ENVIRONMENTAL ASSESSMENT
OF THE
MARINE SANITATION DEVICE DISCHARGE REGULATIONS FOR FLORIDA KEYS NATIONAL MARINE SANCTUARY

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1.0 PURPOSE AND NEED

1.1 Summary of Action

The National Oceanic and Atmospheric Administration (NOAA) is amending regulations for the Florida Keys National Marine Sanctuary (FKNMS or sanctuary) by prohibiting the discharge of sewage incidental to vessel use and generated by marine sanitation devices (MSDs) throughout the sanctuary. This action would also require that MSDs be secured in a manner that prevents discharge or deposit of treated and untreated sewage into sanctuary waters.

1.2 Background

The FKNMS contains nationally significant marine ecosystems, including seagrass meadows, the third largest coral barrier reef in the world, and mangrove islands. These ecosystems are of high ecological, educational, aesthetic, recreational and commercial value and support tremendous biological diversity, including more than 6,000 species of plants, fish and invertebrates that depend upon pristine water quality. The FKNMS was designated a sanctuary in 1990 in order to protect these ecosystems and the water quality on which they depend.

The United States Environmental Protection Agency (EPA) has authority through the Clean Water Act (33 U.S.C. 1251 et seq.) to regulate the use of MSDs and to designate No Discharge Zones[1] (NDZs), which protect water quality by prohibiting sewage discharges from all vessels. In 1999, the EPA designated a NDZ for the waters around the City of Key West, prohibiting sewage discharge out to a distance of 600 feet from the City's shore (64 FR 46390).

In the same year, the FKNMS Water Quality Protection Program Steering Committee proposed a NDZ for state waters of the sanctuary and won unanimous support from the Monroe County Commission. In December 2000, Governor Jeb Bush requested the EPA designate the state waters of the sanctuary a NDZ pursuant to Section 312(f)(4) of the Clean Water Act (CWA) based on the State of Florida's findings that these waters have particular environmental importance considering the unique, fragile, and ecologically important natural resources of the Florida Keys ecosystem. After reviewing the supporting documentation, the EPA concurred with the state's findings and published the final rule designating the state waters of the FKNMS a NDZ (67 FR 35735; May 21, 2002). The NDZ regulation prohibits all discharges, whether treated or not, from all vessels in the approximately 65 percent of the sanctuary that is in state waters.

This action would extend the prohibition on discharges of treated and untreated sewage to the sanctuary's federal waters for consistency across the entire sanctuary. Personnel from the

[1] Section 312 of the Clean Water Act gives the Environmental Protection Agency and states the authority to designate "No Discharge Zones" (33 U.S.C. 1322(f)). A NDZ is an area of a waterbody or an entire waterbody into which the discharge of sewage (whether treated or untreated) from all vessels is completely prohibited. NDZs provide an additional management tool to address water quality issues associated with sewage contamination.

Florida Fish and Wildlife Conservation Commission, the NOAA Office for Law Enforcement, and the U.S. Coast Guard are authorized to enforce rules in the FKNMS. Noncompliance with any FKNMS regulations would be subject to civil penalties pursuant to section 307 of the National Marine Sanctuaries Act (16 USC 1437).

1.3 Need for Action

This action is needed in order to improve the water quality of FKNMS. Improved water quality will aid in the restoration and maintenance of vulnerable sanctuary resources and provide a cleaner, safer environment for recreational activities.

Declining water quality continues to be a major concern for the sanctuary. Although current federal and state regulations provide some water quality protections and prohibit sewage discharge in the state waters of the FKNMS, this action is needed in order to better protect marine resources within the sanctuary's federal waters. While sewage discharges from vessels may be a relatively minor contributor to the total pollutant load affecting the Florida Keys, vessels frequently congregate in areas that may be particularly vulnerable to such localized loading, such as shallow reefs.

Many important biological resources and coral reefs are found in the federal waters of the FKNMS and remain vulnerable to the discharge of treated vessel sewage. The FKNMS is composed of approximately 65 percent state waters and 35 percent federal waters (Appendix A). Current regulations do not prohibit vessels from leaving the state waters of the sanctuary to discharge treated wastewater into the federal waters of the sanctuary. The treatment provided by MSDs disinfects waste, but does not remove nutrients such as phosphorous and nitrogen or kill total viral loads. Therefore, allowing wastewater discharge from MSDs in the federal waters of the sanctuary may increase the total nutrient load and result in water quality degradation.

1.4 Purpose of Action

The purpose of the action is to improve and maintain the water quality of the FKNMS as required by the National Marine Sanctuaries Act, the Florida Keys National Marine Sanctuary and Protection Act, and the *Florida Keys National Marine Sanctuary Revised Management Plan* (National Marine Sanctuary Program 2007).

National Marine Sanctuaries Act
The primary objective of the National Marine Sanctuaries Act (NMSA) is to protect national marine sanctuary resources (16 U.S.C. 1431). The NMSA compels NOAA to take a comprehensive, ecosystem-based approach to marine resource management and protection. The NMSA (16 U.S.C. 1431(a)(3)) states that "...while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment." The NMSA requires NOAA to "maintain the natural biological communities in the national marine sanctuaries and to protect and, where appropriate, restore and enhance the natural habitats, populations and ecological processes" (16 U.S.C. 1431(b)(3)).

Florida Keys National Marine Sanctuary and Protection Act
The Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA; P.L. 101-605) requires NOAA to protect the resources of the FKNMS and to manage human uses of the sanctuary consistent with that primary purpose. More specifically, the FKNMSPA requires NOAA, the EPA, and the State of Florida to maintain or improve the chemical, physical and biological integrity of the FKNMS through a Water Quality Protection Program. The Water Quality Protection Plan that emerged from this program has been an evolving and effective model for identifying water quality problems and solutions and has provided the extensive monitoring and research needed to implement science-based management.

Florida Keys National Marine Sanctuary Management Plan
The revised FKNMS management plan (National Marine Sanctuary Program 2007) calls for NOAA to work with federal, state and local governments to better understand water quality problems and actively implement solutions to reverse trends and restore "healthy" water quality. In its Water Quality Action Plan, NOAA articulates strategies to address sources of pollution, priority corrective actions, and compliance schedules. The strategies seek to restore and maintain a balanced, indigenous population of corals, shellfish, fish, and wildlife, while allowing diverse recreational opportunities in and on the water. The strategies include a water-quality monitoring program and opportunities for public participation in all aspects of development and implementation. The management plan also specifically calls on NOAA to consider expanding the EPA's prohibition on vessel sewage discharges in state waters to the entire sanctuary.

2.0 DESCRIPTION OF ACTION AND ALTERNATIVES

2.1. No Action

The no action alternative would maintain the current regulatory regime, protecting the water quality of the FKNMS using existing federal and state regulations, as described below.

Florida Keys National Marine Sanctuary Regulations
FKNMS regulations currently prohibit discharging or depositing materials or other matter within the boundary of in the sanctuary (15 CFR 922.163(a)(4)). Exceptions include discharging or depositing: 1) fish, fish parts, and bait during traditional fishing operations; 2) vessel cooling water or engine exhaust; 3) water generated by routine vessel operations (e.g., deck wash and graywater), excluding oily wastes from bilge pumping; and 4) *biodegradable effluent from approved marine sanitation devices incidental to vessel use*. In certain protected zones, including Ecological Reserves, Sanctuary Preservation Areas and Research-only Areas, only discharges from engine exhaust and cooling water are allowed. However, the regulations do not prohibit vessels from discharging biological waste from MSDs in the majority of the federal waters of the sanctuary.

Marine Sanitation Devices and No Discharge Zone
Regulations implementing the Clean Water Act require MSDs to treat or store vessel sewage before discharging it in U.S. coastal waters (40 CFR 140). The U.S. Coast Guard regulates vessel operations and the use of MSDs (33 CFR 159). There are three basic types of this on-board water treatment equipment:

1. Type I MSD is a flow-through device where the sewage travels through an on-board treatment system and is directly discharged. A Type I MSD must produce an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids.

2. Type II MSD is required to produce an effluent having a fecal coliform bacteria count no greater than 200 per 100 milliliters and suspended solids no greater than 150 milligrams per liter.

3. Type III MSD is a device that is designed to prevent the overboard discharge of treated and untreated sewage or any waste derived from sewage. Type III MSDs are commonly called holding tanks because sewage is deposited into a holding tank until it can be properly disposed.

