

Fire Island National Seashore

Personal Watercraft Use Environmental Assessment

ERRATA

The following changes modify the *Fire Island National Seashore Personal Watercraft Use Environmental Assessment* (August 2002). The changes have been made to modify the preferred alternative and its analysis, to address public comments, and to clarify the text. Text additions are shown with underlines and deletions with strikeout within the affected paragraph.

As a global change, all references to no-wake operations should read flat-wake.

SUMMARY

Page iii — Change the second paragraph as follows:

They are used for enjoyment, particularly for *touring and maneuvers such as wave jumping stunt-like maneuvers*, and they are *capable of designed for speeds up to 70 in the 60 mph range*. PWC recreation is the fastest growing segment of the boating industry, representing over one-third of total sales. PWC recreation was ~~is~~ the fastest growing segment of the boating industry through the mid 1990s, representing over one-third of total sales.

Page vi, Table A — Change impacts for alternative C (preferred alternative) as follows:

TABLE A: SUMMARY OF THE IMPACT ANALYSIS

Impact Topic	Alternative C: Continue PWC Use under a <u>Special NPS Regulation with Additional Management and Geographic Restrictions</u> but Limit Use to Adjacent Beach Communities and Enforce 1,000-foot Buffer around the National Seashore (Preferred Alternative)
Threatened, Endangered, or Special Concern Species	Threatened or endangered species not likely to be adversely affected. Beneficial impacts to sensitive shorebirds from restricting PWC use <u>to designated channels and ferryways, and from within 1,000 feet of any shoreline west of the Sunken Forest.</u>
Shoreline Vegetation / Wetland Habitats (Also see Submerged Aquatic Vegetation)	Minor impacts to shoreline vegetation; beneficial impacts to tidal wetland habitats from restricting PWC use <u>to designated channels and ferryways, and from within 1,000 feet of any shoreline west of the Sunken Forest.</u>

	Alternative C: Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions but Limit Use to Adjacent Beach Communities and Enforce 1,000-foot Buffer around the National Seashore (Preferred Alternative)
Impact Topic	
Visitor Experience	Beneficial impacts to most visitors; minor to moderate impacts to PWC users from closing areas to use, prohibiting use within the 1,000-foot buffer zone, and requiring no flat- wake speed limits in <u>designated</u> channels and ferryways.

PURPOSE OF AND NEED FOR ACTION

Page 1 — Change the second paragraph as follows:

They are used for enjoyment, particularly for *touring and maneuvers such as wave jumping stunt-like maneuvers*, and they are *capable of designed for speeds up to 70 in the 60 mph range*. PWC recreation is the fastest growing segment of the boating industry, representing over one-third of total sales. PWC recreation was is the fastest growing segment of the boating industry through the mid 1990s, representing over one-third of total sales.

SUMMARY OF AVAILABLE RESEARCH ON THE EFFECTS OF PERSONAL WATERCRAFT

Page 11, “Noise” — Change the last two sentences of the first paragraph to read as follows:

Because of this, the National Park Service contracted noise measurements of personal watercraft and other boat types in 2001 at Glen Canyon National Recreation Area; the preliminary analysis of these data indicates ~~that maximum PWC noise levels~~ maximum levels for PWC-generated noise at 82 50 feet were of approximately 68 to 78 A-weighted dB (dBA). Noise levels for other motorboat types measured during that study were approximately 65 to 86 dBA at 50 feet (Harris Miller Miller & Hanson 2002).

Page 12, “Health and Safety Concerns” — Change the paragraph to read as follows:

~~While PWC Industry representatives report that PWC accidents decreased in some states in the late 1990s, no other research supports their contention. To the contrary, two national studies of PWC accidents and injuries report that personal watercraft pose a clear health and safety risk, primarily to the operators. In the 1990s PWC accidents increased as the popularity of the craft increased. The National Transportation Safety Board reported that in 1996 personal watercraft represented 7.5% of state-registered recreational boats but accounted for 36% of recreational boating accidents. In the same year PWC operators accounted for more than 41% of people injured in boating accidents. PWC operators accounted for approximately 85% of the persons injured in accidents studied in 1997 (NTSB 1998).~~

ALTERNATIVES

Page 26, Alternative C — The preferred alternative was revised to reflect changes to the overall geographic restrictions, as well as the addition of management restrictions. These changes were made to address concerns related to the potential for confusion as to where PWC use would be permitted. Change alternative C as follows:

ALTERNATIVE C: CONTINUE PWC USE UNDER A SPECIAL NPS REGULATION WITH ADDITIONAL MANAGEMENT AND GEOGRAPHIC RESTRICTIONS (PREFERRED ALTERNATIVE), BUT LIMIT USE TO AREAS ADJACENT TO BEACH COMMUNITIES AND ENFORCE A 1,000-FOOT BUFFER ALONG ALL SHORELINES WITHIN THE NPS BOUNDARY

Alternative C would continue to allow PWC ~~in the areas adjacent to~~ access to the national seashore with additional management and geographic restrictions, ~~as in alternative B;~~ however, PWC use would not be permitted in the same areas identified in alternative B and would not be permitted within 1,000 feet of any shoreline (including smaller islands) (see Alternative C map). In addition, PWC operating in ferry ways would be required to maintain a no wake speed. PWC users would be allowed to operate in:

- Great South Bay from the western boundary of the national seashore adjacent to Robert Moses State Park, east to the western boundary of the Sunken Forest, excluding any area within 1,000 feet of the national seashore shoreline, including East Fire Island and West Fire Island.
- Navigation channels marked by buoys or identified on the NOAA navigational chart (12352) to include access channels to and from Fair Harbor, Dunewood, Lonelyville, Atlantique, Cherry Grove, Fire Island Pines, Davis Park, Moriches Inlet, and to the communities of Kismet, Saltaire, Ocean Beach, Ocean Bay Park, Point O' Woods, Oakleyville, and Water Island at "flat-wake speed" (maximum of 6 mph).
- The Long Island Intracoastal Waterway within the park boundaries.

All local, state, and federal laws and regulations relative to PWC use would remain in effect and be enforced by the park.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

Page 27 — Change the first two sentences of the last paragraph (discussion of alternative C) as follows:

Alternative C would have impacts on park resources and visitor use and experience at Fire Island National Seashore very similar to those described for alternatives A and B; however, it would ~~prohibit restrict PWC use to those areas within the national seashore adjacent to beach communities and would restrict PWC use from a 1,000-foot buffer around all national seashore land west of the Sunken Forest western boundary,~~ allowing PWC to reach adjacent communities through marked channels. In addition, PWC users would be required to maintain ~~flat-wake no-wake~~ flat-wake speeds within designated channels and ferryways.

