JETSKI POSITION PAPER

BLUEWATER NETWORK
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Personal Watercraft

Personal watercraft (PWC), also known as Jet Skis®, Waterbikes®, and Sea-Doos®, are aquatic craft propelled by a water jet drive which are capable of achieving planing speeds. Produced by manufacturers of all-terrain vehicles and snowmobiles, ***PWC are fundamentally different from conventional boats in terms of design, operation and use.*** Their shallow draft design allows PWC to be operated at high speeds in shallow areas close to shore, unlike other motorized boats. Highly maneuverable and capable of speeds exceeding 65 mph, PWC are marketed as "thrill" vehicles. Common practices include weaving between vessels, jumping wakes, spinning doughnuts, and radical changes of course.

PWC are the one of the fastest growing segments of the boating industry in the U.S. and now account for one third of all boat sales. The $1.4 billion PWC industry sells approximately 100,000 units per year. Cumulative sales have topped 1.2 million units as of 1998, and are climbing rapidly.

PWC are multiple impact machines with unique and unprecedented effects in terms of noise pollution, marine pollution, wildlife harassment, and safety on the waterways. The specific problems associated with PWC have resulted in calls for strict regulation or bans.

Noise Pollution

Marine users, shoreline hikers and wildlife enthusiasts complain that the high-pitched, chainsaw-like whine of PWC ruin their outdoor experience. PWC produce noise levels in the range of 85-102 decibels (dB) per unit — levels at which the American Hospital Association recommends hearing protection (above 85 dB). By comparison, a busy city street produces about 85 dB. Furthermore, the design of PWC results in noise that is particularly disturbing to humans and particularly dangerous to marine wildlife. The jet drive emerges from the water every time a PWC goes over a wave which causes the engine noise to increase in loudness and pitch; this continual change in loudness and pitch during normal use make PWC much more disturbing than the constant sounds of conventional motorboats.

A controlled study of PWC in the San Juan Islands (Washington state) by the Woods Hole Oceanographic Institute concluded that PWC, which lack a low-frequency long distance sound, do not signal surfacing birds or mammals (including humans) of approaching danger until they are almost on top of them.[1] The high frequency sounds PWC produce in both air and water also startle birds and other wildlife.[2] Joanna Burger of Rutgers University in New Jersey, found that fast and noisy PWC traffic sent almost 200 birds flapping into the air, more than six times that of ordinary motorboats.[3] Tom Wilmers, a U.S. Fish and Wildlife Biologist at Key Deer National Wildlife Refuge, reported that he saw a jet ski repeatedly flush an Osprey from its nest site eleven times in less than one hour.[4] Wilmers also noted that PWCs' tendency to circle continuously in one location for extended periods of time exacerbates the disturbance factor because it reduces opportunities for displaced birds to return to feeding or nesting areas.[5]

In addition, a report by the Noise Pollution Clearinghouse found that jet skis will wreak an estimated $900 million in noise annoyance costs on beachgoers this year, as well as hundreds of millions of dollars of additional costs to water recreationists and shoreline property owners. The report also documents that minimum-distance rules are only modestly effective, while supposedly quieter new models won't put much of a dent in the noise burden. (a copy of this report can be obtained from Bluewater Network).

Wildlife Impacts: Disruption & Displacement

Wildlife biologists throughout North America have testified on the existing and potential impacts of PWC use. In California, marine mammal experts have voiced their concern that PWC activity near seals, sea lions, and elephant seals disturbs normal rest and social interaction, and causes stampedes into the water that can separate seal pups from adult mothers.[6] According to Judy McIntyre, researcher and director of the North American Loon Fund, PWC are the greatest current threat to breeding loon populations.[7] Florida's Game and Fresh Water Fish Commission concluded that fast moving watercraft near shorelines, a normal pattern of PWC use, produce larger flushing distances* of water fowl.[8] Joanna Burger, author of a Rutgers University PWC study, observed PWC's skimming the edge of islands and running over Common Tern nests containing eggs or chicks. Burger's study confirms that waterfowl respond "significantly more" to PWCs compared to motorboats.[9] Officials at the Washington State Department of Fish and Wildlife's Ecosystem Management Program have gone on record to report that they are becoming "increasingly concerned with the effect of motorized personal watercraft... particularly jet skis, on both nesting birds and spawning salmon."[10] And, the state of Hawaii classified PWC as "thrill craft," imposing strict areas of use for the vehicles in order to protect migrating humpback whales.[11]
* Flushing distance refers to how far away a PWC has to be to cause birds to fly up and away from a giving point.

