EXPAND

Adaptive Waterski Program Training Manual

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Waterskiing For People with Physical Disabilities

Introduction

Welcome to EXPAND's Adaptive water-ski program. Thank you for your interest and support in this exciting program.

This program is offered through the Boulder Parks and Recreation EXPAND Program with the support of EXPAND Beyond, Inc., a Colorado 501(c)(3) nonprofit organization.

June through August (8 weeks)
Boulder Reservoir
Tuesdays 7:30-11:30 a.m.

We are very pleased that this program has grown and developed into such a popular and successful experience for people with physical disabilities in the Denver-Metro area. We could only have accomplished this through all the efforts and hard work of the volunteers involved!

In this manual you will find a great deal of information regarding: disabilities, adaptive equipment, skiing instruction techniques, safety procedures, volunteer responsibilities, and much more. We hope that this will help to orient you to the waterskiing program. Please continue to ask us questions throughout the summer. Thanks again for your volunteer efforts and we look forward to a great summer!

General Information

1. This program is specifically designed for individuals with physical disabilities. Physical disabilities include:

    - Traumatic Brain Injury (TBI) – TBI affects 1.5-2 million individuals per year. Persons with MTBI often have intact intellect, language and sensory motor skills, yet experience a wide variety of clinical symptoms including: light headedness, vertigo, tinnitus, impaired memory, reduced attention span, inability to grasp new or abstract concepts, headaches, insomnia, blurred or double vision and a variety of other symptoms that can significantly impact their lives.
    - Spinal Cord Injury – Often occurs from an accident and cause either: paraplegia – total or partial paralysis of both lower limbs, or quadriplegia – total or partial paralysis of all four limbs.
    - Paralysis – Inability to use a part of the body. Can be caused from a stroke, accident, etc.
    - Cerebral Vascular Accident (CVA) – stoppage of blood circulation to part of the brain.
    - Multiple Sclerosis (MS) – a chronic, slowly progressive disease of the central nervous system that usually occurs between the ages of 20 and 35.

- Spina Bifida – a congenital closure defect that generally occurs in the lower lumbar region of the spine.
- Cerebral Palsy – a condition characterized by the inability to control muscular movements due to injury, infection or faulty development of the motor controls of the brain.
- Amputee – loss of a limb such as a leg, arm, etc..

2. Arrive at the dock next to the Boat House at the Boulder Reservoir at 7:15 a.m. on Tuesdays. Please show the gate attendant your recreation pass to get in.

3. Notify **Cory Lasher** at least a week in advance if you are unable to attend a Tuesday session. **Cory can be reached at work 303-413-7269 or her work cell at 303-704-9817.**

4. In case of bad weather, call Cory's work number at 303-413-7269 and she will leave a voice message by 6:30 a.m. if the program has been called off. Please leave your name indicating that you have called and received the message so she does not need to call you. There are no make-up dates due to weather.

5. If your volunteer position should change through the course of a Tuesday morning, make sure you inform the Shore Boss to make sure all positions are covered.

6. Life jackets must be worn by all volunteers who are on the dock and in the boats.

7. Keep all motorized wheelchairs off the dock.

8. Only those working and only participants getting ready to ski are allowed on the dock.

9. Please treat all equipment with care! This includes skis, wetsuit boots, jackets, and personal flotation devices.

10. And most importantly.....ENJOY!

Skier Progression

Progression for the skier	Volunteer Staff Position
1. Skier arrives. 2. Introduction to Ski Buddy. 3. Dry land orientation. 4. Paperwork; registration, emergency information and waiver forms. 5. Name placed on skier schedule.	Dry land Supervisor and Ski Buddy
6. Prepare to ski: - equipment and ski selection - wetsuit boots, ski jacket, life vest 7. Equipment sizes and specifications recorded on Participant Information heet.	Ski Buddy and Equipment Manager
8. Ready to ski! 9. Skier moves to the dock area. Ski Buddy accompanies to return chair to land. 10. Transfer to the ski on the dock. 11. Review skiing progression and hand/voice commands. 12. Enter water behind pull boat and position ski. 13. Chase boats are ready. 14. Skier signals pull boat when ready. 15. Water start assistance available.	Dock Starters and Instructor
16. Skiing. 17. Deep water start assistance available. 18. Two laps around reservoir.	Pull Boat - Instructor - Quick Release Rescue Boat - Rescue Jumper Chase Boat - Starter Jumper
19. Return to dock, drop off skier. 20. Assistance to dock and out of the water. 21. Ski Buddy meets on dock with chair.	Dock Retriever and Ski Buddy
22. Return to land. 23. Equipment returned to land. 24. Remove wetsuit, jacket and life vest. 25. Guard against cold; blankets, hot drinks. 26. Make skier progress notation.	Ski Buddy

Volunteer Roles and Responsibilities

Shore Roles

Shore Boss
a. Assign volunteer positions as they arrive.
b. Determine the schedule of skiers.
c. Oversees all volunteer positions and flow of the day.
d. Inspects necessary paperwork registration, emergency information, and waiver forms.
e. Notifies Dock Boss of skiers ready to be included on the skier schedule.

Dock Boss
a. Maintains communication with pull boat and chase boat drivers through marine radio.
b. Oversees organization on the pier.
c. Skier to boat assignments.
d. Assists Shore Boss in volunteer assignments.

Equipment Manager/Instructor (experienced in all aspects of skiing for individuals with disabilities)
a. Determines best ski for the individual.
b. Fits cage and makes adjustments to equipment for skier.
c. Ski buddy documents equipment selection on skier information form.
d. Provides dry land orientation.
e. Instructs skier.

Dock Starter
a. Assists as needed in wheelchair mobility onto pier.
b. Helps in transfer onto ski from wheelchair if needed.
c. Moves ski and skier into the water.
d. Double check fit of skier life vests and boots.
e. Make any necessary adjustments to the ski equipment.
f. Assists in water start if needed.

Dock Retriever
a. Jump in from dock to meet skiers in the water after they have finished skiing and help them to the dock and up into their chair.
b. Help passengers on and off boats.
c. Requires lifting.

Ski Buddy
a. Give one-on-one support and assistance to one skier for an entire water-ski session.
b. Keep track of Participant Information Sheet on skier.
c. Make sure skier has all proper paperwork filled out before they get on the ski schedule.
d. Communicate with the Dock Boss concerning the needs of skier, cage size, etc.

e. Assist skier with the following, if needed: boots, jacket, towel, coffee, donuts, etc.

f. Provide help, if needed, for skier on and off the dock and be ready with their chair when they're done skiing.
g. Prepares equipment for each skier according to skier schedule and brings down to pier prior to when needed.
h. Documents equipment selection on skier information form.

On the Water Roles

Pull Boat Drivers
a. Abide by the rules of the Boulder Reservoir.
b. Protect the skier at all times, safety first!
c. Establish clear communication with the skier.
d. Arrange personnel on her/his boat.
e. Notify the Dock Boss of volunteer or passenger changes on her/his boat.
f. Provide instruction to skier.
g. See the Pull Boat Driver detail role description

Pull Boat Quick Release/Observer
a. Watches and anticipates falls from the skier, release tow rope at the right moment.
b. Act as co-captain to the boat driver, communicates skiers needs to the driver.
c. Watches skier for hand or head signals, feet slipping out of position, etc.
d. Manage tow rope (remove knots, pull in rope, etc.)
e. See the Pull Boat Quick Release/Observer detail role description

Chase Boat Rescue Driver
a. Highly experienced PWC driver that safely keeps within 2-3 seconds of the skier at all times
b. Protect the skier at all times, safety first!
c. Responsible for the Rescue Jumper safely getting to the skier within 2-3 seconds after a fall
d. Fully knowledgeable regarding the skier's capabilities and disability
e. See the Chase Boat Rescue Driver detail role description

Chase Boat Rescue Jumper
a. Enters water to help skier after a fall.
b. Makes sure skier is fit properly.
c. Helps chase boat starter in positioning skier in the ski, attaching rope to ski, or getting
d. rope handle to skier.
e. See the Chase Boat Rescue Jumper detail role description

Chase Boat Starter Driver
a. Ski boat driver that delivers the Starter Jumper to the skier after a fall.
b. Arrange personnel on her/his boat
c. Establish clear communication with the Starter Jumper regarding protocol in boat
d. See the Chase Boat Starter Driver detail role description

Chase Boat Starter Jumper

a. Generally a small person to reduce the drag on the skier.
b. Enters the water after the Chase Boat Rescuer.
c. Positions skier in ski.
d. Assists with deep water start
e. See the Chase Boat Starter Jumper detail role description

Equipment

1. Ski Boat

   All boats used in this program are privately owned, except for one patrol PWC, which has been graciously donated for our use. The boats used as Pull Boats which the skier is pulled behind and as Chase Starter Boats are generally inboard tournament ski boats. The Chase Rescue Boat is a PWC. One or two chase boats follow the skier with rescue and/or starter aboard ready to enter the water to assist a fallen skier if needed.