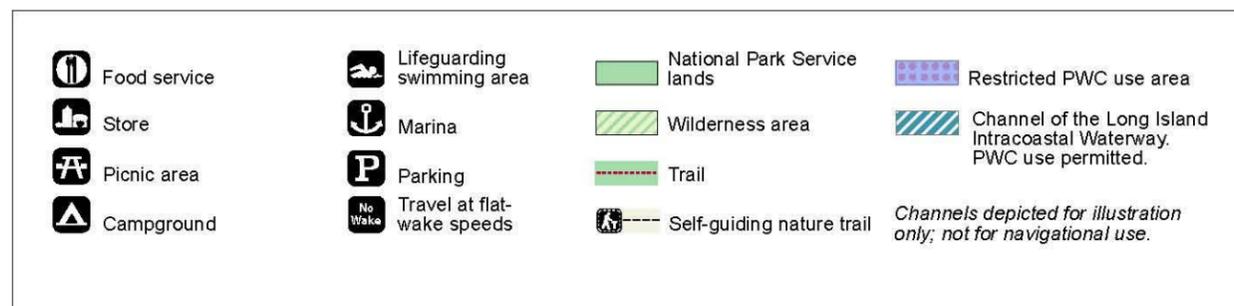
Page 33, Map of Alternative C — Replace the map with the revised version provided on the next page.

Fire Island National Seashore New York

Alternative C --
Continue PWC Use under
a Special NPS Regulation
with Additional Management
and Geographic Restrictions



United States Department of the Interior/National Park Service WASO/Dec '03/615-20046



SUMMARY OF ALTERNATIVES AND IMPACTS

Page 28, Table 1 — Change the summary of alternative C as follows:

TABLE 1: SUMMARY OF PWC MANAGEMENT ALTERNATIVES

	Alternative C: Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions (Preferred Alternative) but Limit Use to Adjacent Beach Communities and Enforce 1,000-foot Buffer around the National Seashore
Use Area	Limit PWC use to areas west of the western boundary of the Sunken Forest; adjacent to beach communities and enforce a 1,000-foot buffer around all park lands, including West and East Fire Islands; and limit PWC use to navigation channels and access channels to designated beach communities.
Other Restrictions	PWC can operate in ferryways and access channels but must maintain a no-flat-wake speed

Pages 40–42, Table 2 — Change the impact conclusions for alternative C as follows:

TABLE 2: SUMMARY OF ENVIRONMENTAL CONSEQUENCES

	Alternative C: Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Adjacent Beach Communities and Enforce 1,000-foot Buffer around the National Seashore (Preferred Alternative)
Impact Topic	
Threatened, Endangered, or Special Concern Species	Threatened or endangered species not likely to be adversely affected. Beneficial impacts to sensitive shorebirds from restricting PWC use to designated channels and ferryways, and from within 1,000 feet of any shoreline west of the Sunken Forest.
Shoreline Vegetation / Wetland Habitats (Also see Submerged Aquatic Vegetation)	Minor impacts to shoreline vegetation; beneficial impacts to tidal wetland habitats from restricting PWC use to designated channels and ferryways, and from within 1,000 feet of any shoreline west of the Sunken Forest.

Impact Topic	Alternative C: Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions
Visitor Experience	Beneficial impacts to most visitors; minor to moderate impacts to PWC users from closing areas to use, prohibiting use within the 1,000-foot buffer zone, and requiring no flat-wake speed limits in <u>designated channels and ferryways</u> .

AFFECTED ENVIRONMENT

SOUNDSCAPES

Page 51 — Add the following two paragraphs after the penultimate paragraph that ends with (Asplund 2001):

Komanoff and Shaw (2000) note that the biggest difference between noise from personal watercraft and that from motorboats is that the former continually leave the water, which magnifies noise in two ways. Without the muffling effect of water, the engine noise is typically 15 dB(A) louder and the smacking of the craft against the water surface results in a loud “whoop” or series of them. With the rapid maneuvering and frequent speed changes, the impeller has no constant “throughput” and no consistent load on the engine. Consequently, the engine speed rises and falls, resulting in a variable pitch. This constantly changing sound is often perceived as more disturbing than the constant sound from motorboats.

Most studies on the effects of noise on soundscapes and human receptors have focused on highway and airport noise. Komanoff and Shaw (2000) used the analytical approaches of these studies to perform a noise-cost analysis of personal watercraft. They concluded that the cost to beachgoers from personal watercraft noise was more than \$900 million per year. The cost per personal watercraft was estimated to be about \$700 per vessel each year or \$47 for each 3-hour “personal watercraft day.” They concluded that the cost per beachgoer was the highest at secluded lake sites, where beachgoers had a higher expectation of experiencing natural quiet and usually invested a larger amount of time and personal energy in reaching the area. However, because there are many more visitors to be affected at popular beaches, noise costs per personal watercraft were highest at crowded sites (Drowning in Noise: Noise Costs of Jet Skis in America [Komanoff and Shaw 2000]).

ENVIRONMENTAL CONSEQUENCES

WATER QUALITY

Page 75 — Revise the last paragraph as follows:

A typical conventional (i.e., carbureted) two-stroke PWC engine discharges as much as 30% of the unburned fuel mixture into the exhaust (*NPS 1999a*; California Air Resources Board 1999). At common fuel consumption rates, an average two-hour ride on a personal watercraft may discharge three gallons (11.34 liters) of fuel into the water (*NPS 1999a*). ~~The Bluewater Network states that personal watercraft can discharge between three and four gallons of fuel over the same time period. However, the newer four-stroke technology can reduce these emissions to meet current regulatory standards for both water and air quality (US EPA 1996a). The percentage of emissions of BTEX and MTBE compounds from four-stroke inboard or outboard motors is less than those from a two-stroke outboard engine or an existing two-stroke PWC engine. According to data from the California Air Resources Board, two-stroke PWC engines may consume 5 to 10 gallons of fuel per hour, of which up to 3.3 gallons per hour may be discharged unburned (CARB 1998b). (As described in appendix C, an estimated discharge rate of 3 gallons per hour is used in the water quality impact calculations.)~~

PWIA notes that direct-injection engines have been available in PWC for four years; and three PWC manufacturers introduced four-stroke engines for the 2002 model year (PWIA, May 28, 2002). EPA assumes that the existing two-stroke engine models would not be completely replaced by newer PWC technology until 2050 (40 CFR 89, 90, 91).

