Board of Trustees Meeting

Friday, January 23, 2026
via Zoom Conference Call: Join Zoom Meeting
10:00 a.m. to noon Pacific Time; 1:00 p.m. to 3:00 p.m. Eastern Time

HUBBS SEAWORLD RESEARCH INSTITUTE

Agenda

1. Meeting called to order/Quorum noted	Mr. Stewart
2. Welcome and introductions	Mr. Stewart
3. Motion to waive reading of the Minutes of the July meeting	Mr. Stewart
4. Nominating Committee	Mr. Stewart
- Welcome Amber Ter Vrugt	
- Nominations	
- Skills matrix	
5. Science Committee	Dr. Dold
6. Corporate and Government Relations Committee	
7. Finance Committee	Mr. Gardner
8. Development Committee	Ms. Thompson
- Review of priority proposals	
9. Press Packet	Mr. Kent
10. Past Business	Mr. Stewart
11. Future Business	Mr. Stewart
- Next Meeting: Friday, January 24, 2026	
12. Adjournment	

Minutes of the Meeting of
Hubbs-SeaWorld Research Institute Board of Trustees
October 17, 2025

Hubbs-SeaWorld Research Institute's board meeting was called to order via Zoom with in-person participation from the Leon Raymond Hubbard, Jr., Marine Fish Hatchery at 10:00 a.m. Pacific Standard Time by Mr. Bill Shedd. A quorum (13 of 16) of the trustees was present.

Present via Zoom conference were trustees: Mr. Tyler Carter, Dr. Chris Dold, Mr. Cody Shedd, Ms. Laurilee Thompson. Present in person were: Ms. Laura Chapman, Mr. Robert Fletcher, Mr. David Gardner, Mr. Michael King, Ms. Linda Pazin, Mr. Justin Quis Quis, Mr. Bill Shedd, Mr. Ian Stewart, and Mr. Louis Zimm.

HSWRI staff included: Mr. Don Kent, Dr. Danielle Bates, Mr. Lenell Carter, Dr. Jeff Eble, Ms. Laura Vega, and Ms. Julie Carpenter. Consultants via Zoom: Ms. Jill Branch (Leaf & Cole, LLP), and Ms. Rachel Cross and Mr. Steven Morris.

Mr. Shedd welcomed the trustees and then requested a motion to approve and waive the reading of the minutes of the July 18, 2025 board meeting. Mr. Stewart made the motion and Mr. King seconded. The motion passed unanimously.

<u>Nominating Committee</u>
Mr. Shedd opened the meeting by welcoming Ms. Pazin to her first Board meeting and noted that Ms. Amber Ter Vrugt will join the Board in January. He reported that some Board members have not yet completed the Skills Matrix; Mr. Stewart will resend it as needed, and Mr. Kent will circulate the matrix in its current form. The Board formally welcomed Mr. Cody Shedd. This meeting marked the official transfer of the Chairman role from Mr. Bill Shedd to Mr. Stewart. Mr. Shedd will remain on the Board as a Trustee and member of the Executive Committee. On behalf of the board and staff, Mr. Shedd was thanked for his two decades of service. At this time management of the meeting was switched to Mr. Stewart.

Mr. Stewart acknowledged the addition of Ms. Pazin and Mr. Cody Shedd and requested a motion to approve the current Board slate. Mr. Gardner moved and Mr. Zimm seconded; the motion passed unanimously. Mr. Stewart requested a motion to approve the Corporate Officers as presented. Mr. Zimm moved and Mr. Gardner seconded; the motion passed unanimously.

<u>Audit Committee</u>
Mr. Weiner was unable to attend. In his absence, Mr. Lenell Carter introduced Jill Branch, Leaf & Cole LLP, who reported that the draft audit is complete. There were no findings and no anticipated changes, but final issuance is temporarily on hold pending OMB review of the Single Audit due to the federal government shutdown. Ms. Branch

reviewed the audit highlights reporting a clean audit and recommended approval of the audit as presented. Mr. Fletcher made the motion, Ms. Thompson seconded, and the motion passed unanimously.

Finance Committee

Mr. Gardner turned the presentation over to Mr. Lenell Carter who reported that the deficit remains structural due to the loss of corporate support from SeaWorld having discontinued its annual $500,000 gift, shifting to a $75,000 annual restricted funding for Florida programs, and inadequate indirect cost recovery. HSWRI programs often accept far less indirect than the necessary 44% rate. Mr. Shedd emphasized the urgent need for trustees to provide funding leads. Mr. Stewart recommended a board pitch workshop for some time next year. Mr. Carter provided an activity update, noting grants are up but indirect remains down, management is implementing cost-saving measures in spending, pausing the TIAA match, slowing spending, and reducing headcount by approximately ten percent. Mr. Kent and Mr. Carter continue advancing the commercialization of Pacific Ocean Fresh. Mr. Shedd made a motion to suspend the five percent retirement match, Ms. Chapman seconded, and the motion passed unanimously.

Development Committee

Ms. Thompson turned the presentation over to Mr. Kent in Ms. Snyder's absence. Dr. Bates provided quarterly program highlights. The team acknowledged Mr. Carter for strengthening collaboration with SeaWorld San Diego, particularly in the areas of social media outreach and opportunities to increase visibility within the park. Productive engagement continues with the County Tax Collector's Office regarding support for the license plate program, along with exploration of new outreach opportunities. License plate revenue continues to decline; however, a redesign is considered cost-prohibitive. Accordingly, efforts are focused on reaching new communities and increasing visibility at additional tax collector offices. The team is refining calls-to-action for collaborative posts, which will be presented to the Board for approval. A March "Mix & Mingle" event was proposed, and the team recommended maintaining the current license plate design.

Mr. Kent introduced consultants Steven Morris and Rachel Cross, who are supporting development of the CEMA communications strategy. Mr. Morris provided an overview of the communications work completed to date and outlined what is needed to move the effort to the next level. Key needs include clear alignment from the Board on how CEMA will be communicated externally, consistency in messaging across all channels, and sufficient runway to implement the strategy effectively. Currently developing a CEMA sub-brand identity, including how it will be reflected in communications materials. This work will be presented to Mr. Kent and Dr. Bates on Monday, after which Board input and buy-in will be requested.

Mr. Kent requested approval to form an ad-hoc CEMA committee to provide focused guidance, with updates brought to the full Board on a quarterly basis. Proposed members include Mr. Shedd and Ms. Thompson. Any Board members interested in participating are encouraged to contact Mr. Kent directly. A copy of the presentation is included in the Board packet.

Science Committee

Dr. Dold reviewed the committee's discussion on science funding and then turned the presentation over to Dr. Bates for a quarterly update. The update emphasized increased coordination between the science and development teams on grant opportunities. Ongoing and concluding projects were summarized in the board packet, with several nearing completion and no new projects to report this quarter. Several proposed projects remain pending due to NOAA budget cuts, leaving their status uncertain. Positively, the halibut release was successfully completed following extensive permitting efforts, with a new batch nearing release and active surveys underway.

Corporate and Government Relations Committee

Mr. King provided a brief update on Corporate and Government Relations. There were no significant updates related to the Cooperative Institute this quarter. Efforts are currently focused on seeking funding for the Indian River Lagoon sea trout restoration project, and monitoring potential opportunities associated with the MARA Act.

Press

A copy of this quarter's press is included in the board packet. Please note the highlighted article on the mother and calf dolphin rescue in Florida. The Florida team is garnering a lot of press on the paper regarding stranded dolphins showing signs of Alzheimer's and Ms. Wendy Noke is actively doing interviews.

Past Business

Remember to turn in your Conflict of Interest Statements to Mr. Carter.

Future Business

- Friday, January 23, 2026 (Board Meeting)
- Friday, October 17, 2025 (Hatchery Bldg 30th Ann. Luncheon following board meeting)
    - Thank you for being here in person if you could.
    - Special guests and local representative's offices will be in attendance.

With no further business, the meeting adjourned at 12:00 pm.

