PORT OF PALM BEACH DISTRICT
REQUEST FOR DISCUSSION AND COMMISSION ACTION

NEW BUSINESS
ITEM H-7

PREPARED BY: José Soler, PE Port Engineer July 19, 2018

SUBJECT: Interlocal Agreement with the Town of Palm Beach for the Berth 1 Coral Mitigation

BACKGROUND:
In 2015, the Board approved a Work Order for CH2MHill pursuant to the Master Services Agreement for Professional Services for the Concept Study and Permitting Process for the Development of Berth 1. CH2MHill developed a Concept Package for the Berth 1 Bulkhead Replacement Design, and proceeded to file joint permit applications to the U.S. Army Corps of Engineers (USACE) and the Florida Department of Environmental Protection (FDEP).

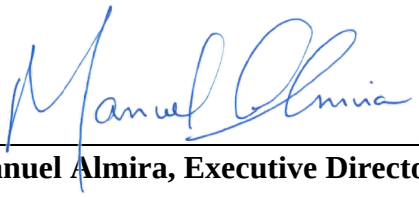
CURRENT SITUATION:
The permitting submittals have been completed with both USACE and FDEP issuing permit approvals. In order to continue with the Berth 1 Bulkhead Improvements, the USACE permit requires execution of the proposed coral mitigation plan of impacted stony corals, by relocation to the Town of Palm Beach mitigation reef. An Interlocal Agreement has been made between the Port of Palm Beach District and the Town of Palm Beach for the relocation of 300 corals having a size equal or greater than 10 cm ("primary corals"), and additional corals smaller than the primary corals ("secondary corals"). The coral mitigation will be performed in coordination with the Town of Palm Beach Coastal Program. The Town shall relocate all of the Primary Corals in accordance with the Coral Relocation Plan. Upon completion of the relocation of the Primary Corals, Town shall have right to relocate Secondary Corals until Port gives notice that such relocation must cease due to construction, which notice shall terminate the Town's right to relocate Secondary Corals.
Upon completion of relocation of the Primary Corals, Port shall pay the sum of twenty-nine thousand four hundred forty-two dollars ($29,442.00) to the Town. The relocation of Secondary Corals shall be at Town's sole cost and expense. Additional monitoring events will occur at every year for three years post-transplantation as required under the Permit. The Port shall reimburse the Town for the cost of each monitoring event required, in an amount not to exceed $5,000 per event.

ADDITIONAL INFORMATION ATTACHED: No _____ Yes X

FINANCIAL IMPACT: The project will be funded from an existing FDOT JPA (50%) and from the Port's Capital budget (50%). The annual monitoring expense will be included in the appropriate year's Operating Budget.

RECOMMENDATION: The Port of Palm Beach Staff respectfully recommends that the Board approve the Interlocal Agreement with the Town of Palm Beach with Coral Mitigation Cost in the amount not to exceed $29,442.00 for the relocation of the corals and up to $15,000.00 for monitoring events in the following years.

Respectfully Submitted by:



Manuel Almira, Executive Director

DATE ACTION TAKEN: _____

Approved:	_____	Motion By:	_____
Disapproved:	_____	Seconded By:	_____
Deferred To:	_____	Unanimous:	Yes _____ No _____
Incorporated into Minutes:	_____	By:	_____

INTERLOCAL AGREEMENT

This Interlocal Agreement is made the _____ day of _____, 2018, by and between the Port of Palm Beach District, a district created and existing pursuant to 1915 Fla. Laws 7081, as amended from time (hereinafter "PORT"), and the Town of Palm Beach, a Florida Municipal Corporation (hereinafter "TOWN"), each constituting a public agency as defined in Part I of Chapter 163, Florida Statutes.

WITNESSETH:

WHEREAS, the Port is undertaking certain improvements involving its Berth 1, located immediately eastward of the Port of Palm Beach Maritime Office Complex. ("Berth 1"); and

WHEREAS, in connection with those improvements, the Port desires to relocate 300 corals having a size equal to or greater than 10cm ("Primary Coral"), and has additional corals smaller than the Primary Corals ("Secondary Corals");

WHEREAS, the TOWN desires to obtain all of the Primary Corals and may wish to relocate some of the Secondary Corals;

WHEREAS, the relocation of the Corals will benefit both the TOWN and the Port; and

NOW, THEREFORE, for and in consideration of the mutual covenants and promises contained herein to be kept and performed by the parties hereto, and for the mutual welfare of the Port and the TOWN, it is agreed as follows:

1. Recitals. The above recitals are true and correct and are incorporated herein by reference.

2. Term. Unless agreed by both parties in writing, and approved by their respective Boards, this Interlocal Agreement shall expire at the end of three years from the Effective Date. The Effective Date of this Interlocal Agreement shall be that date on which the last party has executed this Interlocal Agreement.

3. TOWN Responsibilities and Functions. TOWN shall relocate all of the Primary Corals in accordance with the DRAFT Coral Relocation Plan attached as EXHIBIT A (a part of ACOE Permit SAJ-1990-03372 (NW-LCK)), as set forth below, time being of the essence so as not to interfere with construction. Upon completion of relocation of the Primary Corals, Port shall pay the sum of TWENTY NINE THOUSAND FOUR HUNDRED FORTY TWO DOLLARS ($29,442.00) to the TOWN. Upon completion of the relocation of the Primary Corals, TOWN shall have right to relocate Secondary Corals until Port gives notice that such relocation must cease due to construction, which notice shall terminate the Town's right to relocate Secondary Corals. Relocation of Secondary Corals shall be at Town's sole cost and expense.

The Port of Palm Beach will control all actual scheduling (due to cargo vessel coordination, contractor vessel coordination and construction coordination) and the parties acknowledge and agree that, in the event that conditions or circumstances are not safe or convenient or efficient, or interfere with tenant use, either party can terminate this agreement, however, if a majority of the Primary Corals have been removed, then both parties shall continue with the coral relocation and have their continuing obligations under Sections 4, 5 and 6 provided that construction and Port operations shall not be impacted.

4. Continuing Monitoring and Reporting. TOWN acknowledges that there will be certain monitoring and reporting obligations in connection with the Primary Corals. TOWN will be responsible for all such monitoring and reporting, but Port shall reimburse TOWN for the cost of each monitoring event required under the License (defined in Section 5), not to exceed $5,000 per event.

5. Florida Fish and Wildlife Conservation Commission, Division of Marine Fisheries Management License. All work shall be done in accordance with Florida Fish and Wildlife Conservation Commission, Division of Marine Fisheries Management License SAJ-1990-03372(AP-LCK), showing a date stamp of December 8, 2017, a copy of which is attached as EXHIBIT B ("License").

6. Miscellaneous Provisions.

   A. Nothing contained in this Interlocal Agreement shall be construed to constitute a transfer of powers in any way whatsoever. This Interlocal Agreement is solely an Interlocal Agreement to provide services as authorized by Chapter 163, Florida Statutes. The TOWN's and the Port's governing bodies shall each retain all legislative authority with regard to their respective governing body. All of the privileges and immunities from liability, exemptions from laws, ordinances and rules, and pensions and relief, disability, worker's compensation and other benefits which apply to the activity of officers, agents or employees of any public agency when performing their respective functions within the territorial limits for their respective agencies shall apply to the same degree and extent to the performance of such functions and duties of such officers, agents or employees extraterritorially under the provisions of any such Interlocal Agreement.

   B. Nothing contained herein shall be deemed a limitation of the jurisdiction or law enforcement responsibilities of the TOWN with respect to the Port of Palm Beach property.

   C. All required notices under this agreement shall be sent to the parties at the following addresses, by certified mail, facsimile or hand delivery:

If to Port: Port of Palm Beach District
One East Eleventh Street, Suite 600
Riviera Beach, FL 33404
Attn: Executive Director
Facsimile: (561) 842-4240

With a copy to: John W. Gary, III, Esq.
Gary, Dytrych & Ryan, P.A.
701 U.S. Highway One, Suite 402
North Palm Beach, FL 33408
Facsimile: (561) 844-2388

If to TOWN: Attn: Town Manager
360 South County Road
Palm Beach, FL 33480

With a copy to: John Randolph, Esq.
Jones & Foster
505 South Flagler Drive, Suite 1100
West Palm Beach, FL 33401

D. This Interlocal Agreement and any dispute, disagreement, or issue of construction, declaration or interpretation arising hereunder whether relating to its execution, its validity, the obligations provided herein, performance or breach shall be governed and interpreted according to laws of the State of Florida. Any and all action necessary to enforce the Interlocal Agreement will be held in Palm Beach County, Florida. If any action whether in law, equity or otherwise is brought for the interpretation or enforcement of this Interlocal Agreement, or because of an alleged dispute, breach, default or misrepresentation in connection with any provisions of this Interlocal Agreement, the successful or prevailing party or parties shall be entitled to recover reasonable attorney's fees, court costs and all expenses (including taxes) even if not taxable as court cost (including, without limitation, all such fees, costs and expenses incident to appeals), incurred in that action or proceeding, in addition to any other relief to which such party or parties may be entitled.

E. No remedy herein conferred upon any party is intended to be exclusive of any other remedy, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise. No single or partial exercise by any party or any right, power, or remedy hereunder shall preclude any other or further exercise thereof.

F. To the extent permitted by law, the TOWN shall indemnify and hold the Port harmless for any liability or causes of action for damages which may arise from the negligent acts or omissions of Riviera Beach's employees in the performance of this Interlocal Agreement. Likewise, to the extent permitted by law, the Port shall indemnify and hold the TOWN harmless for any liability or causes of action for damages which may arise from the negligent acts or omissions of the Port employees in the performance of this Interlocal Agreement. Nothing in this provision shall be construed as consent by the TOWN or by the Port to be sued, nor as a waiver of sovereign immunity beyond the limits provided for in Section 768.28, Florida Statutes.

G. Should any provision of this Interlocal Agreement be declared invalid by a court of competent jurisdiction, same shall be deemed stricken here from and all other terms and

conditions of this Interlocal Agreement shall continue in full force and effect as if such invalid provision had never been made a part thereof.

H. No delay by either party in enforcing any covenant or right hereunder shall be deemed a waiver of such covenant or right, and no waiver of any particular provision hereof shall be deemed a waiver of any other provision or a continuing waiver of such particular provision, and except as so expressly waived, all provisions hereof shall continue in full force and effect.

I. This Interlocal Agreement constitutes the entire understanding of the parties with respect to the provision of law enforcement personnel and equipment. It may not be modified, nor any of its provisions waived unless such modification and/or waiver is in writing and is agreed to and signed by both parties.

J. Upon execution by the parties, the Port agrees to file a copy of this Interlocal Agreement with the Clerk of the Circuit Court in and for Palm Beach County pursuant to Section 163.01 (11), Florida Statutes.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this _____ day of _____, 2018.

WITNESSES:

_____

Printed Name of Witness:_____

_____

Printed Name of Witness:_____

DISTRICT:
PORT OF PALM BEACH DISTRICT

BY: _____
_____, Chairman
Date:_____, 2018

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

PORT ATTORNEY

TOWN OF PALM BEACH

_____

BY: _____

_____, _____ (Title)

Date:_____, 2018

Printed Name of Witness:_____

_____

Printed Name of Witness:_____

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

TOWN ATTORNEY

POPB Berth 1
Town of Palm Beach, Florida
Coastal Eco-Group, Inc.

Berth 1 Coral Relocation

DESCRIPTION	2013	Task 1 Relocate ~300 Corals - Coral Harvesting (3 Days) & Transplantation/Reattachment (2 Days), NO REPORTING Units	$
Coastal Eco-Group			
Consulting Engineer/Scientist/Technical Specialist	$132.00	24.0	$ 3,168.00
Engineer/Scientist/Technical Specialist	$105.00	60.0	$ 6,300.00
is Associate Engineer/Scientist/Technical Specialist	$84.00	136.0	$ 11,424.00
Boat Captain	$68.00	60.0	$ 4,080.00
Total Coastal Eco-Group, Inc. Labor		**280.0**	**$ 24,972.00**
Underwater Still Camera	$30.00	5.0	$ 150.00
Expendables	$25.00	5.0	$ 125.00
Dive Equipment	$25.00	15.0	$ 375.00
Trimble DGPS	$50.00	5.0	$ 250.00
SCUBA Tanks Fills	$8.00	40.0	$ 320.00
Total Coastal Eco-Group, Inc. ODC's			**$ 1,220.00**
Total Coastal Eco-Group, Inc.			**$ 26,192.00**
Boat (catamaran)	$500.00	5.0	$ 2,500.00
Coral Harvesting & Reattachment Materials (per day)	$150.00	5.0	$ 750.00
Subtotal Materials/Equipment			**$ 3,250.00**
TOTAL			**$ 29,442.00**

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
4400 PGA BOULEVARD, SUITE 500
PALM BEACH GARDENS, FL 33410

March 29, 2018

REPLY TO ATTENTION OF

Regulatory Division
South Permits Branch
Palm Beach Gardens Permits Section
SAJ-1990-03372(NW-LCK)

Port of Palm Beach District
C/o Thomas Lundeen, P.E.
1 East 11th Street, STE 400
Riviera Beach, FL 33404

Dear Mr. Lundeen:

The U.S. Army Corps of Engineers (Corps) assigned your application for a Department of the Army permit, which the Corps received on January 13, 2017, the file number SAJ-1990-03372(NW-LCK). A review of the information and drawings provided indicates that the proposed work would result in the following activities; Repair and replace approximately 427 feet of steel pile bulkhead no more than one foot waterward of the existing bulkhead within Berth 1, and 2. Repair and replace a 61-foot by 4.5-foot concrete prop-wash wall by removing and installing approximately (23) 8-inch to 12-inch steel H-piles and associate concrete panels. The project site is located at Berth 1 in the Port of Palm Beach in Lake Worth Lagoon (Section 33, Township 42 South, Range 43 East), Riviera Beach, Palm Beach County, Florida

Your project, as depicted on the enclosed drawings, is authorized by Nationwide Permit (NWP) Number 3. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017, specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is:

http://www.saj.usace.army.mil/Missions/Regulatory.aspx

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on “Source Book”; and, then click on “Nationwide Permits.” These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions,

which apply specifically to this verification for NWP 3. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. Self-Certification Statement of Compliance: Within 60 days of completion of the work authorized, the enclosed "Self-Certification Statement of Compliance" (Attachment C) must be completed and submitted to the U.S. Army Corps of Engineers. Email the completed form to: saj-rd-enforcement@usace.army.mil or mail the completed form to the Regulatory Division, Special Projects and Enforcement Branch, 4400 PGA Boulevard, Suite 500, Palm Beach Gardens, Florida 33410.

2. Assurance of Navigation and Maintenance: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the U.S. Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

3. Manatee Conditions: The Permittee shall comply with the "Standard Manatee Conditions for In-Water Work - 2011" (Attachment B).

4. Sea Turtle and Smalltooth Sawfish Conditions: The Permittee shall comply with National Marine Fisheries Service's "Sea Turtle and Smalltooth Sawfish Construction Conditions" dated March 23, 2006, (Attachment C).

5. Turbidity Barriers: Prior to the initiation of any of the work authorized by this permit, the Permittee shall install floating turbidity barriers with weighted skirts that extend to within one foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized.

6. Cultural Resources/Historic Properties:

a. No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

7. Incidents where Johnson's seagrass, or any individuals of whale, sea turtle, sturgeon, sawfish, coral, or other species listed by NOAA Fisheries under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States authorized by this NWP shall be reported to NOAA Fisheries, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the Jacksonville District of the U.S. Army Corps of Engineers at 904-232-1177. The finder should leave the plant or animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NOAA Fisheries, Office of Protected Resources, to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

8. The applicant will use "cushion blocks" to minimize potential noise impacts from the in-water construction.

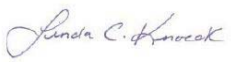
9. The applicant shall adhere to the coral relocation plan (Attachment D).

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact me by telephone at 561-472-3531.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to complete our automated Customer Service Survey at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Your input is appreciated – favorable or otherwise.

Sincerely,



Linda C. Knoeck
Project Manager

Enclosures:
Attachment A: Self-Certification
Attachment B: manatee conditions
Attachment C: sea turtle/smalltooth condition
Attachment D: Coral Relocation Plan

GENERAL CONDITIONS
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **March 18, 2022**.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort of if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: SAJ-1990-03372(NW-LCK)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019 or electronic mail at saj-rd-enforcement@usace.army.mil.

_____ _____

(TRANSFEREE-SIGNATURE) **(SUBDIVISION)**

_____ _____ _____

(DATE) **(LOT)** **(BLOCK)**

_____ _____

(NAME-PRINTED) **(STREET ADDRESS)**

_____

_____

(MAILING ADDRESS)

_____

(CITY, STATE, ZIP CODE)

BERTH 1 BULKHEAD REPLACEMENT

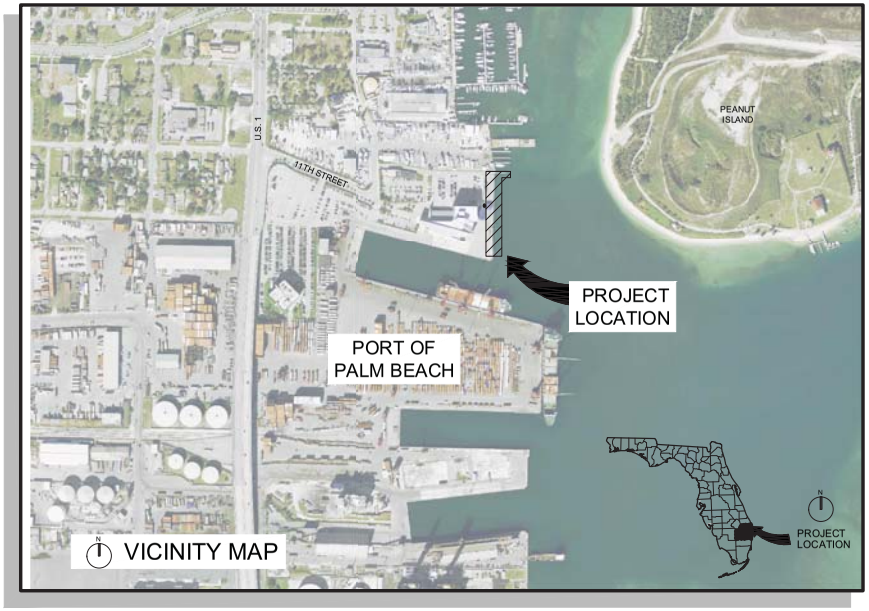
at the Port of Palm Beach

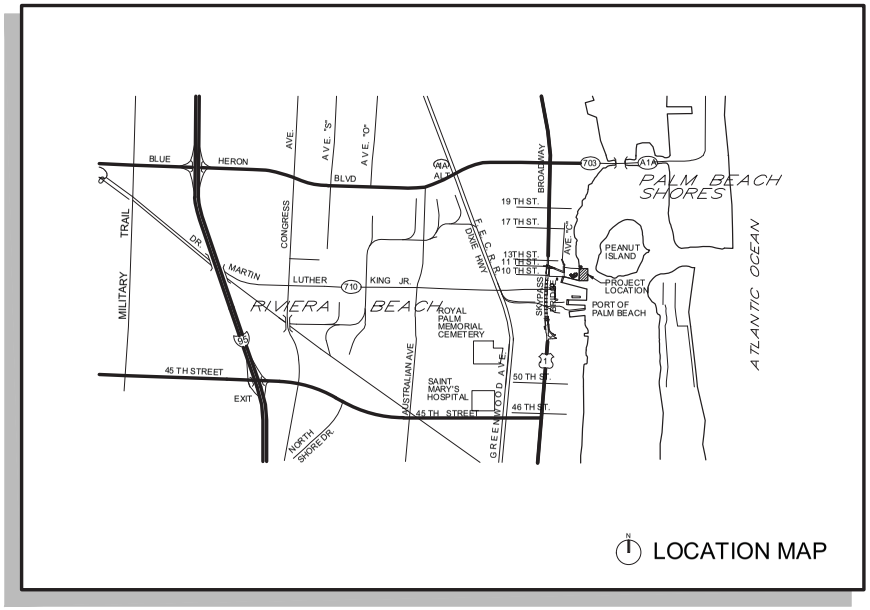
City of Riviera Beach, Florida

INDEX OF DRAWINGS

PERMIT

PERMIT SET
JULY 2017





3001 PGA BLVD - SUITE 300
PALM BEACH GARDENS, FL 33410
PH (561) 904-7400 FAX (561) 904-7401
EB 0000072 AA 001992

BERTH 1 BULKHEAD REPLACEMENT
PORT OF PALM BEACH
RIVIERA BEACH, FLORIDA

PERMIT
BERTH 1
COVER SHEET AND INDEX OF DRAWINGS

NO.	DATE	DR	REVISION	CHK	BY
DSGN	JC LONG	V GARSKE		L CANNON	J CASEY LONG

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE DEC 2015
PROJ
DWG P-1
SHEET 1 of 4

