

# Grant Application



Molly Dumas

**Email :** molly.dumas@aquarium.org

**Application ID :** A9DM39

**Custom Ref. -**

**Application Start Date:** 2021-07-27 22:43:28

**Application Completed Date:** 2021-07-29 16:47:48

1 Have you ever applied for an OWF grant before?

yes

1.1 What was the name of the project?

Dive Video camera for Aquarium

2 Have you ever been denied for an OWF grant before?

no

3 Project Title

Dive Propulsion Vehicles for Research & Collection

4 Name of my Organization

Oregon Coast Aquarium

5 If your organization is not a tax-exempt nonprofit, please list the name of your fiscal sponsor

-

If this does not apply to you, write N/A

n/a

6 Project Manager Full Name

Jim Burke

7 Project Manager Mailing Address

-

Please enter full address with city, state & zip

2820 SE Ferry Slip Rd, Newport OR 97365

8	Project Manager Phone Number
	541.283.1160
9	Project Manager Email Address
	jim.burke@aquarium.org
10	Please provide a brief biographical statement about yourself
	James M. Burke, Director of Husbandry, worked in marine science for 6 years prior to joining the Aquarium in 1997. He supervises staff and volunteers who attend to the wellbeing of the Aquarium's 15,000 animal collection. He possesses a BS degree in Marine Biology from University of Rhode Island, and advanced diver certifications. He collaborates with an expansive network of veterinary, non-profit and governmental agencies to provide critical care and rehabilitation of stranded, injured, threatened and endangered marine wildlife. Jim leads the Aquarium dive program, collaborating with OSU and ODFW to conduct research and monitor sea life in Oregon's five marine reserves. His SMURF team ( Standard Monitory Units for Recruitment of Fishes) has been searching for and documenting the (possible) recovery of the sunflower star, Pycnopodia helianthoides. Pycnopodia, a keystone species in the Pacific Northwest, was decimated by Sea Star Wasting Syndrome (SWS) in 2014.
11	Provide any social media handles you use - Enter social handles or URLs such as instagram, facebook, twitter, youtube, etc. so that we can use to cross promote on our channels - if you do not have any, please place N/A
	<a href="https://www.facebook.com/OregonCoastAquarium/">https://www.facebook.com/OregonCoastAquarium/</a> , <a href="https://www.instagram.com/oregoncoastaquarium/">https://www.instagram.com/oregoncoastaquarium/</a> , <a href="https://twitter.com/orcoastaquarium">https://twitter.com/orcoastaquarium</a> , <a href="https://www.youtube.com/user/OrCoastAquarium">https://www.youtube.com/user/OrCoastAquarium</a> ,
12	Please indicate if you are currently following Oregon Wildlife Foundation on our social media channels
	- None of these channels
13	Total estimated project cost
	11928
14	Funding that you are requesting from OWF - If you're request if for more than \$5,000, please contact Tim Greseth - <a href="mailto:tim@myowf.org">tim@myowf.org</a> before submitting your application.
	5000
15	What type of project are your proposing?
	Wildlife
16	Will your project address an Oregon Conservation Strategy habitat or species?
	yes

16.1	What habitat or species is addressed?	Oregon Coast Marine Reserve species, including sea stars
17	Start date of project- Day/Month/Year	01-10-2021
18	End date of project	01-10-2022
19	Location of project	2820 SE Ferry Slip Rd, Newport, OR, USA
20	Has a local, state or federal biologist reviewed this project?	yes
20.1	What is their name and contact info?	Cristen Don, Marine Reserves Program Leader, ODFW, 541.867.7701 ext. 228, cristen.n.don@state.or.us
21	Have you already or will you obtain necessary permits from all requisite agencies as applicable to proposed project?	yes
22	What will the requested funds be used for?	Purchase two DPVs, camera mount, batteries, battery chargers, and Nautilus GPS

