

BIOIMPACT, INC.  
P.O. BOX 132 KINGSHILL  
ST. CROIX, U.S. VIRGIN ISLANDS 00851  
340 690-8445 FAX 340 718-3800  
bioimpact@islands.vi, [bioimpact.islands.vi@gmail.com](mailto:bioimpact.islands.vi@gmail.com)

January 4, 2024

Samantha L. Burns  
Chief, Miami Permitting Section  
Jacksonville District  
U.S. Army Corps of Engineers  
9900 SW 107th Ave #203  
Miami, FL 33176

RE: SAJ-2004-12518 Summers End Response to RAI December 19, 2023

*1. Please use the following table headers and provide a table for each activity proposed, acreage of impact and habitat being impacted by that activity. If docks impact more than one habitat, please place them on a separate line so that each habitat has its quantified impacts per activity being proposed.*

Please see that attached Excel file. The table includes direct and indirect impacts for construction and for operation for all habitat types. We have included the indirect impacts to be 500 meters as suggested by NMFS.

It should be noted that Humiston & Moore Engineers provided an extensive numerical modeling analysis which is attached herewith (also see item II below). Humiston & Moore Engineers' analysis resulted in the recommendation by of an area of 120m to 180m for the possibility of sediment deposition from boating activities at the marina facility. In November 2021, Humiston & Moore Engineers presented the data to the Corps' section chief, reviewer, and the Corps' Coastal Engineering team. While SEG is addressing the 500m indirect impact area as suggested by NMFS, SEG was under the understanding that the Corps' Coastal Engineering team accepted Humiston & Moore's comprehensive numerical modeling analysis as well as the presented data in November 2021.

*2. The proposal includes the installation of 12 mooring buoys with the inclusion of 75 mooring buoys as compensatory mitigation. The Corps has not determined that the 75 mooring buoys is appropriate for compensatory mitigation at this time as we have just begun compiling the functional assessment of the project impacts. Therefore, this is to inform you that if it is deemed inappropriate or unnecessary for the 75 mooring buoys to provide compensatory mitigation if the wish is to still have them a modification to any permit issued would be required in order to install the 75 buoys.*

SEG does not intend to install the 75 moorings, the proposal was to provide funding to DPNR to install 75 moorings and for DPNR to manage the mooring field. SEG would not have any involvement with the siting, permitting or installation of the moorings or the management of the mooring field. The intention was to provide DPNR a mechanism to provide a managed mooring field in Coral Bay. The reason this was originally proposed as a mitigation measure was due to the poor practices previously and currently occurring in Coral Harbor. Most of the existing boats have moorings and anchors (usually multiple) which result in scouring and impact to the benthic community due to dragging lines and chains. There are numerous abandoned moorings and there is boat related debris throughout the bay. There are also

live-a-boards within Coral Harbor who discharge waste directly into the marine environment. SEG's intent was to work with DPNR to provide a pump-out facility as part of the marina which could be utilized by these, and other vessels moored with Coral Harbor to help abate this degradation of water quality.

If these are not going to be considered compensatory mitigation SEG will not move forward with the agreement with DPNR since other mitigation would be required. At this time and based on the feedback from NMFS regarding the 75 moorings, please eliminate the proposed agreement with DPNR and the grant for the 75 moorings as part of this application.

*3. Please provide a table outlining the direct and indirect impacts. Include impacts to mangroves, seagrasses, listed and non-listed corals.*

