

TOW SURFING GUIDELINES for 'User Etiquette'

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Introduction

Shawn Alladio has been operating Personal Watercraft since 1979. She entered her first competition in 1980, and became a professional IJSBA Racer in 1989, subsequently at that time she began training racers, and occupational users in Southern California, under her program name: Watercraft Awareness Safety Program. .

Due to Chuck Koontz's leadership in organizing a water patrol at Snug Harbor in 1979. Brad Southworth, Steve Strickland, Ronny Kling and Paul Peloso were the first generation of PWC rescuers using Kawasaki Jet Ski stand ups. Shawn learned about the value of rescue techniques also being rescued herself at the races and subsequent hospital trips from racing injuries. Alladio also performed many rescues herself while recreationally riding on various waterways in California, Arizona and Nevada in the early days.

In the beginning of the 90's Shawn was asked by Kawasaki to assist in a Wave Ranger program as an instructor and consultant. Shortly thereafter K38 Water Safety was organized to compliment the new PWIA Law Loan Program for Public Safety Agencies.

K38 Water Safety is now run by Shawn's daughter, Kyla Dominguez, who is the second generation PWC boating, Kyla was raised in the racing and promotional atmosphere of her mother's projects! K38 Water Safety and it's students have benefited from PWC Manufacturer support for over 16 years! Shawn was introduced to the Big Wave Surfing arena in 1998 through Gary Linden, and subsequently has taught many tow surfers from different countries to date.

Yamaha Motors Corporation has sponsored K38 for over a decade with Waverunners to train public safety agencies such as lifeguard, fire rescue, search and rescue volunteers, law enforcement, and Federal agencies such as various special waterborne divisions of the USMC and USNavy, USCG personnel, USCG Auxiliaries, Federal lifeguards, and Law Agencies. Through K38 Water Safety, various state boating law administrators have produced PWC guidelines for occupational and recreational use, including international training programs!

Highlights of Tow Surfing

Tow Surfing or Tow-In Surfing is a modern water sport that was developed by the creative efforts of Laird Hamilton and Strapped Crew surfers in Hawaii in the early 90's. Tow Surfing can be attributed to similar sports such as wakeboarding, surfing, and waterskiing, whereas a person is towed behind a vessel utilizing an extension rope with a grab handle, and standing on an aquaplane device, including the foil boards which has been experimented by the Strapped Crew for the past several years, and products that will come in our near future as the concept evolves.

Tow Surfing derived from the desire of Big Wave Surfers who wanted the ability to safely power surf larger waves that were breaking on outer reefs and typically incapable of catching due to their size and current surfboard construction. The size of these waves generally tracked towards land at faster rates than could be paddled into by 'Guns', surfboards designed for larger waves. Laird and his partner's utilized technology and background products from windsurfing, and surfing which created specialized tow boards with foot straps, weighted trim, and size for speed.

In the early days, tow surfers also experimented with vessels for towing, beginning with small inflatable boats propelled by outboard engines; small jet powered boats and graduated towards the use of Personal Watercraft (PWC). Personal Watercraft quickly became an ideal tow surfing platform for the new sport due to their ability to capsize and easily be righted and get back underway, maneuverability and high speeds that could track along with the larger swell speed.

The tow surfing boards and Personal Watercraft merged as the platform of this new high impact extreme immersion sport. Technological advances in vessel designs and accessory equipment, such as foil boards, will take horsepower and water sports to new levels in the coming decades. Unfortunately, the founding fathers of this sport were using the wave energy in excess of 40 foot waves, newcomers are training in small waves at shore breaks which are creating a lot of concerns and conflicts with governing authorities, leading to bans, closures and community discord.

Tow Surfing Growing Pains

Our global expansion of population and encroachment on waterway use and management, complimented with safety issues for water users and product manufacturers combined with boating laws and regulations forces us to take action in respect to this new boating and surfing related activity. Education and enforcement will lead to safer users and reduce user conflicts in high density zones, and create competent

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measures that protect this new sport which is being embraced worldwide. Currently, in Hawaii, where Laird and his friends first towed into large waves, has embraced tow in surfing as a regulated sport in the United States. Hawaii is the sole big wave locale to permit tow surfing as a viable sport with mandatory education and government support through the DLNR (Division of Land and Natural Resources).

The description reads: "Ocean Safety Educational and License Requirement Course", the new tow surfing law goes into affect on September 1, 2004. This includes both residents and visitors from other countries and accommodates various rules and regulations. For more information on the Hawaiian program, contact: Jim Howe 808-922-3888

The Power of Our Future

This guidebook is designed to assist users and observers with the basic courtesy and fundamentals of Tow Surfing Etiquette as it applies to boating safety issues. This outline tries to touch on both four stroke and two stroke technology, please refer to your owner's manual for proper guidelines relative to the suggestions listed in this hand book. All information in the Hand Book has been applied from using California Boating Law, check your local laws and regulations for accuracy in your region. Education will enhance all water way users in staying safe and enjoying the beauty of our World's Oceans. With respect generated through knowledge, discipline and understanding we can collectively ensure future generations the privilege to enjoy the pleasures those of us are enjoying today!

Respectively,

Shawn Alladio
International Surfing Association (ISA)
Water Safety Director

BRIEF PWC BACKGROUND HISTORY

In the 1960's the type of Personal Watercraft we enjoy today had a brief production run with a Bombardier Sea Doo model that was not received favorably by the public at the time, interestingly Bombardier remains an industry leader in current sales. This product was a sit down model of yellow and black coloring. Clayton Jacobsen was the original creator; he took his idea back to the drawing board and created the first stand up prototype which he believed the public would embrace. The design consisted of a fixed handle pole aluminum personal watercraft; it was a stand up device that his son, nicknamed CJ3 was one of the original pilots in the early days at San Pedro California and the Colorado River. Kawasaki Motors Corporation entered into a licensing agreement with Clayton and obtained the patent rights to the product that Kawasaki appropriately named the 'JET SKI' in 1977. This trademark name is what operators commonly refer to as Personal Watercraft (PWC). A personal watercraft is a BOAT!

Kawasaki assisted in creating the first association called the United States Jet Ski Boating Association. They hosted the first JET SKI races at the Dunes in Newport Beach California, and Snug Harbor, and subsequently hosted a publication called JETSKIER. Through the leadership of Chuck Koontz, the first rescue application at the races was implemented using Jet Skis. Years later the USJSBA was changed to the International Jet Sports Boating Association (IJSBA), and the publication became JETSPORTS.

When the Kawasaki patent came up 17 years later, Kawasaki had introduced the world to the newest recreational boating sensation and created several different 'types'! Other manufacturer's soon became interested in this new boating technology; Yamaha introduced their product line titled WAVERUNNER, with a sit down vessel for 1-2 operators in 1989. Soon, Tigershark from Artco, makers of the popular snowmobiles Artic Cat created their production line. Polaris, Thunderjet, Ultranaotics, Honda and others have or are currently producing their product lines. In 2004, Polaris announced their exit from the PWC production community.

Local legislative issues become a growing concern in the 90's; the American Watercraft Association (AWA) was formed as an affiliate to the IJSBA to addresses education and information for members in the legislative arena. The IJSBA has affiliates in 40 countries worldwide and hosts regional and international racing sanctions. The IJSBA used to promote a National Tour and a World Championships, but in 2004 it became solely a governing body and the publication once again changed to RIDE Magazine.

The newest boating technology brought with it new problems on the waterways, operators who had little boating education or backgrounds began to purchase the craft and local issues began to become vocal community concerns. Personal Watercraft now number approximately one and a half million units in the United States, and many of the growing pains were associated with multiple users. These issues were not a

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problem for other boaters as the owner operator was typically the only person manning the helm. As community concerns were voiced, the manufacturers complied with the changes in noise reduction, environmental concerns, and education.

The Personal Watercraft Industry Association (PWIA) was formed under guidance of the National Marine Manufacturers Association (NMMA). The year 2002 was the first production year introducing the four stroke technology to consumers, this came about due to the MTBE Fuel Additive and a precedent was set at Lake Tahoe California to reduce emissions on 2 stroke technology. Consequently, worldwide production influence is determined in the United States; four stroke technology is just now being introduced in sales rooms globally and will be the sole source of PWC engine production in the future, which gives a tremendous environmental boost.

Over the years there have been offshoot products that come under the Personal Watercraft description, such as jet pump powered surfboards, and underwater diving scooters. Here are some of the representative company names: Sonic Jet, Power Jet, Motorsurf, Monojet, and Power Ski just to name a few less popular products, some still in production, and some no longer in circulation.

Enforcement, standards, and boating education programs have complimented this new boating community, both occupationally and recreationally through the efforts of the National Association of Boating Law Administrators (NASBLA) and the National Safe Boating Council (NSBC). K38 Water Safety and other organizations have produced various courses. The first was the Wave Rangers, which was the primary PWC Training company in the early 90's. K38 has been working with the California Department of Boating and Waterways since 1993 for every single PWC platform, or training project in the State, and with other boating law groups, either recreationally or for law enforcement or lifeguard/fire/military/racing training. The PWIA has had a free law loan program in the United States in affect for over a decade and has saved thousands of lives and property with these unique small Class A vessels, which we refer to as Personal Watercraft.

Definition of a PWC 'Vessel':

USCG: Class 'A' vessel less than 16 feet in length. A personal watercraft (PWC) is a small vessel that uses an internal combustion engine powering a jet pump or propeller. It is designed to carry from one to four persons, and to be operated by a person sitting, standing, or kneeling on the vessel rather than in the conventional manner of sitting or standing inside the vessel. The use of a PWC is subject to all state, local, and federal regulations governing the operation of all powerboats of similar size.

