



PADDLE CRAFT SAFETY PROGRAM GUIDELINES & TASK BOOKLET

**DRAFT COPY
DECEMBER 2017**

PURPOSE: Provide Boating Safety Officers and watercraft facility managers with educational guidelines and program standards that will promote personnel safety and training accountability for institutions and agencies that utilize human powered watercraft in support of scientific boating.

OBJECTIVE: To establish professional guidelines for programs and provide a recognized framework which utilizes nationally recognized, NASBLA approved, educational resources, and institutional expertise to support the skills required for scientific boating operations involving human powered watercraft, a.k.a. “Paddle Craft.”

OVERVIEW: Paddle Craft are becoming an increasingly popular option and resource for supporting aquatic research activities amongst institutions and agencies. Due to the affordability and general availability, paddle craft are considered a viable option or alternative to motorized watercraft for scientific boating operations. The use of paddle craft for professional purposes under the auspices of an institution or agency should be considered an activity that has the potential for low to very high risk exposure. Environmental Health & Safety resources and staff should be allocated to ensure personnel are properly trained and prepared for proper use and outfitting with regard to; the type of paddle craft, the environment, the duration of the mission, as well as emergency response and incident management.

Education Standards: Paddle Craft education can be very broad and ranging from the basic-entry level to the expert- advanced levels and covers a variety of skills related to the type of craft and location of use. The purpose of these guidelines are to assist institutional and agency programs with providing entry level education and skills, and methods for obtaining advanced training options applicable to specific types of paddle craft and/or aquatic environments.

Minimum Pre-Requisite Training Standard: National Association of State Boating Law Administrator, NASBLA approved Paddle Craft Safety Course.

- Boater Exam . Com : <https://www.boaterexam.com/paddling/>
- Boater Ed . Com: <https://www.boat-ed.com/paddlesports/>

Supplemental State Specific Courses: State-by-State NASBLA approved boating safety courses.

- Boater Exam. Com: <https://www.boaterexam.com/>
- Boater Ed . Com: https://www.boat-ed.com/approved_boating_course.html
- Boat U.S. . Org: <https://www.boatus.org/free/>

On-Water Skill Based Training and Performance Assessment Standards:

The National On-Water Standards Program, in partnership with the U.S. Coast Guard and NASBLA has established the minimum guidelines and standards for on-water skills based entry level paddle craft training. The topics and skills they have identified provide a template for structuring performance based training and evaluation for human powered craft.

- <https://www.onwaterstandards.org/human-domain>

The American Canoe Association, ACA, is a national course provider that provides training and certification for all variety of paddle craft and skill levels, including instructor certification for each discipline of paddle craft instruction.

- <http://www.americancanoe.org/>

Boating Safety Officers and Watercraft Facility and Program Managers responsible for authorizing the use for individuals, programs or projects may consider pursuing the ACA Paddlesports Safety Facilitator certification.

- [http://c.ymcdn.com/sites/www.americancanoe.org/resource/resmgr/SEI-Courses/PSF -
_General_Module.pdf?hhSearchTerms=%22Paddlesports+and+safety+and+facilitator%22](http://c.ymcdn.com/sites/www.americancanoe.org/resource/resmgr/SEI-Courses/PSF_-_General_Module.pdf?hhSearchTerms=%22Paddlesports+and+safety+and+facilitator%22)

Administrative Requirements and Record Keeping: Institutional and Agency programs have legal requirements related to managing risk in the workplace and providing the requisite training and equipment for its personnel to perform their duties in a safe, legal and effective manner. An important part of this process is documenting the efforts employed for accident and injury prevention, a system that outlines minimum requirements and the resources allocated to ensure personnel are afforded proper training and access to personal protective equipment, along with protocols for proper maintenance and use of equipment. These responsibilities are shared by the following personnel; good communication and strong collaboration between them is essential to the success of the program.

- Boating Safety Officers and Facility Managers
- Faculty, Project Managers and Supervisors
- Trip Leaders and Guides
- Staff and Participants

Organizational Risk Management: This involves many levels of cooperation starting with the endorsement and support from the institution or agencies executive leadership, and involves each of the individuals listed above. The goal of each is to provide, and ensure, program preparedness and human readiness prior to performing paddle craft operations in support of research and educational activities.

The items included in this document are designed to provide a general working template with sample guidelines, tools and check-lists that can be modified and customized to support individual institutional programmatic needs. The overarching goal is to assist with the development and implementation of paddle craft safety training for programs, while also facilitating steps to improve the hazard identification and risk assessment process. The essential tools for risk management and emergency preparedness that are necessary for field work utilizing paddle craft.