2. Personal Flotation Device

   All skiers, volunteers in the water and people on boats or on the pier must wear a life vest securely fastened. There are specific vests better suited for skiing. All vests need to be properly fitted and tightly buckled before skiing.

3. Wet Suits, Paddle Jackets, Glove And Wet Suit Boots

   Each skier needs to wear protection from the cold water and air. A variety of options are available. Volunteers entering the water should wear protection as well.

4. Quick or Trick Release

   A quick/trick release is a device used to quickly separate the ski rope, under tension, from the boat. Quick releases must be utilized any time the rope is directly connected to the ski/inflatable or in the event the skier cannot let go of the ski rope unassisted. It is used with E-skis, Freedom Ski, and Ski Seat.

5. E-Ski and KanSki Freedom Ski

   The E-ski is a seven layer marine grade plywood lamination 7 feet long, 18 inches wide tapering back to 15 inches at the tail, 1 inch thick with the nose curved up 7 inches. On the center line, at the tail and on the bottom of the ski there is a fin 4 inches deep and nine inches long. On the top of the sit ski is an aluminum tubing seat or "cage" with a cross bar to support the back of the thighs to prevent forward movement. Forward of this apparatus is a velcro strap to retain the user's feet from slipping off the ski. At the front of the ski is a slot. In back of the slot is a 3 inch high by 8 inch long by 3 inch thick block of wood with a “V” slot cut out of the middle.

The Shadow Freedom Ski is made of the most advanced materials. It's a wide beginner board with a notched nose and towing eye as well. Use a "pull" rope with space on the skiers' side of the easy up block. When the skier wants a free rope, he gives a sharp tug on the handle and the knot comes free of the "V" slot.

6. Outrigger for Sit Ski

The "outriggers" are simply a pair of old trick skis (or home made wood skis using trick skis as a pattern) connected by a 22 inch long by 2 inch by 1/2 inch aluminum strapping. The strapping sandwiched between the sit ski and the cage is then bent to a 45 degree angle (the lower the angle, parallel with the ski, the more stable; the higher the angle, perpendicular to the ski, the more maneuverable). The outriggers allow individuals with more severe disabilities, who do not have the ability to balance a sit ski, to enjoy skiing.

7. KanSki, Comp I and Super Comp

The KanSki is a light weight fiberglass and graphite slalom sit ski which features a concave bottom and competition fin. There are two skis, one for the recreational skier and one for the competitive sit skier with personalized cage widths in three heights. Skiers hold directly on to tow rope using a deep "V" handle which fits over the nose of the ski.

Teaching Progressions

There are many people that will interact with a skier. To avoid confusion for the skier, we ask that only the "instructors" provide instructions to a skier. Many times volunteers are skilled water skiers. This is a benefit and can be used in positions like "Pull Boat Quick Release" but, there are many times where a "Sit Skier" will need to do just the opposite of what a "Stand-up" skier would do.

Sit Skiers

E-ski and Kan Ski

QUADRAPLEGICS, individuals without functional use of their arms, hands, and legs, may be best suited to using the outrigger sit ski with the rope attached directly to the ski. TETRAPLEGICS, individuals without normal use of their hands and legs but with functional use of their arms, may find using the "easy up" block and outrigger sit ski more to their liking. With practice, most tetraplegics progress to a standard sit ski. PARAPLEGICS, individuals without functional use of their legs, and DOUBLE LEG AMPUTEES will use a standard sit ski and hold directly onto the rope, although, the easy up and/or outrigger ski may be used as a learning tool.

A. Dry Land Initiation

- Review the sections on SAFETY and COMMUNICATION and ask the participants to demonstrate their knowledge of the signals. Pay particular attention to the proper use of the hand/head signals.

- Explain the difference between the standard sit ski and the outrigger sit ski.

- Go over each part of the skis and familiarize the participants with their correct names. Be sure to mention the cage and sling, foot binding, fin, easy up "V" block and handle with knot, and the deep "V" handle.

- Explain the use for the two different types of personal floatation devices. Remember, a life vest for most skiers and the life jacket for those persons unable to turn over in the water.

- Review the need for and operation of the quick release.

- Demonstrate the two techniques for mounting the ski:

  The first technique is the "side entry". The skier floats parallel to the ski, in a sitting position, feet floating straight in front of him. The skier reaches over the cage to the opposite side edge of the ski while sculling on the surface of the water with his other hand. As he pushes down on the side of the ski forcing it under the water, he pushes himself up and over the cage with a sculling motion from his free hand. Once in the cage, the skier can then place his feet in the bindings.

  The second technique is referred to as the "back entry". This is where the skier straddles the ski from the back and by pushing down on the ski floats over the cage. The ski is then allowed to float up, under the skier.

  Note: The side entry technique is used by most paraplegics and tetraplegics while the back entry is used by most amputees and other disabilities where limited leg motion is present. Most quadraplegics will need physical assistance to get on the ski.

- Explain the two static balance (balancing the ski while floating in the water) techniques. The first technique utilizes both arms sculling on the surface of the water, keeping the skiers weight over the mid-line of the ski. Using the second technique, the skier holds onto the edge of the ski at the base of the cage and pushes the ski under his bodies' mid-line.

- Explain the progression for using the outrigger ski with rope attached to tow block.

(a) Mount ski, lean forward and hold onto the cage or ankles/legs.
(b) Communicate with driver, i.e. "IN GEAR" and "HIT IT!"
(c) Remind the skier to RELAX!
(d) Once on a plane, stay within the boat wash. It is difficult to control the

ski outside the boat wash while it is being towed. Explain that with practice it is possible to cross the wash.

(e) Maneuver the ski by subtle weight shifts in the direction skier wants to go. Have them try turning their head then their shoulders in the direction they want to go. Remind the skier to experiment slowly. FINESSE is the way to success!

- Explain the progression for using the easy up. The start is the same as the ski being towed. Repeat A-E above. Instruct the skier not to touch the handle until they are ready to release the knot from the "V" block. There is no hurry to rush the release. The skier will reach down and pick up the handle and sharply pull it toward himself. The knot will come loose of the "V" block and the skier will have a free rope.

B. Starting and Skiing

- Skier and instructor move into water four feet deep. Water must be deep enough for the ski to float at a 45 degree angle.
- Skier mounts the ski trying both techniques.
- Skier maintains static balance trying both techniques.
- Skier will communicate with the boat driver when he is ready.
- Boat driver will get the rope handle to skier (if it is not already connected to ski). It is the skiers' responsibility to hold onto the handle.
- Be sure the rope is attached to the tow ring or is firmly in "V" block.
- Be sure the ski is at a 45 degree angle with the tip out of the water 1 foot.
- Skier looks through the ski to the horizon or back of boat.
- Skier leans forward and holds cage or ankles.
- When ready the skier says "HIT IT!"