METHODOLOGY AND ASSUMPTIONS

Page 78 — Revise assumption 6, second paragraph, as follows:

In May 2000, Governor George Pataki signed into law legislation to protect New York's water supplies against contamination from MTBE by banning the use, sale, or importation of fuels containing this additive beginning in 2004 (NY State Governor's Office 2000). It is not clear what additive will substitute MTBE. ~~Consequently, emission calculations excluded MTBE after 2004.~~ Governor Pataki also instructed the New York State Department of Environmental Conservation to implement new guidelines to reduce allowable levels of MTBE in surface and groundwater from the previous standard of 50 parts per billion to 10 parts per billion. Calculations for 2002 incorporated an assumed MTBE concentration of 15% in gasoline. As a result of the recently passed New York State law, emission calculations excluded MTBE after 2004.

Page 80 — Revise assumption 11 as follows (beginning with the end of the first paragraph):

The 115 PWC units were assumed to be distributed among all three areas: 64 in area I, 26 in area II, and 25 in area III. Future PWC usage is expected to increase at an annual rate of 1.3%. Consequently, in 2012 on a high-use day 73 personal watercraft are expected in area I, 30 in area II, and 29 in area III.

Similar to the estimation procedure for personal watercraft, motorboat usage (and organic pollutant discharge) was assumed to increase by 1.3% per year between 2002 and 2012. Totals of 291 motorboats (exclusive of personal watercraft) are expected in area I, 118 in area II, and

114 in area III. The loadings of pollutants for each geographic area were estimated based on four hours a day of maximum PWC and motorboat use. The only exception is area II under alternative C, where each personal watercraft is expected to operate for two hours on a high-use day.

IMPACT TO WATER QUALITY FROM PWC USE

Impacts of Alternative A — Continue PWC Use as Currently Managed under a Special Regulation

Page 82, Analysis — Revise Table 16 as follows:

TABLE 16: THRESHOLD WATER VOLUMES NEEDED TO DILUTE PWC POLLUTANTS, ALTERNATIVE A

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	350	160 190	140	66 77	140	64 74
Naphthalene	140	64 75	57	26 34	55	25 30
1-methyl naphthalene	710	330 338	290	130 160	280	130 150
Benzene	340	150 180	140	63 73	130	61 70
MTBE (marine, acute)	4.9	banned	2.0	banned	1.9	banned
MTBE (marine, chronic)	14	banned	5.8	banned	5.6	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	100	46 54	41	19 22	40	18 24
Benzene	4,400	2,000 2,300	1,800	820 950	1,700	790 940
MTBE	20,000	banned	8,100	banned	7,800	banned

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

Page 83 — Change the last sentence of the second paragraph as follows:

In 2012 the benzene threshold volume (~~2,000~~ 2,900 ac-ft) would be less than the water volume under NPS jurisdiction ~~the national seashore water volume~~ in area I.

Page 84, Cumulative Impacts — Change Table 17 as follows:

TABLE 17: THRESHOLD WATER VOLUMES NEEDED TO DILUTE POLLUTANTS FROM ALL MOTORIZED WATERCRAFT, ALTERNATIVE A

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	1,800	810 940	720	330 940	690	250 940
Naphthalene	700	320 380	280	130 940	270	100 940
1-methyl naphthalene	3,600	1,600 4,900	1,400	660 940	1,400	510 940
Benzene	1,700	760	680	310	660	240

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
		900		940		940
MTBE (marine, acute)	25 940	banned	10	banned	10	banned
MTBE (marine, chronic)	72	banned	29	banned	28	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	500	230 270	210	94 110	200	90 110
Benzene	22,000	9,900 12,000	8,800	4,000 4,800	8,500	3,900 4,600
MTBE	100,000	banned	40,000	banned	39,000	banned

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

Page 84, Cumulative Impacts — Change paragraphs two through four as follows (paragraphs three and four are combined):

Results of the water quality analysis for all motorboat activity shows that for all discharged pollutants evaluated, the ecotoxicological threshold volumes estimated for 2002 and 2012 would be below volumes of water available in NPS jurisdictional waters in the three study areas. In 2002 threshold volumes would range from 10 to 3,600 acre-feet, while available volumes within national seashore jurisdictional waters range from 2,425 to 4,580 acre-feet. Only the threshold volume for 1-methyl naphthalene in area I (3,600 ac-ft) would approach the water volume of 3,970 acre-feet. Mixing, flushing, and the resulting dilution from the 16,700 acre-feet of water directly adjacent to park waters would further reduce 1-methyl naphthalene concentrations below ecotoxicological benchmarks. Overall, cumulative water quality impacts based on ecotoxicological benchmarks for all organic pollutants would be negligible.

Human health threshold volumes for benzo(a)pyrene would all be lower than the volume of water under NPS jurisdictional waters in each area, and risks to human health would be negligible in all areas in 2002 and 2012. However, human health threshold volumes for benzene and MTBE would be substantially higher than available water volumes in all three study areas. Threshold volumes of benzene (area I in 2002) and MTBE (all areas in 2002) would also exceed the available water volumes in Great South Bay and Moriches Bay. Benzene threshold volumes are estimated to be up to five times the available national seashore jurisdictional water volume in a study area. MTBE threshold volumes in 2002 would be from 10 to 25 times greater than jurisdictional water volumes. Overall, cumulative water quality impacts based on ecotoxicological benchmarks for organic pollutants would be negligible for all pollutants. None of the pollutants evaluated would have a threshold volume greater than water volumes within national seashore jurisdiction. Similarly, benzo(a)pyrene risks to human health would be negligible for all areas in 2002 and 2012. Potential human health impacts from benzene would be possibly major to moderate in area I in 2002 and 2012 and negligible in area III in 2012. These evaluations of impacts incorporate the five-hour half-life of benzene. For example, in area III the average concentration of benzene would be lower than the human health standard of 10 µg/L in less than five hours after four hours of boating activity. Potential human health impacts from MTBE would range from possibly major in area I in 2002 to moderate in area III in 2002. Monitoring of high-use areas would be needed to determine if major impact levels could actually occur. In 2012, all water quality impacts from motorized craft (including personal watercraft) are expected to be lower than in 2002 due to reduced emission rates and the ban on MTBE in gasoline in 2004. However, impacts to human health from benzene would remain moderate in area I and minor in area II in 2012. PWC contribution to overall cumulative effects would be negligible.