The Oregon Coast Aquarium Dive Program seeks funds to purchase two DiveX Piranha Diver Propulsion Vehicles (DPVs). DPVs extend a dive team's geographic reach underwater. This confers fundamental ability to cover more ground, access previously unreachable sites, decrease underwater travel time, and increase time for videography. These advantages translate into tangible gains for the field dive program: 1. Research Surveys: Increasing the dive team's capabilities can expand collaborations with surveyors. Using DPVs can help surveyors collect more data in more remote areas. 2. Animal Collections: Divers can cover greater territory to locate valuable low-density species, and increases the achievable yield of specimens collected per dive. 3. Promotional Photo/Video: Underwater camera procured with OWF grant in 2019 mount securely to the DPV. Filming from a DPV results in dynamic, sweeping action shots that enliven an otherwise static video feature. DPV speed allows for extended contact with animals that would otherwise outswim a diver. This procurement would directly support the Aquarium's strategic initiatives: • Explore and expand on research partnerships with ODFW, OSU and other collaborators • Refresh exhibits to deliver memorable guest experiences by affording them a view of species unique to Oregon • Enhance key conservation focus areas such as dive-based research, marine debris, marine reserves, ocean acidification and climate change • Better communicate our mission and conservation messages to visitors members, and the community through updated interpretation • Be a recognized authority and a trusted resource for the health of the ocean and its inhabitants. DPVs can immediately be put to use by the research arm of the OCAq dive program in searching for and documenting the possible recovery of the sunflower star, *Pycnopodia helianthoides*. *Pycnopodia*, a keystone species in the Pacific Northwest, was decimated by Seastar Wasting Syndrome (SWS) in 2014. The trophic cascade effects of its elimination have unbalanced local food webs. *Pycnopodia* populations seem to be recovering in other states, but Oregon's offshore environment is explored so rarely by divers that little to no data about recovery in local waters is known. To search offshore environments for such a rare species necessarily requires divers survey great amounts of territory to be effective. DPVs enable this research, and can potentially contribute to scientific understanding of what variables (depth, temperature, etc.) limit or promote the recovery of *Pycnopodia*. A DPV reduces the dive team's underwater travel time to and from superior collection grounds, targeting animals which are low in density, spatially distanced, and conspicuous enough in size, shape, or color to be spotted readily. Species diversity is highly valuable to Aquarium exhibitry or encounter programs, connecting visitors personally with the Oregon Coast, and fostering stewardship.

24 Upload pre-project pictures or a video -

By submitting these photos or video I warrant that I am the legal owner of this media and grant the Foundation permission to reproduce, exhibit, or publish them for all general purposes in relation to Oregon Wildlife Foundation's work. If you have questions about photo or video submissions please refer to [myowf.org/grants](http://myowf.org/grants) for guidance.



28 I understand that I am required to submit a Project Completion Report, copies of any publications or social media posts crediting the Foundation's support, and post-project pictures at the completion of my project

yes

**Powered by [Submit.com](https://submit.com)**

— Grant Application

Molly Dumas

Application ID: **A9DM39**

1 Are the eligible?

No Answer Provided



2820 SE Ferry Slip Rd Newport OR 97365 / 541.867.3474 / [www.aquarium.org](http://www.aquarium.org)

**CONTACTS:**

Jim Burke, Dir. of Animal Husbandry, [jim.burke@aquarium.org](mailto:jim.burke@aquarium.org), 541.283.1160

Carrie E. Lewis, President/CEO, [carrie.lewis@aquarium.org](mailto:carrie.lewis@aquarium.org), 541.867.3474

Molly G. Dumas, Dir. of Development [molly.dumas@aquarium.org](mailto:molly.dumas@aquarium.org), 541.283.1106

**501(C)(3) EIN #:** 93-0877807      **YEAR ESTABLISHED:** 1984

**REQUEST:** \$5,000    **PROJECT BUDGET:** \$11,928      **ORGANIZATION MATCH:** \$6,928

**PROJECT TITLE:** Diver Propulsion Vehicles for Aquarium Research & Collection

**MISSION:** Our mission is to create unique and engaging experiences that connect people to the Oregon coast and inspire ocean conservation.