Paddle Craft Appendixes Table of Contents

- A. Participant Enrollment and Emergency Contact Form**
- B. SBSA Guidelines For Paddle Craft Use**
- C. Paddle Craft Use: Participant Acknowledgement and Authorization**
- D. Paddle Craft Trip Guidelines and Float Plan**
- E. Paddle Craft Put-In Talk & Trip Briefing**
 - a. Check-list**
 - b. Common Hazards**
 - c. G.A.R. Risk Assessment Form**





PARTICIPANT ENROLLMENT AND EMERGENCY CONTACT FORM

Appendix A

NAME: _____

ORGANIZATION: _____ Supervisor: _____

Supervisor Phone: _____ Supervisor Email: _____

WORKSTATION/DEPARTMENT _____

MAILING ADDRESS: _____

PHONE: _____ EMAIL: _____

PROJECT(S) & LOCATIONS:

EMERGENCY CONTACT(S) (NAMES & PHONE NUMBERS)

NAME: _____ RELATIONSHIP: _____

WORK PHONE: _____ MOBILE PHONE: _____

ALTERNATE:

NAME: _____ RELATIONSHIP: _____

WORK PHONE: _____ MOBILE PHONE: _____

Special Considerations for Emergency Personnel: _____



GUIDELINES FOR PADDLE CRAFT USE

Appendix B

Introduction: The operator is responsible for the carrying of necessary equipment and for the safety of the vessel at all times. The following guidelines are established to ensure that personnel are afforded the necessary training and equipment to safely and effectively perform paddle craft functions in a manner that minimizes risk exposure.

Risk Assessment: Due to the inherent nature of paddle craft activities and the high degree of exposure to the elements; hydrodynamic forces, hull type-performance characteristics, personal protective equipment, self-rescue techniques, and methods for rendering assistance, these activities deserve a particularly high training emphasis. Solo paddle trips should be avoided unless in sight of and with communication of a shore contact, minimum of two persons should be planned for all paddle outings.

Training Objectives: The following is a list of recommended objectives for paddle craft operations.

- A. Operators should complete an approved training course(s) as required.
 - 1. NASBLA Paddle Craft Safety Course
 - 2. NASBLA State Boating Laws
 - 2. Rescue and Survival Skills
 - B. Required and Recommended Equipment
 - C. Personal Protective Equipment (PPE)
 - D. Pre-trip Equipment Inspections and Gear Preparations
 - E. Trip notifications, Float Plan, Group Responsibilities and Emergency Management Plan.
 - F. Geographical Influences, Weather Patterns, Hydrodynamic Forces and their effects on paddle craft.
 - G. Basic use of Navigation and Communication tools.
 - H. Maintenance and Field Repairs
 - I. Accident Reporting Requirements
- A. Approved Training Courses:** Paddle Craft training courses should consist of both knowledge based information and performance based skill training. Both elements should be consistent with the goal of providing the students with the necessary knowledge and skills to make prudent and reasonable decisions that support the physical abilities and limitations of the operator to prevent unnecessary risk exposure. For beginning paddlers it is essential to complete a NASBLA approved course.
<https://www.boaterexam.com/paddling/> or <https://www.boat-ed.com/paddlesports/>

1. Paddle Craft Skills and Stroke Mechanics: The following minimum skills should be practiced, demonstrated, and the individual physical limitations identified prior to independent operation of paddle craft.

1. Body Positioning and Bracing Mechanics
2. Loading and Weight Distribution
3. Launching and Recovery Techniques
4. Forward and Reverse Strokes
5. Draw Stroke and Sweep Strokes
6. High, Low, and Skull braces
7. Recognized Paddle and Hand Signals
8. Water Rescues- Self Rescue, Solo Rescue and multi person Assisted Rescue
9. Capsized vessel re-righting
10. Re-entering paddle craft from the water

B. Required and Recommended Equipment: The following required safety gear must be carried aboard all paddle craft: (Exclusion-Surfboards & Sailboards)

1. Required Equipment:

- Properly Sized Approved Personal Flotation Device (PFD), worn for each person
- Oars or paddle(s). Spares for group activities
- 15' line (minimum) tow / anchor / tie-off line
- Visual and Audible Signaling Devices
- Drinking water and nutritional subsistence
- Boat Plug and Bailing Device
- Paddle Float for back up Kayak Rescue
- Kayak Spray Skirt and Float Bags as applicable for sit-in craft

2. Recommended Equipment:

- Paddle Jacket
- Small Anchor or Sea Anchor with line
- Dry Bag
- First Aid Kit
- Visual Distress Signals (Day & Night)
- Handheld VHF radio (water proof design and/or in a water proof pouch)
- E.P.I.R.B. or Personal Locator Device
- Rescue throw-bag
- Chem-Light sticks (minimum of 3)
- Water proof flash light, headlamp and or strobe
- Local Marine Chart
- Handheld GPS
- Deck mounted or hand held compass (with lanyard)
- Knife
- Cell phone
- Repair Kit