C. Supplementary instructions when skier holds the rope to Start

- Place the deep V handle over the tip of ski.

- Explain the two hand positions for the start.

The first is with arms straight and low. The handle is held in front of shins and the elbows are pressing against cage for extra support.

D. Supplementary Driver Instructions with Sit Ski Towed

- To start, accelerate slowly. The driver must slow down if the ski begins to porpoise (tip bouncing) and speed up if the ski is not planeing.

- Don't turn so sharp as to pull the sit ski over the wake. The ski is very difficult to control outside of the wake when it is being towed.

- When returning to the beach/dock the driver must maneuver the skier as

close to dock as safety will allow, before the observer operates the quick release and releases the sit ski.

- When the easy up block is used the same starting technique as the towed ski is used. The sit ski is more difficult to control at slower speeds, so, after the rope is released from the easy up block the speed must be increased to 16 mph or faster. Watch for the hand/head signals.

E. Sit Skier Holding Rope

- When the sit skier is holding the handle, the pull from the driver is similar to an able bodied skier. The wider the sit ski the less power needed at the start. A sit ski 15 inches or more will need about the same throttle as a skier on double skis. A more advanced sit ski (13 inches or less) will need the same pull as a standard single ski.

F. Starting and Skiing For Single Leg Amputees, Without a Prosthesis

- The most preferable method is to use a training boom.

- With deep water starts use a long "V" rope.

- Keep the ski and the body in a straight line with the pull of the boat.

- The stump should be straight and pushed backwards to act as a rudder.

- Once up, the stump should not wave about but be kept close to either the front or side of the sound leg.

- The arms should be kept bent and as low as possible, elbows close to the waist. The skier must keep the center of gravity as low as possible with the pull coming through the leg.

G. Supplementary Driver Instructions

For a deep water start with a single leg amputee, who is not using prosthesis, it is particularly important that the skier is in a straight line with the pull of the boat.

Start the skier by gently "dragging" him at an idle speed until he gets his balance and is tracking absolutely straight.

Wait for his call to say that he is ready, then give him full power as with any slalom skier.

H. Some Advanced Techniques

Once the skier has mastered the takeoff and skied a few runs it is natural for

him to become more adventurous and risk more falls. Half of the fun of learning can be to survive a fall and laugh and talk about it to others who may have been witnesses. The skier might comment, "Next time I will.....". It's all part of the learning and increasing the confidence.

The first advanced maneuver that any skier attempts will probably be the wake crossing. This is where the control practice within the wake is useful. When attempting this the skier should make a very positive move to cross the wake. He should not try to "ease" across because the ski will have a tendency to 1) be sucked into the wake and tip toward the boat, or 2) to dip the outside edge and tip away from the boat. Either of these will likely result in a fall.

Approach the wake with authority and establish one continuous move over it. Some skiers with higher injury levels and less trunk balance may want to hold the towline in the one hand closest to the boat while holding onto the lower vertical seat cage bars with the other hand to stabilize the ski somewhat. Advanced skiers also use this technique to gain a greater angle at the wake and for greater speed.

Higher wake crossing speeds naturally lead to the next adventure of wake jumping. A skier can "grab air" easily with sufficient speed. With the boat speed of 22-24 mph and an aggressive approach from outside of the wake, clearing the water by 12" is common. The key to a controlled jump is to attack the wake hard and to hit it squarely with the ski level. This will allow the ski to go over the top and not slice through the wake. The jump through the air is the easy part.

Landing and maintaining control after a jump is a bit more difficult. This author prefers a handhold on the bottom front vertical seat cage bar when performing this maneuver for two reasons: 1) to stabilize the ski and assure that it lands squarely and, 2) to stabilize the upper body within the seat cage.

The skier may also attempt to shift a bit more weight to the rear of the ski for the landing to help keep the tip from 'digging in'. One of the hardest falls that I have taken has been when the ski "nose dives" after a jump. Be prepared for a sudden stop!

In the event of such a fall be sure to give the boat driver the "skier OK" (raising an arm overhead) signal if all is well.

Fitting and Adjusting the KanSki

A. Mounting cage to board**:** Remove the four T-nuts on the board and place the cage onto the ski with mounting studs through middle holes. Replace the T-nuts.

B. Adjusting sling height: Sling height is the most subjective setting of the KAN-SKI. The lower the sling, the more stable the ski will feel and the easier it will be to control. The higher the sling, the easier it is to move the ski onto an edge and the more sensitive it will feel. Start with the sling in a low position and move it up as you gain experience and confidence.

   a) To adjust height, simply release the buckle located on the underside of cage and tighten or loosen straps as desired. If you have excess strap ends fold them back up under strap positioning piece.

   b) Be sure there is room for user's hips to drop below the top rails of the cage. Check that there is no part of user's buttocks touching the bottom rails.

C. Checking cage width: The cage should fit snugly, you will need to twist your hips to get into it. The object is to have your hips slide forward below the top rails to keep you positioned firmly while skiing but also allowing you to pop out if you should fall.

   Note: It should be more difficult to get into the cage when dry, however, it will fit looser when wet.

D. Adjusting foot plate: Sit in cage with feet in foot plate. There should be contact between the back of user's knees and knee support bar. Also, the user's feet should be snug in the foot plate while allowing the heels of the feet to maintain contact with the foot plate. IT IS IMPORTANT THAT BOTH FEET ARE FIRMLY IN THE FOOT PLATE BINDING BEFORE ATTEMPTING TO SKI.

E. Final adjustment**:** After all above adjustments have been made, position yourself in the ski again and be sure everything is set correctly. Remember, it is easier to make these adjustments on land instead of while in the water.

F. Testing your ski: Try skiing with the cage and foot plate in this position. While skiing on flat, smooth water (try directly behind the boat inside the wake) notice the attitude of the ski on the water.

   a) If the ski tip is bouncing up and down or "porpoising" move the cage forward.
   b) If the ski is tip heavy or "plowing" move the cage. Try moving just one hole at a time until proper position is found.

Safety

Water Safety Test

It is not required that participants be swimmers before they learn to ski.

Many skiers have learned to ski first and then learned to swim because of their new-found enjoyment in a water sport.

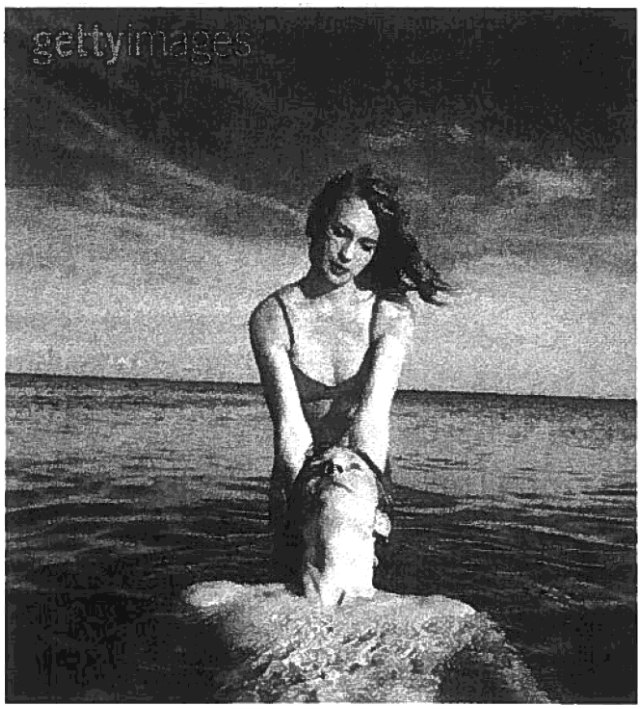
Have the participants get into the water (this is a good opportunity to observe the abilities of the participants) and demonstrate their capability of turning themselves from a face down position to a face up position with a life vest on.

If they can't turn themselves to the face up position unassisted, let them try the exercise wearing a life jacket.

