2016 IMPACT REPORT

HUBBS SEAWORLD RESEARCH INSTITUTE

THRIVING OCEANS
FOR A HEALTHIER WORLD

GREETINGS

MESSAGE FROM THE PRESIDENT

Dear Friends:

In 2016 Hubbs-SeaWorld Research Institute (HSWRI) refreshed and reinvigorated its brand identity and, with your help, we reshaped our vision to steward a healthier planet where marine life and humans can thrive together.

Conversations with you — our collaborators, funders, and peers — helped us examine our place in the global scientific research community. You reinforced for us the importance and quality of our research, but also highlighted the need to refine how we present our work to the community and promote our positive impact in order to ensure the financial stability needed to advance our mission.

Our rebranding process has helped us more clearly articulate how our work is addressing your greatest ocean health concerns. Our communications, beginning with this 2016 Impact Report, will demonstrate how HSWRI is responding to growing global human populations and the increasing use of and reliance upon our oceans and coasts.

Our scientists are helping to mitigate and, where possible, prevent adverse impacts on our oceans. With your support we can use new tools and ideas to resolve the greatest marine life problems NOW, leaving a healthier and more vibrant planet for future generations.

HSWRI's public trust mission *"to return to the sea some measure of the benefits derived from it"* remains unchanged since our founding 54 years ago, and the future is bright as we work together in advancing healthy oceans.

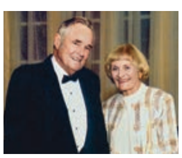
On behalf of all our Trustees and staff, thank you for working alongside us this past year to accomplish this new brand and for being catalysts to help HSWRI prepare to launch a future campaign that will further extend our scientific impact and international footprint.

Sincerely,

Donald B. Kent
President/CEO

REMEMBERING OUR HEROES

During 2016 we lost some very good friends. The entire Institute family feels honored to have known them and will miss them greatly.



PEGGIE SHEDD

Peggie was the matriarch of our Institute, one of its earliest volunteers and its longest-standing supporter. As the wife for 58 years of HSWRI founder Milt Shedd, Peggie shared a love of the ocean and a commitment to its conservation that she and Milt instilled as a family legacy to each of their three children. She was a great friend, loved by all and she will be missed.

DON HUNSAKER, II, PhD

After a long career as a tenured professor at SDSU in the Zoology Department, Don became a very productive member of HSWRI's science team, acting as the principal scientist on a project studying endangered birds on military bases. Don had a tremendous capacity to provide workable solutions to complex resource problems. His work was well-respected and his contributions to science and education will be hard to replace.

FRANK S. TODD

Frank, a Senior Research Fellow at HSWRI, worked with aquatic birds around the world for more than 40 years. As the former SeaWorld Corporate Vice-President for Aviculture and Research, Frank developed the Penguin Encounters and was a renowned authority on waterfowl and penguins of the world, publishing six highly respected books. At the time of his passing, he was working on another waterfowl book to be published in the near future.

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Cover photo by Michael A. Shane (2016)

*A copy of the official registration and financial information may be obtained from the Florida Division of Consumer Services by calling toll free 1-800-help-fla (435-7352) within the state. The registration number issued to HSWRI in Florida is CH10200.

OCEAN HEALTH

PROMOTING A HEALTHIER PLANET WHERE HUMANS AND MARINE LIFE THRIVE TOGETHER

WHY IT MATTERS

We investigate ways to prevent disease outbreaks, examine ecosystem health and resilience, and provide rapid first response to stranded dolphins, whales and other marine life.

WHAT WE DO

Ocean Health research studies how marine life and the ocean are affected by natural and human-induced change.

OUR PROGRESS AND IMPACT

Bottlenose Dolphins, Central Florida

HSWRI's Marine Mammal Research and Rescue Team removed marine debris and fishing gear from entangled dolphins and served as first responders to more whale and dolphin strandings than any other Florida organization. Three calves and two juvenile dolphins rescued over the last three years were regularly sighted in our photo identification surveys in 2016. Community outreach and education to encourage safe wildlife viewing and fishing practices promoted conservation of marine and estuarine ecosystems.

Federally-Declared Unusual Mortality Events (UME), Florida 2013–2016

One of two investigations surrounding multi-year die-offs of Indian River Lagoon dolphins, manatees and pelicans continued in 2016. Collected by HSWRI scientists over several decades, archived samples from stranded dolphins from the region are providing new insights into factors underlying this complex UME.

Disease Surveillance in Seals and Sea Lions, California Channel Islands

HSWRI scientists are part of a national team monitoring marine mammals and birds for flu viruses that may pose a human health risk.

Federally-Declared Unusual Mortality Events (UME), California Sea Lions and Fur Seals

The 2013 federally-declared sea lion UME in California continued and was expanded to include Guadalupe fur seals. Long-term biomedical research by HSWRI scientists at the California Channel Islands continues to provide critical information on the health of adult female sea lions and pups as scientists track impacts of an apparent decrease in prey availability.

