wide requirements of injury and illness reporting as well as meet Groundfish Assessemnt's goal of maintaining a database of mishaps (injury related or otherwise) in order to address safety in the field by understanding relative hazards.</p>
<ol style="list-style-type: none"> <li>Reason for Report: <input type="checkbox"/> Accident w/ injury <input type="checkbox"/> Near miss or Accident w/ out injury <input type="checkbox"/> Illness</li> <li>Name:</li> <li>Date/Time of Accident/Illness:</li> <li>FPC on board:</li> <li>Vessel captain:</li> <li>Location/ Vessel where incident occurred:</li> <li>Description of Incident:</li> <li>Extent of Injury or Illness and Body Parts Affected:</li> <li>Description/identification of damaged property and extent of damage.             <ol style="list-style-type: none"> <li>Include estimate of monetary damage:</li> </ol> </li> <li>Preventative Actions implemented in Response to Mishap</li> <li>Date/Time form completed/submitted:</li> <li>Medical supplies used:</li> <li>Describe medical treatment applied:</li> <li>Amount of work time lost:</li> </ol>

**Fig. 6 Report of Injury, Illness, Accident or Fatality Form (CD-137) for injury reporting and RACE/REFM At Sea Injury Report Form to be used to report an injury via the ship's email system to Seattle. See Appendix for more information.**



# ANNUAL SAFETY PLAN REVIEW PROCEDURE

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At the conclusion of all groundfish cruises, FPCs are asked to return the Safety Evaluation Form of the trip. This is a means to log accidents, near misses, and any other safety concerns for the purpose of consolidating all of this information for the entire field season.

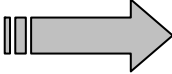
On this form FPCs will be asked if there were any safety concerns they had which were not addressed in the safety manual. FPCs are also asked to offer science crew the opportunity to add feedback to this evaluation. After this is completed the Safety Committee will meet to discuss each accident and near miss.

An evaluation will be made by the Safety Committee to include questions such as: did these accidents occur because there was no protocol in the manual for the specific task or because there was a protocol that was not followed? If the former: we will update the manual. The same evaluation process will be undertaken for safety concerns that were raised but did not result in an accident or near miss.

The results of this meeting will be turned into a report that will be presented at the post-cruise meetings as well as the pre-cruise meetings at the beginning of the next field season.


**Remember: Safety First!**



**SAFETY EVALUATION:**  **NOT OPTIONAL!**

This form is to be filled out by FPCs, Safety Leaders, and interested scientific crew at the end of each leg. Include all reports of injuries and/or near-misses.

This form can be found on the Safety & Emergency Documents CD while at sea. An electronic copy of completed form should return to Seattle with the FPC and sent to the Groundfish Safety committee via email to: Erika.Acuna@noaa.gov.

<b><u>SAFETY COMMITTEE SAFETY EVALUATION FORM</u></b>	
 PLEASE POPULATE AND SAVE THIS FORM ELECTRONICALLY.	
<b><u>Name:</u></b>	
<b><u>Date:</u></b>	
<b><u>Vessel:</u></b>	
<b>Do you have any safety concerns not addressed in the Safety Manual?</b>	
<b>How can we improve safety during the survey?</b>	
<b>How can we improve the Safety Manual?</b>	
<b>Please list any injuries, accidents, near misses or hazards you encountered during this leg:</b>	
<b>Did you file an electronic Injury or Near-Miss Form?</b>	
<b>Additional comments:</b>	

Required after  
each leg from FPC!

**Fig. 7 Safety Evaluation.** This form can be found on the Safety & Emergency Documents CD while at sea. An electronic (or hard) copy of completed form should return to Seattle and sent to Erika.Acuna@noaa.gov.

**List of Forms:**

Emergency Information Form

NOAA Health Services Questionnaire

Charter Vessel Emergency Procedure Form

RACE Summer Survey Float Plan

DOC/ NOAA/ WASC Dangerous Goods Declaration Form

Report of Injury, Illness, Accident or Fatality Form **CD-137**

Instructions for completing Form CD-137

Report of Possible Safety/ Health Hazard Form **CD-351**

Instructions for completing Form CD-351

Management of NOAA Small Boats **NAO 217-103**

Safety Leader at-sea personnel recording form

**Please complete these forms in an  
electronic format when possible.**



**Forms can be found on  
RACE Survey App.**



DATE \_\_\_\_\_

## EMERGENCY INFORMATION FORM

RACE field project participants - complete form annually and return a copy to Field Party Chief and Safety Officer before departure.

NAME \_\_\_\_\_

EMPLOYED BY RACE REFM OTHER \_\_\_\_\_

OFFICE ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_

OFFICE PHONE \_\_\_\_\_ HOME PHONE \_\_\_\_\_

NAME OF IMMEDIATE SUPERVISOR \_\_\_\_\_

IN EMERGENCY NOTIFY \_\_\_\_\_ RELATIONSHIP \_\_\_\_\_

PHONE \_\_\_\_\_ ADDRESS \_\_\_\_\_ E-MAIL: \_\_\_\_\_

YOUR BLOOD TYPE \_\_\_\_\_ MEDIC ALERT TAG? YES NO

YOUR USUAL BLOOD PRESSURE \_\_\_\_\_

ALLERGIES: Antibiotics \_\_\_\_\_ Anesthesia \_\_\_\_\_

CURRENT MEDICATION \_\_\_\_\_

OTHER RELEVANT MEDICAL CONSIDERATIONS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DO YOU WEAR CONTACT LENSES? YES NO \_\_\_\_\_

YEAR OF MOST RECENT TETANUS SHOT? \_\_\_\_\_

PERSONAL MEDICAL COVERAGE PLAN? \_\_\_\_\_

TELEPHONE OF PLAN REPRESENTATIVE \_\_\_\_\_

NAME OF PHYSICIAN \_\_\_\_\_ PHONE \_\_\_\_\_

SURVIVAL SUIT SIZE (circle one) INTERMEDIATE, REGULAR, JUMBO

WCFEMF-5/02



### NOAA Health Services Questionnaire

Name \_\_\_\_\_ E-Mail: \_\_\_\_\_  
 \_\_\_\_\_ Program \_\_\_\_\_  
 Last First Mi. Position \_\_\_\_\_  
 Birth Date: \_\_\_\_\_ Sex:  M  F Scientist Teacher-at-Sea Other  
 mm/dd/yy  
 Work Address \_\_\_\_\_ Phone \_\_\_\_\_ (W)  
 \_\_\_\_\_ (H)  
 Cruise dates: \_\_\_\_\_ SSN: \_\_\_\_\_  
 Citizenship: \_\_\_\_\_ Passport No. \_\_\_\_\_  
 Next of kin: \_\_\_\_\_ Next of kin relationship: \_\_\_\_\_  
 Address of next of kin: \_\_\_\_\_  
 Emergency Contacts (name and phone no.):  
 #1 \_\_\_\_\_ #2 \_\_\_\_\_  
 Medical Insurance Company: \_\_\_\_\_ Policy No. \_\_\_\_\_

