

AT-SEA SAFETY MANUAL

Compiled by the RACE

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MISSION OF THE AT-SEA SAFETY MANUAL

The staff of the RACE Groundfish Program conducts fieldwork in one of the most dangerous environments on earth - 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 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.

This manual is consistent with the requirements of National Oceanic and Atmospheric Administration (NOAA) Administrative Order 217-103 as well as NOAA Memorandum "Board of Review Report -Fatality – NOAA ship Rainier S221 of December 27, 2002.

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

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WHAT IS A SAFETY PROGRAM?

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 minimize 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.
- “Near-misses” should really be termed “near-hits”. 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!

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. They can both be found in the Appendix of this manual as well as online at:

<http://161.55.80.212/race/fieldops/fieldDefault.htm> or on the RACE Intranet under "NOAA Health Services Questionnaire" and "At Sea Emergency Contact Information".

A sample of each of the forms follows. 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 be responsible for notifying their FPC in charge of any medical conditions that may have a potential of becoming serious if not properly treated at sea.

DATE 2003

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 (pg.47), and available online or on the RACE Intranet under At Sea Emergency Contact Information.

HEALTH FORMS / MEDICAL EMERGENCY FORMS continued:

The figure displays four pages of the NOAA Health Services Questionnaire:

- Page 1 (Top Left):** Personal information section including Name, Sex, Age, Birth Date, Work Address, Phone, and Social Security Number. It also includes a 'HEALTH INFORMATION' section with questions about general health, physician care, and current medications.
- Page 2 (Top Right):** 'GENERAL SCREENING' section with questions about various medical conditions such as Cancer, Tuberculosis, Asthma, Diabetes, and Depression. It includes a 'CARDIAC SCREENING' section with questions about blood pressure, cholesterol, and heart health.
- Page 3 (Bottom Left):** 'IMMUNIZATION SCREENING' section with a table for recording dates and types of immunizations for various diseases like Cholera, Hepatitis A/B, Polio, and Tetanus.
- Page 4 (Bottom Right):** A blank 'Continuation Page' for additional information.

Fig. 2 NOAA/ RACE Health Services Questionnaire. This form is also available online as well as in the Appendix of this manual (pg.49).

SAFETY TRAINING FOR AT SEA PERSONNEL

The AFSC has contracted a private vendor to provide a series of Safety / First Aid training classes. This training satisfies compliance for the NOAA STCW (Standards of Training, Certification, and Watchkeeping for Seafarers) requirements (Document #2001 07 EJF Fleet Operating Principles/ memorandum on Basic Safety Training). The International Maritime Organization's Convention on STCW for seafarers sets qualifications and requires that all mariners receive vessel familiarity and Basic Safety Training (BST) which includes four modules: basic fire fighting, elementary first aid, personal survival techniques, and personal safety and social responsibility. NOAA's policy is for voluntary compliance with the provisions of STCW, and recommends **completing 3 out of the 4 modules**.

Visiting scientists from other institutions 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 Division Safety Training Officer: Bill Flerx at 206.526.6643 or by email: Bill.Flerx@noaa.gov

Training classes:

Module 1a: Medical Emergencies at Sea:

Required in 1st year for new hires. A remote-duty 16hr first aid course. Course outline includes treatment of major and minor injuries, treatment of the ill or injured, rescue breathing, O₂ Therapy, CPR and use of AED (Automatic External Defibrillator).

Module 1b: Medical Emergencies at Sea Refresher:

Required every 2 years; An 8hr refresher of the course listed above. O₂ Therapy, CPR and AED refresher included.

Module 2: Survival at Sea:

Required every 3 years. A 2-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, abandoning ship skills.

Module 3: Fire Fighting:

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.

Module 4: Shipboard Living:

Required every 5 years. An 8-hr course designed to teach the special challenges of living aboard a small vessel with other people for extended periods of time.