Page 85, Conclusion — Clarify the second sentence of the third paragraph as follows:

Cumulative human health impacts from benzene under alternative A would range from possibly major to moderate (area I) to negligible (area III). Potential human health impacts from MTBE in 2002 would range from major (area I) to moderate (area III).

Impacts of Alternative B — Continue PWC Use under a Special Regulation, but Limit Use to Areas adjacent to Beach Communities

Page 85, Analysis — Revise Table 18 as follows:

TABLE 18: THRESHOLD WATER VOLUMES NEEDED TO DILUTE PWC POLLUTANTS, ALTERNATIVE B

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water in PWC use areas	1,985		1,212		0	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	350	160 490	140	66 77	0	0
Naphthalene	140	64 75	57	26 34	0	0
1-methyl naphthalene	710	330 380	290	134 160	0	0
Benzene	340	150 180	140	63 73	0	0
MTBE (marine, acute)	4.9	banned	2.0	banned	0	banned
MTBE (marine, chronic)	14	banned	5.8	banned	0	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	100	46 54	41	19 22	0	0
Benzene	4,400	2,000 2,300	1,800	820 950	0	0
MTBE	20,000	banned	8,100	banned	0	banned

Note: This alternative would close half of area I (western area and Fire Islands area), half of area II, and all of area III to PWC use. PWC emissions in areas I and II would remain the same as in alternative A; however, pollutants would be concentrated in smaller areas.

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

Page 87, Cumulative Impacts — Revise Table 19 and the first paragraph after the table as follows:

TABLE 19: THRESHOLD WATER VOLUMES NEEDED TO DILUTE POLLUTANTS FROM ALL MOTORIZED WATERCRAFT, ALTERNATIVE B

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water in PWC use areas	1,985		1,212		0	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	1,800	810 940	720	330 390	550	250 300
Naphthalene	700	320 380	280	130 150	220 2,200	100 120
1-methyl naphthalene	3,600	1,600 4,000	1,400	660 780	1,100	510 600
Benzene	1,700	760 900	680	310 370	520	240 280
MTBE (marine, acute)	25 24	banned	10	banned	7.7 7.6	banned

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
MTBE (marine, chronic)	72	banned	29	banned	23 22	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	500	230 270	210	94 110	160	72 85
Benzene	22,000	9,900 12,000	8,800	4,000 4,800	6,800	3,100 3,600
MTBE	100,000	banned	40,000	banned	31,000	banned

Note: This alternative would close half of area I (western area and Fire Islands area), half of area II, and all of area III to PWC use. PWC emissions in areas I and II would remain the same as in alternative A; however, pollutants would be concentrated in smaller areas.

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

As shown in Table 19, estimated threshold volumes for cumulative impacts from all motorized activity would be higher than for PWC use alone. However, impacts from the five organics evaluated based on ecotoxicological benchmarks would be negligible. Estimated threshold volumes in 2002 would range from 7.7 8 to 3,600 acre-feet, and available water volumes in areas I and II are 1,985 and 1,212 acre-feet, respectively. The threshold volumes for 1-methyl naphthalene in areas I (both years) and area II (2002) would be are greater than the volumes in the PWC-permitted areas, but the majority of this compound is from other motorboats that can operate throughout the park waters under alternative B.

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 88 — Revise the discussion of water quality impacts for alternative C as follows:

Analysis. Alternative C would continue to allow PWC access to the national seashore with additional management and geographic restrictions (see Alternative C map). PWC users would be allowed to operate only in the following areas:

- Great South Bay from the western boundary of the national seashore adjacent to Robert Moses State Park, east to the western boundary of the Sunken Forest, excluding any area within 1,000 feet of the national seashore shoreline, including East Fire Island and West Fire Island.
- Navigation channels marked by buoys or identified on the NOAA navigational chart (12352) to include access channels to and from Fair Harbor, Dunewood, Lonelyville, Atlantique, Cherry Grove, Fire Island Pines, Davis Park, Moriches Inlet, and to the communities of Kismet, Saltaire, Ocean Beach, Ocean Bay Park, Point O’ Woods, Oakleyville, and Water Island at flat-wake speed (maximum 6 mph).
- The Long Island Intracoastal Waterway within the park boundaries.

All local, state, and federal laws and regulations relative to PWC use would remain in effect and would be enforced by the park.

Similar to alternative B, Alternative C would allow PWC use only in certain areas. However, PWC operators would also be required to travel at no-wake speeds (maximum 6 mph) when accessing landing points within the seashore boundary, and a 1,000-foot buffer zone would be enforced around the national seashore lands. This management restriction would contribute to improvement in water quality by reducing resuspension of sediments in shallow waters and

reducing emissions of contaminants as a consequence of reduced PWC speeds while accessing landing points. It is assumed that emissions would be reduced by 75% based on data presented in Miller et al. (2003). Allowable areas for PWC activity would be reduced an additional 20% in area I compared in comparison to alternative B due to the buffer zone restriction. In area II only an estimated 220 acre-feet in the four navigation channels described above could be used by personal watercraft. Although beneficial for water quality in shoreline areas, this condition could have an adverse effect on water quality in other areas offshore where PWC use could be concentrated. As in alternative B, it is assumed that the number of PWC users in national seashore waters in areas I and II would be the same as in alternative A. However, PWC use in area II is estimated to be for only two hours on a high-use day. ~~Also,~~ It is assumed that the same number of motorized boats other than personal watercraft would be using all three areas as in alternatives A and B. Estimated threshold volumes needed to dilute PWC emissions are shown in Table 20.

TABLE 20: THRESHOLD WATER VOLUMES NEEDED TO DILUTE PWC POLLUTANTS, ALTERNATIVE C

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water in PWC use areas	1,588		970 220		0	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	350	490 160	440 18	77 08.3	0	0
Naphthalene	140	75 64	57 7.1	34 3.3	0	0
1-methyl naphthalene	710	380 330	290 36	160 17	0	0
Benzene	340 330	480 150	440 17	73 7.8	0	0
MTBE (marine, acute)	4.9	banned	2.9 0.2	banned	0	banned
MTBE (marine, chronic)	14	banned	5.8 0.7	banned	0	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	100	54 46	44 5.1	22 2.4	0	0
Benzene	4,400	2,300 2,000	1,800 220	950 100	0	0
MTBE	20,000	banned	8,400 1,000	banned	0	banned

Note: This alternative would close half of area I (western area and Fire Islands area), half of all of area II excluding the navigation channels, and all of area III to PWC use. PWC emissions in areas I and II would remain the same as in alternative A; however, pollutants would be concentrated in smaller areas.

