



Personal Watercraft Rescue Course (Awareness, Operations & Technician)

Curriculum Manual

May 2021



Personal Watercraft Rescue Course

(Awareness, Operations & Technician)

Personal Watercraft Rescue Course

This edition of the Personal Watercraft Rescue Course was prepared by the RESET Personal Watercraft Rescue Workgroup. The Workgroup created the curriculum Oct. 2020-May 2021. Portions of this material are the product of previous work done by technical rescue specialists in the years leading up to the organization of this document. The remainder of the material was the work of the committee members with input from various sources including members of the special operations members and outside subject matter experts.

Course Prerequisites

This course will use the NFPA 1006 training model called “Core + 1” standard. The “Core” JPR that all students should have is Rescue Swimmer Technician. Once completing this requirement the student will then be qualified for advanced instruction in Personal Watercraft Rescue.

Purpose

This curriculum is not meant to cover all methods acceptable for Personal Watercraft Rescue Course operations. The purpose is to standardize those methods taught during this rescue course. All the learning material in this document is intended to cover the Knowledge, Skills, and Abilities (KSA) needed by rescuers at the Personal Watercraft Rescue technician level.

Scope

The organization of the knowledge, skills and abilities (KSA's) within this curriculum is designed to follow the Job Performance Requirements (JPR) outlined by the National Fire Protection Association (NFPA) 1006 – Standard for Technical Rescuer Professional Qualifications 2020 edition. Standardized organization following NFPA 1006 is intended to allow the rescuer's training to be consistent with other emergency response organizations. Each JPR will be accomplished by using techniques specified in this curriculum, and adopted by RESET as the authority having jurisdiction. RESET participating agencies include:

Austin Fire Department
Pedernales Fire Department
Lake Travis Fire Rescue

Instructor Obligation

It is the responsibility of all instructors delivering any part of this curriculum to cover all of the learning material covered in the lesson plans. No instructor has the authority to delete, omit, or otherwise leave out any content within the curriculum. Anyone assigned the task of covering any part of this curriculum should build his/her class in such a manner that optimizes instructor style while at the same time maximizing the learning for the students.

**2020/2021 RESET Personal Watercraft Rescue
Workgroup Members**

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Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Table of Contents

NFPA Standards.....	6
Boat Types, Terminology & Identification, Considerations.....	8
Anchoring & Tying Off.....	15
Personal Protective Equipment & Rescue Equipment.....	19
Daily/Pre-launch, Post operations and weekly checks.....	24
Trailer Backing & Trailer Maintenance.....	26
Operation-Single Operator: driving course, docking, confined space maneuvering.....	30
Towing a Stranded Personal Water Craft.....	33
Single Rescuer: Conscious Patient.....	35
Single Rescuer: Unconscious Patient.....	37
Tandem Rescue: Conscious Patient.....	41
Tandem Rescue: Unconscious Patient.....	43



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Rules of Engagement

1. Horseplay is **STRICTLY FORBIDDEN**, especially during evolutions.
2. The use of tobacco products during class is not permitted.
3. Proper PPE will be worn during all evolutions.
4. An Instructor must be present during all Personal Watercraft Rescue evolutions.
5. The word **"STOP"** will be used to stop all activity during an evolution. Any student or instructor may use this word. It is to be used when any unsafe action, potential problem, or an unsafe condition is observed.
6. **"ONE WHISTLE BLAST"** will be used for stop and attention for a message to be communicated.
7. **"THREE WHISTLE BLASTS REPEATED"**: I need help (similar to evacuating a burning building)
8. The words **"FOR REAL"** will be used to designate any problem, which is not part of an evolution.
9. When a **"FOR REAL or THREE WHISTLE BLASTS"** situation occurs, the Instructors will take charge and are in command.
10. The word **"ROPE"** is used anytime a throw bag is thrown.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

NFPA Standards

NFPA 1006 JPR(s):

N/A

Time:

15 minutes

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

Objectives:

At the end of this lesson the rescuer should be able to:

- Identify the three NFPA standards that pertain to technical rescue equipment, rescuers and rescue agencies.

NFPA Standards and the Rescue Technician

- It is important for Personal Watercraft Operators to understand standards and how they apply to their work. There are three National Fire Protection Association (NFPA) standards that pertain to technical rescue:

➤ **NFPA 1006-** Standard for Technical Rescuer Professional Qualifications

- NFPA 1006 is the professional qualification document that details what knowledge, skills, and abilities (KSA's) individual rescuers need to know. It identifies job performance requirements (JPRs) for a variety of technical rescue environments including: rope rescue, confined space, water rescue, etc. The standard uses a training model called "Core + 1". What that means is that there is "Core" JPR(s) (Chapter 5) that all technical rescue personnel should be able to accomplish. These requirements are essential to *all* of the specialty areas of the technical rescue field. Once the core skill set is mastered; the trainee will be qualified for advanced instruction in any of the specialty areas (ex. rope rescue, water rescue, structural collapse, confined space, etc.)

➤ **NFPA 1670-** Standard on Operations and Training for Technical Search and Rescue Incidents

- NFPA 1670 is a standard set up to identify response capabilities of an organization. A person cannot be trained to NFPA 1670. It is an organizational standard not meant to apply to an individual's training. Emergency response organizations should use 1670 to identify what level of capability they will offer with a given type of rescue. This standard identifies three organizational response capabilities:
 - **Awareness Level** is the minimum capabilities of first in units and provides information on how these individuals should react at a technical rescue incident. It must be stressed that this is not an operational function level.
 - **Operations Level** rescuers are trained to identify hazards, use equipment, and apply limited techniques in low angle or high angle rescues.
 - **Technician Level** rescuers meet all of the requirements of the above plus apply more advanced techniques, coordinate, perform, and supervise technical rescues.

NFPA 1670 also identifies the need for standard operating procedures, preplanning, the need to provide training to rescuers, etc.