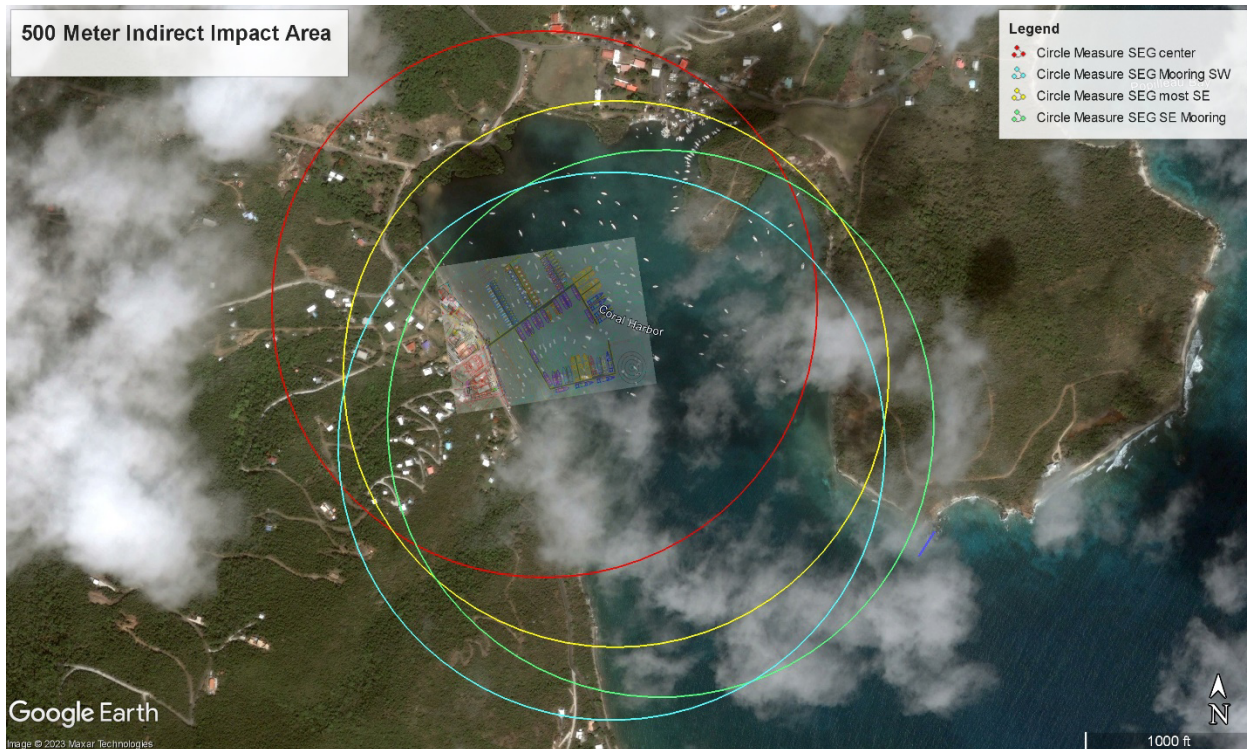
The Excel table provided includes both the direct and indirect impacts to the marine habitats including the mangroves, seagrass beds and all corals, ESA listed and non-ESA-listed corals.

*a. The Corps has determined that the direct impacts will include the following: the areas below the dock footprint; the areas below the vessels moored at the docks; the areas where the mooring buoys would be located; and the areas where the informational buoys would be located.*

The impacts have been determined using the dock footprint, vessel footprints, mooring buoy footprints (including vessels) and informational buoy footprints.

*b. The indirect impacts would include the following: the areas where the construction vessels spud and/or work; and the areas that experience a measurable increase in turbidity during the construction and operation of the marina. Indirect impacts have been estimated to occur at a radius of 500 meters.*

The indirect impacts have been calculated to include a radius of 500 meters from the outer points of construction and operations, including the 12 moorings, this includes all of Coral Harbor, most of Harbor Point and all of Penn Point and a portion of Sanders Bay.



4. Marina Management Plan

a. *The MOU presented has a yearly renewal and is unsigned. This agreement allows for up to 75 moorings, yet there are only 12 moorings in the application. Please clarify which number is accurate and revise accordingly. We would like to see the MOU signed for 5 years to match the monitoring requirements.*

The agreement to fund the managed mooring field was proposed as a compensatory mitigation which would allow DPNR to place 75 moorings. The 75 moorings are not a part of the marina but a proposed compensatory mitigation where DPNR would site, permit, install and manage the mooring field. SEG would not be involved in that process beyond providing funding. Please see the response for Item 2 for more detail. At this time and based on the feedback from NMFS regarding the 75 moorings, please eliminate the proposed agreement with DPNR and the grant for the 75 moorings as part of this application.

The 12 moorings are associated with the marina and are included in the SEG permit and are included in the impact analysis.

b. *The Grant agreement states 10 years' salary, which is satisfactory, but it also states monies for 75 moorings. There are only 12 presented in the project files. Please clarify and correct.*

As stated above the 12 moorings are a part of the SEG application. The 75 moorings are related to a compensatory mitigation proposal where DPNR would be responsible for siting, permitting, installing and managing the 75 moorings. If this is not acceptable as a compensatory mitigation, SEG will not pursue that mitigation option.

The funding for the 10-year salary only is viable if the managed mooring field is undertaken. If the funding of the DPNR managed mooring field is not acceptable for mitigation and other mitigation will be required, this option will not be pursued.

*c. Please submit both executed documents.*

If these mitigations are acceptable the sign MOU's can be provided. If the managed mooring field is not acceptable compensatory mitigation SEG cannot obligate themselves to this option since the funding of other mitigation will be required

#### 5. Water Quality Monitoring Plan

*a. In addition to proposed turbidity readings, a reading needs to be taken during an outgoing tide once a day during construction operations and during marina operations. This is to ensure the outgoing tide is not taking turbid waters directly into the coral resources.*

The mitigation plan has been revised to include sampling during outgoing tides at the monitoring sites associated with corals and hardbottoms.

