

EXECUTIVE SUMMARY

This Water Resources Foundation for Planning and Management Report is one of several planning products offered by the NPS Water Resources Division that assist national park units with achieving or maintaining water resource integrity.

Each park is encouraged to prepare a *Foundation for Park Planning and Management* report (Foundation report), which describes its purpose, significance, primary interpretive themes and special mandates, identifying and analyzing those resources and values determined to warrant primary consideration (*Fundamental Resources and Values*) in park planning and management. The Foundation report may be developed as the first stage of a park's general management planning or independently of a General Management Plan (National Park Service, 2004a).

This Water Resource Foundation for Planning and Management report (Water Resources Foundation report) is designed to support development of the Foundation report for Golden Gate National Recreation Area's (GOGA's) planning process and extend as a reference for the General Management Plan, which includes Muir Woods National Monument (MUWO) and Ft. Point National Historic Site (FOPO). Discussions in this report include MUWO since fundamental water resources exist and warrant consideration in GOGA's planning process.

The primary objectives of this report are to 1) provide background for water resources planning, -and 2) build from the park's purpose and significant statements, identifying and describing the fundamental water resources at GOGA ~~and MUWO~~, along with the identification of stakeholders and laws and policies that apply to these fundamental water resources.

Workshops were held to generate *Purpose Statements*, which describe the specific reason(s) for establishing the park and ~~Significance~~ *Statements*, which define what is most important about the park's resources and values and are based on the park purpose

The *Purpose Statement* for GOGA is, "To offer national park experiences to a large urban population while preserving and interpreting its outstanding natural, historic, scenic, and recreational values."

The *Purpose Statement* for MUWO is, "To preserve the primeval character and ecological integrity of the old growth redwood forest for scientific values and inspiration."

One of the GOGA ~~Significance~~ *Statements* that pertains to water resources is, "Protects an undeveloped remnant coastal corridor of marine, estuarine, *fluvial (added for consideration)* and terrestrial ecosystems that support exceptional native biodiversity and

Comment [tlw1]: Should we use GGNRA or GOGA? GOGA OK if this is an NPS-internal document

Comment [tlw2]: Abbreviation OK?

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Comment [tlw4]: It seems awkward to call out Muir Woods throughout the document – does it need to be, given the overall framework of the GMP documents?

provides a refuge of one of the largest concentrations of rare, threatened, and endangered species in the national park system.”

| A *Significance Statement* for MUWO is, “Provides the last remnant old growth forest close to an urban center that retains its primeval character and supports a relatively intact ecosystem, and Muir Woods is an important manifestation of early 20th Century conservation history.”

| Building from these *Significance Statements*, water can easily be defined as a fundamental resource at both GOGA and MUWO. The park’s fundamental water resources have been grouped into four categories, which include some overlap between categories (e.g., wetlands and coastal water resources, ponds and springs). These four categories are:

1. Freshwater streams and ponds
2. Groundwater aquifer and springs
3. Wetlands
4. Coastal and Marine water resources

The importance of water at GOGA and MUWO, justifying the resource as fundamental to the both park units, includes:

- Adequate freshwater flows and water quality are important in the preservation of the numerous rare and endangered species at GOGA and MUWO. The water resources have many beneficial uses including water contact and non-water contact recreation, fish migration and spawning, and municipal water supply.
- Groundwater is important for recharge of surface water systems, including wetlands, supporting rare and endangered species habitat and as a source for municipal and agricultural water supplies.
- Wetlands provide water quality protection, flood and drought mitigation, erosion control, and groundwater recharge function. Wetlands support complex food webs, housing a rich biodiversity of wetland-endemic species, providing habitat functions for many aquatic and terrestrial species.
- The intertidal and subtidal zones of GOGA’s littoral environments are some of the most diverse and productive ecosystems in the world. Coastal habitats are important for the preservation of several rare and endangered species.

| The current conditions and trends of water resources ~~at GOGA and MUWO~~ include:

- GOGA contains three streams listed as impaired by the State (303(d) listed streams: Lagunitas Creek with elevated concentrations of nutrients, pathogens and sedimentation/siltation from agriculture, urban runoff/sewers; Rodeo Creek with elevated concentrations of diazinon from urban runoff/sewers; and San Francisco Creek from urban runoff/sewers and sedimentation from non-point sources.

- Nitrogen concentrations in groundwater samples exceeded EPA recommendations in 41% of the samples collected. The likely sources are from wastewater disposal and irrigation return flow.
- Historic and current alterations to wetlands and other aquatic environments have led to a decrease in functions and species abundance and diversity within.
- San Francisco Bay-Estuary receives less than 50 percent of its historical freshwater inflows, altering the biological communities.

| The potential future threats to water resources ~~at GOGA and MUWO~~ include:

- Water quality degradation will continue to be affected by past, current, and future activities such as: bacteria and nutrient loading from wastewater disposal (septic systems); pollutants from landfills and dredging operations; chemicals from agricultural practices; non-point runoff pollution, including heavy metals from roads, parking lots and stormwater outfalls; radioactive wastes dumped in the Gulf of the Farallones National Sanctuary; sedimentation and bacteria impacts from cattle grazing and equestrian services; saltwater intrusion from overpumping of some shallow aquifers.
- Water quantity alteration, including seasonal timing of flows, will continue to be affected by past, current, and future activities such as: streams dammed to impound surface water, roads and trails concentrating surface runoff, alteration of stream channels from channelization and bank stabilization efforts.

| Interest of Various Stakeholders ~~for GOGA and MUWO~~ include:

- Regional:
 - Golden Gate National Parks Conservancy
 - Green Gulch Farm
 - Marin County Municipal Water District
 - Muir Beach Community Services District
 - San Francisco Bay Conservation and Development Commission
 - San Francisco Bay Regional Water Quality Control Board
 - Stinson Beach County Water District
 - The Presidio Trust
 - Tomales Bay Watershed Council
- State:
 - California Department of Fish and Game
 - California Department of Parks and Recreation
 - California Department of Water Resources
 - California State Water Resources Control Board
- Federal:
 - U.S. Environmental Protection Agency
 - U.S. Fish and Wildlife Service
 - U.S. Geological Survey

Laws and policies that apply to water resources ~~at GOGA and MUWO~~ include:

- Federal

- National Park Service Organic Act (1916)
- Code of Federal Regulations (Title 36)
- Federal Water Pollution Control Act (1972, Clean Water Act)
- Safe Drinking Water Act (1974)
- National Park Service Management Policies (2001)
- Executive Order 11990: Wetlands Protection
- Executive Order 1988: Floodplain Management
- Coastal Zone Management Act (1972)
- Endangered Species Act (1973)

- State

- Porter-Cologne Water Quality Control Act
- State Policy for Water Quality Control
- California Water Code
- California Wetlands Conservation Policy
- Water Quality Control Policy for the Enclosed Bays and Estuaries of California
- Water Quality Control Plan for Ocean Waters of California

It should be noted that the contents of this report are limited to information acquired by the author during the time this report was prepared. As a result, descriptions of the water resources vary in detail.