Q2 Nominating Committee Highlights

- Board count now at 18
- Potential nominees:
  - Dixie Sansom (Respected FL lobbyist)
  - Jon “JP” Peterson (President, SeaWorld Orlando)

HSWRI Slate Jan 2026

	HSWRI Board of Trustees Board Slate (Jan. 2026)	Trustee Since	Executive	Nominating	Audit	Finance	Science	Government Relations	Development
1	Tyler Carter	Jan-25		X	X	X			
2	Chris Dold	Sep-16	X	X			Chair		
3	Robert Fletcher	Jan-93					X		
4	Paul Fruchbom	Apr-20				X	X		
5	David Gardner	Sep-93	X			Chair			
6	Reese Jarret	Apr-25							
7	Michael King	Jun-22							
8	Laura MacKinnon	Jun-22		X					X
9	Michelle Murrell	Oct-26							
10	Linda Pazin	Oct-25							
11	Justin Quis Quis	Jul-25							
12	Bill Shedd - Past Chair	Apr-94	X	X	X	X	~~X~~	X	X
13	Cody Shedd (TBE)	Oct-25							
14	Ian Stewart - Chair	Jan-21	Chair	Chair				X	
15	Amber Ter Vrgut	Jan-26							
16	Laurilee Thompson	Sep-16	X	X			X	X	Chair
17	Robert Weiner	Jan-21			Chair				
18	Louis Zimm	Jul-13					~~X~~		

Trustees Emeriti	
Dede Alpert	Dr. Clark Hubbs, Science Committee Chair Emeriti (deceased)
Art DeFever (deceased)	Cpt. Wally Schirra, USN, Retired (deceased)
Char DeMotte	Milton Shedd, Chairman Emeriti (deceased)
George Gildred (deceased)	

Officers								
Donald B. Kent, CEO/President		Ex Officio	Ex Officio		Ex Officio	Ex Officio	Ex Officio	Ex Officio
Lenell Carter, CFO/Secretary				Ex Officio	Ex Officio			
On leave, CSO/SrVP						Ex Officio		
Vacant, VP Development								Ex Officio

Science Committee Highlights

HUBBS SEAWORLD RESEARCH INSTITUTE

Conservation & Research Impact

- Released over 16,000 halibut
- New FL marine mammal study featured in 95 news outlets
- Audra spearheading expansion of bioacoustics collaborations

Infrastructure & Capacity Building

- Finalized construction of the new shellfish hatchery
- Advanced construction for the Florida Center and Station

Development & Engagement

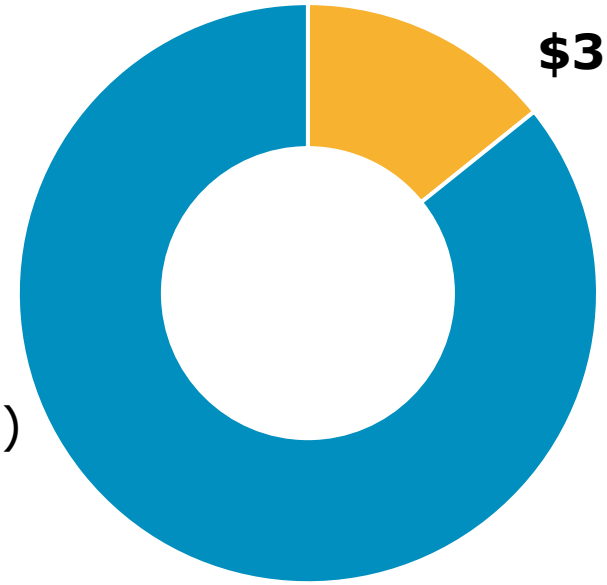
- Submitted $2.19M in grants and appropriations
- Directly engaged over 3,000 people through outreach events

Science Funding

Proposal Outcomes – FY26 Q2

Grants awarded (5)

$363,447



Grants Submitted (10)

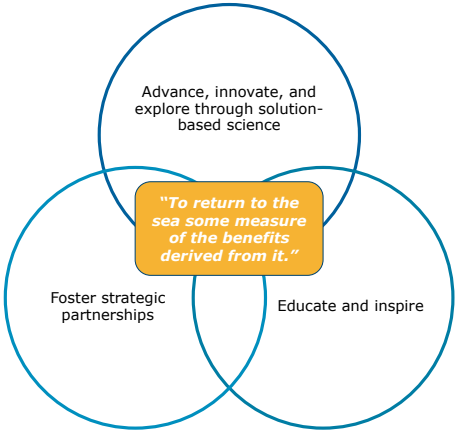
$2,188,941

Q2 Submissions include $997k Florida budget appropriations

2408	Hubbs-SeaWorld Research Institute Community Partnerships to Rebuild Florida's Fisheries (PDF)	Wright	$997,231	Appropriations Subcommittee on Agriculture, Environment and General Government

Science Activity

FY26 Q2



HUBBS SEAWORLD RESEARCH INSTITUTE

3 peer-reviewed manuscripts *including co-authorships

1 presentations at scientific conferences

16 education events and class visits

3,021 students reached

Invited seminar speaker **4**

46 active collaborative projects

26 students actively involved

0 white papers or technical reports

Invited as experts on panel discussions **5**

Conservation Activity - FY26Q1

Marine Mammal Stranding/Response

Marine mammal stranding:
16

Marine mammal entanglements/entrapments:
3

Marine mammal rescues:
1

Habitat Restoration

Seagrass acreage planted: **5.5**

Seagrass planting units:
102,000

Seagrass acreage planted total (since 2025):
76.5

BREVARD ZOO

SEA & SHORELINE

Population Enhancement

White Seabass released this quarter:
0
White Seabass released YTD:
81,851 (2025)
White Seabass released total (across all years):
3.0 M
CA Halibut released this quarter:
11,031
CA Halibut released YTD:
5,256
CA Halibut released total (across all years):
15,081

Sustainable Seafood

Feeding a hungry world and restoring depleted fish populations

Major Quarterly Activities

Finished construction of a new shellfish hatchery to support abalone cultivation

Continued refining hatchery microbial monitoring to improve species culture

Tested new larval feed mixtures for improved larval production

Developed new warty sea cucumber hatchery technologies and juvenile growout techniques

Ongoing aging of white seabass otoliths to support assessment of hatchery contribution

Sustainable Seafood

Feeding a hungry world and restoring depleted fish populations

Program Highlight: Halibut Release

- 16,000 juvenile California halibut released this quarter!
- Required new protocols to optimize color and sex ratios
- Movement and survival will be tracked in Mission Bay
- Planning to release 20k more halibut in late 2026

Ocean Health

Promoting a healthier planet where humans and marine life thrive together

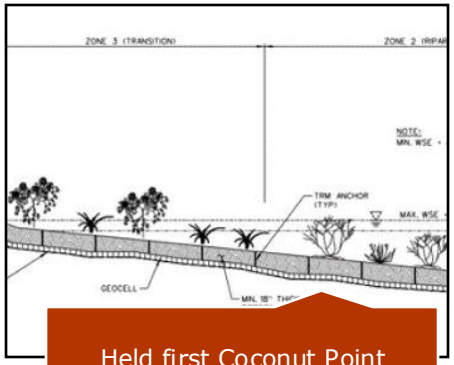
Major Quarterly Activities

Conducting follow-up monitoring to evaluate survival of entangled free-swimming dolphins

Ongoing evaluation of pygmy and dwarf sperm whale (Kogia sp.) strandings

Completed baseline benthic survey to support long-term habitat restoration performance monitoring

Continued analysis of IRL dolphin tissue samples for mercury contamination



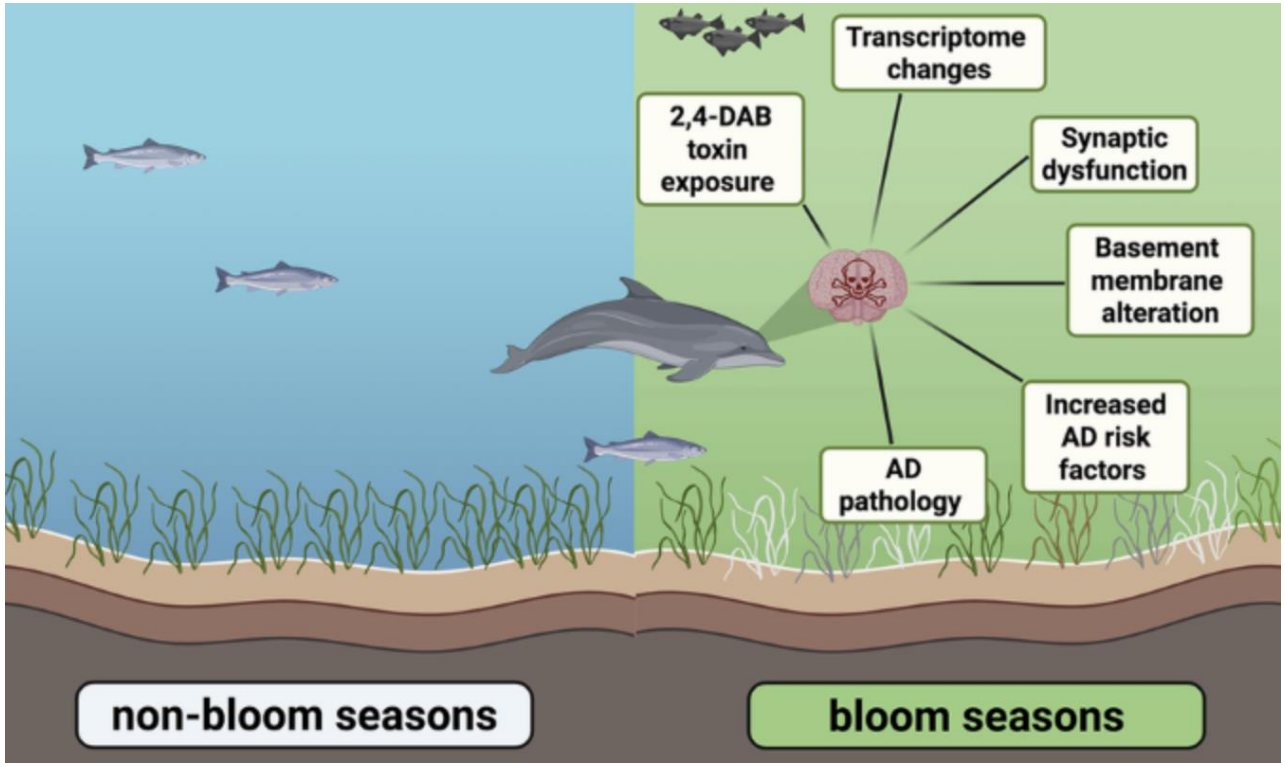
Held first Coconut Point shoreline restoration advisory team meeting