Vessels less than 65 feet in length with installed toilets must be equipped with a Type I, Type II or Type III MSD. Vessels greater than 65 feet in length are required to equip all installed toilets with a Type II or Type III MSD.

As described in the Background section of this document, the EPA and the State of Florida established a NDZ through the federal Clean Water Act for the state waters of the sanctuary in 2002 (67 FR 35735; May 21, 2002). This designation covers approximately 65 percent of the total area of the sanctuary and extends to nine miles on the Gulf side and three miles on the Atlantic side. It does not apply to the other 35 percent of the FKNMS in federal waters, which include significant coral resources and recreational dive locations.

The State of Florida – Outstanding Florida Waters and Areas of Critical State Concern
The State of Florida has the authority to establish special water quality protections for state waters based on their biological significance and the level of potential threats to the marine environment. Recognizing the importance of water quality to marine ecosystem structure and function, the State of Florida declared most of the state waters surrounding the Florida Keys as Outstanding Florida Waters (OFW) in 1985. No degradation of water quality is allowed in OFW, except as allowed in Florida Administrative Code (F.A.C.) 62-4.242(2). In addition, the State designated the Florida Keys an Area of Critical State Concern. The objective of this designation is to provide an additional level of legislative review for development plans within areas where unique and fragile natural resources exist and local protection may be lacking. Areas of Critical State Concern are declared where there is a perceived need to protect public resources from risk by unregulated or inadequately regulated development.

2.2. Alternative 1 - Action

NOAA would amend the regulations for the FKNMS by eliminating the exemption for discharges of biodegradable effluent incidental to vessel use and generated by MSDs approved under the CWA, and by requiring that MSDs to be secured in a manner that prevents discharge or deposit of treated and untreated sewage into sanctuary waters. These changes would be effective throughout the entire sanctuary, in both state and federal waters. This action would overlay and be consistent with the EPA regulations for no discharges in state waters and would additionally require MSDs to be secured.

2.3. Alternatives Considered but Rejected

The following alternatives were considered by the agency and rejected because they do not meet the purpose and need for action.

2.3.1. Implement a Discharge Zone or Depth Limitation for Discharges

A proposal to eliminate the exemption of discharges of biodegradable effluent incidental to vessel use and generated by MSDs approved under the CWA in a portion of the federal waters of the FKNMS was considered and evaluated. Three options were considered for defining the area in which the exemption would be eliminated: 1) using a specified distance from land (e.g., a band a distance of three to three-and–a-half nautical miles from shore); 2) using a specified distance from the seaward edge of the federal boundary (e.g. the final 0.5 nautical mile out to the seaward edge); and 3) using the area from the 200-foot depth contour to the seaward edge of the federal boundary. With this proposal, part of the federal waters of the sanctuary would be open to such discharges and part would be closed.

Establishing a partial closure to such discharges is problematic due to the varied topography of the Keys, the hydrography of sanctuary waters, and the dispersal of coral reefs, seagrass, and natural resources throughout the sanctuary. The uneven boundaries resulting from determining closure areas based on distance or depth might confuse users and make enforcement difficult. If the area were determined based on distance from shore, the sanctuary's multiple islands and emergent lands would allow only a few small, disjointed areas to fall within the discharge area. Similarly, determination of the discharge area based on a depth contour would result in small or

Similarly, determination of the discharge area based on a depth contour would result in small or narrow open areas because the waters are generally very shallow on the Gulf side and the federal boundary largely follows the 300 foot depth contour on the Atlantic side. Limiting the scope of a new regulation would make compliance more confusing for the public and more difficult to enforce.

This alternative was rejected due to its complexity, lack of practicality, and probable challenges of enforcement.

2.3.2. Prohibit MSD Discharges and Allow Unsecured MSDs

A proposal to eliminate the exemption for discharges of biodegradable effluent incidental to vessel use and generated by MSDs approved under the CWA in the entire FKNMS with no requirement for securing MSDs was considered and evaluated. While this proposal would appear to achieve the goal of helping to protect the Florida Keys ecosystem by prohibiting the discharge of potentially harmful vessel sewage, the enforceability of the rule would render it ineffective.

Enforcing this proposal would require enforcement personnel to witness the discharge of sewage. The probability that personnel would be present at the exact moment of discharge is beyond reasonable expectations.

In addition, although NDZ designation by EPA does not specifically require that MSDs be secured, the final rule designating the state waters of the FKNMS as a NDZ does state that MSDs should be secured to prohibit discharge while navigating within the NDZ. Specifically, "The NDZ designation would not cause existing Type 1 and 2 MSDs to be in violation by their mere presence onboard the vessel. However, it would be illegal for vessel operators to discharge from these devices while inside the NDZ. Type 1 and 2 MSDs should be secured to prohibit discharge while navigating or otherwise situated within the NDZ" (67 FR 35740; May 21, 2002).

Due to the difficulty in enforcing this alternative, it was rejected because it would fail to meet the need and purpose of this action.

2.3.3. Implement the Action Only in the Federal Waters of the FKNMS

A prohibition on sewage discharge in the federal waters of the sanctuary was evaluated due to the existing prohibition on sewage discharge in the state waters of FKNMS. Under this alternative, approximately 35 percent, or 1,015 square nautical miles, of area within FKNMS would be subject to the regulation with the remainder of FKMNS subject to the existing prohibition. The geographic area encompassed by this alternative would be primarily in the sanctuary's Atlantic waters between three and eight nautical miles from shore, with an additional affected area in the Gulf of Mexico waters of the far western portion of FKNMS near the Dry Tortugas.

Analysis concluded that this alternative would achieve the desired purpose of eliminating the discharge of sewage throughout the entirety of FKNMS; however, it would make enforcement difficult and could confuse the public. The suite of regulations NOAA issued as part of the final

provide for comprehensive and consistent management and enforcement. Such comprehensive and consistent management was identified as a priority during the public process leading up to development of the sanctuary's final management plan and regulations. Limiting the scope of a new regulation would be inconsistent with other existing regulations, add unnecessary complexity to the regulatory scheme, and increase the enforcement burden.

This alternative was rejected because it would fail to meet the need and purpose of this action due to unnecessary regulatory complexity for public compliance.

3.0 AFFECTED ENVIRONMENT

The affected environment for this action is extensively described in the *Florida Keys National Marine Sanctuary Final Management Plan/Environmental Impact Statement* (Sanctuaries and Reserves Division 1996) and the *Florida Keys National Marine Sanctuary Revised Management Plan* (National Marine Sanctuary Program 2007). These descriptions are incorporated by reference and are summarized and supplemented below.

The Florida Keys contain a diverse array of physical features and marine resources. Physiographic regions in the FKNMS include the Florida Bay and its mud banks, seagrasses, the Continental Shelf, and coral Florida reefs. The heavy nutrient loads and bacterial/viral content associated with sewage discharge can harm the unique biological resources found within these regions. Many of the resources within the FKNMS are also highly sought after for recreational use. More than 13 million visitor days are logged in the Florida Keys annually. Tourists and residents come to swim, boat, and fish in the sanctuary's clear blue waters. Preserving the sanctuary's water quality is essential to maintaining the richness and diversity of its varied environments.

3.1 Natural Environment

Water Quality

The clarity, low nutrient levels, and consistent warmth of the sanctuary's waters play a critical role in maintaining the area's unique marine resources. Recognizing the importance of water quality to sanctuary resources, Congress directed the EPA and the State of Florida to develop a water quality protection program for the FKNMS. Since 1995, the Water Quality Monitoring Project, one component of that program, has conducted 50 quarterly sampling events at 154 stations within the FKNMS. In 2008, the Water Quality Monitoring Project began assessing monitoring sites against strategic targets set by the EPA. The goal is to have all sites at or below these strategic targets. In 2008, 64.7 percent of reef sites had higher than targeted levels of chlorophyll a, 25.6 percent of reef sites were above the target for the vertical attenuation coefficient for downward irradiance (i.e. light attenuation), 10.6 percent of all sites had higher than targeted levels of dissolved inorganic nitrogen, and 52.7 percent of sites had higher than targeted levels of total phosphorus (Boyer and Briceño 2008).

