
**Regulatory Flexibility Assessment for the Joint Management Plan Review of
Monterey Bay, Greater Farallones, and Cordell Bank National Marine
Sanctuaries**

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Introduction

This document provides a review and assessment of the net socioeconomic impacts of the amended regulations issued for the Monterey Bay, Gulf of the Farallones (now Greater Farallones), and Cordell Bank national marine sanctuaries (MBNMS, GFNMS, and CBNMS, respectively) in the time period following issuance of the regulations. In 2008, the Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration that the regulations would not have a significant economic impact on a substantial number of small entities. *See* Final Rule (73 FR 70488, 70529), Nov. 20, 2008; CBNMS Proposed Rule (71 FR 59039, 59046); MBNMS Proposed Rule (71 FR 59050, 59058); GFNMS Proposed Rule (71 FR 59338, 59346), Oct. 6, 2006 (outlining the factual basis for the certification). Because this certification was issued for the amended regulations, NOAA was not required to conduct a 10-year review under Section 610 of the Regulatory Flexibility Act (RFA), *see* 5 U.S.C. § 610(a). However, NOAA exercised its discretion to prepare this review to determine whether changed conditions may mean that the existing rules now do have a significant economic impact on a substantial number of small entities. This assessment further considers whether the existing rules should be left unchanged, or whether they should be revised or rescinded to minimize significant economic impacts on a substantial number of small entities, consistent with the objectives of other applicable statutes. *See* Notice of RFA Review¹, 83 FR 8812 (March 1, 2018). For the reasons described in this report, NOAA determines that there are no changed conditions or other factors that would alter the conclusion of the 2008 certification that the regulations would not have a significant economic impact on a substantial number of small entities. As such, NOAA's conclusion is that the final rule continues to not have a significant economic impact on a substantial number of small entities and should be left unchanged.

Background

In 2006, the National Oceanic and Atmosphere Administration's (NOAA's) Office of National Marine Sanctuaries (ONMS) published proposed new regulations, drafted new management plans, and drafted environmental impact statements (EIS) for the MBNMS, GFNMS, and

¹ NOAA's Federal Register Notice (FRN) of RFA Review, 83 FR 8812, 8813 (March 1, 2018) indicates that the Final Rules referenced here were "being reviewed under RFA section 610." However, a clarification is appropriate: as described above, NOAA is not required to conduct a 10-year review under Section 610 of the RFA. However, NOAA is exercising its discretion to perform this assessment to determine whether changed conditions may mean that the existing rules now have a significant economic impact on a substantial number of small entities and whether the rules should be revised or rescinded. This comports with the notice in the March 1, 2018 FRN that ONMS would "review other rules certified under RFA section 605 as not have significant impacts . . . (and) evaluate whether those rules now have a significant impact." As described throughout this assessment, NOAA concludes that the final rules continue to not have a significant economic impact on a substantial number of small entities and should be left unchanged, and as such, a statutory RFA Section 610 review is not required.

CBNMS, which collectively constituted a joint management plan review (JMPR). The three sanctuaries that were the subject of the JMPR are described here.

- The CBNMS is located offshore of California's northern coast, adjacent to and northwest of the Gulf of the Farallones National Marine Sanctuary. It now encompasses approximately 1,286 square nautical miles, but prior to the issuance of the JMPR and regulations in 2008, it included approximately 399 square nautical miles of federal waters and submerged lands off the Northern California coast, about 43 nautical miles Northwest of the Golden Gate Bridge in San Francisco.
- The GFNMS is located offshore of California's northern coast, adjacent to the Monterey Bay and Cordell Bank National Marine Sanctuaries. It now encompasses approximately 2,488 square nautical miles, but prior to the issuance of the JMPR and regulations in 2008, it included approximately 966 square nautical miles of state and federal waters and submerged lands off the Northern California coast, to the west and north of the Golden Gate Bridge in San Francisco, and adjacent to Pt. Reyes National Seashore in Marin County.
- The MBNMS is located offshore of California's central coast, adjacent to and south of the Gulf of the Farallones National Marine Sanctuary. It now encompasses 4,601 square nautical miles, but prior to the issuance of the JMPR and regulations in 2008, it had a shoreline length of approximately 268 miles between Muir Beach in Marin County and Cambria in San Luis Obispo County and an area of approximately 4,019 square nautical miles of state and federal waters, and submerged lands, extending an average distance of 30 miles from shore.

In 2008, further revisions to the regulations and management plans were proposed, and additional public comment was sought on those changes. *See* Proposed Rule (73 FR 16224), March 27, 2008. On November 20, 2008, NOAA published the final rule for MBNMS, GFNMS, and CBNMS, along with the final management plans (the final EIS was published in September 2008, and notice of the availability of the NEPA Record of Decision was included in the November 20, 2008 final rule). *See* Final Rule (73 FR 70488), Nov. 20, 2008.

The final rule updated the regulations for these three sanctuaries and established new regulatory prohibitions for them. The final rule amended regulations or added new regulations, including restrictions on: the introduction of introduced species; discharges from cruise ships and other vessels; attracting or approaching white sharks in GFNMS; anchoring vessels in seagrass in Tomales Bay; deserting vessels; motorized personal watercraft use in the MBNMS (definition revision); and, possessing, moving, or injuring historic resources. The final rule also codified three dredge disposal sites in the MBNMS that existed prior to the MBNMS designation in 1992 and expanded the boundaries of the MBNMS to include the Davidson Seamount and surrounding area.

The environmental impact analysis done at the time determined that potential socioeconomic impacts of the updated regulations and management plans would be less than significant,² and the final rule was certified at the time of publication concluding that the regulatory changes would not have a significant economic impact on a substantial number of small entities. However, NOAA is exercising its discretion to conduct this review and assessment to evaluate data following issuance of the final rule and evaluate whether the regulatory changes have now resulted in a significant economic impact on a substantial number of small entities.

Final Regulations Issued in 2008

The final rule included new regulations and changes to existing regulations. With respect to CBNMS, the final rule added prohibitions on: discharging or depositing from within or into the Sanctuary material or matter from a cruise ship, subject to exceptions for specified clean discharges; discharging graywater or effluent from any type of marine sanitation device from vessels 300 gross registered tonnage (GRT) or greater with sufficient holding tank capacity; drilling, dredging or otherwise altering the submerged lands on or within the line representing the 50-fathom isobath surrounding the Bank except with respect to use of bottom contact fishing gear used during fishing activities; drilling, dredging or otherwise altering the submerged lands beyond the line representing the 50-fathom isobath surrounding the Bank except as incidental and necessary for anchoring and normal fishing operations; taking or possessing marine mammals, birds and sea turtles within CBNMS unless authorized by statute or regulation; and releasing introduced species into CBNMS. The revised regulations also clarified the coordinates and description of CBNMS's boundary; that CBNMS includes the submerged lands within its boundary; revised the prohibition on discharging or depositing materials and matter into CBNMS, including exemptions to this prohibition; eliminated the discharge exception for discharging or depositing waste resulting from meals on board vessels into CBNMS; and clarified permit issuance criteria and procedures. The final rule also clarified that discharges allowed from marine sanitation devices apply only to Type I and Type II marine sanitation devices and that vessel operators are required to lock all marine sanitation devices in a manner that prevents discharge of untreated sewage; clarified that ballast water is not excepted from the prohibition against discharges/deposits; and specified that the existing exemption for discharging or depositing fish, fish parts, or chumming materials (bait) applies only to such discharges and deposits during the conduct of traditional fishing activities within CBNMS.

With respect to GFNMS, the final rule added prohibitions on: discharging or depositing from within or into the Sanctuary material or matter from a cruise ship, subject to exceptions for specified clean discharges; discharging graywater or effluent from any type of marine sanitation

² With respect to both commercial fishing and socioeconomic interests, the Final Environmental Impact Statement for the management plan update concluded that the revised management plans and regulations would result in a combination of both beneficial impacts and less than significant adverse impacts. *See* FEIS at ES-12, ES-13 (Table ES-1), available at https://repository.library.noaa.gov/view/noaa/11398/noaa_11398_DS4.pdf.

device from vessels 300 GRT or greater with sufficient holding tank capacity; discharging or depositing from beyond the boundary of GFNMS that enters and injures a GFNMS resource or quality; taking or possessing marine mammals, birds and sea turtles within GFNMS unless authorized by statute or regulation; releasing introduced species into GFNMS; attracting a white shark; approaching a white shark within 2 nautical miles (nmi) of the Farallon Islands; deserting a vessel aground, at anchor, or adrift in GFNMS; leaving harmful matter aboard a grounded or deserted vessel; anchoring a vessel in designated no-anchoring zones in Tomales Bay; and permit issuance categories, criteria and procedures. The final rule also permanently fixed the shoreward boundary adjacent to Point Reyes National Seashore and added a manager's permit as a new type of permit. The final rule clarified the description of the Sanctuary's boundaries; that GFNMS includes the submerged lands within its boundary; amended the prohibitions on removing or damaging sanctuary historical resources; revised the prohibition on discharging or depositing materials and matter into GFNMS, including exemptions to this prohibition; and the exceptions for disturbing the submerged lands. The final rule also clarified that discharges allowed from marine sanitation devices apply only to Type I and Type II marine sanitation devices and that vessel operators are required to lock all marine sanitation devices in a manner that prevents discharge of untreated sewage; and specified that the existing exemption for discharging or depositing fish, fish parts, or chumming materials (bait) applies only to such discharges and deposits during the conduct of traditional fishing activities within GFNMS. Finally, the final rule revised the prohibition against dredging or otherwise altering the submerged lands by removing the exceptions for ecological maintenance and construction of outfalls; eliminated the discharge exception for discharging or depositing waste resulting from meals on board vessels into GFNMS; clarified that ballast water is not excepted from the prohibition against discharges/deposits; and removed the discharge exception for discharge of dredge materials disposed of at the interim dumpsite.

With respect to MBNMS, the final rule added prohibitions on: releasing introduced species; discharging or depositing from within or into the Sanctuary material or matter from a cruise ship, subject to specified exceptions for specified clean discharges; discharging graywater or effluent from any type of marine sanitation device from vessels 300 GRT or greater with sufficient holding tank capacity; disturbance and take of MBNMS resources more than 3,000 feet below the sea surface within the Davidson Seamount Management Zone, subject to specified exceptions; leaving harmful matter aboard a grounded or deserted vessel; and deserting a vessel aground, adrift, or at anchor within MBNMS. Final changes to the permit procedures clarified and refined the permit issuance criteria. The rule also revised or clarified: replacing the term "seabed" with "submerged lands"; corrected inaccuracies in the coordinates and description of MBNMS's seaward and shoreline boundaries; clarified that discharges allowed from marine sanitation devices apply only to Type I and Type II marine sanitation devices and that vessel operators are required to lock all marine sanitation devices in a manner that prevents discharge of untreated sewage; specified that the existing exemption for discharging or depositing fish, fish parts, or chumming materials (bait) applies only to such discharges and deposits during the conduct of traditional fishing activities within MBNMS; added the Davidson Seamount Management Zone; amended the prohibitions on removing or damaging sanctuary historical resources; expanding the existing prohibition on the attraction of white sharks in state waters to apply throughout MBNMS; clarified the prohibition against discharges/deposits, including

exemptions to this prohibition; clarified that ballast water is not excepted from the prohibition against discharges/deposits; and revised the definition of motorized personal watercraft and adding a seasonal motorized personal watercraft zone.

Summary of Factual Basis for RFA Certification for Final Rule

In the final rule issued in 2008, NOAA evaluated the number of small entities that may be affected by the regulations and assessed the potential impacts of the regulations on these entities. Below, NOAA provides information on the small entities present at the time of the 2008 Final Rule and provides a brief summary of the RFA certification.³ In addition, on March 12, 2015, NOAA published a final rule expanding the boundaries and revising regulations for GFNMS and CBNMS; this final rule included a certification under the RFA that the rule would not have a significant impact on a substantial number of small entities.⁴ This section also contains a brief summary of the 2015 RFA certification with respect to GFNMS and CBNMS.

2008 Final Rule:

At the time of the 2008 final rule and RFA certification, small business concerns operating within CBNMS included commercial fishermen who varied in number seasonally and annually from approximately 100 to 300 boats; approximately five consumptive recreational charter-fishing businesses; and approximately three non-consumptive recreational charter businesses engaged in wildlife viewing. The approximately three small organizations operating within CBNMS included non-governmental organizations (NGOs) and/or non-profit organizations (NPOs) dedicated to environmental education, research, restoration, and conservation concerning marine and maritime heritage resources. The Regulatory Flexibility Act (5 U.S.C. § 601(5)) defines the term “small governmental jurisdictions” as governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand. There were no “small governmental jurisdictions” directly adjacent to the CBNMS, and there were no identified effects on small governmental jurisdictions associated with CBNMS regulations.

At the time of the 2008 final rule and RFA certification, the small business concerns operating within GFNMS included commercial fishermen who varied in number seasonally and annually from approximately 300 to 500 boats; twelve mariculture leaseholders in Tomales Bay; approximately 25 recreational charter-fishing businesses; and approximately seven recreational charter businesses engaged in wildlife viewing. The approximately three small organizations operating within the Sanctuary included NGOs and/or NPOs dedicated to environmental education, research, restoration, and conservation concerning marine and maritime heritage resources. Bodega, Bolinas and Tomales Bay settlements qualified as “small governmental jurisdictions” directly adjacent to the Sanctuary.

³ The final rule, including the RFA certification, was published on November 20, 2008 (73 FR 70488, 70529). The factual basis for the RFA certification is contained in the proposed rules published on October 6, 2006 and was incorporated in the final rule. *See* CBNMS Proposed Rule (71 FR 59039, 59046); MBNMS Proposed Rule (71 FR 59050, 59058); GFNMS Proposed Rule (71 FR 59338, 59346).

⁴ The final rule, including the RFA certification, is published at 80 FR 13077. The factual basis for the RFA certification is contained in the proposed rule, published on June 30, 2014 (79 FR 20981, 20993).

At the time of the 2008 final rule and RFA certification, small business concerns operating within MBNMS included over 500 commercial fishing operations, more than 30 consumptive recreational charter businesses, over 30 non-consumptive recreational charter businesses, approximately three motorized personal watercraft businesses, and approximately 10 marine salvage companies. Other small organizations operating within the Sanctuary included non-governmental organizations (NGOs) and/or non-profit organizations (NPOs) dedicated to environmental education, research, restoration, and conservation concerning marine and maritime heritage resources. There were approximately 50 small organizations active in the Sanctuary including NPOs involved in education, research, restoration, and conservation activities. Cambria, Carmel-by-the-Sea, Pacific Grove, City of Monterey, City of Seaside, Del Rey Oaks, Marina, Castroville, Pajaro, Soquel, Capitola, Rio Del Mar, Aptos, Pacifica, Half Moon Bay, San Mateo County Harbor District, Santa Cruz Port District and Moss Landing Harbor District qualified as “small governmental jurisdictions” directly adjacent to the Sanctuary.

In its RFA certification in the 2008 final rule and the factual basis articulated in the 2006 proposed rules, NOAA determined that the regulatory changes would not have a significant economic impact on a substantial number of small entities. This section summarizes the factual basis for some of NOAA’s specific determinations, but reference should be made to the final and proposed rules for a full discussion of NOAA’s RFA certification and support.

With respect to the regulations prohibiting certain discharges of fish, fish parts or chum and prohibiting white shark attraction, NOAA determined, among other things, that the modification to the Sanctuary’s discharge/deposit regulation that would specify that discharging or depositing fish, fish parts, or chumming materials (bait) may occur only during the conduct of lawful fishing activity within the Sanctuary was not expected to have a significant adverse impact on small entities because it would not apply to conduct of lawful fishing activity within the Sanctuary. In some areas “chumming” was a practice that had been associated with non-consumptive recreational activities (e.g., attracting sharks for photography) or in some cases research activities (e.g., attracting birds for study). The two known shark viewing operations in business in GFNMS during the management plan review process were consulted with and supported this proposed regulatory action. Furthermore, NOAA determined that small entities not engaged in lawful fishing could apply for and, if appropriate, be granted a Sanctuary permit (e.g., research or education) to conduct this otherwise prohibited discharge/deposit. The proposed prohibition on attracting a white shark in the sanctuary, or approaching within 50 meters of any white shark within two nautical miles of the Farallon Islands would be applicable to those vessel-based small entities that seasonally (Sept.–Dec.) run adventure tourism operations adjacent to the Farallon Islands. NOAA determined the regulations would not prevent the adventure tourism activities from taking place, but would prohibit deployment of attractants in the Sanctuary and limit approach distances around the Farallon Islands. NOAA determined some of the operations could be eligible for research or education permits, which could authorize the use of white shark attractants under certain circumstances. The two known shark viewing operations in business in GFNMS during the management plan review process were consulted with as part of a working group and supported this proposed regulatory action. These specific

small entities were expected to experience a less than significant impact from this proposed regulatory action.

NOAA further determined that the modifications to the discharge/deposit prohibitions, including the exceptions to these prohibitions, were not expected to have a significant impact on a substantial number of small entities. To the extent that the regulatory revisions may affect customary, though illegal, sewage discharge practices of some small entities, the adverse effect on those operations was expected to be less than significant because such discharges may legally occur beyond the sanctuary boundaries, or vessel sewage may be pumped out and disposed of at mainland ports and harbors. The modification that would prohibit the discharge of meals on board vessels would not result in a significant impact to small entities. Resulting impacts may include additional costs and time potentially involved in traveling the additional distance beyond the sanctuary boundaries to appropriately dispose of food waste, or such waste can be disposed of on shore. Significant adverse impacts were not expected to result for any small entities from the prohibition on discharging or depositing any material or other matter from beyond the boundary of the Sanctuary that subsequently enters the Sanctuary and injures a Sanctuary resource or quality because in the course of normal, lawful operations, no small entity activities (e.g., commercial fishing businesses, recreational fishing businesses, non-consumptive charter businesses, research and education entities, aircraft businesses) were expected to produce such discharges/ deposits beyond the Sanctuary boundary. Additionally, this proposed regulation would exempt discharges/ deposits likely to come from vessel-based small entities.

With respect to GFNMS-specific regulatory changes, NOAA determined that to the extent that small business-owned vessels do use the Sanctuary, and have in the past anchored in seagrass beds in Tomales Bay, the proposed prohibition against vessels anchoring in designated no-anchoring seagrass protection zones in Tomales Bay would not have a significant economic impact on any small commercial entity or organization. NOAA based this determination on the fact that the seven no-anchoring seagrass protection zones comprised only 22% of the existing surface area in Tomales Bay, and the zones include many areas not suitable for vessel anchoring due to mud flat exposure at low tide. NOAA also based this determination on the fact that the no-anchoring zones were created to exclude known anchoring areas near marinas and recreational day-use areas.

With respect to CBNMS-specific regulatory changes, NOAA determined that no adverse impact on small entities was expected to result from the regulation change that prohibits the alteration of the submerged lands of the Sanctuary beyond the line representing the 50-fathom isobath surrounding the Bank. Most small entity operations do not normally involve, depend upon, or result in alteration of the submerged lands of the Sanctuary, and as such would not be adversely affected by this regulation.

With respect to MBNMS-specific regulatory changes, NOAA determined that the proposed modification to the Sanctuary's motorized personal watercraft (MPWC) regulation's current definition would expand the definition of MPWC to address a broader range of watercraft that would be restricted. Implementing this modified definition would help fulfill the original intent of the regulation and its zoning restrictions. The proposed modification would not have a significant adverse impact on small businesses directly involved in MPWC services, because a

less than significant portion of the MPWC industry involves general MPWC use in the ocean waters of the MBNMS. No small businesses were directly linked with MPWC use in the MBNMS. Moreover, NOAA determined that the prohibition on moving, removing, taking, collecting, catching, harvesting, disturbing, breaking, cutting, or otherwise injuring, or attempting to move, remove, take, collect, catch, harvest, disturb, break, cut, or otherwise injure, any Sanctuary resource located more than 3,000 feet below the sea surface in the Davidson Seamount Management Zone would not impact small businesses operating in the MBNMS; nor would the parallel possession regulation.

NOAA's RFA certification and its factual basis also included an analysis and explanation articulating why the remaining regulatory changes were not expected to result in significant economic impacts on a substantial number of small entities. These regulatory changes, including amendments to regulations on vessel abandonment, discharges from cruise ships, take of marine mammals, seabirds, and turtles, and introduced species, are not further discussed here.

2015 Final Rule on GFNMS and CBNMS Expansions:

In NOAA's RFA certification and underlying factual support for the expansions of GFNMS and CBNMS, NOAA relied primarily on qualitative considerations due to lack of quantitative data on the number of businesses directly affected by the proposed regulations and their levels of revenues, costs and profits from their activities in the CBNMS–GFNMS expansion area; although NOAA did rely on quantitative data for commercial fishing operations. In 2012, there were a little over 200 fishing operations that derived some catch from the CBNMS–GFNMS expansion area. These operations had harvest revenue of \$6.55 million (measured in 2013 dollars using the Consumer Price Index), which generated income (including multiplier impacts) of \$5.45 million and 246 full and part-time jobs.

In its RFA certification in the final rule and the factual basis articulated in the proposed rule, NOAA determined that the expansion and regulatory changes would not have a significant economic impact on a substantial number of small entities. This section summarizes the factual basis for some of NOAA's specific determinations, but reference should be made to the final and proposed rules for a full discussion of NOAA's RFA certification and support.

NOAA assessed three types of regulations included in the proposed action (discharges, submerged lands—seabed alterations, and introduced species), plus the impact of all regulations combined. With respect to the revised discharge regulations, NOAA expected negligible costs for all operations. NOAA determined that the commercial fishing and recreation-tourism industries would receive a net benefit from the discharge regulations. While NOAA determined that the regulatory changes would generate a negligible level of costs for commercial fishing and recreation-fishing industries to comply with the discharge regulations by holding and disposing of waste outside sanctuary boundaries, NOAA expected that the regulations would also generate moderate benefits due to improvements in habitat qualities and increases in fish stocks. With respect to submerged lands and seabed alteration regulations, NOAA determined that all of these industries would likely receive moderate net benefits from these regulations because of the improvement or maintenance of habitat qualities that these industries depend upon. NOAA expected the introduced species regulations would result in moderate benefits and net benefits to

the commercial fishing industry, the recreation-tourism industry and businesses in the land use and development industry as habitat qualities are maintained or improved, while resulting in negligible costs to businesses in the commercial and recreational fishing industry. Finally, NOAA expected the combined effects of all of the regulations in the proposed action to generate moderate benefits and net benefits to businesses in all three industries, while imposing negligible costs.

Current Assessment of the JMPR regulations

In conducting this review, NOAA considered whether, over the last ten years, substantial new or changed information or conditions would lead to the determination that the applicable regulations are now having a significant economic impact on a substantial number of small entities. NOAA specifically considered whether there are additional small businesses subject to the regulations than when the final rule was promulgated, whether the cost of compliance with the final rule has increased substantially, and other information and data that has become available over the last ten years.

The analysis presented, below, focuses on both quantitative and descriptive/qualitative information relating to small entities operating within the sanctuaries. Based on the data and information received over the previous ten years and assessed here, NOAA focuses this analysis on the following small entity uses and operations in the sanctuary: adventure tourism/white shark attraction; commercial fishing; recreational fishing; and other non-consumptive recreational uses.

As explained below, the only aspect of the regulation that NOAA determined could have an adverse impact on small entities was the prohibition on white shark approach and attraction. However, this potential effect does not rise to the level of a significant economic impact on a substantial number of small entities, for the reasons discussed below. NOAA has not identified any other aspects of the final rule that are now resulting in a significant negative economic impact on a substantial number of small entities. For small businesses that are economically dependent on commercial and recreational fishing and non-consumptive forms of recreation, there are possible beneficial economic impacts due to changes in protection of habitats and water quality that support more sustainable resource uses.

NOAA has determined that, based on data and information collected and received over the last ten years, the final rule does not have a significant economic impact on a substantial number of small entities. As such, a full RFA Section 610 review is not required for the final rule, and NOAA is not required to address the specific Section 610 statutory factors in this analysis. However, for public transparency purposes, NOAA provides additional information, below, on the continued basis for this certification and the pertinent socioeconomic information relating to this regulation over the last ten years.

Sources of Information Used in this Assessment

More detail on the sources identified here is contained in the References section at the end of this document.

White Shark Approach & Attraction

Office of National Marine Sanctuaries. 2017. Database for Education and Research Permits.

NOAA 2005. Jordan Parillo, NMSP Economist. Memo to Brady Phillips, Jmpr Coordinator. Socio-economic overview of white shark cage-diving operations in GFNMS. April 2, 2005.

Commercial Fisheries

California Department of Fish and Wildlife. 2000-2012 Commercial Fishing data. California Fishing Information System.

Leeworthy, Vernon, R. Jerome, D. Schueler, K. 2014a. GFNMS

Leeworthy, Vernon, R. Jerome, D. Schueler, K. 2014b. MBNMS

Leeworthy, Vernon, R. Jerome, D. Schueler, K. 2014c. CBNMS

Recreational Fisheries

California Department of Fish and Wildlife. 2004-2012. Recreational Fishing data. California Fishing Information System.

Chen, C., Leeworthy, V., & Schwarzmans, D. 2015. GFNMS, MBNMS, & CBNMS

Leeworthy, V., & Schwarzmans, D. 2015a GFNMS

Leeworthy, V., & Schwarzmans, D. 2015b MBNMS

Leeworthy, V., & Schwarzmans, D. 2015c CBNMS

Non-consumptive Recreation

Leeworthy, V., Schwarzmans, D. and Reyes Saade, D. 2015

White Shark Approach and Attraction

This section addresses the potential for the existing GFNMS regulations regarding white shark approach and attraction and discharge of chumming, as relevant to white shark operations, to adversely affect small entities. As described below, NOAA determines that based on data and information collected and received over the last ten years, the regulations do not have a significant economic impact on a substantial number of small entities, and the RFA certification for the regulation does not need to be revised or amended.

Baseline (Before Regulations)

In the baseline assessment (Parillo 2005) before the regulatory actions took effect, it was determined that in 2005 there were at least two known commercial operations taking customers out to GFNMS for white shark dive trips. During the white shark season in fall 2005 (September through November), the commercial companies conducting white shark dive trips at the Farallon Islands planned to offer a combined total of at least 71 full-day trips. Each company could accommodate a maximum of eight cage divers and four topside observers each trip. In addition,

another nonprofit group anticipated taking up to 15 people cage diving during the entire season. Thus, for 2005, the estimated maximum number of people conducting this activity was estimated at approximately 583 cage divers and 284 observers from the boat.

In 2005, there were no commercial operations that derived all their income from white shark diving trips in GFNMS. On the assumption that the two commercial operations would each fill every space on every offered trip, the baseline assessment concluded that one operation would receive approximately 30 percent of its annual revenue from = white shark diving in GFNMS = and one operation would receive less than 1 percent of its annual revenue from white shark diving in GFNMS. It was noted that variables such as weather and oceanographic conditions, alterations in the shark's primary food source, predatory events on white sharks by killer whales, consumer demand, and other unforeseen events, could affect commercial viewing operations in the Farallon Islands area, and therefore could reduce the number of trips and yearly observations.

In its RFA certification in the 2008 final rule and the factual basis articulated in the 2006 proposed rules,⁵ NOAA determined that the proposed regulatory changes would not have a significant economic impact on a substantial number of small entities. With respect to the regulations prohibiting certain discharges of fish, fish parts or chum and prohibiting white shark attraction, NOAA determined, among other things, that the modification to the sanctuary's discharge/deposit regulation that would specify that discharging or depositing fish, fish parts, or chumming materials (bait) may occur only during the conduct of lawful fishing activity within the sanctuary was not expected to have a significant adverse impact on small entities. The two known shark viewing operations in business in GFNMS during the management plan review process were consulted with and supported this proposed regulatory action. Furthermore, NOAA determined that small entities not engaged in lawful fishing could apply for and, if appropriate, be granted a sanctuary permit (e.g., research or education) to conduct this otherwise prohibited discharge/deposit. The proposed prohibition on attracting a white shark in the sanctuary, or approaching within 50 meters of any white shark within two nautical miles of the Farallon Islands would be applicable to those vessel-based small entities that seasonally (Sept.–Dec.) run adventure tourism operations adjacent to the Farallon Islands.

NOAA determined the regulations would not prevent the adventure tourism activities from taking place, but would prohibit deployment of attractants in the sanctuary and limit approach distances around the Farallon Islands. NOAA determined some of the operations could be eligible for research or education permits, which could authorize the use of white shark attractants under certain circumstances. The two known shark viewing operations in business in GFNMS during the management plan review process were consulted with as part of a working group and supported this proposed regulatory action. These specific small entities were expected to experience a less than significant impact from this proposed regulatory action.

⁵ Final Rule, November 20, 2008 (73 FR 70488, 70529); GFNMS Proposed Rule (71 FR 59338, 59346).

Post Regulations Assessment

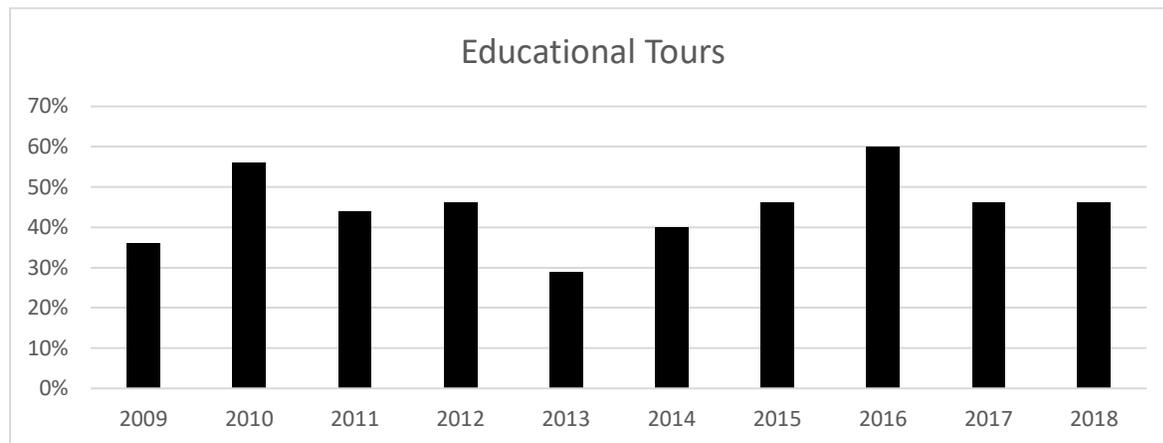
Since 2009, there has been a continued interest in attracting White Sharks for educational purposes. Between 2009 and 2018, permitted educational tour vessels that conduct White Shark attraction have averaged approximately 39 trips during each White Shark season (approximately mid-September through November 30) (Figure 1, Office of National Marine Sanctuaries, unpublished. data). Three education permits were issued in 2009, two in 2010, four in 2011, three each year during the 2012, 2013, and 2014 seasons, four in 2015, and three in 2016 and 2017. In 2018, four education permits were issued. In the absence of quantitative data as to whether each of these permittees meets the Small Business Administration’s definition of “small entity,” this assessment operates on the conservative assumption that each permit was issued to a small entity.

Figure 1. Total Education Trips to View White Sharks at the Farallon Islands (2009 – 2018)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number of Educational Trips	34	48	57	56	41	35	47	15	24	31
Number of Tour Operators	3	2	3	3	3	1	3	3	2	4
Estimated Number of Visitors	520	690	795	750	530	447	589	147	518	409

Expedition log data has been analyzed to determine the likelihood of viewing a White Shark during an educational tour to the islands. The expedition permit logs that each operator submits to GFNMS tracks the number of “sightings” of sharks each season. The permittees report these sightings for each trip and document whether a White Shark was seen investigating a decoy, near a shark diving cage or swimming by an underwater camera attached to the vessel, or was observed at the surface in the near vicinity of the vessel, and may be presumed to potentially result from the presence of the decoy. The graph in Figure 2 represents the best effort by GFNMS to quantify the opportunity for sightings presumed to be related to the use of an attractant (i.e. decoy). Sharks may also be seen engaging in a predation event at greater distances from the vessel; these observations, which can be considered “natural” sightings not related to the use of an attractant, have not been included in Figure 2 below. According to the permit expedition logs, over the nine-year period from 2009 to 2018, White Sharks have been observed at decoys, from cages, on video, or at the surface near the vessels during approximately 45% of all educational tours (Office of National Marine Sanctuaries, unpublished. data; Figure 2). Since 2009, the percentages of education tours during which White Sharks were observed are as follows: 56% in 2010, 44% in 2011, 46% in 2012, 29% in 2013, 40% in 2014, 46% in 2015, 60% in 2016, and 46% in both 2017 and 2018 (Office of National Marine Sanctuaries, unpublished data; Figure 2).

Figure 2. Rates of Viewing White Shark on Educational Tours While Using An Attractant at the Farallones (2009-2018)



Determination Regarding Potential Economic Impacts on Small Entities Due to White Shark Regulations

This report concludes that there were no significant economic impacts on the small entities (primarily small businesses) due to the regulations regarding white shark approach and attraction, including the chumming regulation as relevant to white shark operations, in GFNMS, CBNMS or the MBNMS. The permit system put in place to mitigate the impacts has provided ample opportunities for the few businesses that engage in the now prohibited activity of attracting white sharks to continue to operate with comparable levels of activity by altering their business plans to conduct education activities on white shark diving trips using decoys instead of scent or chumming attractants. Based on the permit data referenced above, there are not a substantially greater number of small entities subject to these prohibitions now than in 2008 (two commercial vessel tour companies and one non-profit tour company were operating in GFNMS in 2005, compared to three or four commercial operators in recent years). The white shark expedition logs indicate an approximately 45% rate of viewing white sharks during permitted educational tours while using decoys only as an attractant and not fish, fish parts or other chumming materials. The white shark tour operators rely on shark sightings to support their business model, and the overall interest in shark tour expeditions over the preceding 10 years is indicative that the viewing rate and other aspects of the expeditions suffices to maintain public interest in commercial white shark tours in the sanctuary. Moreover, the regulatory prohibitions on white shark attraction and approach and the discharge of chum/scent attractants, and the potential to apply for an education permit for white shark attraction activities, are generally applicable to these educational tour operators and do not disproportionately impact any particular entity's ability to compete in this economic sector.

In reaching this determination, NOAA has considered comments received in November 2018; although these comments were received well after the close of the public comment period on April 2, 2018 (83 FR 8812), NOAA exercises its discretion to consider and address the late-filed

comments to further the purposes of transparency and public engagement. The comments, which were submitted by a commercial white shark tour operator, state that sales of white shark viewing tours are down by more than 70%, that no white sharks were observed during cage dive expeditions in 2018, and that without a reasonable expectation of attracting white sharks, the operators cannot continue to provide white shark viewing expeditions. The comments also assert that NOAA promised small entities would be eligible for permits to use scent attractants and that the California Department of Fish and Wildlife (CDFW) maintains that attracting white sharks for viewing is impermissible take under state law.

The latter two points raised by the commenter do not impact this assessment. The 2006 RFA discussion for GFNMS states, in part: “The two known shark viewing operations in business during the management plan review process were consulted with and support this proposed regulatory action. Furthermore, small entities not engaged in lawful fishing could apply for and, if appropriate, be granted a Sanctuary permit (i.e., research or education) to conduct this otherwise prohibited discharge deposit [of fish, fish parts, or chumming materials].” (71 FR 59347). NOAA does not consider the statement that small entities could, if appropriate, be granted a permit to constitute a “promise” to issue a permit. Nor does the comment regarding CDFW laws and regulations applicable to white sharks alter NOAA’s considerations of potential economic impacts to its regulations.

With respect to the remaining points in the comment, NOAA considers that the information submitted demonstrates that the scent attractant prohibition may have some adverse economic impact on the white shark tour operator, but that taking the information in context over the data received over the prior ten year period as a whole, such impact does not rise to the level of a significant economic impact on a substantial number of small entities. For example, from 2009 to 2012 (following implementation of the regulations), white shark trip numbers increased each year, and in 2016, educational expeditions had a 60% white shark sighting rate. And given that all operators have averaged a 45% sighting rate since 2009, this demonstrates members of the public are in fact seeing white sharks in the sanctuary. It is also not clear from available data that any reduced sightings of white sharks or decrease in the number of viewing tours sold during any given year are the result of the NOAA white shark regulations. Annual fluctuations in the number of trips taken to the islands and/or the number of sharks sighted may well be associated with seasonal variations in water temperature, water clarity, adverse weather and swell conditions, changes in food availability for the sharks, and/or with other factors separate from the regulatory prohibitions. As such, NOAA determines that there are no changed conditions or other factors in the previous ten year period that would require NOAA to revisit its certifications in 2008 and 2015 that the regulations do not have a significant economic impact on a substantial number of small entities.

Commercial Fishing

As described below, NOAA determines that based on data and information collected and received over the last ten years, the final rule does not have a significant economic impact on a

substantial number of small entities with respect to commercial fishing, and the RFA certification for the regulation does not need to be revised or amended. Due to the lack of comprehensive quantitative data on the number of businesses directly affected by the proposed regulations and their levels of revenues, costs and profits, the assessment here relies on both quantitative and qualitative analysis.

Number of Fishing Operations GFNMS

Baseline (Before Regulations). From 2000 to 2006, there were on average 245 commercial fishing operations fishing in GFNMS (Leeworthy et al., 2014a, b and c). The number of operations varied from a low of 182 in 2006 to a high of 293 in 2004. From 2000 to 2008, there were on average 231 commercial fishing operations fishing in GFNMS and this varied from a low of 131 in 2008 to a high of 293 in 2004 (Table1).

Post Regulations. From 2009 to 2012, there were on average 208 commercial fishing operations fishing in GFNMS. This varied from a low of 98 operations in 2009 to a high of 341 in 2012 (Table 1).

Over the entire 2000 to 2012 period, both the State of California under the Marine Life Management Act and the Pacific Fishery Management Council have instituted regulations designed to reduce over capacity in the commercial fisheries which partially explains the reductions in fishing operations. The recession in 2008-2010 may also explain some of the reductions in operations. The highest number of operations fishing in GFNMS was in 2012, the latest year of available data to ONMS. Thus, the number of operations fishing in GFNMS has not declined but actually increased in the post GFNMS regulations period.

Year	Number of Operations			
2000	234			
2001	247			
2002	257			
2003	214			
2004	293			
2005	287			
2006	182			
2007	235			
2008	131			
2009	98			
2010	170			
2011	223			
2012	341			
Average 2000 - 2006	245			
Average 2000 - 2008	231			
Average 2009 - 2012	208			

Source: California Fishing Information System, California Department of Fish and Wildlife

Harvest Revenue GFNMS

Baseline (Before Regulations). From 2000 to 2006, harvest revenue to commercial fishing operation from catch in GFNMS was on average \$2,523,760 per year (measured in 2013 \$). This varied from a low of \$1,761,764 in 2000 to a high of \$4,064,550 in 2004. From 2000 to 2008, harvest revenue was on average \$2,504,028 per year and varied from a low of \$1,761,764 in 2000 to a high of \$4,064,550 (Table 2).

Post Regulations. From 2009 to 2012, harvest revenue to commercial fishing operations fishing in GFNMS was on average \$12,026,185 per year. Harvest revenue varied from a low of \$2,947,309 to a high of \$16,142,400 in 2012 (Table 2). The large increase from 2009 to 2010 was the expansion of the Dungeness Crab fishery in GFNMS, which was also true in the rest of the State of California where they are harvested (Figure 3). Other commercial fisheries have also expanded in the post GFNMS regulations period including California Halibut (Figure 4), Sablefish Non-Trawl (figure 5) and Coonstriped Shrimp (Figure 6).

Given the large increase in commercial fishing harvest revenue from catch in GFNMS there has been no negative impact from GFNMS regulations on commercial fishing operations.

Year	Harvest Revenue			
2000	\$1,761,764			
2001	\$2,043,473			
2002	\$2,352,299			
2003	\$3,112,658			
2004	\$4,064,550			
2005	\$2,698,023			
2006	\$1,633,553			
2007	\$2,179,243			
2008	\$2,690,689			
2009	\$2,947,309			
2010	\$11,650,643			
2011	\$17,364,388			
2012	\$16,142,400			
Average 2000 - 2006	\$2,523,760			
Average 2000 - 2008	\$2,504,028			
Average 2009 - 2012	\$12,026,185			

Source: California Fishing Information System, California Department of Fish and Wildlife.

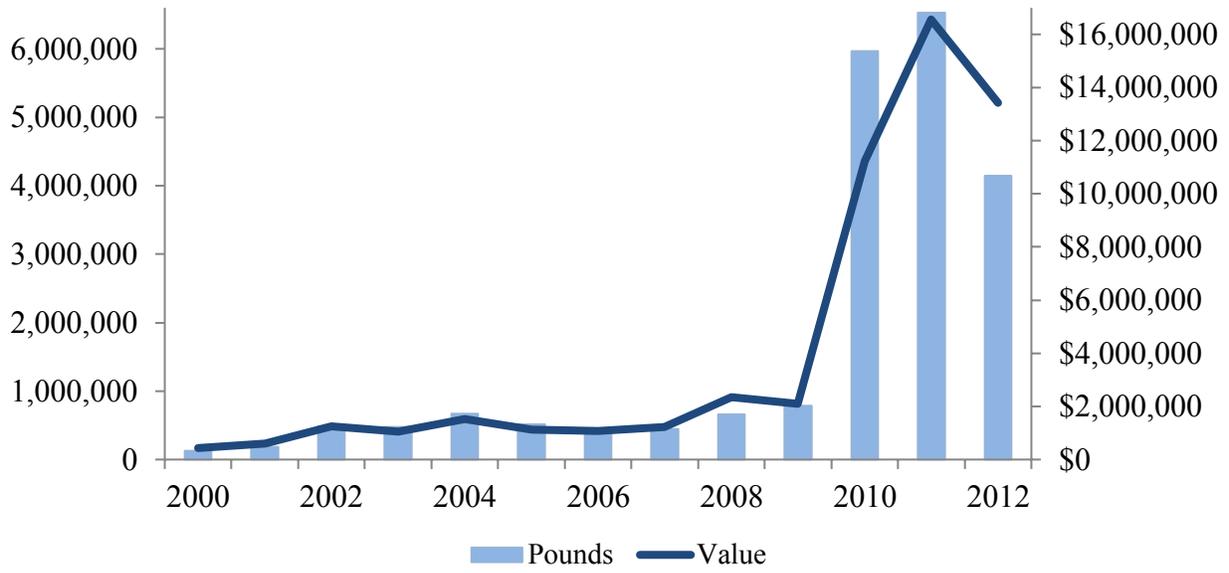


Figure 3. Dungeness Crab Catch in GFNMS 2000 to 2012

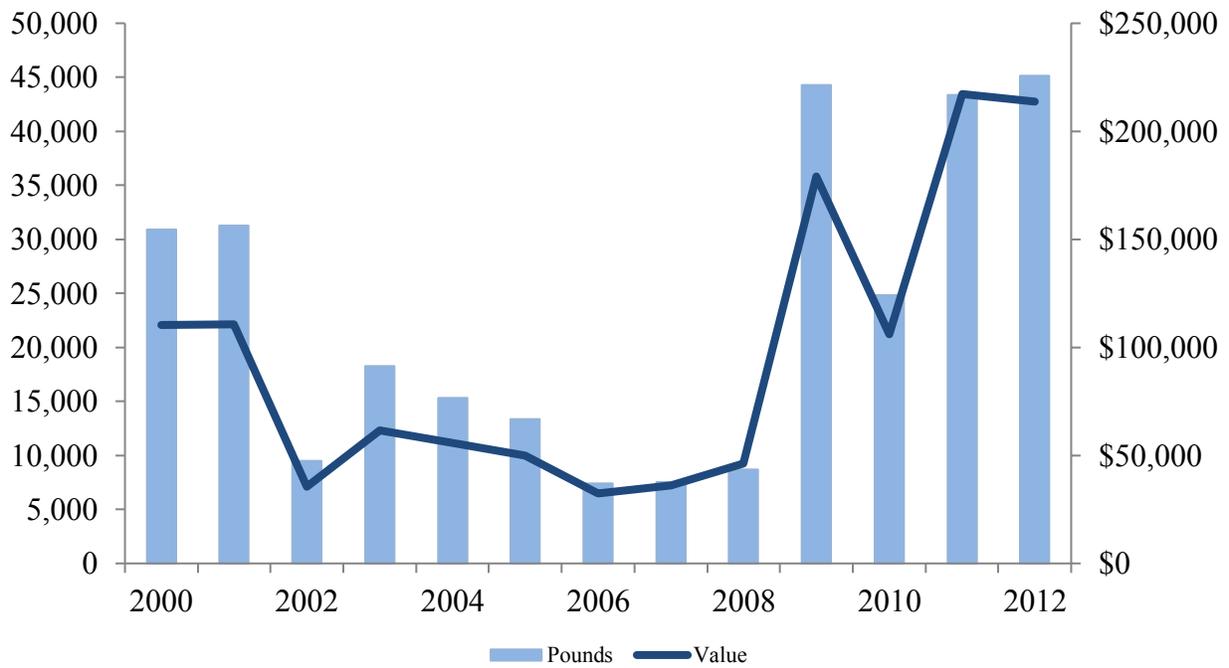


Figure 4. California Halibut Catch in GFNMS 2000 to 2012

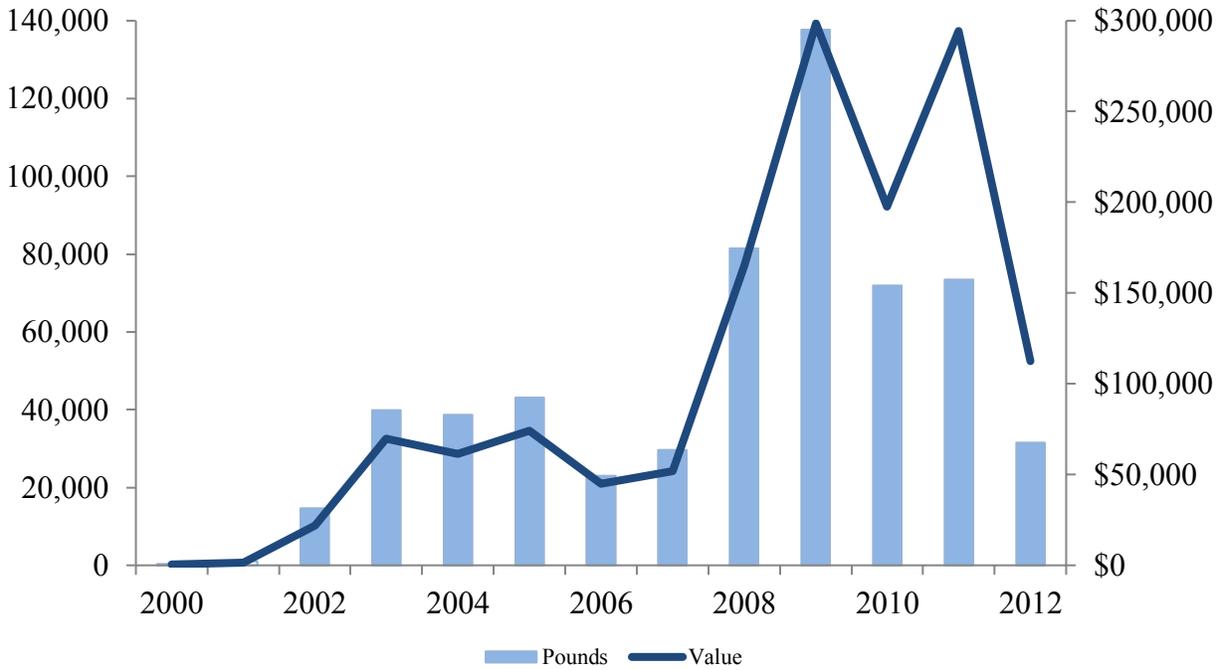


Figure 5. Sablefish Non-Trawl Catch in GFNMS 2000 to 2012

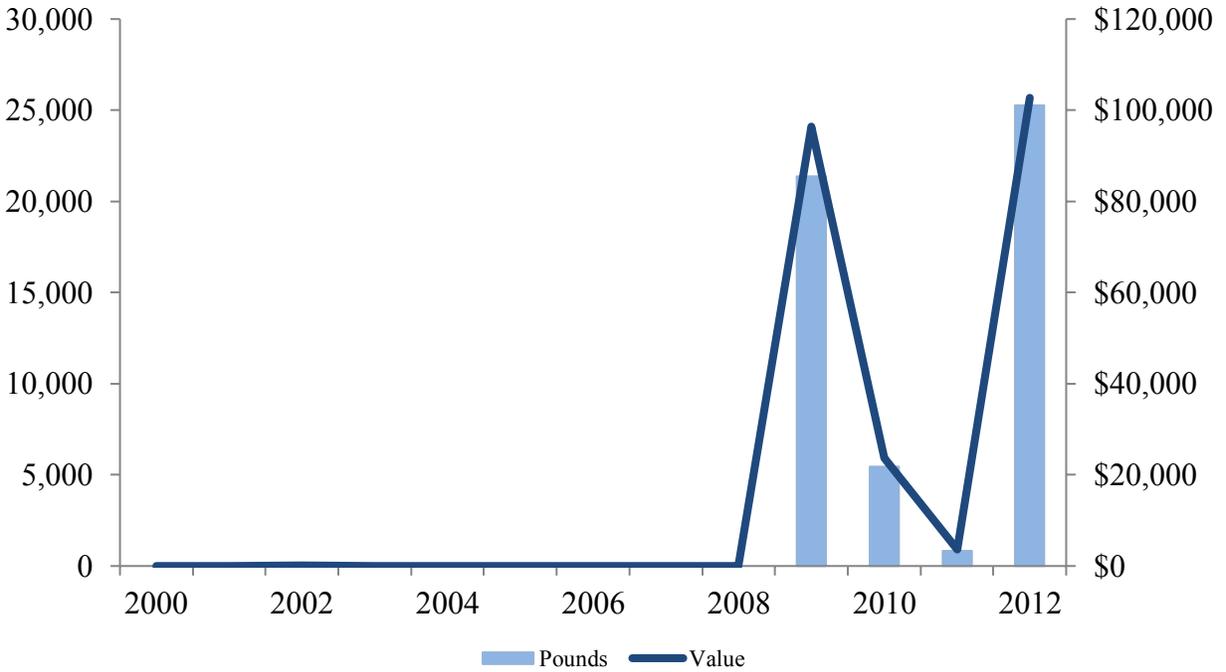


Figure 6. Coonstriped Shrimp Catch in GFNMS 2000 to 2012

Number of Fishing Operations CBNMS

Baseline (Before Regulations). From 2000 to 2006, there were on average 105 commercial fishing operations fishing in the CBNMS. The number of operations varied from a low of 94 in 2001 to a high of 122 in 2003. From 2000 to 2008, there were on average 107 commercial fishing operations fishing in CBNMS and this varied from a low of 40 in 2008 to a high of 190 in 2007 (Table 3).

Post Regulations. From 2009 to 2012, there were on average 49 commercial fishing operations fishing in CBNMS. This varied from a low of 31 operations in 2009 to a high of 75 in 2012 (Table 3).

Over the entire 2000 to 2012 period, both the State of California under the Marine Life Management Act and the Pacific Fishery Management Council have instituted regulations designed to reduce over capacity in the commercial fisheries which partially explains the reductions in fishing operations. The recession in 2008-2010 may also explain some of the reductions in operations. The highest number of operations fishing in CBNMS was in 2012, the latest year of available data to ONMS. Thus, during the post CBNMS regulations period, the number of fishing operations has declined overall, but in recent years, there has been an upward trend (Table 3).

Year	Number of Operations			
2000	98			
2001	94			
2002	114			
2003	122			
2004	116			
2005	97			
2006	96			
2007	190			
2008	40			
2009	31			
2010	34			
2011	56			
2012	75			
Average 2000 - 2006	105			
Average 2000 - 2008	107			
Average 2009 - 2012	49			

Source: California Fishing Information System, California Department of Fish and Wildlife.

Harvest Revenue CBNMS

Baseline (Before Regulations). From 2000 to 2006, harvest revenue to commercial fishing operation from catch in CBNMS was on average \$554,026 per year (measured in 2013 \$). This

varied from a low of \$388,579 in 2000 to a high of \$823,980 in 2004. From 2000 to 2008, harvest revenue was on average \$656,298 per year and varied from a low of \$388,579 in 2000 to a high of \$1,118,525 (Table 4).

Post Regulations. From 2009 to 2012, harvest revenue to commercial fishing operations fishing in CBNMS was on average \$990,918 per year. Harvest revenue varied from a low of \$758,078 in 2012 to a high of \$1,444,174 in 2010 (Table 4). Although the number of fishing operations fishing in CBNMS has declined following the final rule, average annual fishing revenues have increased.

Given the increase in commercial fishing harvest revenue from catch in CBNMS there has been no negative impact from CBNMS regulations on commercial fishing operations.

Year	Harvest Revenue			
2000	\$388,579			
2001	\$393,948			
2002	\$512,051			
2003	\$535,508			
2004	\$823,980			
2005	\$656,330			
2006	\$567,789			
2007	\$1,118,525			
2008	\$909,976			
2009	\$984,227			
2010	\$1,444,174			
2011	\$777,192			
2012	\$758,078			
Average 2000 - 2006	\$554,026			
Average 2000 - 2008	\$656,298			
Average 2009 - 2012	\$990,918			

Source: California Fishing Information System, California Department of Fish and Wildlife.

Number of Fishing Operations MBNMS

Baseline (Before Regulations). From 2000 to 2006, there were on average 592 commercial fishing operations fishing in MBNMS. The number of operations varied from a low of 382 in 2006 to a high of 975 in 2002. From 2000 to 2008, there were on average 545 commercial fishing operations fishing in MBNMS and this varied from a low of 262 in 2008 to a high of 975 in 2002 (Table 5).

Post Regulations. From 2009 to 2012, there were on average 444 commercial fishing operations fishing in MBNMS. This varied from a low of 304 operations in 2009 to a high of 599 in 2012 (Table 5).

Over the entire 2000 to 2012 period, both the State of California under the Marine Life Management Act and the Pacific Fishery Management Council have instituted regulations designed to reduce over capacity in the commercial fisheries which partially explains the reductions in fishing operations. The recession in 2008-2010 may also explain some of the reductions in operations. The highest number of operations fishing in MBNMS in the post MBNMS regulatory period was in 2012, the latest year of available data to ONMS. There has been an upward trend in fishing operations in MBNMS since 2009. The number of fishing operations in 2012 exceeded the averages for the pre MBNMS regulatory period. Thus, the number of operations fishing in MBNMS does not indicate a negative impact of MBNMS regulations on commercial fishing.

Table 5. Number of Commercial Fishing Operations in MBNMS 2000 - 2012

Year	Number of Operations			
2000	587			
2001	582			
2002	975			
2003	506			
2004	583			
2005	526			
2006	382			
2007	502			
2008	262			
2009	304			
2010	374			
2011	499			
2012	599			
Average 2000 - 2006	592			
Average 2000 - 2008	545			
Average 2009 - 2012	444			

Source: California Fishing Information System, California Department of Fish and Wildlife

Harvest Revenue MBNMS

Baseline (Before Regulations). From 2000 to 2006, harvest revenue to commercial fishing operation from catch in MBNMS was on average \$14,378,016 per year (measured in 2013 \$). This varied from a low of \$9,518,553 in 2001 to a high of \$20,141,668 in 2003. From 2000 to 2008, harvest revenue was on average \$14,014,273 per year and varied from a low of \$9,518,553 in 2001 to a high of \$20,141,668 in 2003 (Table 6).

Post Regulations. From 2009 to 2012, harvest revenue to commercial fishing operations fishing in MBNMS was on average \$22,560,773 per year. Harvest revenue varied from a low of \$12,251,715 in 2009 to a high of \$29,657,729 in 2012 (Table 6). The large increase from 2009 to 2010 was the expansion of the Dungeness Crab fishery in MBNMS, which was also true in the rest of the State of California where they are harvested (Figure 7). Other commercial fisheries

have also expanded in the post MBNMS regulations period including Spot Prawn (Figure 8) and Market Squid (Figure 9).

Given the large increase in commercial fishing harvest revenue from catch in MBNMS there has been no negative impacts from MBNMS regulations on commercial fishing operations.

Table 6. Commercial Fishing Harvest Revenue in MBNMS 2000 to 2012 (2013 \$)

Year	Harvest Revenue				
2000	\$10,660,155				
2001	\$9,518,553				
2002	\$19,107,053				
2003	\$20,141,668				
2004	\$17,550,198				
2005	\$12,561,456				
2006	\$11,107,029				
2007	\$13,992,795				
2008	\$11,489,550				
2009	\$12,251,715				
2010	\$24,353,992				
2011	\$23,979,655				
2012	\$29,657,729				
Average 2000 - 2006	\$14,378,016				
Average 2000 - 2008	\$14,014,273				
Average 2009 - 2012	\$22,560,773				

Source: California Fishery Information System, California Department of Fish and Wildlife.

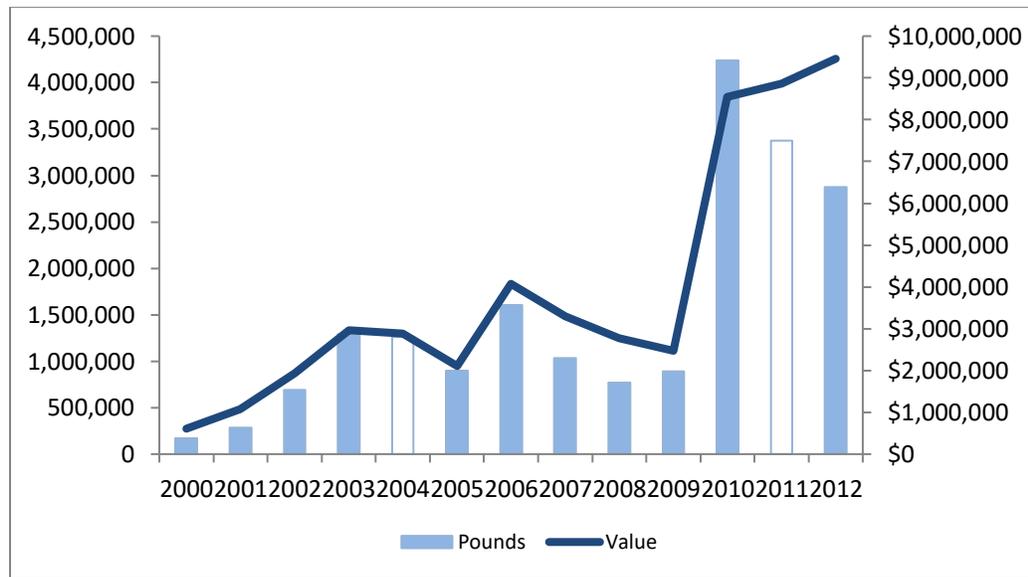


Figure 7. Dungeness Crab Catch in MBNMS 2000 to 2012

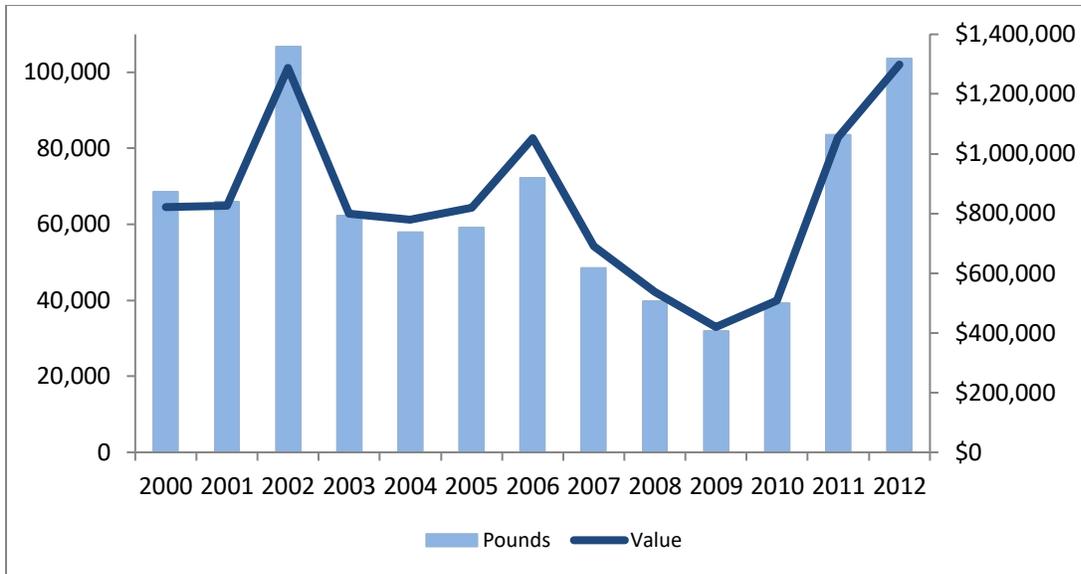


Figure 8. Spot Prawn Catch in MBNMS 2000 to 2012

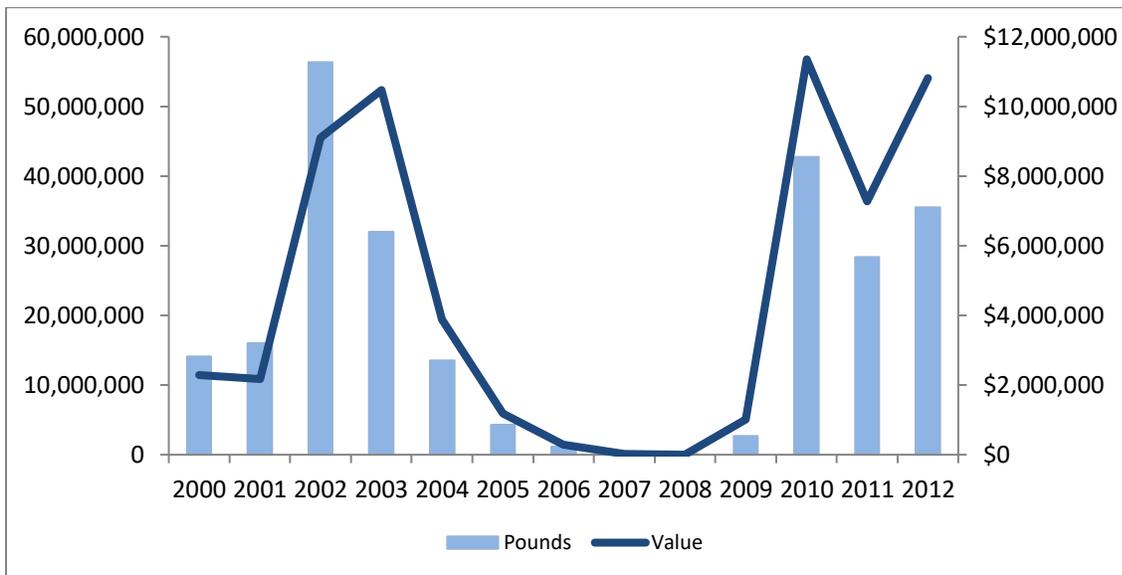


Figure 9. Market Squid Catch in MBNMS 2000 to 2012

Across all three sanctuaries, the commercial fishing operations have not suffered negative impacts from sanctuary regulations. The expansions in each of the sanctuaries in harvest revenue in the post regulations period most likely are the result of fishery management actions and market forces, not sanctuary regulations. However, sanctuary regulations that protect habitat and water quality do benefit the commercial fisheries in aiding in maintaining a sustainable and quality fishery product. For these reasons, considering data and information received over the previous ten year period, the final rule may have had some mild to moderate beneficial impact on commercial fishing in the sanctuaries, but there were no significant economic impacts on small entities with respect to commercial fishing in the sanctuaries. As such, NOAA determines that there are no changed conditions or other factors in the previous ten year period that would

require NOAA to revisit its certifications in 2008 and 2015 that the regulations do not have a significant economic impact on a substantial number of small entities.

Recreational Fishing

Information referenced below, obtained from the California Department of Fish and Wildlife, is based on survey data. The State of California took over the recreational fishing statistics program from NOAA Fisheries in 2004. The first year data, 2004, is less reliable as new methods were being implemented. NOAA was able to obtain the recreational fishing data from the State of California via a contract with Point97 (Ecotrust's small business subsidiary). Point97 worked with the State of California, Department of Fish and Wildlife on extrapolating survey data to population estimates by fishing blocks, districts in California, and for the four California sanctuaries. The methods are documented in Chen et. al (2105).

Chen et. al (2015) estimated the number of person-days of recreational activity in each sanctuary by mode of access (e.g. shore, private/rental boat and Commercial Passenger Vessels (CPV)). CBNMS does not extend to the shore, so access to this sanctuary is only by private-rental and CPV boats. Economic impacts of the activity was also estimated by Chen et. al (2015) but for only years 2010, 2011, and 2012. Numerous small businesses depend on their incomes from recreational fishing but the number of businesses and the extent of their dependence on fishing in the sanctuary is generally not known. However, for CPV boats, better known as party and charter boats, the number of boats operating in the sanctuaries is known.

As described below, NOAA determines that based on data and information collected and received over the last ten years, the final rule does not have a significant economic impact on a substantial number of small entities with respect to recreational fishing, and the RFA certification for the regulation does not need to be revised or amended. Due to the lack of comprehensive quantitative data on the number of small entities potentially operating in the sanctuaries or impacted by the regulations, the assessment here relies on both quantitative and qualitative analysis.

Number of Person-days of Recreational Fishing in GFNMS

Baseline (Before Regulations). From 2004 to 2006, on average there were 117,517 person-days per year of recreational fishing in GFNMS (Leeworthy et al., 2015 a, b and c). Person-days varied from a low of 89,890 in 2004 to a high of 133,040 in 2005. From 2004 to 2008, on average there were 100,367 person-days per year of recreational fishing in GFNMS with a low of 53,224 in 2008 and a high of 133,040 in 2005 (Table 7).

Post Regulations. From 2009 to 2012, on average there were 82,771 person-days per year of recreational fishing in GFNMS with a low of 57,680 in 2009 and a high of 120,128 in 2012. The recession in 2008 to 2010 had a significant effect on recreational activity, especially for the CPV mode of fishing. Post-recession recreational fishing has been on an upward trend and by 2012 reaching a level close to the highs of the baseline before GFNMS regulations (Table 7).

Year	Shore	Private/Rental		CPV	Total
		Boat			
2004	38,151	16,886		34,853	89,890
2005	59,366	39,001		34,673	133,040
2006	42,618	45,601		41,402	129,621
2007	30,846	34,357		30,856	96,059
2008	27,759	13,367		12,098	53,224
2009	32,035	15,646		9,999	57,680
2010	28,327	34,638		16,304	79,269
2011	22,718	28,528		22,760	74,006
2012	45,744	41,795		32,589	120,128
Average 2004 - 2006	46,712	33,829		36,976	117,517
Average 2004 - 2008	39,748	29,842		30,776	100,367
Average 2009 - 2012	32,206	30,152		20,413	82,771

Sources: Chen et al (2015) and the California Department of Fish and Wildlife.

Number of Person-days of Recreational Fishing in CBNMS

Baseline (Before Regulations). From 2004 to 2006, on average there were 2,997 person-days per year of recreational fishing in CBNMS. Person-days varied from a low of 1,799 in 2005 to a high of 4,122 in 2004. From 2004 to 2008, on average there were 2,123 person-days per year of recreational fishing in CBNMS with a low of 350 in 2008 and a high of 4,122 in 2004 (Table 8).

Post Regulations. From 2009 to 2012, on average there were 1,064 person-days per year of recreational fishing in CBNMS with a low of 681 in 2012 and a high of 1,636 in 2010. The recession in 2008 had a significant effect on recreational activity, especially for the private/rental boat mode of fishing that was recoded as zero in 2008, but CPV fishing also declined significantly. Post-recession recreational fishing rebounded in 2009 and 2010 but declined significantly in 2011 and 2012 (Table 8). CBNMS is further offshore than other sanctuaries and historically fishing there has been a relatively low levels. The CBNMS regulations in the final rule did not address recreational fishing, so NOAA attributes the decline to market forces and not CBNMS regulations.

Year	Private/Rental			Total
	Boat	CPV		
2004	3,137	985		4,122
2005	91	1,708		1,799
2006	379	2,692		3,071
2007	32	1,243		1,275
2008	0	350		350
2009	523	727		1,250
2010	882	754		1,636
2011	410	277		687
2012	350	331		681
Average 2004 - 2006	1,202	1,795		2,997
Average 2004 - 2008	728	1,396		2,123
Average 2009 - 2012	541	522		1,064

Sources: Chen et al (2015) and the California Department of Fish and Wildlife.

Number of Person-days of Recreational Fishing in MBNMS

Baseline (Before Regulations). From 2004 to 2006, on average there were 427,011 person-days per year of recreational fishing in MBNMS. Person-days varied from a low of 410,109 in 2005 to a high of 438,565 in 2006. From 2004 to 2008, on average there were 401,883 person-days per year of recreational fishing in MBNMS with a low of 316,695 in 2008 and a high of 438,565 in 2006 (Table 9).

Post Regulations. From 2009 to 2012, on average there were 418,089 person-days per year of recreational fishing in MBNMS with a low of 252,422 in 2010 and a high of 564,296 in 2012. The recession in 2008 had a significant effect on recreational activity, especially for the private/rental boat and CPV modes of fishing. Post-recession recreational fishing rebounded in 2009 but declined in 2010 then rebounded again in 2011 and reached an all-time high in 2012 (Table 9).

Although MBNMS recreational fishing reached an all-time high in 2012, NOAA does not attribute the increase to MBNMS regulations, as it is more likely due to market forces. However, the increased protections for habitat and water quality likely support a sustainable and quality fishing experience. For these reasons, considering data and information received over the previous ten year period, the final rule may have had some mild to moderate beneficial impact on recreational fishing in the sanctuaries, but there were no significant economic impacts on small entities with respect to recreational fishing in the sanctuaries. As such, NOAA determines that there are no changed conditions or other factors in the previous ten year period that would require NOAA to revisit its certifications in 2008 and 2015 that the regulations do not have a significant economic impact on a substantial number of small entities.

Table 9. Person-days of Recreational Fishing in MBNMS 2004 to 2012

Year	Shore	Private/Rental		CPV	Total
		Boat			
2004	309,028	59,842		63,490	432,360
2005	245,240	113,459		51,410	410,109
2006	301,626	102,931		34,008	438,565
2007	290,348	89,328		32,012	411,688
2008	253,776	41,668		21,251	316,695
2009	320,078	57,667		22,982	400,727
2010	153,064	71,983		27,375	252,422
2011	409,413	11,376		34,120	454,909
2012	353,738	170,640		39,918	564,296
Average 2004 - 2006	285,298	92,077		49,636	427,011
Average 2004 - 2008	280,004	81,446		40,434	401,883
Average 2009 - 2012	309,073	77,917		31,099	418,089

Commercial Passenger Vessels (CPV)

Most CPVs are single operator owned vessels. Due to the lack of comprehensive quantitative data on the number of businesses directly affected by the proposed regulations and their levels of revenues, costs and profits, the assessment here relies on both quantitative and qualitative analysis.

Baseline (Before Regulations). From 2004 to 2006, there were on average 61 CPVs per year in GFNMS, 23 in CBNMS and 67 in MBNMS. From 2004 to 2008, there were on average 56 CPVs per year in GFNMS, 18 in CBNMS and 61 in MBNMS (Table 10).

Post Regulations. From 2009 to 2012, there were on average 51 CPVs per year in GFNMS, 12 in CBNMS and 65 in MBNMS. In the cases of GFNMS and MBNMS, the 2012 number of CPVs reached levels in the highs of the pre-regulation periods. As noted with person-days in CBNMS, there has been a movement away from CBNMS, but this was most likely due to market forces and the relatively further distance offshore of this sanctuary. NOAA concludes that the regulations in the three sanctuaries did not have a negative impact on recreational fishing businesses. The final rule may have benefited CPV use via the increased protection to habits and water quality on the fisheries. For these reasons, considering data and information received over the previous ten year period, the final rule may have had some mild to moderate beneficial impact on CPV operation in the sanctuaries, but there were no significant economic impacts on small entities with respect to CPV operation in the sanctuaries. As such, NOAA determines that there are no changed conditions or other factors in the previous ten year period that would require NOAA to revisit its certifications in 2008 and 2015 that the regulations do not have a significant economic impact on a substantial number of small entities.

Year	GFNMS	CBNMS	MBNMS
2004	59	21	72
2005	60	19	68
2006	64	28	61
2007	53	18	61
2008	44	3	45
2009	38	14	52
2010	52	12	62
2011	52	8	73
2012	60	13	71
Average 2004 - 2006	61	23	67
Average 2004 - 2008	56	18	61
Average 2009 - 2012	51	12	65

Other Non-consumptive Recreation

Many small businesses depend on sanctuary resources in GFNMS and MBNMS. Few businesses depend on CBNMS due to its further distance offshore. Non-consumptive recreation includes activities such as whale watching, other marine mammal watching, bird-watching, other wildlife viewing, SCUBA diving (where nothing is taken), snorkeling, swimming, surfing, wind-surfing, kite-boarding, paddle-boarding, sailing, motor-boating (including personal watercraft), beach coming/hiking, sun bathing, and other recreational activities where nothing is taken/harvested.

Limited data is available on these activities in CBNMS, GFNMS and MBNMS since there are no institutions in place to gather information on these uses in spatial specificity good enough to estimate the amount of activity in the sanctuaries. Under the California's Marine Life Protection Act (MLPA), socioeconomic monitoring baselines have been established by California Regions. The North Central Region includes GFNMS and the northern portion of MBNMS. CBNMS is entirely in Federal territorial waters and is not included in any California Region for socioeconomic monitoring. Most of the MBNMS is in the Central Coast Region, but again portions of MBNMS in federal waters may not be included. Replications of the baselines have not yet been implemented for the MLPA socioeconomic monitoring. Baseline spatial data good enough to estimate the amount of this type of recreation in the Northern Central Region was available and was used to estimate the amount of activity in GFNMS and the northern portion of MBNMS in 2011 (Leeworthy et al., 2015). For MBNMS, the Central Coast Region baseline did not collect spatial use information, so estimates of activity in the MBNMS could not be implemented. Therefore, a quantitative assessment cannot be made for these activities. Due to the lack of comprehensive quantitative data on the number of entities directly affected by the proposed regulations, the assessment here relies on qualitative analysis.

Qualitatively there were no regulatory changes in the final rule that would have negatively affected any small entities related to these types of activities in any of the three sanctuaries. But, as with commercial and recreational fishing, the regulations protecting habitat and water quality would be expected to be a benefit to businesses dependent on these activities in the three sanctuaries. For these reasons, considering data and information received over the previous ten year period, the final rule may have had some mild to moderate beneficial impact on non-consumptive recreational uses in the sanctuaries, but there were no significant economic impacts on small entities with respect to non-consumptive recreational uses in the sanctuaries. As such, NOAA determines that there are no changed conditions or other factors in the previous ten year period that would require NOAA to revisit its certifications in 2008 and 2015 that the regulations do not have a significant economic impact on a substantial number of small entities.

References

California Department of Fish and Wildlife. 2000-2012 Commercial Fishing data. California Fishing Information System.

California Department of Fish and Wildlife. 2004-2012. Recreational Fishing data. California Fishing Information System.

Chen, C., Leeworthy, V., & Schwarzmann, D. 2015. Technical Appendix: Economic Impact of the Recreational Fisheries on Local County Economies in California National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-2015-06. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 167 pp.

<https://nmssanctuaries.blob.core.windows.net/sanctuariesprod/media/archive/science/socioeconomic/pdfs/ca-rec-appendix.pdf>

Leeworthy, Vernon, R. Jerome, D. Schueler, K. 2014a. Economic Impact of the Commercial Fisheries on Local County Economies from Catch in the Gulf of Farallones National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-14-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 24 pp.

https://nmssanctuaries.blob.core.windows.net/sanctuariesprod/media/archive/science/conservation/pdfs/gfnms_fishing_report.pdf

Leeworthy, V.R., Jerome, D. Schueler, K. 2014b. Economic Impact of the Commercial Fisheries on Local County Economies from Catch in the Monterey Bay National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-14-03. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 46 pp. https://nmssanctuaries.blob.core.windows.net/sanctuariesprod/media/archive/science/conservation/pdfs/mbnms_fishing_report.pdf

Leeworthy, V.R., Jerome, D. Schueler, K. 2014c. Economic Impact of the Commercial Fisheries on Local County Economies from Catch in the Cordell Bank National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-14-01. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 38 pp.

https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/science/socioeconomic/cordellbank/pdfs/cbnms_fishing_report.pdf

Leeworthy, V., & Schwarzmann, D. 2015a. Economic Impact of the Recreational Fisheries on Local County Economies in the Greater Farallones National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-2015-04. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 29 pp.

<https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/science/socioeconomic/farallones/pdfs/gfnms-rec-report.pdf>

Leeworthy, V., & Schwarzmann, D. 2015b. Economic Impact of the Recreational Fisheries on Local County Economies in the Monterey Bay National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-2015-05. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 26 pp. <https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/science/socioeconomic/montereybay/pdfs/mbnms-rec-report.pdf>

Leeworthy, V., & Schwarzmann, D. 2015c. Economic Impact of the Recreational Fisheries on Local County Economies in the Cordell Bank National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-2015-08. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 21 pp. <https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/science/socioeconomic/cordellbank/pdfs/cbnms-rec-report.pdf>

Leeworthy, V., Schwarzmann, D. and Reyes Saade, D. 2015. A Socioeconomic Profile of Recreation Users of the California Northern Central Coast Region, Greater Farallones National Marine Sanctuary and the northern portion of Monterey Bay National Marine Sanctuary, 2011. Marine Sanctuaries Conservation Series ONMS-15-11. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 73 pp. <https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/archive/science/socioeconomic/pdfs/ncc-recreation-report.pdf>

NOAA 2005. Jordan Parillo, NMSP Economist. Memo to Brady Phillips, JMPR Coordinator. Socio-economic overview of white shark cage-diving operations in GFNMS. April 2, 2005.

Office of National Marine Sanctuaries. 2017. Database for Education and Research Permits. Unpublished data.

Office of National Marine Sanctuaries. 2006. Proposed Cordell Bank National Marine Sanctuary Regulations. 71 FR 59039.

Office of National Marine Sanctuaries. 2006. Proposed Gulf of the Farallones National Marine Sanctuary Regulations. 71 FR 59338.

Office of National Marine Sanctuaries. 2006. Proposed Monterey Bay National Marine Sanctuary Regulations. 71 FR 59050.

Office of National Marine Sanctuaries. 2008. Final Rule Gulf of the Farallones National Marine Sanctuary Regulations; Monterey Bay National Marine Sanctuary Regulations; and Cordell Bank National Marine Sanctuary Regulations. 73 FR 70488.

Office of National Marine Sanctuaries. 2014. Proposed Expansion and Regulatory Revision of Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. 79 FR 20981.