COASTAL CONSERVANCY

Staff Recommendation
December 19, 2019

SEA OTTER RECOVERY GRANTS 2020

Project No. 08-079-09
Project Manager: Hilary Walecka

RECOMMENDED ACTION: Authorization to disburse up to $165,000 to Aquarium of the Pacific and National Aeronautics and Space Administration (NASA) to implement two separate projects to aid in recovery of the southern sea otter and adoption of findings under the California Environmental Quality Act.

LOCATION: Long Beach, Los Angeles County and Mountain View, Santa Clara County

PROGRAM CATEGORY: Integrated Coastal and Marine Resources

EXHIBITS

Exhibit 1: Project Location Maps, Designs, and Photos

Exhibit 2: Southern Sea Otter 2019 Population Trend and Range

Exhibit 3: California Sea Otter Fund - Summary of Projects

Exhibit 4: Initial Study/Mitigated Negative Declaration for the Aquarium of the Pacific's Facility Enhancement Project

Exhibit 5: Project Letters

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Section 31220 of the Public Resources Code:

"The State Coastal Conservancy hereby authorizes the disbursement of an amount not to exceed one hundred sixty-five thousand dollars ($165,000) to implement two projects to assist in the recovery of the southern sea otter, specifically as follows, to the:

- Aquarium of the Pacific: seventy thousand dollars ($70,000) to construct sea otter surrogacy enclosures, which will enable the Aquarium to rehabilitate and release stranded sea otter pups.

- National Aeronautics and Space Administration (NASA): ninety-five thousand dollars ($95,000) to develop new "smart tag" technology to improve monitoring of existing and translocated sea otter populations.

Prior to commencement of each project, the grantee shall submit for the review and written approval of the Executive Officer of the Conservancy (Executive Officer) the following:

1. A detailed work program, schedule, and budget.
2. The names and qualifications of any contractors to be retained in carrying out the project.
3. A plan for acknowledgement of Conservancy funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.
5. Prior to commencing the project, Aquarium of the Pacific shall enter into and record an agreement pursuant to Public Resources Code 31116(c) sufficient to protect the public interest in the improvements."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with Chapter 5.5 of Division 21 of the Public Resources Code, regarding Integrated Coastal and Marine Resource Protection.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
3. Aquarium of the Pacific is a nonprofit organization organized under section 501(c)(3) of the U.S. Internal Revenue Code, and whose purposes are consistent with Division 21 of the Public Resources Code."

PROJECT SUMMARY:

Staff recommends that the Conservancy disburse $70,000 to Aquarium of the Pacific and $95,000 to the National Aeronautics and Space Administration (NASA) to undertake two separate projects to aid the recovery of the southern sea otter. Aquarium of the Pacific will construct a sea otter surrogacy enclosure area, which will enable the Aquarium to serve as a surrogacy facility for the rehabilitation and release of stranded sea otter pups. NASA will develop new "smart tag" technology, which will improve monitoring of existing and translocated populations to facilitate recovery efforts.

The southern sea otter (*Enhydra lutris nereis*) is an ecologically important species that faces numerous challenges, from disease and shark bite mortality to resource limitations in large

portions of its occupied range. Southern sea otters were hunted to near extinction in the early part of the 20th century and listed as a federally threatened species in 1977. Currently, the population numbers around 2,962 animals inhabiting the near-shore marine environments adjacent to San Mateo County south to Santa Barbara County (Exhibit 2). This is far less than the historic levels estimated at approximately 16,000-20,000 animals, with a range along the entire California coast and south into Baja California. To address this decline and slow recovery, taxpayers can voluntarily contribute to the California Sea Otter Recovery Tax Fund, of which the Conservancy receives approximately half the proceeds for expenditure on projects that will assist in the recovery of sea otters.

In July 2019, the Conservancy solicited project proposals aimed at recovery of the southern sea otter. This solicitation was posted on the Conservancy's website and emailed to multiple organizations involved with sea otter recovery efforts in California. The Conservancy received four proposals, and staff recommends funding the two projects described below.