C. Personal Protective Equipment (PPE):

- PFD Type I, II, III, or V
- Paddle Jacket
- Clothing; Water Proof or Resistant, with appropriate Thermal Protection. (NO COTTON)
- Wet suit / Dry suit or Paddle Jacket and Pants
- Hat or Stocking Cap, Helmet for Advanced or Hazardous Operations
- Gloves and Booties
- Sun Glasses
- Sun Screen and Lip Balm
- Post trip bag -towel and change of clothes (optional)

D. Pre-trip Equipment Inspections and Gear Preparations: The importance of conducting thorough equipment inspections and individual gear preparations are an essential element to the pre-trip planning. The equipment loading and transport logistics are essential to a successful trip and avoiding set-backs, USE CHECK LISTS.

It is imperative that each person be outfitted with the proper equipment, and that it is in good and serviceable condition. Each operator assumes responsibility for the condition of the equipment and should report any deficiencies prior to its use, or at the earliest opportunity during and/or after use.

Defective or damaged equipment should be removed from service at the earliest opportunity and labeled as non-serviceable to prevent the item from being reintroduced into service. Post-trip maintenance and inspections, should be performed prior to placing the equipment back into service.

1. Vessel and Equipment Inspection Criteria:

- Clean and stowed properly, free of dirt and/or corrosion
- No cracks, severe stress fractures or excessive wear
- Straps, Hinges, Buckles and Fastening Devices are functioning
- Water Tight Compartments / Bags / Boxes- Gaskets and Edges seal properly
- Emergency and First Aid Kits are sufficiently stocked
- Electronics are protected and functioning properly, (back up batteries)
- Float Bags, when applicable, are leak free

E. Trip notifications, Float Plans, Group Responsibilities and Emergency Management Plan: The operator, guide or group leader is responsible for making the proper trip notifications and obtaining necessary permits or permission for certain bodies of water. Group put-in talks are essential for outlining the lead boat, sweeper boat, and the group responsibilities for spacing to maintain optimum communications.

It is imperative that each outing have a specific “Float Plan” filed with a shore based contact that will notify the appropriate individuals and/or authorities should the individual or group not return or check-in within a prescribed time frame. (*See Float Plan Appendix ...*)

Should an incident arise the operator, guide or group leader is responsible for having an “Emergency Management Plan” established and communicated to the shore based contact and the group when applicable. (*See Emergency Management Plan Appendix...*)

F. Geographical Influences, Weather Patterns, And Hydrodynamic Forces: An important aspect of pre-trip planning is studying the intended areas of operation and understanding the effects of geographical influences, weather patterns and forecasting techniques. The elements and conditions are always changing with water levels, current velocity and wave patterns constantly being influenced by weather and tidal forces.

Understanding the different environmental characteristics and hydrodynamic forces that influence various paddle craft, as well as the distinct advantages and disadvantages of different hull types in specific conditions is paramount. Every operator should begin their training under calm conditions on a safe body of water, as the operator gains knowledge and experience they can pursue higher levels of qualification to venture into higher classes of water flow and larger bodies of water susceptible to elevated weather patterns.

1. Geographical Influences to Observe:

- River class, characteristics and flow patterns
- River waves, eddies, hole strainers, chutes and rapids
- River mouths, obstructions, breaking surf, tidal ranges
- Open water, bays, coastal wave patterns
- Bottom depths, influences, rocks & sand bars
- Aquatic animals and plant hazards
- Vessel traffic, activities and patterns for specific areas
- Dam and Reservoir, Hazard areas
- Put in and take out sites, alternate sites
- Shelter, Safe Routes and Protection Areas from extreme elements

2. Weather Patterns to Forecast and Observe:

- Analyze present conditions, 12 hour and 24 hour forecast.
- Predominant seasonal weather flow
- Alternate weather patterns
- River current velocity and/or Cubic Feet per Second (CFS) Flow
- Wave Height and Swell period
- Wind Direction and Velocity
- Rain and Visibility forecast
- Air and Water temperatures
- Tidal forecast
- Times for Sunset & Sunrise
- Cloud behavior and storm warnings
- VHF-FM Channel 1-10 NOAA WX radio

A. Sources of information.

1. NOAA National Weather Service <http://www.weather.gov/>
2. U.S. Coast Guard, Park Services, Local Harbormaster and Marinas
3. River Flow Services
4. Local news, Television and am/fm radio broadcasts
5. Physical observations

B. Guidelines for Trip Alterations, Cancellation or Termination: The operator should consider the following guidelines regarding weather, and take appropriate action to reduce, minimize, or prevent risky and unsafe practices. It is the operator's responsibility to note and respond to weather changes.