Polluting the Aquatic Environment

Jet skis are far more polluting than other conventional two-stroke powered motorboats. Two-stroke engines (which power nearly all PWC) run on a mixture of oil and gasoline, and

discharge as much as one-third of this mixture unburned into the water. An average two-hour "thrill" ride on a PWC can dump between 3 and 4 gallons of gas and oil into the water.[12] PWC have twice the hourly annual usage rate of other water vessels, double the load factor (rpm, payload, etc.), and significantly more horsepower than a typical two-stroke outboard.[13] For these reasons, PWC emit twice as much pollution as an equivalently powered motorboat.[14] The California Air Resources Board also reported that a day's ride on a 100 horsepower jet ski emits the same amount of smog-forming air pollution as driving 100,000 miles in a modern passenger car.[15]

The threat of two-stroke engine pollution from PWC is particularly troubling because of where and how the machines are used. PWC are capable of traveling in shallow and remote areas where water and other wildlife are most sensitive to environmental pollution. Hydrocarbons in gas and oil released from two-stroke motors float on the surface and settle within the shallow ecosystems of water bodies. These areas are home to many organisms at the base of the food chain: fish eggs, algae, shellfish, and zooplankton. Scientists have determined that hydrocarbon pollution can bioaccumulate within the complex food web, posing a serious threat to the marine environment.[16]

Safety Concerns

Accident rates for PWC are disproportionate compared to their numbers on the water. An article in the *Journal of the American Medical Association* (JAMA) stated that while the number of PWC tripled during the first half of the 1990s, injury rates involving their use quadrupled.[17] PWC injury rates were 8.5 times higher than injury rates for motorboats.[18] In addition, actual jet ski-related injuries and deaths are four times higher than Coast Guard data indicates, at over 12,000 accidents per year.[19]

Even the Coast Guard's under-reported figures are disturbing: in the state of California, there were 391 PWC accidents encompassing 276 injuries and eight deaths during 1997. Most of the accidents were blamed on excessive speed and operator inexperience. According to Officer Danny Lopez of the San Francisco Police Department's Marine Patrol, "They're very easy to purchase and very dangerous to operate."[20]

For inexperienced PWC riders (those who most commonly operate the craft),[21] steering poses a particular problem. PWC have no brakes or clutch to aid maneuvering and are extremely difficult to steer at high speeds and impossible when the throttle is cut. When operators let up on the throttle to avoid a collision — something people are conditioned to do with bicycles and cars — they go straight, essentially becoming uncontrollable.

Never have such a small proportion of boats had such a negative impact on a large number of users. Injuries and deaths often involve inexperienced riders who collide with other vessels on the water. Normal PWC use, such as following other boats to jump their wakes, endangers other marine users, resulting in disproportionate numbers of warnings from marine enforcement officers and complaints from other marine enthusiasts.[22]

Increasing Regulation

High accident rates have led to a wave of new state safety laws regulating PWC use. It is often common practice for high-paid industry lobbyists to pressure governmental officials and land mangers to support legislation which removes authority over local waterways from county and municipal governments. In the states where the PWC industry has failed to get authority to regulate removed from local citizens the industry often leans on local and state regulators to adopt tame, "model" regulations, which do not address any problems specific to PWC use or design. These regulations suggest setting a minimum age of 16 for PWC operation, prohibiting nighttime use, and requiring an emergency shut-off switch, but they ignore more pervasive problems. For example, U.S. Coast Guard statistics indicate that the largest number of PWC injuries are to people between the ages of 23 and 29 years old, not 12 and 22 years old as the PWC industry contends.[23] The industry's legislation is minimal at best and represents a futile attempt to placate the public's concerns associated with these craft.