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

Water quality impacts under alternative C would be similar to those for alternative B, but they would be somewhat greater in areas of concentrated use due to the 1,000-foot PWC buffer along all shorelines. However, alternative C would reduce impacts in areas along the shallower bay shoreline, where waters may not mix or circulate as much as in the open bay. All impacts to aquatic life (ecotoxicological benchmarks) from pollutants would be negligible because threshold volumes required in 2002 would range from 0.2 to 710 acre-feet, while water volumes in PWC use areas under NPS jurisdiction range from ~~970~~ 220 to 1,588 acre-feet. Impacts to human health from benzo(a) pyrene also would be negligible. [No changes to rest of analysis.]

Page 89, Cumulative Impacts — Revise the discussion of impacts as follows:

Cumulative Impacts. As described above, PWC use would be allowed in only limited portions of areas I and II and would be banned in area III. Other motorboats would not be affected by these restrictions. In comparing threshold volumes with available water volumes, PWC emissions were compared to volumes in the restricted areas, and other motorboat emissions were compared to volumes within park jurisdictional waters (see Table 21). As described above for PWC use, emissions within the PWC use areas would result in more localized impacts, but those impacts would be reduced in most shallower areas along the shoreline because of the 1,000-foot buffer.

Estimated threshold volumes for emissions from all motorized craft under alternative C would be higher than for PWC emissions alone, as seen in Table 21. However, impacts from the five organics evaluated based on ecotoxicological benchmarks would be negligible. Estimated threshold volumes would range from 7.7 & to 3,600 acre-feet, while available water volumes in PWC use areas I and II are 1,588 and 220 ~~970~~ acre-feet, respectively. However, water volumes within the national seashore boundary and in the adjacent bay are substantially larger and would serve to dilute PWC and motorboat emissions. The threshold volumes of 1-methyl naphthalene in area I (2002 and 2012) and area II (2002) would be greater than the volumes in the PWC use areas, but the majority of this compound is from other motorboats, which would be able to operate throughout national seashore waters under alternative C.

TABLE 21: THRESHOLD WATER VOLUMES NEEDED TO DILUTE POLLUTANTS FROM ALL MOTORIZED WATERCRAFT, ALTERNATIVE C

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water in PWC use areas	1,588		970 220		0	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	1,800	810 940	590 720	270 390	550	300-250
Naphthalene	700	320 380	240 280	110 150	220 2,200	420-100
1-methyl naphthalene	3,600	1,600 4,900	1,200 4,400	540 780	1,100	600-510
Benzene	1,700	760 900	560 680	260 370	520	280-240
MTBE (marine, acute)	25 24	banned	8.0 40	banned	7.7 7.6	banned
MTBE (marine, chronic)	72	banned	24 29	banned	23 22	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	500	230 270	170 240	77 440	160	72 85
Benzene	22,000	9,900 42,000	7,300 8,800	3,300 4,800	6,800	3,100 3,600
MTBE	100,000	banned	34,000 40,000	banned	31,000	banned

Note: This alternative would close half of areas I, and ~~half of~~ all of area II excluding the navigation channels, and all of area III to PWC use. PWC emissions in areas I and II would remain the same as in alternative A; however, pollutants would be concentrated in smaller areas.

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

Impacts of the No-Action Alternative

Page 91, Analysis — Change Table 22 and the first paragraph after the table as follows:

TABLE 22: THRESHOLD WATER VOLUMES NEEDED TO DILUTE POLLUTANTS FROM MOTORIZED WATERCRAFT (EXCLUDING PERSONAL WATERCRAFT), NO-ACTION ALTERNATIVE

	Area I		Area II		Area III	
	2002	2012	2002	2012	2002	2012
NPS jurisdictional waters (ac-ft)	3,970		2,425		4,580	
Volume of water for the whole bay	16,700		21,140		12,200	
Ecotoxicological Benchmark Volume*						
Benzo(a)pyrene (fuel and exhaust)	1,400	760 640	580	340 260	550	300 250
Naphthalene	560	300 260	230	120 100	2,200	420 100
1-methyl naphthalene	2,900	4,500 1,300	1,200	620 530	1,100	600 510
Benzene	1,300	720 610	540	290 250	520	280 240
MTBE (marine, acute)	20	Banned	8.0	banned	7.6 7.7	banned
MTBE (marine, chronic)	57 58	Banned	24	banned	22 23	banned
Human Health Benchmark Volume**						
Benzo(a)pyrene (fuel and exhaust)	400	220 180	160	760 75	160	85 72
Benzene	17,000	9,400 7,900	7,100	760 3,200	6,800	3,600 3,100
MTBE	80,000	banned	32,000 33,000	banned	31,000	banned

NOTE: No PWC use would be allowed within the national seashore.

* Threshold volume (ac-ft) below which ecotoxicological effects might occur.

** Threshold volume (ac-ft) below which human health might be adversely affected.

As can be seen by comparing Table 17 and Table 22, motorboats alone account for approximately 80% of the organic pollutants discharged by motorized watercraft. Impacts from motorboats alone would be negligible for all ecotoxicological impacts and for human health impacts due to benzo(a)pyrene. Human health impacts from benzene would range from moderate in area I to negligible to minor ~~minimal~~ in area III. Impacts from MTBE would be possibly major in area I and moderate in areas II and III. Because MTBE would be banned in 2004, there would be no motorboat-related impacts in 2012 attributable to MTBE.

AIR QUALITY

IMPACT TO HUMAN HEALTH FROM AIRBORNE POLLUTANTS RELATED TO PWC USE

Page 96, Impact thresholds — Change the text as follows:

	<u>Activity Analyzed</u>		<u>Current Air Quality</u>
<i>Negligible:</i>	Emission levels would be less than 50 tons/year for each pollutant.	and	The first highest 3-year maximum for each pollutant <u>is</u> would be less than NAAQS.
<i>Minor:</i>	Emission levels would be less than 100 tons/year for each pollutant.	and	The first highest 3-year maximum for each pollutant <u>is</u> would be less than NAAQS.