#### HEALTH INFORMATION

General State of Health:  Excellent  Good  Fair  Poor  
 Presently under the care of a physician?  No  Yes  
 Month/Year of most recent Physical Exam? \_\_\_\_\_ (mm/yy)  
 Month/Year of most recent Chest X-Ray: \_\_\_\_\_ (mm/yy) Result \_\_\_\_\_

List current medications (prescription and non-prescription):

None  1. \_\_\_\_\_ 4. \_\_\_\_\_  
 2. \_\_\_\_\_ 5. \_\_\_\_\_  
 3. \_\_\_\_\_ 6. \_\_\_\_\_

List Allergies:

	Allergy	Reaction
None <input type="checkbox"/>	1. _____	_____
	2. _____	_____
	3. _____	_____
	4. _____	_____

List ALL active health problems:

None  1. \_\_\_\_\_  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_

Major Surgeries / Hospitalizations / Emergency Room visits

	Year	Reason
None <input type="checkbox"/>	1. _____	_____
	2. _____	_____
	3. _____	_____
	4. _____	_____

List Any Dietary Restrictions:

	Restriction	Reason
None <input type="checkbox"/>	1. _____	_____
	2. _____	_____

Reset form

Name: \_\_\_\_\_

**GENERAL SCREENING**

As an adult, have you had or experienced?

	No	Yes		No	Yes
Cancer	<input type="checkbox"/>	<input type="checkbox"/>	Severe Depression	<input type="checkbox"/>	<input type="checkbox"/>
Tuberculosis	<input type="checkbox"/>	<input type="checkbox"/>	Paralysis	<input type="checkbox"/>	<input type="checkbox"/>
Asthma	<input type="checkbox"/>	<input type="checkbox"/>	Epilepsy	<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis	<input type="checkbox"/>	<input type="checkbox"/>	Impaired Mobility	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Cough	<input type="checkbox"/>	<input type="checkbox"/>	Severe Hearing Loss	<input type="checkbox"/>	<input type="checkbox"/>
Coughed up Blood	<input type="checkbox"/>	<input type="checkbox"/>	Severe Visual Impairment	<input type="checkbox"/>	<input type="checkbox"/>
Recent unexplained weight gain			Periods of Unconsciousness	<input type="checkbox"/>	<input type="checkbox"/>
or loss of 20 or more lbs.	<input type="checkbox"/>	<input type="checkbox"/>	Severe Motion Sickness	<input type="checkbox"/>	<input type="checkbox"/>
Female only: Are you pregnant?	<input type="checkbox"/>	<input type="checkbox"/>	Date of last menstrual period _____		

Please explain all YES answers below or on continuation sheet:

**CARDIAC SCREENING**

As an adult, have you had or experienced?

	No	Yes		No	Yes	(and value if known)
Abnormal ECG	<input type="checkbox"/>	<input type="checkbox"/>	Hypertension	<input type="checkbox"/>	<input type="checkbox"/>	recent reading _____
Sedentary Life Style	<input type="checkbox"/>	<input type="checkbox"/>	Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	HgA <sub>1c</sub> _____
Family History of Heart			High Cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	recent reading _____
Attack before age 45	<input type="checkbox"/>	<input type="checkbox"/>	Tobacco Use	<input type="checkbox"/>	<input type="checkbox"/>	packs/day _____
Heart Attack	<input type="checkbox"/>	<input type="checkbox"/>	Prolonged Chest Pain	<input type="checkbox"/>	<input type="checkbox"/>	
Shortness of Breath	<input type="checkbox"/>	<input type="checkbox"/>	Fainting spells/Syncope	<input type="checkbox"/>	<input type="checkbox"/>	

Please explain all YES answers below or on continuation sheet:



Name: \_\_\_\_\_

**IMMUNIZATION SCREENING**

Please list the date(s) you obtained immunizations/prophylaxis against the following diseases:

PPD (TB test) - must be within last 12 months:	Date _____	Result _____		
	Date	Type	Date unknown	None
Tetanus <sup>1</sup>	_____		<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis A Series: Dose 1	_____		<input type="checkbox"/>	<input type="checkbox"/>
Dose 2	_____		<input type="checkbox"/>	<input type="checkbox"/>
Hepatitis B Series: Dose 1	_____		<input type="checkbox"/>	<input type="checkbox"/>
Dose 2	_____		<input type="checkbox"/>	<input type="checkbox"/>
Dose 3	_____		<input type="checkbox"/>	<input type="checkbox"/>
Cholera	_____		<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria <sup>1</sup>	_____		<input type="checkbox"/>	<input type="checkbox"/>
Influenza (most recent)	_____		<input type="checkbox"/>	<input type="checkbox"/>
Immunoglobulin (IG)	_____		<input type="checkbox"/>	<input type="checkbox"/>
Malaria	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
Measles, Mumps, Rubella (MMR)	_____		<input type="checkbox"/>	<input type="checkbox"/>
Polio	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
Typhoid Fever	_____		<input type="checkbox"/>	<input type="checkbox"/>
Yellow Fever	_____		<input type="checkbox"/>	<input type="checkbox"/>

Other: Please provide complete information on Continuation Sheet

<sup>1</sup>May be given as part of TD vaccinationAre you aware of any other medical condition(s) that may affect your suitability for sea duty?  No  Yes

If yes, please explain on the continuation page

If you have any questions, please contact the appropriate Health Services Office:

**Marine Operations Atlantic (757) 441-6320****Marine Operations Pacific (206) 553-8704**

Continuation page attached?

 No  Yes

The information provided is complete to the best of my knowledge.