Additional Recommended Training:

Hazardous Materials Handling, Storage and Transportation:

All field personnel should complete these courses when possible. Task leaders should encourage staff completion of these courses.

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.

ON BOARD SAFETY CHECKLIST

The following is a checklist for Field Party Chiefs (FPCs) to be used at the beginning of each survey leg. It is designed to help the FPC track all potential hazards and safety issues onboard, and to assure these issues have been properly communicated to all science personnel. If the captain of the vessel does not address some of these items, or you feel they should be re-emphasized, this list will help remind you.

To be performed prior to leaving dock:

1. All Science Personnel need to know the location of the following items:
 - Fire extinguishers
 - Muster station
 - Life rafts
 - Radios and radio procedures
 - EPIRB (Emergency Positioning Indicating Radio Beacon)
 - Survival suits (their own and spares)
 - Eyewash station
 - MSDSs (Material Safety Data Sheet)
 - O₂ kit and Trauma / First Aid kit
2. All Science Personnel need to understand what to do in the event of:
 - Man overboard
 - Fire
 - Abandon ship
 - Different types of alarms (General alarm, bilge alarm, fire, etc)
3. All Science Personnel are required to practice donning survival suits.
4. Inform Science crew that Emergency Information Forms (pg. 9 and 47) and NOAA Health Services Questionnaire (pg. 10 and 49) are on board and sealed for confidentiality. However, if anyone has a medical condition that could pose an emergency they should notify their FPC.
5. Check all science equipment for proper stowage and secure tie downs. Assume rough sea conditions and secure all loose items. Prepare for the possibility of seasick science crew.
6. Check with Deck Boss that all sampling gear is stowed and secured; chemicals are mixed; and all sampling gear is ready for first tow.

To be performed dockside if possible or prior to first tow:

7. It is recommended that **all** scientific crew read this safety manual, and sign the Charter Vessel Emergency Procedure Form (provided by FPC) during the on-board safety check at the beginning of each survey leg.
8. Discuss Standard Operating Procedures (pg. 13) / their associated hazards / and recommended operating procedures (i.e. Loading /offloading vessel, fishing operations, catch sampling, shore excursions, personal activities etc.)
9. Conduct tour of vessel and identify any additional boat specific safety hazards. Discuss possible solutions to potential hazards with vessel captain and design appropriate precautions with scientific crew.

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. Operation: Boarding/ disembarking vessel.

Hazards:

Falling into water; slipping; bumping into hard items.

Operating procedures:

- Use gangway whenever possible.
- 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 help or ask somebody to watch you.
- 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. Operation: 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 should be worn when overhead loads are being transferred.
- The FPC (Field Party Chief) and 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:

- Forklift operators shall be certified.
- 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. Operation: Setting up equipment

Hazards:

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

Operating procedures:

Power Tools:

- Ask for training or assistance if you are unfamiliar, inexperienced or uncomfortable with the 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 Essential Hazardous Material Information (pg. 26).
- 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.
- For accidental spills or skin contact: consult MSDS for particular chemical; also see Essential Hazardous Material Information from MSDS (pg. 26) for specific chemical.
- Communicate your activities to those around you who may not be wearing Personal Protective Equipment.
- Educate yourself on the location and use of the eye wash station.
- Conduct all transferring and mixing of large quantities of chemicals when weather/vessel is calm (i.e. at dock, when anchored, when drifting in the evening).

Setting up Equipment – Chemicals Continued:

- 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. Operation: 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- clean it up.
- 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. Operation: Setting 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 aft decks or bow for deployment or retrieval instruments notify captain or crew member in charge of area.
- Wear float coat or life jacket, hard hat 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. Operation: 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. Operation: Haul Back

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

Operating Procedures:

- See: Setting Net Operation #5 (pg. 16)
- 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. Operation: Surface Seawater Collection

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.
- 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. Operation: 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. Operation: 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.
- Use Basic First Aid At Sea techniques (pg. 38) to treat open wounds from fish spines, fish teeth, etc.