➤ **NFPA 1983-** Standard on Life Safety Rope and Equipment for Emergency Services

- NFPA 1983 is a manufacturer's standard specifying design and performance requirements for equipment typically used at technical rescue incident. It is important to understand that this standard specifically states it is not a user's standard dictating use requirements. This standard identifies testing procedures and minimum performance requirements required to be NFPA compliant. This does not mean rescuers are required only to use equipment that is NFPA compliant. A limited amount of equipment used in water rescue will be available with an NFPA certification.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Boat Types, Terminology & Identification, Considerations

NFPA 1006 JPR(s):

22.2.1, 22.2.2, 22.2.5

Time:

30 minutes

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

Instructor requirements:

1:16 Instructor to Student Ratio (Classroom)

Objectives:

At the end of this lesson the student shall be able to:

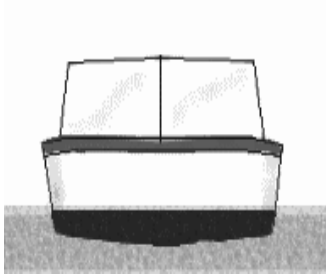
- Discuss different types of hulls/boats
- Identify parts of a boat
- Be familiar with common boat terminology
- Navigation identification

Introduction:

As a Personal Watercraft Operator you should be familiar with different types of boats you may operate as well as types you may provide assistance.

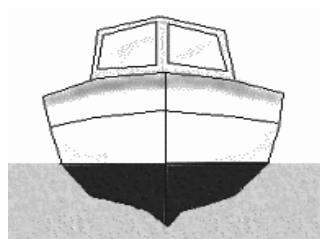
Two Types of Boat Hulls: Displacement & Planning

- Flat bottom boat (displacement)



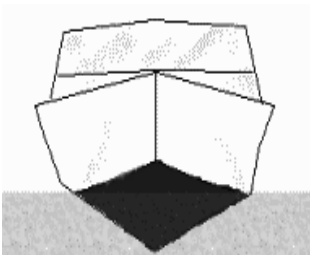
- Flat bottom boats have a shallow draft. They can get up on plane easily but unless the water surface is perfectly calm they tend to give a rough ride because of the flat bottom pounding on each wave. They also tend to be less stable and require careful balancing of crew.
- Examples of flat bottom boats are Jon boats, small utility boats, and some high-speed runabouts.

- Round bottom boat (displacement)



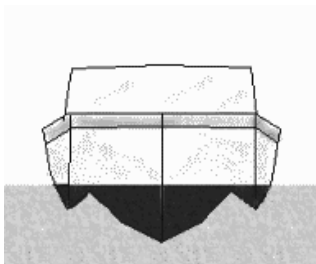
- These move easily through the water, especially at slow speeds. They do, however, tend to roll unless they are outfitted with a deep keel or stabilizers.
- Sailboats and Canoes have round bottoms.

- Deep V bottom boat (planning)



- The deep V bottom boat has a sharper entry into the water that provides for a smoother ride in rough water. They require more power to achieve the same speed.
- Many runabouts use the deep V bottom design.

- Multi-hull boat or Cathedral (planning)



- Pontoon boats, catamarans and some houseboats carry the multi-hull or cathedral design. The wide stance provides greater stability.
- Each of the hulls may carry any of the bottom designs described above.

2015 Yamaha VX 1100B-P Jetski



TECHNICAL SPECIFICATIONS:

LENGTH (FT)	10.96
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WIDTH (IN)	48
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HEIGHT (IN)	46.9
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LENGTH (FT)	10
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LENGTH (FT)	11.5
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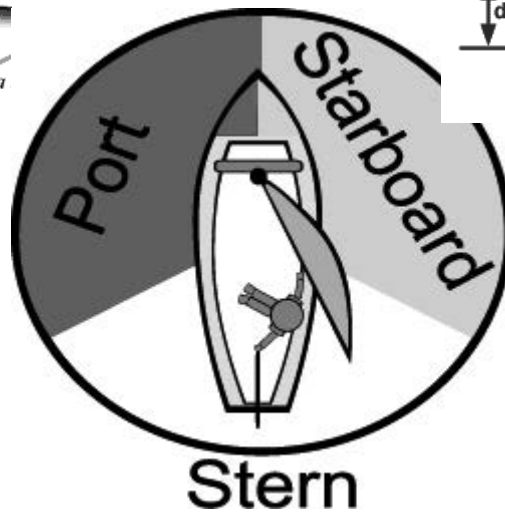
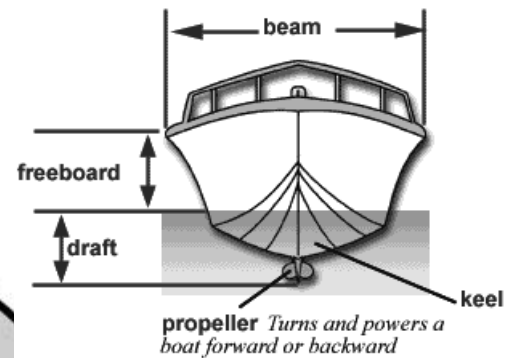
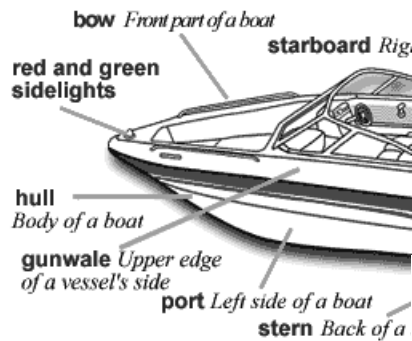
DRY WEIGHT (LBS)	769
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FUEL CAPACITY (GAL)	18.5
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STORAGE CAPACITY(CUFT)	3.8
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ENGINE DISPLACEMENT TO WEIGHT (CC)	1.37
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➤ Boat Terminology



- Ways to remember terminology and colors:
 - The letter "P"(for Port) is always left of the letter "S"(for Starboard) in the alphabet.
 - "Port" and "Left" are both 4-letter words ending in T

Navigating Waterways

When operating a PWC it is important to remember that the bigger boat or sailboat has the right-of-way. The reason for this is due to the size and the ability to maneuver. Bigger vessels and sailboats cannot turn or stop as quickly as a PWC or smaller boat. That being said, all watercraft still need to practice and adhere to the rules and maintain proper water etiquette.

When operating on Town Lake or Lake Austin think of normal traffic flow on a roadway. Generally speaking the boat traveling upstream is river left. The boat traveling downstream is river right. This is not always the case but this leads into how to handle different crossing situations.

