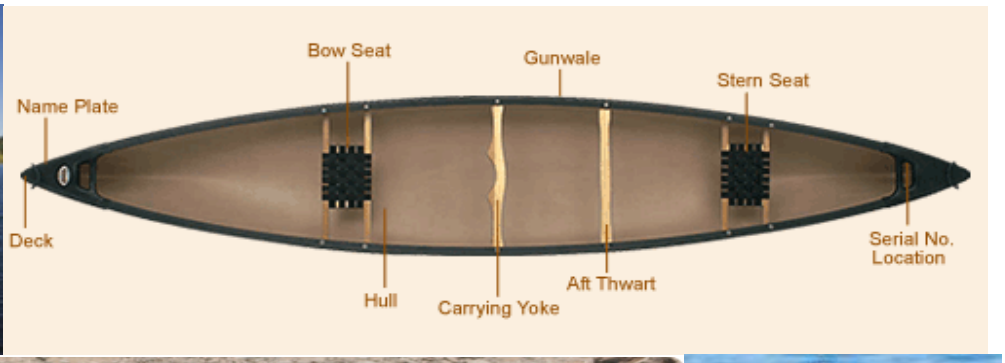
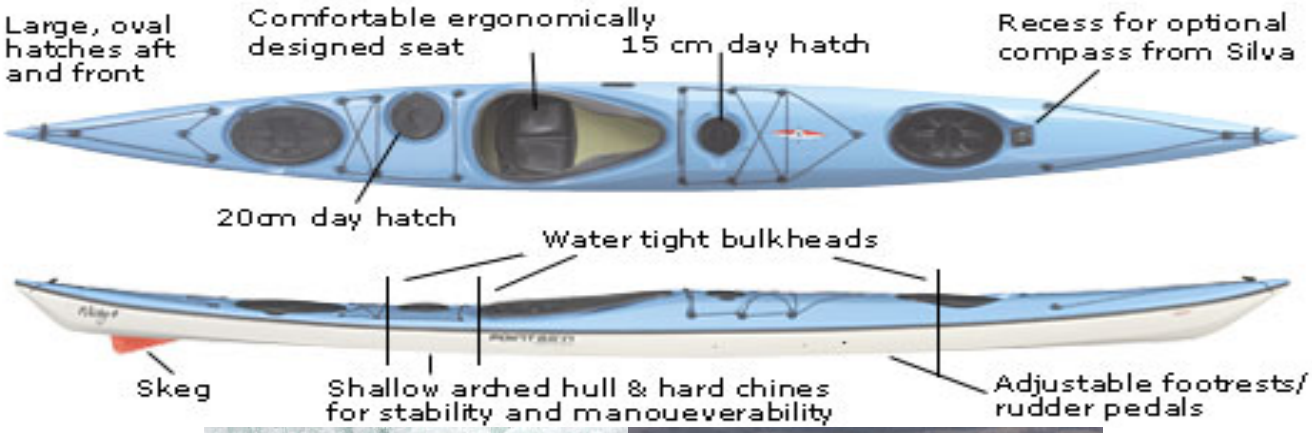
Sport Utility Boats
Vessel Safety Check Addendum
March 14, 2010





1. Introduction

Sport Utility Boats (SUBs) is a rapidly growing and diversifying portion of the recreational watercraft community. Sea kayaks, sit on top kayaks, white water kayaks, rowing sculls, canoes, paddle boards, pedal propelled craft, and many others are taking to our waters in untold numbers. It is craft of this nature that this addendum seeks to educate the USCG Auxiliary about.

These craft need no formal boat launches or channels. Given an operator with appropriate judgment, skills and conditioning, these craft can be launched from nearly any shoreline and into nearly any conditions with relative safety. Conversely (given an operator with insufficient judgment, skill or conditioning) these craft can propel an unprepared operator rapidly out into overwhelming conditions that can become deadly in minutes.

It is our hope that we can embrace these sport utility boat operators as part of the boating community and educate them as to how to “boat” safely.