11. Operation: Sorting catch, handling baskets

Hazards: Repetitive motion problems, back strain, slipping.

Operating Procedures:

Sorting Catch:

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

Lifting:

- Use two people to lift heavy baskets.
- Avoid lifting and twisting movements.
- Also see: Loading/Offloading Operation #2 (pg.13)

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. Operation: 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. Operation: Collection of length-frequency data

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

Operating Procedures:

- Avoid repetitive motion problems, and back strain.
- see: Sorting catch, handling baskets Operation #11 (pg.18).
- Use Sharps container to dispose of old or broken scalpel blades.
- Use Basic First Aid At Sea techniques (pg. 38) to treat minor injuries (cuts, fish spines,etc.)

14. Operation: 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: Sorting catch, handling baskets Operation #11 (pg.18).
- Use Sharps container to dispose of old or broken scalpel blades.
- Use Basic First Aid At Sea techniques (pg. 38) 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 Essential Hazardous Material Information (pg. 26).

15. Operation: Preserving specimens.

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

Operating Procedures:

- Chemical use: see: Setting up equipment Operation #3 (pg. 14).
- Chemical spills: consult the MSDS for the particular chemical. Also see Essential Hazardous Material Information (pg. 26).
- Chemical shipping: see Chemical Hazardous Material Shipping Guidelines (pg.35).
- Back strain: see: Sorting catch, handling baskets Operation #11 (pg.18).

16. Operation: 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. Operation: 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, person can become dehydrated. See Seasickness-Information (pg. 40).

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. Follow RACE overtime policy for 12-hour workdays.

18. Operation: 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. 23 and 53) should 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. 25).

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 times.

Shore Excursions / Communication continued:

- Complete an AFSC Small Boat Float Plan 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 Small Boat Kit on shore excursions. Leave at base camp.
- See Basic First Aid at Sea Information (pg. 38).

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 Small Boat Kit for survival supplies before leaving vessel (see Content List pg. 25).

Hypothermia:

- Consult first aid manual for prevention and treatment.
- See Emergency Contact Numbers for more advice (pg. 39).

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 pairs with an experienced partner; if venturing alone take a VHF radio and / or whistle to alert someone in the event of trouble.

19. Operation: 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: Setting up Equipment Operation #3 (pg. 14).
- 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 unsuspecting 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. 38) and notify your FPC.

The following Survey Float Plan (Fig. 3) and Equipment List (Fig. 4) 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 Catch Data Entry computers while at sea. An electronic copy of completed forms should return to Seattle along with catch data CD for each survey leg. A copy of these forms can also be found in the Appendix of this manual (pg.53).

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: _____

Names of personnel on shore excursion: **Able to swim? (yes/ no)**

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____

Small boat description: Model: _____

Length: _____ **Width:** _____ **Draft:** _____

Engine type: _____ **Fuel on board:** _____

Vessel operator: _____ **Experience level:** _____ yrs

Itinerary:

Depart #1 from: _____ **Time:** _____

Depart #2 from: _____ **Time:** _____

Arrive #1 to: _____ **Time:** _____

Arrive #2 to: _____ **Time:** _____

Destination route: _____

Additional Information:

Fig. 3 RACE Summer Survey Float Plan. This form can be found on the Catch Data Entry computers while at sea. An electronic copy of completed form should return to Seattle along with catch data CD. Also see full sized version in Appendix (pg. 53).

