



## **Guidelines For SFSU Research Paddle Craft Draft 8/2015**

### **Introduction**

The operator is responsible for the carrying of necessary equipment and for the safety of the craft 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 or powerboat 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:

- Operators should complete an approved training course(s) as required
- State Boating Laws
- Paddle Craft Operation
- Rescue and Survival Skills
- Required and Recommended Equipment
- Personal Protective Equipment
- Pre-trip Equipment Inspections and Gear Preparations
- Trip notifications, Float Plan and Emergency Management Plan.
- Geographical Influences, Weather Patterns, Hydrodynamic Forces and their effects on paddle craft
- Basic use of Navigation and Communication tools
- Maintenance and Field Repairs
- Accident Reporting Requirements

### **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.

## **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

## **Required and Recommended Equipment**

The following required safety gear must be carried aboard all paddle craft: (Exclusion- Surfboards & Sailboards)

### **Required Equipment:**

- Properly Sized Coast Guard 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 (tow bag recommended)
- Visual and Audible Signaling Devices
- Drinking water and nutritional subsistence
- Boat Plug and Bailing Device (if applicable)
- Paddle Float for back up Kayak Rescue
- Kayak Spray Skirt and Float Bags as applicable for sit-in craft

### **Recommended Equipment:**

- 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

### **Personal Protective Equipment**

- 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)

### **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. 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.

### **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

### **Trip Notifications, Float Plans 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. 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 [http://marineops.sfsu.edu/questuary/files/sfsu\\_boat\\_float\\_plan\\_0.pdf](http://marineops.sfsu.edu/questuary/files/sfsu_boat_float_plan_0.pdf)

### **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.

### **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

### **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

### **Sources of information.**

- NOAA National Weather Service
- U.S. Coast Guard, Park Services, Local Harbormaster and Marinas
- River Flow Services
- Local news, Television and am/fm radio broadcasts
- Physical observations

### **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 operators responsibility to note and respond to weather changes.

- 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.
- Wave swell heights are predicted to increase beyond 6 ft with more than 2 ft of surface chop, and intervals fall below 8 seconds.
- Participants have the requisite skill / fitness to engage in the activity. Solo paddling should be avoided and trip size monitored for proper safety ratios.
- 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

### **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

### **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 proper use of a VHF-FM hand-held radio for weather monitoring, advisory broadcasts, routine and emergency communications is strongly encouraged and has proven to be the most effective means of 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.

### **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.

### **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, damage in excess of \$500, or the complete loss of a vessel. Most states require the report be submitted within 48 hours for major accidents, with in 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.