**ORGANIZATIONAL BACKGROUND:** The Oregon Coast Aquarium is a captivating destination and a trusted resource for ocean education and conservation in the Pacific Northwest. More than a tourist destination, we connect people with the Pacific and its marine life, and inspire them to protect the sea and its inhabitants. Our onsite, online and outreach education programs typically reach more than 525,000 people per year. The ocean science curriculum we develop aligns with Next Generation Science standards as well as NOAA's ocean literacy principles. Collaborating with NOAA, ODFW's Marine Reserve Program and several Oregon colleges, the Aquarium's Dive Program facilitates research opportunities and in-field learning experiences for scientists, interns and students interested in conservation education, environmental impact, animal care and wildlife rehabilitation. Behind the scenes of the Aquarium's exhibits and programs is a network of wildlife agencies whose volunteers, staff and medical professionals provide a safety net for the ocean's most vulnerable species. Working in tandem with organizations across the country, the Aquarium provides critical care to rescued or injured birds, aquatic mammals and other endangered marine animals.

**PROJECT SUMMARY:** The Oregon Coast Aquarium Dive Program seeks funds to purchase two DiveX Piranha Diver Propulsion Vehicles (DPVs), battery packs, chargers, camera mounts and marine rescue GPS. DPVs extend a dive team's geographic reach underwater. This confers fundamental ability to cover more ground, access previously unreachable sites, decrease underwater travel time, and increase time for videography. These advantages translate into tangible gains for the field dive program:

- 1. Research Surveys:** Increasing the dive team's capabilities can expand collaborations with surveyors. Using DPVs can help surveyors collect more data in more remote areas.
- 2. Animal Collections:** Divers can cover greater territory to locate valuable low-density species, and increases the achievable yield of specimens collected per dive.
- 3. Promotional Photo/Video:** Underwater camera procured with OWF grant in 2019 mount securely to the DPV. Filming from a DPV results in dynamic, sweeping action



shots that enliven an otherwise static video feature. DPV speed allows for extended contact with animals that would otherwise outswim a diver.

Procurement of DPVs would directly support the Aquarium's strategic initiatives:

- Explore and expand on research partnerships with ODFW, OSU and other collaborators
- Refresh exhibits to deliver memorable guest experiences by affording them a view of species unique to Oregon
- Enhance key conservation focus areas such as dive-based research, marine debris, marine reserves, ocean acidification and climate change
- Better communicate our mission and conservation messages to visitors members, and the community through updated interpretation
- Be a recognized authority and a trusted resource for the health of the ocean and its inhabitants

**PROJECT IMPLEMENTATIONS:** The Aquarium does not currently possess DPVs for its Dive Program. The maintenance cost is minimal: Each DPV requires 4 DeWalt cordless drill batteries, which can be recharged. The purchase of 2 Nautilus Marine Rescue GPS units is highly recommended. Due to the speeds of travel and relatively great distances DPVs enable, a proportionately higher risk exists for divers becoming separated from the dive research vessel. Nautilus units enable the divers to track each other, and to broadcast their GPS position at the surface to ships up to 34 miles away - specifically to the Aquarium's *Gracie Lynne* vessel.

DPVs can immediately be put to use by the Aquarium dive program in collaborative research projects, in searching for and documenting endangered marine species, in collecting new exhibit species, and in promoting the Aquarium's conservation efforts:

**Sunflower Star Keystone Species Recovery Research:** The Aquarium has been tracking the possible recovery of the sunflower star, *Pycnopodia helianthoides*. *Pycnopodia*, a keystone species in the Pacific Northwest, was decimated by Seastar Wasting Syndrome (SWS) in 2014. The trophic cascade effects of its elimination have unbalanced local foodwebs. One of its chief prey species, the purple urchin (*S. purpuratus*), have experienced population explosions tied to the removal of a top predator. Urchins feed on kelp, and their population booms correspond to the clear-cutting of kelp forests. This habitat destruction has far-reaching consequences for fish and invertebrate populations, and particularly for threatened abalone, which are outcompeted for kelp food sources.