1. Local winds greater than 15 knots are predicted for the area of operation, extra caution in the form of frequent reevaluation of trip conditions shall be exercised.
2. Wave swell heights are predicted to increase beyond 6 ft with more than 2 ft of surface chop, and intervals fall below 8 seconds.
3. Participants have the requisite skill / fitness to engage in the activity.
4. Solo paddling should be avoided and trip size monitored for proper safety ratios.
5. Trips should be canceled due to weather if:

- a. Winds greater than 15 knots and wind chop greater than 2 feet
- b. Small craft advisories are posted or displayed
- c. River flows are expected to rise to unsafe boating flows
- d. Excessive run off from storms are expected
- e. High surf advisories and swell conditions above 4ft
- f. Visibility falls below ½ nautical mile

3. Hydrodynamic Forces and specific Hull Types:

*****Hull type DOES NOT equate to Operator Experience or Protect you from poor decisions !!***

- Utility Row Boat or Dinghy- Calm Water
- Inflatable Raft- Calm to Moderate Water
- Rowing Skulls/Shells- Calm Water
- Canoes- Calm to Moderate Water
- Whitewater Kayak- Calm to Extreme Water
- Whitewater Raft- Calm to Extreme Water
- Ocean Kayak- Calm and Moderate to Big Water (avoid extreme conditions)
- Surf Kayak- Calm to Extreme Breaking Surf

G. Basic use of Navigation and Communication tools: Each operator should include in their training the basic skills necessary to read and understand nautical charts, lake and river maps for the area of operation, as well as the ability to use a hand-held or deck mounted compass. The use of a portable GPS unit is recommended to supplement core navigation skills and increase navigational efficiency.

The use of basic hand-signals is one of the most essential means for communicating to others when standard voice communications are not completely effective. The proper use of a VHF-FM hand-held radio for weather monitoring, advisory broadcasts, routine and emergency communications on channel 16 is strongly encouraged and has proven to be the most effective means of distance communication for most vessel operations. Back up communications and personal locator devices are also strongly recommended as secondary means of communications due to VHF distance limitations and the potential for electronic failure in an aquatic environment.

Common Paddle Signals



Help/Emergency
Wave the paddle in a circular motion over your head.



Stop
Hold the paddle over your head horizontally.



Go This Way
Point the paddle toward direction of travel.



Come Ahead
Hold the paddle up vertically.

Paddle Signals



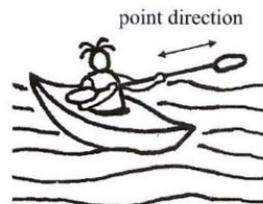
Stop



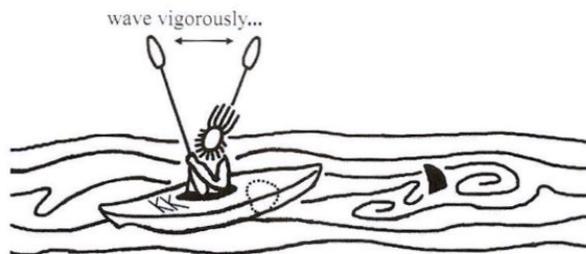
Are you OK?
Yes, I'm OK.



Come Here
Raft up



That Way



Help!

H. Maintenance and Field Repairs: Most of today's paddle craft are built of sturdy construction using synthetic materials. General maintenance and repair procedures can typically be performed with a simple tool kit assembled for the specific hull type and construction. Follow the manufacturer's recommendation for repair kits, many synthetic materials may only allow certain materials to be used. Failure to follow the manufacturer's advice may result in further damage or catastrophic failure exposing the operator to unsafe conditions.

A thorough wash down to ensure the removal of dirt and debris, allowing the vessel to dry and keeping it stored out of direct sun light will typically increase the life and serviceability of most paddle craft. Thorough and complete cleaning practices will afford the user the ability to make detailed inspections and possibly identify leaking or damaged areas on the vessel. Accessory gear and rigging should also be cleaned and inspected for corrosion and wear, replace any equipment that is damaged or beyond the service life.

I. Accident Reporting Requirements: Paddle Craft operators are subject to state accident reporting laws, operators are required to report any situations requiring medical treatment beyond first aid, when a person goes missing or results in a death, monetary damage thresholds vary by state, or the complete loss of a vessel. Most states require the report be submitted within 48 hours for major accidents, within 10 days for minor accidents and mishaps. If the operator is performing paddle craft operations under the auspices of an institution or agency, individual policy will also dictate internal separate accident reporting practices and requirements. Failure to submit an accident report may result in monetary penalties from the state authorities and a loss of watercraft privileges' within the agency or institution.