*b. Page 8 of 21 describes turbidity control barriers. Please provide the draft permit condition that describes the requirement for the barriers to be in place prior to construction activity and remain in place until after work has ceased and conditions return to ambient. The permit condition should also specify turbidity barrier monitoring and maintenance intervals.*

#### Permit Condition:

Type II or III turbidity barriers must be deployed around all areas of in-water or above water work which has the potential of impacting water quality. The barriers must surround all areas of pile driving. The barriers must be of proper length and extend to 1ft above the seafloor. Barriers must not be allowed to drag on the seafloor where they could cause damage to benthic communities. The barriers must be anchored with screw anchors rather than traditional drag anchors to minimize seagrass impacts. Barrier sections must be properly joined so that turbidity does not escape between barrier section. The contractor must keep sufficient spare barriers on site so that they may be replaced if needed or additional sets of barriers must be deployed.

Turbidity barriers must be in place and inspected by the monitor prior to the start of any in-water or overwater activities which could impact water quality. Turbidity barriers must be inspected at the start of work each day, and continually monitored during the day. If damage occurs or inadequacies in controlling turbidity are noted by the monitor, in water work must stop and repairs must be made, or additional measures must be undertaken. Someone must be always on site who has the authority to stop work. Work cannot resume until water quality outside the barriers returns to ambient conditions as determined by control samples or is less than regulatory limit (3NTU). If adding additional control measures cannot adequately control turbidity, work must slow or periodically stop as necessary to maintain a turbidity of less than 3NTU or equivalent to ambient.

The barriers cannot be removed or opened until water quality inside the barriers is below regulatory limits (3NTU) or ambient as determined by control samples.

*c. Page 8 of 21 states that "if a storm event occurs, the barriers must be removed from the water to prevent impact to the benthic community...". If a storm event is predicted to pass over the project site, all construction operations must cease with*

*enough time to allow for sediment to set prior to removing turbidity barriers and enough time to remove all construction materials that may become dislodged and cause harm to benthic marine resources due to weather conditions. Please modify to include this additional requirement.*

In the event of forecasted inclement weather, all construction activities must cease within sufficient time to secure the site. The site must be secured so that materials will not become dislodged, or airborne and cause harm to the benthic community or be blown into the mangroves. All turbidity barriers must be removed from the water to prevent impact to the benthic community. A Hurricane and Inclement Weather Plan must be prepared by the selected contractor. This plan will be submitted to USACE for their review prior to the start of any construction. The contractor cannot be selected until the permits are issued.

*d. Page 9-12 of 21 describes 2x daily monitoring for turbidity at 10 assessment sites and 2 reference sites. We want the monitoring events to coincide with construction, e.g., maybe the measurements take place at least one hour after construction begins for the day.*

Monitoring is proposed to occur during all in-water or overwater work which has the potential to impact water quality. Sampling will occur at least 1 hour after the commencement of work each day and no closer than 4 hours apart. A sample set will be taken on the outgoing tide as stated above. The plan has been amended to include outgoing tide sampling.

During the construction 6 samples will be taken around the area of in-water work, these samples will be taken in a radial pattern around the area of work at a distance of 15 meters from the area of work or 5 meters outside the turbidity booms. Samples will be taken 1 meter below the surface and 1 meter from the seafloor and will be analyzed by either an Aqua-Troll Multi-meter or a YSI Multi-meter. The meter will be calibrated prior to the start of sampling on a daily basis. Calibration data will be included in the reports. Samples will be taken twice for each 8-hour shift worked with one set being taken during the outgoing (falling) tide. Samples will also be taken anytime a visible plume appears outside the turbidity barriers. All sampling data will be provided in the weekly reports.

*e. The monitoring needs to specify the data deliverables for all of the tasks, including file type, and the monitoring reports should be made available to NMFS.*

Water quality monitoring reports will be provided to NMFS and the other regulatory agencies on a weekly basis during the following week by email. The report will include construction activities, water quality and weather conditions for each day worked. These will be provided as PDF files and the water quality data (including sea and weather conditions) will also be provided as an Excel file for the week and then also a cumulative Excel sheet for the entire construction project. A second cumulative Excel file for operation will be started post construction.

*f. Please provide the draft permit condition on turbidity monitoring and corrective actions if 3 NTUs are exceeded. Please be clear on whether this is 3 NTUs total or above background. USACE and NMFS will need to work together to finalize the monitoring plan and NMFS will need to provide approval, which will also include final locations for sampling.*

Three NTUs are total not an above ambient, if ambient is higher than 3 NTU they cannot exceed background or ambient as determined by control samples.