Signature \_\_\_\_\_

Date (mm/dd/yy) \_\_\_\_\_

Forward to the following ships: 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

**MEDICALLY CLEARED FOR SEA DUTY BY HISTORY**  YES  NO  NEED MORE INFO

MOA/ MOP Regional Director of Health Services \_\_\_\_\_

Date (mm/dd/yy) \_\_\_\_\_

## NOAA Health Services Questionnaire Continuation Page

Name: \_\_\_\_\_

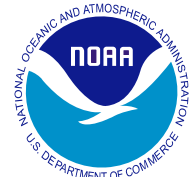
Reset form





**RACE / REFM Survey Float Plan**

National Oceanic and Atmospheric Administration  
 National Marine Fisheries Service  
 Alaska Fisheries Science Center



Date: \_\_\_\_\_ Vessel: \_\_\_\_\_

Name of Captain: \_\_\_\_\_

Name of FPC: \_\_\_\_\_

Name of Safety Leader: \_\_\_\_\_

**Names of personnel on shore excursion: Able to swim? Departure / Return (Time & Location)**

	<u>(yes/ no)</u>		
1. _____	Y	N	_____
2. _____	Y	N	_____
3. _____	Y	N	_____
4. _____	Y	N	_____
5. _____	Y	N	_____
6. _____	Y	N	_____
7. _____	Y	N	_____
8. _____	Y	N	_____
9. _____	Y	N	_____
10. _____	Y	N	_____
11. _____	Y	N	_____

<b>Small Boat</b>	
<b>Description:</b>	
<b>Model:</b>	
<b>Length:</b>	
<b>Draft:</b>	
<b>Width:</b>	
<b>Engine type:</b>	
<b>Fuel on board:</b>	
<b>Boat operator:</b>	
<b>Experience level:</b>	

**Additional Information:**

**Equipment Checklist**  
**(Required by U.S. Coast Guard)**

\_\_\_\_\_ **PFD's**  
 One Coast Guard Approved type I, II, or III life preserver or buoyant vest for each person aboard.

\_\_\_\_\_ **EPIRB**

\_\_\_\_\_ **Anchor**  
 7 ½ lb. with 6ft chain lead, and anchor line.

\_\_\_\_\_ **Oars or Paddles**  
 or other means of secondary propulsion.

\_\_\_\_\_ **Medical Kit** (check inside boat kit)

\_\_\_\_\_ **Whistle or Horn**  
 One hand, mouth, or power operated whistle or horn, audible at least ½ mile.

\_\_\_\_\_ **Bilge pump**  
 or hand bailer.

**RACE / REFM Survey Float Plan Suggested and Recommended  
Equipment List by AFSC:**



National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Alaska Fisheries Science Center

**Survival suits** (not necessary for dockside transport/ only for shore excursions)

**Radar reflector/ transponder** (SART)

**Additional Radios:** (frequency monitored: \_\_\_\_\_)

**Orange flag w/pole to mark base camp**

**Hand held EPIRB unit**

**Fire extinguisher**

**Extra food**

**Extra water**

**AFSC Small Boat (Shore) Kit:**

**AFSC Shore Kit Contents:**

1. **VHS Radio: verify full charge and Frequency monitored:** \_\_\_\_\_
2. Flashlight: (take extra batteries)
3. Emergency blankets
4. First Aid supplies
5. Scissors
6. Signaling flares
7. Distress flag
8. Signaling mirror
9. Whistle
10. Knife
11. Compass
12. Leatherman tool
13. Fishing hooks and line
14. Toilet paper
15. Fire starters
16. Sterno cooking fuel & stove
17. Boullion cubes
18. Snare Wire
19. 4 MRE (Meals Ready to Eat)
20. Mess Kit and utensils
21. Potable drinking water tablets
22. 3L drinking water
23. McMurdo Personal EPIRB



**Dangerous Goods Declaration**  
*(For Domestic Surface Transportation)*

**United States Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Western Administrative Support Center  
 7600 Sand Point Way NE  
 Seattle, Washington 98115-6349 USA  
 Phone: (206) 526-6394 Fax: (206) 526-4117  
[WRC.Shipping@noaa.gov](mailto:WRC.Shipping@noaa.gov)



**In Case of Emergency Contact: Chemtech at (USA) (800) 424-9300 or (202) 843-7616**

Shipper (Org., Name, Complete Address, Phone Number, Fax Number, Email):

Purpose of Shipment:	Date(s) of Shipment:
Ultimate Destination:	Mode of Transportation:

Description of Hazardous Materials (Proper Shipping Name, Hazard Class, Identification Number, Packing Group, Total Quantity, Remarks):

"This is to certify that the above named materials are properly classified, described, packaged marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation."

Date:

Signature:





**Attention:** This form contains information relating to employee health and other privacy concerns and must be used in a manner that protects the confidentiality of employees to the fullest extent possible while the information is being used for occupational safety and health purposes.

FORM CD-137  
(Rev. 7/04)  
DAO 209-3

U.S. DEPARTMENT OF COMMERCE

Case: \_\_\_\_\_ Control: \_\_\_\_\_

Date Received: \_\_\_\_\_

Type/Source: \_\_\_\_\_ / \_\_\_\_\_

Org. Code: \_\_\_\_\_

## Report of Injury, Illness, Accident or Fatality

### SAFETY & HEALTH MANAGEMENT INFORMATION

#### Section 1 Information About the Employee

Reason for Report:  Injury  Illness  Accident  Fatality

Name: \_\_\_\_\_  
(Last, First, M.I.)

Date of Birth: \_\_\_\_\_

Occupation: \_\_\_\_\_

Phone: \_\_\_\_\_

Sex:  Male  Female

Date/Time of Accident/Illness: \_\_\_\_\_ Time: \_\_\_\_\_  AM  PM

Duty Station Address, including  
Line Office and Region:

Location of Incident:

Description of Incident:

Extent of Injury or Illness and Body Parts Affected:

#### Section 2

Was Medical Treatment provided?  Yes  No

If so, describe? (e.g., medication, treatment, procedures, etc.)

Was this a recordable injury or illness?  Yes  No

Did employee lose time away from work?  Yes  No

Did this incident result in employee being placed on restricted or light duty, or transfer to another job? If so, describe.  Yes  No

Supervisor's Name: \_\_\_\_\_

Investigation Date: \_\_\_\_\_

Findings:

Did this incident result in the death of one or more persons, or hospitalization of three or more persons?  Yes  No

If so, notify the Departmental Office of Occupational Safety and Health immediately at (202) 482-4935

Was injury caused by employee's willful misconduct, intoxication, or intent to injure self or another?  Yes  No If yes, describe (Use reverse)

Was the incident a result of violation of established safety policies?  Yes  No If yes, explain (Use reverse)

Has the employee received training to perform this procedure safely?  Yes  No If no, explain (Use reverse)

Are changes necessary in the operations or procedures to prevent this type incident in the future?  Yes  No If yes, explain (Use reverse)

Amount of Property Damage: \$ \_\_\_\_\_

#### Section 3 Describe corrective action taken:

Date of Completion of corrective action: \_\_\_\_\_

Supervisor's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Distribution: Employee, Employee Supervisor, Safety Representative.  
Departmental Office of Occupational Safety and Health