Stranding response conducted under HSWRI's NOAA Stranding Agreement

Ocean Health

Promoting a healthier planet where humans and marine life thrive together

Program Highlight:
Harmful Algal Blooms Impact Dolphin Brain Health



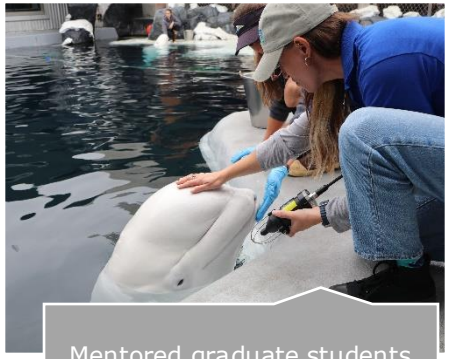
Stolen et al. 2025

Neurotoxin 2,4-diaminobutyric acid (2,4-DAB) is **2900 times more concentrated** in dolphin brains during harmful algal blooms

Animal Behavior

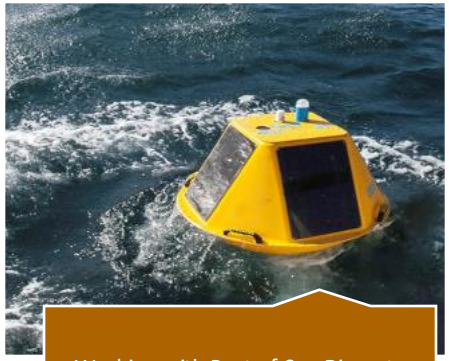
Using sound to harmonize human and animal interaction

Major Quarterly Activities



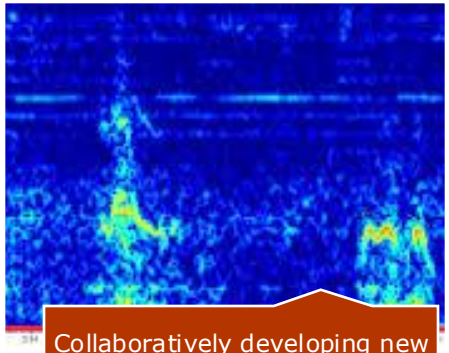
Mentored graduate students studying vocal matching and cognition in belugas

Leading initiative to investigate geographic variation in narwhal calls



Working with Port of San Diego to monitor noise in San Diego Bay

Refining research plan to acoustically track marine mammal behavior pre and post habitat restoration



Collaboratively developing new technologies to precisely determine habitat use from networked acoustic sensors

Stranding response conducted under HSWRI's NOAA Stranding Agreement

Animal Behavior

Using sound to harmonize human and animal interaction

Program Highlight:
SeaWorld Research Collaborations

- Pilot whale vocal production study underway
- Audra is adding killer whales (Kalia, Shouka, and Makani) to the study

Wildlife Populations

Examining the interconnectedness of marine life and habitats

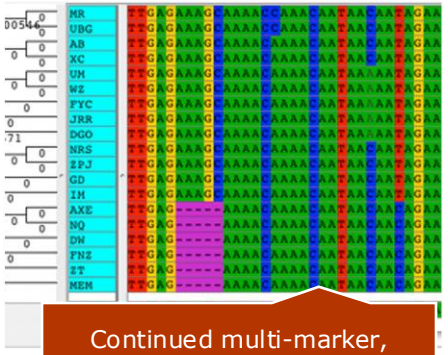
Major Quarterly Activities

Optimizing blow sampling to improve dolphin population health monitoring

Continued deployment of lidar equipped drones to rapidly assess dolphin and manatee body condition

Deployed pop-up satellite tags on Blue Marlin to track movement in relation to oceanographic conditions.

Completed study of short-finned pilot whale genetic diversity and population structure



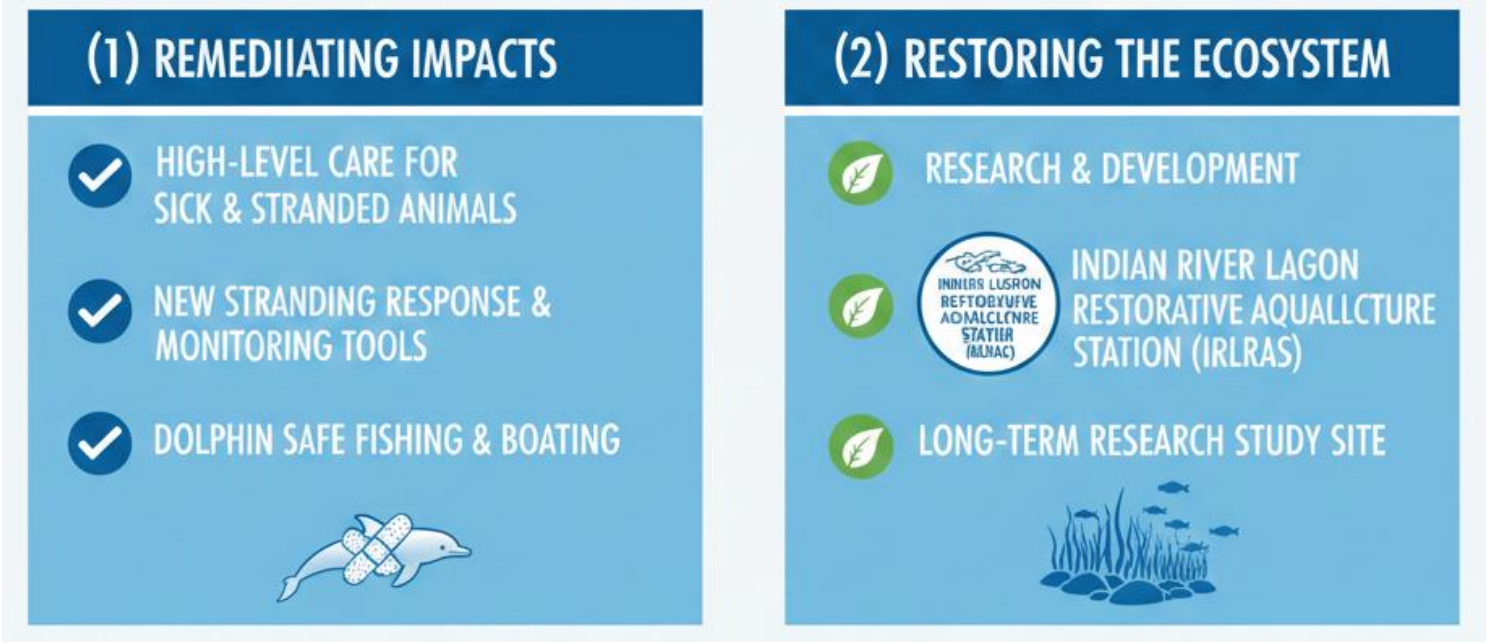
Continued multi-marker, eDNA-based analysis of sediment biodiversity to assess restoration impacts