FLOAT PLAN Continued:

RACE Survey Float Plan Equipment List

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

Required by USCG:

- 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 Mini Kit**
- Whistle or Horn** (one hand, mouth, or power operated whistle or horn, audible at least ½ mile)
- Bilge pump** (or hand bailer)

Suggested and recommended by AFSC:

- Survival suits** (not necessary for dockside transport/ only for shore excursions)
- Radar reflector/ transponder** (SART)
- Additional Radios:** (frequency monitored: _____)
- AFSC Small Boat Kit:** (for contents see [pg.25](#))
- Orange flag w/pole to mark base camp**
- Hand held GPS unit**
- Fire extinguisher**
- Extra food**
- Extra water**

Fig. 4 RACE Survey Float Plan Equipment List. This form can be found on the Catch Data Entry computers while at sea. An electronic copy of completed form should return to Seattle along with the Float Plan. Also See Appendix (pg. 54).

RECOMMENDED PERSONAL ESSENTIALS FOR SHORE EXCURSIONS

~Be prepared to spend the night!

1. Raingear and rubber boots
2. Daypack
3. Extra clothes with synthetic insulating layer including socks, gloves and a hat
4. Whistle
5. Plastic garbage bags, visqueen, duct tape, light line or cord
6. Matches in waterproof container or zip lock bag
7. Fire starter sticks
8. Waterproof flashlight
9. Emergency food
10. Water
11. Space blanket
12. Toilet paper, packed in zip lock bag
13. Personal first aid kit, packed waterproof
14. Knife or Leatherman type tool
15. Watch
16. Compass

AFSC SMALL BOAT KIT CONTENT LIST

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
17. Boullion cubes
18. Wire

ESSENTIAL HAZARDOUS MATERIAL INFORMATION

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



100% FORMALIN (37% FORMALDEHYDE)

Hazards Identification:

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

Potential Health Effects:

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

Inhalation:

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

Ingestion:

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

Skin Contact:

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

Eye Contact:

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

100% FORMALIN (37% FORMALDEHYDE) continued:

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 Emergency Contact Information (pg. 39). See Basic First Aid at Sea (pg. 38).

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!

100% FORMALIN (37% FORMALDEHYDE) continued:

US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. 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 Chemical Hazardous Material Shipping Guidelines (pg. 35).

Disposal

See Survey Operations Manual for proper disposal.



ETHANOL (ethyl alcohol)

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 Basic First Aid at Sea (pg.38).

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.

ETHANOL continued:

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 Chemical Hazardous Material Shipping Guidelines (pg. 35).

Disposal:

See Survey Operations Manual for proper disposal.



GLYCEROL (At sea as Glycerol- Thymol Solution)

Hazards Identification

Emergency Overview

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

Potential Health Effects

Inhalation:

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

Ingestion:

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

Skin Contact:

May cause irritation.

Eye Contact:

May cause irritation.

Chronic Exposure:

May cause kidney injury.

Aggravation of Pre-existing Conditions:

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

First Aid Measures

Inhalation:

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

Ingestion:

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

Skin Contact:

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

GLYCEROL continued:

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 Basic First Aid at Sea (pg. 38).

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 Chemical Hazardous Material Shipping Guidelines (pg. 35).

Disposal:

See Survey Operations Manual for proper disposal.



THYMOL (At sea as Glycerol-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.

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.

THYMOL continued:

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 Basic First Aid at Sea (pg. 38).

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:

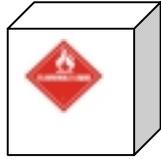
Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe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

Shipping:

See Chemical Hazardous Material Shipping Guidelines (pg. 35).

Disposal:

See Survey Operations Manual for proper disposal.



CHEMICAL HAZARDOUS MATERIAL SHIPPING GUIDELINES

For NOAA shipping information and protocols contact Christopher Donohue, Traffic Manager WASC (Western Administrative Support Center), Phone: (206) 526-6394 Fax: (206) 526-4117 or Email: Christopher.Donohue@noaa.gov or WRC.Shipping@noaa.gov

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, the guidelines below should be followed.