## INSTRUCTIONS FOR COMPLETING CD-137

<p><b>When to use this form:</b> This form will be used whenever a safety-related incident occurs. It is crucial to document the steps of the investigation in a timely manner. This form should be completed within 24 hours of the incident.</p>	
<p><b>Completing this form :</b> The employee's first-line supervisor of the department where the incident occurred, their designee, or the first-line supervisor's manager is responsible for the completion of this form. After sections 1, 2, and 3 are completed, the person who completed the form must sign and date the form in the spaces provided at the bottom of the form.</p>	
<p><b>Questions regarding this form.</b> This form was developed by the Department of Commerce, Office of Occupational Safety and Health (OOSH). Members of that office may be contacted at 202-482-4935.</p>	
<p><b>To be Completed by the Supervisor</b></p>	
<p><b>Reason for Report:</b> Select "Accident" if property damage only.</p> <p><b>Name:</b> Provide name as it appears in payroll system.</p> <p><b>Occupation:</b> Provide description of job (e.g. Analyst, Chemist, Administrative Assistant).</p> <p><b>Date and Time:</b> Provide the date and time of incident. List time as accurately as possible, (e.g. 10 AM not morning).</p> <p><b>Duty Station:</b> Provide the official duty station address. Do not use temporary or travel duty stations in this block.</p> <p><b>Location of Incident:</b> If incident occurred at the permanent post of duty, provide the most detailed location information possible, including room number.</p> <p>If the incident occurred while on travel or during temporary duty status, record location in this block.</p> <p>If incident did not occur on Department of Commerce property, record location in this block.</p> <p><b>Description of Incident:</b> Provide detailed information regarding what happened, (e.g. "slipped and fell due to water spilled beneath fountain" rather than "fell").</p> <p><b>Extent of Injury of Illness:</b> Describe body parts involved and extent of injury (e.g. broken, sprained, required stitches, severe, mild).</p>	<p><b>Medical Treatment:</b> Determine if medical treatment was provided and if so, describe the extent, (e.g. first aid, emergency room, hospitalization).</p> <p><b>Lost Time:</b> If employee lost time from work due to incident, mark "yes". If unknown at time of form completion, leave blank.</p> <p><b>Investigation Date:</b> Insert date supervisor investigation was conducted.</p> <p><b>Findings:</b> Provide findings of supervisor's investigation. Use reverse or additional sheets. Attach photos, diagrams, police reports or other available support documentation.</p> <p><b>Notifications:</b> If incident resulted in the death of one or more persons or the hospitalization of three or more persons, the Departmental Office of Occupational Safety and Health must be notified immediately on 202-482-4935. Indicate on form if notification was performed.</p> <p><b>Amount of Property Damage:</b> If property was damaged, insert estimated cost of damage.  If no property was damaged, insert "no damage".</p> <p><b>Describe Corrective Action:</b> Supervisor's investigation may identify necessary corrective actions, (e.g. repair carpet, provide safety training). Describe recommended corrective actions, including, if known, who will be responsible for completion.</p> <p><b>Date of Completion of Corrective Action:</b> List the date of actual completion if known. If not known, provide targeted date for completion.</p>
<p><b>Distribution of Copies</b></p>	
<p>Retain file copies:</p> <p><b>Employee</b></p> <p><b>Employee's Supervisor</b></p>	<p>Submit, via mail or FAX within <b>five (5)</b> working days to:</p> <p><b>Bureau Safety Representative (Original Copy)</b> List of Bureau Safety Representatives available on <a href="http://ohrm.doc.gov/safetyprogram/Safetymanagers.htm">http://ohrm.doc.gov/safetyprogram/Safetymanagers.htm</a></p> <p><b>Department of Commerce</b> <b>Office of Occupational Safety and Health</b> Room 5001 14<sup>th</sup> &amp; Constitution Ave., NW Washington DC, 20230 Telephone: 202-482-4935 FAX: 202-501-1860</p>

# ***RACE / REFM AT SEA EMAIL INJURY REPORT FORM***

## **Mishap and Illness report: Email this information 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 and send to Jay.Kennedy @noaa.gov or Russ.Nelson@noaa.gov
- **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 injury and illness reporting as well as meet Groundfish Assessemnt's goal of maintaining a database of mishaps (injury related or otherwise) in order to address safety in the field by understanding relative hazards.

**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 and Body Parts Affected:**

**9. Description/identification of damaged property and extent of damage.**

**a. 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:**



Case: \_\_\_\_\_  
Date Received: \_\_\_\_\_  
Control: \_\_\_\_\_  
Org. Code: \_\_\_\_\_

**REPORT OF POSSIBLE SAFETY/HEALTH HAZARD**  
**SAFETY & HEALTH MANAGEMENT INFORMATION**

**TO BE COMPLETED BY EMPLOYEE**

1. Reason for Report:  Safety Hazard  Health Hazard
2. Name: \_\_\_\_\_ 3. Phone: \_\_\_\_\_  
(Last, First, M.I.)
4. Have you Reported Condition to Supervisor?  Yes  No
5. May we Reveal Your Name During Investigation?  Yes  No

6. Duty Station Address: \_\_\_\_\_

7. Location of Hazard: \_\_\_\_\_

8. Description of Hazard: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**TO BE COMPLETED BY INVESTIGATOR**

9. Investigation Findings: \_\_\_\_\_
10. Life Threatening?  Yes  No

11. Corrective Action: \_\_\_\_\_

12. Completion Date : \_\_\_\_\_  Estimated  Actual

Investigator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_ Phone: \_\_\_\_\_

## INSTRUCTIONS FOR COMPLETING CD-351 (Report of Possible Safety/Health Hazard)

### EMPLOYEE

Supervisors have responsibility for ensuring the safety and well-being of their employees. Therefore, while you have the right to go directly to a safety official, you are encouraged to first contact your supervisor whenever you observe a possible safety or health hazard.

If you do not wish to notify your supervisor for personal reasons or if your supervisor fails to take corrective action within a reasonable time-frame, then you should contact your Area Safety Representative, Operating Unit Safety & Health Representative or Regional Safety Manager.

After notifying the safety official, complete the appropriate section of the CD-351 and submit the form to the safety official notified.