Note: The State of Hawaii refers to PWC's as "Thrill Craft"

Definition of Tow Surfing:

PWC Operator/athlete sometimes using a towable rescue board attached to the stern deck; with a determined length of towable line with a grab handle. The PWC operator and athlete must wear USCG Approved lifejackets appropriate for use/properly fitted. The athlete is 'surfing' a unique design board (aquaplane device) that incorporated size/weight/foot straps, sometimes with leash attached. Operator will tow athlete into a peaking large wave face prior to plunging. Athlete will release the grab handle/line and free surf the wave energy, using the speed of the vessel to match the speed of the wave. Tow Surfing was created when waves became too large to 'paddle surf' by the Strap Crew on Maui. Oftentimes this type of activity was generated by the size of the wave face at above 40feet or more when paddle surfing was not optional.

You are a boater first, a tow surfer second

Basic Tow Surfing Requirements:

- Surfing Ability in large surf
- Strong swimming ability
- Boat Education/knowledge
- Team work/communications/equipment familiarization
- Knowledge of boating laws/regulations or necessary education/licensing as applicable

IMPACT: Negative - /+ Positive

- Environmental
- Public Opinion
- Abuse: Laws/Regulations
- Other waterway users: Surfers/bathers/windsurfers/kite surfers

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- Access/Launching/Retrieval
- Emergency Plan
- Media Exposure-Positive/Negative-Image-Sponsors-Public
- Migration of Sport-Sanctuaries/laws/zones/license/insurance/logistics

SAFETY-RESPECT-RESPONSIBILITY-KNOWLEDGE= 'discipline'

A. Personal Accountability

B. Ignorance is not above the Law

C. Self Rescue-First Aid-Communication

ENVIRONMENTAL CONCERNS-FUEL AND OIL CONTAMINATION (boating related issues)

New Technology, Low Emissions Engines- In 1996, the manufacturers of marine engines agreed with the EPA to reduce engine emissions. By 2006, the recreational watercraft fleet (including PWC) will show a 75 percent reduction in emissions. In California, the California Air Resources Board stepped up the strict EPA rules by five years. But the PWC manufactures are not waiting until the last minute. In 1999, five PWC were already available with reduced emissions (at least one model meeting EPA 2006 emission standards). The future promises to see the introduction of even more new technology, low emissions PWC.

These new technology engines are cutting the already low emissions rate of modern PWC. The EPA Certification information included in this kit shows that PWC emissions are not higher than similar horsepower marine outboard engines. Information from the EPA also shows that the new technology PWC engines are among the cleanest in the marine industry

Methyl Tertiary-Butyl Ether (MTBE)-MTBE is a gasoline additive used in reformulated "cleaner-burning" gasoline. In essence, it is an oxygenate added to gasoline all over the country in order to reduce smog emissions from combustion engines. The additive is used to lower smog emissions in population centers in order for the areas to qualify for federal highway funds. In fact, the Environmental Protection Agency required its use in urban areas with smog problems.

But while MTBE can help engines burn fuel more efficiently, the additive passes through the engine has an unwanted side effect: it mixes readily with water and unlike other fuel chemicals MTBE does not evaporate quickly.

Studies show that MTBE evaporates at a rate at least 10 times slower than other fuel byproducts, making water contamination by MTBE a real problem. The Environmental Protection Agency lists MTBE as a possible carcinogen and small amounts of the chemical can foul drinking water. Today, federal environmental officials consider MTBE to be a real problem. It is proving more difficult to clean up and more toxic than experts first believed. Because of this, many states are now adopting MTBE bans and the Environmental Protection Agency announced in March of 2000 that it would phase out the chemical.

MTBE is in most gas station (pump) gasoline, and as such, is used by most recreational boaters. PWC do not create MTBE and unlike the claims of detractors, do not "inject" it at any greater rate into the water than do similar horsepower "traditional" boats. While PWC are often under way for greater periods at a time, they only represent 10-20% of the recreational boats on the waterway. All two-cycle powered boats utilize virtually the same technology (not withstanding the new technology boats that are being introduced today).

But recreational boating is not the leading source of MTBE pollution. Instead, leaking underground gasoline storage tanks at gas stations is the number one polluter of freshwater reservoirs. For example, the city of Santa Monica, California, can no longer use its own drinking water because of MTBE contamination. There are no recreational boating lakes in Santa Monica – all If the drinking water is garnered from underground aquifers. The MTBE contamination was due solely to leaking gas storage tanks, not recreational boats. The AWA has aggressively lobbied in favor of MTBE bans. In California, for example, the AWA supported an MTBE "phase-out" that was introduced in 1999. The AWA has also aided reservoirs in distributing materials about where to obtain fuel that is not laced with MTBE in order to reduce levels of the carcinogen in the reservoirs.

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The California Department of Fish and Game has a division titled The Office of Spill Prevention and Response (OSPR). This division was created by the Lempert-Keene-Seastrand Oil Spill Prevention and response Act of 1990, due to the oil tanker Exxon Valdez spill in Alaska and the impact environmentally. California State alone has 1, 100 miles of coastline, that OSPR's support prevention, contingency planning and response to oil and fuel spills of various sizes. Other regions have similar programs in effect.

In 1990 the Federal government passed the Oil Pollution Act of 1990 (OPA 90), the emphasis was on prevention. Oil is referred to in all its forms, heavy crude to lube oil, 2-stroke engine oil and refined gasoline, jet fuel diesel or other.

All Oil and Fuel Spills need to be reported to the following agencies:

- Cal TIP 9(Californians Turn in Poachers/Polluters), also spill reports 888-DFG-CALT (334-2258)
- U.S. Coast Guard: 800-424-8802
- State Office/Emergency Services: 800-852-7550
- Pacific Coast (CA, OR, WA, B.C. and AK) 800-OILS-911
- Oil Recycling Hotline: 800-CLEAN-UP

Information needed for reporting:

- Name and telephone number of caller
- Location of spill
- Estimate on size
- Hypothesis of the possible contaminant
- Time of day
- Any witnesses or identification whom caused the spill
- Any observance of activity at spill site

Oil can coat bird's feathers and mammals fur even in small amounts. This can destroy their natural insulation from the cold. Birds that get oil on their feathers will preen themselves to be rid of it, and ingest the oil, which is usually fatal. Many contaminated birds die from hypothermia, due to their feathers being matted destroying their ability to retain warmth. If nesting, birds will get oil on their eggs which will destroy them.

Sensitive shorelines organisms such as crustaceans; or mollusks may die off. Those that are not killed outright accumulate toxic elements of the oil, which moves up the food chain to larger animals like birds, fish and mammals. This can lead to reproductive damage.

Oil is also found naturally in the environment as well, and is not always attributed to a spill. Due to oil's high dispersion factor, small fueling spills and bilge pump discharges can poison large surface areas. A combination of thousands of boaters discharging small amounts of petroleum based products can be damaging.

- 90% of oil in marine waters is from smaller chronic sources from bilges, outboards motors, fueling procedures, urban run-off and improper disposal of oil products.
- One gallon of used oil dumped in a million gallons of water will kill half of all exposed Dungeness crab larvae, and will pollute more than 250,000 gallons of water.
- Otters and other mammals lose insulation when coast with oil and suffer from hypothermia, lung, liver and kidney damage, or loss of life.
- Shellfish and fish are sensitive to small amounts of oil. Oil mixed with detergent coats their gills, causing respiratory difficulty, or suffocation. Ingestion can be lethal.
- Oil products are toxic to humans, they contain Benzene, Toluene, Ethylbenzene, and Xylenes (BTEXes) which can enter the bloodstream through skin or inhalation. Toxic effects on the central nervous system, liver, kidneys and bone marrow may occur.
- Inhaling BTEX vapors from spilled diesel or gas can result in headaches, dizziness, nausea or drowsiness. Skin contact can create a rash or burn. Prolonged contact can cause headaches, weakness, fatigue or loss of appetite. BTEXes can irritate or damage eyes, use protective gear around spills to protect your health.

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- Never use soap or detergent to clean up a spill. Soap does not dissolve oil; it breaks it into small droplets, forces them deeper into the water and adds a second toxin to the marine environment.
- Always allow 5% fuel expansion in your fuel tank for refueling, do not overfill.

Air & Water Quality Testing Various special interest groups have made wild accusations regarding the amount of pollution attributable to PWC. In one such “study”, the Izaak Walton League claimed “PWC’s in the United States spill 15 times more oil into waters each year than the Exxon Valdez.” The quote was accented by a picture of a crude-oil soaked bird, killed by the spill in Prince William Sound.

The graphic portrait painted by the authors of the report is indeed grim, but does not apply to PWC at all. The Valdez spill involved 11 million gallons of raw crude oil, but PWC do not use crude oil at all, but run on a mixture of gasoline and refined motor oil (approximately 50:1). In addition, the source cited for the statistic, *Polluting for Pleasure*, contains nearly decade-old estimates of the total volume of oil and hydrocarbon emissions of all two-cycle marine engines in the United States. The book does not mention – let alone estimate – the emissions of personal watercraft. Putting aside questions on the validity of the author’s estimates, it is self evident that PWC emissions only account for a fraction of all two-cycle marine engine emissions. Yet the report falsely attributes the total estimated volume of such emissions to PWC alone.

The United States Environmental Protection Agency (EPA) examined marine engine emissions in 1996. At that time, the EPA desired to regulate marine emissions in order to cut the amount of

- All marine engines account for only 3 percent of the total hydrocarbon emissions in the United States. Automobiles account for 33 percent, gardening equipment and other non-road sources for 7 percent and other sources including industry account for 57 percent.
- The impact of the exhaust from marine engines on the water was not large enough to warrant additional regulations to address water quality.