➤ Crossing Situations

- When two power driven boats are approaching at right angles or nearly so, the risk of collision exists, the boat on the right will see green and is the stand-on vessel and must hold its course and speed. The other boat, the give-way vessel will see red and shall maneuver to keep clear of the stand-on vessel and shall pass it by its stern. If necessary, slow, stop or reverse until the stand-on vessel is clear.



- In the example above, the left vessel is the give-way vessel and should alter course and speed to pass behind the right vessel. If the skipper of the stand-on vessel does not observe the give-way vessel taking action to avoid collision, then he/she must take the required action to avoid a collision.

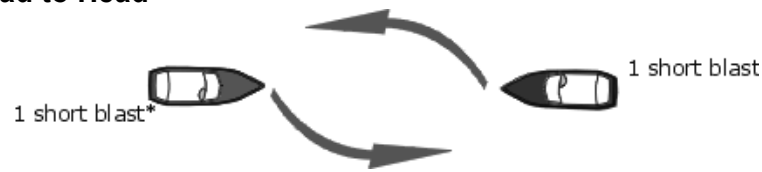
➤ Passing Port to Port



➤ Passing Starboard to Starboard



➤ **Meeting head to Head**



Navigation Identification

- These are used to warn people on the waterway of potential hazards in the water and exclusion areas. This includes “No Wake Zones”, shallow water,



Controlled Area

Type of control is indicated in the circle, such as slow, no wake, anchoring, etc.



Boat Exclusion Area

Explanation may be placed outside the crossed diamond shape, such as dam, rapids, swim area, etc.



Danger

The nature of danger may be indicated inside the diamond shape, such as rock, wreck, shoal, dam, etc.



Considerations for the Personal Watercraft

Due to the size of personal watercraft they will pitch and roll more severely when at rest or at slow speeds because of their shorter length and width. Keep this in mind when traveling at low speeds or hovering. Also, there are no green or red lights on the starboard or port side of the PWC. Because of this they cannot be seen at night. If you are going to use the PWC at night place red and green chem-lights on the port and starboard side, respectively.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Anchoring & Tying Off

NFPA 1006 JPR(s):

22.2.11, 22.3.6

Time:

20 minutes

Scheduling Suggestions:

PowerPoint should be taught on the first day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

Objectives:

At the end of this lesson the student shall be able to:

- Properly anchor stranded vessels
- Properly tie off PWC to dock and other vessels

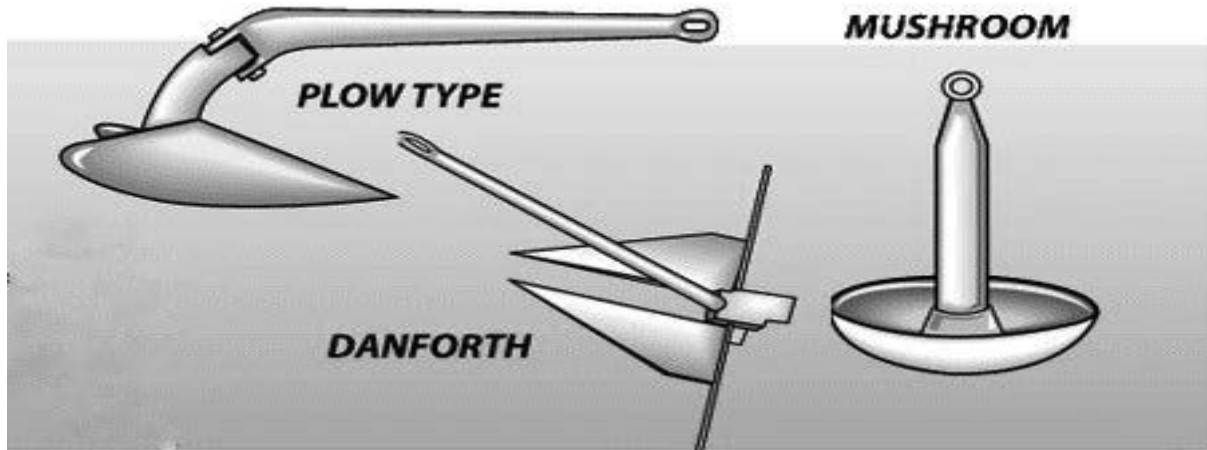
Introduction:

There are times when Watercraft Operators will be called to assist stranded vessels. As a Watercraft Operator it is important to understand the proper way to deploy and retrieve different types of anchors. Different methods for tying off to docks and other boats will also be discussed.

Anchoring

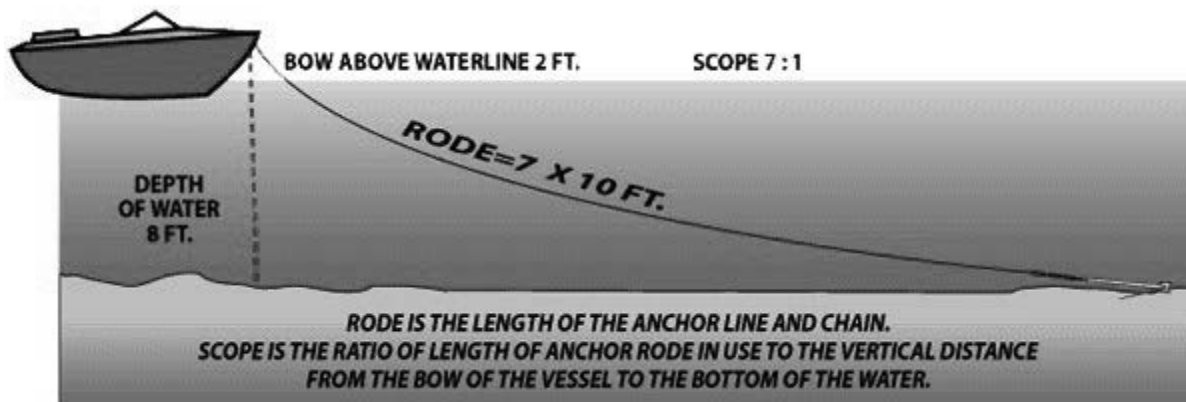
- As a PWC Operator it is important to understand the proper way to deploy and retrieve different types of anchors. The boat you are assisting may have mechanical problems, caught in bad weather or drifting toward a dam or other object.

- There is no single anchor design that is best in all conditions. The 3 types of anchors you will find aboard most boats are the Plow type, the Danforth/Fluke type and the Mushroom



anchor.