Some local communities are attempting to establish regulations that address common concerns surrounding PWC activity: safety, conflicts with other recreational users, excessive noise, marine and air pollution, and wildlife harassment. These regulations include laws that alleviate noise problems, prevent wildlife disruption and displacement, reduce the tremendous pollution from PWC two-stroke motors, and augment the safety laws proposed by the industry. Some areas of effective regulation:

- Include large buffer zones or "special use areas" (where PWC are prohibited) that keep PWC users far away from the shoreline as well as from swimmers, divers, surfers, wildlife, and other boaters
- Limit PWC access to waterways except within specific areas to be designated by local communities through city ordinances. Limit access to narrow, 5 mph corridors
- Prohibit PWC behavior that endangers other marine users (e.g. jumping wakes, spinning doughnuts)
- Require PWC riders to carry liability insurance and an identification card
- Include citizen nuisance suit provisions in legislation (citizens can file a private nuisance suit if harassed by PWC activity)
- Define PWC as "thrill craft." (Differentiate PWC from other traditional boats due to their high impact, high performance characteristics.)

Enforcement Issues

It has been suggested that stricter enforcement of existing laws would be sufficient to prevent many of the problems for which PWC users are held responsible. This assumption poses a number of problems: First, many of the problems associated with PWC are a direct result of the way the machines are designed and marketed. PWC advertisements use phrases such as "hard-charging," "aggressive handling," and "speed is everything."[24] Marine patrol officers say augmenting enforcement will only solve part of the problem. PWC are "musclecraft"[25] machines designed to be used in a certain way — industry ads open the door to reckless

operation.[26] Unfortunately, the craft are being used exactly the way the industry intends them to be used — aggressively. Because PWC invite irresponsible behavior, only severe zoning restrictions or bans may, as a practical matter, be enforceable.

Second, while increased enforcement may mitigate some problems associated with PWC, it comes at a high cost to citizens. Taxpayers carry the burden for augmenting marine enforcement in order to deal with the effects that one minority recreational activity imposes upon the majority of other recreational users. No amount of enforcement will completely eliminate the safety problems, noise, air and water pollution, and wildlife harassment that comes with high performance, high impact PWC operation. These are the inevitable effects of PWC activity.

Finally, the industry often donates PWC to enforcement agencies, allegedly for lifesaving or monitoring capacities (Kawasaki Corporation donates over 1,000 PWC annually to federal, state, and local law enforcement agencies; retail values for this loan program are estimated to be $5,000,000).[27] In reality, such gifts undermine agency opposition to proliferation of such craft. This amounts to divided loyalties within law enforcement when it comes to PWC regulation or bans.[28] In addition to careful consideration about whether PWC are necessary and safe for law enforcement on specific waterways, donations should be limited to search and rescue and lifesaving purposes only.

PWC Use Is Incompatible with Certain Waterways

As accident, injury, and sales rates of PWC continue to rise, local communities and government agencies, both state and federal, are considering whether PWC belong at all in their jurisdictions. For example, San Juan County in Washington state voted to ban PWC in 1995. Citizens in the San Juans contend that PWC jeopardize the unique attributes of a pristine area, including peaceful recreation and the viewing of diverse wildlife such as sea otters, loons, orca whales, and eagles. The PWC industry challenged the County's ban, but it was upheld by the Washington State Supreme Court in July of 1998. PWC are also banned on smaller lakes and rivers across the country. Some states, such as Vermont and Maine, have banned PWC on lakes smaller than a designated size (300 acres and 200 acres, respectively). Maine also allows citizens to file private nuisance suits if harassed by PWC activity.

Some local communities who have partially or completely banned PWC use include:

- San Juan County, Washington
- Mendocino County, California
- Monroe County, Florida
- San Francisco County, California
- Pacifica, California
- City of Malibu, California
- Walton County, Florida

Legal Issues

A number of different legal strategies are employed by the industry to attempt to impede strong regulations. These legal strategies and some suggestions for addressing them are detailed below. It should be noted that lawsuits are commonly used by the industry to delay or prevent meaningful PWC regulations from being implemented. Industry almost always litigates to avoid precedent-establishing regulations from being implemented elsewhere.