The EPA found that two-cycle engine emissions did not have a great effect on the marine environment because any fuel that did mix with the water quickly evaporated afterwards. It did not remain in the water and did not form “oil slicks” or films on the water. While it is true that some unburned fuel does pass through two-cycle engines, this fuel is in a gaseous state and is superheated by the combustion process. The fuel is not “dumped” or “spilled.”

- Oil and fuel are considered Hazardous Materials and a contaminant to our environment if spilled.
- Federal Pollution Act states that even a small amount of oil accidentally spilled can rapidly spread over a large area, you are responsible for clean up costs, and correcting any environmental damage created by your spill, under the California Oil Spill Prevention and Response Act of ‘90
- Use a ‘suck up’ bib while fueling or oiling your PWC!
- Fuel your boat on the trailer, not in the water
- One pint of oil can create an oil slick covering approximately one acre!
- Non-native aquatic species are invading many waterways! Check your intake of your jet pump and exit of your steering nozzle for any invasion species either animal or plant life. Flush your boat and drain the interior compartments prior to leaving one zone to travel to another, especially for long transports, and wash your PWC thoroughly.
- Gasoline vapors are more explosive than dynamite, ventilate compartments and check fuel lines prior to starting PWC. Do not smoke cigarettes near boats! Ground fuel tanks while fueling
- Avoid overfilling your PWC with gasoline, take notice of how much fuel is needed first.
- PWC’s cannot be driven into kelp beds, resulting in the water jet pump intake system becoming clogged with debris and rendering the PWC inoperable, and can cause severe damage to the jet pump drive system.

WILDLIFE and HABITATS

The Effect of PWC on Wildlife-PWC critics often try to show that there is a difference between boats and their effects on wildlife. However, the most recent studies show that there is no difference between PWC and other boats – except with regard to manatees. Every study includes a recommendation of a buffer zone for all boats in order to protect wildlife from disturbances. The AWA and the Personal Watercraft Industry Association support buffer zones for PWC.

Waterfowl & Flush Distances-The Florida Fish and Wildlife Conservation Commission conducted the most recent study on the effects of boats on water birds. The study found that “eleven of the 17 species comparisons showed no significant difference in the flush distance between the approach of a PWC and an outboard-powered boat. Despite their reputation for noise and wildlife disturbance, the direct approach of a PWC rarely elicited a greater flush distance. Rather, when there was a significant difference in flush distance, the conventional outboard-powered boat most often exhibited the larger flush distances.”

The report noted that “both PWC and outboard-powered vessels have the potential to disturb foraging and loafing water birds” and that the “data collected during this study on flush distances suggest that a single buffer zone distance should be developed for both PWC and outboard-powered vessels.

Another oft-cited study on flush distances is the Effects of Motorboats and Personal Watercraft on Flight Behavior Over a Colony of Common Terns by Rutgers University in 1998. The study also compared PWC and conventional motorboats and their effects on birds, and concluded “personal watercraft should be managed to reduce disturbance to colonial-nesting species by eliminating them within 100 meters of nesting colonies and restricting speed near such colonies.

James Rodgers, a wildlife biologist with the Florida Game and Freshwater Fish Commission stated the same. He states, “a 150 yard set-back is actually a huge distance when measured in terms of a buffer zone.”

All the above studies suggest that a buffer zone for all boats is the solution to problems regarding water birds and recreational boats. The AWA supports any efforts to establish reasonable buffer zones to protect water birds from undue disturbances.

- Be careful of low flying birds, avoid collisions by reducing speeds and taking evasive maneuvers
- Shallow water habitats and near shore/inshore zones of feeding/nesting for waterfowl, keep a safe distance from sensitive areas
- The Marine Mammal Protection Act of 1972 states that you must stay at least 1,000 feet away from any marine mammal. Do not harass wildlife, large fines and imprisonment can result
- Use due caution with migratory marine mammals such as whales and birthing or mating seasons, including seals which may become aggressive or protective
- Observe seasonal changes with wildlife either shore based or water zones
- Be careful of ‘jumping fish’ that can cause injury to your while underway by hitting your face/chest.

COMMUNICATIONS FOR SAFETY or EMERGENCY PURPOSES

Terminology the Personal Watercraft (boat)

1. **PWC**-Personal Watercraft (commonly referred to as Jet Ski)
2. **Rescue Board:** Towable ‘litter’ attached to the stern of the Waverunner with a quick Release 3 point attachment, affixed grab hand holds, foam construction.
3. **IRB**-Inflatable Rubber Boat (RUBBY DUCK): Powered by a Yamaha 50 horsepower 2 Stroke outboard engine (propeller) affixed to the transom, (orange)
4. **Operator:** Person who ‘drives’ the rescue boat
5. **Rescuer:** Person who is the crewmember that assist the operator on the PWC or rescue board
6. **“CLEAR”:** Verbal signal stated prior to starting or getting underway with PWC
7. **Pick-up:** When you are being assisted from the water onto the boat, or the rescue board.
11. **EMERGENCY:** Operator will tell you where to exit either rescue board/boat-Act Fast!

HAND SIGNALS/VERBAL COMMANDS

- Hand (right or left) held high above head to signal for assistance. In case of injury, watch for any visible signs of struggle

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- Tap the top of your head with hand: If you are "OK" and do not need assistance
- You may hear 'whistle' blasts warning you for hazards or direction of travel
- "CLEAR" This word will be used when you are ready to get underway or start your PWC
- Hand Signal Underway-Follow direction of travel, observe directions/voice/hand commands/warning
 1. Speed up: Thumb pointed towards sky
 2. Slow Down: Thumb Pointed towards water
 3. Right turn: Hold hand out towards right side
 4. Left turn: Hold hand out towards left side
 5. Continue: Hold hand up and motion in circular direction
 6. Numbers of Waves: Hold up number of waves you wish to wait for while being towed

BROKEN OR LOST BOARDS

If you have broken a surfboard, or lost a surfboard in the impact zone, the board should be searched after your safety is ensured. Depending upon where your position is in relationship to the wave or the set waves, it may be too hazardous for immediate board retrieval, remember your safety is priority number one, a surfboard can be replaced, but you cannot!

BOARDING a VESSEL

When boarding a PWC, please board as best as possible from the 'rear' stern section, using the 'centerline' of the boat for stability, it is more hazardous in dynamic water to board from port or starboard, due to the V-bottom stability and size of craft. Use the grab handle(s) on boat/rescue board, and/or hand assist if used by Operator. For the IRB, boarding will be in a rolling/crawling direction opposite side of the operator towards the forward bow section, use grab handles/hand contact with crewperson.

DISMOUNTING

Always use the word 'CLEAR'. Do not dive headfirst off of any boat. ALWAYS be cautious near stern of boats, watch for prop/jet thrust 'wash'. Watch 'stern swing' of vessels/drift. Always protect your face with one or both hands, watch direction of travel of both water action and boat. Do not throw surfboard into the wind, watch swell/current/wave action for leashes, drifting back towards boats.

RESCUES/ASSISTS

A rescue can have different aspects to the approach and execution. Listed below are some probable/possible concerns and recommendations to better assist you. Remember, that a rescue is a very dynamic situation, many factors channel into the decision making process that you may not be aware of from your standpoint. Your PWC or those of others rendering assistance can fail under certain circumstances; be mindful that SELF RESCUE is always the PRIMARY GOAL FIRST! Never become completely dependant upon assistance, there can be many other issues contributing to the timeframes and response in relationship to your position/location and weather/water conditions.

If the PWC is coming directly at you when in the water, there is a bow wake that momentarily impairs your vision or airway, keep your hand (right or left, depending upon side of vessel contact) high above your head as this wake washes into you. The rescuer or operator of the PWC will be yelling for a specific hand contact, either right or left, or they will direct the rescue board to your position. Slide your surfboard under your stomach if you are facing the PWC, and the PWC is on your left, hold up your left hand for instance. The hand grip is a firm hand 'lock'; you will be passed to the stern section for re-boarding onto a seat, rescue board.

HAND CONTACT from PWC Operator

- Right Hand to Right Hand (Operator/rescuer-Athlete)
- Left Hand to Left Hand (Operator/rescuer-Athlete)
- Stern re-boarding on PWC-Operators hand on backside of your body, swinging you face – down on the stern seat.
- Port or Starboard-Operator/rescue hand on backside of your body, swinging you over gunwale onto the PWC seat or rescue board
- OTHER: Wrist to Wrist, Elbow lock, Body Grab, Body Drag, Armpit, strap of PFD or wetsuit

PWC and the Use of a RESCUE BOARD

- Watch for foot/hand entrapment on grab handles. Keep hands on top of handles, do not wrap hand grip underneath.
- Keep feet/arms inside grab handle perimeter.
- Keep your head off-sides to port/starboard. The direction that your head faces, your body will follow. Do not allow your head to come in the 'zone' behind the stern seat/cleat/anchor zone, in case the rescue board hinges up or down, do not get pinned.
- Keep your hands/fingers away from the bow section of the rescue board that comes in contact with the stern deck of the PWC.
- Keep fins of your surfboard pointing downward to water, Fins pointing skyward can be hazardous resulting in serious injury or death if impacted from blunt force such as falling on the deck or off the seat going through a wave.
- Observe contact with exhaust; be mindful of carbon monoxide emissions, dizziness, nausea, and headache.
- If you utilize a leash and your surfboard is trailing behind you and the leash is attached to your leg, reel in the surfboard by pulling on slack of leash, allow surfboard to track behind you with firm grip on the leash. Do not allow surfboard to 'spring-shock load' board/fins back into your body.
- DO NOT wrap excess leash or tow line around your hand/foot/wrist. Entrapment and load placed upon surfboard end can create serious injury, amputation or strangulation.
- Use/trust your instinct, if a situation appears to place you at risk, make your decision and execute that confirmed decision. Always place your safety concerns as priority. BE mindful of the jet thrust from the steering nozzle located directly at the stern section of the PWC and the stern end of the rescue board. This is a powerful streaming force of water being directed through a nozzle which forces the water to stream from the stern. This hydrology can damage your body with orifice tearing depending upon the angle/throttle application, keep mouth/eyes closed when exiting from stern at 'speed'.
- Center your body/board placement to the 'centerline' of the boat/rescue board. Make sure you bend your head slightly off to port or starboard.
- Do not drill any holes in a PWC that is under manufacturer warranty, or you will void it.
- Do not add extra cleats to the hull of the PWC, where skull or bone fractures, facial lacerations, or impact with the added cleat will result. The PWC manufacturers have designed their safety features for a positive reason; do not alter your safety components. The manufacturers have placed these tow cleats in an area of the craft that displaces the jet pump and trim of the PWC appropriately, altering this can lead to injury/accidents or damage to craft. Any cleats added on an 'angle' will not distribute the load efficiently and may pull out.
- Make a bridle out of webbing to connect the rescue board appropriately to the stern section of the PWC, use a 3 point attachment system.