- Mushroom anchors do not have the holding power of a Danforth/Fluke or Plow anchor and should only be used on small, lighter weight boats and PWC.
- Anchors also must have something to attach them to the boat. This is called the anchor rode and may consist of line, chain or a combination of both.
- The amount of rode that you have out depends generally on water depth and weather conditions. The deeper the water and the more severe the weather, the more rode you will put out. At a minimum you should have out 5-7 times the depth of the water plus the distance from the water to where the anchor will attach to the bow.



In the example above, if you estimate the water depth and it shows 8 feet and it is 2 feet from the top of the water to your bow cleat, you would multiply 7 by 10 feet to get the amount of rode to put out. Here, you would need to let out 70 ft.

Setting the Anchor

- Pick a spot with swinging room in all directions. Should the wind change, your boat will swing bow to the wind or current, whichever is stronger.
- Cleat off the anchor line at the point you want it to stop.
- Stop your boat and lower your anchor until it lies on the bottom. Slowly start to motor or drift back.
- When all the anchor line has been let out, if possible, back down on the anchor with engine in reverse to help set the anchor.
- While reversing on a set anchor, keep a hand on the anchor line. A dragging anchor will shake as it drags along the bottom. An anchor that is set will not shake the line.

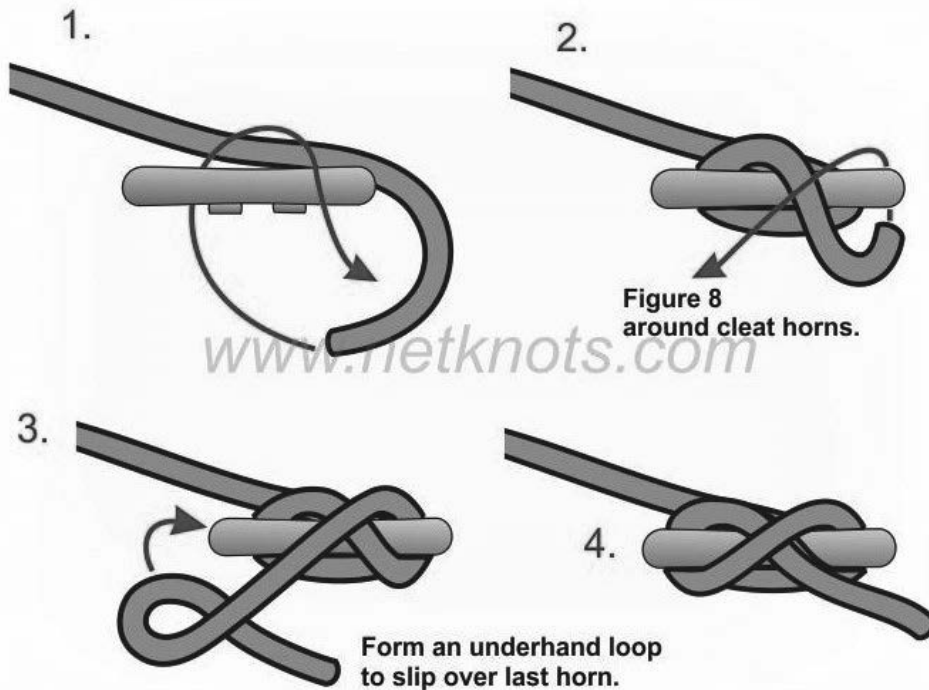
Retrieving the Anchor

- Retrieve the anchor by pulling or powering forward slowly until the anchor rode hangs vertically at the bow.
- Cleat the line as the boat moves slowly past the vertical. This will use the weight of the boat to free the anchor and prevent the rope from slipping through your hands or from being dragged over the bow of the boat.
- Once the anchor is free from the bottom, raise the anchor.
- **Never anchor from the stern alone, this could cause the boat to swamp or capsize.**

Cleat Hitch

- In order to secure the boat to a dock or secure a line to the boat, you can use the cleat hitch. Take the line to the ear of the cleat farthest from where the line comes from (the load). Take one wrap around the base of the cleat and then start a figure eight across the top of the opposite ear. Finish with a half hitch turned under so that the line is coming away from the cleat in the opposite direction from which it came in from.

CLEAT HITCH



Tying off PWC's boats in the water

- PWC's can be secured in the water utilizing the bow line and securing it to another object such as a tree or post. Another acceptable method is to secure the boat to another boat that is tied off to an object.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Personal Protective Equipment and Rescue Equipment

NFPA 1006 JPR(s)

22.1.3

Time:

20 Minutes

Scheduling Suggestions:

Classroom setting, should be taught on the first day

Materials/Equipment Needed:

Appropriate PFDs, Thermal protection (wet/dry suits), eye protection, gloves, foot protection, fins, knife, whistle, light source, other miscellaneous equipment for rescue. Students should have their gear for inspection.

Instructor requirements:

1:16 Instructor to Student Ratio

Objectives:

- At the end of this lesson, the rescuer should be able to:
- Select proper PPE for the personal watercraft rescue environment
- Explain how to properly don PPE for the still water environment

Introduction:

An understanding of the various components and their proper application is paramount to a successful outcome of the operation. Distinguishing between gear that's effective for both Still Water and personal watercraft rescue.

Select proper PPE for the still water environment

➤ Rescue Swimmer PFD (Stillwater)

- 8 pounds of floatation
- minimal floatation so you can “duck dive”
- Can be inflated automatically utilizing a CO2 cartridge
- can be inflated manually
- These vests are preferred to the zero floatation style vests to protect against shallow water blackout.