- ***Definition of PWC***: The industry suggests the following definition for PWC: *'Personal Watercraft' shall mean a vessel which uses an inboard motor powering a water jet pump as its primary source of motive power and which is designed to operated by a person sitting, standing, or kneeling on the vessel, rather than the conventional manner of sitting or standing inside the vessel.*[29]

This definition, however, excludes PWC which carry two or more people, and jet boats, craft with many of the same characteristics of PWC. Jet boats, though slightly larger, share many of the problems unique to PWC and should be included in any regulation of these craft. The following definition, if not in conflict with a state's Harbors and Navigation Code, is more appropriate:

> *Personal watercraft refers to a vessel, usually less than 16 feet in length, which uses an inboard, internal combustion engine powering a water jet pump as its primary source of propulsion. The vessel is intended to be operated by a person or persons sitting, standing or kneeling on the vessel.*

- ***FASFRA (Federal Aid in Sport Fish Restoration Act, a.k.a., Wallop-Breaux funds)***: In 1995 a U.S. Appeals court ruled that any public boat launch ramp built with FASFRA funds must allow access to all craft within similar given horsepower sizes, *including* PWC (*Patrick Buckley; Personal Watercraft v. City of Redding, California*: 66 F.3d 188; 1995 U.S. App. LEXIS 33286). The court concluded that communities cannot prevent PWC from launching at these boat launch ramps. This ruling has been used by the industry to thwart community efforts to reign in PWC.

  However, in 1999 a case out of Florida may blunt the industry's use of this case. In *Kissimme River Valley Sportsman Association v. The City of Lakeland* (60 F. Supp. 2d 1289) the United States District Court in Florida ruled that FASFRA does not create a federal right to equal access for boats of common horsepower ratings at boat launch facilities constructed or maintained under the Act.

  Based on Bluewater's legal research, we believe that communities may prohibit PWC regardless of whether they have taken FASFRA funds to construct boat launches and facilities.

- ***"Class A vessel" definition***: Industry often argues that the U.S. Coast Guard recognizes PWC as "Class A vessels," just like other traditional boats, and regulates them equally.

According to the Commandant of the Coast Guard, "The term Class A vessel has no meaning insofar as Coast Guard regulations are concerned, except with regard to the fire extinguisher regulations."[30]

- ***Singling out PWC***: In 1995 the National Oceanic and Atmospheric Administration (NOAA) banned PWC within the Monterey Bay National Marine Sanctuary based on evidence that these vessels harmed the marine environment of the sanctuary. The Personal Watercraft Industry Association (PWIA) sued the Department of Commerce, arguing that NOAA's prohibition was unconstitutional because it singled out PWC.

  On March 3, 1995 the District of Columbia Circuit Court of Appeals upheld NOAA's PWC restrictions. In *PWIA vs. the Department of Commerce* (48 F3D 540, 310 U.S.APP.D.C. 364) the court found that although NOAA's restrictions did indeed single out PWC, the agency's actions were not "arbitrary and capricious" and therefore constitutional. More importantly the court ruled that when a resource management agency regulates to protect the environment it does not need "to make progress on every front before it makes progress on any front."

  However, it is very important to demonstrate substantive rationale for enacting PWC legislation. This is accomplished by legally distinguishing PWC from other craft by emphasizing their unique design and use patterns (traveling in packs, continuous circling in one location, extremely high speeds, jumping wakes), safety problems, incompatibility with numerous other forms of aquatic recreation, wildlife harassment, and excessive noise and marine pollution. When designing a regulation, be sure to include a severability clause in case a portion of your ordinance is overturned.

- ***Right of access to public waterways***: PWC operators and industry argue that because owners pay licensing and boat registration fees, they have a right to access public waterways. On July 9, 1998, the Washington State Supreme Court upheld a local PWC ban in San Juan County, Washington. In *John Weden et al vs. San Juan County et al* (Docket number 96-2-00376-6) the court ruled that when a PWC rider obtains a boat registration or buys a license it is nothing more than a precondition to legally operating a PWC. Just as purchasing a hunting license doesn't permit hunting of endangered species, the court made it clear that registration does not confer an unconditional right of access.