VESSEL CAPSIZE

If a PWC/IRB capsizes, follow necessary righting procedures as recommended by the manufacturer. Be careful of the transom on the IRB and coming in contact with your body on the Outboard Engine! If you are helping right the PWC, do not get your fingers pinned in the intake screen, between the metal bars. Do not block access for operator to re-board. Try to not place your body in front of water action, do not get pinned. Be aware of any floating lines/leashes, do not get wrapped. In case of injury, remain calm, do not panic, save energy, keep moving, keep thinking! Keep your body port or starboard of the PWC, but never behind or in front of the oncoming wave action and the PWC!

LEASH/ATHLETE WRAPS

If two or more athletes become 'wrapped' after a fall with their boards/leashes, it is far too hazardous to place a PWC with people tied together, PWC's have a WEIGHT load limit. Athletes must first free themselves from the leashes/boards before direct contact can be completed, or operator will have to wait until the athlete and equipment washes through the impact zone into less dynamic water to untangle or cut free.

NOTE: No CPR or C-spine applications will be undertaken in the 'impact zone' or hazardous water conditions. Depending upon circumstances, it may be difficult to render immediate assistance, delays can be expected.

TOW LINES

There are many safety issues concerning the use of tow lines for the PWC and the athlete

International Surfing Association Water Safety Guideline

- a. The line attached to the stern cleat of your PWC, varies in length depending upon user, with a grab handle for the tow surfer to hold onto, then release when matched with the appropriate wave action for two surfing.
- b. The tow line pre-attached to the Stern cleat section, in 15' lengths (2 or 3 can be combined to lengthen as needed). This is used when the PWC needs assistance and can not be operated under its own power
- c. Bow Strap-Loop of tubular webbing or rope to fasten tow lines to, this can be cut in an emergency for quick release or disconnection, allowing PWC towing vessel to retain their tow line and rigging.
- d. Color of line, preferable 'yellow' for high visibility
- e. Thickness of the line: 2" thickness to reduce clearance of the PWC Intake screen, if driven over, even at an idle, the line can be sucked into the jet pump intake causing serious damage or reduced operations of the PWC, placing both athletes at risk
- f. Strength Rating: The line needs to have a rating to be placed under a load for pulling a person's weight, their personal gear, and their board.
- g. Quick Release attachment to stern cleat of PWC, using stainless steel weight rating for placing under a load, must be able to release in an emergency
- h. No knots allowed in line
- i. If frayed, or torn, separating filaments, replace immediately
- j. Do not store near flammable materials, sunlight, and exhaust fumes or in water, wash and air dry.
- k. Check stainless steel hardware attachments for stress fractures; make sure all hardware has 'locking' gates for safety!
- l. Be careful not to 'wrap' line around neck, hands, arm, legs, or any body part or extremities that can result in burns, rashes, lacerations, or amputations when placed under a load and tension is put against the body part and the PWC forward thrust.
- m. Do not use your tow lines for lashing down gear, place in a mesh bag when not in use, and preserve the integrity of the fibers and strength. Replace as needed.
- n. When towing a downed PWC or a tow surfing athlete, slowly apply throttle tension to bring up the tension on the tow line; do not impact athlete or PWC by using too much throttle and creating a jerking 'motion'. You can stress the attached tow cleat and damage the hull of the PWC, or damage the engine by placing too much stress on the drive train.

BOATING SAFETY RULES AND REGULATIONS

Boating laws, rules and regulations can overlap several layers in one zone of water way use! Ignorance is not above the law; you are required to know all applicable laws and regulations! There is no excuse if you are operating a motorized vessel. In the US, State boating laws incorporate Federal navigational laws and international/inland rules of navigation. Peace officers can order the operator of an unsafe vessel to shore, or the nearest safe moorage. Every vessel underway and lawfully ordered to stop by a peace officer or harbor officer, or State lifeguard shall stop immediately and permit the officer vessel to come alongside.

Court ordered boating education can be given to any person convicted of a moving violation in the Harbors and Navigation Code, the Federal Rules of the Road and regulations adopted by the California Department of Boating and waterways. This can vary from State to State, or Country. Some Countries require that operators take their boating courses to receive certification, or a license to operate a PWC.

False search and rescue calls can be subject to a misdemeanor and be punished by imprisonment for up to one year and a fine of \$1,000US or both. An emergency includes any condition that results in or could result in the response of a public safety agency or official in an authorized emergency vehicle/vessel or aircraft. It is a felony for anyone to falsely report a search or rescue. In some cases, the people being rescued can be charged for the expenses by the authorities of the actual rescue or search!

Many locales prohibit the use of motorized vessels in high risk zones such as big wave locations, or during small craft advisories whereas the weather and water conditions make it unsafe to navigate and operate a vessel. Solutions to these concerns can easily be remedied by taking boating courses through local, State or Federal managed boating safety education programs, and abiding by these rules and regulations at the expense of personal gain, in exchange for long term sustaining relations for the future of tow surfing. Abiding by the recommendations by the manufacturer of your PWC will help you to be a safe and competent operator and failure to abide by their guidelines in a court of law could adversely affect your case. Navigational rules are necessary to prevent collisions and other avoidable accidents.

- Follow all Federal, Local Municipality, and State boating laws and regulations

International Surfing Association Water Safety Guideline

- International and inland rules of Navigation
- Observe all Navigational aids to boaters
- Abide by all required boating safety items to be stored onboard your vessel as required by law
- Abide by all marine preserves, reservations, preservations and sanctuaries rules and regulations
- To operate a Personal Watercraft the PWC Manufacturers recommend a minimum age of 16
 1. Read all Warning Labels on your PWC
 2. Read the Owners Manual and/or review owners safety video
 3. Read the Riders Manual
 4. Take Online Internet Boating Courses
 5. Take Boating courses for 'classroom and hands on' training
 6. Do not alter the 'lanyard' attachment! Use your manufacture supplied key

LEGAL PWC REQUIREMENTS

- a. Keep a Proper Outlook at all times!
- b. Do not exceed 5 Miles per Hour within 100 feet of a swimmer, or 200 feet of a swimming beach, or dock with boats tied to it.
- c. There are 3 ways to communicate between boats, sound, signals, radio and lights.
- d. Reckless and Negligent Operation: California law states that no one may operate a boat, water skis, an aquaplane device or other vessel in a way that will be dangerous to people and property.
- e. Do not jump another vessels wake within 100 feet of the vessel creating the wake.
- f. Do not operate so fast and close to another vessel that you cause the other operator to swerve at the last minute to avoid a collision, do not spray a person in the water, or turn sharply at close range.
- g. Use the proper lanyard for the correct PWC; they are not interchangeable from one manufacturer to another.
- h. Operate your PWC between sunrise and sunset, no night riding allowed.
- i. Your registration certificate is required to be aboard your boat when it is underway

Know what to do in the following conditions:

- Meeting a boat head-to head
 1. Pass port to port using one short blast of the horn or whistle
 2. Pass starboard to starboard using 2 short blasts
- Approaching at right angles and at risk of collision
 1. The boat on the right is the stand on vessel, the other boat is the give way vessel
 2. Stand on vessel is privileged and must hold its course and speed
 3. Give way vessel must direct its course to starboard and pass the stand on vessel astern
 4. You should never turn your boat to port during a crossing situation
- 2 boats running in the same direction, the vessel astern wants to overtake and pass a boat
 1. Stand on vessel must maintain its course and speed
 2. If give way vessel chooses to pass on the starboard side, it must signal with one short blast
 3. To signal the course ahead is not safe for passing, the stand on vessel must signal for anger using 5 or more short rapid blasts.
- When approaching other boats
 1. Motorboats should keep clear of sailboats under sail
 2. Do not interfere with larger vessels underway
- Approaching a blind bend
 1. Signal with one prolonged blast 4-6 seconds, oncoming boats should return the same signal
 2. motorboats keep to the right side of the bend or channel when its safe or practical
- Poor and Reduced Visibility due to mist, fog, or heavy rain
 3. A motorboat should sound one long prolonged blast every 2 minutes

The more experience you gain as a boater, the more prepared you can become in an emergency. Use basic boating terminology when referring to your PWC:

Bow-Front
Stern-Back
Port-Left
Starboard-Right
Beam-width of your boat
Draft-waterline to bottom of boat