#### Complete Blocks 1 through 8.

- **Blocks 2 and 3**—Optional under the Privacy Act. However, not providing this information may hinder any investigation since safety personnel will not be able to contact you for additional information nor inform you of any corrective action being taken. (See **Block 5** below.) Include area code or use “999” if FTS in **Block 3**.
- **Block 5**—By indicating “no” to this question, safety personnel may only reveal your name to other safety personnel involved in the investigation. They may not reveal your name to your supervisor or other management Officials.
- **Block 6**—Include operating unit, line organization, name and address of your duty station.
- **Block 7**—Identify specific location (e.g., stairwell, room number, etc.) building number (if appropriate), and address.

Sign (optional) and date form, retain employee’s copy, and submit original and other copies to the safety official.

### INVESTIGATING SAFETY OFFICIAL

Investigate all reports filed as quickly as possible. (If investigation indicates a life-threatening situation, ASRs should contact appropriate OUSHR or RSM immediately.)

#### Complete Blocks 9 through 13.

- **Block 11**—Describe interim (if applicable) and permanent corrective action(s) that have or will be taken.
- **Block 12**—Indicate date permanent corrective action was taken (actual) or will be taken (estimate).

After completing form, retain investigator’s copy, forward original to appropriate OUSHR/RSM and notification copy to employee (if known).



# MANAGEMENT OF NOAA SMALL BOATS NAO 217-103

Issued: 01/30/03; Effective: 01/21/03; Amended: [AM #1](#) - 03/07/03

## SECTION 1. PURPOSE.

- .01 This Order establishes National Oceanic and Atmospheric Administration (NOAA) policy for management and safe operation of NOAA boats less than 300 gross tons.
- .02 This Order establishes minimum standards and required inspections to be followed by all NOAA programs operating boats.
- .03 This Order establishes standards of visual identification and registration for NOAA boats.

## SECTION 2. BACKGROUND.

Operating boats in support of marine research involves unique associated risks. Many NOAA programs rely on boats to achieve mission requirements. There are numerous regulatory standards that address boat safety, but little guidance or few regulations tailored specifically to the special mission of research motorboats less than 65 feet or small research vessels less than 300 gross tons. Current marine standards are derived from international conventions, lessons learned from casualties, and advances in technology. As such, the body of regulatory information continues to grow and change. All vessels owned by NOAA are considered public vessels and are therefore exempt from regulatory oversight by the United States Coast Guard (USCG). However, it is NOAA's intent, as steward of the Nation's oceans and atmosphere, to comply with, or exceed, all applicable regulatory and industry standards and to foster a management culture committed to safe and environmentally sound boat operations based upon the principles of risk management.

## SECTION 3. DEFINITIONS.

### .01 Alteration and Repair of Boats.

a. Alteration or Modification. A change to the configuration of a boat with regard to its navigation, communication, mission, ventilation, or piping systems. Examples of an alteration or modification include the addition of scientific transducers or RADAR sets, rearrangement of helm consoles, conversion of spaces (e.g., storage space to lab space), or installation of port lights.

b. Significant Alteration or Modification. A change to the configuration of a boat with regard to structural, mechanical, or electrical systems. Examples of significant alterations include the addition of structures or winches, the addition of any weight handling gear (e.g., A-frame, crane, articulated boom), replacement of inboard propulsion engines, installation of electric generators, lengthening of a vessel, or addition of a bow pulpit.

c. Repair. A restoration of a boat's configuration or capability that is necessary because of wear and/or failure of existing systems and equipment.

.02 Boat. As used in this Order, refers to all craft less than 300 gross registered tons propelled by any means and commonly used to carry people on a body of water, but does not include sea planes.

.03 Gross Registered Tonnage (gross tons). As used in this Order, is a unit of measure referenced to determine applicable regulations for vessels. Measurement of gross tons is defined in Part 69.209(a) of Title 46 of the Code of Federal Regulations (46 CFR 69.209(a)) and for most monohull vessels will be determined by the formula: gross tonnage = (overall length x overall breadth x overall depth) x 0.67 /100.

.04 Overall Length. Or length overall (LOA) as used in this Order, and as defined in 46 CFR 69.203, means the horizontal distance between the outboard side of the foremost part of the stem and the

outboard side of the aftermost part of the stern, excluding rudders, outboard motor brackets, and other similar fittings and attachments.

.05 Motorboat. As used in this Order, refers to all craft less than 300 gross registered tons propelled by machinery and commonly used to carry people on a body of water, but does not include sea planes.

.06 Motorboat Classifications. NOAA motorboat classifications are developed from USCG definitions for motorboats, and apply to all boats propelled by machinery, as follows:

- a. Class A - less than 16 feet length overall;
- b. Class I - 16 feet but less than 26 feet length overall;
- c. Class II - 26 feet but less than 40 feet length overall;
- d. Class III - 40 feet but not more than 65 feet length overall; and
- e. Small Research Vessel (SRV) - greater than 65 feet length overall, but less than 300 gross tons. [~~and engaged in operations for greater than 12 hours.~~ [AM #1](#)]

.07 NOAA Boat. A boat owned, operated, or maintained by NOAA. The term includes boats leased, loaned, bare boat chartered, or demise chartered by or from NOAA but does not include boats time chartered by NOAA.

.08 NOAA Program. As used in this Order, the term refers to NOAA Line Offices, Staff Offices, and any of their subordinate entities.

.09 No-cost Transfer. As used in this Order, a means of gaining ownership of boats with little or no cost to the receiving entity. For example, no-cost transfers include, but are not limited to, boats received from government excess or via donation, gift, or bequest.

.10 Operational Risk Management. A process involving an examination of hazards and associated controls to reduce risk to personnel, vessels, environment, mission, or any stakeholder in NOAA operations.

.11 Program Manager. A government or contract employee in charge of, and having oversight over, a specific mission, activity, or scientific investigation within a NOAA Line or Staff Office. Examples of Program Managers include Chiefs of Fishery Ecology, Chiefs of Habitat Restoration, and Chiefs of Ocean Chemistry.

.12 Qualified Motorboat. As used in this Order describes motorboats that are elaborate or complex in terms of engineering design or mission. A list of qualified motorboats and sample qualifying criteria is available at the NOAA Small Boat Program web site.

.13 Responsible Person. A Government or contract employee whose position description requires him/her to be involved in the routine oversight or operation of a boat or boats. Examples of Responsible Persons include marine superintendents, port captains, field operations managers, environmental compliance & safety staff, captains, boat operators, and boat maintenance staff.

.14 Senior Field Manager. A government employee in charge of and having responsibility for all boat operations conducted at a NOAA program. Examples of Senior Field Managers include Laboratory Directors, Sanctuary Managers, Small Research Vessel Captains, or Field Party Chiefs.

.15 Vessel. See boat.