Permit Condition

During construction NTUs cannot exceed 3 NTU, if ambient turbidity is higher than 3 NTU as determined by control samples, NTUs cannot exceed background or ambient. If any degradation of water quality is detected immediate measures must be taken to abate the impacts. The monitor will watch for the effectiveness of the siltation control devices and will request additional controls or slowing or ceasing of work when turbidity rises above acceptable levels. If NTUs outside of the barriers rises to greater than 3NTU or if the barriers are damaged, in water work must stop and repairs must be made, or additional measures must be implemented before work resumes. Someone must always be on the construction site who has the authority to stop work. Work cannot resume until water quality outside the barriers returns to ambient conditions as determined by control samples or is less than regulatory limits (3NTU). If adding additional control measures are not adequate control turbidity work must slow or periodically stop as necessary to maintain a turbidity of less than 3NTU or equivalent to ambient. Work cannot resume until water quality outside the barriers is less than 3NTU or equivalent to ambient.

*g. The environmental monitoring starts on page 13 of 21. The applicant is proposing 42 permanent meter square photo quadrat stations. This section needs considerable work. No rationale is provided for the number of stations per habitat type. Any data analysis that would be done is not described. Of concern, it sounds like we would be sent a large amount of photos every 3 months which is not ideal; instead please design a monitoring effort based on analysis of photographs.*

The monitoring plan states on page 12, “The quadrats will be selectively placed within the areas of potential impact to encompass the greatest diversity of sessile organisms and flora, including coral and sponge species and all the ESA corals within the survey area. All corals will be measured and assessed for health prior to the start of construction and will be monitored throughout construction and operation of the marina.” And goes on to state “Metal pins with numbered tags will be inserted into the substrate to serve as markers to insure the location and identification of individual corals in repetitive samplings. Corals will be identified and quantified as to size and health prior to the commencement of construction. The amount of viable living coral tissue cover, coral color, presence of Stony Coral Tissue Loss Disease (SCTLD), presence or absence of an excessive mucus coat, algal overgrowth, and sediment sloughing, will be used to determine health.

The monitoring quadrats will be established, ESA corals marked and monitored monthly for a period of two months prior to the commencement of construction to establish a baseline.

The photoquadrats and ESA corals will be monitored monthly during in-water work. All visible changes will be documented and reasons for these changes assessed. Coral health will be evaluated as to changes in coral color, amount of mucus, amount of sediment on the corals, and amount of algal growth and grazing marks will be noted. Photographs and detailed survey information containing the above-listed parameters will be given to the agencies and Summer’s End on a monthly basis.”

The number of quadrats is based on number of ESA corals and diversity of corals within the hardbottom areas. Quadrats have all been placed in habitats of concern, the seagrass and the coral colonize hardbottom areas. The quadrats have been selectively placed within the areas of potential impact on the hardbottom communities to encompass the greatest diversity of sessile organisms, including coral and sponge species and include *all the ESA corals within the survey area*. The photoquadrats near the marina have been concentrated in areas of seagrass colonization. Areas dominated by macroalgae and *Halophila stipulacea* are not being monitored. The number and distribution of quadrats in the seagrass is based on the layout of the docks to encompass all areas and directions surrounding the dock construction to cover all potential plume impacts.

The photographs are for visual confirmation and are provided just as a visual reference. As stated in the plan, metal pins with numbered tags will be inserted into the substrate to serve as markers to insure the location and identification of individual corals in repetitive samplings. Corals will be identified and

quantified as to size (lxw) and health prior to the commencement of construction. The amount of viable living coral tissue cover, coral color, presence of Stony Coral Tissue Loss Disease (SCTLD), presence or absence of an excessive mucus coat, algal overgrowth, sponge overgrowth, and sediment sloughing, will be used to determine health at the start of monitoring. On a monthly basis, all visible changes will be documented and reasons for these changes assessed. Coral health will be evaluated as to changes in coral color (bleaching), amount of mucus, amount of sediment on the corals, amount of algal growth and or disease and grazing marks will be noted. Photographs and detailed survey information containing the above-listed parameters will be given to the agencies monthly. This data will be presented in an Excel format. The pictures and report will be present as a PDF document.

For seagrass quadrats, densities, new blade growth, epiphytization and presence of *Halophila stipulacea* will be used as indicators of health. Pictures again will be provided just as a visual reference; the data will be provided in an Excel spreadsheet and the report and pictures in PDF format.