Wildlife Populations

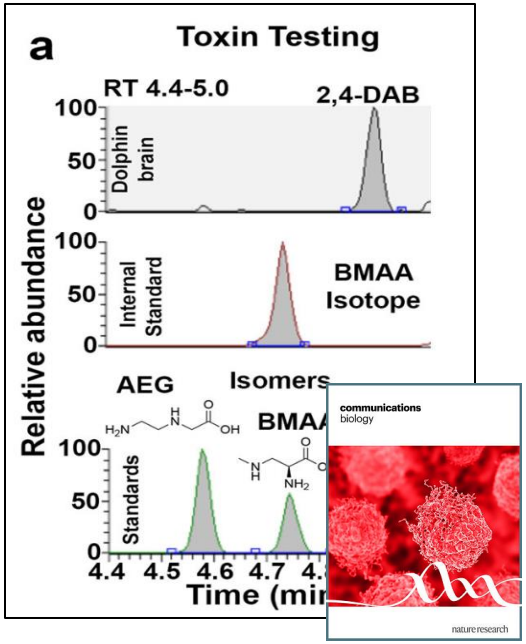
Examining the interconnectedness of marine life and habitats

HUBBS SEAWORLD RESEARCH INSTITUTE

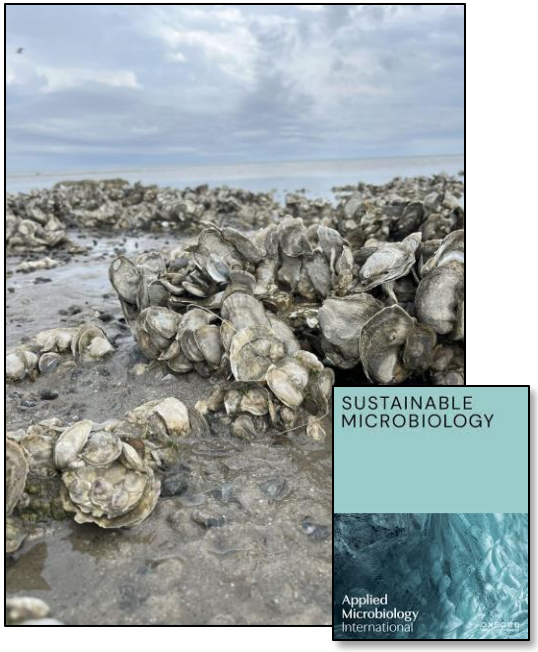
Program Highlight: Remediation and Restoration



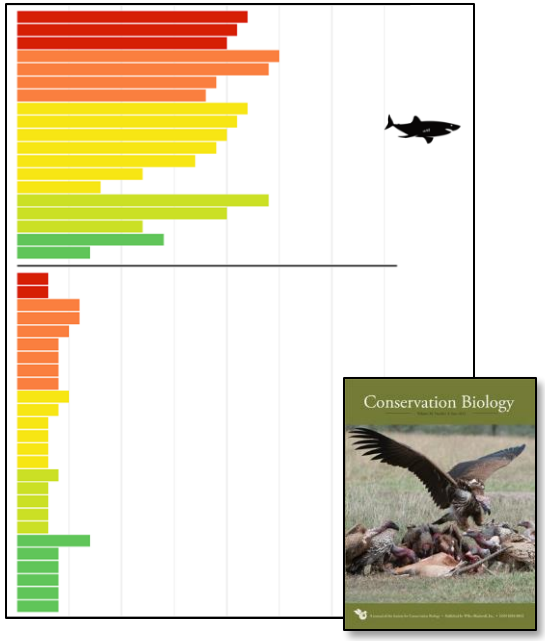
Impact: Scientific Publications



Alzheimer's disease signatures in the brain transcriptome of estuarine dolphins.



Charting a path for microbial conservation in the IUCN: report on "Conservation in a Microbial World" meeting in San Diego, CA, May 2025

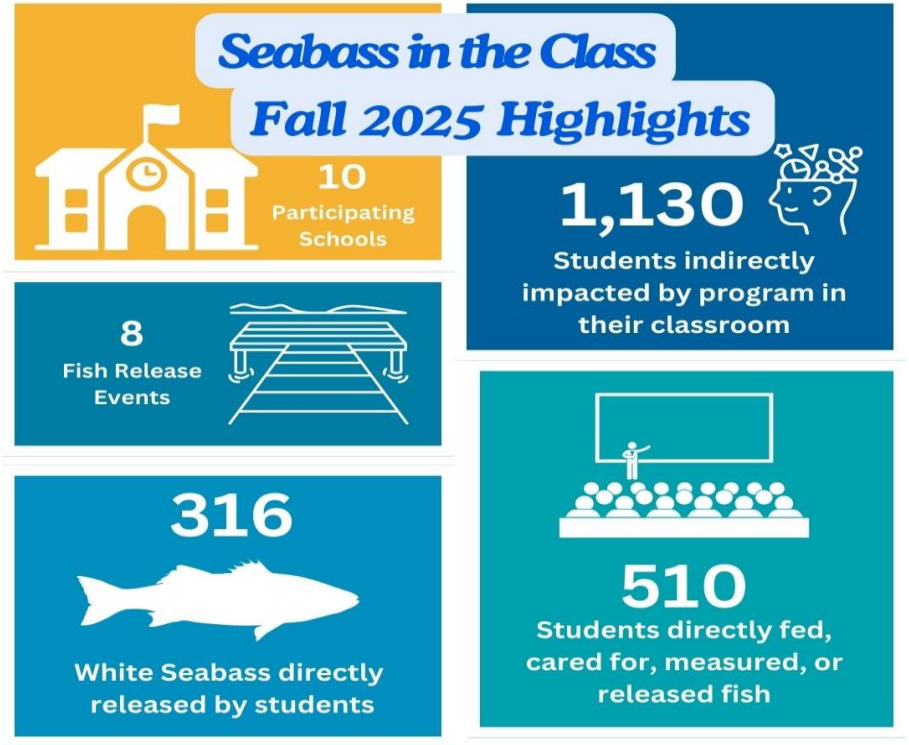


Vulnerability of marine megafauna to global at-sea anthropogenic threats.

Education and Outreach

Inspiring a love for science

Major Quarterly Activities



School	School Type	Title 1	Minority Enrollment
Helix	HS	**Yes**	75%
Madison	HS	**Yes**	88%
Miramar	CC	No - Minority Serving Institution	69%
Carlsbad	HS	No	40%
San Clemente	HS	No	37%
Warner	MS	**Yes**	97%
El Modena	HS	No	
Sycamore	MS	**Yes**	97%
Orange Coast College	CC	No - Minority Serving Institution	70%
Edison	HS	No	41%

Major Ongoing Initiatives

HUBBS SEAWORLD RESEARCH INSTITUTE

Conservation & Research Impact

- Advancing Blue Tech Marine Education
- Establishing Blue Tech Food Production Innovation initiative
- Expanding IRLRAS operations to include coral research

Infrastructure & Capacity Building

- NOAA Cooperative Institute proposal currently in review
- Actively exploring partnerships with University of San Diego and Point Loma Nazarene University.
- Enhancing operational efficiency & long-term viability.

Development & Engagement

- Actively pursuing funding to significantly reduce operating costs and improve long-term stability.

Q2 Corporate and Government Relations Committee Highlights

- The House have both passed the HR 6938, the CJS appropriations bill, and it has been forwarded to the President for signature. Its report shows the following amounts for programmatic areas of interest to the Institute:
  - $10M for Saltonstall Kennedy (p. 43)
  - $4.5M for Prescott (p. 45)
  - $5M for Cooperative Institute (p. 51)
  - Sea Grant NOT LESS THAN $80M
  - Sea Grant Aquaculture NOT LESS THAN $14M
  - The House report has $965,000 for HSWRI FL program (p155)
- NSF has laboratory improvement funding from which we could fund repairs and renovation support
- The FL lab's appropriation proposal ($964K) for State funding for an IRL seatrout replenishment program has passed its first hurdle
- The Marine Aquaculture Research for America (MARA) Act, has been introduced. Certain problematic requirements (e.g., universities function as co-applicant and operators) are removed

Q2 Financial Highlights

- Revenue increased materially compared to the same period last year
  - Total expenses held essentially flat year-over-year
  - Operating loss reduced by more than half compared to prior year
  - Financial pressure driven by fewer grants, cash timing, not overspending
- Current Financial Position (Year-to-Date)
  - Total Income: $2.9M
  - Total Expenses: $3.2M
  - Net Operating Income: ($235k) deficit