➤ Wetsuits

- Best choice for still water rescues
- Good thermal / abrasion protection
- Allows direct skin contact with water (Haz-Mat issues)
- Requires proper size for optimal thermal protection



➤ Drysuit

- Should not be used for sub surface rescue situations
- more difficult to swim in
- Use only in PWC rescue situations



➤ Footwear

- Abrasion protection
- Thermal protection
- Tennis shoes okay in warmer water



➤ Gloves

- Abrasion protection
- Thermal protection



➤ Eye Pro

- Sunglasses, preferably polarized (PWC operator use)



➤ Mask and Snorkel

- Aid in barotrauma protection
- Snorkel “Straight pipe” No relief valves
- Dive mask preferred



➤ Knife

- Used for disentanglement of rescue swimmer, victim, or intake
- Two sided sharp



➤ Whistle

- Effective for communication



➤ Fin

- Lifeguard style or diving fins preferable over swiftwater fins
- RK2 or like style
- Attached to fin belt



➤ Throw bag

- Assist stranded vessels
- Separate victims from debris that could possibly get caught in intake



➤ Light (in watercraft)

- Back up light
- Chemical lights
- Emergency lights



➤ Weighted Buoy Markers

- Marking Point Last Seen
- Determining depth
- 12 feet green, 18 feet red



➤ Helmet



- Reflective tape
- Two light sources preferred

➤ Floatation Devices

- Rescue tubes



- Rescue board





Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Daily/Pre-launch, Post operations and weekly checks

NFPA 1006 JPR(s)

22.3.1, 22.2.2, 22.2.17

Time:

1.5 Hours

Scheduling Suggestions:

Classroom setting, should be taught on the first day

Materials/Equipment Needed:

1-PWC and 1-trailer

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:4 Instructor to Student Ratio (On water instruction)

Objectives:

- At the end of this lesson the student shall be able to perform:
 - PWC Daily checks
 - Post-Operation checks
 - Weekly checks

Introduction:

As a PWC operator you should be able to perform the correct checks needed to ensure proper operation of the watercraft.

Daily/Pre-launch checks:

- Check for hull damage. (visual check on the dock)
- Check steering and impeller movement
- Check that all plugs are in and tight. (3 on Yamaha, 2 aft, 1 interior)
- Check interior for excess water and battery connection tightness
- Start up and run 30-60 seconds checking fuel level, throttle and any engine codes
- Insure starting lanyard is attached to PFD

Weekly Checks:

- Launch PWC and roll to check for hull and intake grate damage
- If your unable to launch PWC, hook up a hose to flush connection and run motor
- Check oil (**Hot-after 5 minute run time**)
- Check all hose and clamp connections

Post-Op Checks:

- Start and run water out of pump
- Check hull and impeller for damage
- Remove plugs if needed to drain water
- Assure plugs are replaced if removed
- Refill fuel
- Remove seats and front basket to dry interior as needed



Personal Watercraft Rescue Course

(Awareness, Operations & Technician)

Class Title:

Trailer Backing & Trailer Maintenance

NFPA 1006 JPR(s):

22.2.2, 22.2.17, 22.2.10, 22.3.5, 22.2.18

Time:

45 minutes

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

PWC, trailer, tow platform

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:4 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson the rescuer should be able to:

- Back a PWC trailer down a boat ramp to launch and/or retrieve a PWC

Introduction:

Trailer backing, launching & retrieving the PWC is an integral part of being a proficient PWC operator.

Trailer Backing:

- Have a strategy in mind
 - If possible study the road and route you're taking. You should be using a boat ramp to launch the Jet Skis.
- Slow and steady
 - Slow down, set yourself up, and execute. Going slow and steady when backing up will not only ensure you avoid going the wrong direction, but also reduces the chances of damaging the Jet Ski or trailer if you back into something. Pulling forward will help straighten the trailer and get it in line with the tow platform.
- Let go of conventional steering rules
 - One of the tricky things about backing a trailer is that when you turn the steering wheel to the right (Clock-wise), the trailer goes to the left. When turning the steering wheel to the left (Counter clock-wise), the trailer goes to the right. Remember to take things slow, set yourself up, and make small adjustments. This will help to prevent oversteer and jack-knifing the trailer.
 - One trick that might help: keep a hand placed at the 6:00 position on the steering wheel and operate the steering wheel with this hand. By doing this, when you move the steering wheel to the right (Counter clock-wise) the trailer will go to the right. If you move the steering wheel to the left (Clock-wise) the trailer will go to the left.
 - Back trailer just far enough for PWC's to float and remember the water level on the trailer. You will need to sink the trailer into the water at least to that level when retrieving the PWC's
- Prior to trailer entering the water check that all drain plugs are closed.
- Good practice to disconnect trailer's wiring harness from vehicle before entering the water.

Post trip trailering:

- Jet Ski retrieval
 - Position trailer on ramp.
 - Prepare winch cable.
 - Walk or drive the Jet Ski to the back of the trailer.
 - Attach manual winch cable and webbing.
 - Winch Jet Ski onto trailer ensuring it goes on straight.
 - Once on fully, drive tow platform and trailer to safe area out of the water.
 - Start and Rev jet Ski to clear any water still in pump
 - Turn Jet Ski off and remove lanyard
- Secure Jet Ski
 - Check winch tightness
 - Attach stern tie downs to Jet Ski.
 - Open drain plugs
 - Stow any unsecured items.
- Post trip inspection
 - Look for any damage that may have occurred during the operation
 - Check fuel level and oil level.
 - Remove any aquatic plants and/or animals as they could be an invasive species.
 - Perform any necessary decontamination if PWC operated in contaminated water.

Trailer Maintenance:

Trailer should be checked weekly and after each use to make sure it is ready for the next incident.

➤ Tongue

- Correct ball size
 - 2 5/16
- Safety chains
 - Present and in good condition
- Safety pin
 - Present
- Wiring harness
 - Intact and serviceable
- Trailer Jack
 - In good condition to support trailer and stows properly

➤ Axle

- Bearings
 - Check that the Bearing cap is present
 - Check to see if bearing needs grease
 - Check for tire looseness
 - If loose:
 - Check to see if the nut is tight
 - Or the bearing may be damaged
 - Check for heat
 - At each stop while in use touch the hub and feel for excessive heat
 - If you feel heat, check the hub to see if it needs grease
- Tires
 - Properly inflated
 - Good tread
- Tail lights
 - Lenses are not broken
 - All lights are functional



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Operation-Single Operator: driving course, docking, confined space maneuvering

NFPA 1006 JPR(s)

22.1.4, 22.2.9, 22.2.10, 22.2.17, 22.3.4, 22.3.5, 22.3.8, 22.3.12

Time:

4 Hours

Scheduling Suggestions:

Classroom setting, should be taught on the first day

Materials/Equipment Needed:

2 PWC W/Sleds, PWC slip, designated confined area, boat ramp with trailer, 4 weighted buoys, dock and shoreline.

Instructor requirements:

3 stations (1 instructor per station) and one additional to float

Objectives:

At the end of this lesson the student shall be able to properly start and launch a PWC.