- **Transporting HazMat Chemicals by water: (i.e. 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:**

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. There are specific requirements that you must follow when air cargo shipping dangerous goods (even very small amounts). 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.
3. If you plan to use a commercial air cargo carrier to ship dangerous goods, (such as coolers containing samples that are preserved with ethanol), contact the WASC transportation specialist.
4. For information on approved and prohibited items that can be taken aboard a commercial airplane please visit the Transportation Security Authority web page at: www.TSATravelTips.us or call the Consumer Response Center toll-free 1-800-866-289-9673.

Shipping HazMat Chemicals by ground transport (Barge):

Using a barge-shipping courier to ship HazMat chemicals is the safest, most economical method. Contact the WASC transportation specialist for additional information.

- When shipping Hazardous Material to and from NOAA / NMFS / RACE by land or sea (Not air) a Dangerous Goods Declaration Form (pg. 55) must be completed.

CHEMICAL HAZ-MAT SHIPPING GUIDELINES continued:

- The form contains pertinent information of shipped HazMat. Chemtech (#800-424-9300) traces the shipment 24hr/7 days.
 - Under the Code of Federal Regulations (49 CFR 173.150), a "Limited Quantity" of class 3 flammable liquids, such as Ethanol or undiluted Formalin (37% Formaldehyde), may not exceed 30 kg / 66 pounds gross weight.
 - Combustible liquids (such as 10% Formalin) are unregulated by DOT.
 - Each package must conform to the packaging requirements.
- (1) For flammable liquids in Packing Group I*, inner packaging not over 0.5 L (0.1 gallon) net capacity each, packed in strong outer packaging;
 - (2) For flammable liquids in Packing Group II*, inner packaging not over 1.0 L (0.3 gallon) net capacity each, packed in strong outer packaging; and
 - (3) For flammable liquids in Packing Group III* and combustible liquids, inner packaging not over 5.0 L (1.3 gallons) net capacity each, packed in strong outer packaging.

* Packing Group: 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" i.e.:

Glycerol = Not regulated by DOT

Thymol = Packing group III

Formaldehyde (37%) = Packing Group III / Hazard Class 3

Formalin (10%) = Packing Group III / Hazard Class 9

Ethanol (>10%)= Packing Group II / Hazard Class 3

Ethanol:

- Additional packaging and record keeping requirements may apply if you are traveling with large quantities (more than 8 gallons).

Samples stored/ shipped in Ethanol:

- Can be in standard plastic (Nalgene) or glass containers.
- Lids must be sealed tight with plastic tape (not applicable for otolith vials).
- 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).
- 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).
- Above contents must be shipped in a cardboard box, with proper labeling.
- 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.

CHEMICAL HAZ-MAT SHIPPING GUIDELINES continued:

Labeling and Marking Requirements:

- Individual containers (except sample bottles) must be labeled properly.
- Outer packaging must be DOT approved cardboard box (containing sample bottles) must be labeled properly.



Contents: 50% Ethanol
Quantity: 3x 1L bottles = 3L Total

Class 3
Packing group I

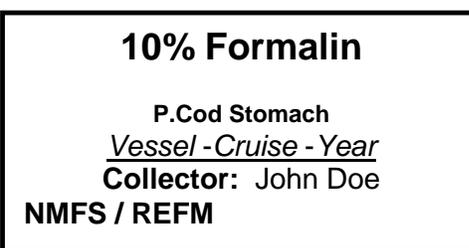
- DOT label indicating Hazard class of shipped chemical.

Formalin (diluted to 10% Formalin):

- Not regulated by DOT in diluted 10% strength.
- Combination packaging is recommended to minimize the possibility of release.
- Single Packaging: drums and pails used as single packaging should be stamped or labeled with DOT codes.
- Containers should be tightly sealed (i.e. 5gal 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).

Labeling and Marking Requirements:

- DOT label indicating Hazard class of shipped chemical should be visible on outside of container.
- Label contents.



- DOT label indicating Hazard class of shipped chemical.