Financial Highlights
As of December 31, 2025
Jan 23, 2026

HUBBS SEAWORLD RESEARCH INSTITUTE

	Research Projects	Unrecovered Science	General & Admin	Fund Raising	12/31/25 FYTD Total	12/31/24 Prior FYTD	$ Change
Income					-		
Unrestricted contributions			-	360,187	360,187	114,130	246,057
FL License Plate		117,944	21,445	32,167	171,556	174,621	(3,065)
Grants & Contracts	2,368,023		3,625		2,371,648	2,109,843	261,805
Misc Income	17,908		24,001		41,909	3,550	38,359
Total Income	2,385,931	117,944	49,071	392,354	2,945,300	2,402,144	543,156
Expense							
Salaries	924,210	64,802	630,982	67,960	1,687,954	1,725,468	(37,514)
Fringe benefits			266,352		266,352	246,272	20,080
Fringe allocations	309,948		(407,819)		(97,871)	(127,993)	30,122
Fringe Matching Unrecovered		60,579	10,786	26,506	97,871	127,993	(30,122)
Outside services	142,428		51,665		194,093	120,245	73,848
Equipment	70,881		86,849	1,418	159,148	143,928	15,220
Additions to Fixed Assets					-		-
Supplies	315,616	467	49,932	8,557	374,572	291,584	82,988
Occupancy expenses	166,050		62,090	-	228,140	248,586	(20,446)
Travel	16,755	241	2,323	10,545	29,864	38,708	(8,844)
Indirect billed to contract	551,948	29			551,977	443,374	108,603
Indirect transfer			(551,977)		(551,977)	(443,374)	(108,603)
Matching expenses	12,448				12,448	17,665	(5,217)
Depreciation	21,222		116,341		137,563	190,331	(52,768)
Business expenses	**16,955**		**71,996**	**973**	89,924	126,879	(36,955)
Total Expense	**2,548,461**	**126,118**	**389,520**	**115,959**	3,180,058	3,149,666	30,392
Net Operating Income	(162,530)	(8,174)	(340,449)	276,395	(234,758)	(747,522)	512,764

Financial Highlights

As of December 31, 2025
Jan 23, 2026

HUBBS SEAWORLD RESEARCH INSTITUTE

Expense

Category	FYTD 2025/26	Prior FYTD	Change
Salaries & Fringe	$1,954k	$1,972k	**(1%)**
Equipment & Supplies	$534k	$435k	**↑ 22%**
Occupancy & Overhead	$228k	$248k	**(-8%)**
Travel & Meeting	$30k	$39k	**(-23%)**
Business & Other	$90k	$127k	**(-29%)**
Total Expense	$3,180k	$3,149k	**1%**

Audit

- Leaf Cole audit we are still awaiting the final report

Net Operating Result

- Significant year-over-year improvement in operating result
  - One surplus month validates operating model
  - Remaining deficits driven by reimbursement and donation timing

Expense Overview

- No structural growth in total expenses
  - Program costs increased in line with revenue activity
  - Administrative and management costs remain controlled

Payroll & Staffing (Qualitative)

- Staffing levels stable with no headcount expansion
  - Officer compensation constrained
  - Payroll primarily supports funded, mission-critical programs
  - Variability driven by timing and allocation mechanics

Financial Highlights

As of December 31, 2025
Jan 23, 2026

	FY2025/26	FY2024/25
Board Gifts	220k	12k
Major Gifts	35k	57k
Other Individual Gifts	23k	11k
Foundations & Corporate	82k	33k
SUBTOTAL	361k	114k
HFOF	172k	174k
GRAND TOTAL	**$533k**	**$288k**

Board Gifts are higher to prior period due to the $200k donations during the period.

Balance Sheet
As of December 31, 2025
Jan 23, 2026

	Dec-25	Jun-25	$ Change	Jun-24
ASSETS				
Current Assets				
Checking/Money Market/Bonds	159,052	365,947	(206,895)	205,906
Accounts Receivable	502,480	1,114,901	(612,421)	565,166
Endowments	658,629	(121,646)	780,275	(1,487,370)
Other Current Assets	152,867	221,108	(68,241)	426,566
Total Current Assets	1,473,028	1,580,310	(107,282)	(289,732)
Fixed Assets				
Fixed Assets at Cost	11,960,289	11,960,289	-	11,404,220
Less Accumulated Depreciation	(7,354,480)	(7,238,139)	(116,341)	(7,084,155)
Total Fixed Assets	4,605,809	4,722,150	(116,341)	4,320,065
Other Assets				
Notes Receivable - POF	1,261,205	1,261,205	-	1,259,654
Right of Use Assets	12,164	12,164	-	20,494
Total Other Assets	1,273,369	1,273,369	-	1,280,148
TOTAL ASSETS	7,352,206	7,575,829	(223,623)	5,310,481
LIABILITIES & EQUITY				
Current Liabilities				
Accounts Payable	230,257	236,914	(6,657)	123,884
PrePaid Grants			-	-
Accrued Vacation	171,219	171,219	-	168,527
Other Current Liabilites	363,660	367,045	(3,385)	368,872
Total Current Liabilities	765,136	775,178	(10,042)	661,283
Unrestricted net assets	1,721,581	1,574,998	146,583	2,531,028
Temporaily restricted net assets	2,229,270	2,229,270	-	(14,678)
Permanently restricted net assets	2,849,801	2,849,801	-	2,849,801
Net Income	(213,582)	146,582	(360,164)	(716,953)
	6,587,070	6,800,651	(213,581)	4,649,198
TOTAL LIABILITIES & EQUITY	7,352,206	7,575,829	(223,623)	5,310,481

Financial Highlights
As of December 31, 2025
Jan 23, 2026

Balance Sheet:
The balance sheet shows that HSWRI ended the second quarter of the fiscal year with $159k of available cash:

Checking/Savings	12/321/25	06/30/25	12/31/24
1030 · Comerica Bank	92,105.00	-	-
1020 · Torrey Pines Bank	66,747.00	365,847.00	205,858.00
1028 · Petty cash	200.00	100.00	47.00

CA Fish and Wildlife Due
HSWRI should receive December payment prior to month end.

CA Fish and Game	
Dec Due	**$158k**

Management Actions Underway

- Temporary management salary reductions to lower indirect rate
  - Suspension of retirement contributions to reduce benefits cost
  - Focus on offshore and CIFARM projects to improve indirect recovery
  - Interim funding required to allow changes to fully take effect

Development Committee Highlights

Jul. 1 to Dec. 31, 2026

HUBBS SEAWORLD RESEARCH INSTITUTE

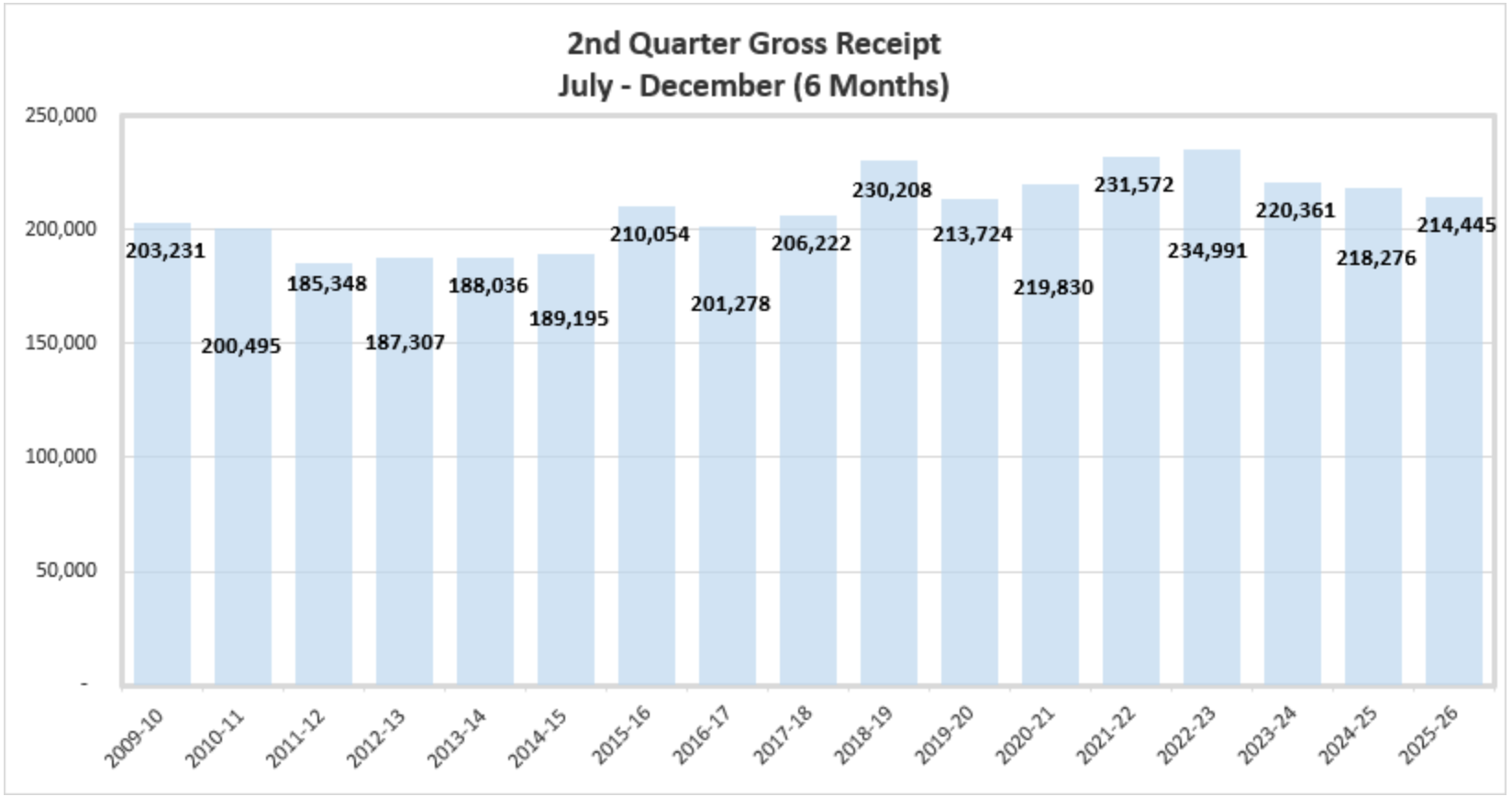
- FY26 Q2 Fundraising
- Outreach & Engagement
- Priority projects