While SWS decimated *Pycnopodia* populations in Washington and British Columbia, it altogether eradicated *Pycnopodia* in Oregon - to the point at which a single sighting is considered reportable. *Pycnopodia* populations seem to be recovering in other states, but Oregon's offshore environment is explored so rarely by divers that little to no data about recovery in local waters is known. To search offshore environments for such a rare species necessitates divers survey larger territories to be effective. DPVs will enable access for this research, and can potentially contribute to scientific understanding of what variables (depth, temperature, etc.) limit or promote the recovery of *Pycnopodia*.

**Diversify & Enhance Exhibits:** DPVs are perfectly suited to remedy many of the inefficiencies of animal collection dives. Collection expeditions require days of effort to prepare, run, and breakdown. Yet given the limitations imposed by breathing gas supply, nitrogen gas loading, and hypothermia, the actual underwater time per diver is restricted to a matter of minutes per dive — sometimes less than 20

minutes — and less than 2 hours per day. Within this time frame, a diver must travel underwater from the downline to fertile collection grounds, and save equivalent time for the return journey. Although 2 buddies are present on each dive, 1 buddy must operate a cave reel so the team has a breadcrumb trail to return — and thus that buddy is too preoccupied to collect. Depending on the drop, divers may find fertile collection grounds out of reach on a given dive, or may find collection grounds sparse and separated by significant distances. For low-density species, this results in modest collection yields.

A DPV reduces the dive team's underwater travel time to and from superior collection grounds, targeting animals which are low in density, spatially distanced, and conspicuous enough in size, shape, or color to be spotted readily. Species diversity is highly valuable to Aquarium exhibitry or encounter programs, connecting visitors personally with the Oregon Coast, and fostering stewardship.

Below is a sample of species targeted by DPV collections: *Clockwise from top left*: Fish-eating anemones (*Urticina piscivora*); Basket stars (*Gorgonocephalus eucnemus*); Puget Sound king crab (*Lopholithodes mandtii*); Sea pens (*Ptilosarcus gurneyi*); Orange peel nudibranch (*Triopha catalinae*); Giant Pacific octopus (*Enteroctopus dofleini*)

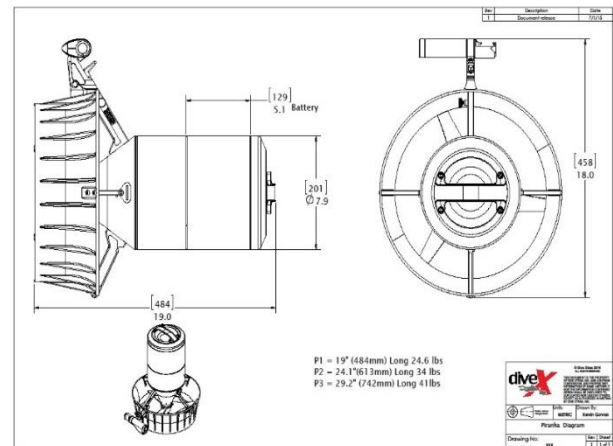


**Educate the Visiting Public about the Oregon Coast:** The offshore Oregon environment is arguably the least visually-documented of any diveable region in the United States. Underwater video collected by the Aquarium scientific dive team can bring the wild, dynamic ecosystems of our coastal waters to Aquarium guests, membership, and the wider public. Propelled through kelp forests, along rocky reefs, and circumnavigated around underwater pinnacles using DPVs, the Aquarium dive team will visually document the diversity of Oregon's offshore environment. Sweeping shots taken with the Aquarium's state-of-the-art underwater video equipment will connect Oregonians to the spectacular ecosystems in their own backyard, promoting engagement and fostering a conservation mindset.



Clockwise from top left: DiveX Piranha P1 DPV; DiveX professional camera mount; DeWalt 20v 5.0 ah battery two-pack; Lasica Dual Battery Charger; Nautilus Marine Rescue GPS

**Specifications:** The DiveX Piranha P1 DPV is selected as the make & model of choice. The DiveX Piranha P1 DPV platform is upgradable to a P2 or P3 Piranha DPV with the addition of 1 or 2 battery modules, respectively should the dive team find need for increased run times and cruise ranges in the future, battery modules can be added onto the existing DPV frame. Piranha DPV batteries are removable (not hardwired-in / built to the frame), thus the Aquarium can opt to purchase more batteries at a later date, doubling or tripling the cruise range and in-field time. Two buddy teams (four divers) could swap the same two DPVs back and forth between alternating dives, with one team resting while the other team dives. The Piranha DPV series comes with a camera mount option built into the frame. A DiveX Professional Camera Mount is suitable for the Aquarium’s Nikon D850 underwater videocamera, purchased in 2020 using grant money from OWF. This will enable the dive team to collect footage for social media or research projects.