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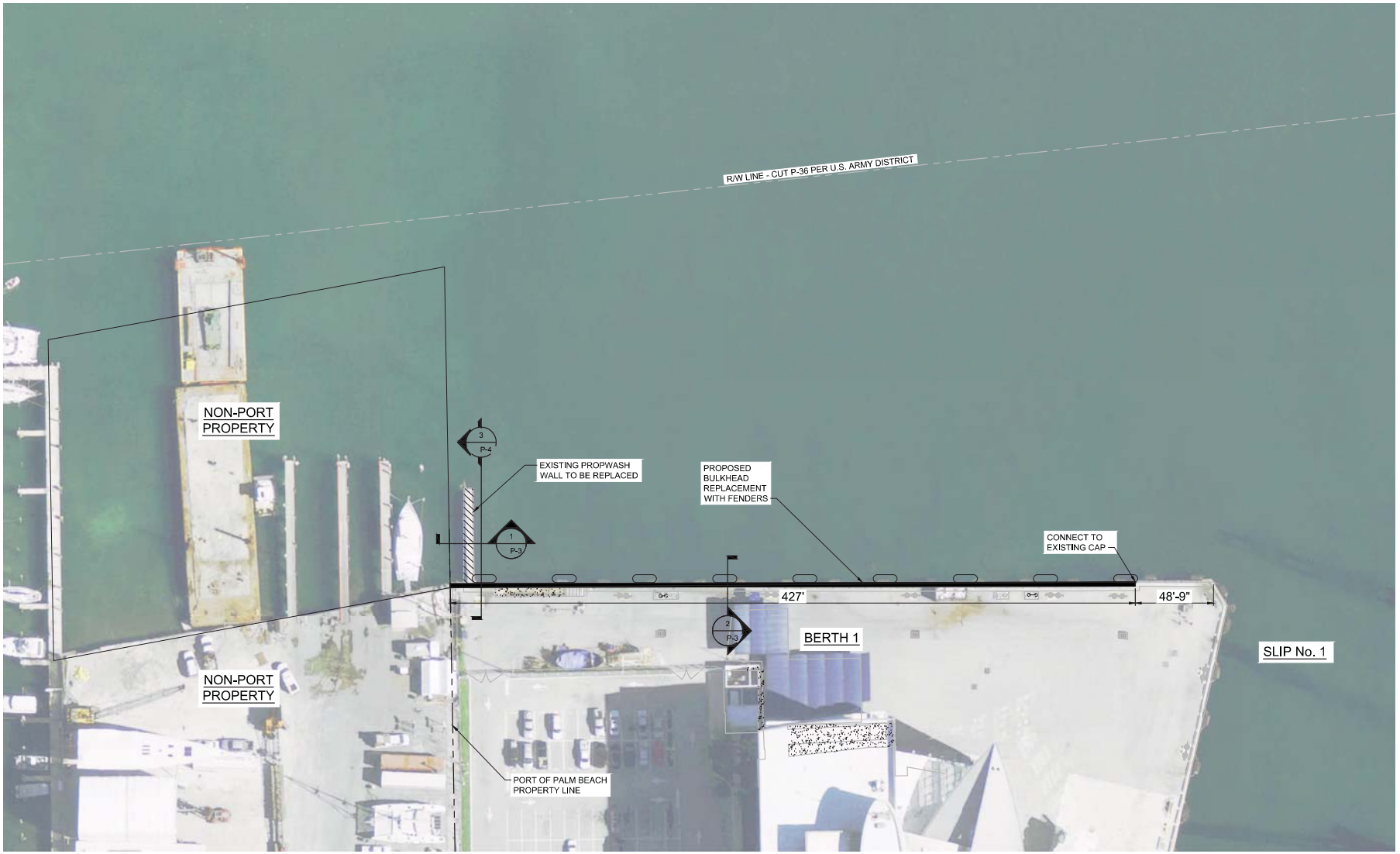

ENLARGED PROPOSED PLAN

1" = 30'-0"

0 30 60 90

1"=30'

3001 PGA BLVD - SUITE 300
PALM BEACH GARDENS, FL 33410
PH (561) 904-7400 FAX (561) 904-7401
EB 0000072 AA 001992

BERTH 1 BULKHEAD REPLACEMENT
PORT OF PALM BEACH
RIVIERA BEACH, FLORIDA

PERMIT

BERTH 1
ENLARGED
PROPOSED PLAN

NO.	DATE	REVISION	BY	CHK
1	06/03/2016	REVISE NORTH DREDGE LIMITS	SG	JCL

DSGN JC LONG DR V GARSKE CHK L CANNON APVD J CASEY LONG

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE DEC 2016
PROJ 654162
DWG P-2
SHEET 2 of 4

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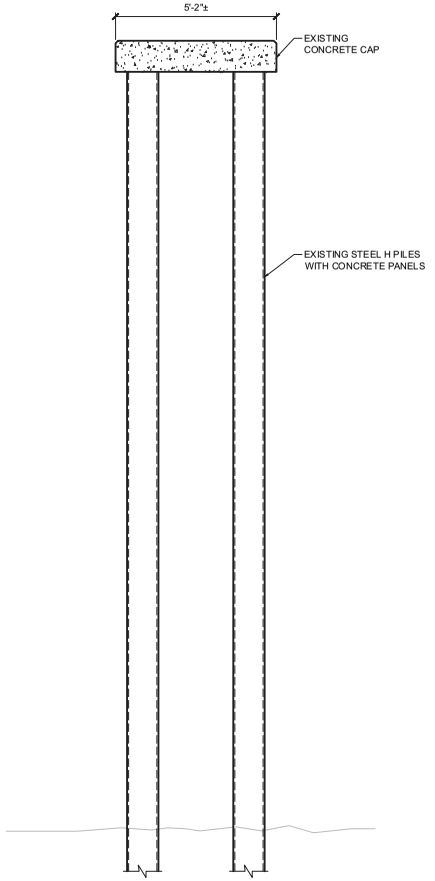
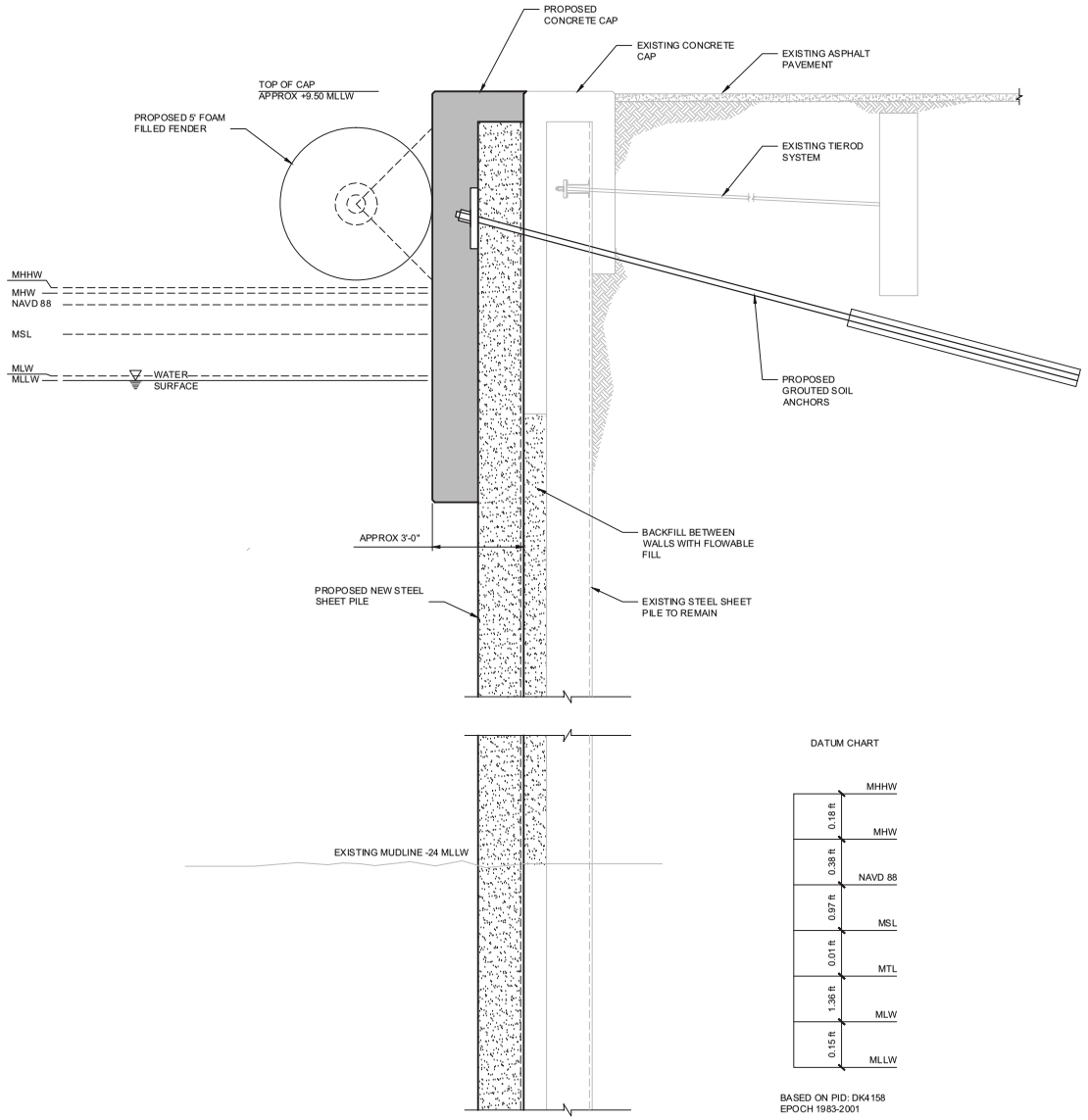


1 EXISTING PROPWASH WALL TO BE REPLACED
NTS



2 SECTION AT PROPOSED BULKHEAD
NTS

NO.	DATE	REVISION	DR	CHK	APVD
DSGN	JC LONG		V GARSKE	L CANNON	J CASEY LONG

3001 PGA BLVD - SUITE 300
PALM BEACH GARDENS, FL 33410
PH (561) 904-7400 FAX (561) 904-7401
EB 0000072 AA 001992

BERTH 1 BULKHEAD REPLACEMENT
PORT OF PALM BEACH
RIVIERA BEACH, FLORIDA

PERMIT

BERTH 1
SECTIONS AND DETAILS

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	DEC 2015
PROJ	654162
DWG	P-3
SHEET	3 of 4

3 EXISTING PROPWASH WALL TO BE REPLACED
NTS

NO.	DATE	REVISION	BY	APVD

DSGN: JC LONG | DR: V GARSKE | CHK: L CANNON | APVD: J CASEY LONG

3001 PGA BLVD - SUITE 300
PALM BEACH GARDENS, FL 33410
PH (561) 904-7400 FAX (561) 904-7401
EB 0000072 AA 001992

BERTH 1 BULKHEAD REPLACEMENT
PORT OF PALM BEACH
RIVIERA BEACH, FLORIDA

PERMIT

BERTH 1
SECTIONS AND DETAILS

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

DATE DEC 2015
PROJ 654162
DWG P-4
SHEET 4 of 4

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Port of Palm Beach Berth 1
DRAFT Coral Relocation Work and Monitoring Plan

Coral relocation is required by the State and Federal regulatory and resource protection agencies as a component of the avoidance/minimization measures for the project. The Port of Palm Beach will avoid impacts to stony corals during replacement of the bulkhead at Berth 1 by relocation of healthy stony corals greater than 10 centimeters (cm) in diameter. Potential receiver sites include the Town of Palm Beach 0.8-acre mitigation reef, which serves as the Town's nearshore coral nursery, or to an alternative artificial reef receiver site in Lake Worth Lagoon.

Table 1 shows the total number of stony coral colonies counted at the 25 transects along the Berth 1 wall during the survey on March 22, 2017. The total number of corals by species and size class was then estimated for the entire seawall using mean transect depth (7.9 m) and total length of the seawall (141.7 m) to calculate surface area (1,119 m^2), then multiplying by colony density from the 25 transects (survey area of 197 m^2). Based on these estimates of survey area and coral density, there are approximately 313 colonies ≥10 cm in diameter along the entire seawall; 273 are *Oculina robusta* and 23 are *Madracis decactis* (**Table 1**). The majority of colonies were observed in water depths of less than 5 m.

Based on transect densities, there are potentially 443 colonies between 6 and 10 cm in size along the entire seawall; 415 are *O. robusta* and 17 are *M. decants*. Thirty-six (36) colonies less than 5 cm in diameter were counted along the 25 transects: 35 *O. robusta* and 1 *Clacker arbuscular*. Based on these densities, there are approximately 205 colonies less than 5 cm in diameter.

Corals colonies ≥ 10 cm in diameter will be relocated for impact avoidance. Histological analyses of *Oculina* spp. and *M. didactic* from the Slip 3 walls at the Port of Palm Beach have shown that small colonies of these species are reproductive, suggesting the possibility of release of gametes at a very small size. Therefore, corals less than 10 cm in diameter will be available to the Town of Palm Beach coral nursery mitigation program.

Table 1. Number of colonies and species density within each size class during March 22, 2017 survey (25 transects combined) and potential number of colonies estimated for the entire seawall based on transect density and area (length x mean transect depth)

Species	Count of Colony Size Class			Potential # of Colonies		
	<5 cm	6 - 10 cm	> 10cm	<5 cm	6 - 10 cm	> 10cm
Madracis decactis	0	3	4	0	17	23
Cladocora arbuscula	1	0	0	6	0	0
Oculina robusta	35	73	48	199	415	273
Phyllangia americana	0	2	3	0	11	17
Total Coral Density	36	78	55	205	443	313

Description of Tasks

1. Coral Relocation- locating and collecting coral colonies

A team of 4 scientists will harvest the coral colonies for relocation. Prior to removal, colonies will be identified, measured (diameter), and condition (percent mortality and bleaching) will be recorded. Each diver will carry a basket separated into 2 bins, separating fragments of encrusting corals from corals greater than 10 cm. Removed colonies will be dislodged gently from the substrate surface using hammers and chisels. Extreme care will be taken to minimize impact to the colonies. Every effort will be made to remove colonies from the substrate without fragmentation. However, it is inevitable that some colonies (especially colonies with flat growth forms) will fragment during removal from the substrate. If a colony fragments, viable fragments greater than 3 cm will be relocated and reattached.

Care will be taken to minimize impact to the colonies while in the baskets. Colonies will not be layered within the baskets.

2. Transporting the collected colonies

Colony collection and transplantation to the receiver site is expected to occur on the same day. The colonies will be wrapped in bubble wrap packing material and kept on the vessel in coolers. The bubble wrap protects the colonies from abrasion from contact with other colonies and the sides of the coolers. The coolers will keep the colonies cool, damp, and out of the sun. The colonies will be in the coolers out of the water for only several hours. The plan is not to cache colonies; however, if weather and sea state become such that transplantation cannot immediately follow collection on the same day, corals will be cached in weighted bins overnight in a secure location, away from vessel traffic/disturbance, at the south end of the Port. The bins will be covered with plastic mesh to retain corals while allowing for adequate water exchange. Corals will be transported offshore on the day following harvest (maximum cache time of 24 hours).

3. Coral Transplantation

All corals will be transplanted onto the Town of Palm Beach 0.8-acre mitigation artificial reef, which also serves as the nearshore coral nursery for the Town of Palm Beach and receiver site for the Slip 3 and Berth 17 corals (**Figure 1**). Coral colonies and fragments of colonies greater than 3 cm in diameter will be reattached to the limestone boulders using All Fix two-part epoxy putty. The artificial reef surface and the underside of coral colonies shall be prepared for re-attachment by removing all turf, sediment, and debris with wire brushes. Coral colonies and fragments will be attached in groups of 6 to 8 colonies, dependent upon boulder morphology, avoiding colonies of *Cliona* spp., and maintaining at least 25 cm distance from existing corals. Transplant groups will be marked with permanent tags for identification during future monitoring events.

4. Colony monitoring

Baseline monitoring of the transplanted colonies will be performed on all colonies immediately post-transplantation. Each of the monitored colonies will be identified to species, checked for successful attachment, measured (maximum colony diameter) and

condition recorded (percent bleaching, percent old and recent mortality, and presence of disease and predation).

To documenting the success of the transplantation process, 50% of the transplanted stony corals colonies will be monitored during the post-transplant surveys. Individual colonies will not be tagged. Boulders will be tagged, and all colonies on the tagged boulders will be monitored. The number of boulders included in the effort will be sufficient to include the monitoring requirements stated above.

Within 30 days of completion of transplantation activities, a Time Zero Monitoring Report shall be prepared which documents the method of reattachment, total number of transplanted stony corals, and number of transplanted colonies of each species. At the time of reattachment, maximum diameter (longest colony axis) will be recorded and a brief visual assessment of coral health will be conducted. The transplanted corals shall be described as visually healthy, bleached/partially bleached, visual indications of sedimentation stress (i.e. excessive mucous production, polyp expansion), and percent tissue mortality. Colonies that are fragmented during harvesting will be noted, and the number of reattached fragments will be recorded. Diseased corals and colonies infested with the boring sponge, *Cliona* spp., shall not be transplanted. Representative still photographs of the reattached corals shall be taken to document the visual assessment of colony health

Additional monitoring events will occur at 6 months, 1-year, 2-years, and 3-years post-transplantation. The same monitoring procedures will be used during each event. After each monitoring event, the status of each tagged colony and change in status from previous events will be discussed. Annual reports of survivorship will be submitted to the FDEP and USACE which provide the survival and tissue mortality data in tabular and graphic presentations.

The reproductive potential of the transplants will be assessed in conjunction with the Town's coral nursery monitoring to demonstrate that the transplants are fecund and contributing to coral recruitment, thereby assuring no net loss of coral resources. Tissue samples will be taken from a subset of stony corals that have been in the nursery for a minimum of two years. Samples will be distributed between stony coral species based on abundance in the nursery (i.e. species in high abundance will be sampled more heavily). Sample collection will be timed to coincide with gamete production based on available information regarding spawning time for each species. For each species sampled, the oocyte development stage and number of oocytes per polyp or mesentery will be determined.