International Surfing Association Water Safety Guideline

Hull-Body of the craft
Sponsons-Stabilizers on port and starboard
Steering nozzle-Directional travel of water

TRAILERING

- The tongue weight on the ball affects the towing vehicle and trailer. 5-7% of the total tow weight should be placed on the hitch.
- Make sure your axles and carriage are weight rated for your PWC's
- Use the safety chains to attach to the back of your vehicle crossing them to make a bridle
- Disconnect the electrical lights prior to putting trailer in water
- Not enough weight on the rear of the trailer will cause it to swerve or fishtail
- The back of your PWC should be inline with the end of your trailer and not sticking out
- Check your grease points on your bearings for the axles
- Make sure you are using the proper size ball, 2" or 1 7/8"
- Your boat and contents should not weigh more than 80% of the trailers weight capacity, look at the load limit capacity plate on your trailer tongue.
- Allow your wheel bearings to cool prior to placing in cool water at ramp
- Check lug nuts and tire pressure, place a lock on tongue hitch
- Check and store all tie downs, do not drive without stern and bow tie downs
- Check all lights and use waterproof electrical connections and lights
- Secure drain plugs prior to launching
- Secure all compartments especially seat latches prior to driving

NAVIGATIONAL AIDS

In the United States on our waterways we have signs that aid boaters how to navigate, they are called Aids to Navigation System or ATON's. These aids help boaters to avoid problems, safely navigate, and locate their positions; you should be able to identify all that are listed or known in your area. The Uniform State Waterways Marking System (USWMS) are mainly for inland waterways but can be used on federal waters, these are their designations:

Non-Lateral Markers

- Boat Exclusion Areas
- Danger
- Controlled Area
- Information
- A white mooring buoy with a blue band
- Inland Waters Obstruction Mark
- Buoys can be used to display regulatory markers and show a white light or be lettered

'Red, Right, Returning' is a saying you can use to help you remember which side of a channel the red and green buoys are found when entering a harbor or channel from seaward. International navigational aids may be vastly different and upon returning to port from seaward you may find that 'red, right, reef' is more appropriate!

Lateral Markers

- Port side – Odd Numbers
- Starboard Side – Even Numbers
- Can buoy-Lighted
- Nun buoy-unlighted
- Daymarks

Safe Water Aids

- No numbers, may be lettered
- Marks the center of the channel
- Daymark

Red Flag with a diagonal stripe is to show that divers are in the water, you must stay clear! Please explain below the situation of each of these navigational issues for boaters:

Right of Way
Head-On

Crossing
Over-Taking

BASIC WATER SAFETY

Stressors can contribute to your personal safety and others in the water; drugs and alcohol, prescription or over the counter drugs can affect judgment, safety and your health! These stressors can affect your reflexes, place you and others in danger, and lead to a vessel collision or other negative impact while underway. Fatigue is a large contributor to operator judgment and error.

It is advisable that at least one person in your group know CPR and First Aid. Proper rest, drinking plenty of fluids and taking water safety courses such as life guarding classes, CPR (cardiopulmonary resuscitation), Basic and or Advanced First Aid can offset some of these issues.

- Noise, vibration, vessel motion (motion sickness) this can lead to throwing up, sweating, or dizziness.
- Glare from the Sun, prolonged heat exposure
- Inclement weather or water conditions
- Alcohol or Drug use increases your chance of an accident. Alcoholic beverages will not prevent the effects of hypothermia, it brings more blood to the surface of your skin, giving you a false sense of warmth, and increases body heat loss. Drugs can drastically impair judgment and operational needs necessary for the responsibility of your team mate(s), your equipment and others.
- Lack of hydration or nourishment
- Sunburn
- Wind Chill
- Lack of proper swimming ability per conditions at the time
- Prolonged cold exposure without proper thermal protection
- Continued physical exertion
- Lack of thorough water knowledge or experience in large surf or vessel operations
- Hypothermia: When your body can no longer cool itself appropriately.
- Hyperthermia: When your body loses more heat than it generates.

Hemispheres and Seasonal Conditions:

North and South Hemispheres are opposite summer and winter seasons. For international travel, consider seasonal conditions and local regulations. Weather patterns, fetch, beach locations, currents, wind and storm systems generate swell conditions that are sought after by large wave tow surfers globally. Weather temperatures change drastically from one season to another.

Noise Levels are annoying to beachgoers and can prevent boat operators from hearing sounds, danger warnings and safety signals, not to mention the exposure as a stressor. Keep your Jet Pump low to the waterline, back off the throttle when the pump comes unhooked with the surface of the water, this will assist you in reducing sound levels, especially if you are using a two stroke PWC.

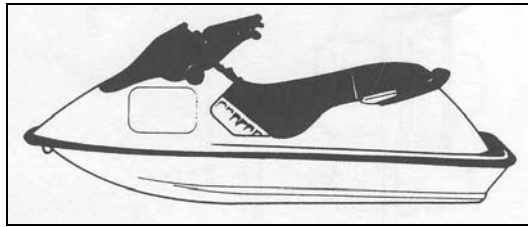
PERSONAL WATERCRAFT TYPE and USE FOR TOW SURFING

Any PWC that has mirrors attached to the front section combined with a tow cleat near the stern seat or re-boarding handle complies with laws that permits this vessel to tow another person on an aquaplane device. This would be described as a 3 -seater, Runabout, or Sit Down model Personal Watercraft. These boats should have a certificate sticker located near the stern section from the manufacturer listing the ability to take on 3 people.

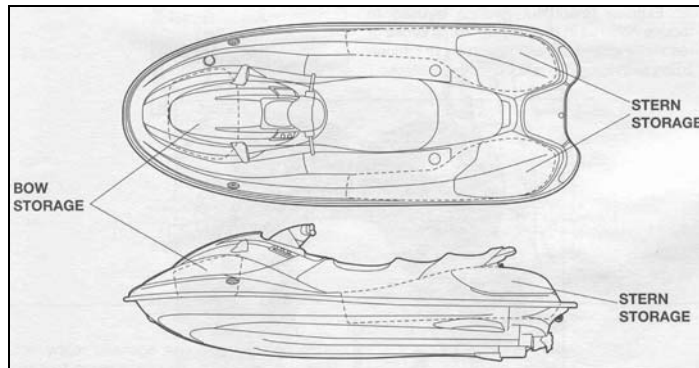
The weight capacity of each vessel is determined by its buoyancy factors and weight on board, take into consideration dynamic waterways and stressors upon the hull and power plant, and pump assembly. Tow cleats should not be added to the stern section of the boat, it could reduce the structural integrity of the boat, or create a safety hazard for people on rescue boards for skull fractures if they are exposed above the deck space, either on the centerline, or port and starboard. Some of these watercraft are no longer in production. Current production PWC's are:

1. Kawasaki - Jet Ski
2. Bombardier - Sea Doo
3. Yamaha - Waverunner
4. Honda - Aquatrax

RUNABOUT: Capable of 3 people on board (towing available, Sea Doo, Polaris, Kawasaki, Tigershark, Honda, Yamaha)



SUV: Sport Utility Vessel. Capable of 4 people on board (towing available, Polaris, Bombardier, Yamaha)



- Secure and lock your PWC when not on board, such as visiting a marina, restaurant, beach/dock, or piers, take the lanyard with you and disengage electrical system to prevent tampering and or theft, or accidental 'starting'.
- Any modifications to the hull can void manufacturers warranty
- 2 –seater craft are not permitted by law to be utilized to tow any aquaplane device.
- Tow surfing on a PWC by law in the United States requires a spotter with an orange flag, an operator and the athlete on the tow board. The only exemption currently is the State of Hawaii, with an approved certification to participate in tow surfing aboard a Thrill Craft. Hawaii has changed the classification of a PWC and refers to it as a 'thrill craft'.

FORCES OF ACTION

Speed, time and response choices can lead to either a successful mission. Situational awareness, equipment knowledge and operator choices not limited to sound communication can lessen the risk. Assessment of all criteria is imperative, and since we are operating with a vessel that can peak out at 65.5 mph at optimum operating functions, it is imperative we choose our proper technical directives accordingly. Just because the vessel can operate at a high speed comfortably, once weight, a rescue board, and water activity are combined, reducing operational choices is important. But first we need to define what we are working with, both equipment, personnel and the environment. Items to consider:

- Speed
- Hydrology of jet pump and water action
- Centrifugal Force
- Gravity
- Vessel Pump Size and Engine Capacity, weight capacity
- Vessel stability and instability, buoyancy factors

Due to forces of action, and impact, each rescue I have been involved with has some sort of 'impact. This impact factor varies to the situation; however time underway does diminish the lifespan of your vessel and equipment, creating diminished capability over time. Your checklists and maintenance schedules are important to document all incidents, preparation, investigations and repair timeframes

TRIM

International Surfing Association Water Safety Guideline

It is very important that the operator maintain positive balance points and control of the craft. Operator error is associated with many injury/accidents utilizing PWC, and for rescue and patrol, you can place yourself and your crew at higher risk than recreational accident statistics. You can be operating a vessel in situations they are not designed for, remember, vessels are not designed to be driven inside the impact zone with crashing waves. This takes a high boating skill level and ocean knowledge to be efficient and safe. There are 3 basic platforms for trim:

1. **Throttle Control**-accelerating/decelerating
2. Observe **Water and Weather** Changes while underway
3. **Trim:** Manual, Vessel parts, shifting fluids, occupant activity

Items one through 3, do not work independently from one another, operational choices dictate that all combined are effectively being utilized and monitored while underway for safe operations. Failure to gain cohesive operational choices will result in a negative effect. You must stay in 'step' with these 3 items at all times.