1. Aquarium of the Pacific's Sea Otter Surrogacy Facilities. Aquarium of the Pacific will construct a sea otter surrogacy enclosure area, which will enable the Aquarium to serve as a surrogacy facility for the rehabilitation and release of stranded sea otter pups. Since the 1980s, the Monterey Bay Aquarium (MBA) has rescued and rehabilitated stranded sea otter pups through their innovative surrogacy program. This program pairs adult female sea otter surrogates with stranded pups for 6-8 months, or until the pups are completely weaned and can be released into the wild. The Monterey Bay Aquarium's surrogacy program has contributed to sea otter recolonization of Elkhorn Slough and increased population numbers in surrounding areas. A recent study found that otters raised through the surrogacy program, and the offspring they produced in the wild, were responsible for over half of the sea otter population increase observed in Central California from 2002-2016.

Although the Monterey Bay Aquarium program has been wildly successful in boosting sea otter population numbers, the MBA is at maximum capacity for its program (able to only rescue and release 3-4 sea otter pups per year) and has been looking for partners that can provide additional surrogacy capacity. The proposed project would enable Aquarium of the Pacific to fill this need by providing additional surrogacy capacity to increase the number of sea otters in the wild.

With Conservancy funding, Aquarium of the Pacific will construct a sea otter surrogacy area within their existing Molina Animal Care Center facilities located at the Aquarium (Exhibit 1, p. 2). The area will be comprised of two separate enclosures: a deck and perimeter fence and filtration and life support systems (Exhibit 1, p. 2). Aquarium of the Pacific will accommodate 3-4 pups per year, thereby doubling the number of sea otter pups that are rescued and subsequently released to the wild, and reducing the rate of stranded sea otter pup euthanasia due to lack of holding.

Upon completion of the proposed project, Aquarium of the Pacific will train their staff and begin to rehabilitate and release sea otters. The Aquarium will utilize MBA's permit from US

Fish and Wildlife Service (USFWS) to release otters at locations determined by MBA and USFWS. In addition, the Aquarium of the Pacific intends to develop interpretative material to educate the Aquarium's 1.7 million annual visitors on its surrogacy program and the significance of recovering southern sea otter populations. The project proposed for Conservancy funding is solely the construction of the sea otter surrogacy facilities.

2. NASA's Smart-Tag Technology. NASA will develop new "smart tag" technology for monitoring existing and translocated sea otters, in order to implement a more cost-effective, higher resolution, and humane methodology for tracking and monitoring sea otter populations.

For decades, tracking of sea otter movement, range use, and survival have relied on traditional radio VHF telemetry technology with transmitters surgically implanted into sea otters. This instrumentation is expensive, invasive to implant in sea otters, labor-intensive (requiring dedicated teams of trackers to find the otters and triangulate their locations), and limited by light, weather conditions, and geography. Additionally, this methodology becomes impractical when sea otters move beyond the areas where they were released and where most telemetry survey efforts occur, thus missing opportunities to observe sea otter movement in new areas. Development of new tagging technologies is a priority recommended action identified in the USFWS's Five-Year Review (2015) of the status of the listed southern sea otter species.

With Conservancy funding, NASA will develop tag technology that will be located on sea otter's flipper. The tags will be able to retrieve and store GPS locations and subsequently communicate that data to network devices ("gateways" or "base stations") that are part of a Long Range (LoRa) radio network used for the Internet of Things where scientists and managers can inexpensively retrieve high-resolution data. This methodology would allow monitoring of a larger area, without requiring a dedicated team of trackers triangulating individual otters. In the future, this smart tag could be modified to collect additional information including depth and time of diving.

USGS and NASA organizations have been working to develop the next-generation smart tags for wildlife tracking since 2016 and have advanced the size, utility and cost of wildlife tracking devices on other animals. This project would build on that innovative work to develop this new technology for the unique requirements of sea otters. Design considerations include: fit with the existing non-invasive sea otter flipper tag, i.e., a Temple Tag® (Exhibit 2), waterproofing, resistance to damage from sea otter bites, weight, solar power, and cost. The proposed project will include smart tag design, range testing in the ocean environment, tag and base station production. If this phase of the project is completed under-budget, NASA will use Conservancy funding to conduct a pilot study to test the tag on wild otters. The pilot study will be operated under a USFWS permit for scientific research, which is pending renewal.

