

# SUSTAINABLE SEAFOOD

## FEEDING A HUNGRY WORLD; RESTORING DEPLETED FISH POPULATIONS

### WHAT'S AT STAKE?

The world's population is slated to grow by 2.4 billion people by 2050.\* According to the Food and Agriculture Organization of the United Nations, we must produce 70 percent more food to meet impending world hunger needs.

**As some wild fish stocks are decreasing, aquaculture is the most practical solution to produce food sustainably, as well as to help replenish depleted fisheries.**

Aquaculture can also provide significant value to local economies. Reducing our country's reliance on imported seafood would reduce the U.S. trade deficit and provide "blue tech" jobs to revitalize our working waterfronts.

Breeding and raising fish from tiny eggs to a market-ready size is a complicated process. It requires innovation and significant knowledge from many fields of science, including the understanding of sophisticated hatchery infrastructure to ensure an optimal environment for fish to flourish.

HSWRI's research team and its collaborators have played a leadership role for over 35 years in developing replenishment solutions with no negative biological impacts. Whether we're producing white seabass and halibut for release into the wild, striped bass and yellowtail for the seafood market, or butterflyfish and angelfish for aquariums, we are preserving and renewing wild stocks by providing supplemental sources of fish that are produced sustainably.

**Help us feed the world, replenish fish populations and provide economic value to American coastal communities.**

\*United Nations Department of Economic and Social Affairs

## WHY IT MATTERS



**Sustainable Seafood:** Renewing Local Fish Stocks

**Ocean Health:** Preserving Fish Populations



# ANIMAL BEHAVIOR

## USING SOUND TO HARMONIZE HUMAN AND ANIMAL INTERACTION

### WHAT'S AT STAKE?

At HSWRI, our animal behavior program studies how marine animals produce and are affected by sound.

**Sound plays an integral role in both human and animal lives—it helps individuals maintain social bonds, care for young, navigate, find food, avoid predators and monitor the world around them.**

Since humans use the ocean for a variety of activities—food, recreation, energy production, transportation and military maneuvers—our research seeks “win-win”

solutions that allow humans and marine life to thrive together while sharing the seas.

With knowledge of how marine animals use sound for communication and survival, our scientists work with anglers, industry resource managers, and research collaborators to minimize injuries and mortality to dolphins, killer whales, polar bears, and other marine life due to human activity.

We not only work to prevent negative impacts from human-produced noise, but also research the potential life saving benefits of sound as a way to warn marine life away from hazardous situations.

**With your help, we can create a healthier ocean where humans and marine life thrive together.**

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### WHY IT MATTERS



**Thriving Marine Life:** Protecting Vulnerable Species

**Ocean Health:** Protecting Habitats

# OCEAN HEALTH

## PROMOTING A HEALTHIER PLANET WHERE HUMANS AND MARINE LIFE THRIVE TOGETHER

### WHAT'S AT STAKE?

In our rapidly changing world, interactions between humans and marine life are increasing. We swim in the same waters and share a dependence on the ocean's resources.

**As a result of growing human populations and more intensive use of our oceans and coasts, our impact on marine ecosystems is becoming increasingly significant.**

Our ocean health program studies how marine life is affected by natural and human-induced change. We make predictions about whether animals can survive and/or thrive under a particular set of conditions,

including increases in ocean temperature and acidification, emergence or resurgence of diseases with epidemic potential, declining prey resources, and toxic blooms or spills.

Understanding and preventing diminished marine animal health and widespread mortality events among marine mammals, seabirds, finfish and sharks are some of our top priorities.

**With your help, we can help preserve and renew marine life to ensure a healthier planet.**

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### WHY IT MATTERS



**Thriving Marine Life:** Preventing Disease and Transmission  
**Ocean Health:** Preserving Habitats and Ecosystems

# WILDLIFE POPULATIONS

## EXAMINING THE INTERCONNECTEDNESS OF MARINE LIFE AND HABITATS

### WHAT'S AT STAKE?

Oceans contain 99% of the living space on the planet.\* At HSWRI, our team of scientists is committed to understanding the relationships of marine animals to each other and their environments.

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

We strive to understand why a particular species occurs in some places and not others, why a population is growing or shrinking, how marine animals interact with the other elements within an ecosystem, and how they respond to human interaction.

Large marine vertebrates such as bottlenose dolphins, whale sharks, Hawaiian monk seals and killer whales are important

contributors to their ecosystems and have been affected by our rapidly changing world. Vulnerable species face a variety of changes from increasing human populations to intensifying climate change.

We use traditional techniques, like boat surveys, and newer approaches, such as satellite tracking and molecular biology, to study the influence of biological factors (food availability and disease) and non-biological factors (changes in sea surface temperature) on marine life.

This interdisciplinary approach has helped us to better understand and provide solutions for threats such as habitat loss, pollution and human disturbance.

**With your help, we can continue to ensure healthy ecosystems for marine life!**

\*Hawai'i Pacific University Oceanic Institute

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## WHY IT MATTERS



**Thriving Marine Life:** Preventing Entanglements and Saving Lives  
**Ocean Health:** Preserving Dolphin and Whale Populations



# EDUCATION & OUTREACH

## INSPIRING A LOVE FOR SCIENCE

### WHAT'S AT STAKE?

Our scientists encourage life-long learning in ocean science through public outreach. They work with students of all levels to inspire the next generation of objective and innovative marine scientists.

We help promote career opportunities through paid and unpaid internships, post-doctoral fellowships and research assistant positions.

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

Our researchers serve as undergraduate and graduate advisors in partnership with regional, national and international universities including:

- San Diego State University
- University of California (Berkeley, Davis, Los Angeles and San Diego)
- University of San Diego
- Moss Landing Marine Lab (California State Universities)
- Florida Institute of Technology
- University of Central Florida
- University of South Florida
- University of Hawai'i
- University of Pretoria
- University of Portsmouth

**With your help, we can reach even more students and encourage our future marine scientists to steward a healthier world.**

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### WHY IT MATTERS



**Education & Outreach:** Inspiring Future Generations

**Sustainable Seafood:** Renewing Local Fish Stocks

**Ocean Health:** Preserving Fish Populations