➤ The student will:

- Understand how to operate and recognize hazards in shallow water.
- Demonstrate how to correctly exit and board a PWC in deep water.
- Be able to maneuver forward and backward through a serpentine course.
- Make a controlled approach and exit the PWC onto a dock.
- Turn a PWC with sled 180 degrees in a confined area.
- Perform a controlled entry onto a trailer or into a diminishing clearance area.
- Properly park the PWC on its slip and perform correct shut down procedures.
- Know how to right an overturned PWC and dewater the PWC

This block of instruction will involve setting up 3 stations:

Station 1: Launching, returning to slip, deep water exit & boarding, and shoring:

Launching:

- Wearing proper PPE and from the side, position the PWC for easy entry.
- Make sure the rear is clear of entanglements
- Start the PWC.
- Slide the PWC into the water while boarding and keeping your weight to the rear.

Return to slip:

- Stop momentum
- Adjust your line and approach the slip
- Weight back and nose up on slip
- Controlled throttle onto the slip
- Rev engine to clear water from the exhaust
- Kill the engine
- Pull the PWC into position and secure

Deep water exit and boarding (water level is above rescuers head):

- Make a controlled entry into the water staying in contact with the PWC
- Board the craft from the rear so as not to tip the PWC
- Refer to directions on PWC and verbalize how to properly right a flipped PWC
- Follow Manufacturer's recommendations for dewatering operations

Shoring:

- Be aware of water depth and bottom conditions
- Turn engine off in water 2' or shallower to avoid clogging the intake
- Use a tether or the bowline to maneuver the PWC through shallow areas
- Two persons tilt the ski on the correct side to examine or clear the intake
- Securely tie off the PWC with an easy release knot (tensionless, slip knot)

Station 2: Serpentine course:

*This course will consist of 4 weighted buoys in line, spaced roughly the length of a PWC with a sled.

- Navigate a PWC with sled forward through the course, staying close to the buoys using forward and reverse throttle. Turn tightly around the end buoy and return through the course.
- Navigate a PWC with sled in reverse through the course, staying close to the buoys using forward and reverse throttle. Turn tightly around the end buoy and return through the course.

Station 3: Confined space maneuvers and docking

- Enter the confined area and perform a 180 degree turn without contacting the sides of the confined space. Exit the area, re-enter and perform the turn in the opposite direction. To increase difficulty, position a person on the board and repeat the maneuvers.
- Make a controlled approach to the dock, step onto the dock with an attached tether while keeping control of the PWC.
- Diminishing clearance/trailing:
 - Stop momentum
 - Set your line
 - Use controlled throttle onto the trailer without ramming the bow rail.
 - Reverse off the trailer in a straight line.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Towing a stranded Personal Water Craft

NFPA 1006 JPR(s):

22.2.15

Time:

30 minutes

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

1 PWC, 1 Boat, 1 Tow/rope Strap

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:2 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson, the rescuer should be able to:

- Perform procedures to take another PWC under tow so that the relative sizes of both watercraft are considered

Introduction:

There may be time where the Jet Ski-PWC may malfunction or become disabled while on the water. If you are unable to get the PWC to shore towing it may be an option to consider. Prior to towing a stranded PWC, always refer to the specific PWC manufacturer towing recommendations. Engine damage can occur with improper towing. This class is meant to be a general overview of the basic steps of towing a stranded PWC behind a boat.

Steps to towing a stranded vessel:

- Identify the proper points to attach tow rope/strap to the PWC for towing
- Remember to “go slow” during towing operations
- Let others on water know your being towed (e.g. waving PFD to alert others), keep eye out for other boaters on water while being towed
- Use minimum of 20’ of floating rope to perform the tow.
- Attach rope from assist vessel to PWC (Tying a knot that could be quickly released)
- Have someone on ski while towing. This keeps the PWC more stable.
- “Go Slow” while towing, maximum of 5 mph
 - (When a jet ski is towed through the water too fast, water can be forced back in through the engine’s exhaust system)



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Single Rescuer: Conscious Patient

NFPA 1006 JPR(s):

22.2.14, 22.3.2, 22.3.9

Time:

2 hours

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

2 PWC's with sled

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:2 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson, the rescuer should be able to:

- Understand the single rescuer methods
 - With a sled attached
 - Without a sled attached
 - When the operator is unable to get close enough to effect a direct hands on rescue

Introduction:

It is important the student learns how to properly maneuver the PWC in a variety of rescue situations.

Single Rescuer Conscious Patient Rescue (NO rescue swimmer on sled)

➤ Patient approach:

- At idle speed the operator should approach with the patient on the port side of the PWC using the safest course possible, preferably after wake or swells have passed to maximize the time available to effect the rescue
- Upon approach the operator should give the patient following directions:
 - Announce to the patient to raise left arm or hand
 - Rescue sled attached:
 - Grab patients hand and pendulum to the back
 - Direct the patient to climb onto the rescue sled behind the PWC
 - After the patient has grabbed the sled, the operator will steer the PWC in order to keep the bow facing in the direction of oncoming current or swells
 - Once the patient is aboard the sled the operator should maintain the minimum practical speed to safely transfer the patient to shore while keeping watch on the patient to ensure they are OK
 - NO rescue sled attached:
 - Grab patients hand and pendulum to the back of the PWC
 - Assist the patient onto the PWC using the fold down step
 - If patient is unable to board the PWC keep the patient afloat and secure until additional resources arrive

➤ Patient out of reach:

- If patient is out of reach of PWC then use the rescue tube or throw bag to access the patient.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Single Rescuer: Unconscious Patient

NFPA 1006 JPR(s):

22.2.14, 22.3.2, 22.3.9

Time:

2 hours

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

2 PWC's with sled

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:2 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson, the rescuer should be able to:

- Retrieve an unconscious patient:
 - Using the sled
 - Using a rescue flotation device

Introduction:

It is important the student learns how to properly maneuver the PWC and perform rescues in a variety of situations.