The monthly reports will summarize construction activities, sea conditions and impacts noted and measures taken to abate the impacts if they are noted. The most important thing is to take action the first time an impact is noted to start.

*h. For seagrass, NMFS requires the edge of the beds mapped in each monitoring event, species presence, percent cover, and condition. For the hardbottom surveys, NMFS requires the monitoring to follow a Before-After; Control-Impact (BACI) design with all ESA corals tagged and -10 corals of each non-ESA coral species tagged and assessed pre-, during (monthly), and post-construction for sediment stress (dusting, sediment accumulation, sediment burial, recent partial mortality from sediment, and complete burial), disease and bleaching. NMFS will also want the hardbottom to be monitored for sediment deposition. Example methods to assess coral condition and measure sediment depth over hardbottom can be found here: <https://peerj.com/articles/2711/>*

As stated in the monitoring plan all ESA corals will be tagged and monitored. A minimum of 10 corals of each of the 8 non-ESA species will also be monitored when more than 10 individuals are present. *S. bournoni*, *F. fragum* and *D. labyrinthiformis* all have less than 10 individuals in the indirect impact area, and 25% of the number present will be monitored in the quadrates. Please note that four of the *S. bournoni* will be transplanted out of the impact area.

As stated in the WQMP quadrat will be established and monitored for two months prior to the construction, monthly during construction and quarterly for the operation of the marina (BACI). Dusting, sediment accumulation, sediment burial, recent partial mortality from sediment, and complete burial, disease and bleaching will all be assessed during surveys and reported in the submitted reports as an Excel spreadsheet.

Sediment monitoring on both Penn Point and Harbor Point has been added to the monitoring plan as per the methodology laid out in "Detecting sedimentation impacts to coral reefs resulting from dredging the Port of Miami, Florida USA" (Miller et al, 2016) with linear line transects crossing the entire hardbottom areas of both Penn and Harbor Point. Assessments will also be made off the point to the south of Sanders Bay and around the point of Harbor Point to ensure sedimentation is not overlooked. The sites will be assessed for 2 months prior to construction and then monthly during construction and then quarterly post construction to assess marina operations. A 10 meter reference site will also be select on Johnson Reef and monitored concurrently.

The presence of standing sediment and changes in sediment deposition will be noted each monitoring period as well as any noted presence of sediment on corals or other marine organisms. This will be present in an Excel Spreadsheet.

*i. Please provide an excel spreadsheet with the GPS coordinates of all ESA-listed species corals, size, and condition.*

An excel spreadsheet with ESA coral location was provided with the previous submittal and the health of the corals will be assessed very month and provided in an Excel spreadsheet. Please note an Excel spreadsheet of the non-ESA corals was also provided.



ID	WPT	Lat	Lon	Species	Length(ft)	Length (m)	Pcover
1	620	18.34074	-64.7084	O.annularis	2.5	0.8	15%
2	621	18.34086	-64.7082	O.annularis	0.5	0.2	100%
3	623	18.34084	-64.7082	O.annularis	0.5	0.2	100%
4	624	18.34071	-64.7084	O.annularis	1.0	0.3	85%
5	625	18.34044	-64.7082	O.annularis	1.0	0.3	10%
6	626	18.34048	-64.7082	O.annularis	1.0	0.3	50%
7	627	18.34058	-64.7078	O.annularis	3.0	0.9	25%
8	628	18.34046	-64.7078	O.annularis	1.5	0.5	90%
9	629	18.34045	-64.7079	O.annularis	2.0	0.6	20%
10	630	18.3404	-64.7079	O.annularis	5.0	1.5	50%
11	631	18.34037	-64.7079	O.annularis	1.0	0.3	70%
12	632	18.34036	-64.7079	O.annularis	1.5	0.5	85%
13	633	18.34035	-64.7078	O.annularis	2.5	0.8	85%
14	634	18.34036	-64.7078	O.faveolata	3.5	1.1	90%
15	635	18.34035	-64.7078	O.faveolata	2.0	0.6	95%
16	636	18.34034	-64.7078	O.faveolata	3.5	1.1	95%
17	637	18.34029	-64.7078	O.annularis	3.0	0.9	50%
18	638	18.3403	-64.7078	O.annularis	2.0	0.6	100%
19	639	18.3403	-64.7078	O.annularis	2.5	0.8	95%
20	640	18.34034	-64.7078	O.annularis	3.0	0.9	15%
21	641	18.34034	-64.7078	O.annularis	2.5	0.8	20%
22	642	18.34032	-64.7075	O.faveolata	2.0	0.6	90%
23	643	18.34024	-64.7075	O.faveolata	2.0	0.6	90%
24	644	18.34026	-64.7075	O.faveolata	1.5	0.5	85%
25	645	18.34022	-64.7073	O.annularis	1.5	0.5	80%
26	646	18.34016	-64.7071	A.palmata	1.5	0.5	100%
27	1433	18.3407	-64.7084	O.annularis	1.0	0.3	90%
28	1440	18.34048	-64.7079	O.faveolata	1.0	0.3	25%
29	1442	18.34047	-64.7079	O.faveolata	2.0	0.6	30%
30	1448	18.34023	-64.7073	O.faveolata	1.5	0.5	100%
31	1508	18.34096	-64.7086	O.annularis	1.5	0.5	80%
32	1534	18.34085	-64.7082	O.annularis	0.4	0.1	100%
33	1551	18.34059	-64.7077	O.annularis	0.4	0.1	80%
34	1580	18.34031	-64.7076	O.annularis	1.0	0.3	80%
35	1580	18.34031	-64.7076	O.annularis	2.5	0.8	50%
36	1591	18.3407	-64.7082	O.annularis	0.4	0.1	100%
37	1593	18.34072	-64.7083	O.annularis	0.9	0.3	70%
38	1599	18.34075	-64.7085	O.annularis	0.5	0.2	100%
39	1600	18.3408	-64.7085	O.annularis	1.2	0.4	80%
40	1622	18.34083	-64.7127	O.annularis	2.9	0.9	100%