If the participant cannot turn himself over, the rescue boat must be a wave runner.

Seizure in Water Protocol

1. Stay Calm
2. Enter the water, place a PFD under the victim's head to ensure that their head and face stay above the water.
3. Do not place anything in his/her mouth or restrict their movement.
4. Guide them away from the boat or anything that they could impact during the seizure.
5. Once abnormal movement has stopped, move the participant out of the water
6. Check the victim's Airway, Breathing and Circulation. If all are normal roll the victim on to their side and stay with them until they are fully recovered.
7. It is recommended that any individual that has a seizure in the water, especially if they lost consciousness or may have aspirated water, receive an immediate medical evaluation.
8. It is recommended that 911 be called whenever anyone has a seizure in the water.



Cervical Spine Injury

1. Main objective is to stabilize head and neck in alignment until victim can be placed on to a backboard to be transported out of the water.
2. If you suspect a spinal injury, enter the water and put the victim in a **head-chin splint.**
3. The **head-chin splint** consists of supporting the back of the victims head and the chin on the victim while your forearms run down their spine and sternum.

Note: Do not move the victim unless you think they are not breathing or have no pulse.

Shock

1. First and foremost, shock is not associated with any particular injury and can occur during minor injuries for some people while others who suffer major injuries may show absolutely no sign of shock.
2. Signs and Symptoms of Shock: rapid, shallow breathing, pale and ashen skin, light-headedness, confusion, dizziness, weakness and nausea.
3. Treatment of Shock:
    a. Have victim lay down with their feet elevated above their heart.
    b. Cover the victim with blankets or jackets if they are feeling cold.
    c. Treat the underlying condition.
    d. Stay and comfort the victim.
    e. If the victim at any time loses consciousness, call 911 immediately.

"Code Red": Medical or Traumatic Emergencies

Definition: A code red is any urgent medical or rescue or situation that is going to immediately require other staff, fire, medical or combination for safety reasons.

Transmitting a Code Red

- Transmit: "CODE RED AT [LOCATION], [TYPE OF EMERGENCY], [#OF PATIENTS INVOLVED], [WHAT YOU NEED], and CALL 911. The assumption by the front gate with a code red is to call 911 unless otherwise specified.

- Example: "Code Red at swim beach, possible broken leg, 1 male, need all available staff, lake patrol and **call 911."**

- All non-relevant radio traffic should stop immediately.

If emergency is on land: the only additional response to the scene will be the emergency cart with two staff, unless you are informed otherwise. However, you must monitor the radio closely in case additional staff is requested.

If emergency is on the water: lake patrol and one guard, if available, will handle the emergency. One more watercraft with lake patrol trained staff will be deployed to either assist with the emergency or patrol the lake while the primary lake patrol staff is dealing with the situation at hand.

Communication between Skier and Pull Boat

Verbal Commands

There are four verbal commands between the skier and boat driver. They are:

"Clear!"
This command can be either a question from the boat driver asking if the propeller is free of obstruction (i.e. people, ropes, snags, etc.) or a statement from the observer or skier that the area is clear.

"Out of gear!"
This command can be either a question from the skier to the boat driver asking if the transmission has been disengaged, or a response from the boat driver informing the skier the transmission is in neutral.

"In gear!"
This is the command from the skier for the driver to take up the slack rope.

"HIT IT!"
The command from the skier to the boat driver to start.

Hand Signals

hand up after fall = O.K.

thumb down = slower

thumb up = faster

slash neck motion = cut boat power; stop now

OK with fingers = everything O.K.

pat top of head = back to start dock

Adaptive Water-ski Protocol Communication using Radios/Cells for Emergency Procedures on Lake

Lake Patrol: 720-470-1863
Cory's Cell 303-704-9817
Front Gate: 303-441-3430
EXPAND Radio – Channel 7

- All Boat Drivers who pull a skier must check out a radio from Cory before starting the program. You are responsible for returning the radio to Cory at the end of the day.

- Use Channel 7

- Have a volunteer in the boat other than the driver in charge of the radio.

- In an Emergency Situation call Lake Patrol at **720-470-1863** and state CODE RED and/or Radio Cory/BJ on channel 7 and state your name (i.e. Bill to Cory), state your location, type of boat, person injured, and situation.

- If you cannot get a hold of Lake Patrol and you have radioed Cory/BJ they will then radio Lake Patrol/Rez Ops and state CODE RED and Lake Patrol will come to your location. Do not put the injured person into your boat until help arrives.

- If you cannot get a hold of Cory through radio, call Cory's cell at **303-704-9817**.

- If you cannot get a hold of anyone on the radio, cell, etc….call the front gate at **303-441-3430** and tell them you are with the EXPAND Program and have a CODE RED. Give your name, location, person injured, and situation.

- If this is a life threatening situation and you have a cell phone on your boat, please call 911 first and then follow the procedures stated above.

Pull Boat Driver Detail Role Description

Description of Role

The driver of the primary ski boat that is pulling the adaptive skier. The number one priority for all on the water (OTW) volunteers is the safety of the adaptive skier. This should guide every thought and action while on the water with the skier. The Pull Boat Driver is the "quarterback" of the ski process and it is his/her responsibility to ensure all safety elements are in place for the ski run prior to pulling the skier; even if the skier yells "hit it". The Pull Boat Driver is primarily a volunteer driving his or her own boat (providing the best level of operating familiarity) they have donated both the use of and fuel for the EXPAND program. The primary boat type desired is a direct drive tournament water ski boat with a quick release (provided by EXPAND) tower for rope connection and a large rear view mirror to provide the needed power for a controlled, smooth pull, smallest possible wake and good visualization of the adaptive skier.

Pull Boat Driver Qualifications

The Pull Boat Driver should have a minimum of 5-10 years' experience driving a boat while pulling a skier or wake boarder. Intimate knowledge of water safety, boating regulations, Boulder Reservoir boating guidelines, and the handling of their boat under all situations is mandatory.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)
    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower
        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately
        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Pull Boat Driver Process

1. The Pull Boat Driver should first have a discussion with the Dock Boss who is assigning the adaptive skier to the Pull Boat Driver and support team and agree upon the following:
    a. Confirm skier ability, pull up intensity, starting pull speed, disability considerations
    b. Type of tow rope needed (connected to ski, skier pulls from ski block, skier holds rope)
2. The Pull Boat Driver should then have a brief discussion with the skier (if they are able to converse) or their caregiver regarding what to expect and ensure they know hand signals and verbal command of "hit it" to start. It is also important to get a feel for the clients' comfort level and experience to guide the adjustments during the ski run.
3. Assemble the clients' caregivers and any other ride along "guests" on the boat and explain to them where they sit and the rules of the boat (no standing, etc.)
4. Connect rope assigned by the dock boss to pull boat tower quick release (unless dock boss states otherwise) and make sure the rope is tangle free before leaving the dock.
5. Ensure the appropriate quick release / observer (Observer) support person is in the boat and understands their role.
6. Slowly get the pull boat in position and ensure the appropriate support team (starter and rescue boats) are in position and ready to go. **Under no circumstances is the Pull Boat Driver to ever respond to the client saying "hit it" if the rescue PWC is not in position and ready to go! Ensure the path in front of the boat is fully clear of skiers, rowers, etc.**
7. Skier (or Starter) yells "hit it" and the pull boat pulls the skier up at the appropriate rate and intensity for the clients' ability.
8. While constantly maintaining vigilant lookout for anything in the expected path of the ski run, the tow boat driver maintains occasional view of the skier in the rear view mirror and constantly communicates with the quick release / observer regarding status of the skier and warns the observer of upcoming wakes for the skier.
9. Skier down:
    a. Quick Release pulled:
        i. Immediately come off throttle of pull boat to idle speed.
        ii. Slowly circle pull boat to the left (port). **First priority is to retrieve the boat end of the ski rope without wrapping the prop.**
        iii. The quick release / observer should help you locate the float on the boat end of the rope and pull up to rope with float on the right (starboard) side of the boat so that spotter can grab and reconnect to the quick release. **It is the Observer's responsibility to pull the rope out of the water without pulling on the client and to keep from wrapping the rope around the prop!**

iv. Slowly position the boat to be prepared to pull up the skier as soon as the Rescue and Starter have gotten the skier ready, and only pull up the skier after the Rescue is back on the PWC and the skier yells "hit it".

b. No quick release, rope still attached to pull boat:
   i. Immediately come off throttle of pull boat to idle speed.
   ii. Slowly circle the boat to the left (port) and slowly go around the skier to deliver the handle in preparation for pulling up the skier.

10. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. **When pull boat is making the last left (port) turn in the southwest corner of the reservoir, the driver must radio the start dock to get clearance to bring the skier in.** If clearance is not given, another short lap around the lake should be made, or the boat should stop if the skier signals they cannot make another short lap
    b. Quick Release skiers (rope connected to ski):
       i. After making the last left (port) turn, the Pull Boat Driver has permission to drive inside (on the right or south side of the wakeless buoys) to facilitate a direct straight path to the start dock.
       ii. Quick release skiers generally need to be dropped close to the dock by the Pull Boat Driver making a close pass by the start doc and the quick release being timed by the Observer to allow a person jumping from the dock to support the skier **without letting the skier glide into and striking the start dock!**
    c. Non-quick release sit skiers (skier holds rope):
       i. After making the last left (port) turn, the driver has permission to drive inside (on the right or south side of the wakeless buoys) to facilitate a direct straight path to the start dock.
       ii. Depending upon the ability of the skier, these are generally passed by the dock at a greater distance as they will often pull out to the right side and let go of the handle to glide into the dock.
    d. Stand up skiers / wake boarders:
       i. Stand up skiers and wake boarders are not to be brought into the dock and dropped off without dock boss approval over the radio. This is for safety reasons to minimize the amount of high speed traffic around the starting dock.
       ii. Unless permission is given by the dock boss to bring a stand up skier in to the dock, the Pull Boat Driver should stay to the left (north side) of the wakeless buoys and have the skier drop off directly north of the start dock.
    e. After dropping off the skier, Pull Boat Driver immediately comes fully off throttle to idle speed and slowly makes a wide left (port) turn back to the start dock allowing all support craft to clear prior to returning to the start dock.

Things to Look Out For

- Focus all thoughts and actions toward the safety of the adaptive skier at all times.
- Abide by the rules of Boulder Reservoir at all times (exception for the wakeless areas for starts and drop-offs as described above).
- Rowers on the lake; keep a minimum of 200 feet away from any rowers.
- Attention level of the Observer. They should not be engaging in any conversation and remain focused upon the skier at all times.
- The client "porpoising" (ski tip bouncing) at pull speed. This could be due to inappropriate speed (too fast or too slow) or poor cage positioning front to back on the ski. First try adjusting speed by first slowing down, if this does not address the problem, and porpoising is severe enough, stopping and adjusting of the cage on the ski may be needed.
- Legs of the skier (especially paraplegics and MS clients) come out of foot restraints. **STOP THE BOAT IMMEDIATELY WHEN THIS OCCURS AS SEVERE LEG INJURY / BREAKAGE COULD OCCUR!**
- Other EXPAND skiers on the lake:
    - Generally speaking, the lead EXPAND skier stays to the outside (right), and the approaching boat from the rear stays well inside (left).
    - Anticipate the direction of the other boat and try to keep as much separation between pulled adaptive clients as possible; especially avoiding the wake of the other boat
- When maneuvering around the start dock spend as little time in the skier drop off passing lane as possible; stay to the south side of the start dock as much as possible.

Pull Boat Driver Validation

- New Pull Boat Drivers must attend the mandatory dry land and on-the-water training at the beginning of the ski season.
- No new Pull Boat Drivers will be allowed to pull EXPAND Adaptive Waterski clients without being "signed off" by a qualified Pull Boat trainer.
- Pull Boat Driver training will consist of reviewing all the OTW Role Definitions documentation, then pulling an experienced adaptive sit skier and simulating skier quick release, falls, starts, and dock drop-offs.
- Ideally, new Pull Boat Driver training will occur in the individuals' own boat to facilitate familiarity with handling the boat with an adaptive skier.

Pull Boat Quick Release / Observer Detail Role Description

Description of Role

A dedicated volunteer riding in the Pull Boat that is completely focused at all times on watching and anticipating a skier fall to allow for timely release of the tow rope from the boat. The Quick Release / Observer (Observer) is the primary conduit for communication of the skier status to the Pull Boat Driver relaying hand signals from the adaptive skier, quickly announcing "skier down" and observing the performance of the skier during the ski run. The Observer is the primary person responsible for management of the tow rope to ensure there are no kinks or knots, it is not hung up on the boat gunwale, no excessive rope pulls on the adaptive skier, and ensures the rope is not wrapped into the prop of the boat.

Observer Qualifications

It is highly desirable the Observer have some experience as a water skier or wake boarder. This allows the Observer to put themselves into the adaptive skiers' situation and provide some support and perspective for the skier. Most important is for the Observer to appreciate the skier safety criticality of their role, especially as it relates to quick release of the tow rope. Anticipating and releasing the rope at the appropriate time is critical to adaptive skier safety and their enjoyment. Frequent premature tow rope release causes unneeded falls that can degrade the adaptive skiers' experience.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)
    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower

        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately
        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Observer Process

1. The Observer must be familiar with the Pull Boat Driver's protocols on his/her boat. If they have not ridden with a Pull Boat Driver before, it is critical a brief conversation occur before leaving the start dock regarding protocol, expectations, and communication.
2. The Observer should retrieve the rope assigned to the skier by the dock boss, uncoil it to ensure there are no knots, attach it to the tower quick release, and pass the skier end to the dock boss.
3. The Observer should be fully aware of the skier's capability, whether or not their role is quick release or just observer, and the support staff assigned to the ski run (Starter and/or Rescue)
4. The Observer should facilitate communication with the Pull Boat Driver regarding activity around the start dock and be a second set of eyes leading up to the start of the ski run.
5. After initiation of the ski run, the Observer should be 100% focused upon the skier. No extraneous conversation, even if questions are being asked by the skier's care giver riding along in the boat. The Observer is a critical element providing safety to the adaptive skier.
6. Skier down:
    a. Quick Release pulled:
        i. The Observer should be capable of anticipating a skier fall **PRIOR** to the fall actually occurring as it relates to a quick release situation. **Failure to adequately anticipate a fall and quick release in advance of the skier fall could lead to severe skier injury.** Generally speaking, the Observer should err in the direction of premature release than being too late, however, too frequently premature quick release of an adaptive skier can lead to a significant negative impact to the skier's enjoyment of the ski run.
        ii. Upon successful quick release of the rope, the Observer should help the Pull Boat Driver locate the float on the boat end of the rope. The Pull Boat Driver should pull up to rope with float on the right (starboard) side of the boat so that spotter can grab and reconnect to the quick release. **It is the observer's responsibility to pull the rope out of the water without pulling on the client and to keep from wrapping the rope around the prop!**
        iii. The Observer should be monitoring the progress of the Rescue and Starter Jumpers in the water with the adaptive skier and

communicate the status to the Pull Boat Driver up to the point of restarting the ski run.

b. No quick release, rope still attached to pull boat:
    i. When no quick release occurs during a fall, the Observer can help the Pull Boat Driver ensure the tow rope stays clear of the prop, and is adequately delivered to the adaptive skier for reinitiating the ski run.

7. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. Quick Release skiers (rope connected to ski):
        i. The Observer is responsible for the safe release of the ski rope as the Pull Boat Driver passes by the start dock at the end of the ski run.
        ii. Skiers need to be released close enough to the dock to facilitate a rescue jumper from the start dock quickly making it to the skier **WITHOUT LETTING THE SKIER GLIDE INTO AND STRIKING THE START DOCK.** Consideration for the skier's size/weight and type of ski (outrigger, Kanski, wakeboard) to estimate the amount of glide after the rope is released.
    b. Non-quick release sit skiers (skier holds rope):
        i. Generally, the Observer is not responsible at the end of the run when a skier is holding the rope, however, keeping an eye on the skier is prudent as inexperienced skiers may hold on longer than they should and risk hitting the dock. In this case, the Observer should be prepared to release the rope.
    c. Stand up skiers / wake boarders:
        i. No release responsibility for the Observer in this case other than signaling the skier to let go of the rope.

Things to Look Out For

- Ensure a thorough knowledge of the skier, their abilities, and the assigned support team prior to leaving the start dock.
- Maintain 100% focus on the skier for the entire run not allowing any distractions. Politely decline boat conversation citing the importance of maintaining focus on the skier for safety reasons.
- The utmost diligence needs to be paid to releasing the skier at the end of the ski run

Observer Validation

- Observer training will consist of reviewing the Observer Role documentation, followed by observing several ski runs with an experienced Observer with a quick release skier.

- Final validation should be performed with the trainee being the Observer for an experience sit skier being pulled and having the Observer trainee perform several quick releases on a ski run, and perform several end of run dock quick releases while being reviewed by an experienced Observer.

Chase Boat Rescue Driver Detail Role Description

Description of Role

The Chase Boat Rescue Driver (Rescue Driver) is responsible for safely driving a Personal Water Craft (PWC) directly to the side and immediately behind an adaptive skier making it possible for the Chase Boat Rescue Jumper (Rescue Jumper) to reach the skier within 2-3 seconds after a fall. As Rescue is only assigned to beginner or less "water safe" adaptive skiers, this role is critical to maintaining the safety of the adaptive skier. A challenge faced by the Rescue Driver is to keep an unusually close proximity to the adaptive skier while under way, and ensuring that the skier is never contacted by the PWC. The Rescue PWC and fuel are provided by EXPAND Beyond, Inc. The Rescue Driver role is the most technically challenging of all the EXPAND Adaptive Water Ski Program roles, and is the most critical role regarding the safety of the adaptive water skier.

Rescue Driver Qualifications

The Rescue Driver should have a minimum of 5-10 years' experience driving a PWC with excellent ability to safely control, maneuver, and stop the PWC. Intimate knowledge of water safety, boating regulations, Boulder Reservoir boating guidelines, and the handling of the PWC under all situations is mandatory.
A thorough understanding of the mechanics and performance characteristics of the PWC in use is absolutely critical to the safe operation of the vehicle. The Lake Patrol units that EXPAND uses have IBR, Intelligent Braking and Reverse, which allows the driver to stop, maneuver and backup with great precision and predictability. However, gaining skills in the use of these controls takes practice and instruction and diligence. All drivers must be intimately familiar with this aspect of PWC operation, and will be trained and become experienced with it before operating with a rescuer onboard and a skier underway. The PWC owned by EXPAND has neither braking nor reverse capabilities. While this style may be more traditional for older experienced drivers, it may create more challenging maneuverability demands on a driver, and the dynamics of this PWC must also be understood, and practical proficiency must be demonstrated in advance before operating with a rescuer onboard and a skier underway.
The Lake Patrol may want to perform rudimentary training and instruction for all drivers using the Lake Patrol PWC, but all drivers of both types of PWC will need to be trained and certified by Paul DiMarchi either before the season begins or during pre-session exercises.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)

    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower
        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately
        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Rescue Driver Process

1. The Rescue Driver should have full knowledge of the skier considerations outlined above for the adaptive skier they have been assigned to by the dock boss and adjust their positioning and proximity to the adaptive skier accordingly.
2. It is the responsibility of the Rescue Driver to ensure the Rescue Jumper assigned to them is fully capable and they have communicated the intricate details of the Rescue Process for the assigned skier.
3. Under no circumstances is the Pull Boat Driver to ever respond to the client saying "hit it" if the rescue PWC is not in position and ready to go, so quickly getting the Rescue Jumper on the PWC and ready, and getting the PWC in position is an ongoing priority throughout the ski run.
4. Generally speaking the Chase Boat Rescue PWC should be positioned a few feet to the left and slightly behind the skier when prepared to start the ski run.
5. The Chase Boat Rescue PWC should accelerate consistent to the Pull Boat starting speed and maintain a 2-3 second distance from the adaptive skier at all times during the ski run.
6. In order to safely and closely follow a skier with a PWC in the program we must make sure of two things at all times: the first is an **always** and the second is a **never**:
    a. **First, always pace the PWC's distance from the skier so as to be within 2 or 3 seconds of the skier at all times, measured by timing the passage of the skier by a chosen point in the water, and then counting the seconds until the PWC passes that point.** Obviously, the distance will be skier speed dependent….the distance

between PWC and skier at 15mph is much less than the distance between PWC and skier at 25mph. This rule effectively assures the first important safely aspect of the Rescue Driver's role**; the Rescue Jumper must ALWAYS be able to reach the skier within 3 seconds of falling.**

b. **Second, NEVER, NEVER, NEVER point the PWC directly at the skier. Always align the direction of the PWC parallel to the skier's movement, and about 10 to 15 feet to the left of the skier.** Driver judgment must be exercised when the skier crosses the wake to either side, and to keep the PWC maneuverable while in the wake backwash, but the PWC must NEVER be pointed directly at the skier, and must always be pointed in a direction parallel to the direction of the skier. This allows for approaching the skier safely from the left side, and slowing down under throttle-off mode without power (in order to drop the rescuer), without any risk of inadvertently contacting the skier with the PWC. While the PWC is the most efficient vehicle for placing the rescuer in immediate contact with the downed skier, it can also be a very dangerous object should it come in contact with the skier. Think of the PWC as a weapon; used correctly, it protects and saves, and incorrectly, it can injure. This approach assures the second important safety aspect of the PWC's role; never come in physical contact with the downed skier.

7. Skier down:
    a. Quick Release pulled:
        i. The Rescue Driver should be anticipating a skier fall, and perform a pass by the skier immediately after the fall allowing the Rescue Jumper to land in the water immediately next to, but not on top of the adaptive skier.
        ii. Immediately after the Rescue Jumper leaves the PWC, the Rescue Driver should come off the throttle and slowly idle making a wide circle to the left (port) keeping an adequate distance away from the adaptive skier to allow room for the Chase Boat Starter Jumper (Starter Jumper) to enter the water and assist the Rescue Jumper in supporting the adaptive skier.
        iii. The Rescue Driver should be careful not to run over the loose ski rope floating in the water, and should NOT attempt to retrieve the rope for the Pull Boat.
        iv. The Rescue Driver should keep monitoring the progress of the Rescue and Starter Jumpers in the water with the adaptive skier and provide any support necessary, without getting directly involved in the support and preparation (unless needed or requested) of the adaptive skier for reinitiating the ski run.
        v. When the skier is ready to reinitiate the ski run, the Rescue Driver should pick up the Rescue Jumper and reposition the PWC next to the skier prior to reinitiating of the ski run.
    b. No quick release, rope still attached to pull boat:

        i. Generally, the process for the Rescue Driver and Jumper is exactly the same whether the quick release is pulled or not.

8. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. Quick Release skiers (rope connected to ski):
        i. After making the last left (port) turn, the Pull Boat Driver has permission to drive inside (on the right or south side of the wakeless buoys) to facilitate a direct straight path to the start dock. This is also true of the Rescue and Starter Drivers.
        ii. Quick release skiers generally need to be dropped close to the dock by the Pull Boat Driver making a close pass by the start doc and the quick release being timed to allow a person jumping from the dock to support the skier **without letting the skier glide into and striking the start dock.**
        iii. The Rescue Driver and Jumper should treat the skier dropping off at the end of a ski run exactly the same as a fall in the middle of a run regarding process.
    b. Non-quick release sit skiers (skier holds rope):
        i. The Rescue Driver and Jumper should treat the skier dropping off at the end of a ski run exactly the same as a fall in the middle of a run regarding process.
9. After the adaptive skier drops off at the end of a ski run and the Jumper has left the PWC, the Rescue Driver comes fully off throttle to idle speed and slowly makes a wide left (port) turn back to the start dock being careful to avoid the rope that could be floating free in the water and allowing all support craft to clear prior to returning to the start dock.

Things to Look Out For

- Always pace the PWC's distance from the skier so as to be within 2 or 3 seconds of the skier at all times, measured by timing the passage of the skier by a chosen point in the water, and then counting the seconds until the PWC passes that point.
- NEVER point the PWC directly at the skier. Always align the direction of the PWC parallel to the skier's movement, and about 10 to 15 feet to the left of the skier.
- The Rescue Driver should have full knowledge of the skier considerations outlined above for the adaptive skier they have been assigned to by the dock boss and adjust their positioning and proximity to the adaptive skier accordingly.
- It is the responsibility of the Rescue Driver to ensure the Rescue Jumper assigned to them is fully capable and they have communicated the intricate details of the Rescue Process for the assigned skier.

Rescue Driver Validation

- New Rescue Drivers must attend the mandatory dry land and on-the-water training at the beginning of the ski season.
- No new Rescue Drivers will be allowed to support adaptive waterski clients without being "signed off" by a qualified Rescue Driver Trainer.
- Rescue Driver training will consist of:
    - Reviewing the Chase Boat Rescue Driver documentation
    - Practicing dropping a Rescue Jumper to a buoy by making a pass as if the buoy was the fallen adaptive skier to get the timing and path for the PWC down.
    - Providing Rescue to an experienced adaptive skier during the mandatory on-the-water training at the beginning of the ski season.

Chase Boat Rescue Jumper Detail Role Description

Description of Role

The Chase Boat Rescue Jumper (Rescue Jumper) rides on the back of a Personal Water Craft (PWC) driven by the Chase Boat Rescue Driver and is responsible for entering the water and supporting the adaptive skier within 2-3 seconds of them falling during a ski run. As Rescue is only assigned to beginner or less "water safe" adaptive skiers, this role is critical to maintaining the safety of the adaptive skier. A challenge faced by the Rescue Jumper is to enter the water immediately upon an adaptive skier falling, to keep their head above water, while not landing upon or striking the adaptive skier in any way. The Rescue Jumper role is a critical role regarding the safety of the adaptive water skier.

Rescue Jumper Qualifications

The Rescue Jumper must have strong swimming skills, be very comfortable in the water, and be comfortable jumping off a moving PWC under control and able to quickly support an adaptive skier in the water. The Rescue Jumper should have good knowledge of adaptive skier "fit" into a sit ski cage and means to adjust as they may need to provide this support in the water during a ski run after a skier fall.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)
    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower
        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately

        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Rescue Jumper Process

1. The Rescue Jumper should have a discussion with the Rescue Driver to ensure they are on the same page regarding the Rescue Drivers commands, process, and expectations as well as the skier they will be supporting for the upcoming ski run.
2. From the moment the ski run is initiated the Rescue Jumper must be prepared and ready to enter the water as a skier can fall immediately after getting out of the water on the ski.
3. The Rescue Driver will signal the Rescue Jumper to leave the PWC by signaling "jump" or "now" (be sure to be clear on the signal from the Rescue Driver prior to starting the ski run).
4. When signaled, the Rescue Jumper leaves the PWC and should land in the water feet first immediately next to the adaptive skier without landing on or striking the adaptive skier in any way. It is expected the Rescue Jumper will reach the adaptive skier within 2-3 seconds after the skier has fallen. As a result concentration on the adaptive skier at all times is mandatory, and the skier's fall should be anticipated, not reacted to.
5. **After entering the water and reaching the skier, the first priority is to keep the adaptive skier's head above water.** Only after the adaptive skier is stable in the water, should the Rescue Jumper attend to any other issues or requests from the skier.
6. Generally, the Starter Jumper should be entering the water and reaching the skier within 30-60 seconds depending upon when the skier last fell. Until the arrival of the Starter Jumper, the only support person for the adaptive skier in the water is the Rescue Jumper.
7. The Rescue and Starter Jumpers should discuss status with the adaptive skier, get input on the fit, why they fell, etc. to support the skier however needed.
8. As the skier is getting ready for reinitiating the ski run, the Rescue Jumper should anticipate getting back onto the Rescue PWC when the Starter can handle the balance of the skier preparation to be ready for the next run and not cause any undue delays.
9. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. Quick Release skiers (rope connected to ski):
        i. After making the last left (port) turn, the Pull Boat Driver has permission to drive inside (on the right or south side of the wakeless buoys) to facilitate a direct straight path to the start dock. This is also true of the Rescue and Starter Drivers.
        ii. Quick release skiers generally need to be dropped close to the dock by the Pull Boat Driver making a close pass by the start doc and the

quick release being timed to allow a person jumping from the dock to support the skier **WITHOUT LETTING THE SKIER GLIDE INTO AND STRIKING THE START DOCK.**

iii. The Rescue Driver and Jumper should treat the skier dropping off at the end of a ski run exactly the same as a fall in the middle of a run regarding process.

b. Non-quick release sit skiers (skier holds rope):

i. The Rescue Driver and Jumper should treat the skier dropping off at the end of a ski run exactly the same as a fall in the middle of a run regarding process.

10. After the adaptive skier drops off at the end of a ski run and the Rescue Jumper has reached the adaptive skier, the Rescue Jumper and the Dock Jumper need to help the adaptive skier back to the dock, out of the water, and into their wheelchair (if applicable).

Things to Look Out For

- Constant monitoring of the adaptive skier at all times during the ski run to anticipate a fall.
- Do not leave the Rescue PWC until the Rescue Driver signals the Rescue Jumper.
- Be sure to be calm, talk and comfort the adaptive skier while in the water; you are their lifeline and you are there to make their ski run comfortable, enjoyable, and SAFE!
- Is the skier water safe?

Rescue Jumper Validation

- New Rescue Jumpers must attend the mandatory dry land and on-the-water training at the beginning of the ski season.
- No new Rescue Jumpers will be allowed to support adaptive waterski clients without being "signed off" by a qualified Rescue Jumper Trainer.
- Rescue Jumper training will consist of:
    - Reviewing the Chase Boat Rescue Jumper documentation
    - Practicing jumping from a Rescue PWC to a buoy by making a pass as if the buoy was the fallen adaptive skier to get the timing and water entry with the Rescue Driver down.
    - Providing Rescue to an experienced adaptive skier during the mandatory on-the-water training at the beginning of the ski season.

Chase Boat Starter Driver Detail Role Description

Description of Role

The Chase Boat Starter Driver (Starter Driver) is responsible for following behind the adaptive skier and delivering the Chase Boat Starter Jumper (Starter Jumper) to the adaptive skier after a fall. A Starter can be assigned to an adaptive skier with or without a Rescue depending upon the skill level and water safety of the skier. The Starter Driver is primarily a volunteer driving his or her own boat (providing the best level of operating familiarity) they have donated both the use of and fuel for the EXPAND program. The primary boat type desired is a direct drive tournament water ski boat with a large rear view mirror to provide the needed power to catch up to the skier after the start, the smallest possible wake, and good visualization of the adaptive skier at all times.