Development Income
(Jul I – Dec 31, 2026)

• Individual Gifts:	$22,128
• Board Gifts:	$220,630
• Restricted Gifts:	$153,225
• Unrestricted:	$82,854
• Major Gifts:	$35,200
• HFOF:	$171,556
	$685,593

Hubbs Florida Ocean Fund Income

- Down 1.8% from last year
- Working with SWO to market its FL Passholders



Social Media Metrics

Followers:

- LinkedIn: 2,000 Followers (+522)
- Instagram: 4,703 Followers (+841)
- Facebook: 10,403 Followers (+1,088)
- X: 1,294 Followers (+4)
- Donor Dock: 8,600 Contacts

Social Media Highlights

- Reached 10K followers on Facebook
- Nearly 10K likes on Halibut Release reel on Instagram with high engagement on all platforms
- Our content reached 100.2K Instagram accounts and 198.5K Facebook accounts in December
- Increased engagement and interactions with posts especially on Facebook and Instagram
- Return to the Sea Campaign: raised $62,309.04 from email marketing and social media posts

Priority Projects

HUBBS SEAWORLD RESEARCH INSTITUTE

- Blue Tech Education and Training Center at Mission Bay Lab
  - Renovation of unused meeting space
  - Cost TBD
- Blue Foods innovation Laboratory at Agua Hedionda Lagoon, Carlsbad
  - 20K sqft laboratory/office/education complex
  - 32K sqft experimental culture space
  - Cost est. at $50M

Press Highlights

- Dolphins Face Alzheimer's-like Brain Changes
  - South Florida Sun Sentinel
  - Florida Climate Reporting Network (Miami Herald, Tampa Bay Times, The Marjorie
- Marina Del Rey Anglers Welcome New Batch of Juvenile White Seabass
  - D Stewart Fishing
- A Legacy of Stewardship
  - The Argonaut
- Yamaha Rightwaters Continues Support for HSWRI in Florida and California
  - Yamaha Newsroom
- Rep. Monique Miller, SeaWorld, Florida Tech mull Indian River Lagoon future
  - Florida Today
- Aquaculture development: Guidelines for genetic management of stocking programmes for aquatic species
  - Food and Agriculture Organization of the United Nations

NEWS > ENVIRONMENT

Dolphins face Alzheimer's-like brain changes during toxic algal blooms

A researcher examines a stranded dolphin in the Indian River Lagoon as part of a study on how algal blooms affect the mammal's health. Stranding response conducted under a Stranding Agreement with NOAA Fisheries. (Courtesy Hubbs-SeaWorld Research Institute)

By **BILL KEARNEY** | South Florida Sun Sentinel

PUBLISHED: November 12, 2025 at 9:43 AM EST | UPDATED: November 12, 2025 at 10:33 AM EST

Dolphins living in the Indian River Lagoon faced Alzheimer's-like changes to their brains during harmful algal bloom season, according to a recently released 10-year study.

The alterations in the dolphins' brains include synapse dysfunction, increased expression of Alzheimer's disease-related genes and changes in the brain that lead to symptoms of Alzheimer's disease.

The study, conducted by researchers from Hubbs-SeaWorld Research Institute and the University of Miami, found that algal-bloom neurotoxin concentrations in the dolphins' brains were nearly 3,000 times higher during warm weather algal bloom season than in cooler months.

High water temperatures and nutrient pollution from farms, lawns and faulty septic systems have driven harmful algal blooms in Florida, including in the Indian River Lagoon, where the study took place.

If the blooms are intense within an estuary, then can deplete oxygen, kill fish and spark seagrass die-offs.

They also can release neurotoxins that harm humans, pets, wildlife and marine animals. Depending on the type of algae, short-term symptoms in humans can include stomach pain, rashes, headache, watery eyes and sore throat.

Researcher Wendy Noke Durden of the Hubbs-SeaWorld Research Institute, who conducted the study, said that there is still a lot of research that needs to be done on the impact of cyanobacteria neurotoxins on humans. Cyanobacteria, also known as blue-green algae, is a common algae in Florida and can bloom in both fresh and salt water. There are several types of algae that bloom in the Indian River Lagoon, but blue-green algae is considered the most likely driver of the toxins in the dolphins' brains.

The process

The Hubbs-SeaWorld Institute and University of Miami researchers took brain tissue samples from 20 bottlenose dolphins found stranded in the Indian River Lagoon from 2010 to 2019.

During that time, the Indian River Lagoon had a series of long-lasting algal blooms leading to vast seagrass die-offs.

The researchers divided the dolphins into seasonal groups: those found during algal bloom season (June–November) and those found in non-bloom season (December–May).

They found that the bloom-season dolphins had neurotoxin concentration levels nearly 3,000 times higher than in dolphins stranded during cooler non-bloom months.

The highest concentrations of neurotoxins related to algae were found in the dolphins who were stranded from June and August.

This does not mean the dolphins became stranded because of the neurotoxins, said Noke Durden. The study said the dolphins had died from various causes such as trauma, infection and exhaustion due to lack of

"It may be that these neurotoxins just accelerate neurodegeneration, so we can have a correlation between what we're seeing, but we can't really prove causation," said Noke Durden.

Noke Durden and her colleagues hypothesize that animals lower on the food chain consume the toxic algae and it rides up the food chain to the dolphins, which eat 15-20 pounds of fish per day.

"It's likely that these animals bioaccumulate those biotoxins, probably from prey consumption, so over time you would see an increase in toxins," she said.

There's not much known about how humans are exposed to algal biotoxins in salt water environments, but assessing dolphins can lead to clues.

"Dolphins naturally have changes in their brain that are similar to those that are seen in Alzheimer's in humans, so they're a good species to study," said Noke Durden.

She does not think dolphins are dying en masse because of Alzheimer's disease-like changes. "There are a lot of other threats."

She points out that during an intense harmful algal bloom in 2013 in the Indian River Lagoon, manatees, pelicans and dolphins all experienced high mortality rates due to seagrass die-offs.

The dolphins lost food sources such as spotted sea trout and had to shift to less nutritious fish, such as ladyfish. "The dolphins were literally starving to death that year," she said.

When the seagrass died off, dolphins have to hunt more to find the same amount of calories. Noke Durden said the local dolphin population is still recovering, and most are underweight.

Dolphin groups tend to stay within their home ranges, said Noke Durden, so they're unlikely to simply move to a new area because of an algal bloom or lack of food.

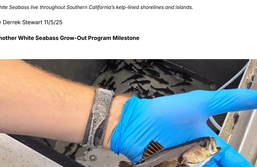
Climate change may be a factor in both algal blooms and the cascading effects they can have on the Florida coast.

"I think the study shows how dolphin and ecosystem health are connected," said Noke Durden. "We need to be cognizant of protecting marine habitat, not just for wildlife, but for our health as well."

Around the Web

Marina Del Rey Anglers Welcome New Batch of Juvenile White Seabass

Continuing a Legacy of Conservation Stewardship



White Seabass live throughout Southern California's kelp-lined shorelines and islands.

By Derrek Stewart 11/5/25

Another White Seabass Grow-Out Program Milestone

A juvenile White Seabass, approximately 5 inches in length, is ready to go from the delivery tank into the grow-out pen.