Formalin (full strength 37% Formaldehyde):

- Single Packaging: drums and pails used as single packaging should be stamped or labeled with DOT codes.
- Each single packaging must not exceed 7 gallons on volume (or 30 kg /66 lbs in gross weight).
- If original manufacturers packaging is intact, it may be re-used for shipping.



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. **Small cuts & wounds:**

Stop the bleeding as soon as possible by applying pressure to the wound with a 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 10% Povidone-iodine (1% Iodine) 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.

See Emergency Contact Information (pg. 39). 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 Injury or Near-Miss Report Form (Fig. 5) 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 Forms (Traumatic Injury Forms) need to be completed in the event of injuries not considered minor. Forms and instructions are provided in the FPC notebook. In addition, the vessels may have company injury claim forms that will also be required to complete. Survey Injury or Near-Miss Report Forms (pg. 42) should be filled for all minor injuries or near misses.



Emergency Care Center for Various Alaskan Ports:

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

Adak

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

Akutan

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

Atka

Atka City EMS
(907) 839-2214

Chignik

Chignik Bay Subregional Clinic
(907) 749-2282

Cordova

Cordova 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

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

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



SEASICKNESS: INFORMATION AND TREATMENT

When the human body is put into motion, be it in a boat, car, or airplane, motion sickness can be a side effect. The cause of motion sickness and its associated unpleasant symptoms are not well understood. Most medical information explains the symptoms as a result of the brain experiencing sensory confusion. 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 may not work for others. The only way to know for sure is to try it. Start with a non-prescription drug because they usually have less drowsiness side effects. If the non-prescription drugs are not effective see your doctor and request a prescription drug.

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

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

Natural Remedies:

1. **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.
2. **Calm Seas™** Contains natural ingredients including ginger.

Chemical Remedies:

1. **Bonine:** Over the counter Meclazine.
2. **Scopolamine:** Marketed as a transdermal patch worn behind the ear.
3. **Dramamine:** Over the counter Dimenhydrinate; comes in non-drowsy formulas.
4. **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:

1. 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.
2. 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 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 OR NEAR-MISS REPORT

This form is to be filled out for any injury, accident, or near-miss accident for the purpose of identifying hazards and evaluating relative risk. With your help the Groundfish Safety Committee will make our work environment safer and keep the scientific crew better informed of potential hazards and how to avoid them.

This form can be found on **page 55** of this document and will be available on the Catch Data Entry computers while at sea. An electronic copy of completed form/s can return to Seattle with the FPC along with the catch data CD, and sent to the Safety Committee Chairman at: Nate.Raring@noaa.gov.

RACE INJURY OR NEAR-MISS REPORT	
	
 PLEASE POPULATE AND SAVE THIS FORM ELECTRONICALLY.	
<u>Name:</u>	
<u>Date:</u>	
<u>Vessel or location:</u>	
<u>Cause of injury, accident or near miss (describe what happened and why):</u>	
<u>If injury resulted describe injury as well as location (e.g. "Laceration to left forearm"):</u>	
<u>Medical Supplies used:</u>	

Fig. 5 RACE Injury or Near-Miss Report Form. This form can be found on **page 55** of this document and available on the Catch Data Entry computers while at sea. An electronic copy of completed form should return to Seattle along with catch data CD, and emailed to Nate.Raring@noaa.gov.

ANNUAL SAFETY PLAN REVIEW PROCEDURE

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

This form is to be filled out by FPCs 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 page 56 of this document and available on the Catch Data Entry computers while at sea. An electronic copy of completed form should return to Seattle with the FPC along with catch data CD, and sent to the Groundfish Safety committee via email to: Nate.Raring@noaa.gov.

RACE SAFETY EVALUATION	
	 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:	

Fig. 6 RACE Safety Evaluation. This form can be found on page 56 of this document and available on the Catch Data Entry computers while at sea. An electronic copy of completed form should return to Seattle along with catch data CD and sent to Nate.Raring@noaa.gov.