2. Safety

Strong Swimming Skills Are Advised For Safe SUB Use

Fact: Use of these craft is essentially an in-water sport
Action: SUB operators should regularly practice their swimming skills in the same conditions in which they intend to use their craft.

Sudden unexpected immersion is a frequent reality for SUB operators. This reality should be expected and planned for by wearing an appropriately fitting life jacket appropriate for the type of activity planned. In addition, operators need to have a minimum comfort level with the water. It is recommended that, if an operator cannot swim, they should not use these craft without close supervision of an experienced operator. Mishaps can result in death. Swimming and SUB recreation are amphibious sports and boaters should not neglect their swimming skills.

Fact: Sound judgment keeps you safe.
Action: Use appropriate gear, skills & supplies to enable safety in a wider range of conditions.

Sound judgment:
- Be well rested
- Stay focused
- No drugs or alcohol
- Be aware
- Think ahead

Gear:
- Life jacket
- Rope / towline
- Compass
- Signaling devices
- Pump (when appropriate)

Skills:
- Paddle strokes
- Boat handling
- Rescues
- Reading weather
- Navigation

Supplies:
- Nutritious food
- Water/sports drinks
- Sun block
- First aid
- Fuel

Ensure That Others Can See You
In general, SUBs are difficult to see out on the water. Operators who recreate in large bodies of water, rough water, high traffic areas, or in reduced visibility should opt for high visibility boats,

clothing and accessories where possible. Large vessels often are not looking for SUBS and in rough water a white SUB is nearly invisible.

File A Float Plan With Someone Who Will Notice If You Have Not Returned As Scheduled
A float plan should be left onshore with someone who will notice if you do not return within a reasonable amount of time given your plans. This does not need to be an overly formal document. This person on shore should know the make of the operators vehicle, type and color of SUB being taken out on the water, where and when the operator is planning to go and return as well as what authorities to contact in case the SUB operator does not return at the appropriate time.

Assess Conditions Continuously
Assess Conditions before you hit the water. This is an iterative process that you should be consciously doing while you are underway. Conditions refer to any number of factors that should or may become of concern to you while underway. The table below is a quick list of some potential conditions that may affect operators of SUBS. This list is by no means exhaustive.

- Boat Traffic
- Wind
- Waves
- Current
- Tide range and cycle
- Weather that occurs before planned time of return
- Geography
- Daylight remaining
- Water temperature
- Air Temperature
- Adjacent conditions that I might end up in
- Landing spots
- Sun Intensity
- Skill of Group
- Fitness of Group
- Judgment of Group
- Visibility
- Possibility of quick rescue
- Hydraulics
- Low-Head Dams
- Energy of Group
- Food remaining
- Water Remaining
- Knowledge of area
- Ability to signal for help
- Rapids
- Illness

The rule of thirds employed by power boaters regarding fuel supply applies even more so for SUB operators. A SUB relies on the operator's body for propulsion and balance. If the conditions and trip exhaust the operator, return to shore may become impossible.

On Water Safety Guidelines For SUB
Work as a team. Have a conditions assessment and trip planning discussion before getting on the water. Once on the water, continually reassess conditions while under way and confirm with team members. An operator of a SUB should always let team members know if they decide to head back to shore or off in another direction. Let team members know if you feel like you are getting in over your head. Do not encourage other team members to enter conditions beyond their ability. Stay close enough together that rapid communication is not problematic. Following these simple on water safety guidelines will greatly increase your odds of having a safe trip.

Always Have A Back-Up Plan
Conditions change if things deteriorate while you are out on the water; it is always easier to switch to a fallback plan. Make this plan before you get on the water. Revisit and adjust this plan as your trip progresses. Confirm with others you are on the water with, to make sure you are all on the same page.

Signaling And Communication In Case Of Emergency
Craft, venues and conditions vary widely. Consider your craft, skills and potential conditions. Choose signaling devices and communications that make sense. Practice frequently in controlled and realistic conditions. Always have a back-up.