j. Quadrats shall be placed, in respect to ESA-listed corals, to capture all species present.

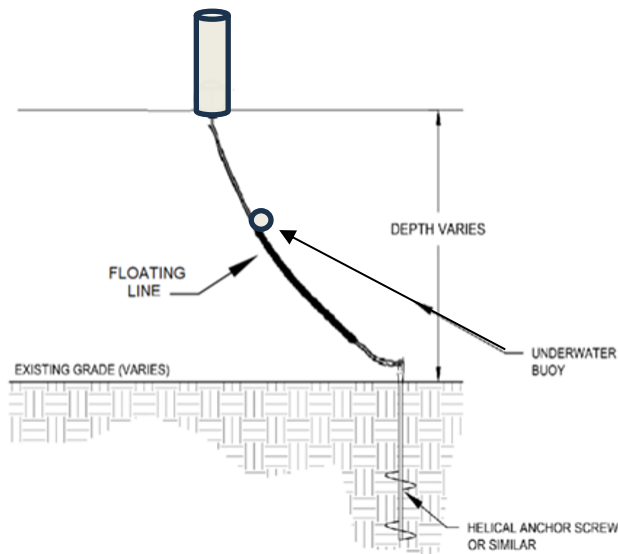
The monitoring quadrats will be placed in respect to ESA corals to capture all species (coral, sponges and other sessile organisms).

k. Sea Turtle Marine Mammal Plan – Need to add NMFS to the notification list if a turtle in water or Marine Mammal is injured etc. (3rd/4th paragraph)

NMFS has been added to the notification list.

## 6. Mitigation

a. Please submit a drawing showing typical informational buoy design



b. Here is a link for the educational signage:

<https://www.fisheries.noaa.gov/southeast/consultations/protected-specieseducational-signs>