With this new technology, the smart tag is anticipated to reduce the costs of monitoring sea otters and provide high-resolution information on the movement and survival of existing sea otters as well as translocated otters, which will inform recovery efforts. This less invasive technology will provide a safer and more humane way of tracking and studying sea otters.

Site Description: Southern sea otters historically ranged from Oregon to Baja, but currently inhabit only from Santa Barbara County to San Mateo County. They are most common in near shore areas with large kelp beds and over the last 20 years have been found to inhabit salt marshes and eelgrass beds in estuaries. They are generally found in water depths of sixty-five feet or less, facilitating foraging along the ocean floor.

1. Aquarium of the Pacific is located along the waterfront in Long Beach, CA. The sea otter surrogacy enclosures will be built in available space next to the Aquarium's Molina Animal Care Center, which is a 14,000square-foot facility with a veterinary hospital (examination room, surgical suite) and holding areas. Aquarium of the Pacifica is an Association of Zoos and Aquariums accredited institution, that has more than 12,000 animals in its collection, including a large sea otter habitat and exhibit with four female sea otters in its care. Over 1.7 million visitors come to the Aquarium of the Pacific annually.

2. NASA's project to develop the design and production of the new smart tag technology will be conducted at the NASA Ames Research Center at Moffet Field in Mountain View, CA. The pilot study to test the effectiveness of the new technology, which involves the capture, tagging, and release of sea otters, will occur in Monterey Bay and around Monterey Peninsula where the otters can be easily monitored.

Grantee Qualifications:

1. Aquarium of the Pacific has the expertise to complete construction of the proposed sea otter surrogacy enclosures, as it has successfully developed and implemented a number of construction projects over the past 21 years, from $53 million capital expansions to exhibit upgrades. In addition, Aquarium of the Pacific is qualified to host a sea otter surrogacy program due to (1) its extensive experience with Southern sea otters, (2) its relative geographic proximity to both Monterey Bay Aquarium and the existing southern sea otter range, and (3) its team of highly qualified marine mammal staff. The Aquarium of the Pacific's marine mammal team has been providing care for southern sea otters for over 20 years. Aquarium of the Pacific has the operating budget to provide ongoing support for the program, including maintenance of the enclosures, staffing, and animal care expenses. The Conservancy has successfully completed a prior project with the Aquarium of the Pacific to develop a new exhibit, "Our Watershed Story".

2. NASA Ames Research Center is qualified to develop new smart tag technology for sea otters as it has in-house expertise in hardware and software engineering. Since 2016, NASA has been partnering with USGS to develop and advance wildlife tracking technologies. NASA has worked with USGS on a number of recent collaborative, jointly-funded projects, including the development of a miniaturized, 3D-printed battery technology to enable tracking of songbirds. NASA routinely manages scientific, engineering, and technology projects ranging from small (less than $100,000) to large (greater than $100 million).

Project History: In 1972, Congress passed the Marine Mammal Protection Act prohibiting the take of protected marine mammals in U.S. waters, including the southern sea otter. In 1977,

the southern sea otter was placed on the federal endangered species list as a threatened species. In 1982, the US Fish and Wildlife Service (USFWS) released a sea otter recovery plan. The threshold for southern sea otters to be considered for de-listing from the federal endangered species list is if the population exceeds 3,090 individuals for three consecutive years. This was achieved from 2016-2018. The population slightly declined each year throughout this term but remained above the 3,090 individual threshold.

Currently, the USFWS is conducting a full analysis pursuant to the criteria of the Federal Endangered Species Act to determine if threats to the species have been sufficiently ameliorated to warrant delisting. Results from this year's (2019) sea otter population count have revealed the population has dropped to 2,962 individuals, below the threshold. The reduction in population is consistent with observations of elevated shark-bite mortality in the northern and southern regions of the otter's range.