In our unwavering spirit of conservation, the dedicated Marina Del Rey Anglers (MDRA) have once again demonstrated our dedication to marine conservation. The organization received a substantial batch of Juvenile White Seabass (WSB), approximately 3900, on November 4th and 5th for their ongoing grow-out program. This significant number is a testament to our commitment to sustaining Southern California's marine ecosystem.

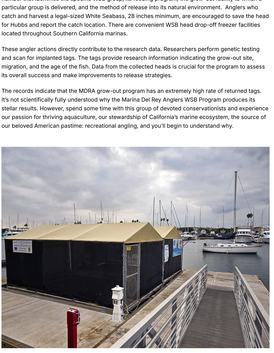
The MDRA WSB grow-out program is not just a local effort, but a collaborative one with a renowned partner, Hubbs Seaworld Research Institute, located in San Diego, California. Victor Bach Munoz, Hubbs' Grow Facility Coordinator, and assistant Rex Shettlesworth, play a crucial role in this partnership, delivering the young WSB from the institute in specialty-trailered water tanks to the MDRA grow-out pens located adjacent to Burton Chace Park in Marina Del Rey Harbor.

Hubbs Seaworld Research Institute's Victor Bach Munoz, right, and Rex Shettlesworth.

White Seabass Conservation Efforts

Under the leadership of Keith Moret, the MDRA Conservation Chair, a dedicated group of volunteers, known as Pen Pals, work tirelessly to support the preservation of WSB in the Santa Monica Bay region. Their work, which includes receiving the fish, maintaining the rearing pens, safeguarding the WSB from predators, providing consistent feeding, recording crucial data, and releasing the fish into the ocean, is crucial to the ongoing success of this conservation initiative.

The process involves nurturing the WSB for approximately five to six months, during which the fish receive meticulous care and attention, growing to a size of eight to twelve inches. This significant growth enhances their chances of survival once they're released into their natural habitat in the Santa Monica Bay. This period of careful management and protection is a testament to a commitment to the long-term sustainability of Southern California's WSB population.

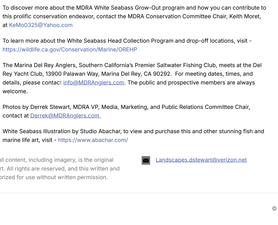


MDRA officers, Penn Pals, and friends gather to receive the Hubbs White Seabass delivery.

When it is time for the release, the experienced staff from Hubbs returns to work in close collaboration with the MDRA team, including the Betty-O release vessel, captained by owners Mike and Patty Reinsch. Hubbs personnel coordinate, supervise, and assist with the final steps of releasing the WSB into the wild, ensuring a safe and efficient process. The partnership between MDRA volunteers, the Betty-O crew, and Hubbs staff exemplifies the power of community involvement and professional guidance in achieving conservation goals.

A Vast Network

From San Diego to Santa Barbara, including Santa Catalina Island, there are thirteen Southern California coastal WSB grow-out facilities. These grow-out bases are part of the California Department of Fish and Wildlife's Ocean Resources Enhancement and Hatchery Program (OREHP), ensuring a prolific WSB conservation effort throughout the region's coast. The Marina Del Rey Anglers Fishing Club, with its core value of conservation, plays a significant role in these efforts and is grateful for the support of each agency involved, including the generous backing of the Los Angeles County Department of Beaches and Harbors.



LA County Beaches and Harbors, Burton Chace Park Code Enforcement Officer Esmeralda Tinoco, and LABAH-BCP Supervisor Marcel Mitchell with Hubbs' Victor Bach Munoz.

Beyond the Release, Angler Participation

At the Hubbs Institute, each WSB has a Coded Wire Tag implanted into its jaw. Each tag has a serial number that identifies the specific WSB group, its feeding program, the grow-out facility to which a particular group is delivered, and the method of release into its natural environment. Anglers who catch and harvest a legal-sized White Seabass, 28 inches minimum, are encouraged to save the head for Hubbs and report the catch location. There are convenient WSB head drop-off freezer facilities located throughout Southern California marinas.

These angler actions directly contribute to the research data. Researchers perform genetic testing and scan for implanted tags. The tags provide research information indicating the grow-out site, migration, and the age of the fish. Data from the collected heads is crucial for the program to assess its overall success and make improvements to release strategies.

The records indicate that the MDRA grow-out program has an extremely high rate of returned tags. It's not scientifically fully understood why the Marina Del Rey Anglers WSB Program produces its stellar results. However, spend some time with this group of devoted conservationists and experience our passion for thriving aquaculture, our stewardship of California's marine ecosystem, the source of our beloved American pastime: recreational angling, and you'll begin to understand why.

The protected Marina Del Rey Anglers White Seabass grow-out pens, Marina Del Rey Harbor.

Captain Mike Reinsch, right, with MDRA Conservation Chair, Keith Moret, aboard the Betty-O for March's 2025 WSB release.

To Learn More

To discover more about the MDRA White Seabass Grow-Out program and how you can contribute to this prolific conservation endeavor, contact the MDRA Conservation Committee Chair, Keith Moret, at KeMo3254@Yahoo.com

To learn more about the White Seabass Head Collection Program and drop-off locations, visit - https://wildlife.ca.gov/Conservation/Marine/OREHP

The Marina Del Rey Anglers, Southern California's Premier Saltwater Fishing Club, meets at the Del Rey Yacht Club, 13900 Palawan Way, Marina Del Rey, CA 90292. For meeting dates, times, and details, please contact info@MDRAnglers.com. The public and prospective members are always welcome.

Photos by Derrek Stewart, MDRA VP, Media, Marketing, and Public Relations Committee Chair, contact at DerrekIdMDRAnglers.com.

White Seabass Illustration by Studio Abachar, to view and purchase this and other stunning fish and marine life art, visit - https://www.abachar.com/

Landscapes.dstewart@verizon.net

The Argonaut
Local News & Culture

A Legacy of Stewardship: Marina Del Rey Anglers welcome new batch of juvenile white seabass

By Derrek Stewart, Special to The Argonaut Dec 4, 2025

Hubbs Seaworld Research Institute's Victor Bach Munoz, right, and Rex Shettlesworth.

(Derrek Stewart/Submitted)

White Seabass live throughout Southern California's kelp-lined shorelines and islands.

In the spirit of conservation, the dedicated Marina Del Rey Anglers (MDRA) received a substantial batch of Juvenile White Seabass (WSB), approximately 3,900, on Nov. 4-5 for its ongoing grow-out program. This number is a testament to its commitment to sustaining Southern California's marine ecosystem.

The MDRA WSB grow-out program is a collaborative effort with a renowned partner, Hubbs Seaworld Research Institute, located in San Diego. Victor Bach Munoz, Hubbs' Grow Facility Coordinator, and assistant Rex Shettlesworth, play a crucial role in this partnership, delivering the young WSB from the institute in specialty-trailered water tanks to the MDRA grow-out pens located adjacent to Burton Chace Park in Marina Del Rey Harbor.

White Seabass Conservation Efforts

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When it is time for the release, the experienced staff from Hubbs return to work in close collaboration with the MDRA team, including the Betty-O release vessel, captained by owners Mike and Patty Reinsch. Hubbs personnel coordinate, supervise and assist with the final steps of releasing the WSB into the wild, ensuring a safe and efficient process.

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Angler anticipation

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To Learn More

To discover more about the MDRA White Seabass Grow-Out program and how to contribute to this conservation endeavor, contact the MDRA Conservation Committee Chair, Keith Moret, at KeMo0325@yahoo.com. To learn more about the White Seabass Head Collection Program and drop-off locations, visit wildlife.ca.gov/Conservation/Marine/OREHP. Contact info@MDRAnglers.com for more information about MDRA meetings and events.

Tags: White Seabass In California | Marina Del Rey Anglers | Victor Bach Munoz | Rex Shettlesworth | Burton Chace Park

NEWSROOM

COMPANY NEWS

YAMAHA RIGHTWATERS CONTINUES SUPPORT FOR HUBBS-SEAWORLD RESEARCH INSTITUTE IN FLORIDA AND CALIFORNIA, EXPANDS PARTNERSHIP WITH TWO NEW OUTBOARDS

POSTED 12/9/2025

KENNESAW, Ga. – December 9, 2025 –Yamaha Rightwaters recently expanded its partnership with Hubbs-SeaWorld Research Institute (HSWRI) through a renewed three-year agreement, which provides HSWRI with two new outboards that will help the organization fulfill research and marine mammal rescue work in Florida and California. A Yamaha 115-horsepower outboard will power the primary response vessel for HSWRI's Marine Mammal Stranding Team and a 50-horsepower Yamaha outboard will power the HSWRI skiff that services offshore white seabass net pens. Yamaha Rightwaters became the official outboard of HSWRI in June of 2023.