CG-3865 Recreational Boating Accident Report

<http://www.uscgboating.org/recreational-boaters/accident-reporting.php>

Most states and territories accept this form, although some have their own. If you have an accident, file the form within 48 hours for a fatal accident or within 10 days for a non-fatal reportable accident with your state's primary boating authority.

A listing of contacts for the state's primary boating authority may be found at <http://www.nasbla.org/blas>. Reports are generally sent to the Boat Accident Report Database administrator.

Please see 33 CFR 173.51, Casualty and Accident Reporting for further information.



**PADDLE CRAFT USE
PARTICIPANT ACKNOWLEDGEMENT AND AUTHORIZATION FORM**
Appendix C
Safety Requirements for Paddle Craft Field Research Activities

Participant Name: _____

Department & Project Activity: _____

Field Location: _____ **Project Field Dates:** _____

Project summary and field activities description:

Paddle Craft Training, Program Orientation and Safety Assessment:

- **NASBLA approved Paddle Craft Safety Course**
Completion Date: _____
- **Program Guidelines and Participant Responsibilities Discussion**
Completion Date: _____
- **Skills Training and Assessment**
Circle all applicable activities (Kayaking, Rafting, Canoe, Stand-up Paddle)
Completion Date(s): _____

Skills Level and Locations: Circle all applicable locations

- **Basic / Intermediate / Advanced**
 - **Inland (Lakes / Delta / Bays & Harbors)**
 - **Inland Rivers (Calm / Fast / Rapids)**
 - **Coastal / Offshore**

Personal Responsibilities: *Protective Clothing, Field Planning*

Hazard Identification, Risk Assessment and Management

- I must be able to properly outfit myself with protective clothing for the aquatic activity.
- I must be able to safely transport myself and equipment to the field location.
- I will take basic provisions for hydration and nourishment.
- I am responsible for checking and monitoring the weather conditions.
- I must File a Field/Float Plan for each date of the activity, update it if plans change, and Close it when I return.
- I will always take a “Buddy” for each field outing.
- I understand that I must have a field safety and emergency communications action plan in place.
- I will properly care for and return all equipment and report any damaged or lost equipment at the completion of my trip.

Participant Acknowledgement: _____

Signature and Date: _____

Approvals: *(Activity must be approved by at least one department official below as applicable .)*

- **Supervisor:** _____
Name/Email: _____
- **Field Instructor:** _____
Name/Email: _____
- **Facility Operations:** _____
Name/Email: _____
- **Safety Officer:** _____
- Name/Email: _____



Paddle Craft Trip Guidelines and Float Plan

Appendix D

Purpose: To ensure all participants are properly advised of the aquatic hazards and informed of individual and group responsibilities for the field activity; and capable of initiating the emergency management plan during the event should conditions change or there is an accident or injury.

Background: Each year many there are numerous accidents involving paddle craft that result in close calls, severe injuries and fatalities. These incidents are directly attributed to not understanding the hazards, poor preparation, a lack of training and experience and a loss of situational awareness. We are all responsible for helping one another manage the risks!

Field Aquatic Research Projects: Any class work involving outdoor water hazards requires that we always *"Use the Buddy System."*

If YOU don't know or are alone; don't take the chance, DON'T GO!

Water Safety Facts: You must constantly be aware of your resources and surroundings!

- To be effective, Life Jackets and Personal Floatation Devices (PFD'S) must be worn when working in or over water.
- Most drowning victims are within 10 feet from safety. (Talk / Reach / Throw / Row / Go)
- Cold water immersion can cause drowning in less than 1 minute.
- Waves and water currents can overpower and overwhelm trained professional athletes.
- Rescue Priorities (Self / Partner / Victim) *Communicate before taking action!*

Always Wear a Life Jacket!

Cold Water Immersion and Survival: Use the "1-10-1 Rule" if immersed in cold water; DON'T PANIC

- 1 Minute to get your breathing under control
- 10 Minutes of meaningful movement for a survival strategy
(*depending on water temperature; warmer water gives you more time*)
- 1 Hour of survival before Extreme Hypothermia takes effect

Always leave a copy of your Field or Float Plan with a responsible person!

Field Plans and Float Plans: Let someone know where and what you are doing; communicate your plan to inform rescue personnel where to search if you do not return!