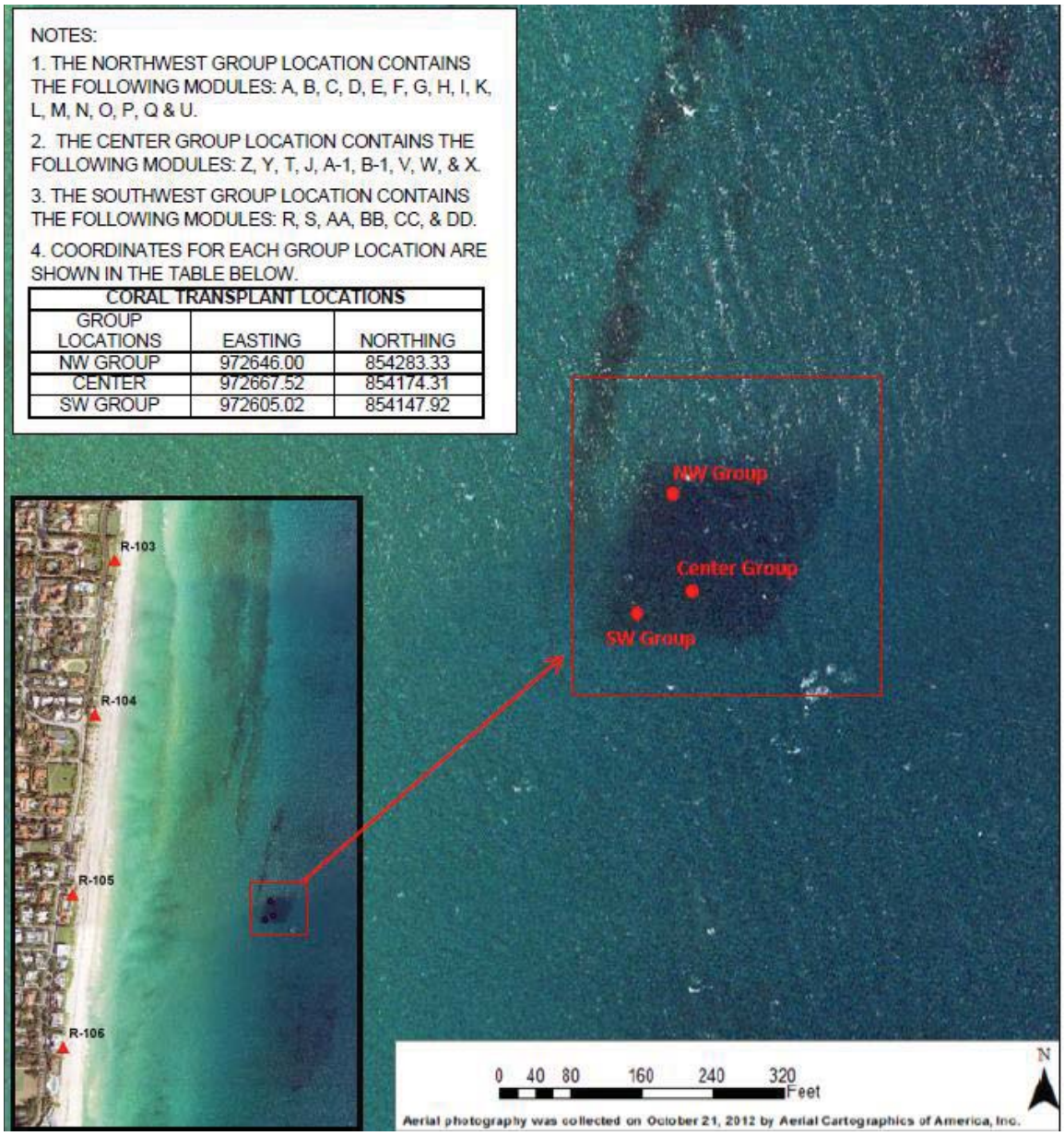

Figure 1. Location of Town's 0.8-acre nearshore coral nursery receiver site and transplant module groups from the Port of Palm Beach Slip 3 Project (Source: Time Zero Coral Transplant Monitoring Report, Slip 3, Letter Dated January 4, 2014, Tetra Tech Inc. and Coastal Eco-Group).

Port of Palm Beach
Berth 1 Stony Coral Survey Report

Submittal Date: April 2017

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This report provides the results of the stony coral survey of the seawall at Berth 1 at the Port of Palm Beach (POPB) conducted on March 22, 2017.

The CEG field team consisted of three scientific SCUBA divers/marine scientists proficient in stony coral identification, and one marine scientist on land to identify the vertical transect locations along the top of the seawall and direct the divers to each transect location. Twenty-seven transects were established in 5-m intervals in ArcGIS 10.5. The transects were located in the field with a handheld Trimble Geo 7X Differential GPS (DGPS) with decimeter accuracy. The Rybovich floating dry dock is currently moored in Berth 1 and occupies more than half of the length of the seawall. The dry dock was moved from one end of the wall to the other end during the survey to provide divers with safe, unimpeded access to the seawall. However, the dry dock blocked access to Transects 15 and 16 at both locations; therefore, these transects were not surveyed. DGPS coordinates were collected at the 25 transects at the time of the survey (**Figure 1)**.

Transect lengths ranged between 23.0 ft. (7.0 m) and 31.0 ft. (9.4 m) and were 1 m in width for a total survey area of 646 sq. ft. (197 sq. m). Divers carried a meter stick to reference the 1.0-m transect width and surveyed the length of the wall to the seafloor.

The following data were collected for all stony coral colonies ≥ 3 cm in diameter within 0.5 m on either side of the transect line (1-m wide belt):

- Species including a note if the species is listed as threatened under the Endangered Species Act.
- Colony diameter (longest axis);
- Overall health (i.e., presence of disease or bleaching)
- Percent live tissue; and
- General description of colony location along the wall transect and depth.

All stony coral colonies were documented with still digital photography (**Appendix I**). Divers also noted the presence of long-spined urchins (*Diadema antillarum*) along each transect.

RESULTS

A total of 169 stony coral colonies representing 4 species were recorded along the 25 vertical transects (**Table 1**). There were no federally listed species observed during the survey. *Oculina robusta* was the most common species (n=156), followed by *Madracis decactis* (n=7). *Oculina* colonies were identified as *O. robusta* based on their encrusting morphology and widely spaced corallites; however, some of these colonies may be *O. diffusa.* Overall average colony size was 8.7 ±0.4 cm (mean ±SE); colonies ranged in size from 3 cm to 38 cm (*O. robusta*, Transect 26). The majority of colonies were in the 6 cm to 9 cm size class (**Table 2**). Colonies of *M. decactis* and *Phyllangia americana* less than 5 cm in diameter were not observed. **Table 3** presents the number of colonies and density of each species at each transect.

Colonies occur at depths ranging from 1.0 ft. (0.3 m) to 29.0 ft. (8.8 m) with an average depth of 7.0 ft. ±0.4 (2.1 m ±0.1). The majority of colonies were observed in less than 15 ft. (**Table 4**). Bleaching was observed in 74% of colonies; 25% were 100% bleached at the time of the survey, and 42% experienced greater than 50% bleaching. Most of the bleaching was observed in *Oculina* colonies; 79% of *Oculina* colonies in less than 5 ft. of water were bleached. *Oculina* is a facultative zooxanthellate coral, meaning that it can exist as a healthy colony without zooxanthellae. In the Port environment, thermally-stressed *Oculina* colonies in the top 5 ft. of the water column can survive on heterotrophy.

Average colony mortality was higher in shallower water depths. Partial mortality was recorded in 92 colonies (54%). Percent mortality ranged from 2% to 92%. Thirteen colonies had greater than 50% mortality. Only four colonies had greater than 75% mortality; all four colonies were *O. robusta* less than 10 cm in diameter and located in less than 10 ft. Most of the colonies located in less than 5 ft. water depth were located under the beam of the seawall or under the large floating fenders and were subject to high wave action, low light, and exposure to air during low tide.

Large boulders with attached coral colonies were observed on the seafloor at Transect 1. *Diadema antillarum* were observed at 8 of the 25 transects (**Table 5**). The number of individuals was generally low, 1-4 urchins; however, over 30 juvenile long-spined urchins were observed at Transect 2.

Orange cup coral (*Tubastraea coccinea*) was observed on the bottom of large floating buoys which line the top of the seawall (**Photo 24**). *Tubastraea coccinea* is an azooxanthellate coral indigenous to the Indo-Pacific. Ship hulls are the likely vector of introduction to the western Atlantic Ocean (Cairns, 2000).

The total number of corals by species and size class was estimated for the entire seawall at Berth 1 using mean transect depth (7.9 m) and total length of the seawall (141.7 m) to calculate surface area (1,119 m^2), then multiplying by colony density from the 25 transects (survey area of 197 m^2) (**Table 6**). Based on these estimates of survey area and coral density, there are 313 colonies ≥10 cm in diameter along the entire seawall; 273 are *O. robusta* and 23 are *M. decactis*. There are 352 colonies between 6 and 9 cm in size; 324 of these are *O. robusta* and 17 are *M. decactis*. Based on the survey data, there are no colonies of *Cladocora arbuscular* greater than 5 cm, and 28 colonies of *P. americana* greater than 5 cm in diameter.

Port of Palm Beach Berth 1 Stony Coral Survey
Vertical Seawall Transect Location Map

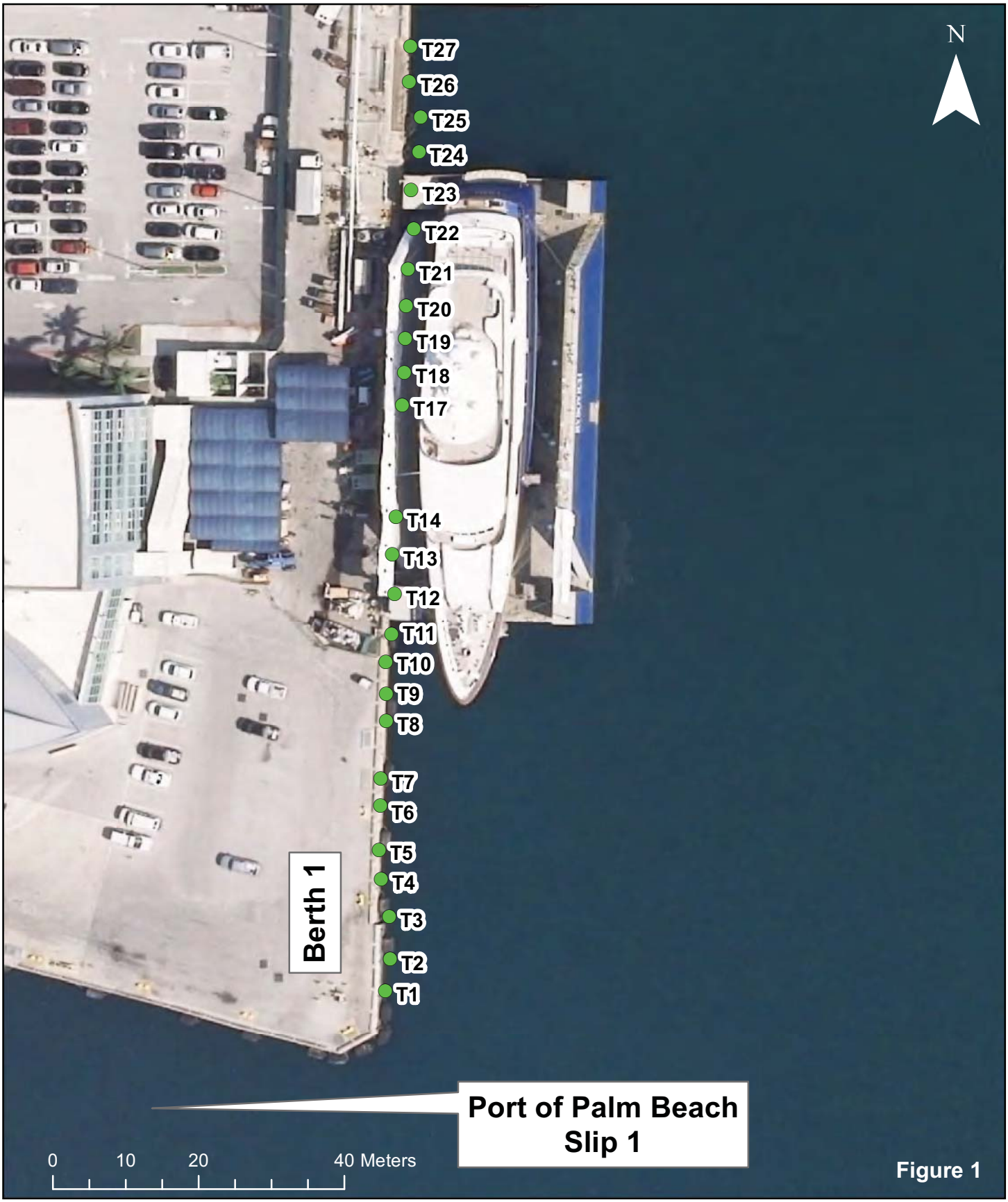


Figure 1

Table 1. Species, size, and location of stony coral colonies at transects on the Berth 1 seawall.

Transect	Depth of Transect (ft)	Depth of Transect (m)	Species	Number of Colonies	Density (colonies/m^2)	Size Range (cm)		Average Size (cm ±SE)	Depth Range of Species (ft)	
						Min	Max		Min	Max
1	31	9.4	*Madracis decactis*	1	0.11	7	7	7.0	22	22
			Oculina robusta	8	0.85	4	21	11.5 ±2.1	4	16
2	26	7.9	*Oculina robusta*	4	0.50	4	11	8.5 ±1.6	8	25
3	25	7.6	*Oculina robusta*	10	1.31	4	11	6.9 ±0.9	6	20
			Phyllangia americana	1	0.13	10	10	10.0	6	6
4	26	7.9	*Oculina robusta*	6	0.76	3	7	5.7 ±0.6	4	23
5	25	7.6	*Oculina robusta*	2	0.26	12	18	15.0 ±3.0	4	5
6	25	7.6	*Oculina robusta*	2	0.26	13	17	15.0 ±2.0	4	6
7	25	7.6	*Madracis decactis*	1	0.13	9	9	9.0	14	14
			Oculina robusta	6	0.79	3	10	6.8 ±1.1	4	10
8	25	7.6	*Oculina robusta*	4	0.52	4	10	7.0 ±1.2	5	9
9	24	7.3	*Oculina robusta*	8	1.09	3	10	6.9 ±0.9	6	14
			Phyllangia americana	1	0.14	7	7	7.0	4	4
10	24	7.3	*Cladocora arbuscula*	1	0.14	4	4	4.0	5	5
			Oculina robusta	6	0.82	4	15	8.7 ±1.6	4	17
			Phyllangia americana	1	0.14	10	10	10.0	4	4
11	23	7.0	*Oculina robusta*	7	1.00	3	11	6.3 ±1.0	3	6
12	23	7.0	*Oculina robusta*	3	0.43	5	7	6.3 ±0.7	5	7
			Phyllangia americana	1	0.14	9	9	9.0	5	5
13	25	7.6	*Oculina robusta*	15	1.97	3	14	6.8 ±0.9	3	15
14	25	7.6	*Oculina robusta*	10	1.31	3	20	9.1 ±2.0	3	13
17	24	7.3	*Oculina robusta*	5	0.68	5	18	10.4 ±2.6	2	14
18	25	7.6	*Oculina robusta*	6	0.79	3	17	7.5 ±2.2	3	10
19	25	7.6	*Oculina robusta*	5	0.66	3	10	7.4 ±1.2	3	7
20	25	7.6	*Oculina robusta*	3	0.39	6	15	11.0 ±2.6	1	3
21	28	8.5	*Oculina robusta*	2	0.23	3	22	12.5 ±9.5	1	1
22	28	8.5	*Oculina robusta*	4	0.47	3	7	5.0 ±0.9	4	17
23	28	8.5	*Madracis decactis*	2	0.23	17	35	26.0 ±9.0	27	29
			Oculina robusta	3	0.35	5	18	10.7 ±3.8	2	14
24	29	8.8	*Oculina robusta*	6	0.68	4	16	7.7 ±1.8	1	3
25	31	9.4	*Madracis decactis*	1	0.11	6	6	6.0	6	6
			Oculina robusta	9	0.95	3	15	8.8 ±1.5	2	12
26	25	7.6	*Oculina robusta*	6	0.79	8	38	16.8 ±4.8	3	15
27	26	7.9	*Madracis decactis*	2	0.25	12	21	16.5 ±4.5	21	21
			Oculina robusta	16	2.02	4	17	7.4 ±0.9	2	12
			Phyllangia americana	1	0.13	20	20	20.0	2	2

Note: Transects 15 and 16 could not be surveyed because the dry dock prevented access to this area.

Table 2. Number of colonies and species density within each size class (all transects combined).

Species	Count of Colony Size Class			Colony Size Class Density		
	3 - 5 cm	6 - 9 cm	≥ 10cm	3 - 5 cm	6 - 9 cm	≥ 10cm
Cladocora arbuscula	1	0	0	0.01	0.00	0.00
Madracis decactis	0	3	4	0.00	0.02	0.02
Oculina robusta	51	57	48	0.26	0.29	0.24
Phyllangia americana	0	2	3	0.00	0.01	0.02
Total Coral Density	52	62	55	0.26	0.31	0.28

Table 3. Number of colonies and species density within each size class at transects along the Berth 1 seawall.

Transect	Species	Count of Colony Size Class			Colony Size Class Density		
		3 - 5 cm	6 - 9 cm	≥ 10cm	3 - 5 cm	6 - 9 cm	≥ 10cm
1	*Madracis decactis*	0	1	0	0.00	0.11	0.00
	Oculina robusta	2	1	5	0.21	0.11	0.53
2	*Oculina robusta*	1	1	2	0.13	0.13	0.25
3	*Oculina robusta*	4	3	3	0.52	0.39	0.39
	Phyllangia americana	0	0	1	0.00	0.00	0.13
4	*Oculina robusta*	2	4	0	0.25	0.50	0.00
5	*Oculina robusta*	0	0	2	0.00	0.00	0.26
6	*Oculina robusta*	0	0	2	0.00	0.00	0.26
7	*Madracis decactis*	0	1	0	0.00	0.13	0.00
	Oculina robusta	2	2	2	0.26	0.26	0.26
8	*Oculina robusta*	1	2	1	0.13	0.26	0.13
9	*Oculina robusta*	3	4	1	0.41	0.55	0.14
	Phyllangia americana	0	1	0	0.00	0.14	0.00
10	*Cladocora arbuscula*	1	0	0	0.14	0.00	0.00
	Oculina robusta	1	3	2	0.14	0.41	0.27
	Phyllangia americana	0	0	1	0.00	0.00	0.14
11	*Oculina robusta*	3	3	1	0.43	0.43	0.14
12	*Oculina robusta*	1	2	0	0.14	0.29	0.00
	Phyllangia americana	0	1	0	0.00	0.14	0.00
13	*Oculina robusta*	6	7	2	0.79	0.92	0.26
14	*Oculina robusta*	5	1	4	0.66	0.13	0.52
17	*Oculina robusta*	1	2	2	0.14	0.27	0.27
18	*Oculina robusta*	4	0	2	0.52	0.00	0.26
19	*Oculina robusta*	1	3	1	0.13	0.39	0.13
20	*Oculina robusta*	0	1	2	0.00	0.13	0.26
21	*Oculina robusta*	1	0	1	0.12	0.00	0.12
22	*Oculina robusta*	2	2	0	0.23	0.23	0.00
23	*Madracis decactis*	0	0	2	0.00	0.00	0.23
	Oculina robusta	1	1	1	0.12	0.12	0.12
24	*Oculina robusta*	3	2	1	0.34	0.23	0.11
25	*Madracis decactis*	0	1	0	0.00	0.11	0.00
	Oculina robusta	2	3	4	0.21	0.32	0.42
26	*Oculina robusta*	0	3	3	0.00	0.39	0.39
27	*Madracis decactis*	0	0	2	0.00	0.00	0.25
	Oculina robusta	5	7	4	0.63	0.88	0.50
	Phyllangia americana	0	0	1	0.00	0.00	0.13

Table 4. Number of colonies, average percent bleaching and mortality for each species recorded on the Berth 1 seawall.

Species	Number of Colonies by Depth			Bleaching (%)			Mortality (%)		
	< 5 ft	5 - 15 ft	> 15 ft	< 5 ft	5 - 15 ft	> 15 ft	< 5 ft	5 - 15 ft	> 15 ft
Madracis decactis	0	2	5		1.0% ±1.0	36.0% ±22.0		2.5% ±2.5	20.0% ±12.2
Cladocora arbuscula	0	1	0		20.0%			25.00%	
Oculina robusta	68	78	10	79.4% ±3.9	25.8% ±4.0	11.0% ±9.9	24.3% ±3.1	11.9% ±2.4	1.0% ±1.0
Phyllangia americana	3	2	0	1.7% ± 1.7	0.0%		0.0%	2.0% ±2.0	
Total	71	83	15	76.1% ±4.2	24.5% ±3.8	19.3% ±9.9	23.3% ±3.0	11.6% ±2.2	7.3% ±4.5

Table 5. Number of *Diadema antillarum* at eight transects where present during survey.