APPENDIX

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NOTE:

Please complete these forms in an electronic format when possible.

DATE 2003

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

Appendix H

NOAA Health Services Questionnaire

Name _____ Program _____
 Last First Mi Position _____
 Birth Date Work Address Phone
 ___/___/___ W _____
 mm dd yy H _____
 Sex: M F

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? ___/___

List current medications (prescription and non-prescription):

None 1. _____ 4. _____
 2. _____ 5. _____
 3. _____ 6. _____

List Allergies : Allergy Reaction
 None 1. _____
 2. _____
 3. _____
 4. _____

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

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

List Any Dietary Restrictions:
 Restriction Reason
 None 1. _____
 2. _____

NOAA Health Services Questionnaire

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 gain or loss of 20 or more lbs.	<input type="checkbox"/>	<input type="checkbox"/>	Periods of Unconsciousness	<input type="checkbox"/>	<input type="checkbox"/>
			Severe Motion Sickness	<input type="checkbox"/>	<input type="checkbox"/>

Please explain all YES answers:

CARDIAC SCREENING

As an adult, have you had or experienced?

	No	Yes		No	Yes	
Abnormal ECG	<input type="checkbox"/>	<input type="checkbox"/>	Hypertension	<input type="checkbox"/>	<input type="checkbox"/>	(and value if known) recent reading _____
Sedentary Life Style	<input type="checkbox"/>	<input type="checkbox"/>	Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	HgA _{1c} _____
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:

NOAA Health Services Questionnaire

IMMUNIZATION SCREENING

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

	Date	Type	Date unknown	None
Cholera	_____		<input type="checkbox"/>	<input type="checkbox"/>
Diphtheria ¹	_____		<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"/>
Influenza (most recent only)	_____		<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"/>
Pneumococ pneumonia	_____		<input type="checkbox"/>	<input type="checkbox"/>
Polio	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
Rabies	_____		<input type="checkbox"/>	<input type="checkbox"/>
Tetanus ¹	_____		<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				

¹May 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 ships:

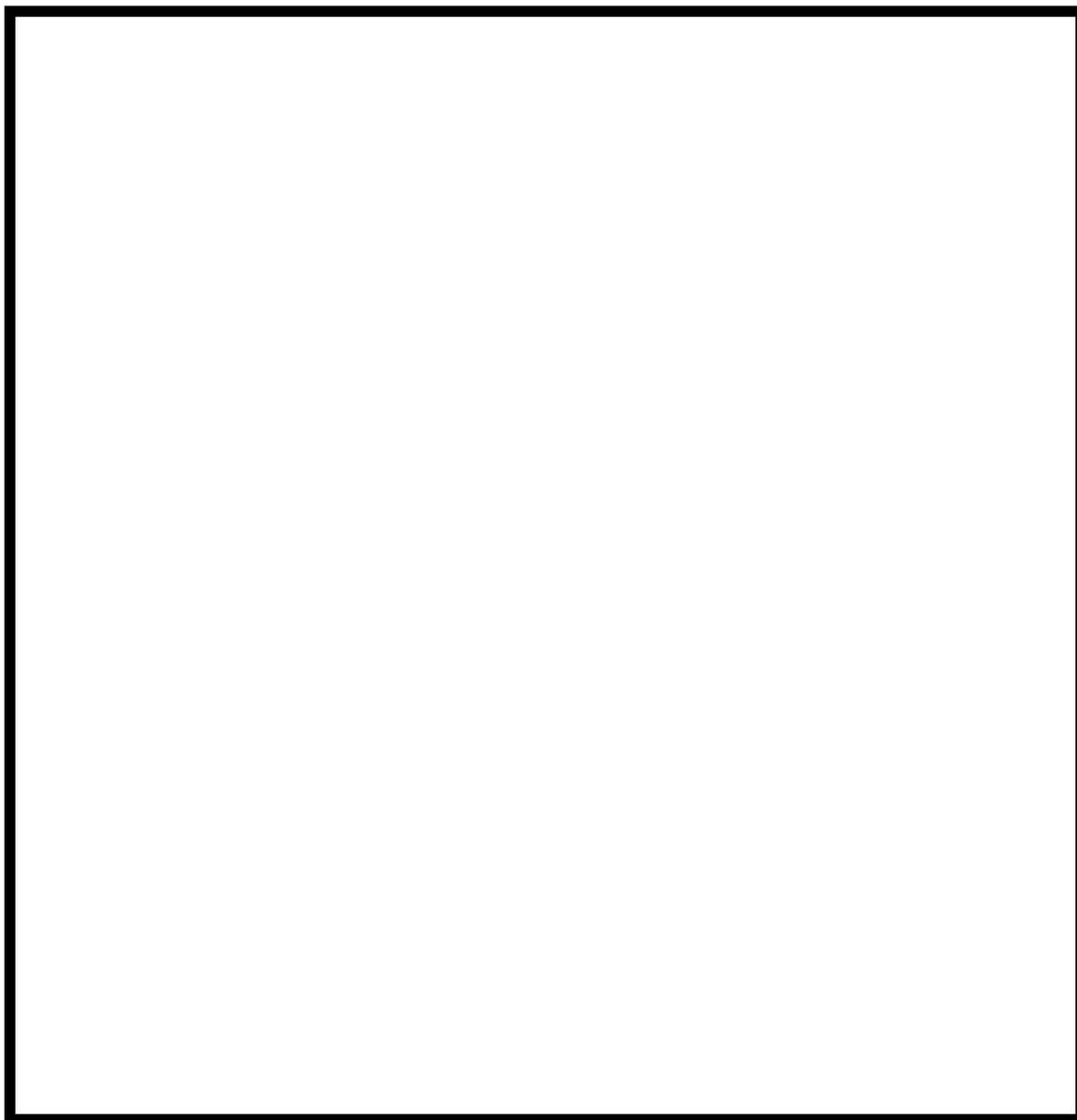
1. _____ 2. _____ 3. _____

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**



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: _____

Names of personnel on shore excursion: Able to swim? (yes/ no)

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____

Small boat description: Model: _____

Length: _____ Width: _____ Draft: _____

Engine type: _____ Fuel on board: _____

Vessel operator: _____ Experience level: _____ yrs

Itinerary:

Depart #1 from: _____ Time: _____

Depart #2 from: _____ Time: _____

Arrive #1 to: _____ Time: _____

Arrive #2 to: _____ Time: _____

Destination route: _____

Additional Information:

RACE Survey Float Plan Equipment List

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

Required by USCG:

- 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 Mini Kit**
- Whistle or Horn** (one hand, mouth, or power operated whistle or horn, audible at least ½ mile)
- Bilge pump** (or hand bailer)

Suggested and recommended by AFSC:

- Survival suits** (not necessary for dockside transport/ only for shore excursions)
- Radar reflector/ transponder** (SART)
- Additional Radios:** (frequency monitored: _____)
- AFSC Small Boat Kit:** (for contents see [pg.25](#))
- Orange flag w/pole to mark base camp**
- Hand held GPS unit**
- Fire extinguisher**
- Extra food**
- Extra water**

**RACE
INJURY OR NEAR-MISS REPORT**



PLEASE POPULATE AND SAVE THIS FORM ELECTRONICALLY.

Name:

Date:

Vessel or location:

Cause of injury, accident or near miss (describe what happened and why):

If injury resulted describe injury as well as location (e.g. "Laceration to left forearm"):

Medical Supplies used:

**RACE
SAFETY EVALUATION**



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:



Dangerous Goods Declaration
(For Domestic Surface Transportation)

United States Department of Commerce
National Oceanic 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



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: