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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.: **CD-0006-20**

Applicant: **U.S. National Park Service**

Location: Approximately 28,700 acres of federal land of Point Reyes National Seashore and the north district of Golden Gate National Recreation Area, Marin County.

Project Description: Implement the 2020 General Management Plan Amendment for Point Reyes National Seashore and the north district of Golden Gate National Recreation Area (**Exhibit 1**). Proposed actions include adopting a zoning framework for subject lands, ranch operations (including ranch leasing and operating agreements, range management, management practices, and ranch complex activities), and management of tule elk.

Staff Recommendation: Conditional concurrence

SUMMARY OF STAFF RECOMMENDATION

The National Park Service (NPS) proposes to adopt and implement an amendment to the General Management Plan for Point Reyes National Seashore (PRNS) and the north district of Golden Gate National Recreation Area (GGNRA) (**Exhibit 1**). General Management Plans provide policy direction and basic guidance for how parks will carry out statutory responsibilities for protection and use of park resources. The proposed General Management Plan Amendment (GMPA) applies to only a portion of PRNS and GGNRA; specifically, it addresses the management of approximately 28,000 acres of federal land that are currently leased for ranching in the parks.

The dairy and beef ranches that operate within the GMPA (**Exhibit 2**), predate the Congressional establishment of PRNS (in 1962) and the GGNRA (in 1972), dating back to the nineteenth century. The enabling legislation for both park units—as well as subsequent Congressional legislation—permitted the continued ranching of lands in the units. These ranches have been operating under NPS permits and leases under a management system that has been in place since the 1980s. Virtually all of the lands within the active cattle operations also occur within the Point Reyes Peninsula Dairy Ranches Historic District or the Olema Valley Dairy Ranches Historic District, which are both listed in the National Register of Historic Places. In total, the 24 families that hold authorizations to ranch are permitted to have a maximum of 2,400 animal units of beef cattle and 3,115 dairy animals in the entire GMPA planning area. The GMPA would not increase the number of permitted cattle.

In addition to ranching, the NPS manages tule elk, a species native only to California that was nearly driven to extinction in the late 1800s but which now numbers approximately 5,700 animals in over 20 herds throughout the state. Tule elk were re-introduced to PRNS, first in 1978 at Tomales Point, then in the Limantour area following the 1998 adoption of an Elk Management Plan, pursuant to Congressional authorization. Within the GMPA planning area, two herds are present: the Drakes Beach herd, which numbered 138 animals in 2019; and the Limantour herd, with 163 animals (elk from the original Limantour herd crossed Drakes Estero and formed the Drakes Beach herd). A third herd, the Tomales Point herd, is located at the northern part of PRNS outside of the GMPA planning area (**Exhibit 3**). The number of elk in the Limantour and Drakes Beach herds has grown since their establishment, with elk expanding onto lands that are leased for ranching. Particularly with the Drakes Beach herd, the presence of elk has caused resource and management conflicts with ranches.[1]

Proposed Action

The proposed GMPA would provide for management of ranching and elk within the approximately 28,000 acre planning area. While the GMPA contains programmatic and detailed elements, the NPS only seeks Commission concurrence with the detailed

[1] More information about tule elk at PRNS is available at the NPS website.

elements of the GMPA at this time; the programmatic elements, such as those related to public access improvements, would be the subject of future Commission consistency review. These detailed elements include a zoning framework, management of ranch operations, and elk management.

Zoning Framework

The GMPA's proposed zoning framework would result in two general designations, the Ranchland and Scenic Landscape zones. The Scenic Landscape zone would cover approximately 600 acres along the western edge of Drakes Estero and bordering Drakes Bay. This area is not included in a ranch lease or permit but is a core portion of the land occupied by the Drakes Beach elk herd. In the Scenic Landscape zone, a primary objective would be to maintain elk habitat. As a result, except for targeted grazing activities (to remove vegetation not palatable to elk), ranching-related activities would be prohibited within the Scenic Landscape zone. Within the proposed Ranchland zone, dairy and beef ranching operations would be considered an appropriate use and would predominate. Approximately 28,100 acres of PRNS and GGNRA land would be included within the Ranchland zone (**Exhibit 4**), with approximately 26,100 acres available for ranching activities (approximately 28,000 acres are presently leased or permitted for ranching). The Ranchland zone would include four sub-zones:

1. The Resource Protection zone would include approximately 2,000 acres of land with known sensitive resources, such as special status species habitats, areas already designated for protection under water quality regulations, and forested riparian areas. Ranching activities would be prohibited within the Resource Protection zone, except for activities which could further other NPS management objectives such as targeted grazing to remove invasive vegetation species.
2. The Range zone is identified as lands that could be grazed by cattle. More intensive ranching activities would not be allowed because of the presence of rare plants, native grasslands, wetlands, riparian and stream habitats, forested areas, and threatened and endangered species habitat. Approximately 16,900 acres (nearly 65%) of land under lease/permit would be included in this subzone.
3. The Pasture zone is identified as lands that lack such sensitive resources, and in addition to grazing, other activities such as seeding and mowing could be conducted. Approximately 9,000 acres (nearly 34%) of the area under lease/permit would be identified as Pasture subzone.
4. The Ranch Core subzone includes developed complexes in each of the 18 residentially occupied ranch complexes, and up to 2.5 acres of adjacent disturbed lands. Diversified agricultural activities and new infrastructure could be authorized in this subzone, which would total approximately 220 acres (less than 1%) of the area under lease/permit.

Management of Ranch Operations

In addition to this zoning framework, the NPS is requesting Commission concurrence with the GMPA elements related to management of ranch operations. These four

elements include ranch leasing and permitting, range management and monitoring, management activities, and ranch complexes.

Ranch Leasing
The NPS would implement a lease system which would result in individual ranch leases with terms of up to 20-years. Accompanying each lease would be an annually reviewed Ranch Operating Agreement (ROAs), which would include details of ranch operations for the coming year, including specific activities related to infrastructure (e.g., road maintenance and fencing installation and repair) and grazing and range management. The total number of authorized animal units of beef cattle and dairy animals would remain the same as it is currently.

Range Management and Monitoring
Range management and monitoring requirements would be described in these ROAs, which also would contain provisions to ensure that NPS management goals would be met. The NPS would continue to use many of the tools and management approaches currently in place, including existing monitoring of grazing levels, water quality, riparian area conditions, and invasive vegetation species.

Management activities
Three broad categories of management activities are described in the GMPA: Ranch Infrastructure and Water Control Management, Vegetation Management, and Other Management Activities. These management activities would be conducted in accordance with best practices and mitigation measures identified for each activity (**Exhibit 6**), and the NPS and ranchers would annually review proposed activities as part of the ROA process. Importantly, the Other Management Activities category includes ranch diversification activities. Through such rancher-proposed activities, which would also be reviewed through ROAs, certain other animals (chickens, sheep, and goats) could be raised at ranches, within limits: for example, such animals would be limited in number (and the number of such animals would be deducted from the number of allowed cattle), and could only be established within the Ranch Core and Pasture zones. Other diversification activities could include growing up to 2.5 acres of non-irrigated crops, as well as providing limited farm stays.

Ranch complexes
Through this element, the NPS seeks to ensure continued safe residency conditions for the 18 developed ranch complexes. Residency would be limited to families of lease/permit holders, employees of the ranch and their families, and employees of other park ranches only if approved by the NPS. The NPS would also seek to preserve the features that are factors in the historic aspect of the structures within these ranch complexes.

Elk management
In addition to these ranch management measures, the NPS also seeks Commission concurrence regarding its proposed elk management measures which are intended to reduce conflicts between tule elk and existing ranches and to maintain viable elk herds

on PNRS lands. For the Drakes Beach herd, proposed management measures would include hazing practices and fencing to discourage elk from becoming established in ranched areas, as well as lethal removal of animals to maintain a population of 120 adult elk. Similar elk management activities are proposed for the Limantour herd.

Summary of consistency analysis

Under the federal Coastal Zone Management Act (CZMA) and California Coastal Act, the Commission has jurisdiction over certain activities within the "coastal zone," as that term is defined by the CZMA. Federal lands are excluded from the coastal zone. Here, the proposed GMPA applies entirely to federal land that are managed by the NPS. Consequently, the Commission's federal consistency review of the GMPA focuses on analysis of the spillover effects that the proposed activities on federal land will have on coastal resources within the coastal zone. Such spillover effects could include, for example, effects that activities on federal land will have on species found elsewhere in the coastal zone that travel in and out of the GMPA planning area and that could result in a population-level effect to such species.

Opposition to the proposed elk management activities in the GMPA was the subject of the vast majority of the over 20,000 comments that the Commission received on this item prior to publication of the staff report. The proposed elk management measures would affect individuals that live entirely outside of the coastal zone and would maintain viable herd numbers in accordance with wildlife agency recommendations. Therefore, staff believes that the proposed elk management measures proposed by the NPS will not cause effects on coastal zone resources that conflict with Coastal Act policies.

Staff also reviewed the proposed ranch management elements of the GMPA for consistency with the Coastal Act policies related to protection of marine resources, water quality, public access, air quality, cultural resources, and environmentally sensitive habitat areas (ESHA). The GMPA maintains or slightly increases public access opportunities, consistent with protecting private lease interests and public safety needs, and is therefore consistent with the Coastal Act's public access policies. Tribal coordination, undertaken by the NPS and Commission staff as part of the preparation of this staff report, has not resulted in the identification of formal Tribal concerns. While air quality emissions would continue as a result of ranching activities, levels of such emissions would continue to be within air quality standards. There would continue to be effects to habitats and species in the HMPA planning area resulting from continued ranching and cattle grazing, but such effects would not result in population-level effects to coastal species. Fencing and other habitat protection measures to protect special status species such as the western snowy plover would continue.

The most significant spillover effects from proposed ranching activities relate to water quality and the protection of marine resources. Staff does not believe that the GMPA as proposed is consistent with Coastal Act policies related to marine resources (Section 30230) and water quality (Section 30231), particularly for the PRNS portion of the GMPA planning area. Within the GGNRA portion of the planning area, which drains into Tomales Bay, designation of Tomales Bay as an impaired body for pathogens has

resulted in a significant effort to assess water quality in the upstream watersheds, implement management strategies to address identified problems and monitor the efficacy of implemented strategies. After years of work to address water quality in Tomales Bay, recent water quality monitoring data indicate that water quality standards for pollutants related to ranching activities are generally being met. In addition, the GMPA includes enhanced water quality protection measures related to ranching. Therefore, for the GGNRA portion of the GMPA planning area, staff believes that there is evidence that the GMPA would be consistent with Coastal Act policies regarding protection of marine resources and water quality.

In contrast, areas of the GMPA outside the Tomales Bay watershed (i.e., lands within PRNS) have not received the same attention. Available water quality data is much more limited and has not been collected since 2013. The data that are available indicate that water quality standards were not typically being met in creeks in PRNS that drain into Drake's Estero and the Pacific Ocean. Importantly, NPS is proposing to implement the same suite of best management practices and water quality protection measures in PRNS that were successful in addressing significant water quality problems in areas upstream of Tomales Bay. However, the GMPA does not describe where and on what timeline these measures will be implemented, or how their efficacy will be evaluated.

Therefore, to address this concern, staff recommends that the Commission include a condition that the NPS provide the Executive Director a water quality assessment plan for review and approval before new leases with ranchers are finalized. The water quality assessment plan would include the following elements:

1. Proposed overall strategy and timeline for assessing and improving water quality in areas of the GMPA outside of the Tomales Bay watershed, with a particular focus on areas that drain to Abbott's Lagoon and Drake's Estero and the creeks that drain to these features, but also including areas that drain directly to the Pacific Ocean. The strategy should be informed by existing water quality data and should prioritize resolution of the most significant water quality-related issues first. The timeline should reflect short and long-term water quality goals and management strategies. Both the strategy and timeline should be updated on an annual basis to reflect information and analysis provided under items 2 and 3 below.

2. Proposed sampling methodology for collecting quantitative water quality data in areas of the GMPA outside of the Tomales Bay watershed, consistent with the strategy provided in item 1 above. Data collection should be sufficient to determine if water quality standards are being met throughout the area and to inform identification of water quality-related issues and prioritization of management strategies to address those issues, as described in Item 3 below. The sampling methodology should incorporate guidelines and requirements from state and federal agencies (i.e., RWQCB, State Water Control Board, and/or U.S. Environmental Protection Agency) related to sampling coverage and frequency, sample testing procedures, and reporting of results.

3. A provision for NPS reporting of monitoring results and water quality analysis to the Executive Director of the Commission on an annual basis. Annual reports should include monitoring results from all previous years, assessment of the results against relevant state and federal water quality standards, proposed measures to address identified issues including identification of priority areas for additional ranching or grazing related best practices, and plans for incorporating such practices into ROAs or implementation through other measures, as appropriate, and evaluation of the efficacy of existing measures. Annual reports shall also include results of continuing water quality monitoring of the GGNRA portions of the Tomales Bay watershed (i.e., Olema and Lagunitas Creeks). Following initial monitoring reporting, subsequent NPS reports should also describe and evaluate measures implemented to address identified water quality issues.

With the incorporation of this condition, staff believes that appropriate measures would be in place to ensure that marine resources in the coastal zone would be protected, that biological productivity of coastal waters would be sustained, and adverse effects of water pollution would be minimized, consistent with Sections 30230 and 30231 of the Coastal Act. Furthermore, as described in detail in the staff report, staff also recommends that the Commission find that the proposed GMPA is consistent with the public access, air quality, cultural resources and ESHA policies of the Coastal Act.

The staff therefore recommends that the Commission conditionally concur with the NPS's consistency determination and find the proposed GMPA, as conditioned, consistent with the relevant, enforceable policies of the California Coastal Management Program, which consists primarily of the Chapter 3 policies of the Coastal Act. If NPS does not agree to the condition, the Commission's action will be treated as an objection. The motion to conditionally concur is on page 10.

Staff Note:

The proposed GMPA has been the subject of several public comment campaigns in recent months. The Commission has received approximately 20,000 electronic comments since October 2020, many of which have been form letters signed by individuals. Appendix B contains samples of these form letters indicating the numbers of each that have been received, as well as other individual comments received prior to the publication of this staff report. In addition to the form letters, several organizations and individuals provided extensive comments regarding water quality, ranching, and the history of the parks—see Appendix B.

Because of the complexity of the proposed GMPA, as well as the high level of public interest, Commission staff requested that the NPS extend the review deadline through the March 2021 Commission meeting. In response to this request, the NPS extended the review deadline to January 20, 2021.

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EXHIBITS

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The National Park Service has determined the project consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

> *I move that the Commission **conditionally concur** with Consistency Determination CD-0006-20 on the grounds that, if modified as described in the Commission's conditional concurrence, the project would be fully consistent, and thus consistent to the maximum extent practicable, with the CCMP.*

Staff Recommendation:

Staff recommends a YES vote on the motion. Passage of this motion will result in a concurrence with the determination of consistency, provided the project is modified in accordance with the recommended condition, and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

> *The Commission hereby conditionally concurs with consistency determination CD-0006-20 by the National Park Service on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the National Park Service agrees to modify the project consistent with the condition specified below, as provided for in 15 CFR §930.4.*

Condition:

The NPS will provide the Executive Director a water quality monitoring plan for review and approval before new leases with ranchers are finalized. The water quality monitoring plan shall include the following elements:

1. Proposed overall strategy and timeline for assessing and improving water quality in areas of the GMPA outside of the Tomales Bay watershed, with a particular focus on areas that drain to Abbott's Lagoon and Drake's Estero and the creeks that drain to these features, but also including areas that drain directly to the Pacific Ocean. The strategy should be informed by existing water quality data and should prioritize resolution of the most significant water quality-related issues first. The timeline should reflect short and long-term water quality goals and

management strategies. Both the strategy and timeline should be updated on an annual basis to reflect information and analysis provided under items 2 and 3 below.

2. Proposed sampling methodology for collecting quantitative water quality data in areas of the GMPA outside of the Tomales Bay watershed, consistent with the strategy provided in item 1 above. Data collection should be sufficient to determine if water quality standards are being met throughout the area and to inform identification of water quality-related issues and prioritization of management strategies to address those issues, as described in Item 3 below. The sampling methodology should incorporate guidelines and requirements from state and federal agencies (i.e., RWQCB, State Water Control Board, and/or U.S. Environmental Protection Agency) related to sampling coverage and frequency, sample testing procedures, and reporting of results.

3. A provision for NPS reporting of monitoring results and water quality analysis to the Executive Director of the Commission on an annual basis. Annual reports should include monitoring results from all previous years, assessment of the results against relevant state and federal water quality standards, proposed measures to address identified issues including identification of priority areas for additional ranching or grazing related best practices, and plans for incorporating such practices into ROAs or implementation through other measures, as appropriate, and evaluation of the efficacy of existing measures. Annual reports shall also include results of continuing water quality monitoring of the GGNRA portions of the Tomales Bay watershed (i.e., Olema and Lagunitas Creeks). Following initial monitoring reporting, subsequent NPS reports should also describe and evaluate measures implemented to address identified water quality issues.

III. APPLICABLE LEGAL AUTHORITIES

A. STANDARD OF REVIEW

The federal Coastal Zone Management Act ("CZMA"), 16 U.S.C. §§ 1451-1464, requires that federal agency activities affecting coastal resources be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs." Id. at § 1456(c)(1)(A). The implementing regulations for the CZMA ("federal consistency regulations"), at 15 C.F.R. § 930.32(a)(1), define the phrase "consistent to the maximum extent practicable" to mean:

> *… fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

This standard allows a federal activity that is not fully consistent with California's Coastal Management Program ("CCMP") to proceed, if full compliance with the CCMP would be "prohibited by existing law." In its consistency determination, the National Park Service (NPS) did not argue that full consistency is prohibited by existing law or provide any documentation to support a maximum extent practicable argument. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency. Since the NPS has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the enforceable policies of the CCMP, which are the policies of Chapter 3 of the Coastal Act (Cal. Pub. Res. Code §§ 30200-30265.5).

The certified Local Coastal Program for Marin County may serve as guidance in interpreting how the Chapter 3 policies should be carried out here.

Finally, section 307(f) of the federal CZMA (16 USC § 1456(f)) specifically incorporates all Clean Water Act-based requirements into the California Coastal Management Program (CCMP). Thus, in reviewing the impacts of proposed discharges on water quality, the Commission considers not only the marine resource and water quality policies in Chapter 3, but also all of the applicable federal and state requirements established by or pursuant to the Clean Water Act, the California Ocean Plan, and California Water Code Section 13142.5, as well as the directive in Chapter 5 (Section 30412(a)) of the Coastal Act to coordinate with and rely on determinations of the Regional Water Quality Control Board and State Water Resources Control Board.

B. CONDITIONAL CONCURRENCES

The federal consistency regulations (15 CFR § 930.4) provide for conditional concurrences, as follows:

> *(a) Federal agencies, … should cooperate with State agencies to develop conditions that, if agreed to during the State agency's consistency review period and included in a Federal agency's final decision under Subpart C … would allow the State agency to concur with the federal action. If instead a State agency issues a conditional concurrence:*
>
> > *(1) The State agency shall include in its concurrence letter the conditions which must be satisfied, an explanation of why the conditions are necessary to ensure consistency with specific enforceable policies of the management program, and an identification of the specific enforceable policies. The State agency's concurrence letter shall also inform the parties that if the requirements of paragraphs (a)(1) through (3) of the section are not met, then all parties shall treat the State agency's conditional concurrence letter as an objection pursuant to the applicable Subpart . . . ; and*

> *(2) The Federal agency (for Subpart C) … shall modify the applicable plan* [or] *project proposal,…pursuant to the State agency's conditions. The Federal agency … shall immediately notify the State agency if the State agency's conditions are not acceptable…; and*
> *(3) The Federal agency…shall approve the amended application (with the State agency's conditions)…*
>
> *(b) If the requirements of paragraphs (a)(1) through (3) of this section are not met, then all parties shall treat the State agency's conditional concurrence as an objection pursuant to the applicable Subpart.*

C. Federal Lands Excluded from the Coastal Zone

The proposed General Management Plan Amendment that is the subject of the NPS consistency determination applies entirely to federal land within Point Reyes National Seashore (PRNS) and the Golden Gate National Recreation Area (GGNRA). Federal lands are considered excluded from the coastal zone under the Coastal Zone Management Act [16 U.S.C. §1453(1)]. In such an instance, the Commission's review of activities on federal lands is focused solely on analysis of spillover effects on coastal resources within the coastal zone, which can include effects that activities on federal land will have on species found elsewhere in the coastal zone that travel in and out of the GMPA planning area. Impacts to coastal resources on federal lands that are purely local in scope and do not affect coastal resources off of those federal lands are outside the scope of the Commission's federal consistency review authority. As a result, even if resources affected by the project are the types of resources protected by the policies in Chapter 3 of the Coastal Act, if they lie exclusively within federal lands of PRNS or the GGNRA and do not support resources outside the Seashore, they are not treated as "coastal" resources for purposes of the Commission's federal consistency review.

Thus, in its evaluation of this proposed action's consistency with the Coastal Act, the Commission analyzes spillover effects on coastal resources beyond PNRS and GGNRA boundaries, including effects on migratory coastal species. Subsequent sections of this report examine project effects within this analytic framework.

IV. FINDINGS AND DECLARATIONS

A. Setting and Background

Point Reyes National Seashore (PRNS) and the Golden Gate National Recreation Area (GGNRA) are located approximately 30 miles north of San Francisco in the western portion of Marin County (**Exhibit 1**). The parks are known for their spectacular beauty, hosting over two million visitors annually.

The General Management Plan Amendment (NPS 2020) describes PRNS as including

> *"…more than 71,000 acres of beaches, coastal cliffs and headlands, marine terraces, coastal uplands, and forests, and includes all tide and*

> *submerged lands to 0.25 mile offshore….Point Reyes administers a portion of the north district of Golden Gate, which is adjacent to Point Reyes, for a combined management area and legislated boundary of more than 86,000 acres."*

Within the area included in the GMPA, existing dairy and beef ranches occupy approximately 28,000 acres, with about 18,000 acres in PRNS and 10,000 acres in GGNRA (**Exhibit 2**). Ranches have operated on these lands since the 19th Century and, as described below, have been managed by the NPS since the creation of PRNS and GGNRA.

Federal management history

The U.S. Congress established the Point Reyes National Seashore (PRNS) in 1962 and the Golden Gate National Recreation Area (GGNRA) in 1972. The National Park Service (NPS) is the designated federal agency with lead management responsibility for these park units. As described by the NPS (2020), when Point Reyes was established, Congress allowed ranching and dairying operations to continue by restricting NPS's ability to acquire private ranchlands by eminent domain. However, in 1970, with the support of the area's ranchers, Congress allowed the NPS to acquire ranchlands from willing sellers and then establish mechanisms (leases, for example) for ranch operations to continue.

Since the establishment of these parks, Congressional legislation has further defined NPS management of ranches (NPS 2020):

> *At the time Point Reyes and Golden Gate were established by Congress, much of the land in the planning area was privately owned. The enabling legislation for both park units therefore allowed NPS to acquire lands in the planning area, many of which were active ranches, from willing sellers. As lands were purchased, NPS allowed the former owners, or in some cases tenants on the property, to continue beef or dairy operations under either a Reservation of Use and Occupancy (RUO) or a lease.*
>
> *In 1976, Congress amended Point Reyes' legislation to address resource management. The amendment directed that, "[E]xcept as otherwise provided" NPS shall administer Point Reyes without "impairment of its natural values, in a manner which provides for such recreational, educational, historic preservation, interpretation, and scientific research opportunities as are consistent with, and based upon, and supportive of the maximum protection, restoration, and preservation of the natural environment within the area" (16 U.S.C. § 459c-6).*
>
> *In 1978, Congress enacted legislation for both Point Reyes and Golden Gate providing standardized language for the leasing of land for agricultural purposes (16 U.S.C. §§ 459c-5(a) and (b) and 16 U.S.C. §§ 460bb-2(j)). …NPS uses these statutory authorities to issue agricultural*

> *lease/special use permits (lease/permits) for ongoing multi-generational ranching and dairying operations when a rancher's reserved right expires.*
>
> *…NPS has offered initial opportunities to operate under a lease/permit to the person who owned the land or was a rancher on the land immediately prior to its acquisition by the United States. Where these offers have been accepted and lease/permits issued to the individuals described, subsequent lease/permits to continue leasing the same lands have been provided to these same individuals and/or their immediate family members. In the rare instances where a ranch family has relinquished a lease/permit, NPS has offered additional acreage to neighboring ranchers, removed portions of the leased area from ranching for natural resource protection, or…entered into a lease/permit with the ranch operator. In an effort to support multi-generational ranching, NPS has issued lease/permits to individuals, not business entities.*

In addition to providing the NPS with the authority for this ranch leasing and permitting system, Congressional action has also led to the establishment of tule elk in PRNS. In 1978 ten tule elk were established in 2,600 acres of the northern part of PRNS, pursuant to Congressional direction. Referred to as the "Tomales Point herd," these elk have been managed by the NPS since that time at the northern tip of PNRS, north of existing ranch operations (**Exhibit 3**).

To establish management objectives for PRNS and GGNRA, in 1980 the NPS adopted a General Management Plan covering PRNS and the north district of GGNRA, which included land zoning designations, management objectives, and other guidance to manage natural and cultural resources and visitor use. The NPS states that this General Management Plan's "…zoning framework….was established to permit the continued use of existing ranchlands for ranching and dairying purposes" (NPS 2020).

In 1998, the NPS completed a "Tule Elk Management Plan" which led to the NPS establishing a second elk herd in the Limantour area of PRNS (see **Exhibit 3,** which also indicates the current extent of this herd). The Commission concurred with this plan through review of the NPS negative determination for this action (Negative Determination ND-152-97). By 2001, elk from the Limantour area had crossed Drakes Estero and expanded into the Drakes Beach area (**Exhibit 3**).

In 2014, the NPS began a planning effort to address ranch management and growing conflicts with elk in the Limantour and, particularly, the Drakes Beach herds. In 2017, a settlement agreement in response to a 2016 lawsuit brought by three environmental organizations required the NPS to prepare an Environmental Impact Statement for an amendment to the General Management Plan to address ranching more broadly. Among other things, the settlement required the NPS to consider and analyze the impacts of various alternative management schemes, including a no ranching alternative, a reduced ranching alternative, and a no-dairy ranching alternative. It also required the NPS to finalize its General Management Plan Amendment (GMPA) within

four years—i.e., by summer of 2021. In 2017 the NPS began development of the GMPA in response to the terms of this settlement agreement. A draft of this GMPA was released in 2019.

In early 2019, Congress addressed ranching at PNRS in a Joint Explanatory Statement attached to the Consolidated Appropriations Act of 2019 (House of Representatives 116-9). This statement stated in part:

> *…multi-generational ranching and dairying is important both ecologically and economically for the Point Reyes National Seashore and the surrounding community. These historic activities are also fully consistent with Congress's intent for the management of Point Reyes National Seashore. The Conferees are aware that the Service is conducting a public process to comply with a multi-party settlement agreement that includes the preparation of an environmental impact statement to study the effects of dairying and ranching on the park. The Conferees strongly support the inclusion of alternatives that continue ranching and dairying, including the Service's Initial Proposal to allow existing ranch families to continue ranching and dairying operations under agricultural lease/permits with 20-year terms, and expect the Service to make every effort to finalize a General Management Plan Amendment that continues these historic activities.*

The NPS issued a revised GMPA, along with a final Environmental Impact Statement (FEIS) pursuant to the National Environmental Policy Act, in September 2020. These documents form the basis for the NPS consistency determination. The document includes an NPS “Preferred Alternative”, which is the focus of this staff report, and analysis of other alternatives:

- Alternative A is the no action alternative. Management of ranches would continue under the existing management regime, maintaining current park zoning designations, levels of ranching on 27,000 acres of park land, and numbers of animals. Ranchers would be offered five or ten-year leases to continue their operations. The NPS would continue elk management as currently occurs under the 1998 Elk Management Plan, but states that it would develop a new plan for managing these animals.
- Alternative B is the “preferred alternative,” and includes the zoning, ranch operations, and elk management measures (including population control of the Drakes Beach and Limantour herds) analyzed in this staff report.
- Alternative C is similar to the preferred alternative, except that all elk from the Drakes Beach herd would be removed.

- Alternative D is similar to Alternative B, except that leases with grazing-only areas and ranches with "minimal infrastructure" would be phased out. Approximately 19,000 acres would remain in active ranches.
- Alternative E describes the phasing out of the six active dairies, all on PRNS lands, over five years; such ranches would be allowed to convert to beef operations. No action would be taken to limit elk populations.
- Alternative F would discontinue all ranching operations, and free-ranging elk would be allowed to expand.

Two other actions directly affect NPS ranch management. On April 9, 2018, the Olema Dairy Ranches Historic District was listed on the National Register of Historic Places (National Register), and on October 29, 2018, the Point Reyes Peninsula Dairy Ranches Historic District was also listed on the National Register. The NPS (2020) describes the Olema Dairy Ranches Historic District as continuing:

> *…to convey its historical significance as an agricultural ranching environment, exhibiting key characteristics of the late 19th and early 20th-century dairy ranches that flourished here. The physical condition of the district remains much as it did during the latter portion of its period of significance, which spans from 1857 to 1958.*

The NPS (2020) also describes the Point Reyes Peninsula Dairy Ranches:

> *The history of the dairy industry is reflected in the landscape of the historic district by the remaining ranch complex developments, infrastructure, grazing lands, cattle, and continuing ranching land use that has shaped the cultural landscape of the district. The pastoral qualities of the landscape, the rolling hills covered by pastures and coastal grasslands, a climate that provides an extended summer grazing season, and water sources continue to characterize the historic district and allow for the maintenance of beef and dairy cattle ranching practices today.*

Virtually all lands with active dairy and beef ranch operations in PNRS and the north district of the GGNRA are within one of the two designated historic districts. As a result, existing NPS cultural and historic resource management guidelines in its agency-wide Management Policies are applicable to the agency's decision making and planning. The NPS (2020) describes the direction provided by these Management Policies with respect to historic and cultural resources:

> *…the treatment of cultural landscapes should preserve significant physical attributes, biotic systems, and uses when those uses contribute to historical significance… since land use is important to the significance of the Olema Valley Dairy Ranches and Point Reyes Peninsula Dairy Ranches Historic Districts, continuation of the existing historic use is the preferred preservation treatment.*

Exhibit 1 identifies the planning area included in the GMPA. Areas of the PRNS not in the planning area include the Philip Burton Wilderness, which is generally east and south of the ranches bordering Drakes Estero (**Exhibit 1**). The Woodward Fire burned approximately 4900 acres of this wilderness area starting in August 2020.

Current situation – status of elk and ranching

Three elk herds are present on land entirely within the PRNS. In 2019, approximately 400 animals were located in the Tomales Point herd, in the northern portion of PRNS (**Exhibit 3**). The Limantour herd consisted of 163 elk, and the Drakes Beach herd numbered 138 animals. Elk in the Limantour and Drakes Beach herds are established in areas leased/permitted by the NPS for ranching, as shown in **Exhibit 3**.

A total of 24 families presently hold NPS authorizations for ranching operations, and 18 of these authorizations provide for residential uses at ranch complexes. Most of these authorizations are presently slated to expire on July 14, 2022. Approximately 18,000 acres of PRNS and 10,000 acres of GGNRA are leased or permitted for ranching. Six dairy operations occupy 6,300 acres of land, all on PRNS, and 18 beef operations on PRNS and GGNRA lands occupy a total of 21,700 acres. See **Exhibit 2** for the locations of dairy and beef operations, virtually all the land of which are within one of the two designated Historic Districts. All six of the dairy operations have converted to organic operations, as certified by the U.S. Department of Agriculture (NPS 2020); three beef operations are also certified organic.

As context for the scale of ranch operations in PRNS and GGNRA, the NPS (2020) indicates that beef and cattle ranching in the planning area comprises 15% of the total cattle ranching (by sales) in Marin County. Dairy production in the GMPA planning area represents 41% of Marin County dairy sales (NPS 2020). The Marin County Board of Supervisors (2019) states its position regarding private agricultural lands and the ranches on GGNRA and PNRS by citing:

> *…Marin County's precedent setting land use policy actions to preserve Marin's complementing private agricultural lands and strategically support their viability through diversification in agricultural production in our Countywide Plan. We have put these policies in place for the same purpose and goal that there is ranching on PRNS and GGNRA – that is, to support and embrace sustainable, viable, and environmentally friendly farming that protects West Marin's land and water endowment and the history of its agricultural community…*
>
> *The County of Marin is also in complete agreement with the Joint Explanatory Statement regarding House Joint Resolution 31 (the Consolidated Appropriations Act, 2019) that stated "multi-generational ranching and dairying is important both ecologically and economically" and is "consistent with Congress's intent for the management of Point Reyes National Seashore."*

Management of ranch operations presently occurs according to the 1980 General Management Plan. A total of 2,400 animal units are allowed in the beef operations, cumulatively, with 3,315 animals allowed for the dairy operations in total. One ranch is allowed a dry season total of 2,900 chickens, with 1,500 such birds in the wet season. Additionally, one ranch allows horse boarding of up to 20 animals

The NPS (2020) describes existing beef ranching practices:

> *Beef cattle are generally allowed to graze on open grassland year-round. Beef ranchers in the park employ continuous, seasonal, rotational, targeted, and high-density, short-duration grazing systems that vary by duration, location, and intensity. Most are cow-calf operations that use forage as the primary feed….Ranchers in the park typically provide fall/winter feed to cattle in upland areas because of winter access constraints and limited forage growth during those seasons. Mineral supplements such as salt licks or molasses are also placed in certain pastures. Holding paddocks and areas such as those surrounding water troughs and feeding areas are considered heavy use or high-intensity-use areas and are often devoid of vegetation. Beef operations in the planning area do not require manure management systems because cattle are regularly distributed across the landscape.*

The NPS (2020) also describes existing dairy ranching:

> *Dairies are high intensity operations that require extensive milking, feeding, and waste management infrastructure to meet current production and water quality management standards. A typical dairy includes milking, loafing, and feed barns; structures for milk storage and processing; and often a hospital barn. …*
>
> *Compared to beef cattle operations, dairies produce large quantities of concentrated manure because of the need to keep dairy cows close to dairy headquarters for milking twice a day. Waste management is required for manure produced in the high-intensity-use areas of cattle concentration, including feeding and loafing areas, the milking parlor, and corrals. Many dairy operations include loafing barns that allow the operator to keep the milking string sheltered through much of the winter, which is important for both manure management and cow health. … The barns have concrete floors and drainage systems that ensure appropriate containment and make it easier for dairy ranchers to manage manure in these confined areas. Regular manure management includes scraping and storing manure in a manure management system. The barns, milking parlors, and travel lanes between the structures are cleaned by scraping or washing manure into ponds, where the manure slurry is stored. Small pastures where cows are held between milking are typically scraped by a*

> *tractor, and the manure is stockpiled. Generally, liquid manure is sprayed or spread on pastures through a pump and irrigation system. Large trucks also spread slurry and solids by driving over pasturelands and distributing manure. These activities are conducted outside the rainy season or during dry periods.*

Manure spreading is currently allowed on 2,500 acres of dairy ranch land; not every field is treated every year, according to the NPS (2020). The San Francisco Bay Regional Water Quality Control Board is engaged with the management of dairy operations as well, as described by the NPS (2020):

> *Manure management activities on dairies are regulated by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) to avoid polluting nearby streams and wetlands. Requirements include management plans for facilities, waste storage, nutrient application, and grazing, as well as monitoring and reporting activities.*

In addition, the RWQCB is engaged with the management of cattle grazing in the Tomales Bay watershed. See the water quality discussion in Section IV.D for additional information on the regulation of water quality for ranches in PRNS and GGNRA.

Ranching in PRNS and GGNRA is also subject to NPS range management oversight as described in NPS (2020). A key component of the management approach is the use of residual dry matter monitoring, which is used to help determine levels of grazing. Residual dry matter (RDM) is used in rangeland management[2] as a means of describing the amount of vegetation that remains at the end of the dry season, as measured by visual assessment of rangelands and through assessing test plots. According to the NPS (2020), RDM is used to determine range carrying capacities, evaluate the effectiveness of current grazing management in maintaining or improving range resources, and establish baseline data on plant community composition and structure. Within the GMPA planning area, the NPS has worked with the UC Berkeley Range Ecology Lab to develop and review its range management efforts (NPS 2020):

> *In 1990, NPS adopted the Range Management Guidelines… in response to countywide concerns about flooding and large-scale erosion control in the early 1980s. NPS has updated and adapted authorizations based on this guidance, applicable regulations, and other best available science. In addition, NPS contracted with the University of California (UC) Berkeley Range Ecology Lab to review existing ranch management practices and make recommendations that NPS could consider as part of this planning process.*

[2] Federal agencies throughout California apply RDM monitoring in management of rangelands, including the Bureau of Land Management, Natural Resources Conservation Service, and the U.S. Forest Service (Bartolome et al. 2006).

> *The 1990 guidelines establish a minimum RDM level of 1,200 pounds/acre of herbaceous plant material remaining in the fall to protect the soil resources and optimize vegetative production. Lower levels of cover are permitted in identified high-impact areas, such as water and feeding troughs, corrals, and adjacent to dairies. RDM monitoring is conducted annually. In 2015, NPS worked with the UC Berkeley Range Ecology Lab to review and update the RDM monitoring program. The UC report … concluded that the minimum 1,200 pounds/acre standard remains appropriate based on the RDM guidelines developed by UC researchers for coastal prairie …Updated monitoring protocols based on the UC Berkeley Range Ecology Lab review have been in place since 2015.*

The NPS uses this RDM approach, tailored to coastal and foothill rangelands in California (Bartolome et al. 2006), as a tool to help annually determine the number of animals allowed to graze in a particular area to protect against soil erosion and nutrient loss. Results of NPS monitoring from 2015 through 2019 indicated that an increasing percentage of monitored ranchlands in the GMPA area met the 1,200 pounds/acre RDM standard (up to 97% in 2019). These results were likely also influenced by the end of the severe drought in 2016 (NPS 2020).

B. Proposed Action

The proposed action seeks to implement portions of the General Management Plan (GMPA) for the GMPA planning area. NPS includes “programmatic” and “detailed” actions in the GMPA, and in its consistency determination, the NPS states that further consultation with the Commission will be needed for programmatic actions. These programmatic actions include those related to public access (such as trail development, expansion of existing day use and overnight accommodations, shuttles and parking, and potential use of unoccupied ranch complexes), certain types of ranch diversification not assessed in detail in the GMPA (such as horse boarding, crops requiring irrigation, and small-scale processing of products produced in the planning area), and new development within the ranch core subzone. These types of programmatic actions would be the subject of future Commission federal consistency review.

Thus, the NPS presently seeks Commission concurrence with the following “detailed” actions: the proposed zoning framework in the GMPA, elements to manage ranch operations, and elk management. Each of these elements of the NPS consistency determination is described further.

Zoning framework

The 1980 plan for PNRS and GGNRA includes a zoning framework with ranch-land designations intended to permit the continued use of park lands for beef and dairy operations (NPS 2020). The NPS proposes to establish a new zoning framework with two general designations, the Ranchland and Scenic Landscape zones, for approximately 28,700 acres within the PRNS and GGNRA (**Exhibit 4**).

The NPS proposes the Scenic Landscape zone for approximately 600 acres in the planning area along the western edge of Drakes Estero and bordering Drakes Bay. This area is not included in a ranch lease or permit but is a core portion of the land occupied by the Drakes Beach elk herd (**Exhibit 3**). Management objectives in the Scenic Landscape zone would include elk habitat restoration and enhancement through increasing forage availability by removing non-native plants and brush not palatable to elk. Habitat restoration activities also would include removal of fencing and wildlife barriers. The NPS would pursue water quality-related improvements to mitigate ongoing water quality impacts associated with historical ranch operations (NPS 2020). Targeted grazing[3] may also be used as a management approach in the Scenic Landscape zone to maintain certain habitats, continuing NPS practices to maintain and enhance rare plant species populations, ensure adequate vegetative cover in riparian areas, and control weeds (NPS 2020); for example, non-native species could be inhibited through targeted grazing, enhancing forage for elk. Other than targeted grazing, ranching-related activities would be prohibited within the Scenic Landscape zone.

Within the proposed Ranchland zone, dairy and beef ranching operations would be considered an appropriate use. Approximately 28,100 acres of PRNS and GGNRA land would be included within the Ranchland zone (**Exhibit 4**), with approximately 26,100 acres available for ranching activities (approximately 28,000 acres are presently leased or permitted for ranching). The Ranchland zone would include four sub-zones in which further management objectives would be defined: Resource Protection, Range, Pasture, and Ranch Core (**Exhibit 4**). These four sub-zones are described in the NPS consistency determination as follows (terms such as "diversification" and "ranch operating agreement" are described in the ranch operations section of this report):

> ***Resource Protection.*** *The Resource Protection subzone includes lands containing sensitive resources, such as creeks and riparian areas, some threatened and endangered species habitat, and archeological sites. No ranching activities would be authorized in this subzone; however, limited Management Activities, including Targeted Grazing, may be authorized to meet NPS resource management goals and objectives (e.g. protection of rare plants that benefit from grazing). … the Resource Protection subzone would encompass approximately 2,000 acres comprising approximately 800 acres within current lease/permit boundaries but already excluded from ranching and an additional 1,200 acres that would be excluded from ranching.*[4]

[3] The NPS (2020) describes "targeted grazing" as a management tool that "…optimizes the timing, frequency, intensity, and selectivity of grazing (or browsing)… [to]… purposely exert grazing/browsing pressure on specific plant species or portions of the landscape."

[4] The NPS (2020) describes the extent of the mapping of the Resource Protection zone as including: already funded current grazing-exclusion projects; areas protected through water quality regulation including threatened and endangered salmon/steelhead habitat; protection of degraded sensitive habitats

***Range Subzone**. The Range subzone is identified as lands where grazing is compatible with resource protection objectives, but more intensive ranching activities would not be allowed because of the documented presence of sensitive resources, including rare plants, native grasslands, wetlands, riparian/stream/pond habitats, forested areas, and threatened and endangered species habitat or habitat necessary for critical components of threatened and endangered species' life cycles.[5] Additionally, this subzone includes nearly all areas with slopes greater than 20%. The authorized ranching activities in this subzone would be limited to cattle grazing; generally, no mowing or diversification activities would be allowed in the Range subzone, unless they would work toward attainment of NPS resource management goals and objectives. … approximately 16,900 acres (nearly 65%) of the lands under lease/permit would be identified as Range subzone.*

***Pasture Subzone.** The Pasture subzone is identified as lands where no sensitive resources are known to occur; therefore, a suite of Vegetation Management activities…including seeding and mowing, may be conducted in addition to grazing. The Pasture subzone …would be used primarily for the production of livestock. Approximately 9,000 acres (nearly 34%) of the area under lease/permit would be identified as Pasture subzone. Existing levels of Manure and Nutrient Management on dairies (approximately 2,500 acres) and Forage Production (approximately 1,000 acres) would be authorized in the Pasture subzone… some diversification activities would be authorized in the Pasture subzone. Generally, construction of permanent buildings would not be authorized in the Pasture subzone.*

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with a history of heavy use; continuity with existing protected areas; protection of habitat with low forage value and high sensitivity (e.g., forested riparian); establishment of formal ranch boundaries where no boundary fencing exists and is needed to limit cattle access to unauthorized areas; and limitations of heavy use in low slope access to highly productive transitional marsh system.

[5] The NPS (2020) describes the extent of the Range subzone as follows: "The extent of the Range subzone was determined by combining existing geographic information system (GIS) coverages of known sensitive resources and buffering them by 35 feet (coverages from NPS, the US Geological Survey, US Fish and Wildlife Service, National Marine Fisheries Service, and the US Department of Agriculture [USDA]). These resources include threatened and endangered species or critical components of their life cycles (e.g., California red-legged frog; mountain beaver; and occurrences of Viola adunca, the host plant for Myrtle's silverspot butterfly), rare plants, native grasslands (including data derived from Schirokauer et al. [2003] and NPS field mapping), forests, ponds, streams and wetlands, and archeological sites. Slopes greater than 20% were also generally included in this subzone, based on a digital elevation model derived from USDA LIDAR surveys."

> ***Ranch Core Subzone.*** *The Ranch Core subzone includes the developed complex of buildings and structures and up to 2.5 acres of disturbed lands located immediately adjacent to the developed complex that do not contain or have the potential to affect sensitive resources. The 2.5 acres would be sited in the most appropriate location on each eligible ranch to minimize adverse impacts. Diversification activities and new infrastructure could be authorized in this subzone on the 18 residentially occupied ranch complexes...Approximately 220 acres (less than 1%) of the area under lease/permit would be identified as Ranch Core subzone. The exact location of the Ranch Core subzone would be defined in each [ranch operating agreement].*

Exhibit 5 provides the ranch-specific zoning maps that the NPS has provided in the GMPA. The NPS developed these maps using a geographic information systems (GIS)-based methodology, described in an appendix to the GMPA. The appendix describes the methodology for using existing spatial data related to slopes, the mapped locations of sensitive species, wetlands mapping, and the locations of ranches to develop these maps.

As part of implementation of the GMPA, the NPS will further refine these maps to ensure management objectives are being met during its oversight of ranch operations. Such refinement will be based on the results of NPS field verification activities, including vegetation surveys and identification of sensitive species.

Ranch Operations

In addition to the zoning and sub-zoning framework, the NPS consistency determination and the GMPA describe management of ranch operations as including ranch leasing and permitting, range management and monitoring, management activities, and ranch complexes. This section describes each of these aspects of ranch management.

Ranch leasing and permitting

NPS would issue leases/permits with up to 20-year terms to continue ranching operations on approximately 26,100 acres of land within PRNS and GGNRA. These authorizations would include terms and conditions, commitments, and standards for ranching operations.

Associated with each lease/permit would be an annual ranch operating agreement (ROA) developed with each rancher and reviewed with NPS staff. Each ROA would include details of ranch operations for the coming year, including specific activities related to infrastructure (road maintenance and fencing installation and repair, e.g.), grazing and range management, allowed diversification activities (see discussion below for an explanation of these types of activities that could be considered), and required

monitoring (e.g., related to water quality). Each ROA would also include a map identifying subzones to guide and restrict the locations of authorized activities. ROAs would be developed with each rancher and reviewed annually with NPS staff.

Each ROA would also specify the maximum number of animals allowed to graze at one time. According to the NPS consistency determination:

> *…animals allowed under a lease/permit would continue to be managed to meet the 1,200 pounds per acre RDM standard and other NPS management objectives. NPS would determine annual adjustments…based on the use of a rangeland forage production model[6]…, monitoring data, NPS range program manager and rancher expertise, historical information, US Department of Agriculture (USDA) guidelines, and variation in ground conditions and weather/climate… Annually, the NPS and ranchers would review performance measures, including RDM, to identify grazing levels that would ensure site conditions are maintained to meet the minimum RDM standard.*

The NPS consistency determination states that a maximum of 2,400 animal units of beef cattle and 3,115 dairy animals would be authorized, in total, across all of the ranches. These totals are the same as the numbers presently allowed.

The NPS (2020) summarizes its oversight approach to the implementation of this lease/ROA system:

> *The lease/permits and ROAs will require ranchers to conduct authorized activities in accordance with the EIS (e.g., zoning, Practice Standards, mitigation measures) and with the terms and conditions of biological opinions and other regulatory requirements. Park staff will monitor compliance with the lease/permits periodically, such as through routine ranch visits and during yearly meetings related to the ROA, as well as on an as-needed basis should concerns arise. The lease/permit allows the NPS to revoke a lease for non-compliance. It also does not require NPS to issue a subsequent lease/permit to a lessee. These provisions would allow NPS to refrain from issuing a subsequent lease if warranted.*

[6] The NPS (2020) describes the rangeland forage production model as a predictive tool that incorporates forage production estimates by soil type, estimates of dry matter demand for cattle, number of permitted cattle, and elk forage consumption rates. The outputs of the model include estimated pounds of produced forage, consumption, and the probability of meeting the RDM standard.

Range management and monitoring

The NPS would continue to use many of the tools and management approaches currently in place regarding range management and monitoring, refined through application of the proposed zoning and sub-zoning measures. Existing tools and management measures include the RDM standard and forage production model described previously. The NPS consistency determination further describes range management and monitoring as including:

> *…planning, implementation, and monitoring to improve resource conditions, protect water quality, and maintain infrastructure integral to ranch operations. … Regular monitoring of ranches is conducted to ensure compliance with lease/permit conditions and regulatory requirements, and to assess changes that may affect resource conditions (e.g., early detection of invasive species, identification of new areas of erosion). Periodic monitoring is also conducted in association with the implementation of projects, restoration activities, or other requirements. Types of monitoring include water quality, vegetation (including rare plants and invasive species), riparian condition, and infrastructure condition. Riparian restoration and invasive species management are also performed on a routine basis.*

Certain activities related to range management and monitoring are described more fully below, in the “management activities” overview.

Management activities

The NPS includes three broad categories of management activities in the NPS consistency determination and the GMPA: Ranch Infrastructure and Water Control Management, Vegetation Management, and Other Management Activities. The NPS and ranchers would annually review proposed management activities in any of these categories as part of the ROA process described previously. The NPS states that authorized management activities would be required to follow US Department of Agriculture Natural Resource Conservation Service standards for each activity, as well as additional mitigation measures developed to avoid or minimize environmental impacts. These standards and mitigation measures are described for each management activity in **Exhibit 6**.

The “Ranch Infrastructure and Water Control Management” category of management activities includes eight types of activities: road upgrade and decommissioning; infrastructure improvements; waterway vegetation and planting; fencing; livestock water supply; pond restoration; waterway stabilization; and stream crossing. These activities are summarized in Table 1, and **Exhibit 6** describes the standards and mitigation measures that the NPS would apply to each.

Table 1. Ranch Infrastructure and Water Control Management Activities (adapted from NPS consistency determination).

Activity	Description
Road upgrade and decommissioning	Prevent erosion and protect water quality by improvements to an existing road. Includes re-grading surfaces, installing or repairing culverts, or constructing cross-road drains. Decommission roads no longer necessary to restore natural drainage and habitat.
Infrastructure improvement	Used in areas of intense ranch operations to prevent erosion or infrastructure degradation, separate clean runoff from pollutant sources, and prevent flooding. Includes establishing vegetation to convey surface water, planting vegetation to filter pollutants, installing roof covers and roof runoff infrastructure, and stabilizing a ground surface.
Waterway vegetation and planting	Used where added water conveyance and vegetative protection are needed to prevent erosion and improve water quality
Fencing	Used to control grazing and protect archeological resources and riparian habitat. Includes barbed wire, electric, and rail fencing. Would require wildlife-friendly designs. Abandoned fence would be removed to address wildlife and visitor safety. Electric fencing would be authorized following NPS approval.
Livestock water supply	Address impacts of livestock access to streams and wetlands by providing drinking water to animals. Redevelop existing water developments for cattle (springs, wells, and storage tanks and troughs), already present on most ranches. New water sources (e.g., new wells) would require separate environmental review.
Pond restoration	Improve water availability for livestock, fish, and wildlife and to maintain or improve water quality. Includes repairs of emergency spillways, alternative pipe outlets for water flow, and removal of accumulated silt to restore a pond’s original storage capacity. Does not include new instream ponds or activities that increase pond storage capacity.

Table 1 (cont.). Ranch Infrastructure and Water Control Management Activities (adapted from NPS consistency determination).

Activity	Description
Waterway Stabilization	Stabilize a gully or downcutting channel by installing a structure to control the grade and/or stabilize the slope to prevent erosion and protect resources.
Stream crossing	Install a permanent stabilized area or structure across a perennial or intermittent watercourse to provide access for people, livestock, equipment, and vehicles and to protect water quality by reducing potential for delivery of sediment and other pollutants into the water. Stream Crossings include stabilized areas, such as fords, and structures (e.g., bridges and culverts). Sites would be evaluated to account for habitat requirements for wildlife species. Work could include modifications to, or removal of existing crossings.

The "Vegetation Management" category of management activities includes four types of activities: upland and riparian vegetation planting; mowing; integrated pest management; and targeted grazing. These activities are summarized below, as described in the NPS consistency determination, and **Exhibit 6** describes the standards and mitigation measures that the NPS would apply to them.

> *a. Upland and riparian vegetation planting. This activity supports establishment of perennial or self-sustaining vegetation (e.g., grasses, forbs, legumes, shrubs, and trees). Seeding with various native and non-native species has been conducted in approved locations for the purposes of pasture improvement, erosion control, weed management, and restoration. Seeding would be limited to hand broadcast and no-till seed drill using an NPS approved seed mix in the Pasture and Ranch Core subzones. Seeding would also continue to be authorized for Forage Production on 1,000 acres… Seedbed preparation would be conducted in the fall before germinating rains and would continue to follow an approved USDA-NRCS or NPS compliance plan. Requests for aeration would only be allowed if a need is demonstrated (e.g., via soil test)… Range planting would be evaluated on a site-specific basis in the Range subzone.*

b. Mowing. Shrub control and weed management are conducted to maintain or increase areas of grassland habitat available for grazing activities. … Mowing involves the timely cutting, and in some cases removal of, herbaceous vegetation for forage, control of herbaceous weeds, and woody (non-herbaceous) plants, including those that are invasive and noxious. Ranchers would continue to request prior approval and receive written authorization from NPS to conduct mowing, except for mowing non-native thistles, which is currently authorized in lease/permits. NPS has approved shrub mowing in specific cases, but it is generally only conducted for fence or infrastructure maintenance activities. Mowing undesirable species as a form of weed treatment would be authorized in the Pasture and Ranch Core subzones once reviewed by NPS. There would be no limit to the amount of mowing, but mowing would be approved on an individual basis and incorporated into ROAs.

Brush Management would generally be considered in the Pasture and Ranch Core subzones. NPS would consider proposals for Brush Management in the Range subzone under limited circumstances. Brush Management authorizations in any subzone would be conducted outside the bird nesting season. If authorization for Brush Management were granted, ranchers would be responsible for maintenance of desired conditions for the treated area.

c. Integrated Pest Management (IPM) is a decision-making process that coordinates knowledge of pest biology, the environment, and cost-effective available technology to prevent unacceptable levels of pest damage while posing the least possible risk to people, resources, and the environment. IPM is a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies. The NPS addresses pest issues on a case-by-case basis following an IPM policy that helps determine the combination of procedures that are most effective for each pest situation. The decision to incorporate a chemical, biological, or bioengineered pesticide into a management strategy is based on a determination that a product is necessary, and other available options are either not acceptable or not feasible.

The park's IPM Coordinator reviews proposals for the use of a pesticide, herbicide, biological control agent, or genetically modified organism (also known as Pesticide Use Proposals) on a case-by-case basis considering site-specific conditions. In the case of ranching operations in the planning area, requests have been made to NPS to treat non-native, invasive weeds with herbicide. NPS must approve a Pesticide Use Proposal before

a product can be purchased or applied. Under NPS policy, pesticide applications can only be performed by or under the supervision of a certified or registered applicator who is licensed under the procedures of a federal or state certification system. All pesticide applications would continue to be reported to NPS annually.

IPM related to Vegetation Management would be authorized in the Pasture and Ranch Core subzones as appropriate. Site-specific management for weed treatments would also be allowed in the Range subzone, depending on rancher requests, park vegetation management goals, and extent of infestation. Manual removal of invasive vegetation would also be considered, where appropriate, in areas where listed species are present. IPM is ongoing and would continue annually based on presence of species and site-specific evaluation.

d. Targeted grazing. Targeted grazing prescriptions optimize the timing, frequency, intensity, and selectivity of grazing (or browsing) in combinations that purposely exert grazing/browsing pressure on specific plant species or portions of the landscape. Targeted grazing differs from traditional grazing management in that the goal of targeted grazing is to apply defoliation or trampling to achieve specific resource management objectives, whereas the goal of traditional livestock grazing management is generally the production of livestock commodities (Bailey et al. 2019).

Targeted grazing can be used to improve or maintain the condition of natural resources such as desired species composition, structure, and/or vigor of plant communities; riparian and/or watershed function; and soil erosion and soil health. The NPS, in coordination with ranchers, has implemented targeted grazing to maintain and enhance rare plant species populations, ensure adequate vegetative cover in riparian areas, and control weeds. Targeted grazing would be authorized as necessary to meet NPS management goals and objectives.

The “Other Management” category of management activities includes three types of activities: manure and nutrient management; forage production; and diversification. These activities are summarized below, as described in the NPS consistency determination, and **Exhibit 6** describes the standards and mitigation measures that the NPS would apply to them:

a. *Manure and nutrient management. The purpose of manure and nutrient management is to protect water and air quality and to improve soil conditions. These activities apply specifically to dairies because they are*

required under San Francisco Bay RWQCB regulations[7] to manage waste generated from operations. Dairies manage animal manure by accumulating it in storage ponds and then spreading the liquid or slurry on fields by means of trucks or pumping through pipes that drain waste out onto fields. Solids may also be separated and stored or composted and then spread on fields by truck or tractor. Small-scale collection of manure and other organic material into managed compost piles for use as a soil amendment is also conducted on some beef cattle ranches.

Under the [proposed action], dairies would continue to produce large quantities of manure waste that ranchers would be required to manage consistent with state and federal regulations to avoid impacts on water quality and sensitive resources. Application of animal manure and compost generated in the planning area would be allowed on up to six dairies annually with an approved nutrient management plan and would remain at a level consistent with existing conditions (approximately 2,500 acres, including approximately 715 acres of dairy Forage Production areas, with some pastures not treated every year). Spreading of compost would be restricted to the Pasture and Ranch Core subzones of operations that have generated it on site. Compost would only be spread on the ranch where it originated. Application of commercially produced compost and fertilizer would not be authorized.

b. Forage production. The purpose of forage production is to optimize yield and quality of forage for livestock and promote vigorous plant regrowth. These activities involve seedbed preparation, manure spreading, seeding, and harvest mowing of herbaceous vegetation to provide feed for on-site consumption by livestock. Non-native grasses, such as ryegrass (Festuca spp.), oat grass (Avena spp.), and vetch (Vicia spp.), are typically planted. Forage Production includes harvest mowing to produce silage, haylage, or hay. Silage is cut earlier in the season than haylage and is wetter; hay is drier and cut later in the season. …

Approximately 1,000 acres on four ranches (two beef and two dairy) are currently authorized for Forage Production… The [Proposed Action] would allow Forage Production to continue only on these ranches in accordance with current USDA-NRCS Conservation Practices or other site-specific considerations. Should ranchers discontinue Forage Production in

[7] See Water Quality discussion in Section IV.D for more discussion of the regulation of dairies related to water quality.

permitted areas, those acres would be returned to grazing, and the total acreage of Forage Production would be reduced.

c. Diversification activities would only be authorized on the 18 ranches with an occupied residential ranch complex. The six grazing-only operations that do not include a developed complex or authorized residential use of buildings would not be authorized to conduct diversification activities….

New diversification activities could be allowed in specified subzones with the use of required mitigation measures specific to each activity… Existing diversification activities on ranches would need to conform to the guidance under the [Proposed Action] (e.g., scale, location, and applicable mitigation measures). Ranchers would be required to submit diversification proposals to the NPS as part of the ROA process. …

…ranchers would not be allowed to harm or harass wildlife or predators to protect crops or livestock authorized as a diversification activity on their ranch. Ranchers would be allowed to use livestock guardian animals (i.e., dogs, llamas, donkeys) as part of authorized diversification activities, subject to the mitigation measures [provided in **Exhibit 6**].

The NPS states that only the diversification activities in Table 2 are included in this consistency determination. Other types of diversification activities would require additional NEPA review and compliance; the NPS states that if a rancher were to propose an activity not listed in Table 2, the NPS would coordinate with Commission staff to determine additional Commission review requirements.

In summary, all of the above-described management activities (Ranch Infrastructure and Water Control Management, Vegetation Management, and Other Management) are included in the NPS consistency determination, and the NPS would implement them with the mitigation measures best practices for each of these activities in **Exhibit 6**.

Finally, as noted in **Exhibit 6**, the NPS (2020) indicates that some of the management measures may have greenhouse gas reduction and/or carbon sequestration benefits. See the Air Quality section of this staff report for additional discussion.

Table 2. Diversification activities incorporated into the NPS consistency determination.

Activity	Size/Scale[a]	Subzones Where Authorized[b]
Chickens	• Up to 500 chickens with up to 3 associated mobile huts. • Huts would be of a limited height and in a color that minimizes visual impacts on the landscape and would be moved regularly.	Ranch Core and Pasture
Sheep or Goats	• Up to 50 sheep or up to 66 goats (10% of authorized AU or not to exceed 10 AU if authorized AU is greater than 100).[c] • This allocation is part of permitted AU, not in addition. Cattle AU would be reduced to accommodate sheep and goats.	Ranch Core and Pasture
Crops	• Up to 2.5 acres, not requiring irrigation.[d]	Ranch Core
Farm stays/ Ranch tours[e]	• Limited to adaptive use of existing structures.	Ranch Core[e]

[a] All activities must follow applicable mitigation measures provided in **Exhibit 6**.
[b] Diversification activities are only authorized on the 18 ranches with a developed complex.
[c] For grazing purposes, sheep and goats have AU equivalents of 0.2 and 0.15 AU, respectively.
[d] Consistent with the agricultural lease/permit, ranchers are not allowed to establish new water rights, but NPS would recognize valid existing water rights.
[e] Ranch tours are anticipated to originate in the Ranch Core subzone but could occur on Ranch Core, Pasture, and Range subzones.

Ranch complexes

The NPS consistency determination describes measures that would be undertaken to ensure continued safe residency conditions for the 18 developed ranch complexes. Residency would be limited to families of lease/permit holders, employees of the ranch and their families, and employees of other park ranches only if approved by the NPS. The NPS would also seek to preserve the features that are factors in the historic aspect of the structures within these ranch complexes. The NPS would:

> *…review and approve all proposed new uses and associated modifications to ranch complexes and structures to ensure conformance with the GMPA/EIS and the Secretary of the Interior's Standards for the Treatment of Historic Properties. …*

> *Ranchers would continue to maintain ranch complex infrastructure, including all water, sewer, and electrical systems, as well as most ranch service roads in a safe condition, using Practice Standards and mitigation measures that limit impacts on sensitive resources.*

Tule elk management

In addition to its ranch management elements, the GMPA includes measures intended to reduce conflicts between tule elk and existing ranches and to maintain viable elk herds on PRNS lands. In general, the NPS states that the GMPA has a goal of maintaining a viable free ranging population of tule elk at PRNS, within limits; the NPS also states that no new herds would be allowed to become established in areas permitted/leased for ranching. Free-ranging elk would be managed to ensure they are confined to PRNS lands—elk would not be allowed to expand onto GGNRA or private lands.

To achieve these goals, the NPS describes management measures to ensure that no new elk herds are established, and identifies measures for each of the three elk herds that are present on PRNS (**Exhibit 3**).

To prevent the establishment of new elk herds[8], the NPS consistency determination describes a "graduated approach":

> *First, NPS staff would try to haze elk back to their original location. If unsuccessful, NPS would employ more aggressive hazing techniques such as firing bean bag shots at the elk. If hazing does not work, lethal removal of a few individuals, particularly the lead female if she can be identified, could be tried. As a last resort, NPS would move forward with complete elimination of the new herd through lethal removal.*

For the Drakes Beach herd, the NPS describes the proposed management measures:

> *NPS would actively manage the Drakes Beach herd to keep it in its existing core area (i.e., between Barries Bay and the C Ranch and B Ranch boundary). The herd would be maintained at a stable and viable population level, consistent with desired conditions for the planning area. Based on estimated forage consumption by elk, forage productivity on ranches, and time that elk spend on ranches, as well as NPS capacity to manage elk, NPS has set a population threshold of 120 adult elk for this alternative.*
>
> …

[8]The NPS consistency determination defines a new herd as consisting of a "group of elk that split from either the Drakes Beach or Limantour herds to occupy a distinctly new home range and where the juveniles and adult females in the splinter group have limited interaction with, or do not return to, their herd of origin. Adult males may move between herds without constituting a new herd."

> *NPS would manage the Drakes Beach herd to the population threshold using lethal removal methods or, if practicable, translocation outside the park. Currently, the State does not allow the translocation of elk outside the park because of concerns about spreading Johne's disease[9]. Previous efforts to move elk in or out of the park have been halted because of Johne's disease and/or [cattle wasting disease] policies. CDFW's comment letter in response to the draft GMPA/EIS, dated September 23, 2019, reads in part, "Translocation of elk out of PRNS [Point Reyes] is not a viable option for population management due to the potential for translocation of diseases, short and long-term costs, risk to staff or contractors, and risk to animals." If translocation becomes a practicable option in the future, additional environmental review would be completed at that time to address potential impacts on elk and other resources.*
> …
> *Elk would be removed using methods that would result in minimal interruptions to park operations, ranchers, and park visitors. NPS would evaluate options to donate meat to the extent possible. Options could include donation of meat to local charitable organizations, the California condor program, tribal groups, or for the purposes of disease testing.*

As stated previously, the number of elk in the Drakes Beach herd was 138 in late 2019. The CA Department of Fish and Wildlife states that in its statewide elk management efforts, it seeks a minimum of 100 animals to maintain a viable elk herd (CDFW 2018).

Management of the Limantour tule elk herd (**Exhibit 3**) would primarily be focused on avoiding the establishment of new herds, using the "graduated approach" concept described previously. While elk would be allowed to wander, female elk would not be allowed to become established in areas leased for ranching. According to the NPS consistency determination, "Female groups would be hazed back to the wilderness area, and lethal removal may be needed to prevent the permanent establishment of new herds on lands under lease/permit in the planning area." Management of this herd would include similar considerations regarding herd size viability described previously.

The herd at Tomales Point (**Exhibit 3**), which is outside of the GMPA planning area, would be managed in much the same way as occurs presently. The NPS would maintain the existing fencing that separates the elk range from the ranch operations immediately to the south, and any animals that escape would be promptly returned to the fenced-off range area.

Finally, the NPS states that it would establish a new wildlife technician position to help with elk management efforts. This position would be responsible for overseeing activities related to elk hazing, fence repair and siting, monitoring (weekly ground

[9] The U.S. Department of Agriculture (2020) describes Johne's disease as "…a contagious, chronic, and usually fatal infection that affects primarily the small intestine of ruminants. Johne's disease is caused by…a hardy bacterium related to the agents of leprosy and TB. … Johne's disease can have severe economic impacts on infected herds."

observations and the use of GPS collars). Additionally, to enhance elk habitat for the core area of the Drakes Beach Herd in the Scenic Landscape zone (**Exhibit 4**), the NPS would provide for weed control and targeted grazing to enhance elk forage availability. This would include brush and non-native vegetation species removal.

C. Tribal and Other Agency Consultations

Tribal Outreach and Consultation

During the review of this project, Commission staff reached out to representatives from Native American Tribes understood to have current and historic connections to the project area: the Federated Indians of Graton Rancheria and Guidiville Indian Rancheria. Contact information for these Tribal Representatives was provided by the Native American Heritage Commission. At the time of publication of this staff report, Commission staff had received no responses from these Tribes. One public comment letter did raise concerns regarding a lack of interpretive displays regarding Coast Miwok history; see the Cultural Resources section of this staff report for the NPS response. Any concerns raised subsequent to the publication of this report will be included in an addendum to this staff report.

Other Agency Consultations

Pursuant to the federal Endangered Species Act, the NPS has initiated consultation with the National Marine Fisheries Service and the US Fish and Wildlife Service regarding potential effects of the proposed action to listed species. Appendices to the GMPA include NPS-developed biological assessments as part of these consultation processes.

D. Water Quality and Marine Resources

Section 30230 of the Coastal Act states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The Point Reyes National Seashore (PRNS) shoreline extends over 100 miles and includes Drake's Estero, Abbott's Lagoon, and Tomales Bay, one of the largest estuaries on the West Coast (**Exhibit 1**). The geography and location of PRNS and GGNRA create habitats that support an incredible diversity of species. Estuarine areas adjacent to the GMPA planning area such as Tomales Bay, Drake's Estero, and Bolinas and Rodeo Lagoons and their tributaries provide habitat for many fish and bird species. These include species listed under the federal Endangered Species Act such as coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), and chinook salmon (*Oncorhynchus tshawytscha*). These areas also are extremely important habitats for migrating and nesting bird species including osprey (*Pandion haliaetus*) , great blue heron (*Ardea herodias*), white pelican (*Pelecanus erythrorhynchos*), canvasback duck (*Aythya valisineria*), greater scaup (*Aythya marila*), lesser scaup (*Aythya affinis*), red-breasted merganser (*Mergus serrator*), ruddy duck (*Oxyura jamaicensis*), long-billed curlew (*Numenius americanus*), black-bellied plover (*Pluvialis squatarola*), greater yellowlegs (*Tringa melanoleuca*), and several species of egrets, cormorants and gulls. Black brant (*Branta bernicla*) migrate to and overwinter in only a few estuaries along the west coast, including at Tomales Bay and Drake's Estero, where thousands of birds will congregate and feed on eelgrass (Pauley and Lay 2013).

The GMPA planning area includes two hydrologically distinct areas. The Tomales Bay watershed includes the GGNRA portion of the GMPA; Lagunitas and Olema Creeks are the main stream systems upstream of Tomales Bay (**Exhibit 7**). A small portion of PRNS connects to Tomales Bay, but the majority of PRNS is hydrologically connected to the Pacific Ocean through smaller creeks or through connections to Abbotts Lagoon and Drakes Estero (**Exhibit 7**). This hydrologic distinction leads to geographic differences in water quality regulation of ranching. In addition to NPS management, water quality on GMPA lands is regulated by the San Francisco Bay Regional Water Quality Control Board (RWQCB), pursuant to the federal Clean Water Act and the Porter-Cologne Water Quality Control Act. Four specific RWQCB actions apply to ranches in the GMPA planning area, three specific for the Tomales Bay watershed:

1. In 2007, the RWQCB completed an action plan for pathogens[10] in Tomales Bay called a Total Maximum Daily Load (TMDL).[11] This TMDL describes actions that will be taken to meet water quality standards for pathogens. The TMDL "includes a broad-based strategy for reducing pathogen sources to the Bay, including increased regulation of grazing lands through waste discharge

[10] Pathogens in this context include many bacteria and viruses which can impact humans and marine species. The pathogens TMDL for Tomales Bay discusses the common use of fecal coliform or total coliform counts in water quality samples as an indicator for pathogens (a common practice) (RWQCB 2005). The presence of coliforms indicates that a water quality sample may contain pathogens that originate in animal waste.

[11] In 2012, the RWQCB also adopted a TMDL for mercury in Tomales Bay, which focuses on cleanup of the former Gambonini mine in Walker Creek. Walker Creek drains into Tomales Bay from the north and is not within the planning area of the GMPA.

requirements, required actions to reduce polluted runoff and boat discharges, education and outreach, and monitoring…" (RWQCB 2020a). As part of TMDL implementation, the RWQCB has worked with the NPS, the Tomales Bay Watershed Council, and ranchers to conduct a monitoring program for Tomales Bay and its main tributaries, including Olema and Lagunitas Creeks.

2. In 2014, the RWQCB adopted a sediment TMDL for Lagunitas Creek (**Exhibit 7**). Citing declines in salmonid runs in Lagunitas Creek, the largest watershed in Marin County, the RWQCB TMDL (RWQCB 2020b) states that "Fine sediment control, channel habitat enhancement, and floodplain restoration projects are needed in concert to restore properly functioning habitat conditions."

3. As part of the implementation of the Tomales Bay pathogen TMDL, in 2018 the RWQCB renewed (for a five-year term) its "Conditional Waiver of Waste Discharge Requirements for Grazing Operations in the Tomales Bay Watershed" (Conditional Waiver). Based on the identification of grazing lands in the Tomales Bay pathogen TMDL as a pollutant source, this Conditional Waiver requires grazing operators (larger than 50 acres in size) to submit to the RWQCB a Ranch Water Quality Control Plan (WQ Plan). This WQ Plan must describe ranch-specific practices to reduce fecal coliform and sediment pollutant loading (which can include, for example, grazing practices, infrastructure improvements, or road-related erosion control), an assessment of grazing operations to identify discharge locations for such pollutants, and a schedule implementing such practices. This WQ Plan requirement applies to those ranches that are in the Tomales Bay watershed, which includes ranches in the Lagunitas and Olema Creek watershed portion of the GMPA planning area (**Exhibit 7**).

4. In 2016, the RWQCB adopted an order with requirements for all ranches with a confined animal facility. This order applies to all dairies throughout the region, including those in PRNS, and requires them to implement facility monitoring plans, waste and grazing management plans, and a nutrient management plan for those ranches where animal waste is applied to land.

Thus, existing ranching oversight and regulation related to water quality in the GMPA planning area varies by geography. The following sections address these geographic areas separately.

Tomales Bay watershed

As previously described, ranches in the GGNRA portion of the planning area are in the watershed of Tomales Bay, with Lagunitas and Olema Creeks being the two largest stream systems (**Exhibit 7**). While there are no dairies in this portion of the GMPA, approximately 3,900 acres of land used by beef operations are in the Lagunitas Creek drainage, and 5,200 acres of beef ranches are in the Olema Creek watershed (NPS

2020). According to the NPS (2020), Tomales Bay is named a “Wetland of International Importance” under the Ramsar Convention in 2002 because of the number and diversity of plants, animals, fish, waterbirds, and other wetland-dependent species it supports.

Within the Tomales Bay watershed, Lagunitas and Olema Creeks provide vital spawning habitats for endangered and threatened salmonids. The Lagunitas Creek watershed supports one of the largest and most stable spawning populations of Central California Coho salmon, with designated critical habitat including all estuarine and stream areas accessible to the species. Although Coho salmon are declining throughout the region, the population in Lagunitas Creek has been stable. Steelhead are also found in Lagunitas and Olema Creeks, and critical habitat for the species includes all accessible river reaches and estuarine areas. Chinook salmon also are occasionally observed in the Lagunitas Creek watershed. California freshwater shrimp (*Syncaris pacifica*), a federally endangered invertebrate species, is also found in Lagunitas and lower Olema Creeks in the GGNRA portion of the GMPA planning area. This species, which is known in 20 streams in Napa, Marin, and Sonoma Counties, spends all of its life within the freshwater portions of streams.

In 2007, the RWQCB adopted the Tomales Bay watershed pathogen TMDL in response to water quality data that indicated exceedances of water quality standards related to bacteria, including from runoff from ranchlands in the watershed, as described previously. Efforts to improve water quality in the Tomales Bay watershed have focused on ranchlands through installation of ranch-related best management practices and infrastructure improvements with the goal of excluding cattle from direct access to streams and creeks. Examples of such improvements are fencing, installation of hard stream crossings, provision of upland watering facilities, erosion control, and road upgrades. The NPS (2020) estimates that in the previous 20 years, approximately 815 acres of critical habitat for salmon including along Olema and Lagunitas Creeks and Tomales Bay have been the subject of cattle exclusion efforts, as well as 60 acres of seasonal grazing areas adjacent to seasonal tributaries. **Exhibit 8** depicts the general locations of such efforts. The NPS (2020) states that more than 170 conservation practices to address water quality in GGNRA and PRNS lands have been implemented, many on ranches in the Lagunitas and Olema Creek watersheds (**Exhibit 8**).

According to the NPS (2020), these management actions and conservation practices have resulted in demonstrated improvements to riparian habitat and water quality. Cattle exclusion efforts have prioritized stream segments with the most evident impacts of frequent cattle activity such as lack of streamside vegetation and erosion of creek banks. The NPS states that overall, riparian systems in and adjacent to the GGNRA portion of the GMPA are in good condition and support populations of endangered coho salmon and threatened steelhead, with exclusion efforts over the past decades limiting cattle access to the majority of sensitive habitat areas.

Since the 2007 establishment of the Tomales Bay pathogen TMDL, monitoring of surface water in the creeks and Tomales Bay has been undertaken by several entities, including the RWQCB, NPS, and Tomales Bay Watershed Council. This monitoring

seeks to assess if watershed enhancement efforts, such as those related to ranches and cattle grazing, are resulting in water quality improvements, and to identify and prioritize where additional practices or infrastructure improvements are needed. This monitoring has provided additional quantitative evidence indicating positive trends in overall water quality in response to these types of activities.

Pre-TMDL data indicated that water quality samples in Olema and Lagunitas Creeks exceeded water quality standards for fecal coliform more than 25% of the time, with some locations exceeding such standards over 50% of the time (Pawley and Lay 2013). However, following establishment of the TMDL in 2007 and the focused efforts to separate cattle activity from the creeks, a 2016 RWQCB "report card" indicated that the TMDL fecal coliform target was being met in Lagunitas and Olema Creeks (RWQCB 2016). A more recent study (Lewis et al. 2019) documented significant (up to 95%) reduction in fecal coliform concentrations in Olema Creek following implementation of 40 grazing best management practices (fencing, hard stream crossings, placement of off-stream drinking water for cattle), based on monitoring conducted between 2000 and 2017. Additional sampling of beaches along Tomales Bay conducted by Marin County during the dry season (April through October) also indicates that water quality standards are typically met during the spring and summer months. Commission staff understands that these monitoring efforts, including in Olema and Lagunitas Creeks, will continue.

In summary, existing information resulting from water quality monitoring efforts appears to support the NPS conclusion that in the Olema and Lagunitas Creek watersheds, implemented grazing and ranching practices have resulted in improvements to water quality in the Tomales Bay watershed.

Coastal drainages outside of the Tomales Bay watershed

All of the dairy and most of the beef ranches in the PRNS, including the ranch operation located near Bolinas, are located outside of the Tomales Bay watershed. These operations account for approximately 18,900 acres of the GMPA, with six dairy operations occupying 6,300 acres, and beef ranches occupying the remaining 12,600 acres (**Exhibit 2**). These operations are in the watersheds of several creeks and lagoons such as Drakes Estero and Abbotts Lagoon (**Exhibit 7**), all of which drain directly to the Pacific Ocean.

These watersheds include and connect to a variety of valuable and protected habitats along the PRNS coastline, including rocky intertidal areas, sandy intertidal beaches, sea cliffs, and offshore rock islands. The rocky intertidal is a dynamic habitat that supports a variety of marine invertebrate species including sea anemones, sponges, mollusks, crustaceans, echinoderms, and fish. The black abalone (*Haliotis cracherodii*) is a federally-listed, endangered mollusk that has been observed along the PRNS coastline. Elephant seals (*Mirounga angustirostris*), harbor seals (*Phoca vitulina*), and California sea lions (*Zalophus californianus*) frequent PRNS beaches and surrounding marine waters. Other wildlife in the estuarine communities of Drakes Estero and Abbotts Lagoon include fish such as the commercially important Pacific herring (*Clupea pallasii*), the federally endangered tidewater goby (*Eucyclogobius newberryi*), and steelhead and

coho salmon. According to the biological assessment prepared for the GMPA, Drakes Estero and Abbotts Lagoon have high ecological importance as waterfowl habitat and as a nursery for numerous marine fish species. Abbotts Lagoon is ecologically important for migratory and resident waterfowl, shorebirds and other avian species.

In recognition of the significance of these habitats and to provide necessary protections to ensure these habitats and the species that rely on them can flourish, several areas within and adjacent to the PRNS carry special designations. The CA Ocean Plan (State Water Resources Control Board 2019) designates Duxbury Reef (offshore the southern tip of PRNS near the community of Bolinas – see **Exhibit 1**) and Point Reyes Headlands as Areas of Special Biological Significance (ASBS) to protect these valuable marine communities. Both of these areas are also within the Gulf of the Farallones National Marine Sanctuary. State-designated MPAs offshore of PRNS include the Point Reyes State Marine Reserve (SMR), Point Reyes State Marine Conservation Area (SMCA), Estero de Limantour SMR, Drakes Estero SMCA, Duxbury State Marine Park (SMP), a 1000-foot special closure around Point Reyes Headlands, and two 300-foot special closures around Point Resistance and Stormy Stack (**Exhibit 9**).

Despite the presence of these protected areas, water quality monitoring in the coastal drainages that directly connect to these marine areas and habitats has not been as extensive as it has been in the Tomales Bay watershed, and what water quality data there is indicates that water quality standards are not consistently met. The GMPA does not identify plans to address this issue. Data collection in Kehoe Creek between 1998 and 2005 showed elevated levels of fecal indicator bacteria, nutrients, and sediment with stormwater runoff from nearby dairy operations and pastureland. Pawley and Lay (2013) reported that many sites in the Kehoe and Drakes Estero watersheds (**Exhibit 7**) exceeded water quality standards for total coliform more than 50% of the time. An NPS analysis of water quality data collected from 1999 to 2013 in the Abbotts, Kehoe, and Drakes Estero watersheds found that fecal indicator bacteria concentrations declined at all 13 water quality stations that were downstream of management activities implemented on grazed lands during the monitoring period (Voeller at al. 2020). In this NPS study, prior to 2007, only 6% of samples met single-sample numeric water quality objectives for fecal indicator bacteria, and 38% of samples met those objectives from 2007 to 2013 following application of management activities.

Aside from these reports, staff is not aware of any other quantitative assessments of water quality in the coastal drainages of the GMPA planning area outside of Tomales Bay. Marin County beach monitoring (described above) includes a location at Drakes Beach, which is sampled during the dry season only; monitoring at this location indicates that water quality standards are typically met.

Analysis of proposed action

As described in Section III.C, the Commission's federal consistency review authority is applicable to the "spillover effects" of a proposed action on coastal resources within the coastal zone. As described above, watersheds within the GMPA drain into state waters within the coastal zone, either through Tomales Bay or directly to the Pacific Ocean.

Thus, if management activities within the GMPA planning area adversely affect water quality within the GMPA, these effects can result in harm to coastal species and waters. For example, bacteria and nutrient loading from beef ranches, dairy operations, stormwater runoff from roads and other developed areas, and other activities associated with ranching could result in algal blooms, depressed levels of dissolved oxygen, and introduction of pathogens that could affect coastal species. Excess sedimentation could alter in-stream habitats, making it difficult for salmonids and other species to find suitable spawning habitat.

The NPS proposes to implement a management framework for ranching activities over a 20-year timeframe (the duration of the proposed lease system) for the entire GMPA area. In addition to the proposed zoning and subzoning framework, and as described in the proposed action section of this staff report, these ranch management measures include ranch leasing and permitting, range management and monitoring, management activities (ranch infrastructure and water control management, vegetation management, and other management activities), and activities (including diversification) within ranch complexes. The potential effect on water quality and marine resources of the implementation of each of these measures is assessed in this section.

Zoning and subzoning framework

The NPS (2020) describes the purpose and consequences of the proposed zoning and subzoning framework:

> *NPS would implement a zoning framework of Resource Protection, Range, Pasture, and Ranch Core subzones within the Ranchland zone to better protect water resources by directing more intense uses to areas with the least resource sensitivity. Activities in the 2,000-acre Resource Protection subzone would be limited to Targeted Grazing, thereby protecting additional water resources. However, impacts from regular grazing would continue in 1,200 acres of the Resource Protection subzone until Fencing is installed. More intensive ranching activities, including diversification activities and Manure and Nutrient Management, would be limited to the Pasture and Ranch Core subzones, thereby minimizing or avoiding direct impacts to water resources. However, these subzones contain previously disturbed lands and little to no water resources.*
> *…*
>
> *As part of the zoning framework, approximately 1,200 acres would be removed from ranching and included in the Resource Protection subzone protecting approximately 171.5 acres of wetlands including 0.9 acre of ponds and 5.9 miles of streams by preventing direct access and deposition of fecal matter by livestock that enter stream channels. These 1,200 acres, plus the existing 800 acres of exclusion areas… would protect a total of 283 acres of wetlands including 5.7 acres of ponds and 12.1 miles of streams from direct impacts from cattle. Except for very*

> *limited Targeted Grazing identified through the ROAs, no activities would be authorized in the Resource Protection subzone, reducing the potential for pollutants to directly enter surface waters. …*
>
> *Under [the proposed action], cattle would have direct access to most ponds (for drinking water), as well as accessible wetland and riparian habitat areas that remain outside exclusion zones. The Range subzone would contain nearly 99% of the remaining surface water resources in the lands still available for ranching, but only grazing and limited Management Activities to meet NPS resource goals and objectives would be allowed in the Range subzone under this alternative. …grazing in the Range and Pasture subzones would continue to result in potential loading of nutrients, pathogens, sediment, and other pollutants to surrounding water resources through stormwater runoff and result in the use of surface water and groundwater. Range management guidelines, including adherence to the 1,200 pounds/acre RDM standard, would minimize adverse impacts on water resources by maintaining vegetation cover, which limits erosion potential.*

Thus, based on NPS' analysis, the proposed zoning and subzoning framework would be more protective of water quality than the present situation, but its application would not eliminate the potential for non-point source runoff or waste discharges to negatively affect water quality.

Continued grazing and ranching activities could result in habitat effects on salmonid and other aquatic species' habitats through increased sedimentation, or affects to these species from water quality pollution. However, the proposed zoning and subzoning elements of the GMPA would result in some additional protection for such habitats, as nearly all streams in the Lagunitas and Olema Creek watersheds would remain excluded from grazing, with new resource protection exclusion areas excluding cattle from approximately 2.4 miles of perennial streams. Additionally, the Resource Protection zone would protect approximately 370 acres along the Drakes Estero shoreline. Other fish species would similarly benefit from application of the zoning and subzoning framework.

Ranch leasing and permitting

As stated above, continued leasing for ranching activities could lead to water quality degradation of receiving waters. However, to address water quality impacts through the leasing process, the NPS (2020) states that dairies in PRNS and grazing operations in the Tomales Bay watershed would remain subject to RWQCB requirements, which include mandates to implement monitoring, complete infrastructure improvements, and address grazing practices to enhance water quality. The proposed lease and ROA system would be a main vehicle for incorporating RWQCB requirements. As described previously, ROAs would be reviewed annually for each ranch, and would incorporate any needed ranch improvements (including those identified through monitoring efforts). The NPS would provide ROA oversight in the annual review process, thus maintaining

its management responsibilities to ensure that ranches are complying with RWQCB authorizations. According to the NPS (2020), salmonids and other aquatic species would benefit from this ranch leasing and permitting process as well, as there would be an annual management system in place to address impacts to in-stream habitats resulting from ranching activities.

Range management and monitoring

The NPS would seek to provide additional water quality protection through proposed range management measures include the zoning and sub-zoning framework's limitations on grazing activities within particular zones. For example, the Resource Protection zone would allow for only limited targeted grazing activities if the NPS deems them necessary to meet management objectives such as removal of invasive vegetation species. The Range zone would be restricted to cattle grazing, with other, potentially higher-impact ranch-related activities limited to the Pasture or Ranch core zones. In addition, the total number of dairy and beef cattle would not be allowed to increase from existing numbers presently allowed. The NPS also states that monitoring of range conditions, such as through assessments of RDM, would continue, in part to assess potential ranch impacts on water quality. Finally, the NPS (2020) also states that the agency will regulate beef ranches in the planning area under the same framework as the existing RWQCB grazing requirements for Tomales Bay—thus, the current requirement for a water quality plan described previously for grazed areas in Tomales Bay would apply to all ranches in the GMPA. Additionally, according to the NPS (2020), "operations would be required to adapt as the RWQCB adopts updated requirements (e.g., when five-year waivers are updated)."

Despite these water quality protections, some range management activities could result in negative effects to salmonids and other aquatic species. For example, cattle or other livestock will not necessarily be excluded from all waterways within the Range and Pasture zones, thus potentially resulting in sedimentation and introduction of bacteria, nutrients and other pollutants. Manure management activities could also contribute nutrients, bacteria, and other pollutants to coastal creeks and drainages via stormwater. However, such management activities would occur only during dry conditions and would require an NPS-approved nutrient management plan (NPS 2020). Continued use of the RDM standard would also seek to avoid over-grazing and maintain vegetation (minimizing bare soils and subsequent runoff potential).

Management activities

Management activities (related to ranch infrastructure and water quality control management, vegetation management, and other management activities) are described previously in the overview of the proposed action. Some of these activities would be implemented to address water quality concerns. For example, fencing or stream crossings could be installed to exclude cattle from sensitive resources and thus enhance water quality. However, such activities, if not properly constructed, could result

in water quality effects on their own[12]. In response, the NPS has developed the mitigation measures and best practices described in **Exhibit 6**. These measures are similar or identical to measures that the Commission typically requires in its review of development activities, such as prohibitions on heavy equipment operating in streams, implementation of erosion control practices and spill prevention plans, and timing of in-stream activities to coincide with the dry season. The NPS would require these measures to be incorporated into each Management Activity that a rancher proposed and implemented, and such requirements would be incorporated into the annual ROA. Additional oversight from other agencies would continue as required: for example, a stream crossing could require authorizations from the US Army Corps of Engineers, RWQCB, or Commission, depending on the location.

The NPS (2020) summarizes its analysis of the potential water quality effects of Management Activities:

> *Implementation of a number of Ranch Infrastructure and Water Control Management Activities are intended to reduce erosion or runoff of pollutants to surface waters (e.g., Road Upgrade and Decommissioning, Infrastructure Management, Waterway Vegetation Planting, and Waterway Stabilization), while others (e.g., Fencing, Stream Crossings and Livestock Water Supply) can reduce direct cattle access to water resources. Overall, standardization and proactive coordination and implementation of these activities would reduce impacts on water quality compared to existing conditions through application of Practice Standards and mitigation measures for Management Activities… as well as specific size limitations for each project…. These limitations include considerations and requirements intended to minimize erosion and runoff of pollutants.*
>
> *…*
>
> *Practice Standards and mitigation measures would minimize or prevent any short-term, adverse water quality impacts from implementation of… [Vegetation Management] activities… including measures that minimize ground disturbance and provide for temporary erosion control where needed. Vegetation Management activities in the Pasture subzone, established to avoid sensitive resources, would not have the potential for direct short-term impacts on water resources. The Upland and Riparian Vegetation Management and Planting activities often intended to establish cover in heavily disturbed areas or those lacking adequate vegetation would reduce potential for nonpoint source pollution over the long-term.*

[12] In the GMPA assessment of the potential effects of implementing the management activities, the NPS includes numbers of each activity over the proposed 20-year lease terms, cumulatively across all ranches in the planning area. These assumptions provide the basis for the NPS assessment of the effect of these management activities. Additionally, and as described in **Exhibit 6**, the NPS has placed size restrictions on certain management activities to reduce the potential for adverse effects.

> *The type of impacts on water quality associated with Manure and Nutrient Management would continue to be regulated by the San Francisco Bay RWQCB. Manure and Nutrient Management would be limited to up to approximately 2,500 acres in the Pasture subzone, consistent with current conditions. [**Exhibit 6**] provide[s] the size limitations and specific mitigation measures for all Manure and Nutrient Management activities. Forage Production and Manure and Nutrient Management would be prohibited in the Range subzone, where most water resources are located, which would decrease the potential for pollutant loading to surrounding water resources. As a result, water quality impacts are expected to be reduced…compared to existing conditions.*

These measures would apply to all ranch operations, and all ranches (dairies and beef operations) would be required to include these measures for any management activities proposed in annual ROAs. These measures, including the best practices and mitigation measures in **Exhibit 6**, would also help to address the potential for management activities to negatively affect salmonids and other fish species, as well as their habitats.

In addition to the application of these measures to management activities related to range and grazing practices, the NPS includes mitigation measures specifically for ranch diversification activities (see Table F-14 in **Exhibit 6**) to provide for water quality protection. The NPS (2020) assesses the potential for water quality effects from ranch diversification activities:

> *…sheep and goats would be limited to the Ranch Core and Pasture subzones and they would not be authorized in the Range subzone where 99% of the water resources are located. Potential impacts on water resources related to sheep and goats in these subzones are not expected to be any greater than the impacts of cattle under existing conditions because the total authorized AU in the planning area would not increase, the density of these non-cattle livestock would not exceed 10 AU or 10% of AU for any operation, and the RDM standard would not change. Ranchers would be required to comply with applicable regulations and mitigation measures related to diversification…, further reducing the potential for additional impacts to water quality.*
>
> *Impacts on water resources related to the authorization of up to 9,000 chickens distributed across the planning area would be minimized by restricting their density (no more than 500 chickens per authorized operation) and location (limited to the Ranch Core and Pasture subzone as described above) thereby avoiding direct access and impact to water resources. This activity could result in long-term, adverse indirect impacts on water quality from the increased potential for pollutant loading to water resources…, particularly from animal concentration in the Ranch Core subzone. However, the requirement for mitigation measures to be incorporated into the ROA would minimize potential impacts on water*

quality. When compared to existing conditions, where one operation of up to 2,900 chickens is authorized, [the proposed action] could result in up to 18 ranches with chickens. However, the total number and density of chickens per ranch would be far less (500 chickens) than what is currently authorized, reducing the concentration of impacts in any one location.

Changes to impacts on water quantity are not anticipated from other livestock diversification because a limited number of animals would be involved, and the total authorized AU would not increase.

Up to 2.5 acres of non-irrigated crops on individual ranches could increase the potential for nonpoint source sediment and/or nutrient loading to water resources; however, restricting these activities to previously disturbed land that does not have the potential to impact resources and implementing mitigation measures…would minimize or prevent adverse impacts. Non-irrigated crop production would not affect water quantity because additional water would not be necessary. …. Any future proposals for irrigated crops would be reviewed on a case-by-case basis, and would need to address the proposed crop, the type of irrigation system, and the total volume of water needed, and demonstrate that there is sufficient capacity to meet proposed water demand.

Other diversification uses, including farm stays, ranch tours, and sales of local agricultural products produced …in the Ranch Core subzone are not anticipated to affect water quality conditions within the planning area. These activities could increase water usage to some extent, resulting in long-term, adverse impacts on water quantity from increased groundwater pumping. These activities are limited to adaptive use of existing structures, which would limit the number of people and activities that could be accommodated and the amount of water that would be needed. Rancher proposals for farm stays, ranch tours, and farm sales would have to document that any additional water needed to support theses uses would not cause unacceptable impacts to water resources and that septic systems are adequate to support the proposed level of use.

Animals introduced as part of a diversification activity would result in a corresponding reduction in the number of allowed cattle in a ranch; in this manner, the NPS suggests that animal waste levels resulting from diversification would be, overall, no more than at present. However, the locations of certain of these animal operations could change (for example, a reduction of cattle in the Range zone as a result of additional chickens in the ranch core zone). Mitigation measures to address water quality concerns from diversification measures include the following (see **Exhibit 6** for the full list):

- Place watering facilities, new feed rack, and salt and mineral feeders in pastures a minimum of 300 feet from any riparian or aquatic habitat.

- Implement measures to minimize concentrated flow from roads, roofs, and paved surfaces into stables, such as rolling dips for roads, and/or to prevent concentrated flow from causing erosion, such as roof gutter downspouts with energy dissipaters, and French drains.
- Divert rainfall and runoff away from high-use areas with animal waste, such as stalls, manure piles, paddocks, and arenas, using methods such as guttered roofs, manure bins, and grassed waterways to keep such areas as dry as possible during the rainy season.
- Incorporate structural erosion control systems to intercept and diffuse water flow to prevent excess sediment from entering streams and encourage infiltration into row crop design (i.e., drop inlets with sediment traps, daylight underground outlets to vegetated swales, energy dissipaters, sediment basin).
- Plant cover crop or cover soils with mulch and use at least 30% cover in fallow crop areas throughout the rainy season.

In summary, although continued ranching activities could result in adverse impacts to water quality and marine resources, many of the proposed management activities are designed to mitigate those affects through implementation of best management practices and pollution prevention strategies.

Ranch complexes

As described previously, many diversification activities would be limited to within areas within the Ranch Core subzone. These activities would be expected to have the same types of water quality impacts as existing activities within the Ranch Core. To minimize impacts to water quality, these activities would be subject to mitigation requirements in **Exhibit 6**. Other potential activities within the ranch core zone could potentially result in water quality impacts, as described by the NPS (2020):

> *Construction and activities that have the potential to affect wetlands that exist in the Ranch Core subzone would be limited to improvements to meet NPS resource management goals and objectives (e.g., culvert replacement, relocation of Controlled Crossings, Targeted Grazing). … direct disturbance to waterways or deposition of pollutants to surface waters within ranch complexes would be similar to existing conditions. Any proposed diversification activities would be required to develop additional structural controls to manage waste and protect water quality. Necessary improvements would be identified and prioritized through ROAs.*
>
> *Ranch complex management, including actions related to cultural resources and historic structures, would have the same short-term, adverse impacts on water resources from the increased potential for sediment and other pollutant loading during construction, demolition, and other activities as [would exist if the GMPA was not adopted]. … the maintenance, improvement, and alteration to historic and non-historic*

> *structures and new development/infrastructure actions would be subject to the Practice Standards and mitigation measures as described in [**Exhibit 6**], and incorporated into individual ROAs. New buildings would generally be restricted to the Ranch Core subzone to reduce the potential for impacts related to pollutant loading and runoff from additional impervious surfaces. Any new permanent proposed buildings would have to undergo separate environmental review and be approved by NPS.*

Beyond the diversification activities described previously, other activities in the ranch core related to building and infrastructure maintenance and repair would be accompanied by measures to protect against water quality impacts, such as those included in **Exhibit 6**. Such measures would also address the potential for ranch core activities to negatively affect aquatic habitats and species, including salmonids.

Coastal Act Consistency

As described above and in the GMPA, the NPS proposes an overall ranch management program to address water quality and to protect aquatic habitats in the GMPA planning area and adjacent marine habitats. This ranch management program includes the proposed zoning and sub-zoning framework, leasing and ROA system, approach to management activities, and oversight of ranch core areas. The proposed zoning and subzoning framework would provide for enhanced protection of natural resources through restrictions on grazing and use of sensitive lands by cattle. This framework, combined with applicable mitigation measures for management activities, would continue and in some instances expand water quality protection, such as through the applicability of the RWQCB grazing requirements to beef operations at PRNS (not just for those operations that are in the Tomales Bay watershed, as is the current situation). The proposed leasing and ROA system would provide for NPS management oversight of ranches and proposed management activities, including proposals for ranch diversification, on an annual basis. This would include incorporating the mitigation requirements in **Exhibit 6**, which mirror typical Commission requirements, as described previously.

The NPS generally concludes that incorporating these measures will provide enhanced water quality throughout the GMPA planning area as compared to baseline conditions, and that species such as salmonids and their habitats will benefit from implementing the GMPA. To assess the on-the-ground reality of that conceptual conclusion, it is useful to consider what is known about water quality in the planning area of the GMPA.

For the Tomales Bay watershed (including Lagunitas and Olema Creeks), it appears that a similar approach to ranch management and grazing as is proposed in the GMPA has contributed to water quality improvements, as described in the Tomales Bay overview. Monitoring over the previous 20 years (through 2019), particularly since the adoption of the TMDL and the subsequent installation of ranch-related infrastructure (stream crossings and fencing, for example), indicates that water quality standards for fecal coliform pollution have generally been met since the implementation of these ranching enhancements. This monitoring program is anticipated to continue.

Moving forward, the NPS proposes to maintain the existing measures and consider further enhancements and additional protections to safeguard water quality. Given the body of evidence presented that demonstrates the success of existing measures in improving water quality in Tomales Bay to achieve state water quality standards, and the NPS commitments to implement the zoning and ranch management measures in the GMPA, Commission staff agrees with the NPS assertion that the proposed plan will continue to promote the achievement of water quality standards within lands in the Tomales Bay watershed and is thus protective of coastal resources and species in Tomales Bay.

However, a similar conclusion regarding achievement of water quality standards cannot be made for the drainages outside of the Tomales Bay watershed. Since similar types of ranching activities occur across the entire GMPA, with the notable exception of the presence of dairies in PRNS, it is very likely that the potential for water quality issues within the PRNS portion of the GMPA planning area is just as great as that potential within the GGNRA portion. Unfortunately, areas within the GMPA but outside the Tomales Bay watershed have not had the benefit of focused attention on assessing and addressing water quality concerns as compared to the Tomales Bay watershed. Furthermore, the small amount of existing water quality data that is available for areas outside the Tomales Bay watershed is concerning. The previous NPS study of the smaller creeks and lagoons in PNRS, described previously in the overview of the Tomales Bay watershed above, indicate that the installation of ranching improvements did result in water quality improvements, but also indicated that standards were not being met in a majority of the samples. Additionally, because water quality monitoring in PRNS has not occurred since 2013, the current water quality situation is unknown.

Therefore, it appears that there is evidence in the Tomales Bay watershed supporting the conclusion that the proposed GMPA measures would continue to result in water quality standards being met. This conclusion would thus indicate that instream aquatic habitats and downstream marine habitats within the coastal zone would be protected as required by the Coastal Act. However, the available evidence (or lack thereof) does not support this conclusion for marine habitats downstream of the other coastal drainages in the GMPA planning area. Thus, it is possible that water quality in these coastal drainages could continue to be adversely affected by ranching operations, even though the conceptual indications (and the experience in the Tomales Bay watershed) are that implementation of management measures in the GMPA will positively affect water quality.

Fortunately, the water quality successes within the Tomales Bay watershed provide a roadmap for addressing water quality issues within the rest of the GMPA. The NPS proposes to take the same approach by implementing the same types of measures and actions as have already been implemented within the Tomales Bay watershed. What is missing, however, from the NPS proposal is a comprehensive water quality monitoring plan to assess baseline water quality conditions, guide and prioritize the implementation of management actions, and to demonstrate whether the implementation of those

actions result in compliance with water quality standards. Without this plan, the Commission cannot be sure that the measures included in the Plan are implemented in a manner that is protective of coastal resources.

Therefore, for the Commission to find that the GMPA is consistent with Sections 30230 and 30231 of the Coastal Act, the Commission is including a condition in its concurrence with the NPS consistency determination for the GMPA that the NPS provide the Executive Director a water quality monitoring plan for review and approval before new leases with ranchers are finalized. The water quality monitoring plan shall include the following elements:

1. Proposed overall strategy and timeline for assessing and improving water quality in areas of the GMPA outside of the Tomales Bay watershed, with a particular focus on areas that drain to Abbott's Lagoon and Drake's Estero and the creeks that drain to these features, but also including areas that drain directly to the Pacific Ocean. The strategy should be informed by existing water quality data and should prioritize resolution of the most significant water quality-related issues first. The timeline should reflect short and long-term water quality goals and management strategies. Both the strategy and timeline should be updated on an annual basis to reflect information and analysis provided under items 2 and 3 below.

2. Proposed sampling methodology for collecting quantitative water quality data in areas of the GMPA outside of the Tomales Bay watershed, consistent with the strategy provided in item 1 above. Data collection should be sufficient to determine if water quality standards are being met throughout the area and to inform identification of water quality-related issues and prioritization of management strategies to address those issues, as described in Item 3 below. The sampling methodology should incorporate guidelines and requirements from state and federal agencies (i.e., RWQCB, State Water Control Board, and/or U.S. Environmental Protection Agency) related to sampling coverage and frequency, sample testing procedures, and reporting of results.

3. A provision for NPS reporting of monitoring results and water quality analysis to the Executive Director of the Commission on an annual basis. Annual reports should include monitoring results from all previous years, assessment of the results against relevant state and federal water quality standards, proposed measures to address identified issues including identification of priority areas for additional ranching or grazing related best practices, and plans for incorporating such practices into ROAs or implementation through other measures, as appropriate, and evaluation of the efficacy of existing measures. Annual reports shall also include results of continuing water quality monitoring of the GGNRA portions of the Tomales Bay watershed (i.e., Olema and Lagunitas Creeks). Following initial monitoring reporting, subsequent NPS reports should also describe and evaluate measures implemented to address identified water quality issues.

This water quality monitoring plan should be provided for review and approval before new leases with ranchers are finalized, and prior to the prior to the finalization of any ranch-specific ROA, so that ROAs can incorporate conditions and requirements deemed necessary by the NPS. If water quality monitoring results indicate that water quality standards are routinely being met in areas being monitored, the NPS can submit a revised consistency determination to the Commission to determine the need for continued water quality monitoring.

If, however, water quality monitoring results show that ranching or other operations within the GMPA are resulting in adverse effects on coastal resources that were not adequately or accurately assessed in this consistency determination or that management measures are not successful in improving water quality such that water quality standards are met within a reasonable timeframe, the Commission may choose to exercise its right under the re-opener provisions of the CZMA (15 CFR §930.45 et seq.) to bring that matter back for further consideration.

With the incorporation of this condition, the Commission finds that implementation of the proposed GMPA elements related to the zoning and subzoning framework, the ranch leasing and permitting system, range management and monitoring, management activities, and ranch complexes would be protective of marine resources in the coastal zone, that biological productivity of coastal waters would be sustained, and that adverse effects of water pollution would be minimized. Therefore, the Commission finds the proposed action, as conditioned, consistent with Sections 30230 and 30231 of the Coastal Act.

E. Terrestrial Species and Habitats

Coastal Act Section 30240 states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values; and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The GMPA and the biological assessment prepared for the proposed action (which is included as an appendix to the GMPA) describe the terrestrial wildlife species and their habitats that are found in the GMPA planning area. Numerous species use the various habitats found in the planning area for all or a portion of their life histories. Section IV.E

addresses aquatic (marine and freshwater) species in or adjacent to the planning area, and this section of the staff report focuses on terrestrial species and their habitats.

Terrestrial habitat and species overview

According to the NPS (2020), approximately 60% of the GMPA planning area (about 17,255 acres) consists of grasslands, including annual grassland (44%), agricultural pastureland (12%), and coastal prairie (4%). **Exhibit 10** is a map of these habitats. Of the remaining 40% of the planning area, 18% consists of coastal scrub habitat (5,267 acres), and 14% includes evergreen forests and woodlands (NPS 2020). The remaining portions of the planning area include "herbaceous wetlands" (4%), coastal dunes (2%), and riparian forest (1%) (**Exhibit 10**). Disturbed and barren areas, mudflats, open water, and beaches collectively occupy approximately 1% of the planning area.

The NPS (2020) describes the grassland, agricultural pastureland, and coastal prairie habitats:

> *On the Golden Gate lands of Olema Valley, westward-facing slopes with intermixed forest and scrub are predominantly California annual grassland, dominated by naturalized, non-native annuals. Ranches exposed to high winds and seasonal fog on the extreme end of the Point Reyes Peninsula have a wide variety of coastal prairie sub-types, from high terraces and bluffs to wet, lowland prairie…This variable vegetation type is dominated by non-native or native grasses, much of which is grazed by cattle, and may have up to 15% shrub cover.*
> *…*
>
> *Perennial bunchgrasses dominate pristine coastal prairie in the planning area. Pacific reedgrass is the most common native grass in the planning area along with tufted hairgrass (Deschampsia cespitosa), California oatgrass (Danthonia californica), meadow barley (Hordeum brachyantherum), California brome (Bromus carinatus), and purple needlegrass (Nassella pulchra). Native grasses are often found in association with annual non-native grasses, coyote brush (Baccharis pilularis), California blackberry, and a variety of native and non-native herbs…*
>
> *In the planning area, [California] annual grasslands…are largely dominated by the same suite of naturalized non-native species found elsewhere in California, such as soft chess (Bromus hordeaceus), oats (Avena spp.), ripgut brome (Bromus diandrus), barley (Hordeum spp.), flax (Linum spp.), and filaree (Erodium spp.). Non-native annual grasses and forbs such as these have dominated this type of grassland since before the park was established, and native plants typically make up only a very small percentage of the total cover. …*

> *Pasturelands is an agricultural vegetation type reflecting a higher intensity of use, distinguished from grazed grasslands and other grazed, naturally occurring vegetation types in the planning area…. Agricultural pasturelands are predominantly composed of non-native species, including seeded grass and legume forage species, with invasive non-native members of the mustard family (Brassicaceae) and thistles (Asteraceae) patchily abundant… Pasturelands were defined by Schirokauer et al. (2003) as areas enclosed to graze cattle or horses, managed to produce forage for cattle, or fields used for other agricultural purposes.*

Special status plant species in GMPA planning area grasslands include the Marin dwarf flax (*Hesperolinon congestum*), which is listed as threatened under the federal Endangered Species Act (ESA); and the Sonoma spineflower (*Chorizanthe valida*), Tiburon paintbrush (*Castilleja affinis ssp. neglecta*), and Showy Indian clover (*Trifolium amoenum*—also found in coastal scrub habitats), all of which are listed as endangered under the federal ESA. Sonoma sunflower is found on G, F, and AT&T ranches (**Exhibit 2**). Marin dwarf flax and Tiburon paintbrush are only found on Nicasio Ridge on the Cheda, McIsaac, and Zanardi Ranches (**Exhibit 2**) in the GGNRA. Showy Indian clover has been reintroduced to D Ranch (**Exhibit 2**) in experimental plots, and further monitoring will determine if the reintroduction will persist (NPS 2020).

A wide variety of wetlands are located in the planning area, with palustrine (inland, nontidal) wetlands being the most prevalent (occupying 94% of the total wetland acreage of 1,954 acres) and estuarine wetlands accounting for most of the remaining wetland acreage—approximately 6%. A little over three acres or about 0.2% of the total wetland acreage are classified as open water wetlands. The NPS (2020) describes wetland habitats in the planning area as including:

> *Palustrine wetlands are diverse, including freshwater marshes, seasonal wetlands, wet meadows, floodplain wetlands, seeps, and sag ponds, and can be dominated by various species including small-fruited bulrush (Scirpus microcarpus), rush (Juncus balticus), slough sedge (Carex barbarae), water parsley (Oenanthe sarmentosa), seep monkeyflower (Erythranthe guttata), floating marsh pennywort (Hydrocotyle ranunculoides), spikerush, (Eleocharis macrostachya), California bulrush (Schoenoplectus californicus), cattails (Typha spp.), broadfruit bur-reed (Sparganium eurycarpum), and Pacific reedgrass (Calamagrostis nutkaensis).*
>
> *Estuarine wetland areas support a variety of vegetation, including pickleweed (Salicornia spp.), rush (Juncus lescurii), saltgrass (Distichlis spicata), salt marsh daisy (Jaumea carnosa), gumplant (Grindelia stricta), arrowgrass (Triglochin maritima), California sea lavender (Limonium californicum), Pacific cordgrass (Spartina foliosa), and bulrush (Bolboschoenus martimus).*

Additionally, the NPS (2020) describes riparian forests and shrublands, used by a variety of species:

> *The planning area contains 220 acres of riparian forest/shrublands, which represents approximately 11% of the 1,976 acres of riparian forest/shrubland in the park. Riparian forests and shrublands in the planning area are dominated by broad-leaved deciduous trees or shrubs, including red alder forest, mixed willow forest, and arroyo willow forest. In the red alder forest, red alder (Alnus rubra) dominates the canopy with California bay (Umbellularia californica) often present in substantial cover. Arroyo willow (Salix lasiolepis) may form a subcanopy to the alder. The understory is usually moderate to dense. Berry species, including salmonberry (Rubus spectabilis), thimbleberry (Rubus parviflorus), and California blackberry (Rubus ursinus) along with red elderberry (Sambucus racemosa), are the common shrubs. Hedgenettle (Stachys spp.), sedges, rushes, small-fruited bulrush, and ferns (swordfern [Polystichum munitum], lady fern [Athyrium filix-femina]) dominate the herbaceous layer… Other forested riparian areas are dominated by mixed willow forest, represented in the planning area by yellow willow (Salix lutea), often associating with other willows … Shrubs such as berry species are commonly found interspersed through the understory. California wax myrtle (Morella californica) or poison oak (Toxicodendron diversilobum) may be present. Sedges, rushes, and small-fruited bulrush, along with hedgenettle, beeplant (Scrophularia californica), and ferns dominate the herbaceous layer….*

Special status vegetation species found in freshwater marshes include the Sonoma alopecurus (*Alopecurus aequalis* var. sonomensis), which is found in areas where grazing has occurred for over a century (NPS 2020).

Other distinct habitats in the GMPA planning area include coastal scrub habitat and coastal dunes. The NPS (2020) describes coastal scrub habitat as being dominated by coyote brush, occupying 97% of the coastal scrub in the planning area.

The NPS describes coastal dune habitat found on the Seashore:

> *Point Reyes protects some of the "last remaining high quality coastal dune habitat in the United States," which provides habitat for 11 federally listed plant and wildlife species… Sixty percent of the park's coastal dunes are now dominated by two non-native species—European beachgrass (Ammophila arenaria) and iceplant (Carpobrotus edulis). Overall, these two species represent roughly 50% and 25%, respectively, of all coastal dune vegetation…. In areas where these two species dominate, they form dense monocultures with few or no other species present …*

> *The remaining 25% of the coastal dune vegetation is composed of remnant patches of the native plant community, primarily dune sagebrush (Artemisia pycnocephala), coast buckwheat (Eriogonum latifolium), dune lupine (Lupinus chamissonis), and goldenbush (Ericameria ericoides), sometimes with intermixed, light to moderate cover of the two non-native species, European beachgrass and/or iceplant. Total vegetation cover with native dune habitats such as dune mat and dune scrub is often low and interspersed with bare sand….*
>
> *Because of the direct and indirect impacts of these invasive species on federally listed and other rare species, NPS began a large-scale coastal dune restoration program starting in 2001. Since then, NPS has removed approximately 269 net acres of invasives from approximately 524 acres of coastal dunes…. Restoration used manual removal, mechanical excavation, and herbicide treatment methods…. Where herbicide has been used to treat European beachgrass and iceplant, NPS implemented several measures to avoid impacts on existing native habitats and ranchlands, such as establishing buffers to organic pastures, using manual removal or mechanical excavation in buffer areas and strict observation of climatic restrictions on spraying during windy or wet days.*
>
> *Approximately eight ranch operations abut coastal dunes; some of the dunes contain finger-shaped parabolic features formed by wind and colonized by various species over time. Coastal dunes make up approximately 611 acres, or 2% of the planning area….*

Dune habitats are also home to federally endangered vegetation species such as the beach layia (*Layia carnosa*) and Tidestrom's lupine (*Lupinus tidestromii*). The Western snowy plover, analyzed further in the section on coastal dune habitats, uses dune habitats for wintering and nesting.

Collectively, these habitats support a wide variety of plant and animal species. In addition to previously described vegetation species that are federally protected, the planning area is also host to a number of other plants that are considered rare by the California Native Plant Society or are protected under the California Endangered Species Act (see **Exhibit 11**)

Over 40 mammal species are found in the planning area, with common native species including the Columbian black-tailed deer (*Odocoileus hemionus columbianus*), coyote (*Canus latrans*), gray fox (*Urocyon cinereoargenteus*), Point Reyes mountain beaver (*Aplodontia rufa phaea*), American badger (*Taxidea taxus*), Point Reyes jumping mouse (*Zapus trinotatus orarius*), bobcat (*Lynx rufus*), brush rabbit (*Sylvilagus bachmani*), black-tailed jackrabbit (*Lepus californicus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and several species of bats, rodents, and shrews (NPS 2020). Mammal species include several CDFW-designated species of special concern that occur in various habitats in the GMPA planning area. For example, American badger

are found in open areas of grasslands, shrublands, and dunes; Point Reyes mountain beaver are found in dense shrublands on north-facing slopes; Point Reyes jumping mouse inhabit wet, marshy coastal meadows; and bat species are found in various habitats.

As described in Section II.A, the NPS estimated in 2019 that approximately 700 tule elk inhabited the PRNS portion of the GMPA planning area, split among three herds (**Exhibit 3**). This species is found only in California and originally inhabited much of the area between the Coast Ranges and foothills of the Sierra Nevada. Tule elk is not listed under the Endangered Species Act but is a focus of state management. The California Department of Fish and Wildlife (CDFW) and other partners and landowners manage tule elk (along with two other elk species found in California) through a 2018 Elk Conservation and Management Plan, which builds on decades of efforts to re-introduce the species following its near extinction (in 1870 there were three tule elk known in the entire state). In 2018 CDFW estimated that there were 5,700 tule elk in California, in more than 20 locations across the state—in Alameda, Kern, Siskiyou, Trinity, San Luis Obispo, Colusa, Glenn, Lake, and southern Humboldt/northern Mendocino Counties (CDFW 2018).

The NPS (2020) describes birds that frequent habitats in the planning area:

> *Point Reyes hosts the greatest avian diversity of any national park unit in the United States and nearly half of the bird species of North America, with around 490 species recorded from approximately 60 bird families (NPS 2004b, 2018c). This diversity can be explained by the park's latitude, its diverse habitats, and its location along the Pacific Flyway (NPS 2018c). Many birds use the planning area for a portion, or all of their life history, particularly during spring migration and summer nesting. Ground-nesting species, such as the California horned lark (Eremophila alpestris actia), savannah sparrow (Passerculus sandwichensis), grasshopper sparrow (Ammodramus savannarum), song sparrow (Melospiza melodia), western meadowlark (Sturnella neglecta), California quail (Callipepla californica), and northern harrier (Circus cyaneus), could be susceptible to impacts from cattle grazing and Vegetation Management (e.g., plowing and harvesting). Agricultural activities that affect songbird populations could also affect the foraging of American peregrine falcons (Falco peregrinus anatum), which nests at Point Reyes, and merlins (Circus cyaneus). Several other special-status raptors rely on grassland habitats, including the burrowing owl (Athene cunicularia), white-tailed kite (Elanus leucurus), and ferruginous hawk (Buteo regalis)…, and could be affected by habitat alteration from livestock grazing and Vegetation Management. Additionally, agricultural activities and human use in the planning area attract some birds via food sources, habitat alteration, or livestock presence, such as common ravens (Corvus corax), brown-headed cowbirds (Molothrus ater), tricolored blackbirds (Agelaius tricolor), Brewer's blackbirds (Euphagus cyanocephalus), European starlings*

> *(Sturnus vulgaris), and American crows (Corvus brachyrhynchos), among others. … Ravens are nest predators of the federally threatened western snowy plover, which nests on beaches adjacent to the planning area…*

Riparian habitats in the planning area also support several special bird species listed as CDFW species of special concern, such as the yellow warbler (*Setophaga petechia*), olive-sided flycatcher (*Contopus cooperi*), and saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*).

Over a dozen species of reptiles and amphibians occur in the planning area. The western pond turtle (*Clemmys marmorata*), a California species of special concern, is found in freshwater ponds and backwater areas. Four lizard species occur in almost every habitat, except the dampest, most interior forests and tidal salt marshes, and eight snake species could occur in the planning area (NPS 2020). Six species of salamanders and four species of frogs and toads are found in the planning area. The federally threatened California red-legged frog (*Rana draytonii*) is locally abundant in the planning area, as several populations inhabit the park, primarily associated with stock ponds (NPS 2020).

Finally, the Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) is known to occur on PRNS ranches, in dunes, scrub habitat, and grasslands with species of violets. Many of these occurrences occur in areas that are grazed by cattle and/or elk (NPS 2020).

Analysis of proposed action

As described in Section III.C, because the planning area of the GMPA is entirely federally-owned land, by definition it is outside of the coastal zone, and the Commission's review is limited to those "spillover effects" of a proposed action on coastal resources within the coastal zone. In this instance, the practical result is to focus the Commission's review on potential effects to those species found within the coastal zone at some point in their life history because of migratory patterns or daily habits, for example, as well as to review effects to such species' habitats, even if the habitats are on federal land. Thus, the potential effects of implementing the GMPA presented below are appropriately assessed through the lens of the potential for spillover effects from activities on GMPA lands to such species.

The NPS proposes to implement the GMPA actions related to ranching over a 20-year timeframe (the duration of the proposed lease system) for the entire GMPA area. In addition to the proposed zoning and subzoning framework, and as described in the proposed action section of this staff report, these ranch management measures include ranch leasing and permitting, range management and monitoring, management activities, and ranch complexes. The effects of these measures on habitats and species is assessed in the following sections. This section also assessed the proposed actions in the GMPA related to Tule elk management.

Tule elk

As described in Section II.A, pursuant to Congressional authorization the NPS re-introduced tule elk to PNRS first in 1978 in the Tomales Point area, and then to the Limantour area in 1998. Elk are now found in three herds as depicted in **Exhibit 3**.

The NPS proposes elk management actions that include activities such as the installation of fencing, habitat-enhancement related measures to improve elk foraging, hazing of animals to encourage them to leave ranch areas, and, if necessary, population control measures including the lethal removal of individual animals (there are few, if any, tule elk predators on PRNS lands). The purpose of these population control measures is to reduce the potential conflicts between elk and ranches, and to provide an overall check on population growth. The NPS (2020) states that maintaining herd numbers above the minimum thresholds that CDFW considers necessary for herd viability (approximately 100 animals) is one of the management goals for PRNS elk herds.

In its review of the proposed elk management measures in the GMPA, the CDFW (which is one of the state agencies with principal responsibility for wildlife management (see Coastal Act Section 30411)— (2019) stated:

> *We… agree that active management of the elk herds is necessary to balance management of cattle grazing and elk within PRNS….Management of elk populations on PRNS will be necessary in perpetuity. Translocation of elk out of PRNS is not a viable option for population management due to the potential for translocation of diseases, short and long-term costs, risk to staff or contractors, and risk to animals.*

Assessing the consistency of these proposed actions with the policies of the Coastal Act requires examination of the location of the elk herds and potential magnitude of the effects to the species.

As described in Section III.C, the lands of the GMPA planning area are in federal ownership and are therefore outside of the "coastal zone", as that term is described by law. As described in the GMPA and in the description of proposed elk management activities in Section IV.B, elk are confined to lands within the PRNS. The NPS states that it will not allow escapees to become established outside of PRNS, on either private lands or lands of the GGNRA. Thus, these animals are not allowed to move from federal lands that are outside of the coastal zone to other lands that are within the coastal zone. This fact is in contrast to, for example, bird species which migrate all along the California coast.

The Coastal Act's policies apply to resources of the coastal zone. If there was a proposal to manage an elk herd within the coastal zone in the manner proposed here, the Commission would have greater authority to consider how that management affected environmentally sensitive habitat areas and other coastal resources. However,

in this case, the Commission is limited to considering whether management of these elk herds will cause coastal resource effects outside of those federal lands. Because the elk will not be allowed to leave federal lands, any beneficial or detrimental effects they may have on habitat on those federal lands are not impacts that the Commission considers. Instead, these tule elk exist solely on lands outside of the coastal zone. Likewise, there is no evidence that the proposed management of the size of the herds will cause ripple effects on other species or habitat off of the federal land.

Notably, the proposed elk herd population control measures would not result in population-level effects to the species. As described above, the NPS will maintain herd numbers above the minimum thresholds that wildlife resource experts consider necessary for tule elk herd viability. Thus, for these reasons, the NPS proposed measures would not result in population-level effects to tule elk, either within PRNS or in the state of California, and would not result in effects to the viability of tule elk in other parts of the coast. CDFW, the state agency responsible for managing the state's elk population, has coordinated closely with the NPS on elk management at PRNS and has indicated support for NPS's approach. The additional elk management measures that the NPS proposes—such as fencing and forage enhancement in the Resource Protection zone—would provide benefits to elk in PRNS.

In consideration of all of these factors, the elk management measures proposed by the NPS will not cause effects on coastal zone resources that conflict with Coastal Act policies. These measures would affect individuals outside of the coastal zone and would be implemented to maintain viable herd numbers in accordance with wildlife agency recommendations.

Mammals

Mammal species are found in various habitats throughout the GMPA planning area, and effects of implementing the GMPA are described by the NPS (2020):

> *Cattle grazing…would continue at levels similar to existing conditions, which would help control the encroachment of shrubs and herbaceous fuel loads (i.e., annual grasses) and maintain habitat for mammals that [use] grasslands. Grazing would be the only authorized activity near riparian areas and other sensitive habitats in the Range subzone, which contains 65% of this habitat type in the planning area. The establishment of the Resource Protection subzone would protect 30% of the total riparian areas in the planning area and surface waters that are critical for mammals.*
>
> *The potential impacts of fences on mammals would be reduced compared to existing conditions because the installation of any new permanent or temporary fencing would be required to be "wildlife friendly," unless otherwise approved by NPS, in accordance with proven methods….*
>
> *Brush mowing in the Pasture and Ranch Core subzones, which together compose around 35% of lands under lease/permit, could reduce habitat*

> *for mammals that prefer coastal scrub but would follow the Brush Management, Mechanical Practice Standard and would maintain habitat for mammals that prefer grassland habitats. …Impacts on mammals from these activities would be reduced compared to existing conditions because these activities would be restricted to the Pasture and Ranch Core subzones, which are unlikely to support large populations of special-status species such as the American badger. …*
>
> *Because of the diversification activities…, the magnitude of impacts on wildlife could be greater as a result of disturbance from the newly authorized activities. The authorization of sheep and goats in the Pasture subzone could reduce habitat for small mammals relative to existing conditions because sheep and goats consume more shrubs and forbs than cattle. On the other hand, sheep and goat grazing could benefit mammals in the Pasture subzone by providing another method for controlling noxious weeds that would otherwise reduce wildlife habitat. The impacts of up to 500 chickens on as many as 18 ranches and their associated mobile huts within the Pasture and Ranch Core subzones could also impact wildlife habitat by altering plant communities due to nutrients in chicken manure, which could allow non-native, weedy species to outcompete native plants. Mitigation measures to limit the number of chickens per ranch and require rotation of chickens on pasture would minimize impacts. Within the Ranch Core subzone, impacts from diversification on habitat for native mammals would be minimal because authorized activities would occur within previously disturbed areas or areas where sensitive species are not present. The Ranch Core subzone contains poor quality habitat for most native mammals and is generally only occupied by species tolerant of human disturbance.*

In general, implementation of the GMPA would continue to provide benefits to mammal species that prefer grazed pastures, such as certain mice species and jack-rabbits. Other species that prefer coastal scrub or forested areas would not benefit in this way, since such habitats would continue to be limited. To address the potential for non-native vegetation to invade existing habitats as a result of ranching activities, including the spread of seeds through animal waste distribution and the introduction of diversification activities in the Pasture and Ranch core zones, the NPS would require ranchers to undertake vegetation control measures. For example, mowing and targeted grazing could be used to reduce weedy vegetation; the NPS also has best practices that would be applicable such as the application of monitoring to identify habitats where invasive species are becoming established (see **Exhibit 6**). Additionally, the NPS points out that Ranch core and Pasture zones are established and used for agricultural production, thus limiting the amount of native vegetation present in such areas.

Ranching activities will have disturbance-types of effects on individual mammals, through activities related to ranch management, herding of livestock, vehicular traffic, and the use of heavy equipment on ranches. Such disturbances would be temporary,

although repetitive, and in the case of activities on ranch complexes, confined geographically. To address the potential for ranch management activities to affect mammals, the best practices in **Exhibit 6** include provisions for requiring temporary fencing to keep animals away from work areas. Additionally, the NPS would require permanent fencing to be wildlife-friendly to reduce the risk of mammal entanglement or injury, through practices such as appropriate fence heights, wire spacing, and ensuring high visibility. Other activities such as forage production (haying and silage), which includes vegetation mowing and thus could affect individual mammals, would be limited to only the areas in the Pasture zone where such activities are allowed, as described previously. The introduction of new animals through diversification activities could attract predators (foxes, coyotes, or raccoons to prey on chickens or their eggs, for example). The NPS does not allow lethal means of addressing such predators, but would allow guard animals (subject to the conditions described in **Exhibit 6**, such as training and socialization with humans).

Additionally, the NPS (2020) describes the benefits of the GMPA that that would occur to several bat species that are state-listed species of special concern (i.e., the pallid bat [*Antrozous pallidus*], Townsend's big eared bat [*Corynorhinus townsendii*], and western red bat [*Lasiurus blossevillii*]). These stem from the maintenance of stock watering locations, which are used by such species as well as cattle.

In summary, no population-level effects to mammal species within the coastal zone are anticipated as a result of implementing the GMPA. Individual mammals will be affected by ranching activities and cattle grazing, including disturbance effects and as attracted by diversification activities, as described above. The present mix of mammal habitats, particularly in presently grazed areas would remain largely the same as what exists currently, with the exception of benefits to certain habitats that would result from implementation of the proposed GMPA (such as areas added to the Resource Protection zone), as described in the analysis of habitat effects below.

Birds

A variety of bird species are found in the various habitats throughout the GMPA planning area. The NPS (2020) summarizes potential effects to birds from implementing the GMPA:

> *Habitat for grassland birds would be maintained as a result of continued livestock grazing via a reduction of shrubs, reduced accumulation of thatch from previous year's herbage, and existing bare ground…. Grazed pastures are important to many species that prefer short vegetation, such as California horned lark …and serve as foraging and roosting sites for shorebirds and waterfowl when winter high tides inundate tidal flat foraging areas … Continued grazing would also maintain habitat for several raptors, including burrowing owls and ferruginous hawks that generally respond positively to grazing as a result of increased habitat availability…*

> *Shrub- and ground-nesting birds would be susceptible to trampling…The additional allowance of 2.5 acres of crops in previously disturbed areas in the Ranch Core subzone could increase or decrease bird habitat and provide food resources for some species, depending on the crops planted and the adjacent habitats. … T]he presence of livestock guardian animals may result in the harassment of birds, specifically ground nesting birds, but may also reduce predation. Ongoing dairy ranching activities would continue to promote an unnatural abundance of corvids, European starlings, and brown-headed cowbirds that compete with, prey upon, or parasitize nests of native birds, resulting in continued impacts to birds over the long term.*

In general, as is the case with mammal species, implementation of the GMPA could result in positive effects to certain species and negative effects to others. For example, livestock would likely disturb individual birds of ground-nesting species, and birds that preferred taller vegetation would not benefit from reductions in vegetation heights resulting from grazing activities. Domestic cats on ranch complexes would continue to affect individual birds (as well as small mammals). Benefits to bird species from implementing the GMPA would likely result from additional protections afforded to wetland and riparian areas, as discussed more fully below, particularly for those species such that rely on such habitats, such as the yellow warbler and olive-sided flycatcher.

The NPS (2020) also notes that several best practices and mitigation measures that would be required for implementing ranch management activities (**Exhibit 6**) would reduce the potential for negative effects on birds. Examples include timing activities to avoid bird nesting seasons (generally, March 15 through July 31) and conducting breeding bird surveys prior to implementing such activities.

In summary, as is the case with mammals, implementation of the GMPA is not anticipated to result in population-level effects on any bird species. However, further evaluation of the potential effect of GMPA implementation on snowy plovers is included in the coastal dune habitat section of this staff report. Additional assessment of the potential effect on ground-nesting birds in forage production areas is included in the grassland section.

Reptiles and amphibians

The NPS (2020) assesses the potential effects of implementing the GMPA on reptiles and amphibians:

> *…R]anchers would continue to maintain approximately 120 stock ponds in the planning area that provide essential breeding habitat for several amphibians, including the special-status coast range newt …*
>
> *Direct impacts to known occurrences of western pond turtle could occur near several ponds in the planning area from trampling of adults and nests… although other evidence suggests that moderate grazing practices*

> *would not substantially reduce habitat suitability for this aquatic turtle…Continued grazing would maintain habitat for some reptile species via disturbance that increases invertebrate abundance…*
>
> *…[R]anch activities could potentially affect reptiles and amphibians via pollutants in storm runoff. However, ranchers would avoid or minimize impacts on wetlands and riparian areas by continuing to exclude cattle from most riparian areas and implementing management practices and mitigation measures to comply with state and federal clean water regulations.*

The NPS (2020) also describes how certain other species of reptiles, including the western fence lizard (*Sceloporus occidentalis*) and western skink (*Plestiodon skiltonianus*), generally are considered to benefit from grazing activities, while other species such as the northern alligator lizard (*Elgaria coerulea*) would not receive such a benefit. The NPS (2020) also states that invertebrate increases associated with grazing (e.g., related to fecal matter) may result in additional prey for certain reptile species.

California red-legged frogs may use upland habitats, in addition to wetland areas, particularly in later summer months when wet habitats dry up. In such a case, individuals in dry habitats could be trampled by grazing animals. However, the NPS states that such concerns have not been manifest in the decades of managing the GMPA ranches, as there are no known population declines of the species in the planning area (NPS 2020). Additionally, in their review of previous leases within the GMPA, the USFWS concluded that ranching was "not likely to jeopardize" the continued existence of the species.

As is the case with mammals and birds, implementation of the GMPA is not anticipated to result in a spillover effect to resources in the coastal zone or population-level effect to the reptile and amphibian species found in the planning area. Further evaluation of the potential effect on California red-legged frog is provided in the section assessing potential wetland habitat effects.

Myrtle's silverspot butterfly

The NPS (2020) describes potential effects of GMPA implementation on the Myrtle's silverspot butterfly:

> *…[the] distribution of the Viola adunca, the host plant for Myrtle's silverspot butterfly, [would be] within the Range subzone. Overall, grazing would continue to benefit the species by removing vegetation that may compete with Myrtle's silverspot butterfly's host and nectar plants and minimizing vegetative cover, which could increase nectar sources and improve the ability of butterflies to detect host and nectar plants (Adams 2004). Applicable mitigation measures would be specified in ROAs and reviewed annually to minimize the potential impacts of ranching on Myrtle's silverspot butterfly habitat. For any authorized projects, NPS*

biologists would conduct surveys to determine if suitable habitat is present for the Myrtle's silverspot butterfly in the project area, including larval host plants or nectar sources. Host plants would be protected with a clearly demarcated 20-foot buffer zone.

Through application of these measures and the practices in **Exhibit 6**, implementation of the proposed GMPA would not result in a population-level effect on this invertebrate species.

In addition to the general assessment of potential effects of GMPA implementation to animal species, proposed GMPA implementation activities could affect their particular habitats as well. The following sections assess the potential habitat effects of GMPA implementation. The NPS (2020) summarizes the percentages of habitats that would be incorporated into each of the zones that are proposed in the GMPA (see Table 3).

Wetland and riparian habitats

Wetland and riparian habitats throughout the GMPA planning area provide important habitat for a variety of species. A total of 1,954 acres of mapped wetlands are located in the GMPA planning area, including palustrine (upland), estuarine, and lacustrine (open water) habitats. The NPS (2020) states that 81% of wetlands in the planning area would

Table 3. Percentage of habitat types in proposed zones (adapted from NPS [2020]).

Habitat Type	Resource Protection Subzone	Pasture Subzone	Ranch Core Subzone	Range Subzone	Scenic Landscape Zone
Riparian Forest/ Shrubland	30%	2%	<1%	65%	2%
Grasslands	3%	45%	<1%	50%	2%
Coastal Prairie (Grassland)	12%	27%	0%	59%	2%
Annual Grassland	2%	38%	<1%	58%	2%
Agricultural Pasturelands	1%	79%	<1%	18%	1%
Coastal Dunes	64%	3%	0%	33%	<1%
Coastal Scrub	11%	20%	<1%	66%	3%

be included in the Range zone; 14% (283 acres) in the Resource Protection zone[13]; 4% (86 acres) in the Scenic Landscape zone; and less than 1% in the Ranch core zone. As described in the Zoning and subzoning framework section, by definition wetlands are excluded from the Pasture zone, and the only uses allowed in the Resource Protection and the Scenic Landscape zones would be potentially targeted grazing for vegetation control, under NPS management. Thus, the NPS maintains that wetlands in these zones would benefit from a high level of habitat protection. As described in the zoning framework, a large majority of mapped wetlands would be located within the Range zone, which is primarily intended for cattle grazing.

The NPS (2020) further describes how riparian habitats would be included in the proposed zoning framework:

> *…[T]he zoning framework, including limitations to Management Activities in the Range subzone, would reduce potential impacts on riparian forest/ shrubland areas by not authorizing intensive land uses in these locations. The Scenic Landscape zone would include 4 acres of riparian habitat where no grazing would be authorized. …[A]n additional 22% of riparian forest/shrubland in the planning area (48 acres) would be added to existing exclusions resulting in more than 67 acres of riparian forest/shrubland habitat within the Resource Protection subzone. The Range subzone would include approximately 149 acres of riparian forest/shrubland, and the Ranch Core would include less than 1 acre. Riparian forest/shrubland in Range subzone would remain accessible to grazing unless limited by topography or dense vegetation. Ongoing implementation of Management Activities would also improve this vegetation community (e.g., exclusion Fencing, riparian vegetation planting).*

Management activities that could affect wetland and riparian habitats would be allowed only if the mitigation measures and best practices outlined in **Exhibit 6** would be applied. Many of these measures are intended to provide protection to such habitats, such as the requirements for stormwater management plans and restrictions on the use of heavy equipment in such habitats. Additionally, fencing and other range management activities would help to separate livestock from riparian habitats used by bird species such as the yellow warbler, olive-sided flycatcher, and saltmarsh common yellowthroat.

However, despite the inclusion of such measures, it remains the case that wetland and riparian habitats, such as those in the Range subzone, would remain subject to the impacts of cattle grazing, including streambank erosion and introduction of excessive

[13] The zoning and subzoning framework section describes the GIS information used to identify areas for inclusion in the Resource Protection zone, which includes areas identified as critical habitat (such as for salmonids and western snowy plovers), forested riparian areas, surface waters, and areas with cultural resources.

nutrients and other pollutants from manure. Although not likely to convert wetland or riparian habitat, grazing activities could degrade existing habitat through disturbance, trampling of plants and wildlife and introduction of sediment and other pollutants. The marine resource and water quality section of this staff report describes the potential for water quality pollutants that could arise from ranching activities to affect habitats of species in such areas. To address this potential impact, the Commission is requiring a water quality monitoring program, as discussed in that section of the staff report, to identify and prioritize necessary ranching practices in response to identified water quality issues.

The NPS (2020) states that cattle grazing may help Sonoma alopecurus (the special status plant found in certain freshwater marshes) out-compete other plants, and that the USFWS, in its 1997 listing of the species under the federal ESA, similarly discusses how a certain amount of grazing may be necessary for the species to survive (NPS 2020). The NPS (2020) also states that the USFWS, in a 2002 review of the status of the species in PRNS, determined that ranching was "not likely to jeopardize" the continued existence of the species in the planning area.

Specifically regarding the potential for effects of GMPA implementation on habitat for the California red-legged frog, which relies on wetland and adjacent upland habitats, the NPS (2020) states:

> *…T]he zoning framework would reduce the intensity of adverse impacts by authorizing the most intensive agricultural practices only in the Pasture and Ranch Core subzones, where habitat for California red-legged frogs is limited. All breeding habitat would fall in the Range subzone, where only cattle grazing and periodic Pond Restoration would occur, which would provide a beneficial impact compared to existing conditions. Frogs that disperse into uplands from breeding ponds could be vulnerable to disturbance or injury by other classes of livestock, such as chickens, or by vehicle collisions during the movement of chicken huts or other pasture management activities. … However, only 10% of known California red-legged frog occurrences are found in the Pasture or Ranch Core subzones.*
>
> *Mitigation measures associated with Management Activities…would be implemented to avoid or minimize impacts, such as performing pre-construction surveys of suitable wetland habitat and adjacent uplands surveys for projects in potential California red-legged frog habitat; monitoring ground-disturbing activities within 300 feet of suitable wetland habitat; halting work activities that may adversely affect California red-legged frogs until they no longer occupy the project area; and placing portable/moveable structures located in pastures for the production of fowl in the Pasture subzone a minimum of 300 feet from any drainages, riparian areas, wetlands, or ponds from mid-June through mid-September.*

As described previously, the USFWS in a previous review concluded that ranching activities within the GMPA planning area was not likely to jeopardize the continued existence of the species, even prior to incorporation of the types of measures included in **Exhibit 6** that would be incorporated into the NPS oversight of ranch management activities.

In summary, although impacts to wetland and riparian habitats would remain, the combined reduction of direct effects to wetland habitats resulting from the proposed zoning approach and application of mitigation measures in **Exhibit 6** to ranch management activities would likely result in an overall positive effect to many species dependent on wetland and riparian habitats in the planning area, as compared to the existing situation. If future water quality monitoring demonstrated that water quality standards were not being achieved, the Commission would have the opportunity to re-open its consistency review and determine whether the GMPA was still being carried out in a manner consistent to the maximum extent practicable with the policies of the California Coastal Management Plan and, if not, what actions NPS could take to achieve consistency.

Grassland habitats and nesting birds

The NPS (2020) describes the effects of implementing actions proposed in the GMPA on grassland habitats:

> *…[T]he zoning framework would establish greater structure and protection to the overall grassland habitat [*see Table 3*]. The Scenic Landscape zone would include approximately 2% of the grasslands in the planning area. … [G]rasslands would make up approximately half of the Range subzone and 86% of the Pasture subzone. Overall, the Resource Protection subzone would contain under 3% of total planning area grasslands. Of the 1,154 acres of coastal prairie…, 695 acres would be located in the Range subzone, 315 acres would be in the Pasture subzone, and 144 acres would be in the Resource Protection subzone.*
>
> *NPS would work with ranchers to limit Management Activities to those that would improve or maintain coastal prairie habitat. …[R]anching would result in ongoing use and maintenance of grasslands in Pasture and Range subzones. Diversification activities in the Pasture subzone would be conducted at a low density and within authorized AU allocations, which would not increase potential impacts over current levels.*

Continued cattle grazing would result in continuing impacts to grassland habitats through trampling, grazing, and the redistribution of nutrients in foraged vegetation through deposition of fecal patties. To help to minimize negative impacts of cattle grazing, the NPS would apply the RDM standard described previously to reach a desired amount of grazing activity for individual fields. Through the ROA system, the NPS would make annual adjustments to grazing practices and implement Management Activities to further reduce such impacts. Ranching activities could result in the

introduction of invasive species, but the application of mitigation measures (**Exhibit 6**) would help to prevent and control the spread of such species. Examples of such measures include the use of certified weed-free materials, inspection and cleaning of all construction-related equipment, restoring disturbed areas with native species where appropriate; performing post-project monitoring, and controlling non-native species.

Special status plant species in planning area grasslands include the Marin dwarf flax, Sonoma spineflower, Tiburon paintbrush, and Showy Indian clover (Trifolium amoenum. As described previously, Showy Indian clover has been reintroduced to one ranch, and further monitoring will determine if these recently established plots will persist. The effects of grazing on Marin dwarf flax and Tiburon paintbrush are not fully known, but there is some indication that moderate grazing levels help to reduce competition from other species (NPS 2020) which may be beneficial to these species. Sonoma spineflower is generally unpalatable to cattle, and appears to be adapted to a moderate level of grazing. The ROA system, where the NPS would review proposed grazing activities annually, would provide for an enhanced approach to manage grazing activities as described previously that would include consideration of grazing levels to continue to maintain these plant species (NPS 2020).

While implementation of the GMPA would protect more grassland habitat than occurs under existing conditions, some grassland habitats (approximately 1,000 acres) would remain in use by two dairy operations and two beef operations for production of cattle forage (hay or silage[14]). The GMPA states that if forage production, including silage, is halted on particular fields, it will not be allowed to resume.

In response to staff questions, the NPS provided further description of present and near-future silage operations:

> *One beef cattle operation is currently phasing out 38 acres of authorized silage and has indicated plans to phase out the remaining 58 acres. The other beef cattle operation currently rotates areas where harvest of the total authorized 190 acres occurs, and sometimes cuts less, or cuts material later in the season as haylage or hay. The remaining 715 acres are harvested on dairy ranches as silage.*

Such practices could affect nesting grassland birds (as well as mammals and other wildlife) through harvest mowing and nest and habitat destruction.

To address this potential effect, the NPS states that it would take actions to reduce impacts from forage production to avoid or minimize effects of mowing on ground-nesting birds and references a publication by Ochterski (2006) for actions to take to address this issue. This publication describes practices to address potential bird

[14] Hay consists of vegetation that is mowed, dried, and baled; silage is compacted vegetation that is not dried and is harvested earlier in the growing season to provide a higher nutritional value than hay.

impacts such as identifying fields with the greatest likelihood of nesting birds, adjusting the timing of forage cutting and mowing so that it occurs following fledging of young birds, conducting mowing in patterns that allow birds to escape through grass habitat (i.e., begin mowing in the center of a field first), and rotating fields.

The NPS also includes timing restrictions on mowing activities, except for silage, to minimize effects on nesting birds – generally requiring such activities to occur between August 1 and October 15 for mowing, or between March 15 and July 31 for vegetation less than eight inches in height if bird nesting surveys have been completed (**Exhibit 6**). In response to Commission staff, the NPS (2020a) states the GMPA includes:

> *a number of mitigations that may reduce impacts from Forage Production to birds and other wildlife, including adjustments to mowing patterns, varying timing of mowing or rotating areas that are mowed (i.e. early, late, rested), leaving buffers or islands of unmowed areas, and exploring ways to reduce radish and mustards that may attract certain nesting birds. …where necessary, NPS, in coordination with ranchers, would take actions to reduce impacts from Forage Production to avoid or minimize effects of mowing on ground-nesting birds.*
>
> *…we expect adjustments to the timing of harvest mowing to be limited due its association with nutritional value, as well as lack of control over scheduling of a third party to conduct the harvest. With the high cost and limited availability of importing quality organic feed, the two dairies in particular rely on the authorized silage as part of their operations to help meet the high nutritional demand of animals in the milking string. On the 190 authorized acres associated with one beef operation, it is expected the timing and rotation could be more flexible based on current practices. Besides certain limitations on adjustments to timing of harvest mowing, we expect actions taken in coordination with ranch operators would include all of those listed above, with monitoring and adaptive management to inform which strategies provide the most benefit to birds and other wildlife.*

Thus, the NPS would implement the measures described above to reduce potential effects of silage operations on ground nesting birds. Monitoring, including post-silage mowing to determine the effectiveness of implementing particular strategies, would be incorporated into the management of silage production.

In summary, for the reasons described in this section, while a number of species rely on grassland habitats within the GMPA planning area, it does not appear that there are any plant or animal species that will be affected at a population level by the potential effects of ranching operations.

Coastal scrub habitat

The NPS (2020) describes the coastal scrub habitat effects resulting from implementation of the GMPA:

> *…3% of coastal scrub would be included in the Scenic Landscape zone [*see Table 3*]…. [A]pproximately 86% of the coastal scrub would fall within the Range (3,502 acres) or Pasture (1,028 acres) subzones. The Resource Protection subzone would contain approximately 11% (569 acres) of coastal scrub. …[C]oastal scrub is not generally affected by livestock and management concerns would continue to be focused on the encroachment of coastal scrub into grasslands.*
>
> *…[F]ollowing site review, NPS would authorize mechanical treatment (e.g., mowing) of shrubs in the Pasture subzone consistent with Practice Standards and mitigation measures, and would evaluate Mowing in the Range subzone on a case-by-case basis to reduce encroachment into grasslands and improve conditions for livestock and wildlife. These activities may result in short-term impacts on non-target vegetation but would maintain coastal grassland habitat in treated areas.*

Thus, coastal scrub habitat would largely be maintained at its present level, which would involve mechanical removal of coastal scrub habitat areas within the Pasture subzone and possible removal from the Range subzone. Species that rely on such habitats could have difficulty finding suitable habitat, or could experience loss of habitat in a particular location. However, these practices have been in place for a long time and the overall acreage of available coastal scrub habitat would not change substantially from the present condition. Thus, it is unlikely that management actions included in the GMPA related to coastal scrub habitat would result in spillover effects into the coastal zone.

Coastal dune habitat and Western snowy plovers

The NPS (2020) describes the coastal dune habitat impacts resulting from the GMPA:

> *…[A]n additional 121 acres of dunes would be added to the Resource Protection subzone. Overall, more than 64% of the coastal dunes in the planning area would be in the Resource Protection subzone. Less than 3% (16 acres) of coastal dunes would be in the Pasture subzone with the rest located in the Range subzone (33%). NPS would continue to work with ranchers to ensure that boundary fencing along the native dune areas are maintained in a manner that keeps cattle in permitted areas. Diversification limited to the Pasture and Ranch Core subzones would have potential to impact only a very limited portion (16 acres) of the park and planning area dune system.*

Dune habitats in PRNS support sensitive plant species. The NPS biological assessment for the proposed GMPA indicates that most instances (80%) of beach layia are located

outside of the footprint of existing ranches or in existing resource protection zones, and thus would not be subject to potential trampling from cattle (except for escapees). Similarly, 85% of Tidestrom's lupine specimens are located outside of ranch areas or in existing resource protection zones. Both species would receive enhanced protection through the establishment of the Resource Protection subzone and the fencing that would be constructed to prevent cattle encroachment. Twelve percent of the beach layia that is not currently in a protection zone would be included in the Resource Protection zone, and all of the known Tidestrom's lupine would be included in the Resource Protection zone. Plants in the Resource Protection zone would be subject only to trampling from escaped cattle. The NPS would require routine fence inspections to reduce the potential for this situation to occur.

Western snowy plovers primarily occupy the beach and dune areas of PRNS during the breeding season, and a smaller subset also overwinters at the Seashore. However, according to the project's biological assessment and consistent with monitoring reports provided by PRNS staff, plovers are only rarely found in the footprint of the GMPA planning area, since most habitat opportunities occur outside of ranch boundaries. Dune restoration projects between the ranches and the shore, such as the 90 acres treated near Abbotts Lagoon in 2011, have focused on removing invasive European beach grass and iceplant to create habitat opportunities for plovers and other native species. Importantly, these restored areas provide current and future habitat opportunities for dune-associated species like plovers, and foster their resilience in the face of sea level rise which will result in inland shifts of habitat.

The USFWS has designated critical habitat for snowy plovers on the western edge of PRNS and along Limantour Beach (**Exhibit 12**), areas outside of the GMPA planning area. Additionally, the USFWS has established a recovery goal of 64 breeding western snowy plovers (32 pairs) in PNRS, with 50 on Point Reyes Beach, 10 on Limantour Spit, and 4 on Drakes Spit (Campbell and Press 2017).

The NPS routinely monitors and counts nesting western snowy plovers in PNRS. In 2015, a minimum of 38 western snowy plovers bred in PRNS (some pairs fostered more than one nest during the season), following 29 in 2014, 18 in 2013, and 9 in 2012 (Campbell and Press 2017). Campbell and Press (2017) describe nest locations in 2015:

> *Of the 49 nests located in 2015, 22 were between Abbotts Lagoon and North Beach parking lot, 8 were between the Kehoe Beach entrance and Abbotts Lagoon, and 16 were in the 2011 Restoration Area. For the first time in 14 years nesting occurred on Limantour Spit, with two nests located there in 2015…. Additionally, for the first time since 1995 a nest was located between North Beach parking lot and South Beach parking lot. For the third year in a row, one nest was located in the hardpan area immediately north of the North Beach parking lot. This area was not utilized in 2012 but had been used the three preceding years.*

From 2010 to 2019, the number of nests ranged from seven to 50, according to the biological assessment for the GMPA, with an average of 43 per year since 2016.

NPS monitoring also identifies the cause, where possible, of unsuccessful nests. Campbell and Press (2017) identify nest abandonment, environmental conditions (e.g., eggs covered by windblown sand or affected by tides), and raven predation as the three most frequent causes of nest loss between 1996 and 2015.

The NPS (2020) summarizes potential effects on snowy plovers that could result from implementation of the GMPA:

> *If cattle were to escape pasture fences and trespass into snowy plover nesting areas on beach and coastal dunes, infrequent adverse impacts on nesting birds could occur as a result of nest trampling or flushing of adults. This type of impact has not been documented in the park. NPS would continue to require pasture fences to be inspected regularly and maintained to minimize the likelihood of cattle on beaches. Continued ranching would also affect western snowy plovers by supporting higher numbers of predatory species, especially common ravens that prey on plover eggs and chicks… Mowing for Forage Production on approximately 1,000 acres supports increased numbers of ravens by inadvertently killing birds and small mammals that provide carrion…[R]anch activities would continue to support increased raven numbers, especially around dairies where ravens may feed on grain provided to cattle …In coordination with NPS, ranchers would continue to take actions to reduce feeding opportunities for ravens at ranches and dairies, such as covering feed troughs, cleaning up waste grain around troughs, removing and placing troughs in enclosed structures, and storing harvested crops in enclosed structures.*
>
> *The potential for unauthorized livestock on beaches would be reduced by two new resource protection areas on the E and F Ranches, approximately 20 and 70 acres in size, respectively. Required mitigation measures… would reduce potential impacts from increased numbers of ravens associated with ongoing ranching and agricultural diversification. Despite these measures, food sources would remain available to ravens in the planning area… Over the long term, ranch activities that support the continued unnatural abundance of ravens could still indirectly affect western snowy plovers.*

The proposed zoning map in **Exhibit 4** identifies the two Resource Protection areas south of Abbotts Lagoon that are identified by the NPS as new protection for western snowy plovers. These areas are near the locations where monitoring has found nesting birds—i.e., along the stretch of beach south of Abbotts Lagoon. The biological assessment for the GMPA (included as an appendix to the GMPA) further addresses predation by ravens:

> *To minimize predation by ravens and other predators, NPS initiated the use of predator exclosures around snowy plover nests in 1996. The exclosures consist of a wire fence that allows passage of plovers while keeping out mammalian predators and mesh netting on top to prevent access by avian predators. These exclosures have been effective at keeping predators away from nests, increasing the percentage of clutches hatching from an average of 14.9% prior to exclosure use (1986–1989) to 63.3% (1996–2018) (NPS 2020). NPS has also been issued a depredation permit by the USFWS (#MB11627D-0) that allows for lethal removal of ravens observed actively hunting for western snowy plovers or near plover nesting areas.*

The NPS would continue to actively manage and protect western snowy plover habitat through such measures and also continue to work with ranchers to address the conditions that are likely subsidizing raven populations and supporting unnatural densities. For example, innovating and implementing structural deterrents that limit raven access to ranch-associated food sources (e.g., covering food troughs), installing anti-perching devices, and denying overnight roost opportunities at ranch structures can all aid in attenuating raven-friendly conditions. Additionally, the NPS would continue to work with ranchers to ensure that fencing established to separate grazing cattle from western snowy plover habitat would be maintained and repaired to minimize the potential for trampling

Public access and visitor activities to PRNS beaches may also result in adverse effects to plovers through disturbance of nests, construction of beach driftwood structures that unintentionally serve as perches for predators such as ravens, increased levels of trash that attract scavenging wildlife that may also prey on plovers, and off-leash dogs distressing wildlife in sensitive areas. In response, the NPS plans to continue visitor outreach through its docent program and install interpretive signage to enhance visitor education regarding such issues.

The Commission's ecologist reviewed this information on snowy plovers and found the conclusions to be reasonable.

In summary, the proposed GMPA would provide sufficient protection to existing habitats and species on the federal lands in the planning area to avoid population-level effects to coastal species. Application of the proposed zoning approach would extend protection to particularly vulnerable habitats by reducing the area available to cattle grazing and other ranching-related activities. The implementation of the best practices and the mitigation measures in **Exhibit 6** would help protect particularly sensitive wetland and riparian area species, as well as prevent impacts to other wildlife and their habitats as described above. Management of ranch core activities would include measures to protect existing habitats. Overall, the GMPA would not create any significant disruption of environmentally sensitive habitat values in the coastal zone and would prevent impacts that would significantly degrade such areas.

Therefore, the Commission finds that the zoning and subzoning, ranch leasing and permitting, range management and monitoring, management activities, and ranch complex elements of the proposed GMPA are consistent with Section 30240 of the Coastal Act.

F. Public Access and Recreation

Coastal Act Section 30210 states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Coastal Act Section 30214 states:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

(c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.

Coastal Act Section 30221 states:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

Coastal Act Section 30223 states:

> *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Point Reyes National Seashore and Golden Gate National Recreation Area provide numerous opportunities to explore the wide variety of habitats and scenic areas that the GMPA planning area encompasses. The area's beauty, accessibility, and proximity to the metropolitan Bay Area all contribute to the 2 to 2.5 million visitors annually.

The enabling legislation for the parks require that general public access to the parks shall be free, with no fees or admission charges. The GMPA would retain this requirement; the NPS also notes that its management of campgrounds and concessions outside of the GMPA planning area includes annual reviews of fees to meet criteria for lower cost overnight visitor facilities.

The proposed GMPA contains future public access enhancements that are described in a programmatic fashion. For example, the NPS (2020) states that it would develop additional trails for hiking, biking, and equestrian use, mostly using existing roads, to enhance the existing trail system; many ranches are open to public access but enhanced public signage and trail development would likely increase their use. The NPS (2020) also states that it will pursue opportunities to expand overnight stays, such as through additional drive-in or hike-in camping sites or through use of former ranch complexes for hostels. Additional interpretative signage and exhibits are also generally included in the description of potential public access-related amenities that the NPS plans to pursue in the future. No new roads to access the parks or changes to existing circulation patterns are envisioned in the GMPA.

The NPS is not seeking Commission concurrence with these public access-related elements generally described in the GMPA. The NPS would coordinate with Commission staff once specific projects are developed to determine the appropriate Commission review procedures for such projects. Additionally, as described in Section III.C, the Commission's federal consistency authority also focuses on spillover effects that GMPA activities may have outside of federal lands. In the case of public access at the park units within the GMPA planning area, the level of access provided by NPS is not just a local effect, but will affect the ability of people from across the region and nation to view and experience the coast. Providing additional public access can help relieve overuse at other, nearby coastal recreation areas.

The NPS (2020) describes outdoor recreation and wildlife viewing, including of tule elk, as main draws to the GMPA planning area and states that many visitors pass through the planning area on their way to destinations such as the Point Reyes lighthouse, Tomales Point, and beaches. Birding is also a popular activity. While visitors use ranchlands for wildlife viewing and hiking activities, the NPS (2020) also states that ranching operations can interfere with the enjoyment of the park for such activities—cattle may be found on trails and fences may need repair, for example. Some visitors find the existing ranches objectionable, as well, as indicated in some of the comments received during the preparation of this staff report (see Appendix B).

The NPS (2020) concludes that implementing the ranch management elements of the GMPA would not affect the number of visitors nor the type of quality of visitor experience. The NPS consistency determination states:

> *The Preferred Alternative maintains the same level of access to lands within the planning area and presents conceptual approaches to enhancing public access though improved trail connections and use of administrative roads to support multi-use recreational opportunities. Possible options for expanded day and overnight accommodations include adaptive reuse of existing historic structures that are or become vacant to support concession operations, volunteer accommodations, and other day or overnight use activities. Implementation of future projects such as these is not expected to change annual visitation levels from the approximately 2.5 million visitors per year.*

Ranchlands would retain much of the same character as currently exists, with additional protection for sensitive resource areas as described in previous sections of this staff report. Ranch diversification could introduce new sights or sounds into the landscape, which could negatively affect visitor experiences, but such activities would be largely limited to the ranch core and any resulting effect would be minimal.

The proposed elk management activities are not anticipated to result in changes to visitor experience. Elk would remain in the park as described previously, and the NPS (2020) anticipates that their high visibility would remain at the herd numbers that are proposed. Any elk management measures could result in temporary closures of areas of the park to visitors, but such closures would last for hours at a time, would occur during times of relatively low visitation, and would thus have a minimal impact.

In this action, the Commission is reviewing the GMPA, rather than reviewing all ongoing ranching activities. The GMPA will maintain, or perhaps marginally increase, the amount of public access available in the planning area, as ranch diversification activities, such as ranch tours and farm stays, would expand the types of visitor experiences that would be available. Without the GMPA, ranching would continue; ranchlands would remain open to public access, except portions of ranch core areas which are restricted to protect ranch operations and infrastructure. Thus, implementation of the GMPA would not result in a reduction of public access opportunities.

As part of the development of the GMPA, the NPS assessed a "no ranching" alternative that potentially would provide additional public access to the GMPA area through the elimination of all ranching activities. However, NPS has not chosen that as its preferred alternative for reasons including, but not limited to, the fact that federal law related to the GGNRA and PRNS allow for ranching and that most of the planning area is within historic districts that protect ranching activities. Although there may be opportunities for increased public access in the planning area, either with or without a reduction in ranching activities, the GMPA maintains or slightly increases public access opportunities, consistent with protecting private lease interests and public safety needs, and is therefore consistent with the Coastal Act's public access policies.

Thus, for the reasons stated above, the Commission finds the zoning and subzoning, ranch leasing and permitting, range management and monitoring, management activities, ranch complex, and elk management elements of the proposed GMPA consistent with the Coastal Act's public access policies, including Sections 30210, 30214, 30221, and 30223.

G. CULTURAL RESOURCES

Coastal Act Section 30244 states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The NPS (2020) describes existing archeological resources in the GMPA planning area and its vicinity as follows:

> *The GMP Amendment Planning Area is intersected by two archeological districts, the Drakes Bay Historic and Archaeological District and the Point Reyes Peninsula Indigenous Archaeological District. The Drakes Bay Historic and Archaeological District was designated a National Historic Landmark in 2012…under the National Historic Landmark thematic framework category of Peopling Places, in the areas of significance of maritime history, exploration, and archeology-historic-aboriginal and archeology-historic-nonaboriginal. The district is a nationally significant 16th century landscape associated with the earliest interactions between Europeans and native peoples. Significant under National Register criteria…, the landscape includes 15 California Indian sites, the likely site of Francis Drake's 1579 landing in California, and the 16th century shipwreck of the Spanish galleon San Agustin. The Point Reyes Peninsula Indigenous Archaeological District consists of 72 recorded archeological sites distributed among seven noncontiguous clusters within the boundaries of Point Reyes. The district is eligible for listing in the National Register of Historic Places…for its potential to yield important data on prehistory and on the period of initial contact between Native Americans and European explorers.*

> *Only a small portion of the Drakes Bay Historic and Archaeological District (approximately 8%) occurs within the planning area, and all the archeological resources that comprise the district are located outside the planning area or are excluded from agricultural-related activities by existing resource protection measures. Similarly, the majority of archeological sites that comprise the Point Reyes Peninsula Indigenous Archaeological District are located outside the planning area or have already been excluded from agricultural activities. Only six archeological resources associated with the significance of this district occur in the planning area and have not been excluded from agricultural activities. Two of these resources would be included in the resource protection subzone…, and the remaining four resources are a resource type not vulnerable to impacts from periodic grazing. Future developments related to visitor use and experience considered in the GMP Amendment would consider impacts on these resources as the specific proposals are developed. Moreover, existing park protocols designed to protect archeological resources would be implemented upon discovery of previously unknown archeological resources.*

Thus, in summary, implementing the proposed GMPA is not anticipated to result in direct impacts to known cultural or archeological resources.

As part of developing this staff report, Commission staff reached out to representatives from Native American Tribes understood to have current and historic connections to the project area: the Federated Indians of Graton Rancheria (formerly known as the Federated Coast Miwok) and Guidiville Indian Rancheria. At the time of publication of this staff report, no responses had been received from these Tribes.

One public comment received during the preparation of this staff report raised concerns about the overall lack of NPS efforts to share Coast Miwok history and cultural significance, since Coast Miwok traditional lands are in the GMPA planning area. This letter also described the family history at Pierce's Point, at the northern part of PRNS, and referenced the 1.5 acre "Kule Loklo" site as unable to tell the full story of Coast Miwok who lived near Tomales Bay. The Kule Loklo site is a recreated Coast Miwok village near the PRNS visitor center. It contains a roundhouse and other structures and is the location for an annual gathering with traditional dancing, informational booths, and storytelling related to Coast Miwok culture.

In response to this letter, the NPS (2020b) indicated that it would implement a number of strategies:

- *Work collaboratively with Federated Indians of Graton Rancheria (FIGR) to preserve and interpret the Coast Miwok heritage at Point Reyes.*

- *Explore interpretation and education opportunities that foster an appreciation of historic and prehistoric archeological sites and ethnographic resources and help build long-term support for their preservation.*
- *Continue to preserve archeological sites through active monitoring, stabilization, and maintenance of resource protection infrastructure.*
- *Consult with FIGR on issues related to archeological and ethnographic resources of traditional or cultural importance, and cultural items consistent with the Native American Graves Protection and Repatriation Act of 1990.*

Currently, the interpretation of Coast Miwok history within Point Reyes National Seashore is limited primarily to the park's website, the Bear Valley Visitor Center, Ken Patrick Visitor Center, and Kule Loklo. The direction under the GMPA will be to collaborate with FIGR to enhance/update existing interpretation and expand interpretation and education into other areas of the park in order to tell a more rich and complex history

Any additional concerns raised subsequent to the publication of this report will be included in an addendum to this staff report.

H. AIR QUALITY

Coastal Act Section 30253 states:

New development shall do all of the following:

(c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.

Air quality within the GMPA planning area is generally considered good, given the parks' location on the coast and generally prevailing onshore flow. Exceptions occur during late summer and fall, when offshore flow can bring air from the San Francisco Bay region into the area. Wildfires either in the parks or from locations in the region can contribute to degraded air quality as well. Haze can be prevalent given the amount of sea salts in the air, as well as during times of offshore flow.

The US Environmental Protection Agency has adopted air quality standards (termed National Ambient Air Quality Standards or NAAQS) for six air pollutants: sulfur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3), particulate matter of 10 micrometers and 2.5 micrometers (PM10 and PM2.5), carbon monoxide (CO), and lead. Additionally, nitrogen oxides (NOx) and volatile organic compounds (VOCs) are regulated as precursors to ozone because they can lead to ozone.

The NPS (2020) described its compliance with air quality standards:

> *Marin County is in marginal nonattainment status for O3 (both the 2008 and 2015 standard) and moderate nonattainment status for the PM2.5 2006 standard. As such, the state regulatory agency, the California Air Resources Board (CARB), must develop plans to bring the area back into attainment. Federal agencies undertaking any federal action in a nonattainment area must demonstrate that project-related emissions will not impede the state's ability to bring the area back into compliance with the NAAQS, called a conformity determination. A conformity applicability analysis was completed for this project, and the emissions were below the de minimis levels.*

In its assessment of the potential for ranch-related emissions that could contribute to ozone and PM2.5, the NPS (2020) noted the low number of ranches (18) and residents (188) and resulting relatively low number of ranching operations-related vehicle trips, compared to the population of Marin County. Emissions related to cattle and ranch-related operations (e.g., dust) would continue under the implementation of the GMPA. The NPS concludes that overall air quality would remain similar to existing conditions, and that emissions of particulate matter are modeled to remain below regulatory thresholds for ozone and PM2.5. The mitigation measures in **Exhibit 6** contain dust-control measures that would be implemented during ranching activities.

With respect to greenhouse gas-related emissions, the NPS (2020) acknowledges the Marin County Climate Action Plan, originally adopted in 2015, and its goal of reducing community emissions by 30% below 1990 levels by 2020[15]. The NPS further states:

> *California Senate Bill Number 1383 (SB No. 1383) requires CARB, in consultation with the Department of Food and Agriculture, to adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations. Multiple carbon farming techniques, including range planting, tree/shrub establishment, and riparian forest buffer either already occur in the planning area or are proposed Practice Standards and mitigation measures contained in [**Exhibit 6**].*
>
> *…*
>
> *Although not directly comparable because of methodology differences, the Point Reyes ranching GHG emissions estimate (24,601 MTCO2e) represents approximately 21% of countywide agricultural emissions and 6% of total emissions in the county.*

[15] A draft 2020 update to the Marin County Climate Action Plan includes revised targets of a 40% reduction in GHG emissions below 1990 levels by 2030, and a goal of being carbon neutral by 2045, consistent with Executive Order EO B-55-18 (Marin County 2020).

Dairies account for as much as 50% or more of the emissions of methane, a potent contributor to greenhouse gases, in the entire state of California (CARB 2017). In 2016, state legislation (SB 1383) was adopted, establishing a methane reduction target of 40% below 2013 levels by 2013 and requiring CARB, in consultation with the CA Department of Food and Agriculture (CDFA), to develop and implement strategies to meet this target. In 2017, CARB convened a working group to develop policy recommendations and identify research needs to assist in reducing contributions from dairies. This working group produced a report with recommendations for addressing dairy-related methane emissions, including: financial incentives for methane-reducing practices; studying the market and researching additional opportunities for manure-based products; pursuing the expansion of dairy-related waste digesters; and other research needs[16]. CARB is presently working on implementing these recommendations, such as through efforts with CDFA to provide financial assistance to dairy operators for installing dairy digesters to convert methane to generate electricity (this program has been active in the San Joaquin Valley).

The NPS identifies practice standards and management measures that have greenhouse gas mitigation and/or carbon sequestration benefits on farms and ranches (see the measures indicated in **Exhibit 6** with an asterisk). The NPS (2020) describes these measures as “carbon farming practices” that include Range Planting, Tree/Shrub Establishment, Riparian Forest Buffer, and Manure and Nutrient Management, among others). Additionally, the NPS (2020) states that it “would work with operators to support emission reduction projects compatible with progress toward desired conditions presented in the EIS.”

In summary, the proposed GMPA would result in emissions of the types of air pollutants described above, but such emissions would be in conformance with air quality regulations. As a result, the Commission finds that implementing the proposed GMPA would be consistent with the Section 30253(c) of the Coastal Act.

[16] In addition to this working group, the California Department of Food and Agriculture has a Dairy Digester Research and Development Program that, since 2015, has provides financial assistance for the installation of dairy digesters in San Joaquin Valley to reduce methane emissions.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

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15. National Park Service, U.S. Department of the Interior. 2020b. Summary of Cultural Resources Consultation and Communication with the Federated Indians of Graton Rancheria – Point Reyes National Seashore General Management Plan Amendment. Email transmission from Brannon Ketcham, NPS, to John Weber, Coastal Commission staff, December 15, 2020.

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18. Pawley, Anitra and M. Lay. 2013. Coastal Watershed Assessment for Golden Gate National Recreation Area and Point Reyes National Seashore. National Park Service Natural Resource Report NPS/PWR/NRR—2013/641.

19. San Francisco Bay Regional Water Quality Control Board (RWQCB). 2020a. Tomales Bay Pathogen TMDL. Accessed November 16, 2020. Lagunitas Creek Watershed Sediment TMDL. Accessed November 16, 2020.

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