Declining water quality in the FKNMS is a major concern for NOAA. Excessive nutrient enrichment can lead to both increased turbidity, which decreases the amount of sunlight reaching sea grass meadows and shallow water corals, and increased growth of macroalgae or seaweed, which compete with coral. A fecal bacteria associated with the human gut and likely transported through sewage has also been causally linked to white pox disease, which has caused significant losses of shallow-water Caribbean elkhorn coral within the FKNMS (Patterson et al. 2002). Sources of pollutants effecting water quality include land and vessel-based wastewater, storm water, landfills, and mosquito spraying. While sewage discharge from vessels may be a relatively minor contributor to the total pollutant load affecting the sanctuary, vessels frequently congregate near areas, such as shallow reefs, that may be particularly vulnerable to such localized loading.

Biological Resources
Signs of ecosystem stress in the Florida Keys include loss of coral cover and diversity, particularly at offshore bank reefs; increasing nitrogen and phosphorus concentrations in the near shore waters; decreased water clarity; changes in the natural benthic community composition; and localized decline in coral recruitment. Comprehensive monitoring from 1996 to 2007 has documented a 47 percent decline in stony coral cover at sites sampled sanctuary-wide (Ruzicka et al. 2009). Incidents of algal fouling on reefs have been recorded over many years. Studies conducted within the FKNMS have also documented increasingly frequent fish kills and demonstrated that human activities are at least partially responsible for some near-shore seagrass die-offs.

These signs of stress have numerous, often interacting causes, ranging from local human activities to global climate change. Vessel-based discharge is just one threat among many, but can have a significant impact, particularly to resources already threatened by other factors. Because nutrient and organic inputs are highly soluble and easily transported in currents, the effects of vessel-based sewage discharges may be more widespread than previously realized. These inputs are easily transported through the water and can be deposited and retained in sediments far from the discharge source. If nutrients are not trapped in sediments immediately, phytoplankton may dramatically increase, resulting in a reduction of the level of oxygen in the water column. The cumulative impact from many transiting vessels discharging sewage effluent could be significant, particularly where discharges take place in close proximity to coral reef or seagrass habitats (Waddell and Clark 2008; Lapointe and Matzie 1997). While the current prohibition of discharges in state waters protects some FKNMS resources from this threat, resources in federal waters remain vulnerable.

3.2 Human Environment

The Florida Keys economy is dependent upon a healthy marine environment. The most important industry in Monroe County/Florida Keys is the recreation-tourism industry, attracting both seasonal residents and short-term visitors. Recreation-tourism accounts for anywhere between 33 percent and 75 percent of the local economy depending on the definition of income (i.e., by place of residence or by place of work)[2]. Leeworthy and Wiley (1996) reported that 2.54 million visitors spent 13.3 million person-days in the Florida Keys/Key West from June 1995-May 1996. Visitors made 3.4 visits per year on average, and spent 10.9 days per year in the area on average. Sightseeing and attractions (paid and unpaid), as a category, was the top-rated activity for the year with over 55 percent of all visitors having participated. Sixty-six percent of all visitors did at least one water-based recreation activity, including snorkeling, scuba diving, recreational fishing, wildlife viewing or nature study, and beach activities.

Natural resources have market values and non-market values. Market values are the prices of commodities on the open market (e.g., an acre of land). Non-market values are less immediately

[2] Information on visitor use of the Florida Keys comes from a baseline report called Linking the Florida Keys Economy and Environment developed by NOAA in partnership with the Monroe County Tourist Development Council and the Nature Conservancy, Florida Keys Initiative. A 12-year follow up survey was conducted in 2007-2008. There are several reports, some still in development, being published on the results of the survey.

tangible and include the values of being part of a balanced, self-sustaining ecosystem (e.g., habitat value). Effects of habitat loss and other non-market values may take years to become apparent, but these values have long lasting socioeconomic effects. A sustainable market economy depends on the long-term maintenance of non-market values. For example, if non-market values of these resources decline, the market value will eventually decline.

Johns et al. (2001)[3] determined, in a comprehensive manner, the economic value of southeast Florida's reef resources to the local economies and the reef users. Economic value includes both the use value (e.g., income/jobs generated and asset value) and existence values (i.e., values derived from knowing that something is present). The study used extensive survey research to measure the economic contribution and the values of reefs. The reef users surveyed were recreational fishers, reef divers, reef snorkelers and/or visitors viewing the reefs on glass-bottom vessels.

In all of southeast Florida, residents and visitors spent 28.3 million person days using reefs during the 12-month period of June 2000 to May 2001. Of this number, 5.46 million person-days were spent using the reefs in Monroe County, or about 18 percent of the regional total. A person-day is one person participating in an activity for a portion or all of a day. Reef-related expenditures generated $140 million in income to Monroe County over the 12-month period and created almost 10,000 jobs. Johns et al. (2001) also determined that the combined asset value of coral reefs for Monroe County visitors and residents is approximately $1.8 billion.

Existence value is a term in natural resource economics that describes the intrinsic value of a resource. A measure of willingness to pay is an indication of existence value. The reef users reported a willingness to pay $57.5 million per year to maintain the natural reefs in Monroe County.

The tourist-based economy of the Florida Keys depends upon clean water and abundant natural resources. Maintaining water quality, limiting damage to reefs from anchoring and other physical impacts, and preventing overuse of the reefs all contribute to the economic benefits and values of the reefs throughout the FKNMS.

[3] The study was funded by Broward, Palm Beach, Miami-Dade and Monroe counties of Florida, the Florida Fish and Wildlife Conservation Commission, and the National Oceanic and Atmospheric Administration.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1. No-Action Alternative

The no-action alternative would continue to allow the discharge of treated sewage from MSDs into the federal waters of the FKNMS. If unabated, the water quality trends to which this discharge contributes will continue to decline. Poor water quality threatens not only the unique biological resources of the FKNMS, but also the viability of the local economy, which depends on the ability of these resources to attract visitors. This section describes the anticipated impacts on the environment as a result of this action.

4.1.1 Natural Environment

Water Quality
If no action is taken, vessels passing through federal waters of the FKNMS will continue to discharge sewage from MSDs. In concert with other sources, these discharges will continue to contribute to ongoing nutrient pollution within the sanctuary. In 2008, as noted above, nitrogen and phosphorus levels were found to be above EPA target levels at 10.6 percent and 52.7 percent of FKNMS monitoring sites respectively (Boyer and Briceño 2008).

Biological Resources
Nutrient pollution is a serious threat to the sanctuary's reefs, seagrass meadows, mangroves and marine organisms. In addition, to the extent that vessel discharge is transporting the fecal bacteria linked to white pox disease, such discharge is enhancing the threat to shallow-water Caribbean elkhorn coral within the FKNMS. Continued addition of nutrients from many sources could result in increased algal blooms and turbidity that could result in decreased viability of coral and seagrass communities and could obstruct mangrove pneumatophores and reduce oxygen exchange. Thus, the cumulative impact of continued discharges into federal waters could damage the ecological integrity of the Florida Keys ecosystem. Such a result is not in conformance with the sanctuary's congressionally mandated Water Quality Protection Program, which was established by Congress "to restore and maintain the chemical, physical and biological integrity of the Sanctuary…" (P.L. 101-605, §8(a)(i)(A)).

4.1.2 Human Environment

Sustainable development in the Florida Keys/Key West is dependent on maintaining or increasing the quality of the environment and abundance and diversity of the natural resources of the area. The no action alternative could potentially decrease the economic benefits and other human values derived from the reef due to continued reef degradation from decreased water quality.

Recent data show a continued upward trend in the number of registered vessels in southern Florida. A 1992 study showed that 6.5 percent of all registered pleasure vessels in the State of Florida were used in Monroe County and the FKNMS (Bell and Leeworthy 1993). If the same percent of the 2008 total is assumed, then 63,299 vessels were used in Monroe County and the Florida Keys in 2008. Statistics from the Florida Department of Highway Safety and Motor Vehicles show that there was over a 12 percent increase in registered vessels in Monroe County

from 2000-2008 (Table 1). An increase in vessels suggests an increased potential of transient visits to the Florida Keys and therefore a cumulative increase in impacts from vessel discharge in the FKNMS.

Table 1: Number of Registered Vessels in Monroe County (2000-2008)

Registrations	2000	2008	Percent Change
Pleasure vessels	3,207	2,896	-9.7%
Commercial vessels	23,340	26,897	+ 15.24%
Dealers	143	195	+2.75%
Total	26,690	29,988	+12.36%

Source: Florida Department of Highway Safety and Motor Vehicles (http://www.flhsmv.gov/dmv/vslfacts.html)

Florida vessel operators are already familiar with using the 36 existing pump-out stations in the Florida Keys, since discharges are already prohibited in the EPA NDZ for the state waters of the FKNMS. The map in Figure 1 below shows the boundaries of the FKNMS and public pump-out station locations. Table 2 lists the locations of public pump-out facilities in the Florida Keys, and Table 3 lists the locations of pump-out facilities for private use of guests in the Florida Keys.

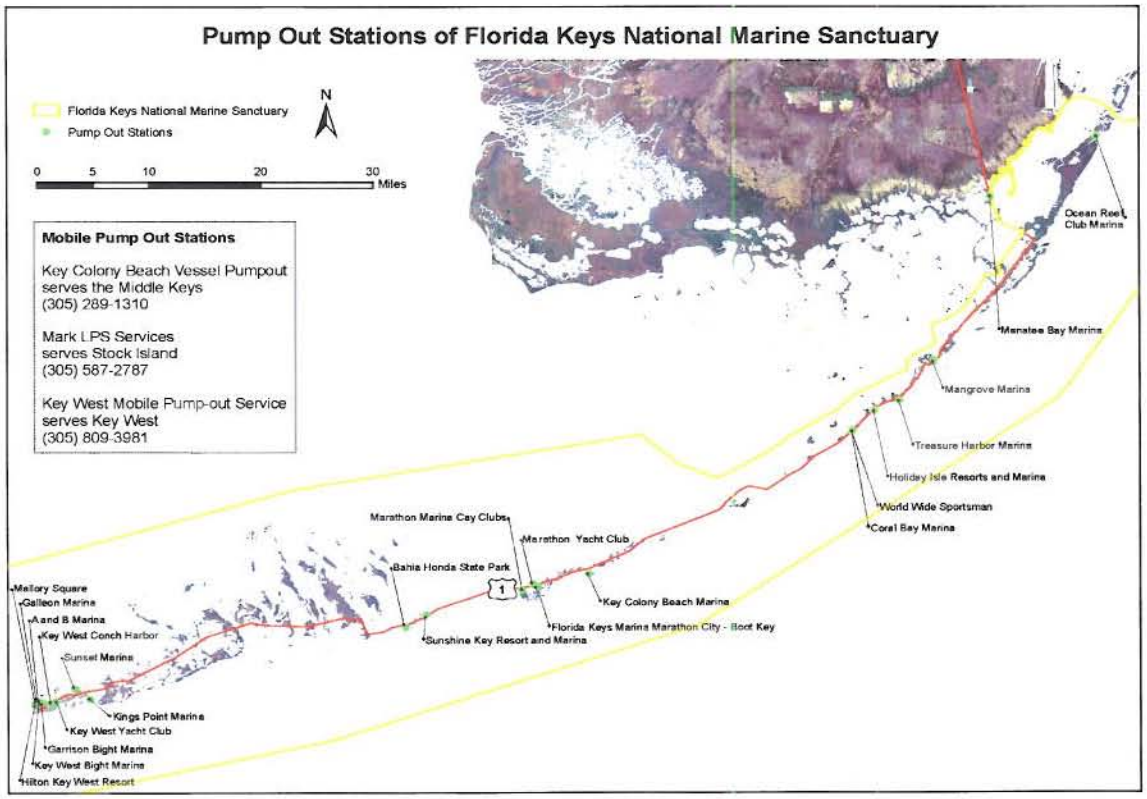

Figure 1. Locations of Public Pump-out Stations in the Florida Keys (Source: Florida Department of Environmental Protection).

Table 2. Locations of Public Pump-out Facilities in the Florida Keys (Source: Adapted from Florida Department of Environmental Protection).

Marina Facilities with Pump-Outs for Public Use	Island	Side	Address	M.M.	Phone
Upper Keys					
Ocean Reef Club Marina	Key Largo	Ocean	31 Ocean Reef Drive	C11	367-2611
Manatee Bay Marina	Key Largo	Bay	99 Morris Lane	112.5	451-3332
Mangrove Marina	Key Largo	Bay	200 Florida Ave.	91.0	852-8380
Treasure Harbor Marine	Plantation Key	Ocean	200 Treasure Harbor Drive	86.5	852 2458
Holiday Isle Resorts And Marina	Windley Key	Ocean	84001 Overseas Highway	84.0	664 2321
Coral Bay Marina	Upper Matecumbe	Bay	601 Mastic Street	81.2	664 3111
World Wide Sportsman	Upper Matecumbe	Bay	81576 Overseas Highway	81.0	664 4615
Middle Keys					
Key Colony Beach Vessel Pump-out	KCB	Ocean			289-1310
Key Colony Beach Marina	KCB	Ocean	400 Sidowski Causeway	52.0	289-1310
FLA Keys Marina Marathon City-Boot Key	Marathon	Ocean	800 35th Street	48.7	289-7788
Marathon Yacht Club	Marathon	Bay	825 33rd Street	48.8	743-6739
Marathon Marina - Cay Clubs	Marathon	Ocean	11th Street	46.3	743-6575
Lower Keys					
Sunshine Key Resort and Marina	Ohio Key	Gulf & Ocean	38801 Overseas Highway	39.0	872-2217
Bahia Honda State Park	Bahia Honda	Gulf & Ocean	36850 Overseas Highway	37.0	872 3210
Kings Point Marina (the old Oceanside Marina)	Stock Island	Ocean	5950 Peninsular Ave.	5.0	294 4676
Sunset Marina	Stock Island	Gulf	5555 College Road	4.0	296 7101
Mark LPS Services (mobile)	Stock Island		6810 Front Street	5.0	587-2787
Key West					
Garrison Bight Marina - City Marina	Key West	Gulf & Ocean	Garrison Bight Causeway	NA	292 8167
Galleon Marina	Key West	Ocean	619 Front St.	NA	292 1292
Key West Mobile --out Service (Call City Marina)	Key West	Gulf & Ocean		NA	809-3981
Key West Conch Harbor	Key West	Gulf	951 Caroline St.	NA	294 2933
Key West Yacht Club	Key West	Gulf & Ocean	2315 N. Roosevelt Blvd.	NA	296 3446
Hilton Key West Resort	Key West	Ocean	245 Front Street	NA	294-4000
Mallory Square	Key West	Ocean		NA	809-3983
A and B Marina	Key West	Gulf	700 Front Street #103	NA	294-2535
Key West Bight Marina	Key West	Ocean	201 William Street	NA	809-3984

Table 3. Locations of Facilities in the Florida Keys with Pump-outs for Private Use of Guests (Source: Adapted from Florida Department of Environmental Protection).

Marina Facilities with Pump-outs for Private Use of Guests	Island	Side	Address	M.M.	Phone
Upper Keys					
John Pennekamp Coral Reef State Park	Key Largo	Ocean	PO Box 1560	102.5	451-1621
Key Largo Harbor Marina	Key Largo	Ocean	400 Ocean Drive	100.0	451-0045
Mariner's Club (Mandalay) Marina	Key Largo	Ocean	97501 Overseas Highway		853-1111
Islamorada Founder's Park (Plantation Yacht Harbor)	Plantation Key	Bay	87000 Overseas Highway	87.0	664-2345
Middle Keys					
Hawk's Cay Resort	Duck Key	Ocean	61 Hawk's Cay Blvd	61.0	743-9000
The Boat House	Marathon	Ocean	12411 Overseas Highway	51.9	289-1323
Coconut Cay Resort & Marina	Marathon	Bay	7196 Overseas Highway	50.5	289-7672
Sombrero Marina & Dockside Lounge	Marathon	Ocean	Sombrero Boulevard	49.0	743-0000
Lower Keys					
NAS Key West (Boca Chica)	Boca Chica	Ocean	Bldg. 1 1132i NAS KW	7.0	293-2402
Safe Harbor Marina	Stock Island	Ocean	6810 Front Street	5.0	294 9797

Access to pump-out facilities is expected to increase due to additional funding under the Clean Vessel Act of 1992 (33 U.S.C. 1322). In 2008, the U.S. Fish and Wildlife Service awarded more than $13.6 million in grants funding to 27 states under the Clean Vessel Act Grant Program. The grants will be used to fund the construction and installation of additional sewage pump-out facilities and floating restrooms, to purchase pump-out vessels, and for educational programs for recreational vessel operators. Florida was awarded $2.5 million in grant funding from the Clean Vessel Act Grant Program in 2008 (with $838,976 in matching funding provided by the state), and this money is being used through 2010 to fund up to 121 pump-out projects in the coastal regions of Florida, which should increase access to pump-out facilities for vessel operators.

An EPA study titled *Final No-Discharge Zone Evaluation* suggested that the implementation of NDZs around the United States has been effective and has not created an undue burden on vessel operators (Battelle 2004). For the study, EPA surveyed 958 vessel operators and 69 marinas from 15 NDZs around the country to obtain information about pump-out availability, pump-out use, and NDZ awareness. According to the surveys, 93 percent of vessel operators reported that they had no occasions in 2003 when they looked for but could not find a working pump-out or toilet dump facility in a NDZ. Only 9 percent experienced trouble at a pump-out facility in the 2003 boating season; 3 percent experienced trouble with a pump-out facility on their most recent trip. Most vessel operators, 94 percent, knew that the area in which they were operating was a NDZ and 97 percent knew that the discharge of treated and untreated sewage is prohibited in a NDZ.

When marinas were asked what percent of the time their pump-out facilities were functional during the 2003 boating season, 63 percent reported that their facilities were functional 100% of the time, and 33 percent reported that their facilities were functional 75 to 99 percent of the time.

Only 23% of marinas surveyed indicated that a vessel operator needed to wait more than 15 minutes to use the pump-out facilities at the marina during the 2003 season; such waits were reported to occur rarely, occasionally, or only at certain times (e.g., weekends at sunset). This is consistent with vessel operators' reported experience; only 5 percent of vessel operators found the waiting time too long at pump-out or dump facilities during the 2003 season. Finally, 93 percent of the marina representatives indicted that they knew about the existence of the NDZ, and 91 percent said that they inform their vessel operators of the NDZ by signs, brochures, word of mouth, or some combination of these.

The required use of pump-out stations associated with the NDZ in state waters of the FKNMS has not created a burden to the boating community. In fact, the potential increase in the number of pump-out stations in the Florida Keys supported by grant funding through the Clean Vessel Act program may make access even easier.

4.2. Alternative 1 - Action

NOAA would amend the regulations for the FKNMS by eliminating the exemption for discharges of biodegradable effluent incidental to vessel use and generated by MSDs approved under the CWA, and by requiring that MSDs be secured in a manner that prevents discharge or deposit of treated and untreated sewage into sanctuary waters. This action will cease at least one contributing factor to declining water quality within the FKNMS. Improved water quality is necessary for the maintenance and enhancement of the sanctuary's biological resources, as well as of the recreational and commercial opportunities they provide.

4.2.1 Natural Environment

Water Quality
Under this action, vessels would no longer be allowed to discharge sewage from MSDs into the sanctuary's federal waters. While other factors contributing to declining water quality would persist, vessel discharge would no longer contribute to nutrient or bacterial loads.

Biological Resources
Amending the FKNMS regulations to prohibit vessel discharges throughout the entire sanctuary is expected to have a positive effect on the ecological integrity of the Florida Keys ecosystem. It would eliminate a source of highly concentrated, nutrient-rich wastewater that can currently be discharged on top of the very resources the sanctuary is intended to protect. Elimination of these discharges could result in improved water quality and healthier benthic and water column communities. By alleviating a threat to the sanctuary's chemical, physical and biological resources, the preferred alternative is clearly in harmony with the goals of the Water Quality Protection Program. Prohibiting discharges throughout the sanctuary will also prevent such discharge from flowing into designated Outstanding Florida Waters from the federal waters of the sanctuary.

The preferred alternative would remove one source of pollutants currently contributing to declining water quality within the FKNMS. Improved water quality is needed to restore and maintain balanced, indigenous populations of corals, shellfish, fish and wildlife, as well as to continue supporting diverse recreational and commercial opportunities. By preventing sewage

discharge, and ensuring that MSDs are secured, the sanctuary's fragile marine resources will be protected from unnecessary physical, chemical and biological pollution.

4.2.2 Human Environment

The elimination of vessel discharges from all waters of the FKNMS may have a positive socioeconomic impact from improved water quality and healthier reefs. We would expect that this would have a positive economic impact on the community due to increased natural resource value.

Any adverse economic impact of the regulation would be limited to those vessel operators who currently discharge sewage waste into the federal waters area of the FKNMS. FKNMS does not have any data on the number of vessels that do this as opposed to utilizing one of the 36 pump-out stations located throughout the Florida Keys. FKNMS also does not have complete information on the number of vessels that do use pump-out stations to dispose of waste. However, if it is assumed that all the vessels with MSDs that use the Florida Keys would be affected, the worst-case scenario of potential impact to vessel operators can be estimated.

The additional costs to those vessel operators currently discharging in the sanctuary's federal waters would include additional fuel costs to travel to pump-out stations, the cost of the pump-outs, and the value of their travel time to and spent at the pump-out station. Vessels 26 feet or longer with an enclosed cabin with berthing facilities (as noted in the Florida Clean Vessel Act) are currently required to have a holding tank installed. Therefore, the installation of that equipment would not be considered an additional cost under the regulation.

There were 25,370 pleasure and 2,653 commercial vessels registered in Monroe County in 2007 (Table 4). Since no studies exist on transient vessels in the Florida Keys, these registrations represent the approximate population of vessels that utilize the Florida Keys. The tables below show that the regulatory changes would apply primarily to vessels 26 feet and longer (those vessels most likely to have an MSD). Such vessels are most likely to be affected by the regulation because they will be required to use a pump-out facility or discharge their waste outside of the sanctuary boundaries. In Monroe County, 4,796 of the 25,370 (18.9 percent) registered pleasure vessels and 1,080 of the 2,653 (40.7 percent) registered commercial vessels are 26 feet or longer (Table 5). Data are also provided below for Miami-Dade, Broward, Palm Beach, and Collier counties since a subset of these vessels will transit through the FKNMS.

Table 4: Number of Vessel Registrations in South Florida by County and Class, 2007

Vessel Class	MONROE		MIAMI-DADE		BROWARD		PALM BEACH		COLLIER		TOTAL	
	PSR	COM	PSR	COM	PSR	COM	PSR	COM	PSR	COM	PSR	COM
CANOES	72	2	285	1	267	2	264	2	223	4	1,111	11
CLASS A-1 (< than 12')	3,958	43	12,790	118	10,266	92	8,550	67	4,322	22	39,886	342
CLASS A-2 (12' to 15'11")	2,880	260	6,289	175	5,968	125	5,535	154	2,823	63	23,495	777
CLASS 1(16' to 25'11")	13,664	1,268	28,852	900	22,033	409	21,374	507	12,208	471	98,131	3,555
SUBTOTAL (< than 26')	20,574	1,573	48,216	1,194	38,534	628	35,723	730	19,576	560	162,623	4,685
CLASS 2 (26' to 39'11")	**4,090**	**760**	**9,636**	**444**	**8,313**	**225**	**6,054**	**229**	**3,328**	**173**	31,421	1,831
CLASS 3 (40' to 64'11")	**677**	**296**	**1,624**	**128**	**1,749**	**126**	**1,068**	**84**	**572**	**67**	5,690	701
CLASS 4 (65' to 109'11")	**29**	**24**	**159**	**41**	**152**	**38**	**111**	**16**	**28**	**6**	479	125
CLASS 5 (110' and up)	**-**	**-**	**16**	**10**	**18**	**11**	**12**	**-**	**-**	**-**	46	21
SUBTOTAL (26' and up)	**4,796**	**1,080**	**11,435**	**623**	**10,232**	**400**	**7,245**	**329**	**3,928**	**246**	**37,636**	**2,678**
TOTAL	***25,370***	***2,653***	***59,651***	***1,817***	***48,766***	***1,028***	***42,968***	***1,059***	***23,504***	***806***	***200,259***	***7,363***

* PSR = pleasure; COM = commercial. Source:
http://www3.hsmv.state.fl.us/Intranet/dmv/TaxCollDocs/vesselstats2007.pdf

Table 5: Percent of Vessel Registrations in South Florida by County and Class, 2007

COUNTY	MONROE		MIAMI-DADE		BROWARD		PALM BEACH		COLLIER		TOTAL	
	PSR	COM	PSR	COM	PSR	COM	PSR	COM	PSR	COM	PSR	COM
CANOES	0.3%	0.1%	0.5%	0.1%	0.5%	0.2%	0.6%	0.2%	0.9%	0.5%	0.6%	0.1%
CLASS A-1 (< than 12')	15.6%	1.6%	21.4%	6.5%	21.1%	8.9%	19.9%	6.3%	18.4%	2.7%	19.9%	4.6%
CLASS A-2 (12' to 15'11")	11.4%	9.8%	10.5%	9.6%	12.2%	12.2%	12.9%	14.5%	12.0%	7.8%	11.7%	10.6%
CLASS 1(16' to 25'11")	53.9%	47.8%	48.4%	49.5%	45.2%	39.8%	49.7%	47.9%	51.9%	58.4%	49.0%	48.3%
SUBTOTAL (< than 26')	81.1%	59.3%	80.8%	65.7%	79.0%	61.1%	83.1%	68.9%	83.3%	69.5%	81.2%	63.6%
CLASS 2 (26' to 39'11")	**16.1%**	**28.6%**	**16.2%**	**24.4%**	**17.0%**	**21.9%**	**14.1%**	**21.6%**	**14.2%**	**21.5%**	15.7%	24.9%
CLASS 3 (40' to 64'11")	**2.7%**	**11.2%**	**2.7%**	**7.0%**	**3.6%**	**12.3%**	**2.5%**	**7.9%**	**2.4%**	**8.3%**	2.8%	9.5%
CLASS 4 (65' to 109'11")	**0.1%**	**0.9%**	**0.3%**	**2.3%**	**0.3%**	**3.7%**	**0.3%**	**1.5%**	**0.1%**	**0.7%**	0.2%	1.7%
CLASS 5 (110' and up)	**0.0%**	**0.0%**	**0.0%**	**0.6%**	**0.0%**	**1.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	0.0%	0.3%
SUBTOTAL (26' and up)	**18.9%**	**40.7%**	**19.2%**	**34.3%**	**21.0%**	**38.9%**	**16.9%**	**31.1%**	**16.7%**	**30.5%**	**18.8%**	**36.4%**
TOTAL	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***	***100.0%***

* PSR = pleasure; COM = commercial. Source:
http://www3.hsmv.state.fl.us/Intranet/dmv/TaxCollDocs/vesselstats2007.pdf

EPA, FDEP and Monroe County conducted a survey of the existing pump-out stations in the Florida Keys and determined that the range of costs to pump out was from $5.00 to $25.00, with the majority of pump-out facilities charging $5.00. It is a condition of state grant funds that a marina that receives a grant for installation of pump-out facilities must charge a maximum of $5.00 per pump-out. The number of times a tank will need to be pumped out will depend on usage. Live-aboards will have to pump out regularly, while less frequent vessel operators will need to empty the tank much less often. Using $10.00 as the pump-out charge ($10 is on the high end; most pump-outs cost $5) and one pump-out per week results in an estimated annual cost of $520 per vessel per year. Therefore, if every registered vessel over 26 feet in Monroe County were previously discharging all waste into the federal waters as opposed to using a

pump-out station, the annual cost to Monroe County vessel operators(assuming 5,876 vessels are affected) is expected to be no more than $3,055,520. Of that total cost, $561,600 would be the annual cost to small businesses, assuming that all of the 1,080 registered commercial vessels over 26 feet are classified as small businesses. It should also be noted that pump-out fees may qualify as a business expense and may be tax deductible for some vessel owners, so the actual economic impact may be less.

4.3 Summary

NOAA would amend the regulations for the FKNMS by eliminating the exemption for discharges of biodegradable effluent incidental to vessel use and generated by MSDs approved under the CWA, and by requiring that MSDs be secured in a manner that prevents discharge or deposit of treated and untreated sewage into sanctuary waters. This action will eliminate at least one contributing factor to declining water quality within the FKNMS, and build consistency with existing regulations in Florida state waters. Improved water quality is necessary for the maintenance and enhancement of the sanctuary's biological resources, as well as of the recreational and commercial opportunities they provide.

The no action alternative would continue the discharge of treated sewage from MSDs into the federal waters of the FKNMS and would continue to contribute to the decline of water quality. Poor water quality threatens not only the unique biological resources of the FKNMS, but also the viability of the local economy, which depends on the ability of these resources to attract visitors.

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6.0 LIST OF AGENCIES CONSULTED

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U.S. Coast Guard
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7.0 REFERENCES

Battelle. 2004. *Final No Discharge Zone Evaluation.* Prepared for U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds, Oceans and Coastal Protection Division, Washington, D.C. Annapolis, MD. 30 pp.

Bell, F.W. and V.R. Leeworthy. 1993. *The Potential Revenues from a Boating Decal Fee for the Florida Keys National Marine Sanctuary: A Preliminary Assessment.* Tallahassee, FL: Florida State University, Department of Economics. Silver Spring, MD: U.S. Department of Commerce , National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean Resources Conservation and Assessment, Strategic Environmental Assessments Division. 61 pp.

Boyer, J.N. and H.O. Briceño. 2008. *2008 Annual Report of the Water Quality Monitoring Project for the Water Quality Protection Program of the Florida Keys National Marine Sanctuary.* Florida International University, Southeast Environmental Research Center. Miami, FL. 6 pp.

Johns, G.M., V.R. Leeworthy, F.W. Bell, and M.A. Bonn. 2001. *Socioeconomic Study of Reefs in Southeast Florida: Final Report.* for Broward County, Palm Beach County, Miami-Dade County, Monroe County, Florida Fish and Wildlife Conservation Commission, and National Oceanic and Atmospheric Administration. Hazen and Sawyer, National Oceanic and Atmospheric Administration, and Florida State University. Hollywood, FL. 348 pp.

Kruczynski, W. L. 1999. *Water Quality Concerns in the Florida Keys: Sources, Effects, and Solutions.* Florida Keys National Marine Sanctuary Water Quality Protection Program. Marathon, FL. 65 pp.

Lapointe, B.E. and W.R. Matzie. 1997. *High Frequency Monitoring of Wastewater Nutrient Discharges and the Ecological Effects in the Florida Keys National Marine Sanctuary.* Harbor Branch Oceanographic Institution, Inc., Division of Marine Science. Big Pine Key, FL. 22 pp.

Leeworthy, V.R. and P.C. Wiley. 1996. *Linking the Economy and Environment of the Florida Keys/Florida Bay 1995-96: Executive Summary - Visitors Surveys.* U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean Resources Conservation and Assessment, Strategic Environmental Assessments Division. Silver Spring, MD. 5 pp.

National Marine Sanctuary Program. 2007. *Florida Keys National Marine Sanctuary Revised Management Plan.* U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Marine Sanctuary Program. Silver Spring, MD. 382 pp.

Patterson, K.L., J.W. Porter, K.B. Ritchie, S.W. Polson, E. Mueller, E.C. Peters, D.L. Santavy, and G.W. Smith. 2002. "The etiology of white pox, a lethal disease of the Caribbean

elkhorn coral, *Acropora palmata*." *Proceedings of the National Academy of Sciences. USA* 99:8725-8730.

Ruzicka, R., M.K. Callahan, J. Kidney, M. Colella, V.I.P. Brinkhuis, J.M. Morrison, J.W. Porter, and M. Meyers. 2009. *U.S. EPA/FKNMS Coral Reef Evaluation and Monitoring Project.* EPA Water Quality Protection Program for the Florida Keys National Marine Sanctuary. 24 pp.

Sanctuaries and Reserves Division. 1996. *Florida Keys National Marine Sanctuary Final Management Plan/Environmental Impact Statement Volumes 1-3.*, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean and Coastal Resource Management, Sanctuaries and Reserves Division. Silver Spring, MD. 809 pp.

Waddell, J.E. and A.M. Clarke (eds.). 2008. *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2008*. NOAA Technical Memorandum NOS NCCOS 73. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, MD. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service. 569 pp.

8.0 FINDING OF NO SIGNIFICANT IMPACT

8.1. FONSI Statement

The Council on Environmental Quality (CEQ) Regulations state that the determination of significance using an analysis of effects requires examination of both context and intensity, and lists ten criteria for intensity (40 CFR 1508.27). In addition, the National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 Section 6.01b. 1 - 11 provides eleven criteria, the same ten as the CEQ Regulations and one additional, for determining whether the impacts of an action are significant. Each criterion is discussed below with respect to the action and considered individually as well as in combination with the others.

1. Can the action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

While the action is anticipated to have a beneficial effect on the condition of biological resources within the Florida Keys National Marine Sanctuary (FKNMS), its significance is expected to be limited. The discharge of treated sewage from vessels, which is already banned in the sanctuary's state waters, is a relatively minor source of nutrient and bacterial pollution affecting the FKNMS. Other contributors to declining water quality in the Florida Keys include land-based sewage discharge, storm water, landfills, and mosquito spraying.

2. Can the action reasonably be expected to significantly affect public health or safety?

The action might limit the potential threat of the concentration of bacteria and viruses from human waste. However, the affect on public health and safety is expected to be insignificant.

3. Can the action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

The FKNMS contains nationally significant marine ecosystems, including seagrass meadows, the third largest coral barrier reef in the world, and mangrove islands. The unique biological resources of the FKNMS are threatened by numerous, often interacting, forces, ranging from local human activities to global climate change. Therefore, the beneficial impacts that are expected from this action, while real, are not expected to be significant.

4. Are the action's effects on the quality of the human environment likely to be highly controversial?

The action is expected to have limited and noncontroversial effects on the human environment. There was significant local support for the prohibition of sewage discharges from vessels into the sanctuary's state waters—a process that started in 1999 and was finalized in 2002 by the United

States Environmental Protection Agency (EPA).[4] The action builds on this previous prohibition, creating consistency, reducing confusion among vessel operators, and improving enforceability. In addition, infrastructure is already in place to support the pump-out of vessels visiting the FKNMS, which is expected to enhance compliance.

5. Are the action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

While the exact number of vessels affected by the action is unknown, the impact has been estimated based on a worst-case scenario that all vessels transiting through the FKNMS will be affected. Therefore, the effect of the action is neither highly uncertain nor involving unique or unknown risks.

6. Can the action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

The action is not anticipated to establish a precedent for future actions and does not represent a decision in principle about a future consideration. The context for the action is specific to the human environment and biological resources of the FKNMS.

7. Is the action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

No, the cumulative impacts of the action will not be significant. The action affects only one, relatively minor contributor to the declining water quality of the FKNMS.

8. Can the action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

The action will in no way cause the loss or destruction of significant scientific, cultural or historic resources or adversely affect entities listed in or eligible for listing in the National Register of Historic Places.

9. Can the action reasonably be expected to have a significant impact on endangered or threatened species or their critical habitat as defined under the Endangered Species Act of 1973?

The action will in no way adversely affect any threatened or endangered species or their critical habitat.

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[4] Section 312 of the Clean Water Act gives the Environmental Protection Agency and states the authority to designate "No Discharge Zones" (33 U.S.C. 1322(f)). A NDZ is an area of a waterbody or an entire waterbody into which the discharge of sewage (whether treated or untreated) from all vessels is completely prohibited. NDZs are designed to give states an additional tool to address water quality issues associated with sewage contamination.

10. Can the action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

No, the action does not threaten to violate any federal, state or local environmental protection law or requirement. This action is consistent with and complementary to the 2002 action taken by the EPA to eliminate vessel discharges in state waters of the sanctuary (see response to question 4).

11. Can the action reasonably be expected to result in the introduction or spread of a nonindigenous species?

No, the action will not result in the introduction or spread of nonindigenous species.

8.1.1. DETERMINATION

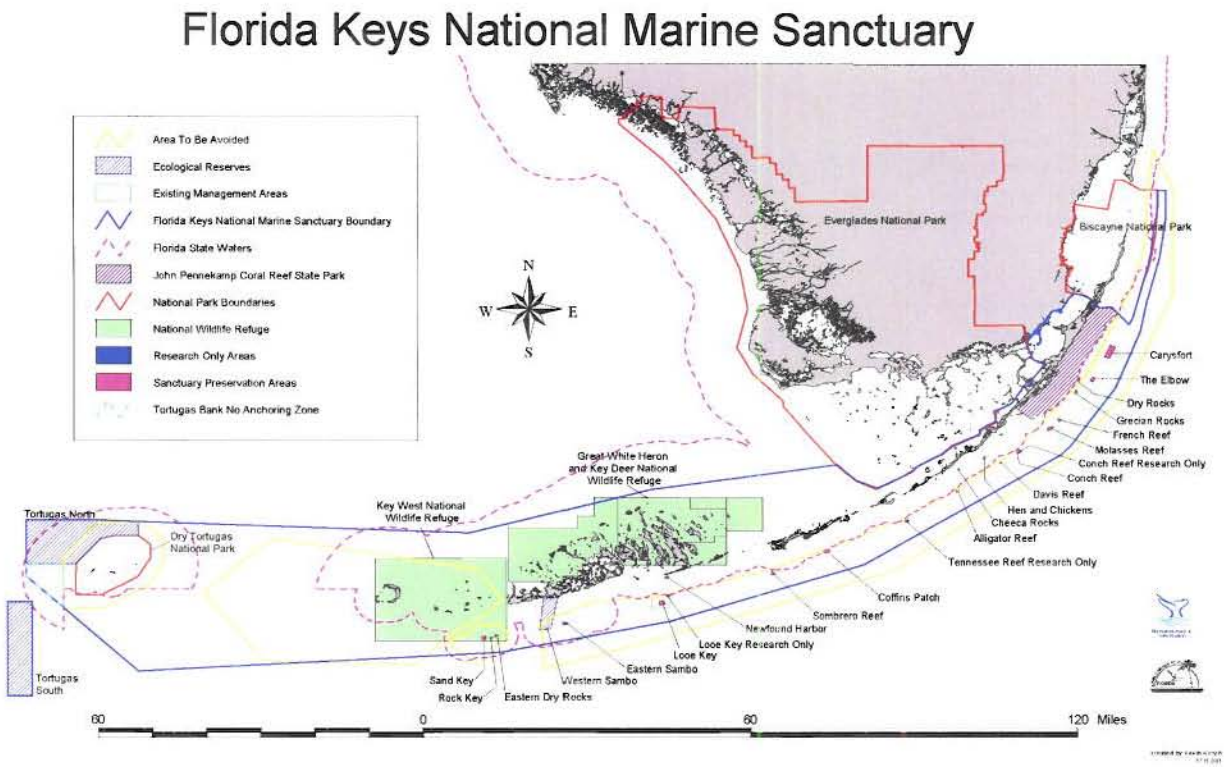
In view of the information presented in this document and the analysis contained in the supporting environmental assessment prepared for the action to prohibit vessel discharges of sewage into the waters of the Florida Keys National Marine Sanctuary, it is hereby determined that the aforementioned action will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an environmental impact statement for this action is not necessary.

10/8/10

David M. Kennedy
Acting Assistant Administrator for
Ocean Services and Coastal Zone Management
National Oceanic and Atmospheric Administration

Date

APPENDIX A: MAP OF THE FLORIDA KEYS NATIONAL MARINE SANCTUARY



APPENDIX B: COMMENTS AND RESPONSES

This appendix contains NOAA's responses to the substantive comments received during the public comment period on the proposed rule and draft environmental assessment. There were 18 distinct submissions from individuals or organizations, an additional 1,396 submissions generated by form letters, and one submission from a federal agency. Many of the comments were similar enough that they could be addressed by one response.

Public Submissions

1. *Comment*: The proposed rule should be implemented for several reasons, including: to mitigate one of multiple stressors on coral reefs; pollution is harmful and not solved by dilution; and MSDs do not remove all viruses and excess nutrients that can be harmful. NOAA should expeditiously adopt and actively enforce the proposed rule.

Response: NOAA agrees there are multiple stressors on the ecosystems in the Florida Keys, one of which could be mitigated by prohibiting the discharge of treated and untreated sewage into FKNMS waters. Although Type I and Type II MSDs can reduce the viral and nutrient content of sewage, NOAA believes pumping out at approved facilities, rather than discharging into the sanctuary, is less harmful to the habitats and species in the FKNMS.

2. *Comment:* Expanding the existing NDZ from state to federal waters is appropriate and is consistent with the Florida Coastal Management Program.