Transect	No. of Individuals
2	>30 (juv)
3	2
4	1
10	2
11	4
14	2
22	3
25	2

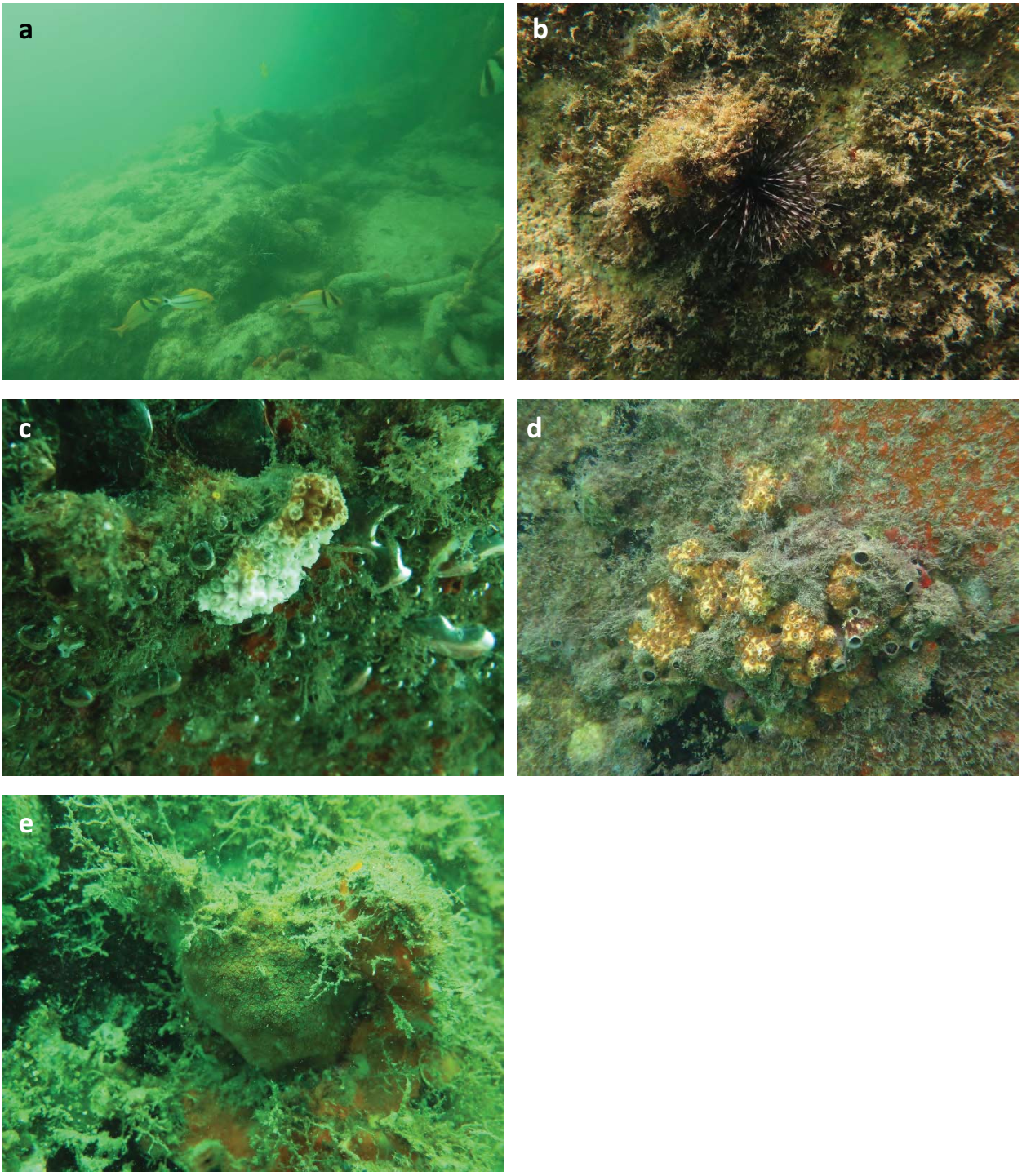
Table 6. Number of colonies by species and size class observed estimated for the entire length of seawall at Berth 1 based on transect density calculated from transects and area of seawall (length x mean transect depth).

Species	Count of Colony Size Class			Potential # of Colonies		
	<5 cm	6 - 9 cm	≥ 10cm	<5 cm	6 - 9 cm	≥ 10cm
Cladocora arbuscula	1	0	0	6	0	0
Madracis decactis	0	3	4	0	17	23
Oculina robusta	51	57	48	290	324	273
Phyllangia americana	0	2	3	0	11	17
Total Coral Density	52	62	55	296	352	313

APPENDIX I

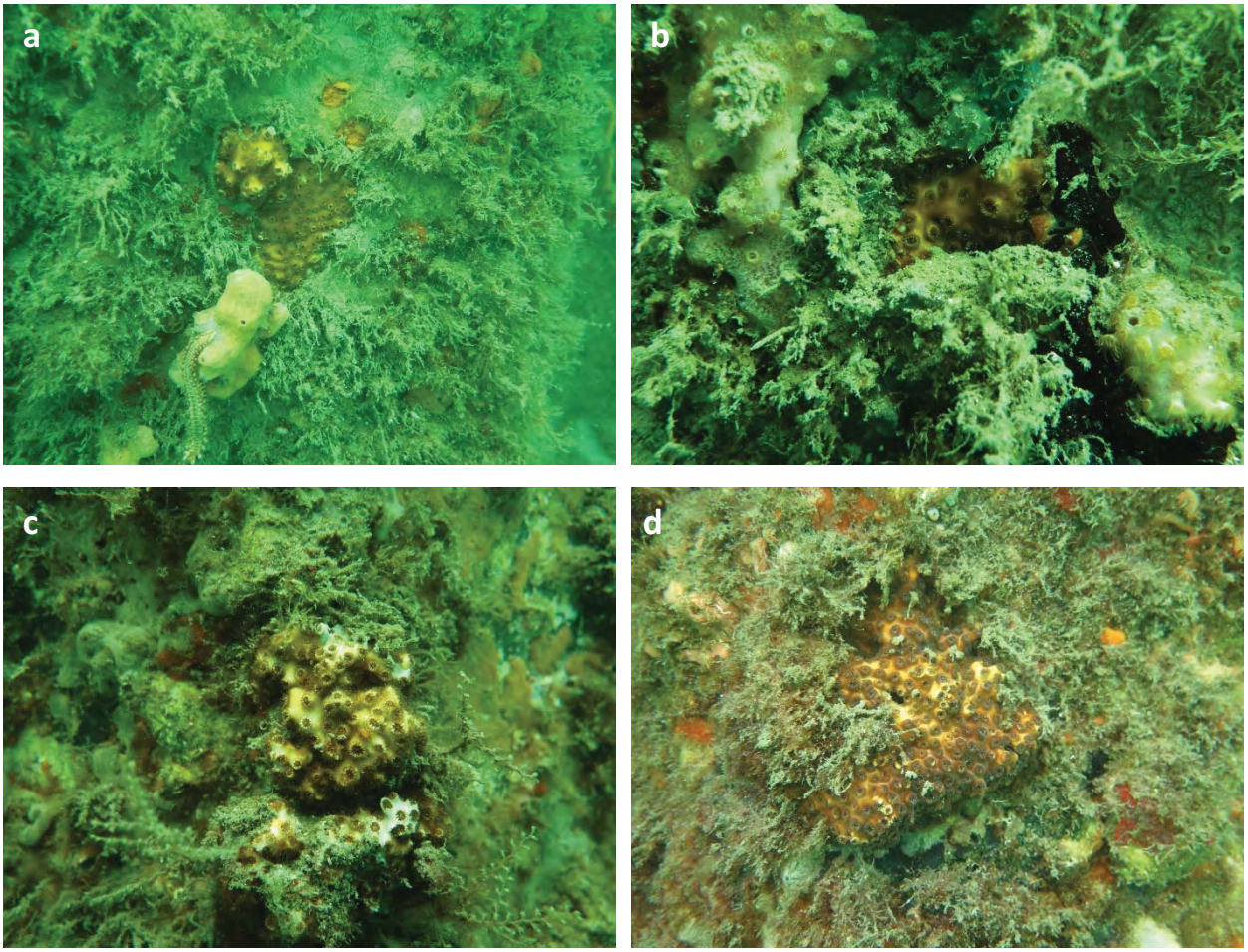
REPRESENTATIVE PHOTOS

Transect 1



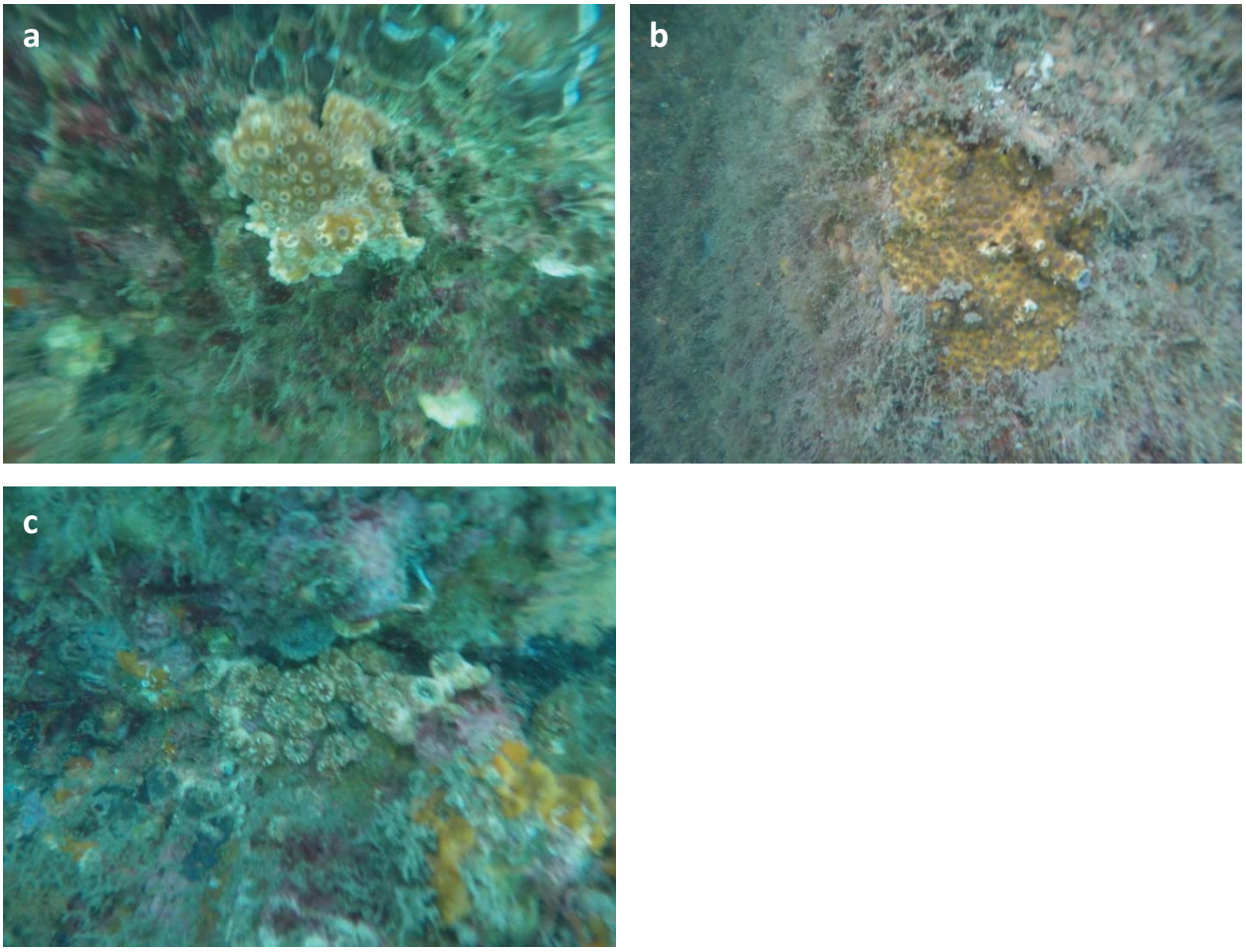
(a) Large rubble with attached stony corals on seafloor; (b) Juvenile *D. antillarum*; (c) Bleached *O. robusta* colony under beam (d) Healthy *O. robusta* colony; and (e) Healthy *M. decactis* colony at Transect 1

Transect 2



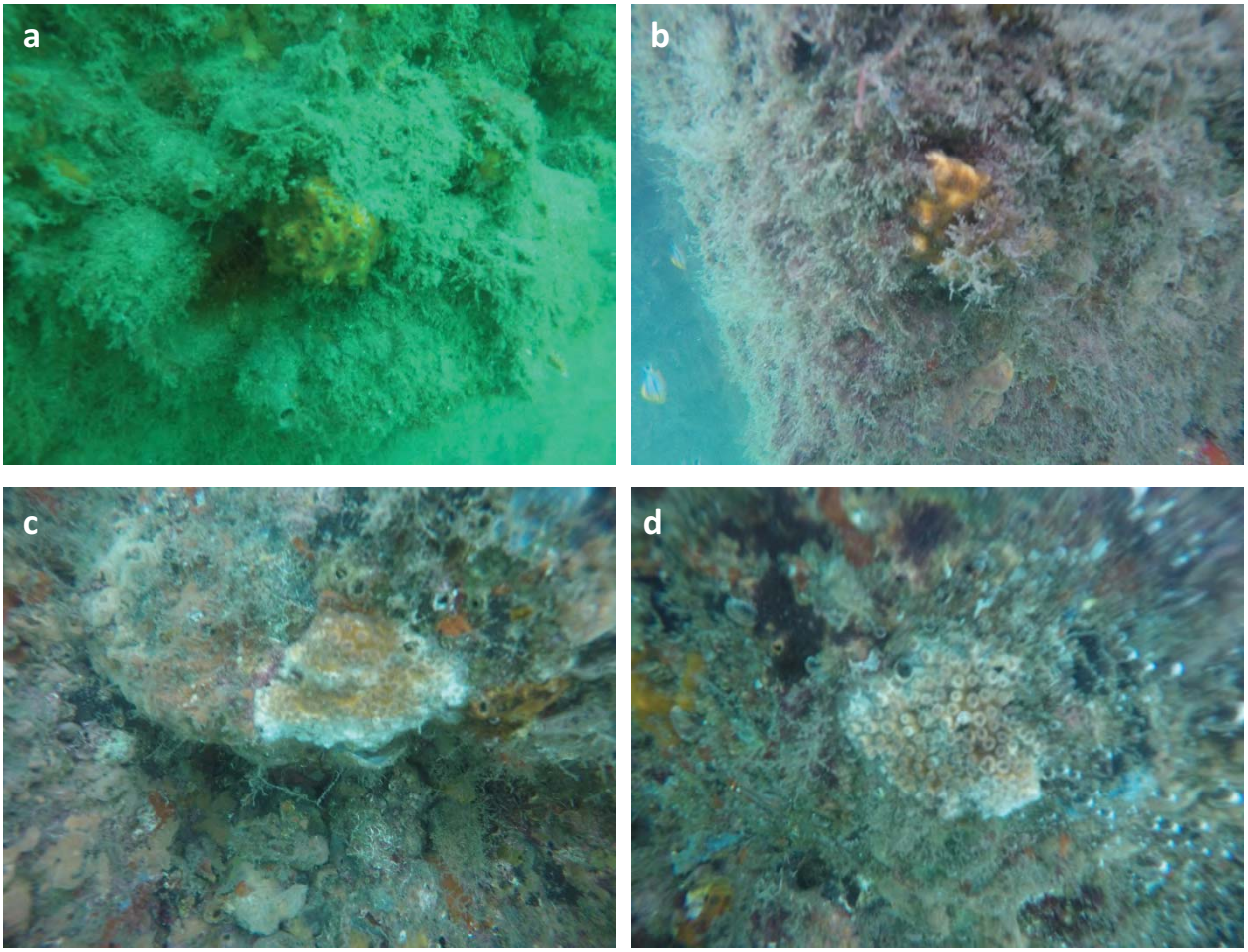
(a-d) *Oculina robusta* colonies on seawall at Transect 2 with partial bleaching; and (c) and partial old mortality (c & d)

Transect 3



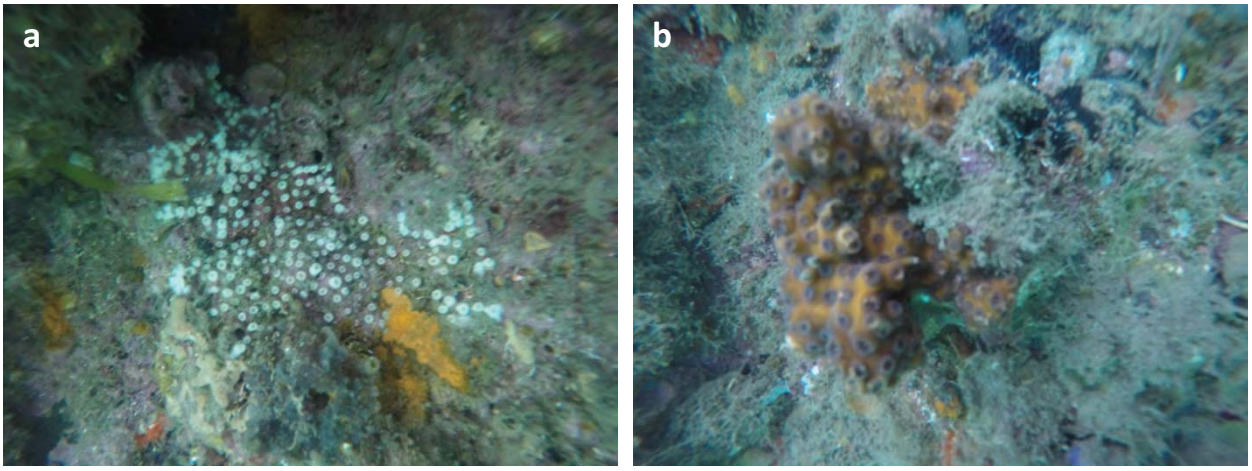
(a) Partially bleached *O. robusta* colony under beam; (b Healthy *O. robusta* colony; and (c) Healthy *Phyllangia americana* colony at Transect 3

Transect 4



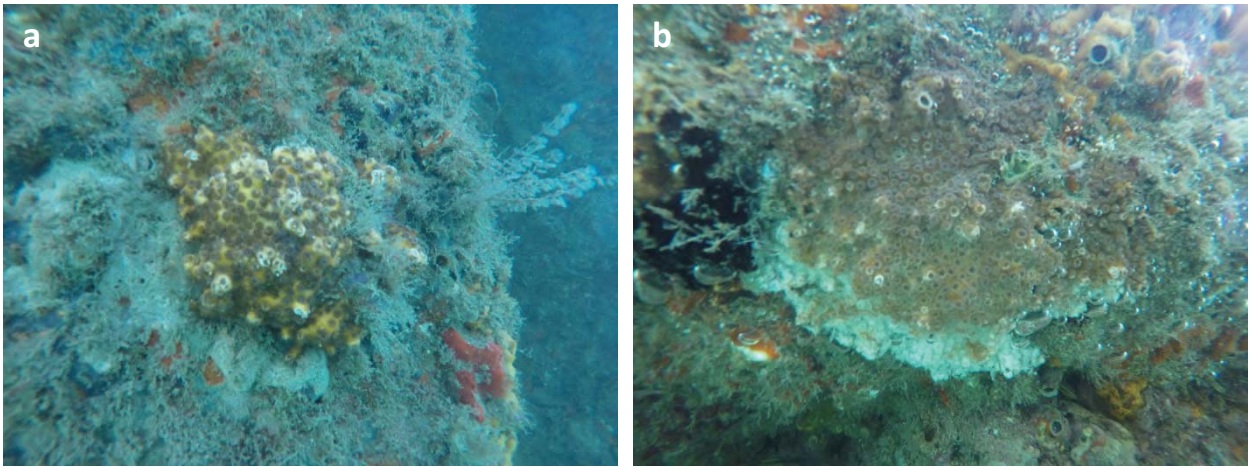
(a) Healthy *O. robusta* colony; (b) *O. rubusta* colony with slight bleaching; and (c-d) Colonies of *O. robusta* with ≥ 50% bleached tissue at Transect 4