Boating Safety Float Plan							
Date(s): _____ Departure Time: _____ Return Time: _____							
Boats: _____ (Type / Length / Color / Description)							
Departing From: _____ Returning To: _____							
Launch Site: _____ Recovery Site: _____							
Field Site(s): _____							
Vehicle Description: _____ Vehicle License #: _____							
If operator has not returned or made contact as arranged please call the following emergency number or after hours shore support contact:							
_____ (List the local search & rescue agency name and number for your area of research)							
Trip Lead & Participant Information							
1)Lead : _____ Phone #: _____							
2) _____							
3) _____							
4) _____							
5) _____							
6) _____							
Weather Conditions & Forecast							
<div style="display: flex; justify-content: space-around; align-items: center;"> ○ Inland ○ Open water </div> <p style="text-align: center;">What are the forecasted conditions?</p> <p>Water Surface: _____</p> <p>Water Current</p> <p>Flows: _____</p> <p>Wind: _____ / _____ (velocity) (direction)</p>	<p>Visibility: _____ (Clear / Fog / Haze / Rain)</p> <p>Sunrise: _____ Sunset: _____</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th style="width: 50%; text-align: center;">High Tides</th> <th style="width: 50%; text-align: center;">Low Tides</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Height ____ Time ____</td> <td style="padding: 5px;">Height ____ Time ____</td> </tr> <tr> <td style="padding: 5px;">Height ____ Time ____</td> <td style="padding: 5px;">Height ____ Time ____</td> </tr> </tbody> </table>	High Tides	Low Tides	Height ____ Time ____			
High Tides	Low Tides						
Height ____ Time ____	Height ____ Time ____						
Height ____ Time ____	Height ____ Time ____						
Additional Emergency Numbers	Provisions & Equipment						
<u>Sheriff / Parks / USCG / Fire Department / EMS</u>							



PADDLE CRAFT PUT-IN TRIP BRIEFING

Appendix E

Check-List

Gear & Equipment:

Personal Protective Equipment:

<ul style="list-style-type: none"> <input type="checkbox"/> PFD's (Size & Function Checks) <input type="checkbox"/> Paddles (Floats / Leashes) <input type="checkbox"/> Boat Skirt <input type="checkbox"/> Boat Plugs <input type="checkbox"/> Bilge Pump <input type="checkbox"/> Compass / GPS / Map <input type="checkbox"/> VHF / Cell Phone / SPOT <input type="checkbox"/> Emergency Signaling Device (Sound & Visual) <input type="checkbox"/> Food & Water <input type="checkbox"/> First Aid <input type="checkbox"/> Anchor / Line <input type="checkbox"/> Tow Rope <input type="checkbox"/> Flashlight <input type="checkbox"/> Repair Kit <input type="checkbox"/> Trip Specific equipment <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ 	<ul style="list-style-type: none"> <input type="checkbox"/> Dressed for water temperature <input type="checkbox"/> Paddle Jacket <input type="checkbox"/> Protective footwear <input type="checkbox"/> Gloves <input type="checkbox"/> Hat / Helmets <input type="checkbox"/> Sunglasses / Eye wear <input type="checkbox"/> Sunscreen <input type="checkbox"/> Wetsuit <input type="checkbox"/> Change of Clothes <input type="checkbox"/> Towel <input type="checkbox"/> Prescriptions & Medications <input type="checkbox"/> Money & Identification <input type="checkbox"/> Additional Items <input type="checkbox"/> _____
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Trip Plan