- ***Harbors and Navigation Code***: The Harbors and Navigation Code varies from state to state, but some codes contain provisions specific to PWC which prohibit activities like wake jumping, speeding, and reckless or negligent operation. Local regulation may legally fill the gaps in state regulation. In other words, local communities can generally restrict PWC use based on time-of-day operation, speed limits, special use areas, and sanitation and pollution concerns, but must avoid duplicating state law. San Francisco chose to establish a "special use area" where PWC would not be allowed to operate due to growing concern over their operation in areas of high activity close to the shoreline.

- **Federal Navigation Channels:** When a federal navigation channel runs through county waters (common in port cities/waterways like San Francisco Bay, Los Angeles Harbor, etc.), the Port and Waterways Safety Act, the Federal Boat Safety Act, and other federal laws designate certain powers of regulation specifically to the U.S. Coast Guard. These Coast Guard regulations may, in some cases, preempt a state or local PWC regulation. However, a locality may, in most cases, enact its own regulations provided that the U.S. Coast Guard has not already regulated those waters, and that the new local/state regulation addresses some local peculiarity. When enacting your local regulation, make sure to explore the presence and existing regulations of federal navigation channels, and make sure to write your ordinance in such a fashion as to address "local peculiarities." A good example of this is the Marin County, CA, ordinance.

Inappropriate Recreation on Public Lands and Waterways

Adequate regulation does not obscure the fact that PWC use is not compatible with the basic values of certain waters. Federal agencies whose jurisdictions span a wide range of areas recognize the unique impacts of jet skis and have regulated them accordingly. These agencies include the National Oceanic and Atmospheric Administration, Fish and Wildlife Service, and the National Park Service. PWC activity is inappropriate given the respective mandates of these government agencies to protect the public lands and waters under their care from severe damage by one unique form of recreation. The substantial impact PWC have on other visitor experiences has also compelled those overseeing these areas to limit or ban their use.

More and more, those on and off the water see a need to recognize that thrills for a few should not become a safety and environmental hazard for the majority.

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[1] Richard Osborne, Curator of Science Services & Resident Scientist, Whale Museum, Friday Harbor, WA. "Testimony and Exhibits Submitted to Board of County Commissioners Regarding Restrictions on Use of Jet Skis in San Juan County," *Superior Court of Washington for Whatcom County*, Jan. 31, 1996. Study conducted with Dr. Johnson of Woods Hole Oceanographic Institute.
[2] Ibid.
[3] Susan Milius. "Oh, not those jet-ski things again!" *Science News*, Aug. 15, 1998, Vol. 154, No. 7, p.107.
[4] John Kelly, Director of Research and Resource Management at Audubon Canyon Ranch, Marshall CA. "Letter of Testimony for the National Oceanic and Atmospheric Administration." Personal communication with T. Wilmers.
[5] Ibid.
[6] Margaret Burks, Executive Director, Marine Mammal Center. Letter to San Francisco, CA. Supervisor Gavin Newsom. March 17, 1998; Jim Doyle. "Anger Over Plan to Limit Jet Ski Use," *San Francisco Chronicle*, July 19, 1996.
[7] John Kelly, Letter to San Francisco CA. Supervisor Gavin Newsom, "RE: Motorized Personal Watercraft ("jet skis") in San Francisco County." Personal communication with Ms. McIntyre. March 30, 1998.
[8] J.A. Rogers & H.T. Smith. "Set-Back Distances to Protect Nest Bird Colonies from Human Disturbances in Florida," *Conservation Biology*, February, 1995. 9:89-99; Personal Communication with Mr. Rogers. October 7, 1998.
[9] Joanna Burger, *Effects of Motorboats and Personal Watercraft on Flight Behavior Over a Colony of Common Terns*, Nelson Biological Laboratories, Rutgers University, 1998.
[10] "Testimony and Exhibits Submitted to Board of County Commissioners Regarding Restrictions on Use of Jet Skis in San Juan County," *Superior Court of Washington for Whatcom County*, Exhibit 22, Jan. 31, 1996.
[11] Department of Land and Natural Resources, Division of Boating and Recreation. Act 140, 1995.