HELM CONTROL

These items are important to remember while operating underway:

1. Helm Position
2. Throttle Response and Control
3. Body Positioning
4. Wind
5. Water Conditions
6. Centerline of Craft

Remember, wherever your head goes, your body follows! If you turn your head to port or starboard, you must maintain a variable position on the helm station and again another physical response on the throttle! You have to alter body language when rotation of the upper body/torso so you do not change your bearing while underway. Very important at slow and high speeds. One person operates the helm, this means that they are sitting or standing in a facing forward to the bow position, using the lanyard and applying throttle as needed, balancing and centering on the PWC.

Keep in mind that boats, cars, motorcycles and similar products were designed to be operated by a single person, not multiples. Refer to the owners manual for riding instructions. If 2 people were at the helm operating, an increase on injuries/accidents will and can occur, because this unequal weight distribution contradicts the original buoyancy and centering engineered designs of the craft, if one person falls off they may take the lanyard with them, or accidentally pull throttle and accelerate, or jerk the handlebars to cause injury or loss of balance for the second person.

BOAT OWNERSHIP

- Hull Identification Number (HIN) is permanently attached to the stern section of your boat, take a photo and record this number on your float plan
- Take digital photos of all your equipment
- Prepare a log book of all your hours underway, post and pre operations maintenance check lists
- If you own a boat from one district or State, remember there are timeframes to register or change the government sticker to comply with law. In California you have 90 days prior to registering at the DMV (Department of Motor Vehicles, then it must be registered and another 30 days are given to complete the transaction.
- Registration must be displayed on the forward ½ of Port (left) and starboard (right) sides of the top deck of your PWC, and properly spaced according to law.
- Document your boat with the USCG if you are planning on taking it to other countries, or international waters. Documented vessels must have their name and hailing port printed above the waterline on the stern.
- You are legally responsible if you LOAN your PWC to another person to operate! If they get into an accident you are responsible legally for the financial restitution or legalities associated with the accident.

BOATING PREVENTATIVE MAINTENANCE

International Surfing Association Water Safety Guideline

Make a binder with multiple copies of check lists to keep track of all your records, both on the PWC and on your time underway. Remember two stroke and four stroke technologies will require different items to be checked. You will need to make a pre and post operations checklist. Here are some basic ideas to follow, but always refer to your SPECIFIC PWC and owner's manual for easy reference. You can copy and laminate the reference sheet in the manual for personal use and always check weather and water reports.

- Check drain plugs are in place
- Ventilate engine compartment for 4 minutes prior to starting craft
- Fill/Check fuel/oil, secure all caps
- Check hose clamps
- Check Steering and throttle (helm and steering nozzle)
- Check battery fluid levels, straps and positive/negative connections
- Check your spark plugs on 2 strokes
- Pull back on throttle and check spring release
- Make sure all compartments are properly secured
- Do not stow any gear without making sure it is thoroughly packed properly
- Start the PWC prior to placing in the water
- Do not start the PWC after removing from the water until you flush out the jet pump
- Spray down engine, and jet pump assembly with silicone protectant spray
- Make sure you have a spare lanyard on board
- Check all your emergency gear and supplies, including registration
- Check for debris in the jet pump or driveline
- Check fuel water/debris trap and or water separator trap
- Make sure no hoses are laying on any metal parts that can become hot or create friction on the lines

FILE A FLOAT PLAN AND EMERGENCY NOTIFICATION SHEET

All of these items can be made in advance and even laminated for easy reference on board your vessel. Make sure you complete 3 copies, one for your residence, one for your vessel and one to leave with a trusted friend or local authority.

- Make a copy of your driver's license
- Photocopy a record of your boaters insurance policy
- On your float plan, notify where you have left your car keys for your vehicle and trailer
- Fill out the emergency notification sheet

ACCIDENT/INJURY REPORTING

Carbon Monoxide is a potentially deadly gas which is produced any time a carbon-based fuel such as the gasoline used in PWC, burns. CO is an odorless, tasteless and colorless and mixes evenly with air exposure; it enters your bloodstream via your lungs and displaces the oxygen your body needs to properly function. Early symptoms of poisoning include irritated eyes, headache, dizziness, weakness, nausea, and can be confused with intoxication or seasickness. Prolonged or low exposure can lead to death. No deaths have been associated with PWC use to date, however if using a rescue board attached to the stern deck of your PWC be aware of exposure warning signals.

- Exposure to exhaust from vessels can result in varying degrees of carbon monoxide (CO) poisoning
- A formal report of death or a missing person must be filed with the Department of Boating and Waterways in California within 48 hours.
- If you or a passenger sustains an injury that requires more than First Aid, you must file a formal report with DBW in 48 hours.
- If you are involved in an accident resulting in more than \$500US in damage, the loss of the vessel, you must report it to DBW within 10 days.
- Operator error can be contributed to tunnel vision, operator inattention, and lack of experience or knowledge of the area of operation. Reduce errors by preplanning and preparation
- Excessive speed, the stopping distance of a PWC, the use of off throttle steering and steering can all lead to injury accidents. There are no brakes.
- Wake jumping, spraying your friends, or jumping waves, or other dangerous moves can not only damage your PWC, but create a dangerous opportunity to hurt not only yourself, but your crew and others on the waterway. Jumping behind a wave, you cannot see what is on the other side.

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Getting launched off the top of a wave with improper throttle and body positioning can lead to an injury upon landing.

- Do not follow another PWC too closely, especially if you are towing a tow surfer. Keep your safety zones open, always have your 'exit' preplanned
- Purchase an insurance policy for each of your PWC's, do not get underway without this necessary protection!
- If you peak towards the top of a wave, and the conditions allow, reduce speed, trim the PWC and cross at a 45 degree angle to lesson impact. Remember, the waves are moving at a certain MPH, and you are applying speed with your PWC, the weight on board and forces of action can result in a bad wipeout or accident:
 1. Speed of Wave
 2. Height of Wave
 3. Distance between waves (trough)
 4. Amount of unleashed wave energy (aerated water)
 5. Weight of boat and equipment
 6. Speed of boat
 7. Angle of boat on transit into oncoming water action
 8. Throttle control/Trim
 9. Body language upon take off and impact
 10. The pump should not come 'unhooked' from the surface of the water
 11. Do not ride above a safe speed; keep operational and situational awareness working!

Surfing related injuries usually relate to impact to the surfboard. However with PWC use, you are now a boater first, the activity of tow surfing is a part of your boating activity! We are now combining 2 different accident probable causes with surfing and boating, you must do your best to reduce the negative impacts of working in a high risk zone. Remember, boats are not designed to be operated in the impact zone recreationally, and many laws restrict their operations in dangerous situations such as big waves.

Although PWC-related accidents have decreased considerably; types and causes of accidents involving PWC have remained consistent with findings from previous years. Most reported PWC accidents involved collisions with other vessels (67%).

17% of accidents involved falls overboard, 5% involved vessels grounding and 5% involved persons being struck by boats/propellers. Among collisions between two vessels, the second vessel was most often another PWC (64%).

The most common causes of all PWC accidents were operator inexperience (61%), excessive speed (50%), and operator inattention (42%). (Some accidents have more than one attributable cause.) All of these causes are operator-controllable factors.

- Leash Wraps (body parts-sea vegetation-rock/reef outcroppings-crab pots)
- Surfboard Impact/Concussion/Black Out
- Lacerations
- Torn Ligament/Musculature/tendon
- Vomit/Foaming
- Fear/Panic/Shock
- Shoulder/Neck/Spinal injury
- Type of apparel worn: Gath Shields, wetsuits, street clothes/PFD's
- Athletic Enhancement Supplements/drugs/alcohol (stimulants)
- Oxygen Deprivation-signs
- Unconscious Victim(s)
- Drowning/Near Drowning
- Blunt Force Trauma
- Burst Ear Drums
- Carbon Monoxide Exposure (boat based)
- Explosions (boat based-1st and secondary)

MEDICAL

In the worst case scenario, access Extreme Casualties and transport per conditions/equipment

1. Spinal Immobilization

International Surfing Association Water Safety Guideline

2. Advanced Life Support
3. Triage
4. All Skippers/responders must have CPR-need pocket masks/gloves
5. Sea State/conditions/deck space/transfer
6. Patient treated on same basis-not immobilize every patient

FRAMEWORK for problem solving:

'Squaring Things Up'

1. **S** Situation-?
2. **QU** Question/Concerns-ask the right questions
3. **A** Answer-test the answer
4. **R** Relevance-does it work
5. **E** Evaluation-can it be applied

In case of suspect head/other injury refer to the following questions and responses

1. State your name if asked: My name is "Jake"
2. State where you are at the moment if asked, such as:
"Do you know where you are?"
'Yes, I'm in a surfing competition in South Africa', or such.
3. State your age if asked: "24", or what day is it?

Possible Injury:

1. Verbal contact:
"I think I hit bottom, I believe I pulled a ligament, I was held under for 2 waves, my neck/back hurts, or such".
2. Location of injury
3. Transport via ambulance or helicopter depending upon severity and observation/conclusion
4. Any previous injuries that could compound the present situation or be suspect for re-injury, any allergies to medication or other concerns that would support your care. Your adrenaline/shock may not allow immediate knowledge of injury, watch yourself for any warning signs, cold water climates/wetsuits can prevent knowledge to some extent of the seriousness of injuries.

OFF THROTTLE STEERING is available on all four stroke models. Use due caution when operating a PWC with off throttle steering. If you are trying to slow down from a planing speed, and back off the throttle, but you turn the handlebars, the RPM on the engine will engage the ability for the PWC to take evasive maneuvers and turn with no throttle applied.