.16 Vessel Operations Manual (VOM). A compilation of instructions, procedures, regulations, and guidelines derived from an operational risk assessment. The VOM is intended to promulgate specific



individualized requirements and instructions for the safe and efficient management and operation of a Small Research Vessel, Class III motorboat, or qualified Class II motorboat.

.17 Vessel Policy (VP). A compilation of instructions, procedures, regulations, and guidelines derived from an operational risk assessment. A VP is intended to promulgate management and safety policy applicable to all boats within a NOAA program.

#### SECTION 4. SCOPE AND RESPONSIBILITY.

.01 NOAA programs that own, operate, or maintain boats shall be responsible:

- a. for the safe operation, inspection compliance, life cycle management, and material condition of their boats;
- b. for developing Vessel Policy (VP) and/or Vessel Operations Manuals (VOMs) for their boats;
- c. for obtaining written guidance based on review by the NOAA Small Boat Program during the development, or prior to the promulgation of, VP and/or VOMs;
- d. for assigning routine management and oversight of each boat to a Responsible Person; and
- e. for providing estimates of resources needed to meet the requirements of this Order for any SRV, Class III motorboat, or qualified Class II motorboat to their respective senior management or budget planning official, and for ensuring that funding needed to achieve compliance with this Order will be available prior to any commitment that will result in delivery.

.02 The NOAA Small Boat Program shall be responsible:

- a. for serving as principal advisor or technical point of contact for operational, maintenance, acquisition, or regulatory standards set forth by this Order;
- b. for managing a database containing an inventory of vessels and their attributes;
- c. for providing guidance, or review and comment, to Senior Field Managers or Responsible Persons during the development, or prior to the promulgation of, VP and/or VOMs;
- d. for assisting NOAA programs, upon request, with the resource estimation prescribed in Section 4.01e. of this Order; and
- e. for assisting Line Office activities on an as-needed basis, and to the extent that resources allow, with marine engineering, electronics, or regulatory interpretation support.

.03 The NOAA Small Boat Program, Line Offices, and Staff Offices are responsible for collaborating as partners with a common interest in safe, efficient, and environmentally sound boat operations. This partnership shall foster a corporate culture that values the boat operator, encourages the distribution of information, seeks a quality approach, shares commitment, and seeks to manage operational risk.

#### SECTION 5. MOTORBOAT ACQUISITIONS.

.01 Purchasing Motorboats.

- a. Senior Field Managers, or their designees, shall assess the suitability of a new or used motorboat, or of a motorboat design, in relation to cost, mission requirements, operational risk, safety, and environmental compliance prior to initiating a motorboat purchase. The cost assessment and any required marine survey shall be forwarded to the respective senior management or budget official prior to any commitment.
- b. Senior Field Managers, or their designees, shall notify the NOAA Small Boat Program Coordinator:
  1. prior to a planned motorboat acquisition that would require significant alteration or modification to the boat after its delivery in order to meet mission requirements; or
  2. prior to any commitment to build a motorboat to Government-furnished technical specifications.
- c. When a motorboat meets the criteria of Section 5.01b. of this Order, Senior Field Managers, or their designees, shall ensure that contract specifications are written or reviewed by either a NOAA Marine and Aviation Operations (NMAO) Small Boat Engineer, a professional marine engineer, or a naval architect. The review shall ensure that the resultant boat will be properly configured with respect to safety systems, stability, mission capabilities, sound marine engineering practices,

environmental compliance, and [Appendix B](#) of this Order, NOAA Boat Visual Identification and Registration.

- c. Senior Field Managers may exempt Class A, I, or II motorboats from the requirement for assessing the suitability of a motorboat prior to acquisition (see Section 5.01a. of this Order) when the suitability and cost factors for the motorboat to be acquired are already addressed or known from previous experience with similar craft engaged in similar missions.

d.

**.02 No-Cost Transfer.** Prior to taking ownership of a no-cost motorboat, Senior Field Managers, or their designees, shall:

- a. evaluate the potential safety and environmental implications of the motorboat as it relates to costs of ownership, operation, and eventual disposal;
- b. arrange for the marine survey required by Section 5.03 of this Order; and
- c. notify the NOAA Small Boat Program Coordinator before committing to the no-cost transfer of any qualified Class II motorboats, Class III motorboats, or Small Research Vessels.

**.03 Marine Surveys.** A survey shall be conducted prior to any commitment that will result in delivery of a qualified Class II motorboat, Class III motorboat, or SRV. The marine survey shall examine the condition and value of the motorboat as well as the structural integrity and safety for its intended use. A marine survey is not required for a new boat or design.

## **SECTION 6. ALTERATION AND REPAIR OF MOTORBOATS.**

**.01 Review.** All proposed alterations to NOAA motorboats shall be reviewed by the Program Manager or Responsible Person to assess their potential impact on safety, watertight integrity, and stability. Program Managers or Responsible Persons shall seek advice or guidance from an NMAO Small Boat Engineer if there is doubt with respect to potential impacts.

**.02 Standards.** Alterations and repairs shall be performed in accordance with applicable marine engineering standards, rules, instructions, and regulations. A listing of current and potentially applicable standards, rules, instructions, and regulations is provided on the NOAA Small Boat Program web site.

**.03 Significant Alterations.** For all significant alterations, Senior Field Managers or Responsible Persons shall seek marine engineering services through NMAO or a professional marine engineer.

**.04 Engineering Records.** Records, such as drawings or weight and moment reports, resulting from the alteration of motorboats shall be maintained at the appropriate program office.

## **SECTION 7. OPERATION OF BOATS.**

**.01 Operational Risk Assessment.** Every NOAA program that operates boats shall conduct an operational risk assessment. The assessment shall be based on an evaluation of operational risks to personnel, vessel, environment, mission, and public relations.

a. **Vessel Operations Manual (VOM).** Senior Field Managers, in consultation with their field personnel, shall develop a VOM for each SRV, Class III motorboat, and qualified Class II motorboat owned, operated, or maintained by their program. The VOM shall address the findings of the operational risk assessment prescribed in Section 7.01 of this Order as well as procedures specific to the operation of the boat.

b. **Vessel Policy (VP).** Senior Field Managers, in consultation with their field personnel, shall develop a comprehensive VP for their program. In addition to addressing the minimum requirements of this Order, the program's VP shall be tailored to address region-specific operational risks and other issues common to all boats owned, operated, or maintained by the program.

c. Assistance. Additional information and guidance relating to operational risk assessment and the development of operational risk management plans are available on line at the NOAA Small Boat Program web site.