	<u>Activity Analyzed</u>		<u>Current Air Quality</u>
<i>Moderate:</i>	Emission levels would be greater than or equal to 100 tons/year for any pollutant.	or	The first highest 3-year maximum for each pollutant is would be greater than NAAQS.
<i>Major:</i>	Emission levels would be greater than or equal to 250 tons/year for any pollutant.	and	The first highest 3-year maximum for each pollutant is would be greater than NAAQS.

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 99, Analysis — Change the text as follows:

Analysis. PWC use under alternative C would be allowed in areas adjacent to beach communities in area I but a 1,000-foot buffer would be enforced around the national seashore lands. In addition, and PWC users would be allowed access to designated beach communities via designated navigation channels and have to operate in ferryways at no flat-wake speeds in areas I and II. Annual assumptions for PWC use are the same as for alternative B — 12,700 boating hours in 2002, increasing to 13,600 boating hours in 2012. It is assumed that air pollution would not be restricted to specific areas, so the impact analysis considers all PWC use together, not by individual areas, as was done for water quality.

IMPACT TO AIR QUALITY RELATED VALUES FROM PWC POLLUTANTS

Pages 100–101, Impact thresholds — Change the text as follows:

	<u>Activity Analyzed</u>		<u>Current Air Quality</u>
<i>Negligible:</i>	Emissions would be less than 50 tons/year for each pollutant.	and	There is would be no perceptible visibility impacts (photos or anecdotal evidence). and There is would be no observed ozone injury on plants. and SUM06 ozone is would be less than 12 ppm-hrs.
<i>Minor:</i>	Emissions would be less than 100 tons/year for each pollutant.	and	SUM06 ozone is would be less than 15 ppm-hrs.
<i>Moderate:</i>	Emissions would be 100–249 tons/year for any pollutant. or Visibility impacts from cumulative PWC emissions would be likely (based on past visual observations).	or	Ozone injury symptoms is would be identifiable on plants. and SUM06 ozone is would be less than 25 ppm-hrs.

	<u>Activity Analyzed</u>	<u>Current Air Quality</u>
<i>Major:</i>	Emissions would be equal to or greater than 250 tons/year for any pollutant. or Visibility impacts from cumulative PWC emissions would be likely (based on modeling or monitoring).	and Ozone injury symptoms is would be identifiable on plants. or SUM06 ozone is would be greater than 25 ppm-hrs.

Impairment: ~~Air quality related values in the park would be adversely affected. In addition,~~
Impacts would

- have a major adverse effect on park resources and values;
- contribute to deterioration of the park's air quality to the extent the park's purpose could not be fulfilled as established in its enabling legislation;
- affect resources key to the park's natural or cultural integrity or opportunities for enjoyment; or
- affect the resource whose conservation is identified as a goal in the park's general management plan or other park planning documents.

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 103 — Change the title of alternative C as shown above.

SOUNDSCAPES

Page 104 — Delete the introductory text and replace with the following:

Personal watercraft-generated noise varies from vessel to vessel. No literature was found that definitively described scientific measurements of personal watercraft noise. Some literature stated that all recently manufactured watercraft emit fewer than 80 decibels at 50 feet from the vessel, while other sources attributed levels as high as 102 decibels without specifying distance. None of this literature fully described the method used to collect noise data.

The National Park service contracted for noise measurements of personal watercraft and other motorized vessels in 2001 at Glen Canyon National Recreation Area (Harris Miller Miller & Hanson, Inc. 2002). The results show that maximum personal watercraft noise levels at 25 meters (82 feet) ranged between 68 to 76 decibels on the A-weighted scale. Noise levels for other motorboat types measured during that study ranged from 65 to 86 decibels at 25 meters (82 feet).

Noise limits established by the National Park Service require vessels to operate at less than 82 dB at 82 feet from the vessel. Personal watercraft may be more disturbing than other motorized vessels because of rapid changes in acceleration and direction of noise.

IMPACT TO VISITORS FROM NOISE GENERATED BY PERSONAL WATERCRAFT

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 111 — Change the text as follows:

Analysis. PWC use under alternative C would be allowed in areas adjacent to beach communities in area I but a 1,000-foot buffer would be enforced around the national seashore lands, including West and East Fire Islands. Like alternative B, alternative C would allow PWC use but would limit it to areas adjacent to the beach communities, and a 1,000-foot buffer would be enforced around the national seashore. In addition, PWC users would be required to operate at ~~no~~ flat-wake speeds (maximum 6 mph) within designated access channels and ferryways, which would reduce PWC-generated noise levels. Impacts would be negligible adverse under alternative C. PWC operations at idle would also reduce noise levels farther from the shoreline. Noise reductions at 1,000 feet from shore in area I would be substantial, therefore beneficial.

WILDLIFE AND WILDLIFE HABITAT

IMPACT OF PWC USE ON WILDLIFE AND WILDLIFE HABITAT

Impacts of Alternative B — Continue PWC Use under a Special Regulation, but Limit Use to Areas adjacent to Beach Communities

Page 118, Analysis — Clarify the text as follows:

Analysis. In areas remaining open to PWC use, impacts on wildlife and wildlife habitat would be short term and minor, similar to those discussed under alternative A. Effects are expected to be minor because species sensitive to a high level of noise and human activity are not expected to regularly use these areas during high use periods. Requirements for PWC users to operate at less than 5 mph within 100 feet of the shoreline would minimize adverse effects associated with rapid approach and noise to wildlife utilizing shoreline habitats.

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 118, Analysis — Change the text as follows:

Analysis. Impacts similar to those discussed under alternative A are expected in areas remaining open to PWC use, with short-term, minor, adverse, indirect impacts because species sensitive to a high level of noise and human activity are not expected to regularly occur in these areas during high use periods. Impacts in areas closed to PWC use would be similar to those discussed for alternative B, with short- and long-term, beneficial impacts to shorebirds, waterfowl, and other fish and wildlife species using shallow water habitats and the shoreline, or within 1,000 feet of any shorelines within the national seashore. Implementing ~~no~~ flat-wake zones in designated channels and ferryways would minimize potential for impacts associated

with potential collisions with wildlife and would minimize adverse effects associated with noise fluctuations. Restricting PWC access in most of the shallow water habitat along the national seashore would also enhance the quality of essential fish habitats in these areas, a long-term beneficial impact.

AQUATIC FAUNA

IMPACT OF PWC USE AND NOISE ON AQUATIC FAUNA

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 123, Analysis — Change the first two paragraphs as follows:

Analysis. Alternative C is similar to alternative B except that PWC use would be prohibited from all park areas east of the Sunken Forest except for designated access channels. The access channels would be designated as flat-wake zones, within 1,000 feet of the national seashore shoreline. PWC use would still be allowed in areas adjacent to beach communities, as long as they were 1,000 feet from the shore.