3. Sport Utility Boats, Equipment and Techniques

Fact: Every SUB has a balance of attributes.

Action: Select the appropriate"boat" for your needs and equip it with secure flotation.

What Kinds Of Sport Utility Boats Are Out There?

• Sea Kayaks • White Water Kayaks • Pedal Kayaks • Sailing Kayaks	• Touring Kayaks • Sit On Top Kayaks	• Recreational Kayaks • Surf Kayaks	• Touring Canoes • Racing Canoes • White water Canoes	• Paddleboards • Pedal Boats • Row Boats

SUB Design And Construction

- All SUBs should have secure and ample floatation. This may take the form of waterproof bulkheads, float bags, sealed floatation chambers, foam, or some combination of the afore mentioned items.
- Composite (fiberglass, Kevlar, carbon fiber) boats are usually better quality overall
    - Some newer plastic "boats" are coming close though.
- Look for a deck with recessed deck fittings
- Avoid gizmos that will snap off or snag.
- Compass recessed into the deck is great
- Day hatches are very useful and add safety.
- Deck lines that go around the perimeter are a good idea
- Bungee cords are very useful.
- A boat with a well- balanced design, will track well even in challenging conditions.
- Rudders and skegs are often applied as a patch to compensate for poor boat design.
- Avoid a rudder if possible:
    - Rudders are more likely to fail than skegs. Rudders tend to fail when you need them most.
    - Foot braces are generally less solid in boats with rudders.
    - Rudders increase risk of injury and collateral damage due to many sharp edges.
- Retractable skegs are okay if engineered correctly:
    - Skegs are more rugged than rudders.
    - Skegs occasionally jam with sand / gravel.
    - Skegs can also fail or be damaged in launching and landing.
- Long boats are faster.
- Shorter boats are more maneuverable.
- Wide boats are more stable and slower.
- Narrow boats are a little more unstable but faster.
- A long boat, when leaned on its side will maneuver like shorter boat that is not leaned.
- A boat with more rocker (banana shape) turns more easily than a boat with no rocker.
- All other things being equal, boats with a hard chined cross section are slower than boats with a round cross section (when operating at displacement speeds).

- Plastic boats are **:**
    - Incredibly durable
    - Heavier
    - Harder to repair
    - Likely to flex more creating turbulence and drag (slightly slower)
    - Maintenance free
- Composite craft are**:**
    - Tough… depending on construction
    - Can be very light
    - Easy to repair (fiberglass)
    - Less likely to flex and create turbulence and drag (faster)
    - Little Maintenance
- Wood (usually a thin layer of fiberglass over a wood hull and deck):
    - Easy on the eyes
    - Fairly rugged
    - Light
    - Not difficult to repair
    - Very stiff (faster)
    - Require maintenance
- Skin on frame**:**
    - Very traditional
    - Can be very rugged on open water & fragile in rocks and gravel
    - Very light
    - Not difficult to repair
    - Flex a lot (slower)
    - Require maintenance
- Folding skin on frame**:**
    - Very portable (great for airplanes)
    - Require maintenance
    - Can be very rugged on open water & fragile in rocks and gravel
    - Weight is moderate
    - Easy to repair
- Epoxy or composite covered foam
    - Light
    - Stiff
    - Floatation is inherent in craft structure no additional flotation required
    - High Performance
- There is no ideal SUB.
- All are a compromise between, speed, maneuverability, durability, and desired features.
- Then try to find a boat and gear that best fits what they are looking for.

Spray Skirt (Kayaks, Canoes, Outriggers, etc.)
Spray skirts, sometimes called spray decks are designed to keep water from flooding into the cockpit in rough water or when executing a roll. Don't waste your money on anything that doesn’t make a watertight seal with your craft’s coaming. A watertight seal is essential.

Paddle, Oars, Sails, Etc.
Try several different styles. Top-notch paddles, oars and sails can be made out of many materials and come in many styles. Keep an open mind.