.02 Float Plans.

a. All use of NOAA boats shall be documented by a float plan filed prior to departure which lists, as a minimum:

1. the vessel name;
2. date and time of departure;
3. intended destination or working area;
4. estimated date and time of return or arrival;
5. names of persons on board; and
6. type of operation (e.g., scuba diving, coring, observation, patrol).

b. The boat operator shall tender the plan, prior to departure, to a person on shore as follows:

1. for voyages of less than twelve (12) hours, the plan may be given verbally; or
2. for voyages of greater than twelve (12) hours duration, the plan must be written and shall establish a tracking and communications procedure that requires the boat to report its position and operations at least daily.

c. The person on shore shall be responsible for determining whether a vessel is overdue for arrival and shall be able to take appropriate action to either determine the location of the vessel or initiate emergency response.

.03 Emergency Contacts. Senior Field Managers, Program Managers, or their designees shall ensure that the name and contact number of a family member, significant other, or legal guardian is available for all persons embarked aboard a boat while the boat is being operated.

.04 Periodic Testing of Safety Equipment. Operational boats equipped with electronic safety equipment shall conduct periodic operational tests of the equipment. If no regulation exists for frequency of testing, it shall be done in accordance with manufacturers' instructions or monthly at a minimum. In addition, Emergency Position Indicating Radio Beacon (EPIRB) beacon identification registration information shall be reviewed at least annually to ensure that it contains valid emergency contact information.

.05 Transportation of Passengers.

a. When permitted by VP or a VOM, and prearranged and approved by the Senior Field Manager or his/her designee, non-mission critical personnel may be transported as passengers on NOAA boats. Non-mission critical may include members of the media, guests, VIPs, or service organizations.

Approvals will be granted when:

1. it is found to be clearly in the interest of the Government;
2. the boat is being used for official purposes; and
3. the passengers will not interfere with NOAA operations.

b. The boat operator may authorize the boarding and carriage of passengers in emergency situations involving the protection of life at sea. For further guidance consult NOAA Administrative Order (NAO) 217-106, Transportation of Nongovernment Personnel as Passengers on NOAA Vessels, Aircraft, and Motor Vehicles.

.06 Good Marine Practice.

a. All NOAA boats shall be operated in a safe and courteous manner.

b. All NOAA boats shall be maintained in a seaworthy condition.

c. Marine weather forecasts shall be evaluated with respect to the operations area, vessel limitations, and mission requirements prior to engaging in any boat operation.

.07 Operator Training and Certification. All operators of NOAA boats shall be appropriately trained and certified based on boat size, engineering complexity, and nature of operations. The following **minimum** training requirements apply.

a. NOAA Class III Motorboats and Small Research Vessels.

1. Commissioned or Warrant Officers of the Uniformed Services who have qualified as Officer of the Deck (Underway) and who have exercised this qualification during the past five (5) years may be considered as having qualifications equivalent to the USCG licensed operators.

2. Other than officers mentioned in Section 7.07a.1. of this Order, all designated operators must possess a valid USCG license appropriate to the intended service of the vessel.

b. NOAA Class A, I, or II Motorboats. Operators of NOAA Class A, I, or II motorboats shall obtain qualification by participation in either:

1. USCG Auxiliary basic boat operators course;
2. U.S. Power Squadron basic boat operators course;
3. U.S. Department of the Treasury Marine Law Enforcement Training Program; or
4. equivalent USCG or NOAA approved boat operator training course.

c. CPR and First Aid Training. All boat operators shall have current Red Cross or equivalent certification in cardiopulmonary resuscitation (CPR) and First Aid.

d. Assistance. Additional information pertaining to operator training is available on line at the NOAA Small Boat Program web site.

.08 Accident Reporting and Investigation.

a. NOAA activities shall follow all existing policy regarding the reporting of accidents.

b. Senior Field Managers, or their designee, shall notify the NOAA Small Boat Program Coordinator of a motorboat accident or incident when it involves:

1. unintentional grounding for greater than 24 hours;
2. explosions;
3. sinking;
4. fire;
5. collisions involving breach of hull integrity;
6. any incident which results in damage in excess of \$10,000 by or to the motorboat, its systems, or its equipment;
7. incapacitating injury requiring professional medical attention, hospitalization for greater than 72 hours, or loss of life of any person;
8. unintentional and extensive flooding (self bailing boats excluded);
9. discharge of oil or any substance capable of producing a sheen upon the water;
10. failure of gear and equipment and any other damage that may affect or impair a vessel's seaworthiness; or
11. damage to a protected or endangered natural resource.

c. When an accident meets the criteria in Section 7.08b. of this Order, and the cause of the accident is not clearly evident, the Senior Field Manager shall initiate an investigation. Findings and recommendations from the investigation shall be made available to the Senior Field Manager, Program Manager, NOAA Small Boat Program Coordinator, NMAO Small Boat Engineer, the Director, NMAO, and NOAA's Chief Financial Officer/Chief Administrative Officer (NOAA's CFO/CAO).

d. Findings and lessons learned from an accident or accident investigation shall be distributed by the NOAA Small Boat Program Coordinator to the NOAA small boat user community. The identity of the vessel, personnel, and NOAA program will remain anonymous.

## SECTION 8. INSPECTION OF BOATS.

.01 Purpose. NOAA's boat inspection program is designed to ensure that standards of safety are maintained at an acceptable level in order to minimize risk. See [Appendix A](#) of this Order, NOAA Boat Inspection, for detailed inspection program guidance and procedures.

.02 Inspection Criteria.

- a. General. Inspection criteria will be determined by NMAO, with NOAA program involvement. Inspection criteria will be adapted from the most relevant regulations pertaining to boats of similar employment.
- b. Safety, Fire Fighting, and Life Saving. The minimum safety, fire fighting, and life saving equipment requirements for boats are derived from USCG regulations for recreational vessels and are located in Table 1.0 to [Appendix A](#) of this Order.
- c. Communications and Navigation. The minimum communication and navigation equipment requirements for boats are based on the distance from shore that the boat will operate and are located in Table 2.0 to [Appendix A](#) of this Order.

## SECTION 9. BOAT IDENTIFICATION AND REGISTRATION.

.01 General. A uniform identification scheme is necessary to develop and promote public recognition of NOAA boat activities in the coastal environment. A uniform numbering system is required by U.S. Code for the purpose of identification.

.02 Requirements. Visual identification and registration requirements are provided in [Appendix B](#) to this Order.

## SECTION 10. NOAA SMALL BOAT PROGRAM WEB SITE.

.01 General. A NOAA Small Boat Program web site shall be maintained:

- a. to promote the exchange of operational best practices and methods;
- b. to serve as a pool of corporate knowledge;
- c. to provide resources relating to training, engineering, and operational support;
- d. to provide resources and guidance related to operational risk assessment, VOMs, and VPs; and
- e. to facilitate the practical implementation of this Order.