In 2006, the California legislature passed AB 2485 after concerns about the slow pace of sea otter recovery prompted environmental groups to lobby for legislation to address this problem. Among other provisions, this bill established the California sea otter tax check-off fund (see Project Financing below). Fifty percent of the funds (after administration costs taken by the Controller and Franchise Tax Board) may be used by the Conservancy for sea otter-related projects, as described in the Financing section below. The remaining 50% is provided to the Department of Fish and Wildlife for sea otter-related purposes.

Since 2008, the Conservancy has provided $1.3 million of sea otter tax check-off funds for projects to aid in the recovery of southern sea otters. Conservancy staff has worked closely with the Sea Otter Alliance, a multi-agency partnership focused on sea otter recovery, and other stakeholders to identify high priorities for tax-check off funding. Projects funded to date include critical research for sea otter recovery, education, and reduction of environmental stressors impacting sea otters (Exhibit 4) and the projects recommended for funding this year build on the sea otter recovery research and programs from previous years.

PROJECT FINANCING

Coastal Conservancy	**$165,000**
Aquarium of the Pacific (pending)	$212,350
BP Foundation	$40,000
Monterey Bay Aquarium	$12,000
U.S. Geological Survey	$8,000
CA Department of Fish and Wildlife	$8,000
Project Total	**$445,350**

The anticipated source of Conservancy funds for these projects is an appropriation from the California Sea Otter Fund. Established in 2006, the California Sea Otter Fund is an income tax check-off program allowing taxpayers to dedicate funds to facilitate sea otter recovery. (Revenue and Taxation Code (RTC) § 18754). The funds may be used for "research, science, protection projects or programs related to the Federal Sea Otter Recovery Plan or improving the nearshore ocean ecosystem, including, but not limited to, program activities to reduce sea otter mortality." (RTC § 18754.2(a)(3)). The "Final Revised Federal Southern Sea Otter Recovery Plan" (2003) states that "[t]he primary objectives of this recovery plan are to create the conditions that will allow the southern sea otter to increase in numbers and distribution and to identify appropriate conservation actions to address the threats to this species". The proposed authorization is consistent with the requirements of the California Sea Otter Fund in that funds will be used to further the objectives of the *Final Revised Federal Southern Sea Otter Recovery Plan* (2003) as described below:

1. Aquarium of the Pacific's Sea Otter Surrogacy Facilities: This proposal will help to advance the *Federal Recovery Plan for the Southern Sea Otter* by increasing southern sea otter populations in the wild through the expansion of the current sea otter surrogacy program and increasing the number of sea otter pups that can be rescued and subsequently released to the wild.

2. NASA's Smart-Tag Technology: This proposal will help to advance the *Federal Recovery Plan for the Southern Sea Otter* to monitor existing and translocated populations by improving methods for monitoring. The US Fish and Wildlife Service completed a five-year review of the status of the southern sea otter in 2015, as required by section 4(c)(2) of the Endangered Species Act, and the first recommended action identified includes "the development of new tagging technologies" to monitor existing and translocated populations. This project will directly implement this action by developing new tagging technologies to monitor sea otters.

RTC Section 18754.2(b) requires the Conservancy to solicit available federal, private, matching, and other dollars to maximize or leverage funds benefitting sea otters. For the Aquarium of the Pacific project, matching funds from a BP Foundation grant ($40,00) along with Aquarium of the Pacific's capital budget and fundraising efforts ($212,350) will cover costs to complete construction of the sea otter surrogacy enclosures. In addition to these matching funds, Aquarium of the Pacific is also committing $22,600 to train and develop staff to implement the sea otter surrogacy program and $73,900 of its annual operating budget to run the sea otter surrogacy.