PERSONAL GEAR

Personal gear varies depending upon weather conditions and water temperatures, and user comfort and experience. Some personal gear is recommended and others are required for your personal safety. The most important piece of personal gear is your lifejacket!

In the early days of tow surfing, athletes did not wear lifejackets. They soon realized the benefits of the additional flotation, especially in a heavily aerated water environment! With all the air bubbles circulating, buoyancy was a factor inside the impact zone. An approved PFD would assist the user to the surface of the water better than the limited flotation offered in wetsuit materials. Soon, tow surfers adjusted to the additional bulk on their body and a PFD is a welcome addition and is required by law! Now some are using Gath Helmets for high visibility or impact with tow surfing boards, or PWC's!

The USCG places a buoyancy rating for PFD's and classifies them as "TYPES". The most common 'type' of PFD used for tow surfing is a Type III, which has a rating in the United States of 15.5 pounds of buoyancy. For PWC use, Type I, II, III, or V life jackets are approved by the USCG. A Type III is generally the most comfortable lifejacket to wear, and is not good for extended use in rough water conditions, and you may have to keep your head tilted to avoid a face-down position in the water. Every person on board a PWC is required to wear a properly fitted PFD. It is very difficult if not impossible to put a PFD on while in the water.

- United States Coast Guard (USCG) approved Personal Flotation Device (PFD), check for the USCG approval number on the label, or Country approved identification for safety.
- Check for a snug fit, properly sized and of correct 'type'. Your PFD should not ride above your ears if lifted at the shoulder straps

International Surfing Association Water Safety Guideline

- Use of a wetsuit or neoprene shorts is highly recommended due to the jet pump water stream
- Fasten all buckles and straps prior to deploying
- Check your buoyancy, put your PFD on and test it in the water, your chin and mouth should be out of the water, and permit you to breathe easily.
- Some 'types' will keep your airway open if you are rendered unconscious, check labels for availability.
- Do not alter your PFD, it will void the legal requirements
- Do not store near fumes, sunlight, exhaust, or place heavy objects that create wear, or friction
- Allow your PFD to air dry thoroughly, the materials have a lifespan, replace as necessary
- Do not heat dry your PFD, or place near high heat storage areas such as heaters or dryers
- Check for mold, tears, missing straps, frayed webbing, broken zippers or buckles and hardening.
- PFD Types (some can be inflatables or throwables):
 1. Type I Offshore life jacket (22 lbs of buoyancy)
 2. Type II Near shore buoyant vest (15.5 lbs. of buoyancy)
 3. Type III Flotation aid (15.5 lbs. of buoyancy)
 4. Type IV Throwable Device
 5. Type V Special-Use Device or Inflatable and Hybrid Devices

REQUIRED SAFETY EQUIPMENT for Coastal Waters

- USCG Approved Fire Extinguisher properly working and stored onboard Type B good for gasoline and oil type fires
- Each person on board your PWC must have a USCG approved lifejacket
- Sound Signaling Device (whistle/fog horn)
- Visual Distress Signals (handheld flares, flags)
- Backflame Fire Arrester (for each carburetor)
- Noise Levels (do not alter your exhaust system to void legal sound levels)
- Ventilation: Your PWC has 2 ventilator ducts, open engine seat to ventilate prior to starting craft and allow fuel fumes to dissipate, to prevent explosion

RECOMMENDED SAFETY EQUIPMENT for Coastal Waters

- VHF Marine Band Handheld radio with waterproof bag attached to upper PFD (spare batteries)
- Fox 40 Whistle attached to PFD
- Lanyard attached to PFD or Fin Belt, not on a strap with an open buckle
- Rescue Knife attached to PFD
- Hand Held Flare Kit attached to PFD
- Swim Fins and Fin Belt
- Tow Line, proper length, weight rating and attached stainless steel carabineers
- Bow Loop Strap attached to Bow cleat
- Front Hood and rear stern seat secured with webbing and quick release buckles
- Eye Protection
- Foot and Hand protection
- Thermal Protection-Rash guards, wetsuits, drysuits
- Helmet – Gath Headgear red or yellow color
- Basic First Aid Kit/CPR pocket mask
- Extra Lanyard
- Tool Kit
- Intake Clearing tools

ABUSE OF PRIVILEGES

Homeland Security issues in the United States apply to all recreational boaters. Keep 1,000 yard distance from all military, cruise line or commercial shipping vessels, slow your minimum speed within 500 yard of any large US Naval vessel, US military or military supply vessel over 100 feet. Violators of the Naval Vessel Protection Zone can face up to six years in prison and a \$250,000US fine, resulting in a quick and severe response. Approaching other commercial vessels can result in an immediate intervention, so keep well away of shipping or cruise line traffic. Observe all security zones, power plants, dams or other sensitive areas. Visit the website www.uscg.mil/safeports/ or check with local authorities.

WATER CONDITIONS-Think like an athlete, behave like a boater! Why?

If you think and observe what the athlete is doing, you can best try to anticipate any troubles they may encounter because they are not focused, or they are taking extreme risks and are experiencing some sort of difficulty. Remember, you did not place them in that situation, but you are in a position to respond only if your safety dictates towards the successful extrication of yourself, your equipment and the athlete. Do not forget that a team can experience technical difficulties with their personal watercraft. Observe the behavior of their vessel at all times. Let's delve into the mindset of a champion:

What makes a wave form, shape and characteristic that you can understand well enough to use that energy to your advantage? What I do when I go to work in big wave locations is to purchase a nautical chart so I can study the underwater geomorphic terrain. This tells me something about the 'probable personality' of that specific locale and my past experience in heavy weather and water conditions.

A. Underwater Terrain:

- Rocks (size, shape and location, depth, underwater caves)
- Concrete or Rock Jetties (walls-refraction, rip currents)
- Unknown objects that can be snags
- Reef (rock or coral)
- Sand (migratory)
- Inshore Holes

B. Wave Energy:

- Swell direction and speed
- Wave Intervals
- Wave Height
- Currents
- Tidal considerations and timeframes
- Floating debris in large clumps
- Wind velocity and direction
- Sandstorms with offshore winds
- Safety Zones

Some of these conditions can help you to determine how best to preplan your strategy and safety zones; and the type of equipment/apparel that will best suit the conditions.

C. You can begin to put a timeframe together for your operational concerns:

1. Observing increasing or decreasing wave changes (tidal-swell) and your time of operation
2. The length of any potential ride and how many maneuvers can be achieved
3. The pick up timeframes from drop out point back to wave positioning
4. By timing the sets and the probable amount of waves you can select, you can come up with a timeframe of optimal opportunity that works with your realistic abilities
5. Observe other PWC traffic in the surf zones, keep safe distance, observe hand signals and respect priority waves for teams.

D. Know your Equipment!

Truly to be successful the more knowledge you have the more you can use that knowledge to your optimal ability. Understand the inherent design characteristics of your chosen surfboard and fin set up. You should be able to decipher its fingerprint signature and match that to the wave energy you are going to be working with. You can also define some competitive differences from one big wave location to another.

1. **ACCELERATION**-Tracking, take off, standing position
2. **PLANING SPEED**-Movement
3. **DECELERATION**-Bottom turns, pulling out
4. **TURNS**-Maneuvers
5. **RETURNS**-Smooth transitions in the pick ups versus rescues

Think in your mind the changing phases that the board goes through during these 4 different movements. From there we will incorporate TRIM into the equation; there are 2 types of trim:

1. Body position and movement
2. Board positioning and changing phases against water surface, elevation and changing wave characteristics, speed, inertia and forces of action

International Surfing Association Water Safety Guideline

You have to match your body height and weight to the inertia and speed you will be working with

Understanding the pitch of your hull; the underside contact that pivots and glides as you guide the craft into the wave energy are your strongest key points besides physical condition and ability.

Keep in mind the length of the tow line, versus the weight of the athlete being pulled, the speed of the wave, height, and optimum 'let go' points and 'pick up' points. You must have your exit planned equally as well as your entrance with the PWC, keeping in mind you have 4 responsible components to manage:

1. Your personal Safety
2. Your PWC and rescue board (equipment stored on board)
3. The safety of your tow partner (flagger)
4. The retrieval of the tow surfing board

The greatest ability of any of the world's top athletes is how easy their activity appears! They are not fighting the forces of action, they are synergized with all movements and their center of balance is working in unison with all the elements and forces, they are 'relaxed' in appearance, flowing with the forward movement.

E. Considerations

1. **Speed**-Mile per hour, angle and duration
2. **Leverage**-How you use your body to your advantage
3. **Trim**-Boat or Body
4. **Flexibility**-Stretching is strength and coordination
5. **Acceleration/deceleration**-How this contributes to centrifugal force
6. **Reading the Water**-watching the changing conditions and how it applies to your trim, response and balance points
7. **Forces of Action**-Hydrology, energy, movement, speed, impact, do not put a force against a force, something will have to 'give'.
8. **Contact**-Remember, first is the water, second is the board, third is your body. Observe your foot placement and quick movements in conjunction with balance of hips, shoulders and head/visual. Your body follows where your head moves.

The Secrets of the Worlds Greatest Athletes: They are **RELAXED**

They achieved this by practice, practice, practice. Evaluating in a positive critique what their ego needs, body, and equipment contributions were to succeed and overcome obstacles. Parts of your ego are necessary for competition, sometimes old parts of your ego must 'die' and new aspects must be borne or utilized. But this does not include arrogance!

What is the best training? It's to ride and to surf, and practice! Attitude is very crucial, but on that is professionally lined and executed. Make personal evaluations of your strengths and weaknesses. You can improve on both; there is ample opportunity for growth and corrections. You are only as good as your last training or your last performance. Use your personal negotiating skills, think, think beyond ways you are comfortable with, ask questions.