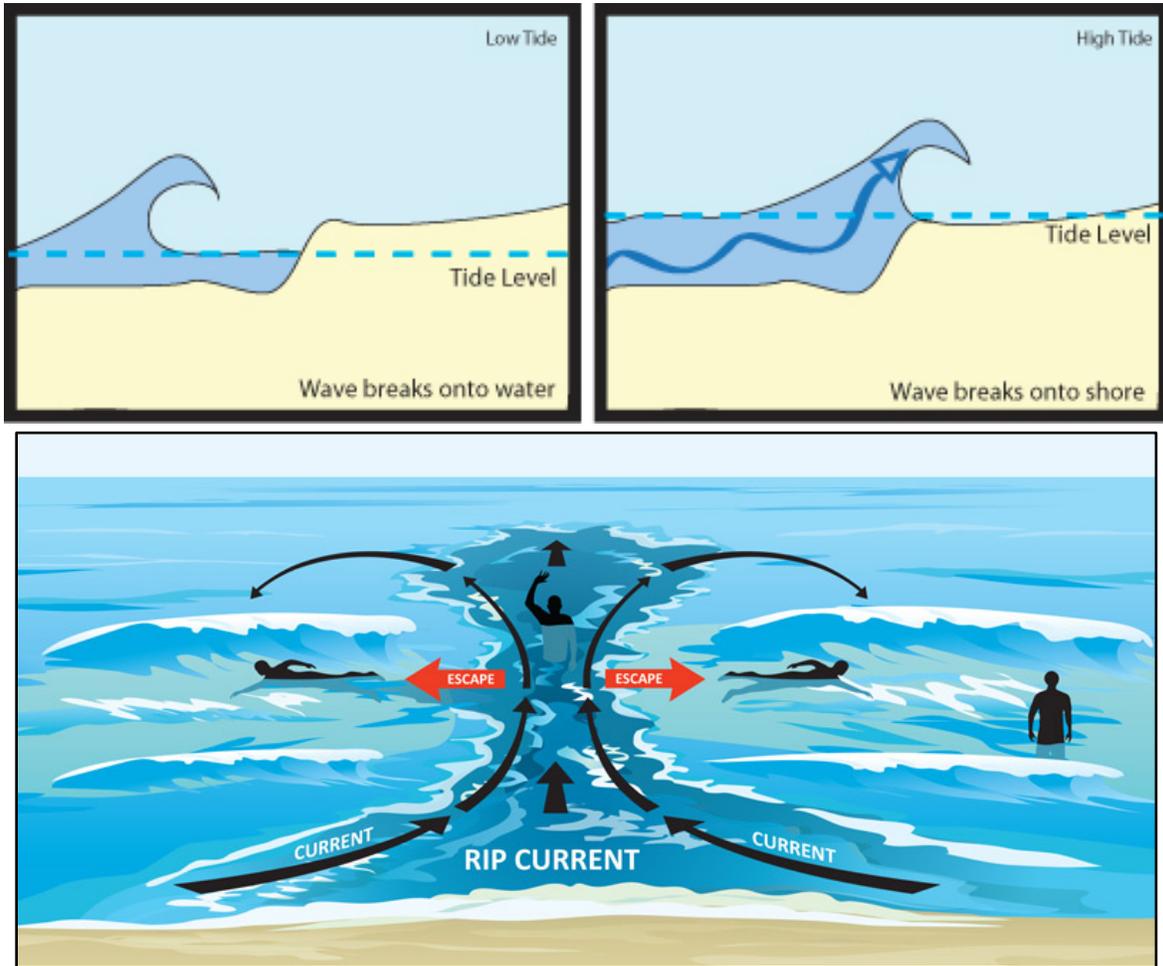
Group Responsibilities

<ul style="list-style-type: none"> <input type="checkbox"/> Boat Loading & Stability <input type="checkbox"/> Trip Route & Rest Locations <input type="checkbox"/> Area Overview & Local Hazards <input type="checkbox"/> Anticipated Weather & Conditions <input type="checkbox"/> Trip Objectives & Goals <input type="checkbox"/> Limitations & Thresholds <input type="checkbox"/> Float Plan Updates <input type="checkbox"/> Emergency Action Plan 	<ul style="list-style-type: none"> <input type="checkbox"/> Lead Boat & Sweeper Boat <input type="checkbox"/> Buddy System Commitment <input type="checkbox"/> Communications & Hand Signals <input type="checkbox"/> Spacing & Group Management <input type="checkbox"/> Individual & Group Actions for: <ul style="list-style-type: none"> <input type="checkbox"/> Swimmers <input type="checkbox"/> Missing Person(s) <input type="checkbox"/> Individual & Group G.A.R. Score:
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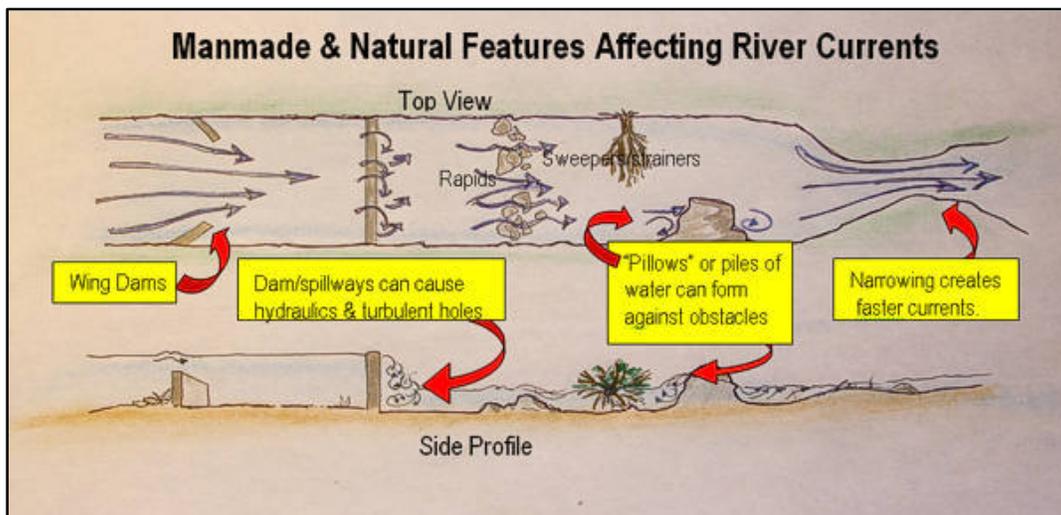
De-Brief: What was your experience? What went well? What can be improved?