Transect 5



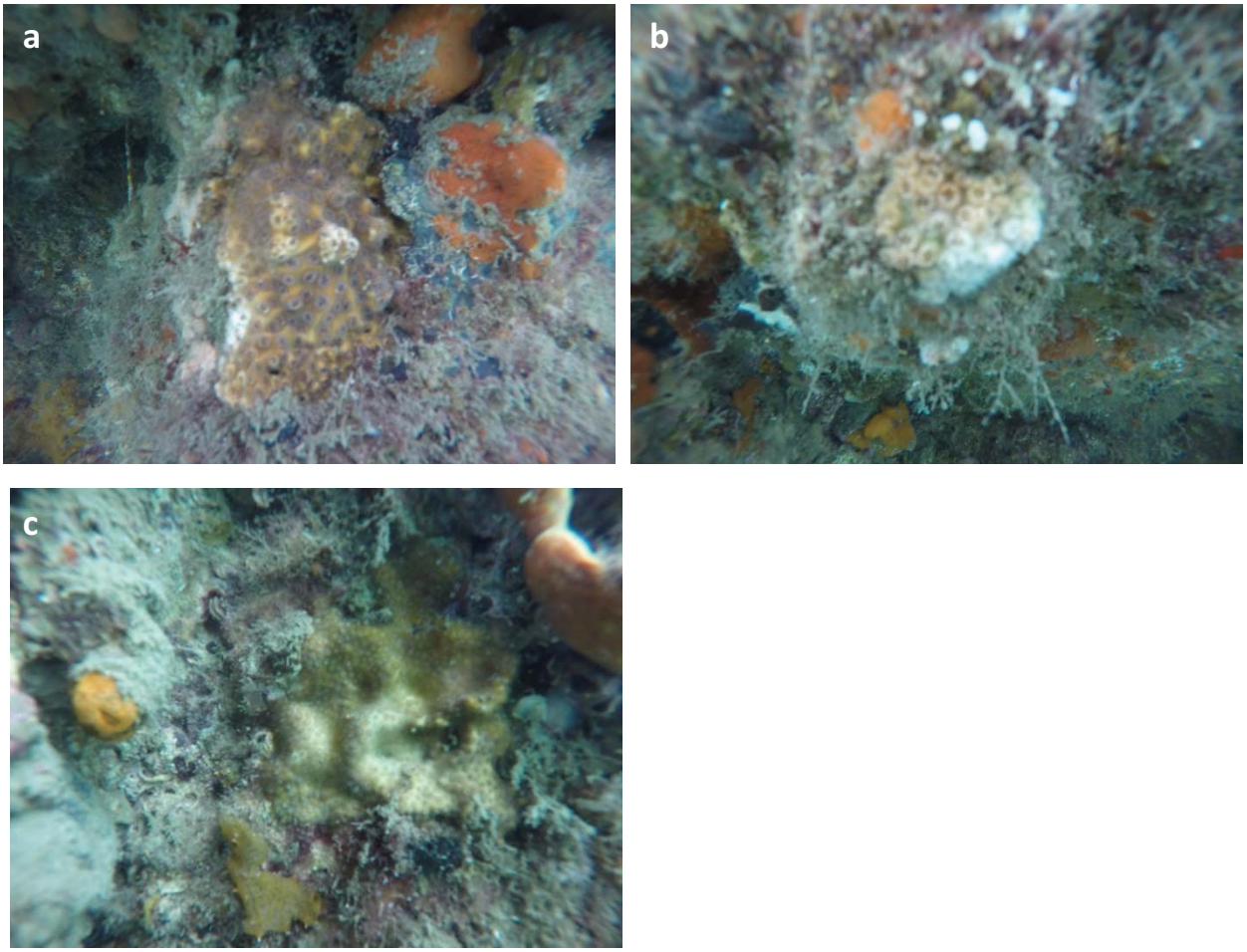
(a) Mostly bleached *O. robusta* colony with old mortality; and (b) *O. robusta* colony with old mortality at Transect 5

Transect 6



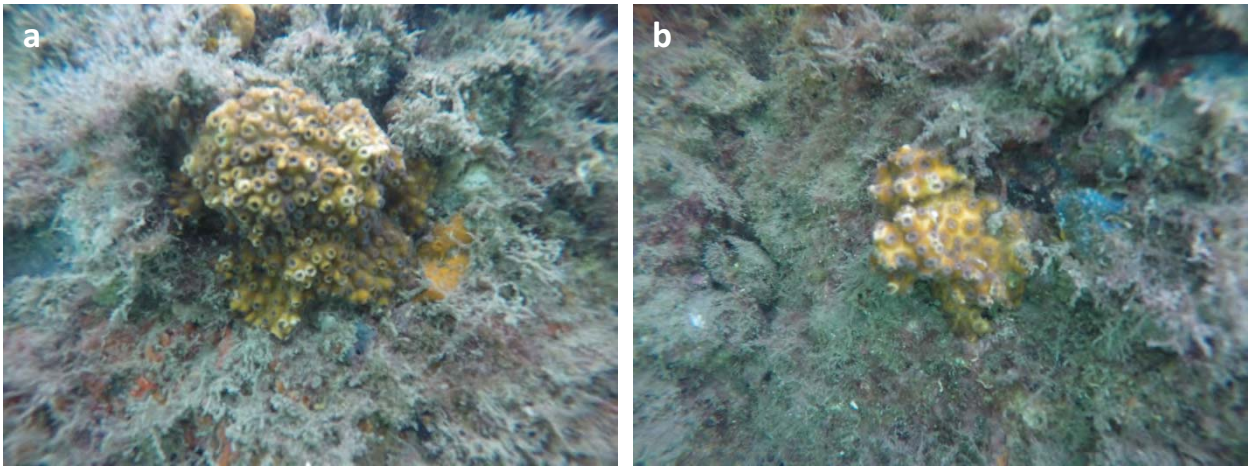
(a) Healthy *O. robusta* colony with old mortality; and (b) Partially bleached *O. robusta* colony

Transect 7



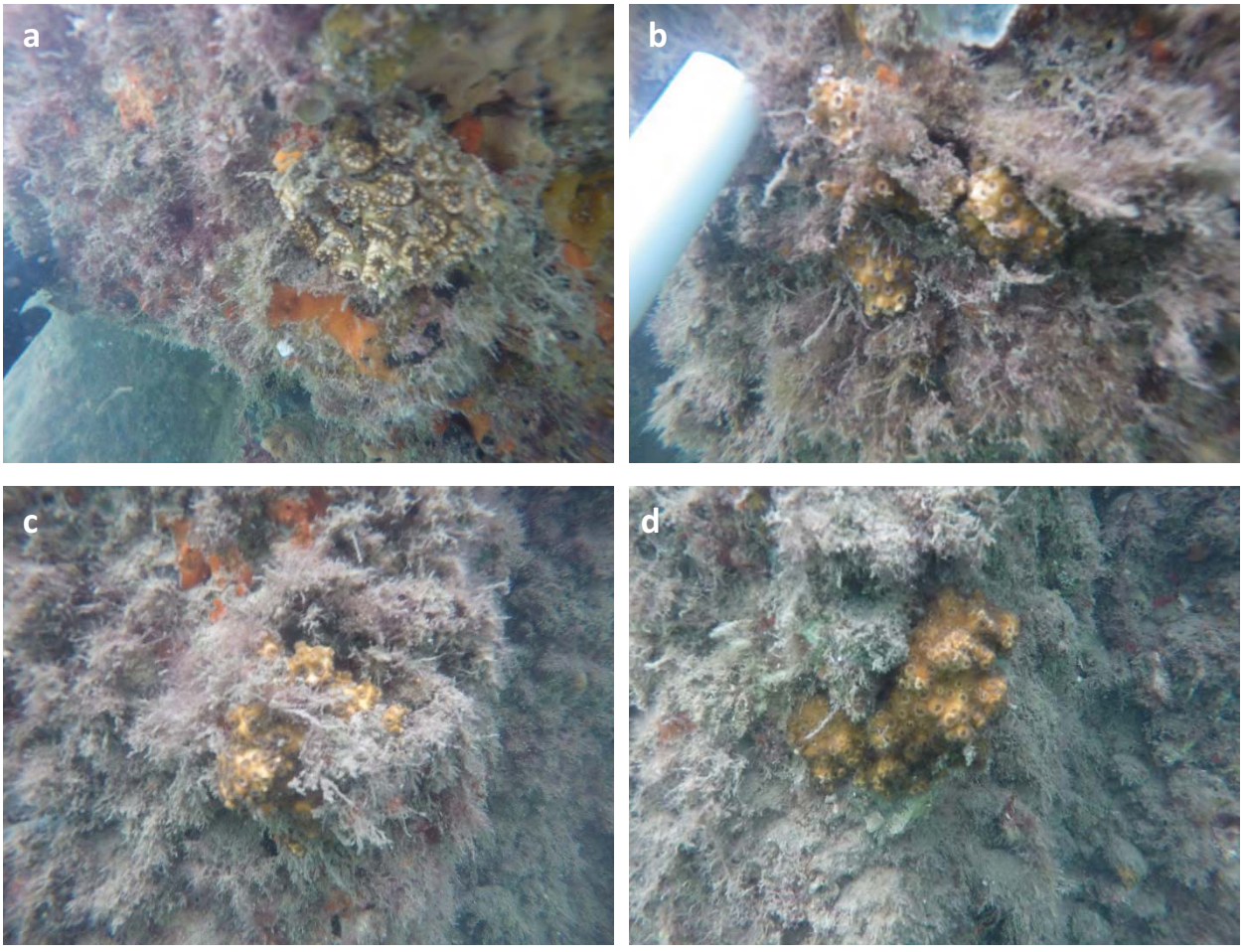
(a-b) Partially bleached *O. robusta* colonies; and (c) Healthy *M. decactis* colony on Transect 7

Transect 8



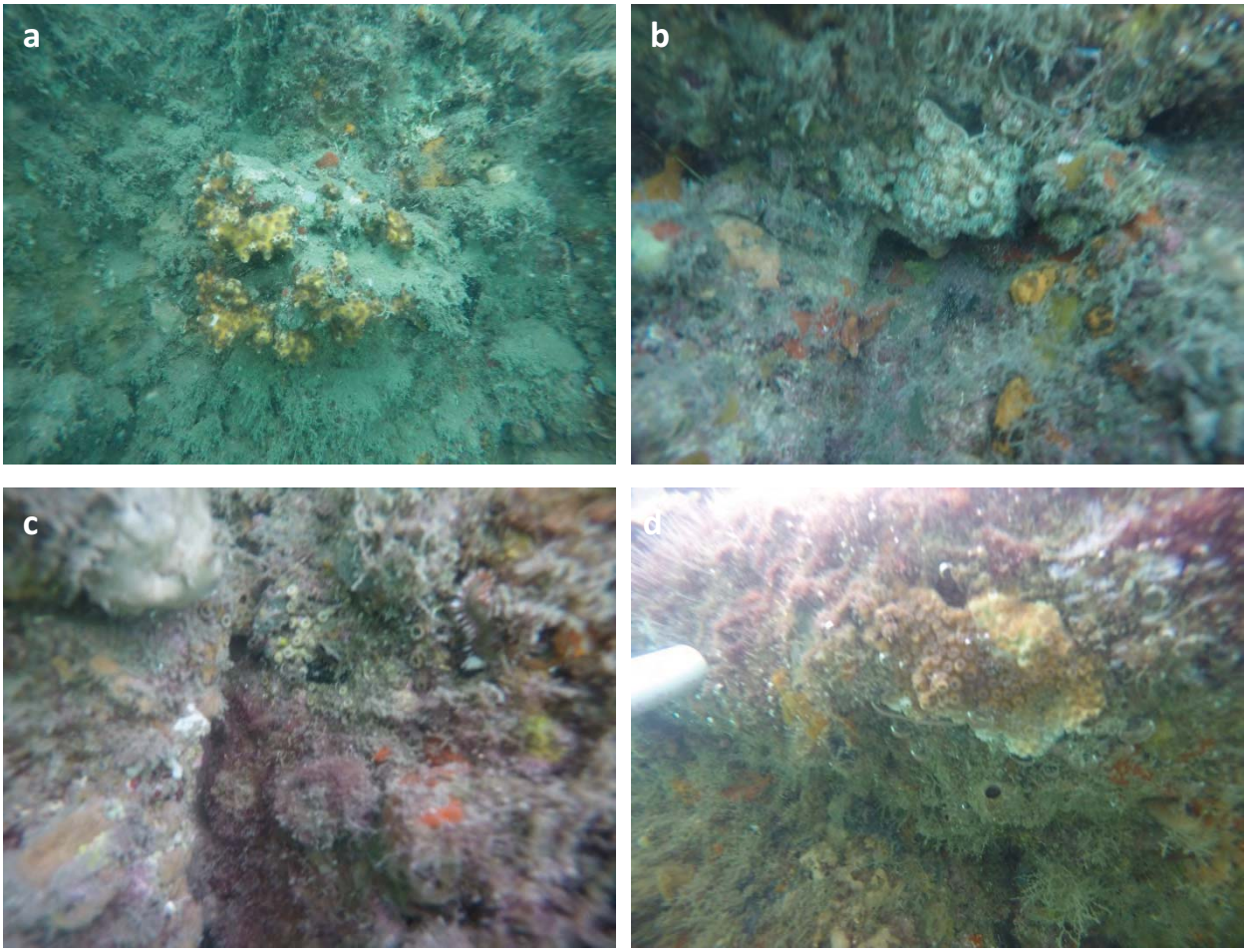
(a) Healthy *O. robusta* colony; and (b) *O. robusta* colony with partial old mortality on Transect 8

Transect 9



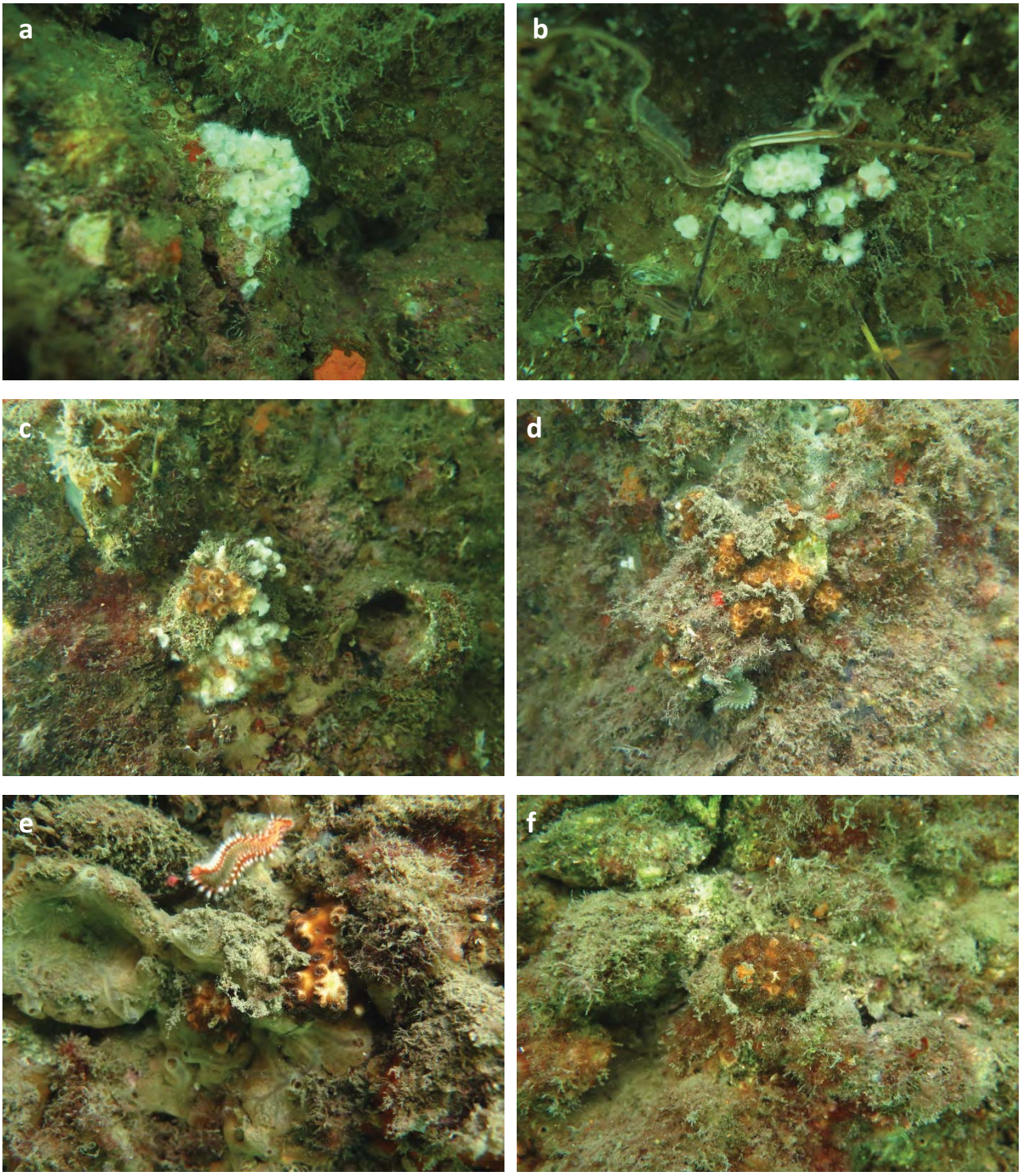
(a) Healthy *P. americana* colony; and (b-d) *O. robusta* colonies; on Transect 9

Transect 10



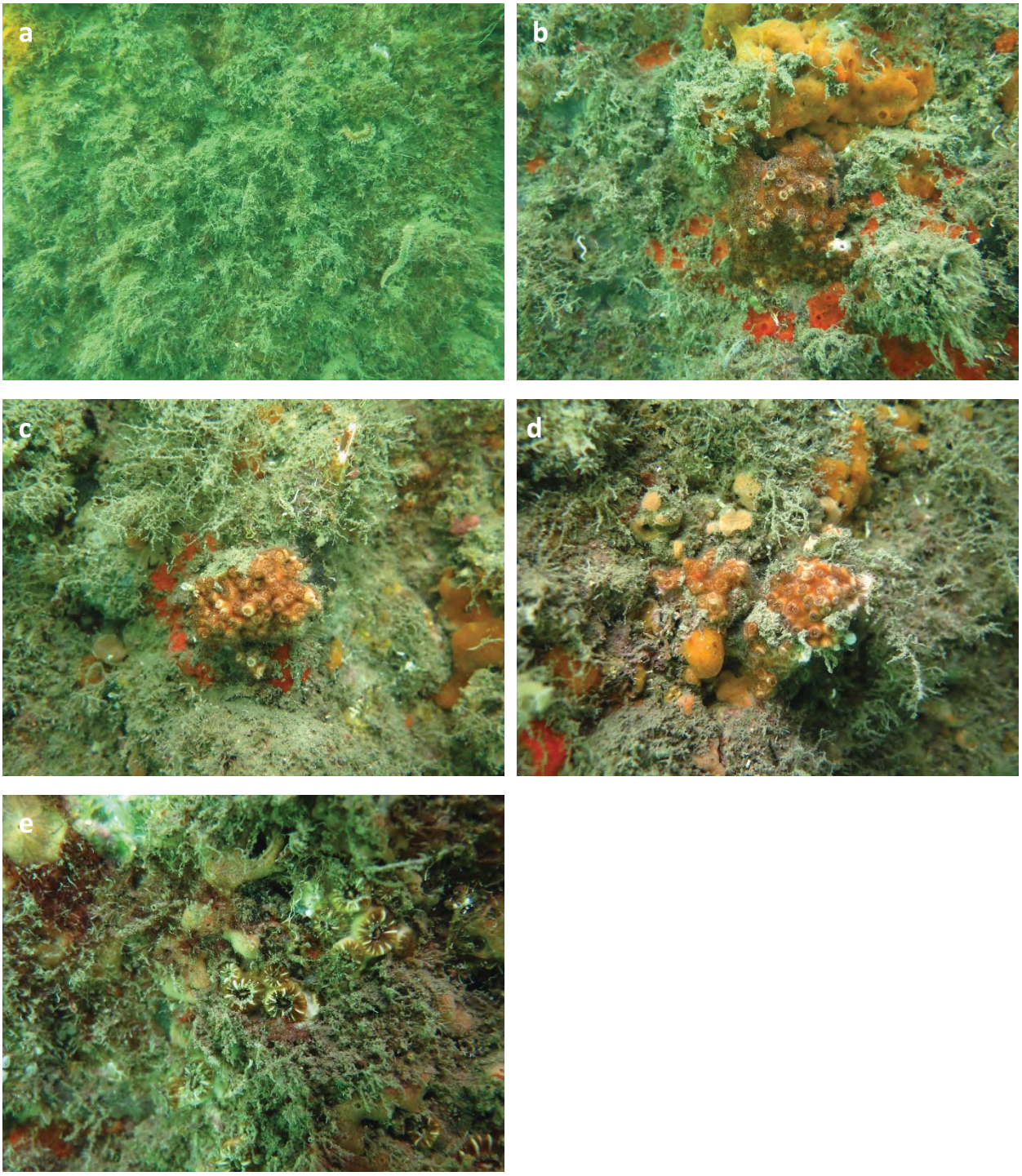
(a) Healthy *O. robusta* colony; (b) Healthy *P. americana* colony; (c) Partially bleached *Cladocora arbuscula*; and (d) Partially bleached *O. robusta* colony on Transect 10