Starter Driver Qualifications

The Starter Boat Driver should have a minimum of 5-10 years' experience driving a boat while pulling a skier or wake boarder. Intimate knowledge of water safety, boating regulations, Boulder Reservoir boating guidelines, and the handling of their boat under all situations is mandatory.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)
    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower
        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately

        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Starter Driver Process

1. The Starter Driver should have full knowledge of the skier considerations outlined above for the adaptive skier they have been assigned to by the dock boss and adjust their positioning and proximity to the adaptive skier accordingly.
2. It is the responsibility of the Starter Driver to ensure the Starter Jumper assigned to them is fully capable and they have communicated the intricate details of the Starter Process for the assigned skier in their boat.
3. In most circumstances the Starter Boat should be positioned 50-100 feet behind the skier and to the right side of the wake during the ski run.
4. Skier down:
    a. Quick Release pulled:
        i. The Rescue Driver should deliver the Rescue Jumper to the adaptive skier in the water immediately after a fall.
        ii. The Starter Driver should SLOWLY approach the adaptive skier with Rescue Jumper with them on the left (port) side of the boat and have the Starter Jumper enter the water and join the adaptive skier.
            1. In most cases the Starter Jumper enters the water from the left (port) side of the boat or from the rear swim platform.
        iii. After delivering the Starter Jumper to the adaptive skier, SLOWLY make a wide circle to the right (starboard) keeping an adequate distance away from the adaptive skier to allow room for the Rescue and Starter Jumper to assist the adaptive skier.
        iv. The Rescue Driver should keep monitoring the progress of the Rescue and Starter Jumpers in the water with the adaptive skier and provide any support necessary, without getting directly involved in the support and preparation (unless needed or requested) of the adaptive skier for reinitiating the ski run.
        v. When the adaptive skier is set to reinitiate the ski run, the Rescue Jumper will get back on the Rescue PWC and get in position for the start.
        vi. The Starter Jumper will stay in the water and assist the adaptive skier in getting out of the water.
        vii. After the Starter Jumper has successfully gotten the skier out of the water, the Starter Driver SLOWLY approaches the Starter Jumper in the water, TAKES THE CHASE STARTER BOAT OUT OF GEAR, and tells the Starter Jumper to board the boat.
        viii. The Starter Driver then accelerates and catches up to the adaptive skier run in progress.
    b. No quick release, rope still attached to pull boat:

i. Generally, the process for the Starter Driver and Jumper is exactly the same whether the quick release is pulled or not.
ii. In many cases (depending upon skier ability) a Rescue may not be assigned by the dock boss and only a Starter will be assigned. In this case, the process is generally the same, with the Starter Jumper being delivered to the fallen adaptive skier simply to help get the skier ready and assist in their reinitiating the ski run.

5. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. The Chase Starter Boat generally does not participate in dropping off the skier at the end of a ski run and simply follows the skier back to the starter dock from a distance to keep the boat traffic at the starter dock to a minimum.

<u>Things to Look Out For</u>

- The Starter Driver and Starter Jumper should have a discussion regarding protocol in the Starter Driver's boat and make sure they are clear on the communication protocols.
- Approach the adaptive skier in the water VERY SLOWLY with the skier on the left (port) side of the Starter Boat with plenty of safety clearance.
- The Starter Boat should keep adequate distance away from the Starter Jumper (and Rescue Jumper) in the water with the adaptive skier while they are assisting the skier.
- The Starter Boat should always be out of gear when a Starter Jumper is entering the boat from the water.

<u>Starter Driver Validation</u>

- New Starter Boat Drivers must attend the mandatory dry land and on-the-water training at the beginning of the ski season.
- No new Starter Boat Drivers will be allowed to work with adaptive skiers without being "signed off" by a qualified Starter Boat trainer.
- Starter Driver training will consist of reviewing all of the OTW Role Definitions documentation, then delivering a Rescue Jumper to an experienced adaptive sit skier simulating skier quick release, falls, and starts.
- Ideally, new pull boat training will occur in the individuals own boat to facilitate familiarity with handling the boat.

Chase Boat Starter Jumper Detail Role Description

Description of Role

The Chase Boat Starter Jumper (Starter Jumper) rides in the Chase Starter Boat and is responsible for entering the water and working with the Rescue Jumper (when applicable) assisting the adaptive skier, then assisting the adaptive skier in getting up on the ski by dragging behind to stabilize the skier until they are out of the water.

Starter Jumper Qualifications

The Rescue Jumper must have strong swimming skills, be very comfortable in the water, and be comfortable jumping out of a slowly moving boat under control and able to support an adaptive skier in the water. The Rescue Jumper should have good knowledge of adaptive skier "fit" into a sit ski cage and means to adjust as they may need to provide this support in the water during a ski run after a skier fall. The Starter Jumper cannot be too large (heavy) an individual as it could put too much strain (pull) on the adaptive skier while getting up at the beginning of the ski run.

Skier Considerations

- Skier ability:
    - Outriggers (first time skier, non-water safe skier; rope attached to ski and/or held by skier)
    - Kanski (large sit ski for beginner sit skier; rope attached to ski and/or held by skier)
    - Wakeboard sit ski (more advanced sit skier; rope attached to ski and/or held by skier)
    - Standup skier or wake boarder (rope held by skier)
- Skier comfort level / experience:
    - First run?
    - Water safe?
    - Overall comfort level with expected run?
    - Disability considerations
- Skier communications
    - Skier knows needed hand signals and verbal commands:
        - Verbal " hit it" by skier (or starter) when ready for pull boat to start the run
        - Thumb up to go faster
        - Thumb down to go slower
        - Pat top of head to return to start dock
        - Slash neck to stop the boat immediately
        - Hands up after fall for everything OK
        - OK signal for everything is OK
    - Skier knows expected number of laps

Ski Run Starter Jumper Ski Process

1. The Starter Jumper should have a discussion with the Starter Driver to ensure they are on the same page regarding the Starter Drivers commands, process, and expectations as well as the skier they will be supporting for the upcoming ski run.
2. Depending upon the adaptive skier ability, a Rescue may or may not be assigned in addition to the Starter. If there is no Rescue assigned to the adaptive skier, the Starter Jumper will be the sole person assisting the adaptive skier in the water after a fall.
3. When signaled by the Starter Driver, the Starter Jumper enters the water and should land in the water immediately next to the adaptive skier without landing on or striking the adaptive skier in any way.
4. Only after the adaptive skier is stable in the water, should the Rescue Jumper attend to any other issues or requests from the skier.
5. Generally, the Starter Jumper should be entering the water and reaching the skier within 30-60 seconds of the fall depending upon when the skier last fell.
6. The Rescue (when applicable) and Starter Jumpers should discuss status with the adaptive skier, get input on the fit, why they fell, etc. to support the skier however needed.
7. When the adaptive skier is in the ski and ready to reinitiate the ski run, the starter should position themselves behind the skier holding on to the ski cage (NOT THE SKIER) and drag behind the skier as the Pull Boat starts until the adaptive skier is up and stable.
8. End of ski run (typically two laps around lake unless skier is assigned or signals for shorter run):
    a. The Chase Starter Boat generally does not participate in dropping off the skier at the end of a ski run and simply follows the skier back to the starter dock from a distance to keep the boat traffic at the starter dock to a minimum.

Things to Look Out For

- The Starter Driver and Starter Jumper should have a discussion regarding protocol in the Starter Driver's boat and make sure they are clear on the communication protocols.
- The Starter Jumper should not leave the Starter Boat until the Starter Driver signals the Starter Jumper.
- Be sure to be calm, talk and comfort the adaptive skier while in the water; you are there to make their ski run enjoyable, comfortable, and SAFE!
- The Starter Boat should always be out of gear when a Starter Jumper is entering the boat from the water.

Starter Jumper Validation

- New Starter Jumpers must attend the mandatory dry land and on-the-water training at the beginning of the ski season.
- No new Starter Jumpers will be allowed to support adaptive waterski clients without being "signed off" by a qualified Starter Jumper Trainer.
- Starter Jumper training will consist of:
    - Reviewing the Chase Boat Starter Jumper documentation
    - Providing Starter support to an experienced adaptive skier during the mandatory on-the-water training at the beginning of the ski season.