.02 URL. The NOAA Small Boat Program web site is located at [www.sbp.noaa.gov](http://www.sbp.noaa.gov).

## SECTION 11. RECORDS MANAGEMENT.

.01 Inspection Reports. Maintained by NMAO.

.02 Vessel Operation Manuals (VOMs) and Vessel Policy (VP). Maintained by the NOAA field activity. Copies shall be provided to the NOAA Small Boat Program Coordinator.

.03 Risk Assessment Records. Records generated during risk assessments shall be maintained at the NOAA field activity.

.04 Alteration Records. Engineering documents or drawings detailing alterations to motorboats shall be maintained at the NOAA field activity.

.05 Operator Training Records. Operator training and certification records shall be maintained at the NOAA field activity.

.06 Boat Inventory. Boat inventories and hull registration numbers shall be maintained by the NOAA Small Boat Program.

## SECTION 12. EFFECT ON OTHER ISSUANCES.

This Order supersedes NAO 217-103 dated June 20, 1991.

**SAFETY COMMITTEE SAFETY EVALUATION FORM**



***PLEASE POPULATE AND SAVE THIS FORM ELECTRONICALLY.***

**Name:**

**Date:**

**Vessel:**

**Do you have any safety concerns not addressed in the Safety Manual?**

**How can we improve safety during the survey?**

**How can we improve the Safety Manual?**

**Please list any injuries, accidents, near misses or hazards you encountered during this leg:**

**Did you file an electronic Injury or Near-Miss Form?**

**Additional comments:**

## Safety Leader's At Sea Personnel Recording Form

RACE & REFM would like to improve communication about, and track, at-sea injuries, illnesses & other conditions that affect the science crew. Because of the number and types of sampling cruises, the variety of boats involved, the diversity of tasks performed, and the number of people involved, keeping track of this type of information by word of mouth has not served us well. We would like to use this form to collect information so we can more easily analyze at-sea conditions that affect our well being. This data will be provided to Jay Kennedy and the RACE Safety Committee for their use in addressing safety issues. While the recording of such injuries/illnesses is voluntary, we hope that everyone will participate – without your input, we cannot recognize problems, nor propose solutions. With data provided by the science crew, we can identify & prioritize problems, and work towards improving working conditions for our at-sea crews. For example, the Safety Committee is working towards implementing recommendations from an ergonomic assessment of our at-sea duties to reduce repetitive strain injuries during those activities. As we test different methods (training, new or modified equipment, etc.) for reducing the instance of a repetitive injury, we will need your input to assess the usefulness of the approach. And, once we've addressed a problem, we will need your input to identify the next problem to concentrate on.

This form does not replace the RACE/REFM E-Mail Injury Report Form for at-sea injuries; neither Jay nor the Divisions will use this form to report injuries. The RACE/REFM E-Mail Injury Report Form must still be filled out & submitted for at-sea injuries. You may record such injuries on the Safety Leader's At Sea Personnel Recording Form to track the injury & how it affects the scientist. Likewise, recording of an injury on the Safety Leader's At Sea Personnel Recording Form does not preclude submission of the RACE/REFM E-Mail Injury Report Form at a later date if the condition escalates, as is often the case with ergonomic injuries.

Use this form to record physical conditions of the science crew that may affect their ability to perform at-sea duties, including ergonomic injuries and increased fatigue due to loss of sleep from an injury or sea sickness.

The Safety Leader should check with each member of the science crew periodically for conditions a crew member would like to record, keeping the FPC & Deck Boss informed of any problems the crew may be having. The forms should be transmitted to Seattle at the end of each cruise leg, or if a scientist is staying for an additional leg, his/her form should be sent to Seattle at the end of his/her final leg.

For the scientist, this form can also serve as a record of a condition that did not seem reportable at the time, but did not resolve once sea duty ended.

Thank you,  
The RACE Safety Committee & Jay Kennedy





**Example #1**

**Safety Leader's At Sea Personnel Recording Form**

This form does not replace the RACE/REFM E-Mail Injury Report Form. Use this form to record conditions not reported on Injury Form.

Examples include ergonomic injuries, sea sickness, etc.

Note if condition is affecting performance of duties, including increased fatigue from loss of sleep.

Name: Billy

Safety Leader:

FPC:

Vessel:                      Location:

Cruise #:

Deck boss:

Date	Injury Form?	Complaint/report	Most likely cause	Severity & Effect	Action taken by Deck Boss or FPC
8/7/2010	No	waking up thru out night w numb right hand	Specific task unknown	Doesn't interfere w specific tasks, but affects sleep, so fatigued	Offered to rotate out of certain tasks to see if alleviates problem
8/8/2010	No	still. No difference from prev night	unknown	same	Didn't sex fish 8/2; did otoliths instead
8/9/2010	No	still. No difference from prev night	unknown	same	Didn't sex fish 8/3; did otoliths instead
8/10/2010	No	still. No difference from prev night	unknown	same	Sexed fish, moved from side to end of sorting table (less picking up of fish & more scooping off table)
8/11/2010	No	still. No difference from prev night	unknown	same	Sexed fish, moved from side to end of sorting table (less picking up of fish & more scooping off table)
8/12/2010	No	still, but may have woken up fewer times in night.		same	
8/13/2010	Yes	still, but not as bad as initially noted	Suspect lifting fish over table boards.	Doesn't interfere w specific tasks, sleeping better, but still fatigued	Billy at end of sorting table.
		etc			

**Example #2**

**Safety Leader's At Sea Personnel Recording Form**

This form does not replace the RACE/REFM E-Mail Injury Report Form. Use this form to record conditions not reported on Injury Form.

Examples include ergonomic injuries, sea sickness, etc.

Note if condition is affecting performance of duties, including increased fatigue from loss of sleep.

Name: Jenny

Safety Leader:

FPC:

Vessel:                      Location:

Cruise #:

Deck boss:

Date	Injury Form?	Complaint/report	Most likely cause	Severity & Effect	Action taken by Deck Boss or FPC
8/6/2010	No	very sore lower back	Shoveling catch in bin	Can't work in bin today, sleep affected	No bin work until 2 days post-back pain
8/7/2010	No	resolved		No bin work, slept well	
8/8/2010	No	back OK		No bin work, slept well	
8/9/2010	Yes	pulled muscle in back	Shoveling catch in bin	Worked in bin	No bin work for remainder of cruise.
8/10/2010		sore lower back		Pain considerable; Jenny can't lift baskets, shovel, bend over.	