COMMON HAZARDS OF MOVING WATER

BEACH & INTERTIDAL:



RIVERS & STREAMS:





National Department of Response

Surface Operations Risk Calculation Worksheet Calculating Risk Using the GAR Model (GREEN-AMBER-RED)

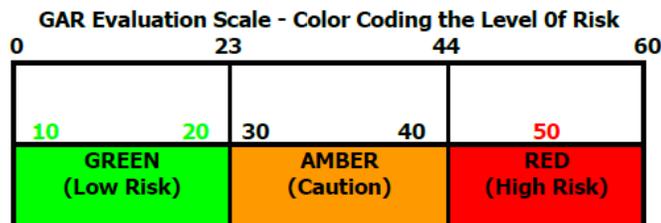
This Worksheet should be used for all surface operations unless other GAR forms have been mandated by local OIAs.

**GAR IS BASED ON A TEAM DISCUSSION TO UNDERSTAND AND EVALUATE THE RISKS ATTENDANT TO A MISSION AND HOW THEY WILL BE MANAGED.
RISK MANAGEMENT IS WHAT IS IMPORTANT; NOT THE ABILITY TO ASSIGN NUMERICAL VALUES OR COLORS TO RISK ELEMENTS.**

Assign a risk code of 0 (For No Risk) through 10 (For Maximum Risk) to each of the six elements below. The discussion should start with the junior (least experienced) members first on each category.

Supervision - qualifications / experience / communications	
Planning - details / clarity / vessel selection and condition	
Team Selection - qualifications / experience	
Team Fitness - physical / mental state	
Environment - seas / visibility / wind / current / temperatures	
Event/Evolution Complexity - details / tasks	

Total Risk Score	
-------------------------	--



If the total falls in the green zone, risk is at a minimum. If the total falls in the amber zone, risk is moderate and you should consider adopting procedures to minimize risk.

IF THE TOTAL FALLS IN THE RED ZONE, YOU NEED TO IMPLEMENT MEASURES TO REDUCE THE RISK PRIOR TO STARTING THE EVENT/EVOLUTION.

THE GAR MODEL SHOULD BE USED AS PART OF PLANNING OPERATIONS, AND SHOULD BE CONTINUALLY REASSESSED AS WE REACH MILESTONES WITHIN OUR PLANS, OR AS ELEMENTS CHANGE.

August 2009

Afloat Risk Assessment and Management Instructions

It is vital to the safety of the crew and to the success of the mission that the coxswain and crew understand and evaluate the full impact of risk versus gain for each tasking. This must be a continuous, systematic process of identifying and detecting hazards, assessing risk, and implementing and monitoring risk controls.

1. Using the worksheet on the opposite side, review each of the Risk Factors and assign a numerical score as indicated. Score each element according to currently available information. Score items according to the examples given and your instincts. Absence of data automatically sets the score to maximum point value. To identify hazards, consider:

Planning

Event Complexity

Asset Selection (including Personnel and Equipment)

Communications (and Supervision)

Environmental Conditions

2. Consider the effects of environment on the ability to maintain communications throughout mission, both internal w/crew and external w/unit. Consider the condition of the vessel and associated equipment as factors in the mission environment.
3. If Risk Assessment is determined to be excessive, review the *Control Options* and determine if the risks can be reduced or controlled.

Below are *Control Options* to assist in risk control or reduction.
Review the options and reassess the risks as appropriate.

Spread-out – Disperse the risk by increasing the time between events or using additional assets.

Transfer – If practical, locate a better-suited asset to conduct the mission (i.e. different type of asset or crew).

Avoid – Circumvent hazard: Wait for risk to subside (i.e. wait until daylight or weather passes).

Accept – In some cases the benefit might justify the assumption of risk. In these cases a decision to accept risk may be made with the stipulation that risk is reevaluated as the mission progress.
(No adjustment to Risk Assessment)

Reduce – Reduce or limit risk exposure, use of PPE, additional training or rest, stress reduction.

4. Although one could selectively evaluate Risk Factors with a mind toward achieving an acceptable Risk Factor score, doing that would subvert the intent of this tool. This is intended to help everyone on the crew shift their thinking from a land based mindset, to the hazards of the maritime environment. All members of the crew should participate in the Risk Assessment scoring. This Risk Assessment process should continue throughout the mission as conditions evolve.