Life Jacket
Comfort is most important – Life jackets only work when worn by the operator
Look for quality, quick drying materials
Pockets are great.
Easy to put on and take off.
Type III lifejackets are often recommended.

Towing
Towing is an invaluable skill for all boaters. There are several things to consider when towing.

- Towing from the stern of a SUB will significantly change its handling characteristics
- Not all SUBs can tow another craft effectively
- One can tow via a rope or contact tow (the rescuee hangs onto the rescuer's Sub)
- If towing via rope and conditions are rough, make sure that you have at least 1.5 times the wavelength between you and the craft being towed otherwise it is possible the craft being towed will surf into you
- Towing from midway between the bow and stern optimizes maneuverability
- All gear should be simple, reliable and serve more than one purpose.
- SUBs should have a tow system with them
- Some level of shock absorption is helpful in a tow system (often the stretch within the rope is sufficient)
- Practice in controlled and realistic conditions

Helmets (For SUB operators in whitewater, surf, tide races, breaking waves, and other rough water)

Different helmets should be tried on. Comfort and full head protection are equally important decision factors. The best helmets protect the entire head, including the face. Consider both the need for impact protection and abrasion resistance when purchasing a helmet.

Running very high waterfalls needs a different helmet than someone surfing small waves over barnacles and mussel beds.

Operation Of SUB In Cold Weather

Facts: Cold (<55F) water kills fast. Water in May can be colder than water in November.
Action: Dress for immersion.

Recommended Clothing For Immersion

- Dry suit
- Dry top
- Wet Suit
- Hood
- Gloves
- Booties
- Extra dry clothes
- Mask

There is no better cold water protection for SUB operators than a dry suit. The dry suit only keeps you dry though If you are out in true winter conditions, you will need some sort of insulation under it. Use wool or synthetic fibers only... polyesters, polypropylenes, acrylics, nylons, etc.

Good neoprene gloves / or mittens and booties are also essential for operation of your SUB in cold water. A warm torso does little good in rescuing yourself if your hands go so numb they can't grip a paddle or rope, or remove / put on a spray skirt.

Outside of summer conditions, a layer of insulation for your head greatly reduces heat loss. When boating, it is considerably easier to change headgear rather than other clothing to adjust for changes in your environment and your metabolism. Somewhere over 60% of our body heat is lost through our heads.

It is often espoused that winter paddling requires a dry suit. Some people tend to overheat while boating actively in a dry suit. This may also compromise critical layers of insulation due to excessive perspiration.

What boating in the winter requires is skill, sound judgment, and a way to keep your body protected from frigid conditions

Understand your skill level, the craft you are piloting and the conditions you may encounter. Plan your clothing accordingly. Make sure you test your cold water clothing systems in controlled and realistic conditions frequently.

Boat Handling

Fact: Geography, geometry and conditions vary.
Action: Be flexible.

Invest more time and money building skills and judgment than in buying gear. Skills and judgment help you avoid dangerous situations all together.

Getting Into and Out Of SUBs
Getting into and out of a SUB in calm water is relatively easy. In rough or moving water, make sure you are all sorted out before launching or landing. Given the wide variety of conditions and SUBs it is impossible to prescribe one solution that will work in every situation. So it is strongly recommended that SUB operators practice with their own SUB in controlled and realistic conditions often.

Progressing Through Waves And Surf
Things to consider when navigating through waves and surf:

Squared off sterns with or without rudders may not slide smoothly up or down the beach.

Low volume sterns can encourage loss of steering control and reverse pitch-poling.

When landing forward, bow up to the beach, a wave following in behind can easily flood a boat if it's skirt is unfastened. Assuming the same position on the beach, landing backwards makes it less likely that your boat will get flooded as water must run up the entire front deck before dropping into the cockpit.

Know the launching or landing spot. Is there a rock garden that must be negotiated on the way in or out? Is there a smooth and shallow sandy beach that allows for easy surf entry and exit with limited need for directional control.