Single Rescuer Unconscious Patient

- **Unconscious w/ sled (with or without a rescue floatation device)**
 - **Patient approach:**
 - At idle speed the operator should approach with the patient on the port side of the PWC using the safest course possible, preferably after wake or swells have passed to maximize the time available to effect the rescue
 - When alongside the patient remove the kill switch lanyard
 - **Entering the water:**
 - The operator will enter the water, while remaining within contact with the PWC/Sled, secure the patient in a manner that will prevent the airway from submerging
 - The rescuer will then guide the patient to the side of the sled
 - When using a rescue floatation device secure the patient by utilizing the provided cinch or clasp in a manner that will prevent the airway from submerging (floatation to the chest)
 - **Only difference in loading when using rescue floatation device with an unconscious patient is understanding the tube will make it more difficult to roll and push the patient onto the sled**
 - **Loading onto Sled:**
 - **Leg Lock Method**
 - Place the patient, face down, with their right arm on the port side aft of the sled
 - Controlling the arm on the sled and position your stomach on the sled
 - While the rescuer is facing the sled hook legs under patients armpits
 - Using the sled loops the rescuer then walks themselves up the sled
 - Stabilize patient as high on the sled as possible



- **Leverage Method**

- Most beneficial when the patient is wearing clothes or PFD
- Place the patient, face down, pinning them against the sled
- While controlling the patient, push yourself up on the sled in a seated position
- Maneuver the patient in front of you and lean back while leveraging them up on top of you
- Stabilize patient as high on the sled as possible

- **Parbuckle Method**

- Leading with the patient's left arm elevated, the rescuer will reach up and grab the first available rescue sled loop, then reach underneath the patient, placing their forearm in the small of the patients back, while also grasping a second rescue sled loop.
- The rescuer will then pull themselves up onto the sled. At the same time, they will roll their right shoulder and forearm forward, rolling and nudging the patient onto the rescue sled.
- Once the patient is aboard the rescue sled, the rescuer will extend the patient's limbs to overhang the sled allowing for a more stable platform. To assist in moving the patient higher on the sled the operator may drive one knee between the patient's legs and while grabbing the sled handles shove the patient higher up the sled.

➤ **Unconscious without sled using a rescue flotation device**

- **Patient approach:**

- At idle speed the operator should steer towards the patient using the safest course possible, preferably after wake or swells have passed to maximize the time available to effect the rescue.
- When alongside the patient remove the kill switch lanyard.

- **Entering the water:**

- The operator will enter the water, while remaining within contact with the PWC, and secure the patient with the rescue flotation device utilizing the provided cinch or clasp in a manner that will prevent the airway from submerging (flotation to the chest).
- The rescuer will guide the patient to the back of the PWC
- Wait for assistance while evaluating and maintaining the patients airway



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Tandem Rescue: Conscious Patient

NFPA 1006 JPR(s):

22.2.14, 22.3.2, 22.3.9

Time:

2 hours

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

2 PWC W/Sleds

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:2 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson, the rescuer should be able to:

- Describe the procedures for rescuing a patient with a rescue swimmer on the sled
- Describe the procedures for retrieving a deployed rescue swimmer with a conscious patient

Introduction:

It is important the student learns how to properly maneuver the PWC in a variety of situations.

Tandem Conscious Patient Rescue: (WITH rescue swimmer on sled)

➤ Patient approach:

- Once the rescue method is communicated between the operator and the swimmer, the swimmer should move into position on the back of the rescue sled.
- At idle speed the operator should approach with the patient on the port side of the PWC using the safest course possible, preferably after wake or swells have passed to maximize the time available to effect the rescue
- Upon approach the operator should give patient the following directions:
 - "Raise your left hand"
 - "Grab my wrist"
- The operator grasps the patient by the left wrist and pendulums them to the rescuer swimmer on the back of the sled.
If conditions allow, the operator should steer to the right (starboard) in order to maneuver the sled towards the patient
- Simultaneously, the rescue swimmer should lift and guide the patient onto the sled while instructing them to grab onto the rescue sleds loops.
- Once the patient is safely aboard the sled, the operator should use the minimum speed necessary while frequently looking back to ensure the patients' safety.

Retrieving deployed Rescue Swimmer with Conscious Patient:

➤ Swimmer Deployment:

- Once rescue method is communicated between the operator and the swimmer the swimmer should move into position on the back of the rescue sled
- When the operator is positioned properly the rescue swimmer will deploy from the sled, with or without a rescue device, and make contact with the patient in the water

➤ Patient approach:

- The operator should maintain a safe distance for rescue operations being conducted until the rescue swimmer has indicated it is safe to approach
- The operator must decelerate and approach slowly while maintaining their line
- Reduce to idle and ensure the engines revs are temporary corrections to allow the PWC to face into the oncoming wake or current

➤ Patient pick-up:

- The operator safety turns and presents the back of the sled to the rescue swimmer in the water
- The rescue swimmer instructs the patient to board the sled, stomach down, facing forward and gripping the handles tightly. The rescue swimmer will assist with moving the patient high on the sled. The rescue swimmer will then lie on top of the patient to secure them.
- The operator will ensure the PWC is facing oncoming wakes after the rescue has been conducted to minimize the risk of injury to the patient and the chance of capsizing.



Personal Watercraft Rescue Course
(Awareness, Operations & Technician)

Class Title:

Tandem Rescue: Unconscious Patient

NFPA 1006 JPR(s):

22.2.14, 22.3.2, 22.3.9

Time:

2 hours

Scheduling Suggestions:

PowerPoint should be taught on the first day

On water instruction should be given the second day

Materials/Equipment needed:

Lesson Plan (Power Point, video, white board etc.)

2 PWC W/Sleds

Instructor requirements:

1:16 Instructor to Student Ratio (classroom)

1:2 Instructor to Student Ratio (On water instruction)

Objectives:

At the end of this lesson, the rescuer should be able to:

- Describe 2 methods for rescuing an unconscious patient with a rescue swimmer on the sled

Introduction:

It is important the student learns how to properly maneuver the PWC in a variety of rescue situations.