Response: NDZs only apply in state waters per the Clean Water Act. However, NOAA believes having similar MSD discharge regulations apply throughout all FKNMS waters (i.e., both state and federal) will improve enforceability of such regulations. Further, this should reduce confusion among FKNMS visitors/users, build on the strong partnership between NOAA and the State of Florida in managing the FKNMS and, overall, enhance the protections afforded to FKNMS resources.

3. *Comment:* NOAA should support the installation of land- and vessel-based pump-out facilities, and continue to educate the public about the availability and importance of using these facilities.

Response: NOAA agrees installation of land- and vessel-based pump-out facilities and education are important components of increasing compliance with the proposed rule. To this end, NOAA will work with the appropriate state and federal entities to support installation of adequate pump-out facilities. In addition, NOAA will provide information to the public about these facilities. These measures should help encourage vessel operators to reduce pollution to the FKNMS from vessels' sewage discharges.

4. *Comment:* The proposed rule should be implemented, but NOAA should also consider banning harmful vessel graywater discharges, especially from large cruise and cargo vessels.

Response: NOAA agrees graywater discharges may be harmful to the ecosystem, particularly in large volumes in sensitive habitats. However, this rulemaking implements a recommendation from the 2007 *Florida Keys National Marine Sanctuary Revised Management Plan* that was specific to discharges of sewage from vessels. Additional water quality regulation may be considered in future FKNMS management plan reviews.

5. *Comment:* The proposed rule should be implemented, but enforceability of tracking discharges from and locking of MSDs raises concerns. NOAA should include an enforcement component in the final rule that considers such issues as regular patrols in the FKNMS, proactive boarding/inspection of vessels, standards for acceptable types of MSD locks, and consequences of noncompliance.

Response: NOAA agrees adequate enforcement will be necessary to help make the rule more effective, especially given the size of the FKNMS and the number of vessels that use the FKNMS. Therefore, NOAA has included language related to enforcement in the preamble to the final rule to facilitate understanding of the requirements of this rule, enhance enforceability, and encourage compliance. Specifically, NOAA has included acceptable methods, as described in 33 CFR 159.7(b) and (c), for securing MSDs in a manner that prevents discharges or deposits of treated and untreated sewage into FKNMS waters. In addition, language has been included in the environmental assessment associated with this rule (see ADDRESSES section for instructions on obtaining a copy) to specify that personnel from the Florida Fish and Wildlife Conservation Commission, the NOAA Office for Law Enforcement, and the U.S. Coast Guard are authorized to enforce this rule. Noncompliance would be subject to civil penalties pursuant to section 307 of the National Marine Sanctuaries Act (16 USC 1437).

6. *Comment:* The proposed rule should be implemented, especially because it is consistent with the efforts (i.e., money being spent) by Monroe County to treat wastewater from land-based sources. In addition, no discharges should be allowed from any sources.

Response: NOAA agrees that this action will complement other efforts by Monroe County, and the State of Florida to reduce harmful discharges into the FKNMS and surrounding waters. This rulemaking builds consistency and enhances partnerships to improve water quality. Further, this rulemaking implements a recommendation from the 2007 *Florida Keys National Marine Sanctuary Revised Management Plan* that was specific to discharges of sewage from vessels. Though the prohibition of discharges from sources other than MSDs is beyond the intent of this rule, additional water quality regulation may be considered in future FKNMS management plan reviews.

7. *Comment:* The proposed rule should not be implemented because it is ill advised, counter-productive and impractical to enforce. Instead, NOAA should actively encourage the installation and use of approved Type I MSDs, since they properly treat waste to make discharges harmless.

Response: NOAA does not agree installation of Type I MSDs should be encouraged over prohibiting discharges from MSDs in FKNMS waters, since they do not adequately remove the viruses and excess nutrients that could harm FKNMS resources. Allowing any discharges of sewage, treated and untreated, is not as protective of FKNMS water quality as completely prohibiting them. Further, this rule is consistent with the existing discharge prohibitions in Florida's state waters, and therefore enhances compliance and increases enforceability in both state and federal waters.

8. *Comment:* NOAA should have consistent, system-wide (rather than site-specific) procedures for designating NDZs in national marine sanctuaries. NOAA should adopt those procedures already established by the Clean Water Act by which states obtain permission from the U.S. Environmental Protection Agency (EPA) to designate state waters as NDZs.

Response: The EPA's procedures for establishing NDZs are not appropriate for every national marine sanctuary in the National Marine Sanctuary System (system), since NDZs only apply in state waters per the Clean Water Act, and some sanctuaries are located entirely in federal waters. This rule encompasses all waters of the FKNMS, which includes state and federal waters. Each site in the system was designated with different goals and objectives and, thus, their needs for vessel discharge regulations vary as well. NOAA will continue to evaluate the need for restrictions on vessel discharges on a sanctuary-by-sanctuary basis.

9. *Comment:* NOAA has not demonstrated whether it considered if adequate pump-out facilities are available to vessel operators nor where funding will come from and be directed for increased access to pump-out facilities. NOAA cannot rely on the demonstration made by the State of Florida to the U.S. Environmental Protection Agency (EPA) unless the state had also considered the impact of a NDZ in the federal waters of the FKNMS. NOAA should work with state and local agencies, EPA, and the U.S. Fish and Wildlife Service (FWS) to ensure that there are adequate pump-out facilities available.

Response: NOAA included information in the draft environmental assessment associated with this rule on the pump-out facilities in the Florida Keys and provided additional details about their locations and operational status in this rule's final environmental assessment (see ADDRESSES section for instructions on obtaining a copy). NOAA believes that vessel operators will be able to adequately discharge MSDs at existing pump-out facilities in the Florida Keys, based on their current quantity and locations, or outside FKNMS boundaries as appropriate. Florida was awarded $2.5 million in grant funding from the Clean Vessel Act Grant Program in 2008 (with $838,976 in matching funding provided by the state), and this money is being used through 2010 to fund up to 121 pump-out projects in the coastal regions of Florida, which should increase access to pump-out facilities for vessel operators. To date, nine of these additional pump-out projects are in Monroe County. These efforts and the NOAA MSD discharge regulation help implement Strategy L.1, Elimination of Wastewater Discharge from Vessels, Activities 2-5, in the 2007 *Florida Keys National Marine Sanctuary Revised Management Plan.*

Federal Submissions – U.S. Coast Guard

10. *Comment:* The term "unlocked" is unclear and not otherwise defined, so NOAA should cross-reference Coast Guard regulations on MSDs in the rule to promote consistency and clarify regulatory compliance.

Response: NOAA has edited the rule language that was proposed for paragraph (a)(5)(vi) to replace "unlocked or that allows discharge or deposit of sewage" with "not secured in a manner that prevents discharges or deposits of treated and untreated sewage." NOAA agrees that acceptable methods for securing MSDs to prevent discharges or deposits of treated and untreated sewage include, but are not limited to, the methods listed in the Coast Guard's regulations (at 33 CFR 159.7(b) and (c)). Though NOAA has included the reference to Coast Guard's regulations in this rule as a guide, vessel operators could use other methods if those methods fulfill NOAA's goal of ensuring that sewage from MSDs is not discharged into the sanctuary.

11. *Comment:* Vessels with Type I and II MSD technologies that require considerable effort to start and stop (certain biological or anaerobic type systems) might also be equipped with a Type III MSD, which can hold treated sewage while operating in an area where discharge is prohibited.

Response: Comment noted.

12. *Comment:* Federal, State and local law enforcement officers should retain an exemption allowing them to discharge biodegradable effluent incidental to vessel use and generated by MSDs into FKNMS waters, as eliminating the exemption would have a negative impact on law enforcement activities. Since activities in the FKNMS related to migrant interdiction, counter drug, and search and rescue operations may be long and drawn out,

requiring the law enforcement vessel to operate near the incident, leaving the scene of the incident to discharge an MSD is not always an option.

Response: NOAA agrees Federal, State and local law enforcement officers acting in their official capacities may not have an option to leave the scene of an incident to discharge an MSD. NOAA has amended the regulatory language in 15 CFR 922.163(e) to ensure that the requirements and prohibitions of this rule do not apply to Federal, State and local officers while performing enforcement duties and/or responding to emergencies that threaten life, property, or the environment in their official capacity.