Limiting PWC use to access channels and enforcing flat-wake restrictions in the channels to the east of the Sunken Forest ~~Enforcing a 1,000-foot buffer~~ would reduce noise emission intensities in the eastern section of the national seashore ~~nearshore areas.~~ However, as As described in the scientific literature, sound travels faster and with higher intensities in water than in air. Consequently, PWC units operating outside, but adjacent to, the park boundaries 1,000 feet from shore would still have a minor ~~to moderate~~ impact on aquatic fauna within the park. In the long term, ~~minor~~ reductions in noise emissions as a consequence of restricting use to access channels east of the Sunken Forest, enforcing flat-wake restrictions in the access channels, the 1,000-foot buffer, and a potential reductions in noise emissions (as forecasted by the industry) from newer machines, would ~~could contribute to a reduction of adverse impacts to aquatic fauna in,~~ result in beneficial impacts in the eastern section of the national seashore, in nearshore areas. Impacts outside the areas closed to PWC use and the flat-wake zone areas 1,000-foot buffer zone would be similar to those described for alternative B.

Pages 123–24, Cumulative Impacts — Change the text as follows:

Cumulative Impacts. The long-term cumulative effects of alternative C would be similar to those of alternative A; that is, motorized watercraft activity in deeper water and in areas outside the national seashore would continue to have moderate to possibly major adverse impacts on aquatic fauna. However, enforcing a 1,000-foot buffer would have a beneficial effect on noise in nearshore waters. Limiting PWC use to access channels and enforcing flat-wake restrictions in the channels to the east of the Sunken Forest, along with potential reductions in noise emissions from newer machines, would result in long-term, beneficial impacts on aquatic fauna in this area.

Pages 124, Conclusion — Change the conclusion for cumulative impacts as follows:

Cumulative effects would be similar to those described for alternative A in areas with no change expected in remaining open to PWC use and deeper waters ~~or~~ in areas outside the

national seashore boundary. Impacts on aquatic fauna would be moderate to possibly major in these areas. Limiting PWC use to access channels and enforcing flat-wake restrictions in the channels to the east of the Sunken Forest, along with potential reductions in noise emissions from newer machines, would result in long-term, beneficial, cumulative impacts on aquatic fauna in this area.

Impacts of the No-Action Alternative

Page 124, Cumulative Impacts — Change the text as follows:

Cumulative Impacts. Long-term beneficial impacts could be expected from a reduction of PWC use in NPS jurisdictional waters. However, no change is expected in PWC use in areas outside of NPS jurisdictional waters. In addition, motorized boat use in deeper waters and in areas outside the national seashore boundary are expected to continue, so impacts would be long term and moderate to possibly major, similar to alternative A.

Page 124, Conclusion — Change the second paragraph (cumulative impacts) as follows:

No change is expected in PWC use in areas outside NPS jurisdictional waters or in motorized boat use ~~is expected~~ in deeper waters and in areas outside the national seashore boundary, so impacts on aquatic fauna would be moderate to possibly major, the same as alternative A. Long-term beneficial impacts could be expected from banning PWC use in NPS jurisdictional waters.

THREATENED, ENDANGERED, OR SPECIAL CONCERN SPECIES

IMPACT OF PWC USE ON SUCH SPECIES

Page 128, “Impacts of Alternative A” Analysis — Change the text of 2nd full paragraph as follows:

Implementation of alternative A is not likely to adversely affect federally listed sea turtles documented to occur in the area. Direct impacts would be unlikely because turtles are expected to avoid areas where PWC use occurs due to related underwater noise and disturbance. Based on the review of the proposed action and the action location, the National Marine Fisheries Service stated that it does not appear that there is an action on which to consult *and, therefore, Section 7 consultation may be required* (see appendix A-B).

Federally protected whales documented to occur off the coast of New York, including the endangered northern right whale, humpback whale, and fin whale, are not expected to be affected by PWC use at Fire Island National Seashore; *however, once a federal action (alternative) is decided on, Section 7 consultation may be required* ~~according to the National Marine Fisheries Service~~ (see appendix A-B).

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 130, Analysis — Change the text as follows:

Analysis. Under this alternative PWC use would be limited to beach community access channels, areas adjacent to beach communities and users would have to stay 1,000 feet away from any shoreline (including smaller island shorelines). PWC users operating in access channels and ferryways must maintain a ~~no~~ flat-wake speed.

Effects to federally listed threatened or endangered species as a result of PWC use would be similar to those discussed under alternative A; however, limiting use to access channels, enforcing flat-wake restrictions in the channels to the east of the Sunken Forest, and restricting PWC use within 1,000 feet of any shoreline would minimize potential impacts to sensitive shorebirds using shoreline habitats for nesting, foraging, or resting. Alternative C is not likely to adversely affect federal or state listed threatened or endangered species within Fire Island National Seashore.

Page 130, Conclusion — Change the text as follows:

Conclusion. Alternative C is not likely to adversely affect federal or state listed threatened or endangered species at Fire Island National Seashore. Effects would be similar to those discussed under alternative A; however, limiting use to access channels to the east of the Sunken Forest and restricting PWC use within 1,000 feet of any shoreline would further minimize potential impacts to sensitive shorebirds.

SHORELINE AND SUBMERGED AQUATIC VEGETATION

IMPACT TO SHORELINE VEGETATION/ WETLAND HABITATS FROM PWC USE

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 134, Analysis — Change the text as follows:

Analysis. Under this alternative PWC use would be ~~allowed adjacent to beach communities; but no PWC use would be allowed closer than 1,000 feet to any shoreline, except in corridors established to access beach communities. PWC users operating in ferryways must maintain a no-wake speed~~ limited to beach community access channels and ferryways, and users would have to stay 1,000 feet away from any shoreline (including smaller island shorelines). PWC users operating in access channels would be required to maintain a flat-wake speed.

IMPACT ON SENSITIVE SUBMERGED AQUATIC VEGETATION FROM PWC ACCESS

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 136 — Change the alternative title as shown above.

VISITOR EXPERIENCE

IMPACTS OF PWC USE ON VISITOR EXPERIENCE GOALS

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 141, Analysis — Change the text as follows:

Analysis. This alternative is the same as alternative B except that, in national seashore areas remaining open to PWC use (area I), a 1,000-foot buffer zone would be enforced. In addition, and a ~~no~~ flat-wake zone would be implemented within designated access channels and ferryways throughout the national seashore.