Transect 11



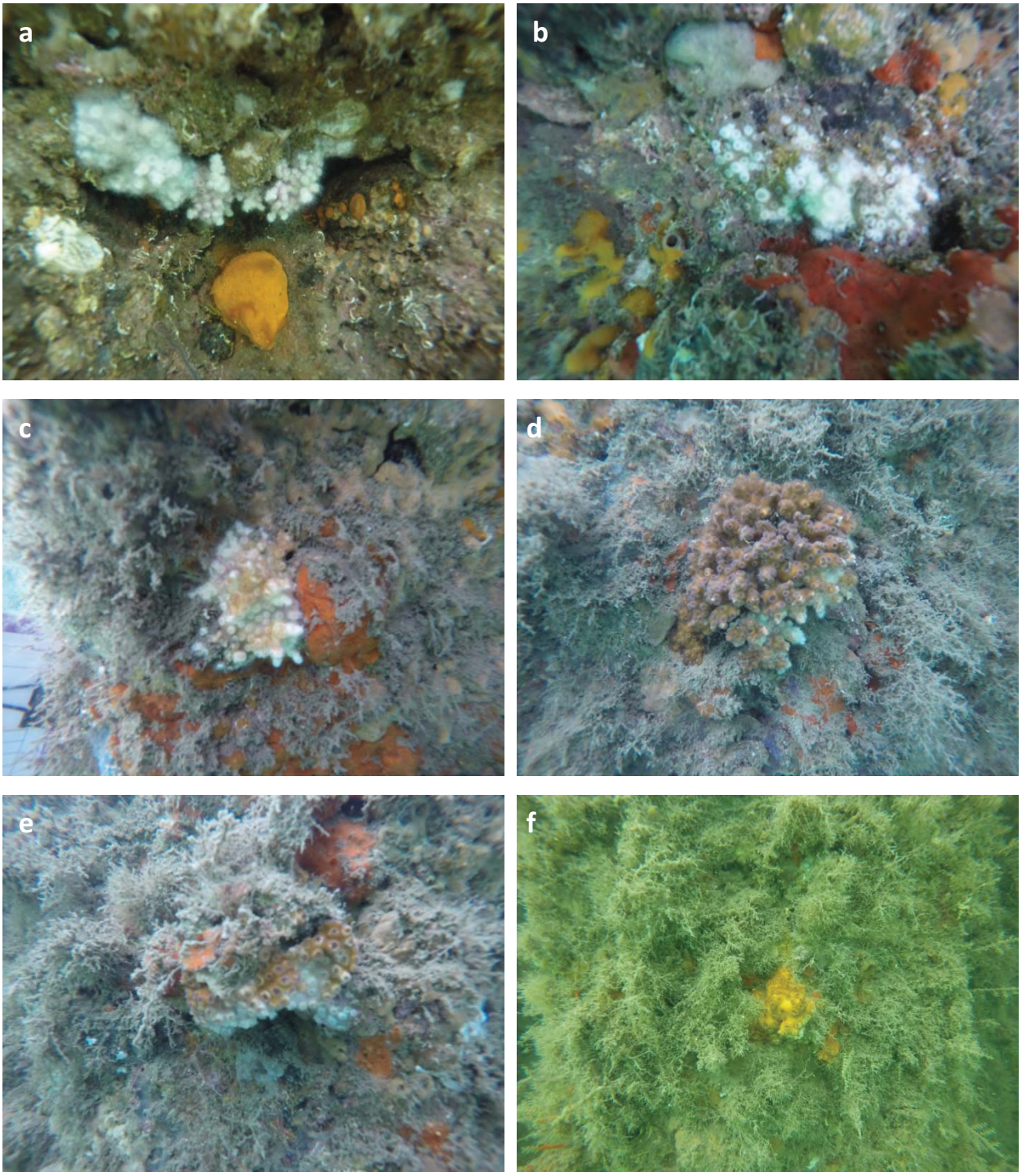
(a-b) Completely bleached *O. robusta* colonies; (c-e) Partially bleached *O. robusta* colonies; and (f) Healthy *O. robusta* colony on Transect 11

Transect 12



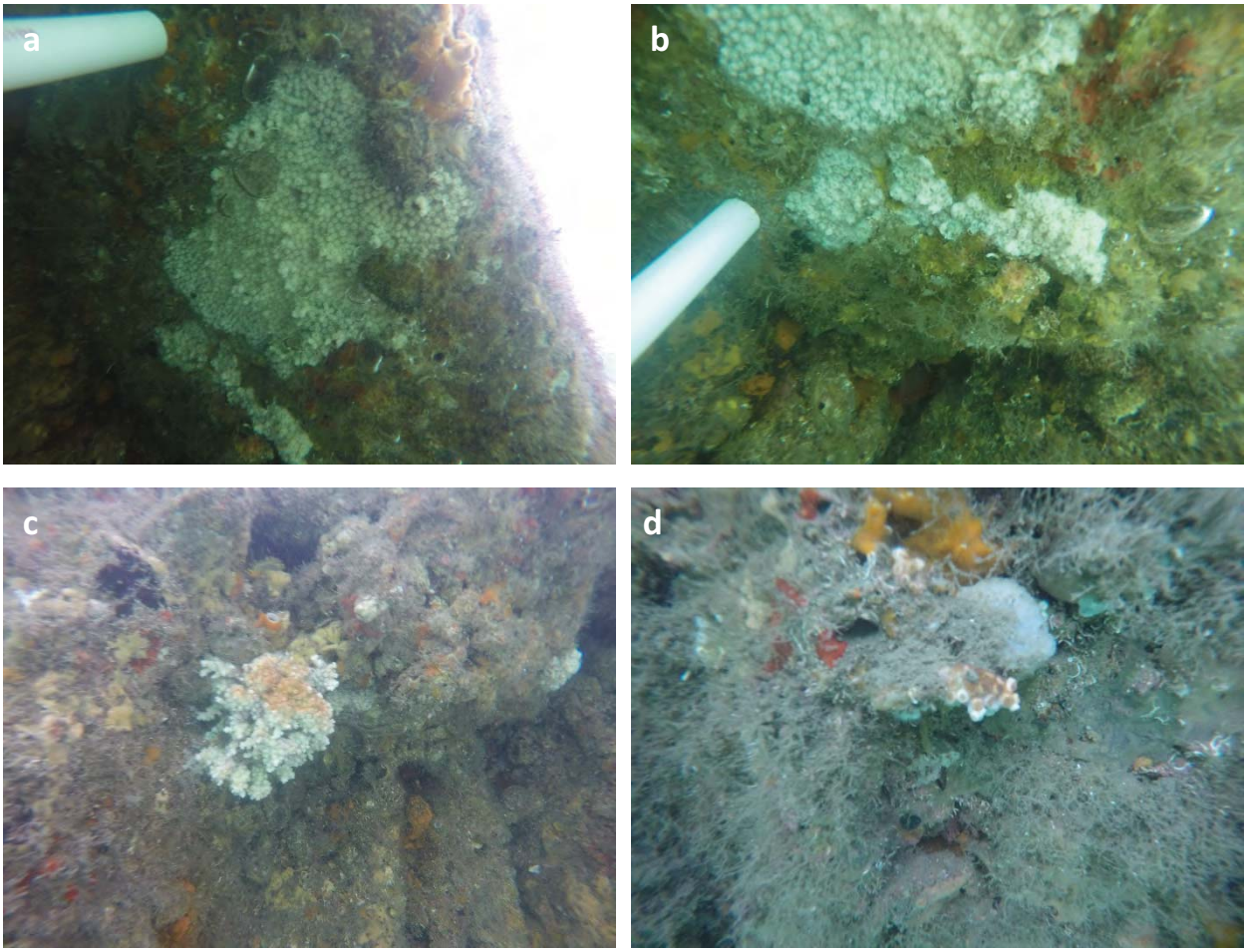
(a) Landscape view of the seawall; (b-d) Colonies of *O. robusta* with < 5% bleaching and old mortality; and (e) Healthy *P. americana* colony on Transect 12

Transect 13



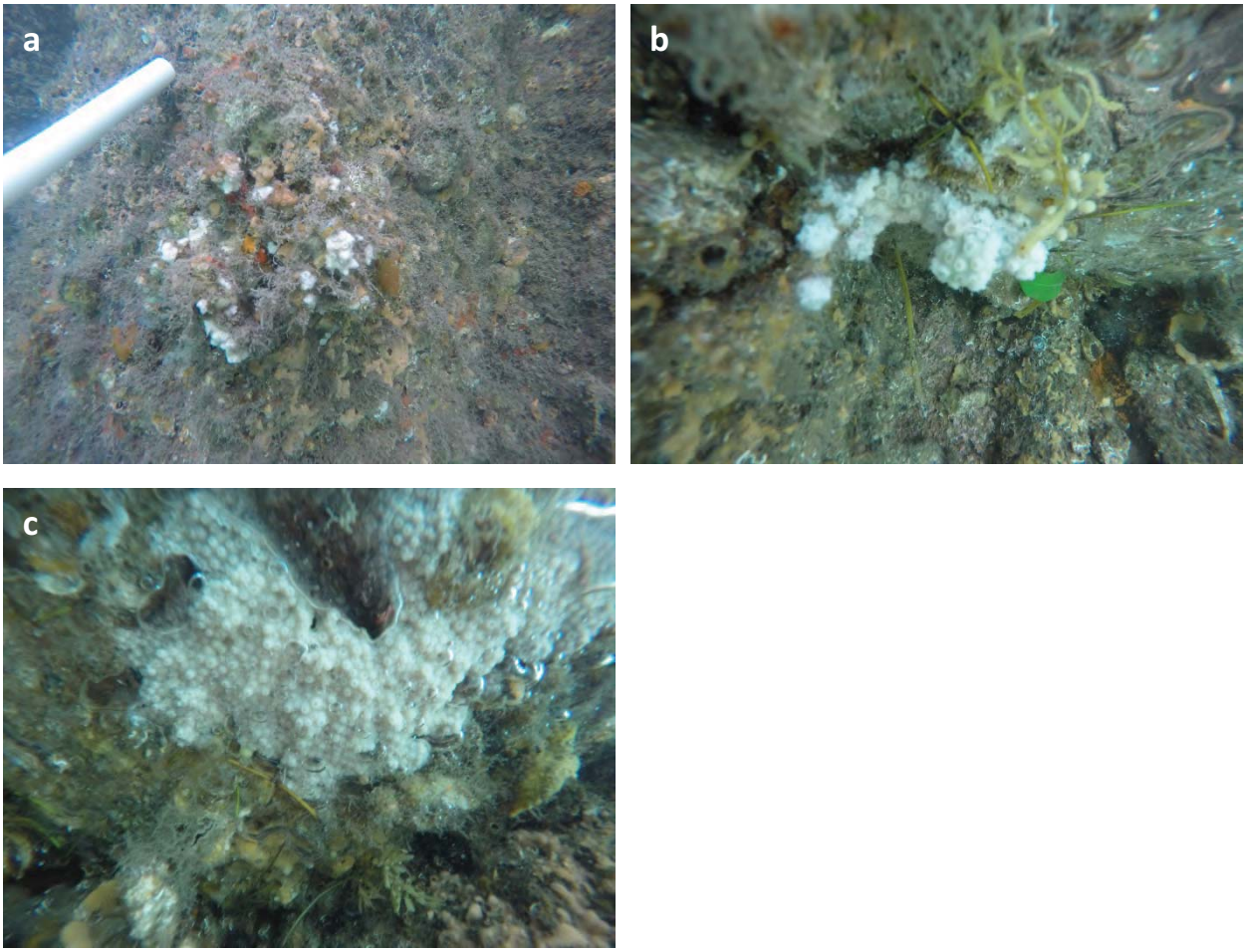
(a-b) Completely bleached *O. robusta* colonies; and (c-f) Partially bleached *O. robusta* colonies on Transect 13

Transect 14



(a-b) Completely bleached *O. robusta* colonies under beam; and (c-d) Partially bleached *O. robusta* colonies on Transect 14

Transect 17

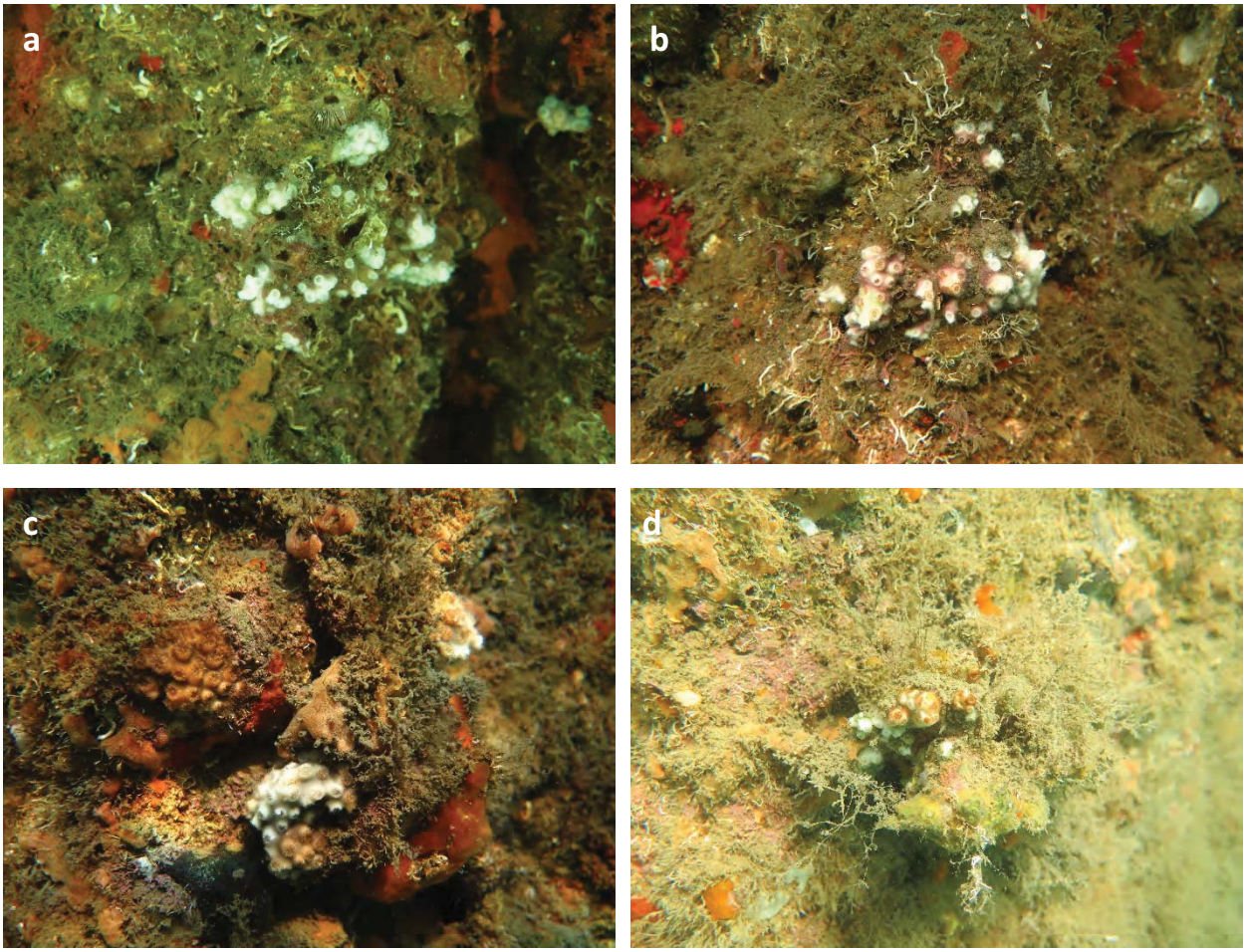


(a) Partially bleached *O. robusta* colony old mortality; (b) Completely bleached *O. robusta* colony with partial mortality; and (c) Completely bleached *O. robusta* colony under beam on Transect 17

Transect 18

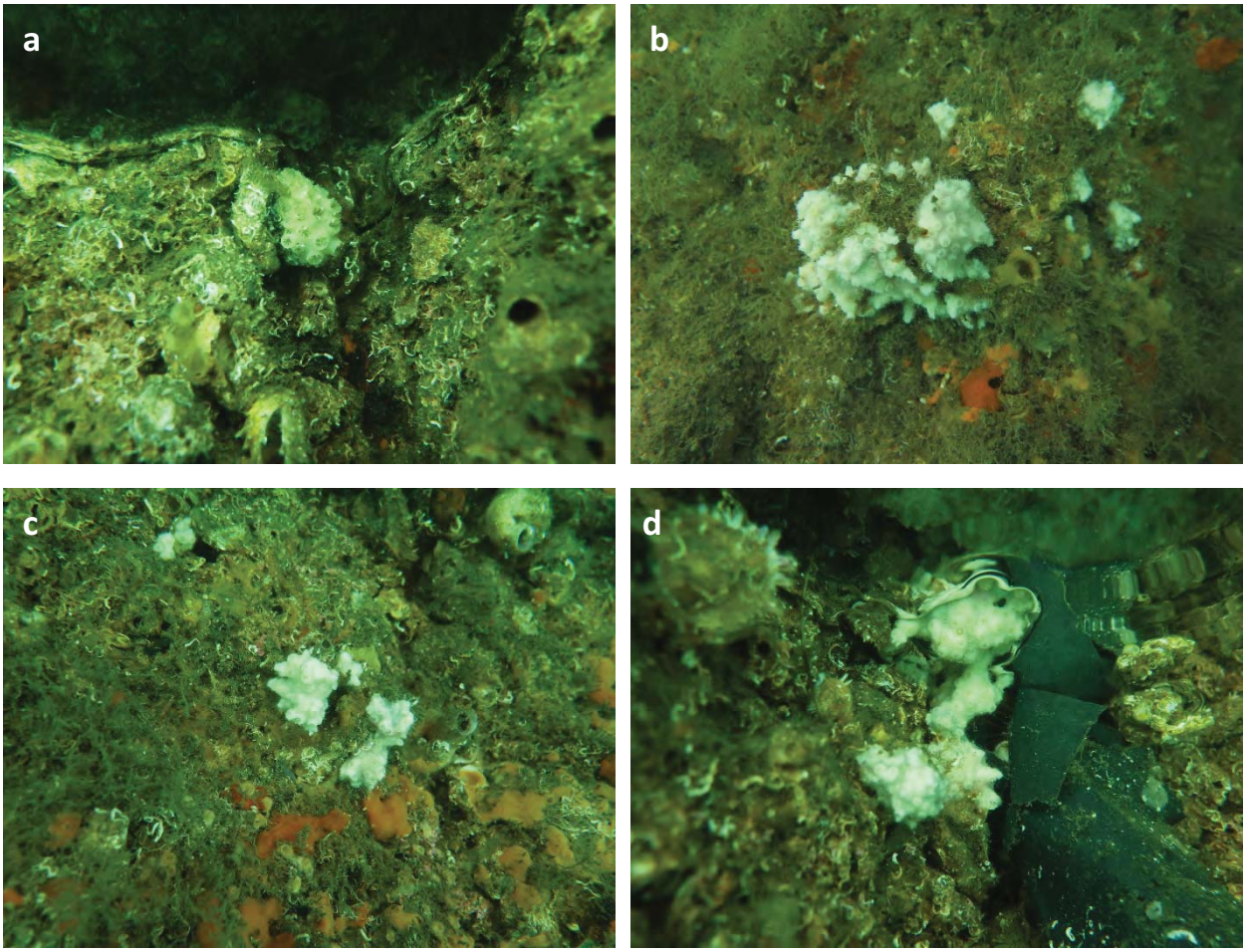
(a) Mostly bleached *O. robusta* colony with partial old mortality; and (b) Completely bleached *O. robusta* colony with partial old mortality on Transect 18