Illustrative of the partnership to implement the NASA project, matching funds have been committed by the Monterey Bay Aquarium ($12,000), US Geological Survey ($8,000), and CA Department of Fish and Wildlife ($8,000) to fund development of the smart tags. In addition, the proposed project leverages approximately $500,000 in prior and ongoing investment by NASA and USGS in miniaturized wildlife tracking tag technology development.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

These projects are consistent with Division 21, Chapter 5.5 (Coastal and Marine Resources) of the Conservancy's enabling legislation (Public Resources Code § 31220).

Under Section 31220 of the Public Resources Code, the Conservancy may undertake water quality and living marine resource protection projects that meet any of the objectives specified in subsection (b) of that section. Consistent with Section 31220(b)(3) which authorizes projects that "[r]educe[] threats to coastal and marine fish and wildlife", the Aquarium of the Pacific project will enable them to rehabilitate stranded sea otter pups and release them back into the wild, which will directly reduce the threat of death to these sea otter pups. The NASA project, to develop new "smart tag" technology for the monitoring of sea otters, is consistent with Section 31220(b)(5), which authorizes projects that provide for monitoring of marine wildlife, which facilitates the protection of resources within the coastal zone. Consistent with this section, the project will be implemented in consultation with the CA Department of Fish and Wildlife (Exhibit 5). As required by Section 31220(a), the Conservancy has consulted with the State Water Resources Control Board to ensure consistency with Section 30915 of Chapter 3 of Division 20.4 of the Public Resources Code regarding the Clean Beaches Program.

CONSISTENCY WITH CONSERVANCY'S 2018-2022 STRATEGIC PLAN
GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 6, Objective H**, of the Conservancy's 2018-2022 Strategic Plan, the proposed authorization will result in two projects that will support the recovery of the southern sea otter.

CONSISTENCY WITH CONSERVANCY'S
PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed projects are consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on October 2, 2014, in the following respects:

Required Criteria

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Promotion and implementation of state plans and policies:** The proposed projects would advance the objectives of the US Fish and Wildlife Service (USFWS) 2003 Final Revised Recovery Plan for the Southern Sea Otter (see "Project Financing" section). Under the terms

of a 1991 cooperative agreement between the California Department of Fish and Wildlife and USFWS, the State will assist in pursuing the objectives of federal recovery plans.

4. **Support of the public:** Support for the project comes from the Monterey Bay Aquarium, US Geological Survey, CA Department of Fish and Wildlife, and US Fish and Wildlife Service (Exhibit 5).
5. **Location:** The Aquarium of the Pacific's proposed project will be located within the coastal zone of Los Angeles County. NASA's proposed project will be located at NASA Ames Research Center in Mountain View, outside the coastal zone, but will benefit sea otters within the coastal zone from San Mateo to Santa Barba counties.
6. **Need:** Sea otter populations are recovering at a slow pace, and Aquarium of the Pacific's surrogacy program will double the number of pups being released every year, making a significant contribution to the sea otter population. Without new smart tag technology NASA proposes to develop, tracking costs to monitor sea otters will remain high due to the intensive labor required and antiquated equipment. The new technology will enable recovery efforts to better monitor existing and translocated populations.
7. **Greater-than-local interest:** Projects will aid in the recovery of the southern sea otter, an endangered, charismatic, and keystone species.
8. **Sea level rise vulnerability:** According to COSMOS 3.0 modeling, the location proposed for the Aquarium of Pacific's sea otter surrogacy enclosures are not expected to be vulnerable to 5 feet of sea-level rise with a 100-year storm. NASA's smart tag technology project involves developing new technology and is not a project susceptible to the impacts of sea-level rise.

Additional Criteria

9. **Leverage**: See the "Project Financing" section above.
10. **Innovation**: Both proposed projects demonstrate innovative approaches to sea otter recovery efforts. Aquarium of the Pacific's sea otter surrogacy efforts will implement the Monterey Bay Aquarium's novel methodology of rehabilitating stranded sea otter pups for release back into the wild using surrogate sea otter mothers and disguised human staff, so the pups do not habituate to humans. In addition, NASA will develop innovative smart tag technology to advance the existing antiquated tracking technology used to monitor sea otters. The new technology will utilize modern GPS capabilities and the Internet of Things to achieve high resolution and cost-effective monitoring of sea otters.
11. **Readiness**: The proposed grantees are ready to move forward with the projects immediately.
12. **Cooperation**: These projects can move forward because of the cooperation between the Aquarium of the Pacific, Monterey Bay Aquarium, NASA, USGS, and CDFW. The Sea Otter

Alliance, a multi-agency and organizational partnership has been crucial in fostering collaborative efforts for sea otter recovery.