Impact on PWC Users — Impacts to PWC users would be similar to alternative B except PWC users would be banned within 1,000 feet of any shoreline and ~~no~~ flat-wake zones would be implemented in designated access channels and ferryways; however, within nearshore shallow waters, PWC users do not usually operate at high speed. Changes for PWC users would be readily apparent and likely long term; as a result, some users could reduce their use of Fire Island National Seashore waters and go to other areas. The impact for PWC users would be long term and minor to moderate.

Impact on Other Boaters — Interactions between other boaters and PWC operators would continue on a limited basis within park waters open to PWC use, but potential impacts to visitor experiences would be reduced because of the 1,000-foot buffer around all national seashore lands and the areas closed to PWC use (excluding access channels) east of the Sunken Forest. Based on this analysis, alternative C would have negligible adverse and beneficial effects on the visitor experiences of other boaters now and in the future.

Impact on Other Visitors — This alternative would have the same effect as alternative B; however, with the enforcement of a 1,000-foot buffer west of the Sunken Forest, there would be a reduction in potential impacts to visitors in areas open to PWC use. The effect on park visitors would continue to be negligible during the off-season or nonpeak hours (weekdays) and would be reduced during peak PWC use times. Therefore, alternative C would have beneficial effects on the visitor experiences of other visitors.

Page 141, Conclusion — Change the text as follows:

Conclusion. Alternative C would have beneficial impacts to the experiences of visitors other than PWC users. There would be minor to moderate adverse impacts to PWC users as a consequence of closing areas of the national seashore to PWC use, prohibiting use within the 1,000-foot buffer zone, and requiring ~~no~~ flat-wake speeds in designated access channels and ferryways. However, PWC users would still be allowed to operate outside the restricted areas and ~~no~~ flat-wake zones at the west end of the island.

VISITOR SAFETY

IMPACT TO VISITOR SAFETY FROM PWC USE

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 145, Analysis — Change the text as follows:

Analysis. Similar to alternative B, alternative C would allow PWC use only within designated areas adjacent to beach communities east of the Sunken Forest, but a 1,000-foot buffer zone where PWC use was prohibited would also be established. An additional management restriction would be the requirement to operate at ~~no~~ flat-wake speeds within designated access channels and ferryways within the seashore boundary.

The potential for impacts to visitor safety resulting from PWC use would be eliminated in areas where PWC use would no longer be allowed and would be further reduced in the designated access channels and ferryways as a result of the ~~no~~ flat-wake regulation. Swimmers would benefit from restrictions on PWC use.

Page 145, Conclusion — Change the text as follows:

Conclusion. Alternative C would eliminate the potential for PWC-related accidents within the restricted use areas of the national seashore. ~~No~~ Flat-wake restrictions in the designated access channels and ferryways would reduce the potential for accidents, with negligible to possibly minor adverse impacts.

SOCIOECONOMIC EFFECTS

BENEFIT-COST ANALYSIS

Page 148, Table 36 — Revise as follows:

TABLE 36: SOCIOECONOMIC IMPACT OF ALTERNATIVES ON USER GROUPS

	Alternative C: Continue PWC Use under a <u>Special NPS Regulation with Additional Management and Geographic Restrictions</u> but Limit Use to Adjacent Beach Communities and Enforce 1,000-foot Buffer around the National Seashore
User Group Local Residents	Similar to alternative B except the decline in welfare could be somewhat greater because PWC access would be limited to <u>designated channels and ferryways</u> .

COSTS TO PWC USERS

Page 150 — Revise the fourth sentence of the first paragraph as follows:

Alternative C would impose the same restrictions as alternative B, with the addition of a 1,000-foot buffer around the national seashore within area I and the restriction of PWC use to designated channels and ferryways east of the Sunken Forest ~~for all waters except for the ferry channels~~, where a ~~no~~ flat-wake restriction would also be implemented.

NATIONAL SEASHORE MANAGEMENT AND OPERATIONS

IMPACT TO PARK OPERATIONS FROM INCREASED ENFORCEMENT NEEDS

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 152, Analysis — Change the text as follows:

Analysis. Additional PWC use restrictions under alternative C (maintaining a 1,000-foot buffer around the national seashore in area I and requiring ~~no~~ flat-wake zones within designated channels and ferryways) would limit PWC use as a recreational activity in this area and favor its use as a transport vehicle.

CONFLICT WITH STATE AND LOCAL ORDINANCES AND POLICIES REGARDING PWC USE

Impacts of Alternative C — Continue PWC Use under a Special NPS Regulation with Additional Management and Geographic Restrictions, but Limit Use to Areas Adjacent to Beach Communities and Enforce a 1,000-Foot Buffer along all Shorelines within the NPS Boundary

Page 153, Analysis — Change the text as follows:

Analysis. Like alternative B, management of PWC use would continue to be consistent with New York State boating laws and regulations where PWC use was allowed within the national seashore. ~~PWC use would be limited to areas adjacent to beach communities; however, A~~ 1,000-foot buffer would be enforced around the national seashore, with designated channels providing access to beach communities, and PWC users would be required to maintain ~~no~~ flat-wake speeds within these designated channels and ferryways. PWC regulations would not conflict with state and local ordinances and policies; therefore, there would be no impact on national seashore management.

REFERENCES CITED

Add the following references:

American Canoe Association

- 2001 "Hostile Waters—The Impacts of Personal Watercraft Use on Waterway Recreation." Available at www.acanet.org.

Harris Miller Miller & Hanson, Inc.

- 2002 *Draft Technical Report on Noise: Personal Watercraft and Boating Activities at Glen Canyon National Recreation Area*. Produced under contract to the National Park Service. Harris Miller Miller & Hanson, Inc.

Miller, G. C., C. Hoonhout, E. Sufka, S. Carroll, V. Edirveerasingam, B. Allen, J. Reuter, J. Oris, and M. Lico

- 2003 "Environmental Assessment of the Impact of PAH on Lake Tahoe and Donner Lake." Unpublished final report. Prepared for the Tahoe Regional Planning Agency.

Tahoe Regional Planning Agency

- 1998 *Lake Tahoe Motorized Watercraft Report—An Integration of Water Quality, Watercraft Use and Ecotoxicology Issues*. Preliminary draft report prepared for the Tahoe Regional Planning Agency.