Tandem Unconscious Patient Rescue: (with rescue swimmer on sled)

ART Method (Alternate Rescue Technique)

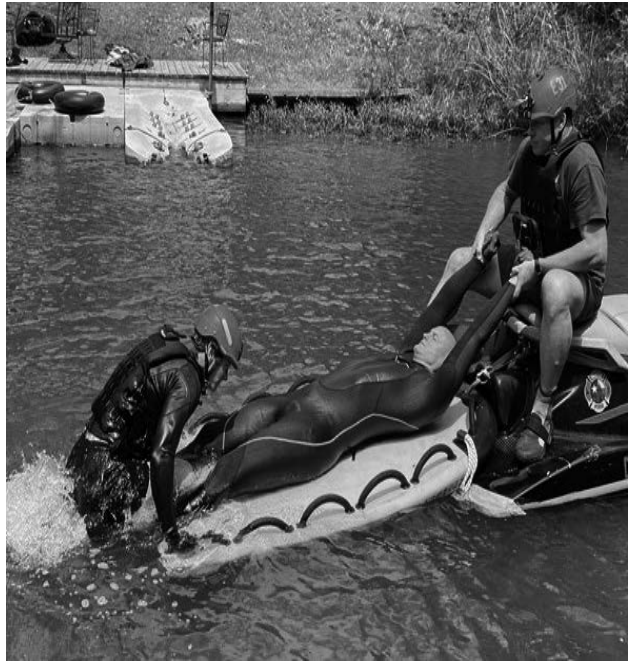
➤ Swimmer Deployment:

- Once the rescue method has been communicated between the PWC operator and the rescue swimmer the rescue swimmer should move into position on the back of the sled
- PWC operator should approach on port side at idle speed. As the unconscious patient arrives at the sled the rescue swimmer exits the sled and grabs the patient

➤ Patient pick-up:

- Rescue swimmer then should position the patient on their back (to keep airway from being submerged) with their head positioned at the rear of the sled
- Operator flips around and sits backward and positions themselves at head of the sled
- Rescue swimmer lifts patients right arm onto the sled on the port side for the operator to grab
- Rescue swimmer lifts patients left arm onto the sled on the starboard side for the operator to grab
- Rescue swimmer lifts the patients lower back to the surface
- In a coordinated effort the operator pulls the patients arms while the rescue swimmer simultaneously lifts and pushes the patient up high on the board allowing for smooth loading
- Once proper placement has been achieved, the operator holds the patient while the rescue swimmer climbs up and straddles the patient and grabs the handles under the patients armpits
- Operator drapes the unconscious patients arms over the rescue swimmers arms to secure them in place
- Operator should use the minimum speed necessary while frequently looking back to ensure the patients' safety.





PWC Reversing Method

➤ Swimmer Deployment:

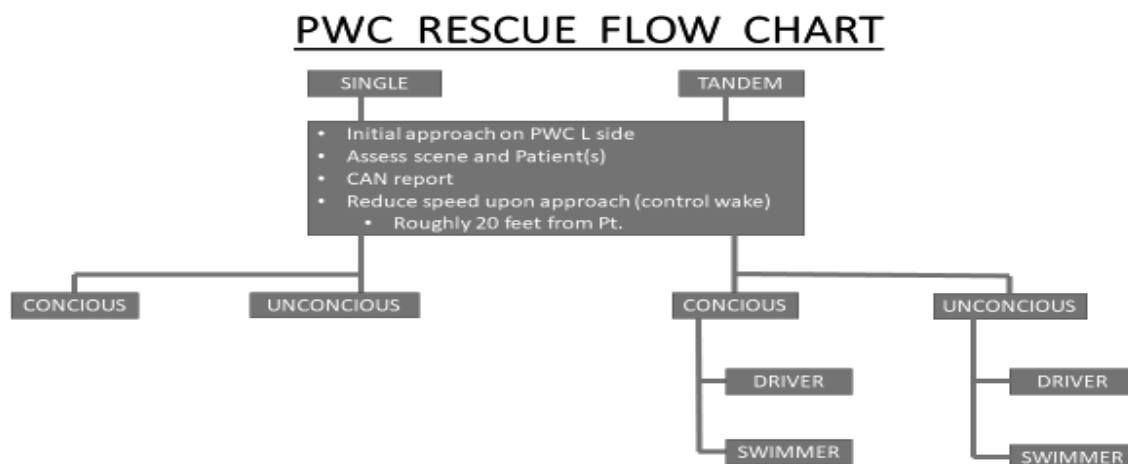
- Once rescue method is communicated between the operator and the swimmer the swimmer should move into position on the back of the rescue sled
- When the operator is positioned properly the rescue swimmer will deploy from the sled, with or without a rescue device, and make contact with the patient in the water

➤ Patient approach:

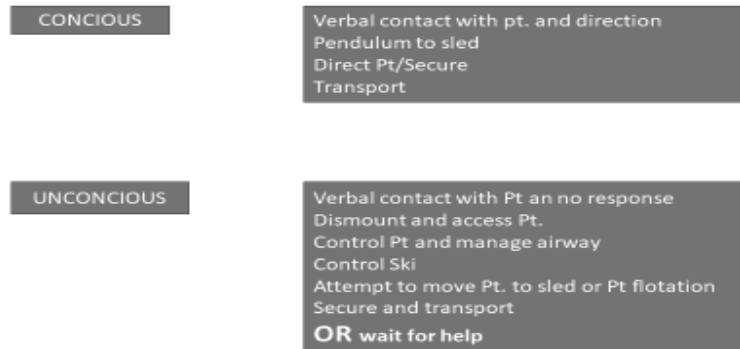
- The PWC operator should maintain a safe distance for rescue operations being conducted until the rescue swimmer has indicated it is safe to approach
- The operator must decelerate and approach slowly while maintaining their line
- Reduce to idle and ensure the engines revs are temporary corrections to allow the PWC to face into the oncoming wake or current

➤ Patient pick-up:

- The operator safety turns and presents the back of the sled to the rescue swimmer in the water
- Rescue swimmer then should position the patient on their stomach, while maintaining airway, with their head positioned at the rear of the sled
- Rescue swimmer pushes and lifts the patient as high on the sled as possible and grabs the highest hand holds available
- In a coordinated effort the operator reverses the PWC while the rescue swimmer pushes the sled down with their forearms and uses their knee, between the patient's legs, to move the patient up the sled into position
- This technique submerges the sled deeper in the water allowing the rescue swimmer to manage the patients movement upward
- The end of the sled should be positioned below the patients waist to prevent their legs from being pushed under the sled when the operator reverses
- Once in the proper position the rescue swimmer will then lie on top of the patient to secure them.



SINGLE OPERATOR PWC RESCUE



TANDEM RESCUER PWC RESCUE