KEY=FOCUS

Mental preparation is just as important as physical. Mentally imagine prior to your competition day a winning run, in your practice or warm up session, put on your game thinking and start here, visualize what you want.

F. Physical Conditioning

Stay in tune with your body.

- Hypothermia-thermal layer according to water/air temperatures and wind velocity for chill
- Hyperthermia-stay hydrated
- Stretch!
- Observe dietary considerations-caffeine is a stimulate, avoid
- Rest and relaxation-de brief, do not stress, let go of things you cannot control
- Avoid Detractors-Alcohol, tobacco, drugs, wasted life time and energy

PATH TO SUCCESS

As a professional athlete my personal experience has been that to achieve success I have failed and through my failures I have learned that balance, inner strength and mind and body conditioning must merge to make my abilities to operate in a relaxed mode. My greatest strength is my mind and spirit, my intuitive qualities and my experiences. Here is a formula that works for me; this is something I have also APPLIED to my rescue and instructional abilities:

KEYWORD: DISCIPLINE

1. **BALANCE**-Physical and Spiritual, block external negatives that can influence your emotions
2. **STRENGTH**-Use only on as-needed basis, strength, release, relax, conserve
3. **DESIRE**-How to achieve your chosen target, you must 'want' to do this
4. **AWARENESS**-Observe and define everything, above, below and inside, use peripheral vision which takes more thought to calculate, fixed vision is more direct, you travel at speed, your thoughts need to be complimenting your movements at speed through conscious choices and executions of those movements, be alert, anticipate
5. **FEEL**-Intuition, gut feeling, angelic whisperings, experience, senses used as insight and inspiration
6. **POSTURE**-Your body language, this will reveal your harmony and balance
7. **ELIMINATION**-Reduce unnecessary body energy waste and positioning
8. **RELAX**-Practice this with your body and chosen movements at will, reduce tension in your body, reduce strain and resistance
9. **ENERGY**-Stamina and saving this to produce the proper amount of adrenaline, do not waste this energy but learn to conserve it
10. **ECONOMY**-Do not waste thoughts, do not give yourself away to others, contain your thoughts and your movements to your own advantage
11. **CONTACT**-Board contact to surface of water, body contact to surface of board, all must work in a source of synergy
12. **MOMENTUM**-Use to your advantage, keep moving forward, use timing to your advantage, and watch your reaction time, your posture and placement. Your mind must move quickly with the changing elements and conditions to adjust body movements and board positioning.
13. **PSYCHOLOGY**-Strength of mind choices translated into body execution and deciphers all chosen criteria at that precise moment, and moving into the next in one fluid organized union. Concentration is vital.
14. **POWER**-This comes from your 'centered' being, you can use this to your advantage once you understand how to pull all of these described elements into one united energy. This can be easily observed when a person does not know how to use power to their advantage in a positive fashion. They become quick to anger, frustration and action, they lose control. Power must be managed.

"The power of the night, the press of the storm,
The post of the foe;
Where he stands, the Arch Fear in a visible form,
Yet, the strong man must go"
Robert Browning-Prospice

TOW SURFING ETIQUETTE

The safety of your equipment is relative to the safety of others when underway! If your PWC and supporting gear is properly maintained, stored, and utilized, you can help with the safety of others on the water, not to mention you and your team mates! Here are some reminders for you to add to your arsenal of situational and operational uses!

- Length of Tow Line/Thickness/Grab Handle (25' – 40' Depending upon wave distance)
 1. Do not 'shock load' tow surfer on tow line at starts, over swells or the shoulder of waves, watch throttle control, accelerate and decelerate gently, maintain even 'speed'
 2. Watch trailing line in water while underway-do not wrap athlete around line
 3. Do not wrap line around driveshaft/intake of jet pump (keep intake clearing tools and knife readily accessible for extrication is safe zones)
 4. Retrieval of athlete using towline placement
 5. Do not allow handle of line to skip on wave face
 6. Do not speed up/slow down/quick turn-keep even tension on line with surfer
- Tow Line for downed boat-Quick Release Points
 1. 11'-15' length maximum for impact zone use. If wave hits towing boat, keep tension on line, observe jerking motions off your stern and use helm/throttle control to power out to less unleashed wave energy
 2. Quick Release at both connector points-watch these attachments constantly
 3. Use proper strength rating on load from PWC
 4. Store line under rear seat compartment/or Velcro bag on stern grab handle

International Surfing Association Water Safety Guideline

- Bow Strap/Stern Strap-loop of tubular webbing with a water knot, do not remove!
- Front Cowling (hood) strap for quick release positive buckles/straps
- Rear Seat quick release positive buckles/straps
- Hydro Turf - 'CHOCKS' for toe holds-do not use foot straps on boat-foot/hand entrapment
- Re-enforce tow cleat-Woven Roven Mat/resin, double stainless steel plate to distribute load, double up nylon bolts/screws, use Loctite, check for stress cracks
- Emergency Lanyard-pre rigged, readily accessible
- Fuel consumption-time underway, distance traveled
 1. 1/3 return
 2. 1/3 underway
 3. 1/3 emergency
- Preventative Maintenance and documentation
- Rescue Board attachment points-3 anchor points quick release, check lists for maintenance
- Stern Grab Handle-pad/wrap with duct tape for facial impact
- Watch stern towing cleat for skull fractures/facial impact
- Watch carabineers/hardware for open gates (use locking gates), sharp corners, expansion, attachment-strength rated, attachment points
- Be careful about stowage of boards in gunwale-changes body placement/location, can impact operator/athlete, watch fin placement, wind and wave action can impact boards such as loss or damage. Use Hydro Turf pads to line the gunwale for additional padding
- Use Hydro Turf foot chocks in footwells to assist in keeping foot contact with deck of PWC
- Store excess tow boards on anchor buoy in safe channel-watch swell-tide, length of anchor line
- Never tie one boat to another off a mooring-will damage craft, especially hull and steering nozzle, may break away from mooring line and drift into unsafe hazard areas
- Intake Clearing tools on board vessel, tool kit
- Upgrade foot well decking with Hydro Turf or similar product to reduce falls on board
- Practice 'starts' and 'pickups' with and without a rescue board
- Use Hand signals-practice communications and emergency plans
- Practice towing a downed PWC
- Watch athlete on wave in relationship to your operational placement/situational awareness, remember you must operate with special knowledge of your boat 11', plus your tow line, 30'+ and the athlete/board-8'. This can range in 50' of keeping in step with wave action/trough/changing density/pitch/angle/speed/and other conditions
- Boat Operator can 'propel' athlete by any of the following means:
 1. Channel side-sling into the wave face, arch type maneuver
 2. Ride in step with the swell/matching speed/placing athlete at peak then veering over top of cresting wave, riding behind wave on shoulder watching athlete
 3. Drop down wave face-staying channel side on wave observing athlete-can break wave face depending upon placement
 4. MUST always observe athlete on wave and track line of boat
 5. Watch for additional on water traffic/debris/changing conditions
- Never tow surf where paddle surfers are in the lineup-you do not belong there
- Never tow surf where PWC/boat operation is forbidden
- Aerated Water-hydrology-forces of action-throttle response-weight (trim)-rescue board, retrieval of tow surfing board, do not cross over towline for athlete
- Watch throttle response-know what the pump will do-keep the boat low profile to the water line-never JUMP a wave, try to never become airborne-the water, the boat, then your body absorbs all the shock and your body will give.....Serious injury and damage to your craft can result
- If your boat impacts water/bottom check steering-throttle-latches-rescue board attachment prior to starting craft
- Focus-Discipline: Be prepared, try not to rush to get to the break, go back to the basics, check your equipment thoroughly, brief your partner about any possible situation due to the current weather/water patterns, always prepare a plan, and always know your exit points, set up upon contact.
- Hand contact: **SLOW IS PRO** at this point, do not shock load your body/athlete with inappropriate speed: Right hand to right hand, Left hand to left hand, practice/communicate/teamwork
- Never become dependent upon one side of the boat for contact: Use Port/Starboard/Stern maneuvers
- **SECONDS AND FEET!**
- **Keep Moving - Keep thinking!**
- Speed of Wave/aerated water/athlete location/wave set/intervals/geomorphic terrain/hazards/lines/exit plans/safety/self rescue/equipment retrieval/wave height, impact zone-direction of travel-timeframes-reduced capability, reduced factors, diminished capabilities, constantly changing/evolving, do not panic, solve problems as they arise, know when to go-when not to go!
- Wave Priority-staging-tracking
- Mentor the sport-do not damage the integrity of all PWC users or surfers! Be a positive caretaker, lead by example, seek knowledge, use common sense, ask relative questions, find intelligent answers.
- Use boat terminology-fill out checklists-keep in binder-record training-conditions-equipment

Glossary of Abbreviations

ATONS-Aids to Navigation System
AWA-American Watercraft Association
CO-Carbon Monoxide
CPR-Cardiopulmonary Resuscitation
DMV-Department of Motor Vehicles
EPA-Environmental Protection Agency
HIN-Hull Identification Number
IJSBA-International Jet Sports Boating Association
ISA-International Surfing Association
NASBLA-National Association of Boating Law Administrators
NMMA-National Marine Manufacturers Association
NSBC-National Safe Boating Council
OSPR-Office of Spill Prevention and Response
PFD-Personal Flotation Device (lifejacket)
PWC-Personal Watercraft
PWIA-Personal Watercraft Industry Association
USWMS-Uniform State Waterways Marking System
US-United States
USCG-United States Coast Guard

Resources: K38 Water Safety Training Manuals
California Department of Boating and Waterways
Personal Watercraft Industry

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