In 2016 we responded to three stranded Pygmy sperm whales in Florida. Photo: Teresa Jablonski

SUSTAINABLE SEAFOOD

FEEDING A HUNGRY WORLD AND RESTORING DEPLETED FISH POPULATIONS

WHAT WE DO

We seek to replenish depleted wild fish stocks like white seabass, and demonstrate sustainable aquatic farming as a means to provide supplemental sources of fish with no negative biological impacts.

WHY IT MATTERS

Aquaculture is the practical solution to renewing regional fisheries, producing a domestic supply of sustainable seafood and reducing the need for fresh water to produce animal protein.

OUR PROGRESS AND IMPACT

Finfish Husbandry and Health

HSWRI research advanced the fields of fish nutrition and fish medicine (anesthetic technique development and stress studies) and included comparative studies of growth, metabolic rates and food conversion between fish reared in an aquaculture setting with wild caught fish.

Industry Partnerships & Angler Surveys

Angler and industry partnerships, including a new relationship with CCA California, heightened our efforts to promote sustainable seafood research and production. A survey of more than 500 anglers in 2016 revealed California halibut, California yellowtail, kelp bass and giant sea bass as the most desirable marine finfish for southern California stock enhancement.

Stock Enhancement on Alternative Species

Research expanded on California halibut collected in both Santa Monica and San Diego with the goal of establishing a thriving broodstock population, allowing HSWRI to replicate the success of the decades-long Ocean Resources Enhancement Hatchery Program (OREHP) for white seabass.

'Rising Tide Conservation Program'

HSWRI collaborated with SeaWorld and other oceanaria to protect ocean reef habitats by developing techniques for commercial production of marine ornamental fish like angelfish. The establishment of breeding pairs of these popular fish at our San Diego laboratory will provide an alternative to further collection of already threatened wild ornamental fish.

San Diego halibut broodstock collected by local anglers and HSWRI staff for the Dick Laub Fisheries Replenishment Program. Photo: Mike Shane

WILDLIFE POPULATIONS

EXAMINING THE INTERCONNECTEDNESS OF MARINE LIFE AND HABITATS

We study relationships between marine animals and their environment to address threats to ecosystem health.

WHAT WE DO

Our research focuses on predicting and, when possible, preventing negative impacts to vulnerable marine animals.

WHY IT MATTERS

Wildlife Population research predicts and provides solutions for threats such as human disturbance, habitat loss and pollution.

OUR PROGRESS AND IMPACT

Bottlenose Dolphins, Residents of Indian River Lagoon

Through a new contract, HSWRI is informing resource managers responsible for reducing death and serious injuries incidental to commercial fishing. We conducted a mark-recapture dolphin survey using innovative photo-identification methods to track distribution and abundance of dolphin populations at risk.

Green Sea Turtles, Hatched at SeaWorld

HSWRI collaborated with SeaWorld husbandry staff and federal scientists to introduce several groups of green sea turtles hatched at SeaWorld in 2009 to the ocean off San Diego. Satellite transmitters attached by HSWRI scientists will track movements and behavior post-release to inform conservation efforts for this threatened species in the Western Pacific.

HSWRI scientists partner with SeaWorld and federal agencies to study movements and behavior of stranded marine animals returned to the ocean. Photo: Brent Stewart

Long-Term Studies on Impact of Human Activities and Environmental Change on Wildlife

- *Seals and Sea Lions: California Channel Islands*
- *Penguins: Subantarctic/Antarctic*
- *Whale Sharks: Worldwide*

Decades-long research by HSWRI scientists and national and international collaborators documented the population biology and ecology of marine mammals, whale sharks and penguins. Our scientists use tracking devices, photo-identification surveys, behavioral monitoring, and new technologies such as high resolution cameras and unmanned aerial vehicles.

ANIMAL BEHAVIOR

USING SOUND TO HARMONIZE HUMAN AND ANIMAL INTERACTION

We study relationships between marine animals and their environment to address threats to ecosystem health.

WHAT WE DO

Our research focuses on how marine animals produce and are affected by natural and human-made sound.

WHY IT MATTERS

By understanding how marine life uses sound for communication and survival, we can reduce the impacts of human-produced noise and use sound to warn marine life of hazardous situations. Our research helps minimize or prevent entanglements, injuries and mortality of dolphins, killer whales, polar bears and other species.

OUR PROGRESS AND IMPACT

"Marine Mammals and Noise: An Update"

A comprehensive text on the effects of noise on marine mammals that has served as the "gold standard" for two decades is being updated. HSWRI is collaborating to integrate over 20 years of new research into an updated version of this book, expected to be published in 2018.

Behavioral and Cognitive Learning

HSWRI also collaborated on a publication documenting research findings on the behavioral and cognitive capacities of oceanarium marine mammals. This review will inform management and help direct environmental enrichment for marine mammals under human care.