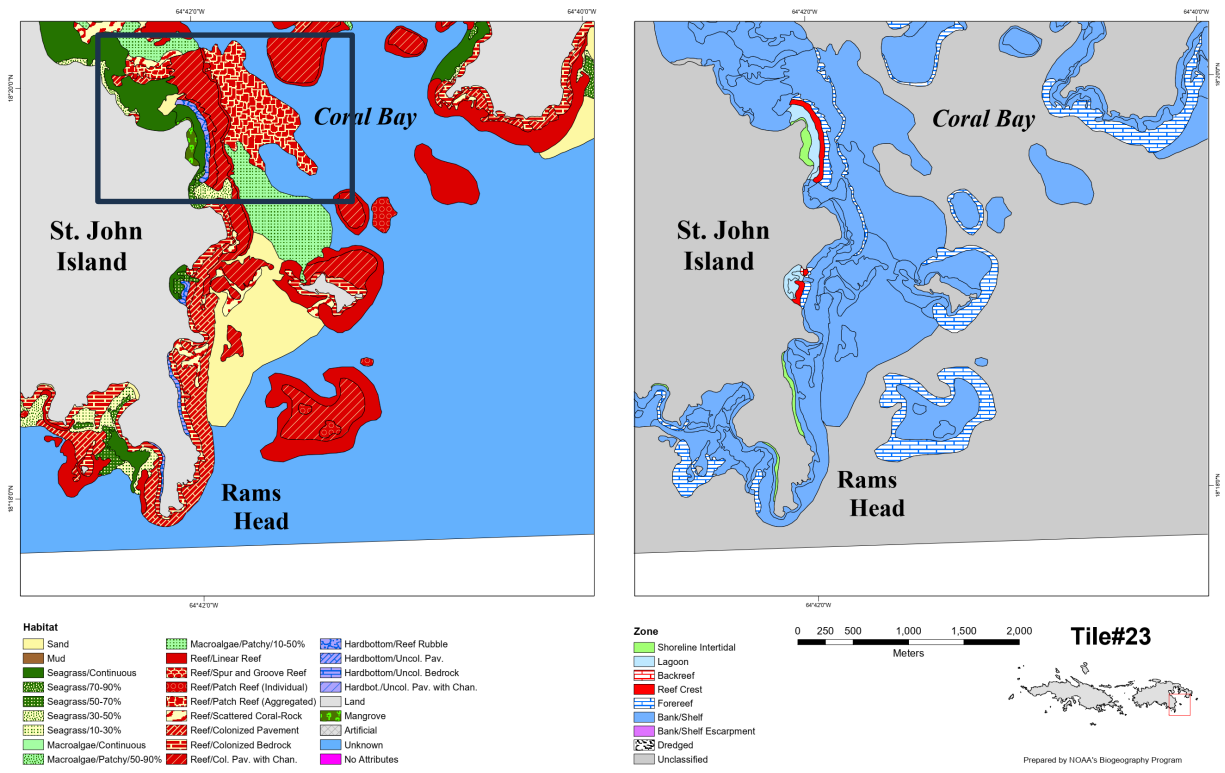
The appropriate educational signage as suggested will be posted throughout the marina and as appropriate on the shoreline.

c. NMFS and USACE are discussing the trade-offs of seagrass transplantation. An option being considered is keeping the seagrass in-place to provide sediment stabilization and other functions in-lieu of transplantation (although the functions would be reduced by the project impacts). NMFS and USACE will continue evaluating the best course of action for the seagrass directly impacted by the construction.

Mitigation will be adjusted as necessary. Maintaining the seagrass will lessen turbidity during construction.

d. ESA Coral Out planting -Compensatory Mitigation -The coral relocation sites need to be completely outside of the project influence. We are operating under the assumption that Harbor Point and Penn Point could be within the indirect impacts, are there any other locations that would be viable?

Johnson Reef would be an ideal location; this is a large reef system located to the south outside the area of potential impact. Placing informational buoys on this system could also help lessen future impacts to the reef.



c. Please include the following BMP: No in-water construction during times of year with peak thermal stress and spawning, which would be June, July and August.

This will be added as a BMP. However, we would suggest that this three-month period be shifted to July, August, and September to cover the period of greatest thermal stress in VI waters. The warmest water usually occurs in September and many of the coral species spawn in August and September (Caribbean Coral Spawning Table – attached).

NOAA’s NCEI provides the monthly water temperatures average for Lameshur Bay, St. John:

Coastal Water Temperature Guide <a href="#">Home</a> Other Atlantic Sites	Recent Temperature (°F)	Recent Temperature (°F)											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		Lameshur Bay, St John, VI	82.6 (01/04/2024 02:24 UTC)	80.1	79.8	80.3	81.4	83.3	84.2	84.3	85.0	85.4	85.2

f. The mitigation plan includes removal of 1,000 sq feet of marine debris. More than 1,000 sq feet of removal will likely be needed. NMFS and USACE are currently working through a UMAM to determine the mitigation amounts necessary to offset the impacts.

Unfortunately, there is no lack of marine debris, the amount of debris can be increased as well as the area from which it will be removed from in greater Coral Bay.

*g. In addition to the mangrove planting, are there additional opportunities for living shorelines in Coral Harbor? As noted above, additional mitigation may be needed for EFH compliance.*

The mangrove community in Coral Harbor could use enhancement in many areas, however SEG only has control of the property along the shoreline of their own property. Most of the shoreline is privately held and other area which belong to the government (VIPA) are developed and used for boat access.

*7. The 17 mooring buoys located within the project footprint to be relocated, are these part of your proposal or are these the responsibility of DPNR? If they are not your responsibility, then please note that relocation of the buoys will require a permit from the entity responsible for the installation and maintenance of those buoys.*

The 17 mooring owners within the footprint of the project's submerged land lease will be asked to relocate by DPNR's Division of Environmental Enforcement (DEE). DEE is responsible for the permitting of moorings and will issue the boat owner a new mooring permit for a location outside of the marina's submerged land lease. If the mooring is not permitted the boat owner will be asked to remove the mooring and obtain a permit for a new location.