13. **Minimization of greenhouse gas emissions:** The proposed authorization is not expected to have any long-term greenhouse gas emissions. The two proposed projects have the potential to generate short-term greenhouse gas emissions associated with vehicles used to ship materials and to travel to and from locations. The Aquarium of the Pacific's Molina Animal Care Center facility is partially powered by 40kw solar panels, and the Aquarium of the Pacific buys carbon offsets for any vehicle travel. Aquarium of the Pacific has reduced its carbon emissions by 30 percent over the past ten years and has registered all its greenhouse gas emissions with The Climate Registry since 2006.

CEQA COMPLIANCE:

1. **Aquarium of the Pacific's Sea Otter Surrogacy Facilities**: Staff has independently evaluated the Initial Study/Mitigated Negative Declaration (IS/MND) for the Aquarium of the Pacific's Facility Enhancement Project adopted in 2006 by the City of Long Beach. The proposed project is part of the husbandry and veterinary care elements of the facility enhancement project described in the IS/MND. Staff concurs that the there is no substantial evidence that the proposed project will have a significant effect on the environment.

The IS/MND identified potentially significant short-term construction impacts in the following areas: Air Quality, National Pollution Discharge Elimination System (NPDES), Noise, and Public Safety. Mitigation measures were identified for each potentially significant impact that will avoid, reduce, or mitigate the potential impacts to a less-than-significant level. Potential impacts and mitigation measures are summarized below.

Air Quality

The proposed facilities in and of themselves will not exceed air quality standards; however, construction-related activities will generate fugitive dust. To minimize these potential impacts, the project will adhere to dust control measures that reduce the amount of particulate matter entrained in the ambient air.

National Pollution Discharge Elimination System (NPDES)

Storm drains in the area discharge directly to the ocean without treatment. To minimize the negative impacts of this project's construction activities on stormwater quality, construction activities will adhere to the Storm Drain Master Plan for the facilities and appropriate BMPs. The selected BMPS will be installed, monitored, and maintained to ensure their effectiveness and no runoff from paved areas will be diverted into storm drains.

Noise

To minimize potentially significant adverse noise impacts that could occur due to construction, construction hours will be restricted to weekdays from 7 am to 7 pm and Saturdays 9am to 6 pm.

Public Safety

To prevent adverse impacts on public safety during construction, the Aquarium and its contractors will assure that the public does not have access to the construction site, construction materials or equipment throughout the period of construction.

Conservancy staff evaluated whether the project has changed since adoption of the CEQA document that would require a new evaluation pursuant to 14 Cal. Code Regs. §15162. There are no significant changes in the project or in the circumstances under which the project will be undertaken, and no new information, that would trigger the need for a subsequent or supplemental mitigated negative declaration pursuant to section 15162. Accordingly, no further CEQA documentation is required. Staff therefore recommends that the Conservancy find that the project as mitigated avoids, reduces or mitigates the possible significant environmental effects to a level of less-than-significant and that there is no substantial evidence that the project will have a significant effect on the environment as defined by 14 Cal. Code Regs. §15382.

Upon approval of the project, Conservancy staff will file a Notice of Determination.

2. **NASA's Smart-Tag Technology**: The proposed project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Title 14 California Code of Regulations (CCR) section 15306 (Information Collection), which exempts the "basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." Implementation of the project includes design, production, and testing of the new smart tag technology—none of which, including the pilot study, will result in serious or major disturbance to an environmental resource.

Upon approval of the project, Conservancy staff will file a Notice of Exemption.