Transect 19



(a-b) Completely bleached *O. robusta* colonies; and (c-d) Partially bleached *O. robusta* colonies on Transect 19

Transect 20

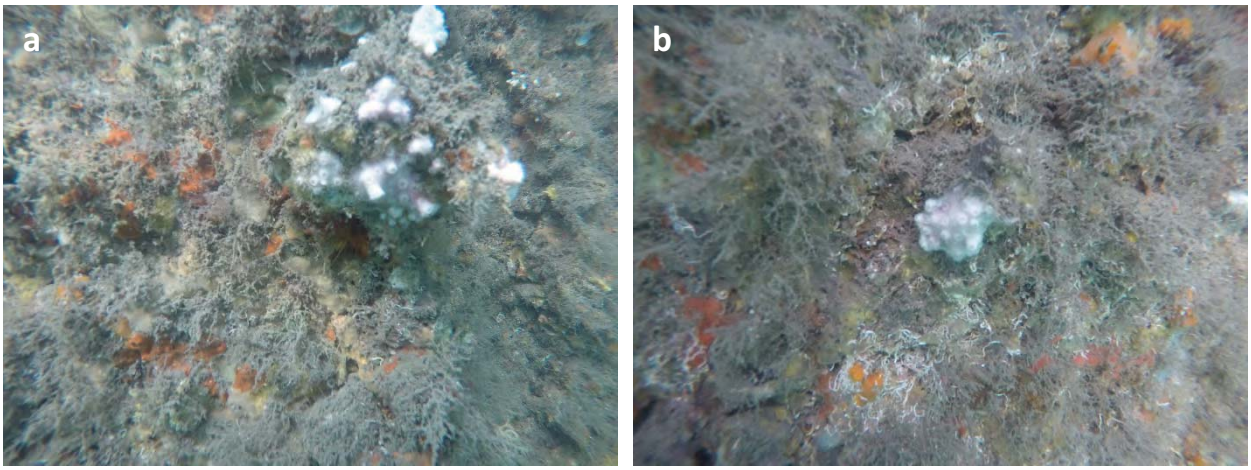


(a) Dead *C. arbuscula* colony under beam; and (b-d) Completely bleached *O. robusta* colonies on Transect 20

Transect 21

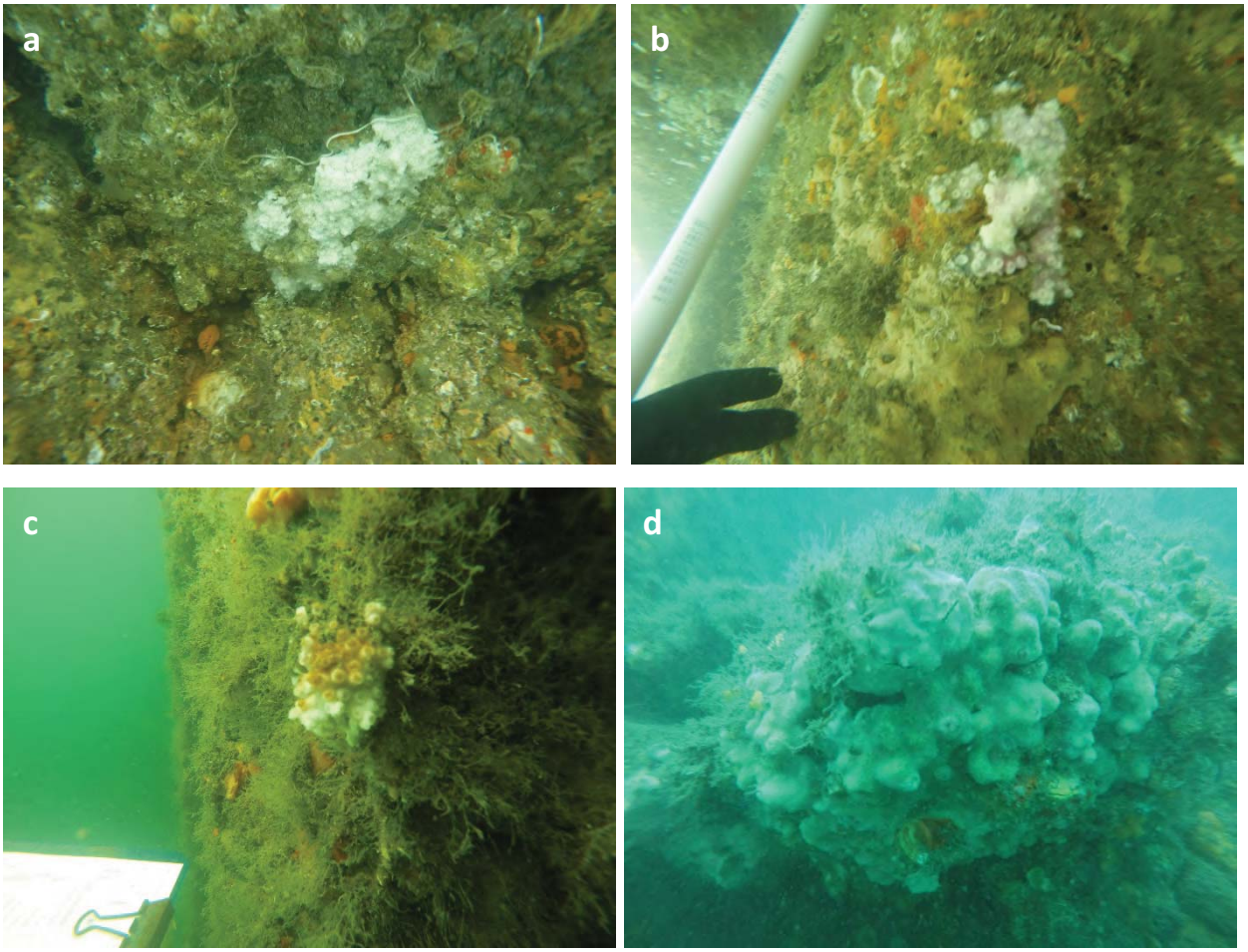
(a) Completely bleached *O. robusta* colony on Transect 21

Transect 22



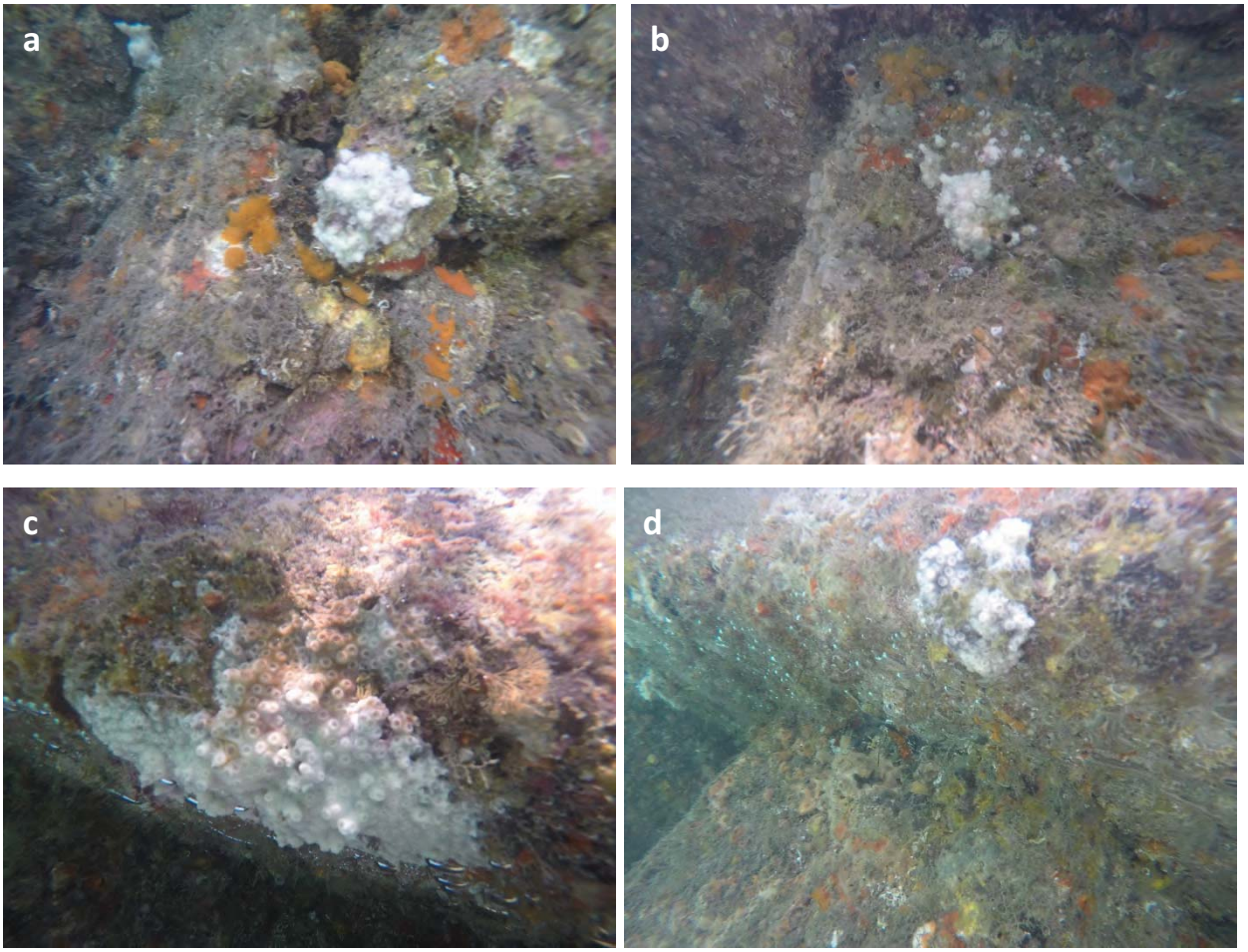
(a) Completely bleached *O. robusta* colonies on Transect 22

Transect 23



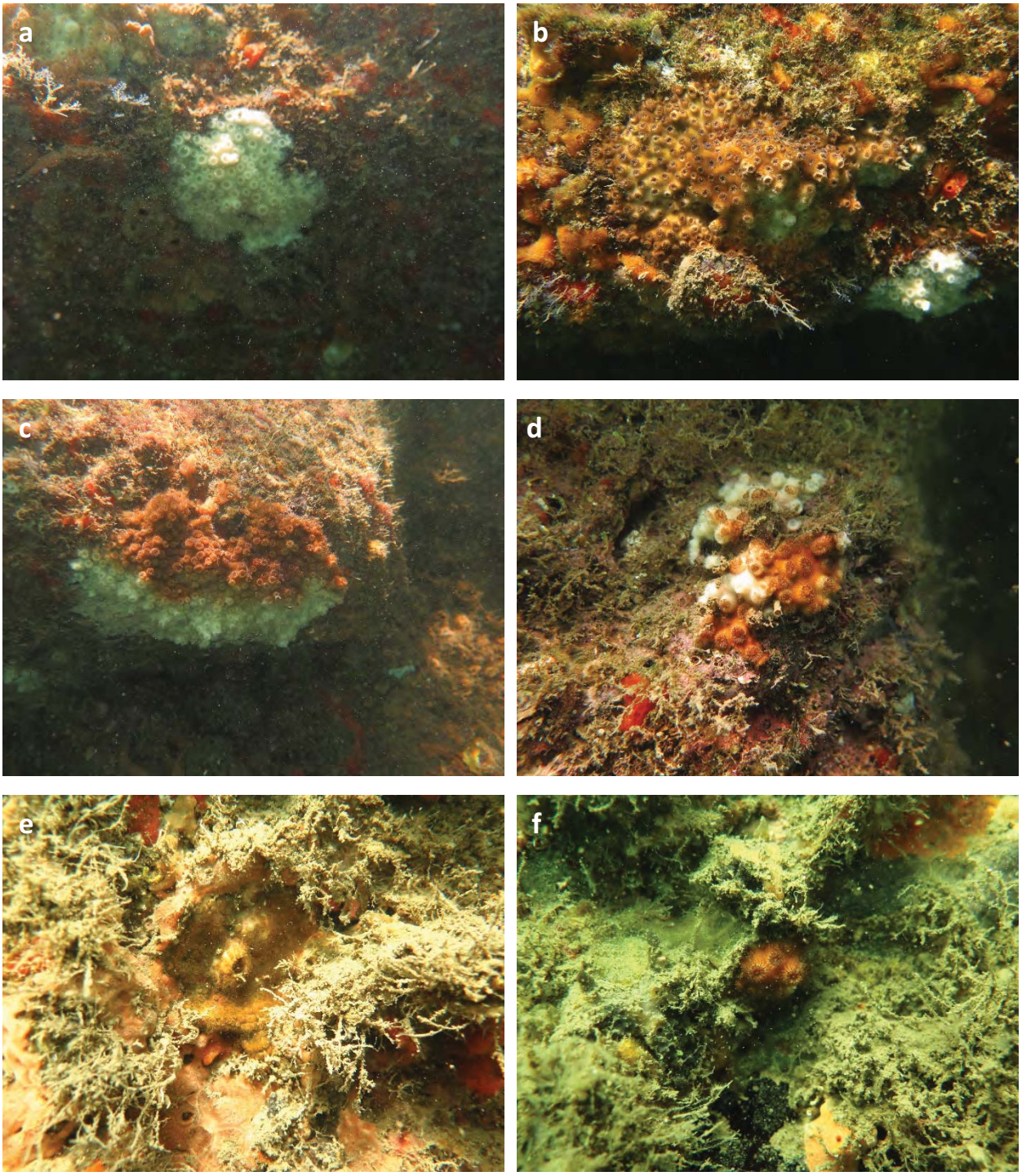
(a-b) Completely bleached *O. robusta* colonies; (c) Partially bleached *O. robusta* colony; and (d) Mostly bleached *M. decactis* colony on Transect 23

Transect 24



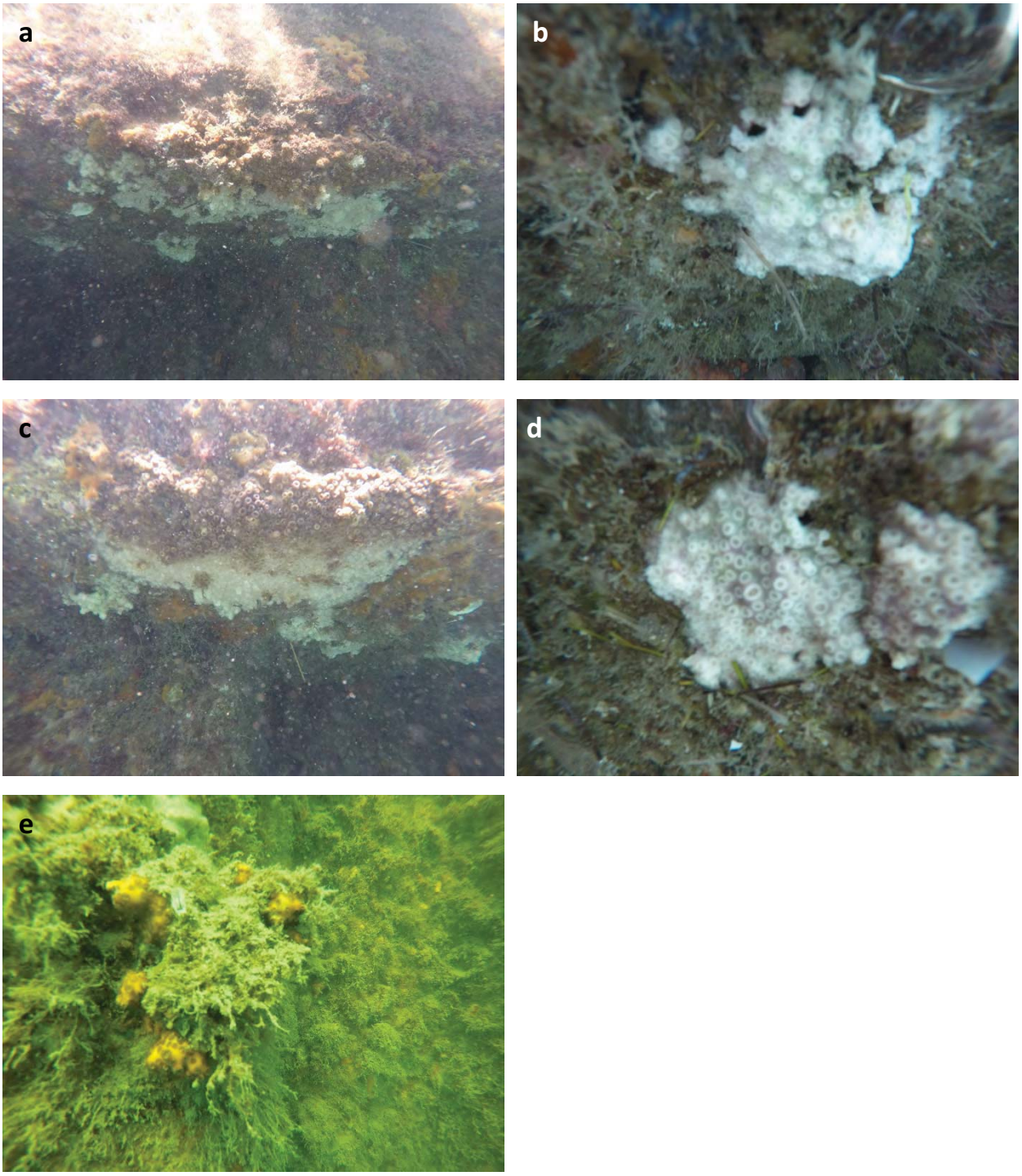
(a-b) Completely bleached *O. robusta* colonies; and (c-d) Partially bleached *O. robusta* colonies on the berm on Transect 24

Transect 25



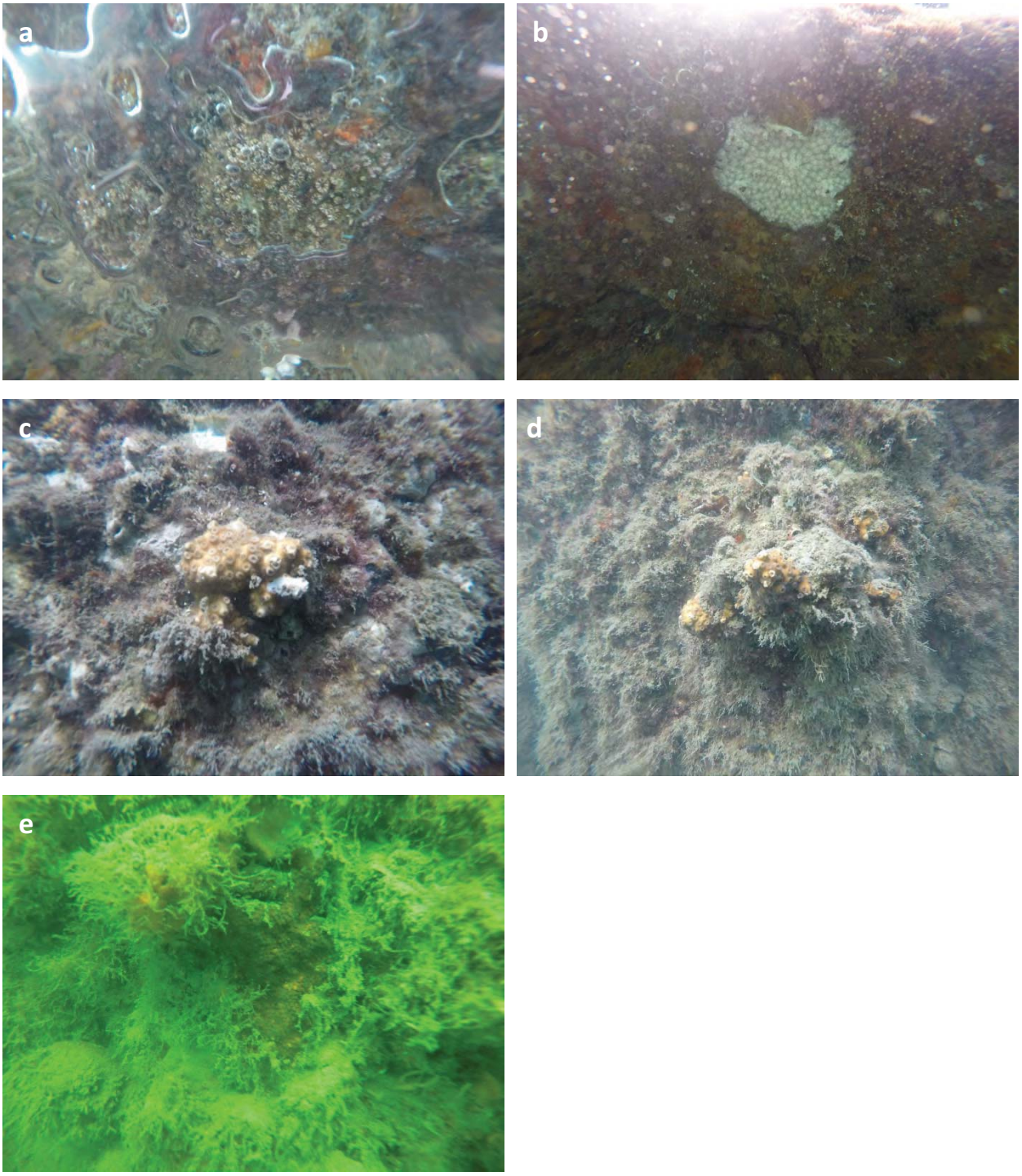
(a) Completely bleached *O. robusta* colony; (b-d) Partially bleached *O. robusta* colonies; (e) Partially bleached *M. decactis* colony; and (f) Healthy *O. robusta* colony on Transect 25

Transect 26



(a-d) Partially bleached *O. robusta* colonies; and (e) Healthy *O. robusta* colony with old mortality on Transect 26

Transect 27



(a) Partially bleached *P. americana* colony; (b) Completely bleached *O. robusta* colony; (c) Partially bleached *O. robusta* colony; (d) Healthy *O. robusta* colonies; and (e) Healthy *M. decactis* colony on Transect 27

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida, and to FWC at ImperiledSpecies@myFWC.com

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

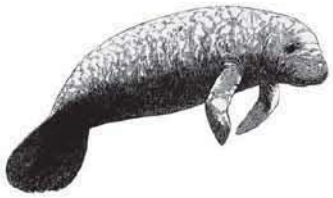
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006
O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

DEC 08 2017

F/SER31: BGR

Chief, South Branch
Palm Beach Gardens Section
Jacksonville District Corps of Engineers
Department of the Army
4400 PGA Boulevard, Suite 500
Palm Beach Gardens, FL 33410

Dear Sir or Madam:

This letter responds to your request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action.