<b>DiveX Piranha P1 DPV Specifications</b>	
Depth Rating	600 ft.
Weight	24.6 lbs.
Max Thrust	73 lbs.
Max Speed	268 ft./min
Range at Max Speed	1.2 miles (1.9km)
Run Time at Max Speed/Max Drag	24 minutes
Cruise Range (150ft/min.)	3.5 miles (5.8km)
Run Time at Cruise Speed	122 minutes

**PROJECT BUDGET:**

<b>EXPENSE</b>	<b>Price</b>	<b>Quantity</b>	<b>Total</b>
DiveX Piranha P1 DPV	\$4,995	2	\$9,990
DiveX professional camera mount	\$750	1	\$750
DeWalt 20v 5.0 ah battery 2-pack	150	4	\$600
Lasica Dual Battery Charger	\$47.50	4	\$190
Nautilus Marine Rescue GPS	\$199	2	\$398
<b>TOTAL EXPENSE</b>			<b>\$11,928</b>

<b>REVENUE</b>	<b>Type</b>	<b>Status</b>	<b>Amount</b>
Oregon Wildlife Foundation	Grant	Pending	\$5,000
Charles Engelhard Foundation	Grant	Received	\$5,000
Misc. Undesignated Aquarium Donations	Individuals	Received	\$1,928
<b>TOTAL REVENUE</b>			<b>\$11,928</b>

<b>OPERATING BUDGET</b>			
<b>Fiscal Year</b>	<b>Total Revenue</b>	<b>Total Expense</b>	<b>Surplus/Deficit</b>
2018-19 Actual	\$10,042,215	\$9,541,387	\$500,828
2019-20 Actual	\$7,680,699	\$8,165,852	\$(485,183)
2020-21 Budget	\$9,860,850	\$8,214,687	\$1,646,163
2020-21 YTD Actual	\$12,223,906	\$4,580,751	\$7,643,155



# Oregon

Kate Brown, Governor

**Department of Fish and Wildlife**  
South Willamette Watershed District Office  
7118 NE Vandenberg Avenue  
Corvallis, OR 97330  
(541) 757-4186  
FAX (541) 757-4252

Jim Burke, Director of Animal Care and Life Support  
Oregon Coast Aquarium  
2820 SE Ferry Slip Road  
Newport, OR 97365



February 4, 2019

Dear Mr. Burke,

I would like to provide my letter of support for the Oregon Coast Aquarium's new initiative to expand capacity to further create engaging experiences to inspire ocean education and conservation. I can particularly speak to the fact that the Oregon Coast Aquarium has been a partner to the Oregon Department of Fish and Wildlife for many years, including research at sea, outreach, and supporting shared conservation goals. The Oregon Coast Aquarium's planned expansion will increase capacity of the Aquarium to perpetuate and enhance the shared coastal goals of ocean literacy, stakeholder education and marine conservation. The Aquarium's thousands of local and international visitors annually also ensures that these messages are shared beyond just Oregonians.

The Aquarium's planned Wildlife Education facility will further enhance the Aquarium's ability to demonstrate the value of Oregon's marine wildlife, a goal that aligns with ODFW's mission to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. After this expansion, we also expect that the Aquarium will continue to be a key partner in research and conservation that benefits Oregon's diverse and unique natural resources.

Marine conservation requires a joint effort between many institutions, agencies, facilities and concerned stakeholders. The Oregon Coast Aquarium is one such facility, which serves in many regards as a hub for marine conservation along the Oregon coast. Facilities such as the Oregon Coast Aquarium will become increasingly important in the near future as we face new challenges in ocean natural resource conservation. For this reason, I provide my professional testament to the value of Oregon Coast Aquarium's planned expansion.