Is your skeg or rudder up or down? It may get damaged or hung up.

Is the period of the waves long, allowing for easy set selection and room for error or short demanding constant adjustment?

Is the beach profile steep, so that a missed landing or launch due to operator error will mean that the boat will likely get sucked out to sea, recirculated in the waves and smashed into the bottom? Is the beach profile shallow so that no matter how badly a launching or landing is missed, the operator will get pushed to shallower and safer water?

Landing forward keeps you more in tune with the land and stuff in front of you, which is important when you know little about the venue you are landing in. It also gives you more power to drive your boat up on to the beach so that you don't get sucked out with subsequent waves.

Landing backward lets you deal with unpredictable and dangerous breakers approaching land and escape all but the direst of situations. It is very hard to land confidently backward on a beach you know nothing about. The operator will always wonder if they are going to strike a rogue boulder or line of cobbles slightly submerged in the break.

Surf launching and landings are an art form. As with all art forms, there are no right answers. Becoming skillful at entering and exiting the surf requires much practice through conditions of increasing difficulty.

Fact: All operators of SUBs eventually capsize given sufficient water time.
Action: Practice rescues often in controlled, realistic conditions.

Rescues:

- Wet exit and swim
- Assisted rescues: T- rescue, Eskimo bow rescue, etc.
- Self rescues: cowboy rescue, paddle float, re-entry and roll, Eskimo roll, wet start
- Practice in controlled and realistic conditions
- **Attention:** all persons attempting to rescue SUBs that are flooded and drifting out in adverse conditions**:**
    - Many SUBs have bulkheads behind the cockpit or drain plugs in the stern of the craft. These features enable a rescuer to more easily de-water the SUB by elevating the bow with the craft either on its side or in a hull up position.
    - Canoes, rowboats and many other SUBs may easily be de-watered by lifting the bow or stern of the craft while it is in lying on its side or hull up and slowly pouring the water out. This can be done by dragging the flooded craft out and over the rescuer**'**s vessel.
    - Do not attempt to lift a SUB in a way that does not pour the water out as the SUB emerges from the water. A SUB full of water may weigh thousands of pounds and can injure victims and would be rescuers. It can also damage or destabilize the vessel attempting to de-water it.
    - There are no standards around de-watering procedures for SUBs. Carefully assess each situation before attempting a rescue.
    - Some SUBs are nearly impossible to de-water in rough water. Understanding characteristics of these vessels before wasting valuable energy and time in recovery attempts is critical to both rescuer and rescuee safety. What follows are a couple of guidelines… SUBs with little or no secure flotation will usually be very difficult to rescue. Sit on top craft, with sound hatches and hulls are usually very

easy to rescue. High- end sea kayaks and any kind of epoxy or composite covered foam craft are very easy to rescue.
    - There are times that conditions will be driving the victim and flooded SUB into dangerous places. Rescue can often still be achieved if it is done with an accompanying directional tow by a third party. For example two sea kayaks can rescue a third swamped sea kayak and swimming operator being pushed toward a rocky surf zone by means of a t-rescue with an assisting directional tow. There are many good resources that describe in detail this type of procedure so they won't be covered in this document.

Take Home Messages

Fact: There is no one right way to use your SUB.
Action: Keep an open mind.

- There is too much information for this chapter to cover regarding SUBs. There are also many very good resources already available.
    - Take a class designed for your specific type of SUB
    - Go out with skilled boaters and learn from them
    - Read books and watch instructional videos geared to your type of SUB
    - Go to SUB community or club websites. Ask questions on the bulletin boards. You will be accessing the collective experience of hundreds of boaters
- Practice new skills in incrementally more challenging conditions
- Learn about and stay tuned to your environment. It is always changing.
- Keep things simple. The ocean will eventually eat all things metal and all moving parts
- Know your limits (exceeding them can be fatal)

There are many ways of enjoying the water using SUBs. Keep an open mind, learn from and enjoy them all.