[12] According to *Personal Watercraft Illustrated,* 2000 model year PWC on average burn 15.1 gallons per hour at wide open throttle. According to the Environmental Protection Agency and several other government agencies, PWC two stroke engines dump between 25 and 30 percent of their gas and oil mixture unburned. Multiplying 15.1 by .25 and .3 reveals that PWC can dump between 3.79 and 4.53 gallons of fuel into the environment every hour.

Statistics taken from "Proposed Regulations for Gasoline Spark-Ignition Marine Engines, Draft Proposal Summary." Mobile Source Control Division, State of California Air Resources Board; June 11, 1998, p. 2: Average 77 horsepower (Hp) PWC emits 8,427 grams hydrocarbons (HCs)/hour; 8,427 g HCs/hr. ÷ 454g/lb. = 18 lbs./hr; 18lbs./hr. ÷ 6 lbs./gallon = 3 gallons HCs/hr.; The average 77 Hp PWC emits 3 gallons of gas and oil per hour of use.

[13] Ibid; Federal Register, Air Pollution Control; Gasoline Spark-Ignition Marine Engines; 40 CFR Parts 89,90,91, October 4, 1996; California Air Resources Board staff (Mark A. Carlock, Chief), "Proposed Pleasure Craft Exhaust Emissions Inventory," July 7, 1998, pp. 4-9.

[14] Draft Proposal Summary, California Air Resources Board. (June 11, 1998) op.cit, p. 2.

[15] Watercraft SIP Team. "Overview of ARB's Spark-Ignition Marine Engine Regulations." July 9, 1998, pp. 2-3.

[16] U. Tjarnlund, G. Ericson, E. Lindesjoo, I. Petterson, L. Balk, *Investigation of the Biological Effects of 2-Cycle Outboard Engines' Exhaust on Fish*, Institute of Applied Research, University of Stockholm, 1993.

[17] Christine M. Branche, Ph. D. "Personal Watercraft-Related Injuries: A Growing Public Health Concern," Journal of the American Medical Association, August 27, 1997, Vol. 278, No 8, p.664.

[18] Ibid.

[19] Ibid. This is believed to be because most jet ski accidents are never reported to the Coast Guard.

[20] Rachel Gordon. "City plans shoreline ban on jet skis." *San Francisco Examiner*, August 14, 1998, pp. A-1, A-16; Boating statistics, California Department of Boating and Waterways.

[21] CNN, *Impact*, June 29, 1997. Minnesota: 69 percent of 1995 accidents in which experience levels were known involved at least one operator with fewer than 20 hours of experience; Terry Fiedler, "Personal watercaft boom is making waves; noise and safety among the concerns," *Star Tribune*, July 23, 1996.

[22] Figures 1-4, New Hampshire Marine Patrol, 1995, "1995 data comparing Jet Skis to all registered water craft in New Hampshire,"; "Jet skis are a small percentage of registered water craft, however, they represent a significant percentage of the activity of the New Hampshire Marine Patrol."

[23] Dolph Diemont, "PWC Injuries by Age of Operator." 13th District U.S. Coast Guard, 1990-1994.

[24] *Watercraft World*. April, 1998. pp. 54, 108-120.

[25] Ibid., p.108.

[26] Kathryn Morgan. Based on personal communication with Michael Hatton, Santa Barbara Harbor Patrol, July 30, 1998; Testimony of Officer Danny Lopez, San Francisco Police Department Marine Unit, "Ordinance prohibiting the operation of personal watercraft in a 1,200-foot special use area along the San Francisco shoreline." August 13, 1998.

[27] Declaration of Roger F. Hagie, Director of Public Affairs for Kawasaki Motors Corporation, U.S.A, Superior Court of Washington for Whatcom County, August 30, 1996.

[28] Jim Skoog, Untitled article, Personal Watercraft Article for *Cruising World Magazine*, September 8, 1996 (unpublished).

[29] Personal Watercraft Industry Association. "Personal Watercraft Industry Association Proposed Model Watercraft Regulations." p.4.

[30] Alston Colihan, Technical Writer and Director, United States Coast Guard. Text from letter to Phil Pearl, National Parks and Conservation Association. Feb. 18, 1997.