Sincerely,

Dr. Sheanna Steingass  
Marine Mammal Program Leader  
Oregon Department of Fish and Wildlife



# Oregon

Kate Brown, Governor

**Department of Fish and Wildlife**  
Marine Resources Program  
2040 SE Marine Science Drive  
Newport, OR 97365  
(541) 867-4741  
FAX (541) 867-0311  
[www.dfw.state.or.us/mrp/](http://www.dfw.state.or.us/mrp/)

January 29, 2019



To Whom It May Concern,

I am the Research Project Leader for the Oregon Department of Fish and Wildlife's (ODFW's) Marine Reserve Program, and the Oregon Coast Aquarium is a key collaborator and contributor to science and education in our community. ODFW is the lead agency responsible for overseeing the scientific monitoring and management of Oregon's five marine reserve sites that have been designated within the state's nearshore waters. The Oregon Coast Aquarium has played a critical role in supporting the development of our long-term scientific monitoring program since the inception of our program in 2010. Together we have successfully developed a scientifically rigorous, volunteer dive program to gather monitoring data on underwater habitats, invertebrates, and fish communities. To date the dive program led by the Oregon Coast Aquarium has trained 29 divers, conducting over 600 monitoring dives in the first eight years of our program. Without the efforts of the Oregon Coast Aquarium, we would be unable to have a dive program contributing such valuable data to the long-term monitoring of Oregon's Marine Reserves. The commitment and contribution of the Oregon Coast Aquarium to our project is exemplary of their commitment and dedication to collaborating in cutting-edge science in the Pacific Northwest.

Furthermore, the Oregon Coast Aquarium is a master at turning science and fieldwork efforts into educational opportunities. As a partner with the ODFW Marine Reserves program, the Oregon Coast Aquarium has an educational kiosk about the marine reserves in their local sandy shores exhibit. Furthermore, their educational programs and communication staff broaden the reach of our program to share key messages about the science and creatures found in Oregon's waters. We are grateful to have them as a scientific and educational partner and support their capital campaign and project priorities for 2019 and beyond.

Sincerely,

Lindsay Aylesworth, Ph.D  
Project Leader  
Marine Reserves Program  
Oregon Department of Fish and Wildlife  
[lindsay.x.aylesworth@state.or.us](mailto:lindsay.x.aylesworth@state.or.us)



**Oregon State**  
University

**Marine Mammal Institute**  
Oregon State University  
2030 SE Marine Science Drive  
Newport, Oregon 97365

**Jim Rice**  
P 541-867-0446  
F 541-867-0128  
jim.rice@oregonstate.edu

2/1/2019

Jim Burke  
Director of Animal Husbandry  
Oregon Coast Aquarium  
2820 SE Ferry Slip Rd  
Newport, OR 97365

Dear Jim,

I would like to offer my full support of the Oregon Coast Aquarium's capital campaign to implement the facility improvements outlined in your strategic planning document.

As the Marine Mammal Stranding Coordinator for the Oregon coast, I have long valued my close association with the Aquarium, which has been a consistently willing partner in providing urgent care to distressed marine animals. Since 2006, the Oregon Marine Mammal Stranding Network and the Aquarium have collaborated on 21 rehabilitation cases, including 14 sea turtles and 8 pinnipeds. In my role as the primary responder of animal strandings along the Oregon coast, I can personally attest to the clear need for increased rehabilitation resources in our region, particularly for cold-stunned sea turtles that typically require immediate diagnostic evaluation and critical care. The Aquarium's proposed Marine Wildlife Rehabilitation/Education Center would provide a much needed animal care facility on the Oregon coast, as well as a dynamic educational portal through which compelling messages about responsible stewardship of marine wildlife can be communicated to the general public.

I look forward to working with you and your staff in the years to come and wish you great success in making this plan become a reality.

Sincerely yours,

Jim Rice  
Coordinator, Oregon Marine Mammal Stranding Network  
Oregon State University