Killer Whale Vocalization

Research published by HSWRI scientists and colleagues on killer whale communication described the significance of behaviors associated with specific vocalizations. Observations depended on detailed video recordings of killer whale behavior in SeaWorld's parks.

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EDUCATION AND OUTREACH

INSPIRING A LOVE FOR SCIENCE

WHAT WE DO

We are committed to creating future advocates for ocean health and marine life by advancing public appreciation for scientific discovery.

Students from The Preuss School UCSD release white seabass raised in their classroom. Photo: Mike Shane

WHY IT MATTERS

HSWRI encourages life-long learning by inspiring future generations of scientists through hands-on educational opportunities. We promote higher education and careers in science through our support of undergraduate and graduate student projects, paid and unpaid internships, post-doctoral fellowships and research assistant positions.

OUR PROGRESS AND IMPACT

Ocean Science Learning

We provided outreach presentations and workshops at educational fairs and festivals in California and Florida. Students of all levels were inspired to learn more about ocean health and to consider becoming our next generation of marine and environmental scientists.

Science Technology Engineering Math (STEM) Education

SeaWorld career camps and 'Seabass in the Classroom', a hands-on model white seabass replenishment program for high-school students, provided unprecedented learning opportunities and promoted personal ownership of coastal ecosystem health by local teens in southern California.

CREATING YOUR LEGACY

You can play a significant role in assuring the success of our mission through planned giving in the form of a bequest or trust.

To discuss your particular interests, please call Eileen Sigler, Vice President of Development, at 619-226-3881.

If you have already included the Institute in your estate plans, please let us know.

HUBBS-SEAWORLD RESEARCH INSTITUTE FINANCIAL INFORMATION

Revenue	
Research Contracts & Grants	$3,060,133
Unrestricted Gifts	$1,238,626
Restricted Gifts	$625,000
Other Revenue	$19,819
Total Support Revenue	$4,943,578
Expenditures	
Scientific Research	$4,011,978
Management and General	$1,100,459
Fund Raising	$305,843
Total Charitable Expenses	$5,418,280

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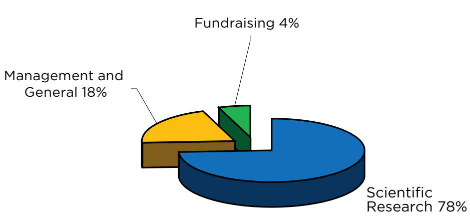
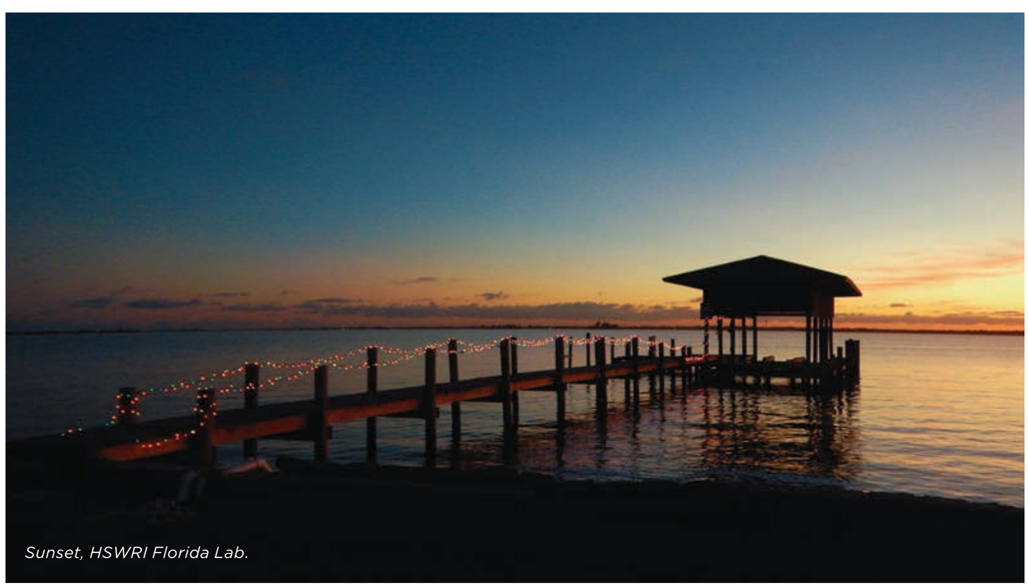
CHARITABLE EXPENDITURE BREAKDOWN BY PERCENTAGE



A copy of the audited financial statement is available upon request by calling 619-226-3871.



Sunset, HSWRI Florida Lab.

SELECTED PUBLICATIONS 2015–2016

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Wu Q, Conway J, Phillips KM, **Stolen M, Durden WN**, Fauquier D, McFee WE, Schwacke L. 2016. Detection of *Brucella* spp. in bottlenose dolphins *Tursiops truncatus* by a real-time PCR using blowhole swabs. *Diseases of Aquatic Organisms* 120:241-244.

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