*8. Please confirm the use of impact hammer as the installation methodology for piling Installation.*

A vibra hammer will be used to drive the pilings if possible and then an impact hammer will be used to "set" the pilings and ensure structural strength. If resistance is too restrictive, an impact hammer may be required to drive the piles. However, based on the sub bottom profile results there should not be a problem using a vibra hammer for installation.

*9. What BMPs will be employed during above mean seawater construction to prevent materials from entering the waterway?*

When working on the dock structure above the water a floating platform will be used below the area of work which would catch anything that falls while also providing a work platform. Catch nets can also be hung below the deck to catch anything that inadvertently falls or is dropped into the water if a working platform is not feasible. During construction if floating materials fall into the water they will be contained by the turbidity barriers and they will be immediately retrieved.

*10. Explain the difference between the two color envelopes and how they were determined*

The two-color envelopes are based on potential impacts during construction. The inner yellow box is the area of spudding, where the barge will need to locate to drive the piles. This assumes the use of a large barge (s) 80-100ft. This is the area where the seafloor would be repeatedly subject to the dropping of spuds which will physically impact approximately 8sf for each of the spud relocations. If a pile template is utilized for pile driving this would also encompass the area of the template footprints. The yellow box is the area where the benthic environment will be physically disturbed by the construction process. This is also the area where there is the greatest potential for the buildup of settling sediment on benthic colonizers. Heavier sediments fall out quickly and could potentially build up in this area and could smother or bury benthic colonizers. The larger red envelope is that area which may be disturbed by propwash or shading of barges or vessels associated with the construction project. This area would be subject to the greatest turbidity during construction and the area most likely where repeated indirect impacts would occur. (We are considering shading and turbidity indirect impacts since they are by-products of the activity construction activity not direct physical disturbance). These areas were determined based on monitoring of previous dredging and pile installation projects over the last 35 years. There is no dredging associated with this project, the bottom disturbance will be limited to pile driving

which typically creates minimal highly localized turbidity. This site will have a greater potential for the creation of turbidity than other “sandier” locations since the sediment in this area has a high silt content. As proposed all pile driving must be surrounded by proper length turbidity barriers, and monitoring is required to minimize the potential impacts to these areas. The other causes of turbidity during construction will include propwash from tugs and vessels and spud placement and spud shifting during waves and swells. Again these are periodic highly localized impacts. Repeated turbidity in this area could result in limited light transmission and could impact benthic colonizers. The red box is that area where these periodic repeated impacts could result in impact to habitat impact during construction.

The map shown in 11 was prepared by H&M and is related to boating activities. The map in 10, is just construction related and assumes implementation of BMPs, monitoring and stoppage of work if turbidity exceedances occur. Work would be immediately ceased when exceedances occur limiting the overall impacts.

*11. Explain how these deposition ranges according to distance were produced and under what assumptions – Or reference a document as to where this information is discussed:*

Humiston & Moore Engineers provided an extensive numerical modeling analysis in November 2019, which was presented to the Corps and the Corps’ Coastal Engineering Team in November 2021. Figure 7 below can be found on Page 14 of Humiston & Moore Engineers’ St. John Marina Numerical Modeling Analysis Report (attached).

The Figure 7 details the results of the Humiston & Moore Engineers analysis resulting in the recommendation by Humiston & Moore of an area of 120m to 180m for the possibility of sediment deposition from boating activities at the marina facility.

The methodology used is explained in the summary of the attached report. The ADCP measurements indicated that there are limited current velocities in the bay. Using computer model H&M was able to simulate potentially higher currents in the bay with significant offshore waves. H&M then looked at the frequency of occurrence of such waves and established statistical % occurrence zones of deposition based on wave heights, water depth (2m & 3 m) and typical sediment fall velocity from the Wentworth scale (USGS).

The analysis suggests that during large wave events, the increased current velocities may result in sediment deposition approximately 240m downdrift at a depth of 3m. These conditions would only occur 8% of the time, and during these storm conditions, boating activities would most likely be stopped inside the marina and therefore not generating any turbidity. Humiston & Moore Engineers recommend using 120m to 180m for the action area, which represent the likely effects of sediment deposition from boating activities within the proposed marina for 92% of the time.

We hope that this provides you with the necessary information. Please let us know if you have any questions or comments.

Respectfully submitted,



Amy Claire Dempsey, M.A.  
President, Bioimpact, Inc.

Attachments:

Water Quality Monitoring Plan 2024  
St. John Marina Numerical Modeling Analysis  
H&M PowerPoint presentation for the Corps  
H&M Response USACE Modeling and Engineering Summary  
Excel Spreadsheets  
Caribbean Coral Spawning Table