Permit Number(s)	Applicant(s)	SER Number	Project Type(s)
SAJ-1990-03372(SP-LCK)	Port of Palm Beach District, Thomas Lundeen	SER-2017-18737	Shoreline stabilization, prop wash wall replacement

Consultation History
We received your letter requesting consultation on July 3, 2017. We requested additional information on July 14, 2017. Specifically, we asked for details regarding the pile driving and installation methods for the proposed activities. We received a response on August 27, 2017. Upon further review of the project, we requested additional information on October 13, 2017, regarding the use of noise-dampening measures. We received a final response on October 23, 2017, clarifying that cushion blocks would be used, and initiated consultation that day.

Project Location

Address	Latitude/Longitude	Water body
Berth 1, Port of Palm Beach, Riviera Beach, Palm Beach County, Florida	26.771173°N, 80.051047°W (North American Datum 1983)	Lake Worth Lagoon, 1.3 miles from the Atlantic Ocean

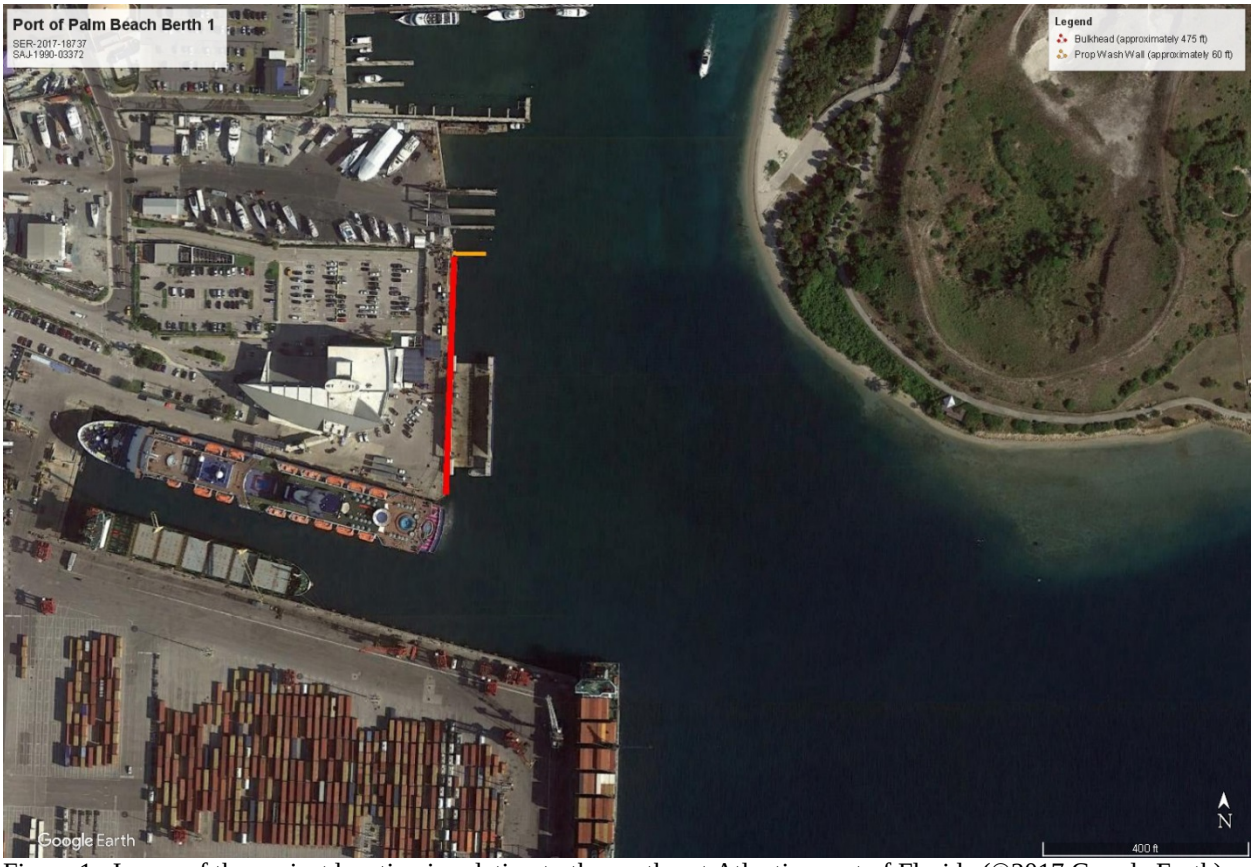


Figure 1. Image of the project location in relation to the southeast Atlantic coast of Florida (©2017 Google Earth)

Existing Site Conditions

The Port of Palm Beach is located in the Intracoastal Waterway along Florida's southeast coast, across from the Lake Worth Inlet to the Atlantic Ocean. It serves as a port for both the cruise ship and the cargo industries. Berth 1 is approximately 475 feet (ft) long and consists of a steel sheet pile bulkhead wall (approximately 475 ft in length), and a 60-ft long, 6-ft wide prop wash wall at the northern end of the berth, running perpendicular to the bulkhead. The maintained depth of Berth 1 ranges from 24 to 29 ft below Mean Lower Low Water (MLLW). A benthic survey was conducted in September 2015, and determined three different types of substrate within the berth: hard bottom, unvegetated soft bottom, and some areas of silty sand with low densities of paddlegrass. Within the hardbottom areas, the survey identified dense cover of hydroids, bryozoans, branching sponges, and a few non-ESA-listed corals, octocorals, and macroalgae. A more detailed survey of the bulkhead was conducted in April 2017, and identified four non-ESA-listed species of corals on the bulkhead.

Project Description

The applicant proposes to replace the existing bulkhead and prop wash wall. Reconfiguration is not proposed for this project. The replacement structures will maintain the same dimensions as the old structures: the prop wash wall will be 60 ft long and 6 ft wide, and the bulkhead will be approximately 475 ft long.

The old prop wash wall will be removed by saw cutting the cap into sections for removal, retracting the concrete panel sections of the wall with a crane, and removing 23 H-piles with a vibratory

extractor. The old materials will be disposed of off-site. The new prop wash wall will be placed in the same footprint as the old wall. Twenty-three new H-piles (8-12 inches (in) in diameter) will be installed, with a maximum of 10 piles installed per day, at a maximum of 1500 strikes needed per pile. Once the piles are installed, concrete panels will be inserted between the H-piles. Finally, a new concrete cap will be installed on the pile tips.

The new bulkhead will be comprised of approximately 95 pairs of steel sheet piles (approximately 190 piles) and will be installed no more than one foot waterward of the existing bulkhead. Up to 12 pairs (24 piles) will be installed per day, at a maximum of 1500 strikes needed per pair. Once the new bulkhead is completed, fill will be inserted into the space between the old and the new bulkheads.

Healthy non-ESA-listed corals 10 centimeters in diameter or larger will be relocated.

Pile Installation

Pile type(s)	Number of Piles	Maximum Strikes per Pile	Maximum Piles per Day	Installation Method	Confined Space or Open Water
Metal 12-in H-piles (prop wash wall)	23	1500	10	Vibratory/Impact Hammer	Confined
Metal 28-in steel sheet piles (bulkhead)	190 (95 pairs)	1500	24 (12 pairs)	Vibratory/Impact Hammer	Confined

Construction Conditions

For both components of this project, piles will be driven via vibratory hammer to the maximum extent possible. However, an impact hammer may be utilized to finish installing piles whenever vertical refusal is encountered. If this occurs, the applicant will use cushion blocks to minimize the noise effects of the impact hammer, and will also employ either a ramp-up or dry-fire procedure to further reduce the noise effects of the impact hammer. Under the ramp-up procedures, the applicant will begin pile driving at a slow speed and gradually increase to full power over the course of 15 minutes, with new ramp-up required after a break of one hour or more. If the dry-fire method is used, the applicant will perform 3 rounds of dry firing with 2 minutes between each dry fire prior to using the impact hammer.

Turbidity barriers will be used for the duration of the project, and all in-water work will occur only during daylight hours. Construction will be carried out using land-based or barge-mounted equipment. The applicant has also agreed to adhere to NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*.[1] The project is expected to take approximately 3 months to complete.

[1]NMFS. 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions revised March 23, 2006. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Protected Resources Division, Saint Petersburg, Florida. http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/sea_turtle_and_smalltooth_sawfish_construction_conditions_3-23-06.pdf, accessed June 2, 2017.

Effects Determination(s) for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic [NA] and South Atlantic [SA] distinct population segments [DPSs])	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Loggerhead (Northwest Atlantic [NWA] DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect			

Critical Habitat
The project is not located in designated critical habitat, and there are no potential routes of effect to any designated critical habitat.

Analysis of Potential Routes of Effects to Species
Sea turtles and smalltooth sawfish may be injured if struck by construction equipment. However, we believe this effect is discountable because these species are likely to move away and expected exhibit avoidance behavior. The applicant's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers watch for smalltooth sawfish or sea turtle. Operation of any mechanical construction equipment will cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.

Sea turtles and smalltooth sawfish may be affected by being temporarily unable to access the project area for foraging, refuge, or nursing, due to their avoidance of construction activities, related noise, and physical exclusion from areas blocked by turbidity curtains. Although sea turtles and smalltooth sawfish may be temporarily unable to access the construction area, these effects will be insignificant, given the projects' limited footprint. Additionally, the turbidity curtains will be removed after construction, and will not appreciably block use of the areas by the species.

Sea turtles and smalltooth sawfish may be affected by the permanent removal of non-ESA-listed corals, sponges, and macroalgae growing on the old prop wash wall, which can serve as forage resources. However, this effect will be insignificant, given the availability of similar resources nearby.

Effects to listed species as a result of noise created by construction activities can physically injure animals in the affected areas or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, immediate adverse effects can occur to listed species if a single noise event exceeds the threshold for direct physical injury. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral

effects can be adverse if such effects interfere with animals migrating, feeding, resting, or reproducing, for example. Our evaluation of effects to listed species as a result of noise created by construction activities is based on the methods described in the Opinion for SAJ-82.[2] The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in the table above.

While the applicant plans to install all piles using a vibratory hammer, it is possible that the use of an impact hammer will be required to drive piles to their final depth, particularly where the substrate consists of hardbottom. When there is uncertainty regarding potential effects, we will generally resolve the uncertainty by providing the most conservation-oriented analysis for listed species, and evaluate the activity with the most significant potential impact. In this case, the area affected by impact hammering H piles will fall entirely within the area affected by impact hammering steel sheet piles, so the driving of H piles for this project will not be discussed further. We therefore evaluate the use of impact hammer to drive 27.5-in-wide steel sheet piles, in pairs, to depth. A total of 95 pairs will be installed (or 190 piles), with 12 pairs (24 piles) installed per day, 1500 impact strikes per pair of piles.

To minimize potential noise impacts to species, the applicant has agreed to use noise abatement measures (cushion blocks) to reduce noise levels. Since the applicant did not specify what kind of cushion block would be used, we resolve this uncertainty by evaluating the cushion block with the least noise minimization effect. According to the best available data, nylon cushion blocks provide the least amount of abatement, resulting in a 4-5 dB reduction to impact hammer underwater sound levels.[3] For purposes of this consultation, we assume the cushion blocks will provide a 4 dB reduction.

Based on our noise calculations, installation of steel sheet piles by impact hammer may cause single-strike or peak-pressure injury to sea turtles or ESA-listed fish within approximately 15 ft (4.6 meters [m]) of the activity. The use of ramp-up and dry fire techniques will provide noise stimulus below injury thresholds, and due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances outside of the 15 ft radius single strike and peak pressure injury zone. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. Even in the unlikely event an animal does not vacate the daily cumulative injurious impact zone, the radius of that area is smaller than the 50-ft radius that will be visually monitored for listed species. Construction personnel will cease construction activities if an animal is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions.* Thus, we believe the likelihood of any injurious peak pressure or single strike effects is discountable. An animal's movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

Based on our calculations, the cumulative sound exposure level (cSEL) of multiple pile strikes over the course of a day may cause injury to ESA-listed fish and sea turtles. The installation of 12 pairs of steel sheet piles per day using an impact hammer may result in a daily cumulative sound injury zone of up to 1775 ft (541 m) from the pile driving site for sea turtles and ESA-listed fishes (Figure 2). Based on configuration of the site, ESA-listed species will be able to depart the affected area through

[2] NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.
[3] CDOT. 2009. *Final technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish.*

several pathways, and no access route will be blocked. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. Thus, we believe the likelihood of any injurious cSEL effects is discountable. An animal's movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

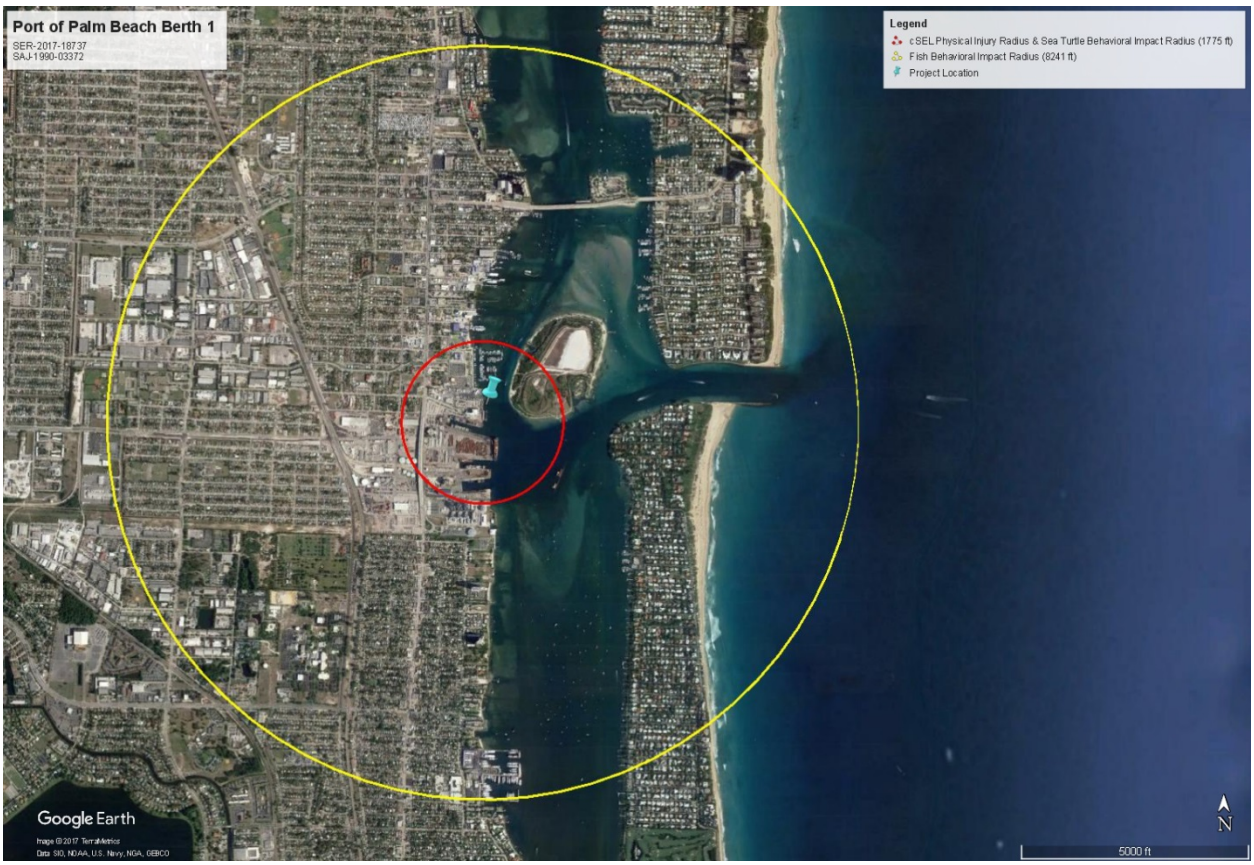


Figure 2. Project location (blue pin) and noise impacts radii. The smaller, red circle encompasses both the cSEL impact radius for fish and sea turtles, and the behavioral impact radius for sea turtles (1775 ft). The larger, yellow circle encompasses the behavioral impact radius for fish (8241 ft). (Google Earth Image ©2017 TerraMetrics, Data SIO, NOAA, U.S. Navy, NGA, GEBCO)

The installation of steel sheet piles using an impact hammer with cushion blocks produces a behavioral impact zone radius of up to 8241 ft (2512 m) for ESA-listed fishes and 1775 ft (541 m) for sea turtles (Figure 2). The behavioral response radius for sea turtles does not exceed the width of the waterway, therefore sea turtles will be able to move through areas in which the noise level is below the behavioral response threshold for sea turtles. The behavioral response radius for ESA-listed fish is greater than the width of the waterway, which may prevent passage of ESA-listed fishes through the area. Although we believe that ESA-listed species use the area that will be affected, this area is not a migratory pathway, and other openings to the Atlantic Ocean are available to both the north and south. Additionally, since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Individuals will be able to transit from the behavioral impact zone or resume normal activities during quiet periods between pile installations. Therefore, even if an animal remained within the behavior impact zone, we anticipate any potential effects to it will be insignificant.

Conclusion

Because all potential project effects to listed species were found to be discountable, insignificant, or beneficial, we conclude that the proposed action is not likely to adversely affect listed species under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions on this consultation, please contact Bette Rubin, Consultation Biologist, at (727) 209-5993, or by email at bette.rubin@noaa.gov.

Sincerely,

FOR Roy E. Crabtree, Ph.D.
Regional Administrator

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