HSWRI is a non-profit scientific research organization committed to conserving and renewing marine life to ensure a healthier planet. HSWRI's team of experts provide innovative and objective scientific solutions to challenges threatening ocean health and marine life in a rapidly changing world.

"Our partnership with Hubbs-SeaWorld Research Institute goes beyond providing outboards, it's about aiding in critical work that restores marine ecosystems and protects vulnerable wildlife," said Joshua Grier, Sustainability Program Manager, U.S. Marine Business Unit. "By extending this relationship, we're not only providing the tools they need to succeed, but also investing in long-term solutions that protect marine life and support thriving waterways for years to come."

The 115-horsepower outboard will serve as the primary response engine for HSWRI's Marine Mammal Stranding Team, which operate along 140 miles of Florida's East Coast. This team is among the busiest in the region, where shallow-water access and rapid, reliable response are critical to rescue success. The engine's dependable starts, strong torque, and quick acceleration enable fast deployment during rescue missions while ensuring a smooth ride essential for photo-identification and population health surveys.

The 50-horsepower outboard will power HSWRI's work skiff in Carlsbad, California, supporting the Ocean Resources Enhancement and Hatchery Program, which has helped rebuild coastal fisheries for nearly 30 years by releasing almost 3 million juvenile white seabass. The engine allows daily runs to feed, monitor and transfer fish between pens along the Southern California coast, the final stage before the fish are released. Quiet, reliable performance and precise maneuverability make it possible to safely operate in nearshore waters while carrying heavy loads of feed, gear and fish.

"Our partnership with Yamaha Rightwaters is critical to advancing the conservation work we do every day," said Jeff Eble, Florida Program Director, Hubbs-SeaWorld Research Institute. "The reliability and performance of these outboards allow our teams to respond quickly to marine mammal strandings and maintain vital aquaculture projects that restore marine fish populations and essential habitats. With Yamaha Rightwaters' continued support, we can strengthen our efforts to protect ocean health and ensure the resilience of marine ecosystems for future generations."

In July, HSWRI released 5,000 juvenile halibut in San Diego, a milestone in the effort to restore Southern California's marine fish populations through the Ocean Resources Enhancement and Hatchery Program. Recently, the Hubbs-SeaWorld Research Institute's Florida Marine Mammal Stranding Team responded to a distress call involving a mother dolphin entangled in multiple crab trap lines in the Indian River Lagoon. Their expert team successfully disentangled her, saving her life and allowing her to safely reunite with her calf nearby. HSWRI is also working on multiple critical infrastructure improvements at their Indian River Lagoon Restorative Aquaculture Station in Melbourne Beach, Florida, including boat ramp reconstruction for safer access to restoration sites and enhanced infrastructure to support seagrass, shellfish and coral nurseries. Together, these infrastructure upgrades and the reliability of Yamaha Rightwaters-powered vessels expand the Institute's capacity to enhance fisheries, restore essential habitats, and rapidly respond to marine mammal emergencies.

Hubbs-SeaWorld Research Institute (HSWRI) is a nonprofit 501(c)(3) organization founded in 1963 "to return to the sea some measure of the benefits derived from it. "For more than six decades, HSWRI has advanced marine science that deepens understanding of ocean life and its ecosystems. The Institute's research spans marine ecology, physiology, bioacoustics, and aquaculture, providing science-based solutions to understand and conserve essential marine resources. With headquarters in San Diego and facilities in Carlsbad, CA, and Melbourne Beach, FL, HSWRI's work is strengthened by collaborations with SeaWorld®, leading universities, and a world-class team of scientists. Learn more at **www.hswri.org**

Yamaha Rightwaters is a national sustainability program that encompasses all of Yamaha Marine's conservation and water quality efforts. Program initiatives include habitat restoration, support for scientific research, mitigation of invasive species, the reduction of marine debris and environmental stewardship education. Yamaha Rightwaters reinforces Yamaha's long-standing history of natural resource conservation, support of sustainable recreational fishing and water resources and Angler Code of Ethics, which requires pro anglers to adhere to principles of stewardship for all marine resources.

Yamaha's U.S. Marine Business Unit, based in Kennesaw, Ga., is responsible for the sales, marketing, and distribution of Yamaha Marine products in the U.S. including Yamaha Outboards, Yamaha WaveRunners®, Yamaha Boats, G3® Boats and Skeeter® Boats. Supporting 2,400 dealers and boat builders nationwide, Yamaha is the industry leader in reliability, performance, technology and customer service.

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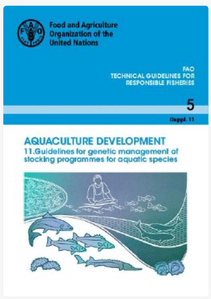

Aquaculture development

11. Guidelines for genetic management of stocking programmes for aquatic species

Download PDF

Year of publication
2025

Place of publication
Rome, Italy ;

Pages
92 p.

Author
FAO

Publisher
FAO ;

Product type
Book (series)

Category
Guideline

ISBN
978-92-5-140407-2

Series title
FAO Technical Guidelines for Responsible Fisheries

Series number
No. 5., Suppl. 11

Full item page

Permanent link
https://openknowledge.fao.org/handle/20.500.14283/cd7994en

To cite or share
https://doi.org/10.4060/cd7994en

Synopsis (short abstract)
Stocking programmes are carried out across the world, both in inland and in marine waters, for a wide range of aquatic species and for different goals. These include conservation, the creation or enhancement of fisheries, and the development or improvement of ecosystem services. The specific objectives of stocking programmes include stock establishment, restocking, stock enhancement and ranching. Stocking commonly occurs through the release of hatchery reared seed or juveniles, or even adults, or through the translocation of seed, juveniles or breeding stock from other locations. These introduced organisms are often genetically discrete from conspecifics in the receiving environment, either due to genetic changes occurring through domestication or due to genetic differences between wild sourced and receiving populations. With such genetic differences being commonplace, stocking programmes often represent a risk to the genetic integrity of wild populations. FAO's Code of Conduct for Responsible Fisheries and the Global Plan of Action for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture, call for: the conservation of aquatic species, including of genetic diversity; maintaining the integrity of aquatic communities and ecosystems; the responsible development and management of aquaculture and fisheries; and the responsible introduction, exchange and use of aquatic genetic resources. These guidelines are intended to provide practical technical guidance on genetic management in stocking programmes, including culture-based fisheries and other forms of stocking of hatchery reared farmed types into the natural environment. The guidelines are not intended to cover stocking carried out for the specific purpose of aquaculture, where ownership of the stocked organisms is retained.The guidelines primarily address the technical aspects of genetic resource management in stocking programmes. They may be incorporated into local and national strategies for fisheries and ecosystem management and should inform stocking decisions and policies on a case-by-case basis.

Keywords
aquaculture, responsible fisheries, aquatic genetic resources, restocking, fish stocking, guidelines, best practices

Cite this content as:
FAO. 2025. *Aquaculture development – 11. Guidelines for genetic management of stocking programmes for aquatic species.* FAO Technical Guidelines for Responsible Fisheries, No. 5 Suppl. 11. Rome.

https://doi.org/10.4060/cd7994en

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English

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Book (series)
Technical report

Report of the Tenth Session of the Sub-Committee on Aquaculture, Trondheim, Norway, 23–27 August 2019

Rapport de la dixième session du Sous-comité de l'aquaculture, Trondheim (Norvège), 23-27 août 2019/ Informe de la 10.ª reunión del Subcomité de acuicultura, Trondheim (Noruega), 23-27 de agosto de 2019

2019

This document presents the adopted report of the tenth session of the Sub-Committee on Aquaculture of the FAO Committee on Fisheries (COFI), held in Trondheim, Norway from 23 to 27 August 2019. The Sub-Committee provides a forum for consultation and discussion on aquaculture-relevant topics, advises COFI on related technical and policy matters, a

Booklet
Guideline

Guidelines on aquaculture restocking and stock enhancement

2023

This publication presents guidelines prepared and adopted by the GFCM with a view to supporting responsible restocking and stock enhancement practices in the Mediterranean and the Black Sea. Specifically, it emphasizes that a responsible and precautionary approach must be followed to minimize the potential impacts of restocking on the environment.

Book (series)
General interest book

Report of the forty-fourth session of the General Fisheries Commission for the Mediterranean (GFCM)

Online, 2–6 November 2021

2022

This report summarizes the discussions held during the forty-fourth session of the General Fisheries Commission for the Mediterranean and the eleventh session of the Committee on Administration and Finance. During the session, progress in activities related to fisheries, aquaculture, compliance and other strategic activities was reviewed. The Commis

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