



The Department of Environmental Planning & Protection

Ministry of the Environment and Natural Resources
Ground Floor, Charlotte House, Shirley Street



FILE REF: DEPP/

SENT VIA EMAIL

November 9th, 2021

Mr. David Chiaradonna
Disney Light House Point
Development
Eleuthera, Bahamas

Dear Mr. Chiaradonna,

RE: RESPONSES TO BNT QUESTIONS- EMP

With respect to the letter dated October 28, 2021, from The Bahamas National Trust, which outlined 5 questions on the EMP for the Light House Point project. Please note that the Department as required provided a copy of the communication to DCL, to which you provided responses on November 5th, 2021. After review of those responses the Department offer no objections. The Department notes that the EMP is a living document and is subject to necessary changes if certain discoveries are made which are not in alignment with the information provided in the document. The Department reserves the right to instruct, revise or cause a cessation of the work should it be deemed necessary to ensure that the processes of sustainability and environmental safeguards are being implemented throughout the project works. The Department therefore now requires that the response letter be placed on the website along with the other environmental documents for public view.

Should you have any questions please contact the Department.

Sincerely,


Rochelle W. Newbold
DIRECTOR

Cc: Permanent Secretary, Ministry of Environment and Natural Resources



October 28, 2021

Mrs. Rochelle Newbold
Director
The Department of Environmental Planning and Protection
Ministry of the Environment and Housing
Ground Floor, Charlotte House
Charlotte and Shirley Streets
P.O. Box N-7132
Nassau, The Bahamas

Dear Director Newbold,

RE: Disney Lighthouse Point Environmental Management Plan (Construction Phase)

The Bahamas National Trust (BNT) is writing to offer our official comments on the Construction Phase Environmental Management Plan (EMP) (Rev. October 2021) for the Proposed Disney Lighthouse Point (LHP) Development in South Eleuthera prepared by Waypoint Consulting Limited and ATM Consulting on behalf of Disney Cruise Lines (DCL) Island Development Ltd.

We have evaluated the EMP considering the Bahamas National Trust's mandate to manage and protect the National Parks System and in the broader context of biodiversity conservation. The comments presented here consider national scientific capacity and a pragmatic approach to science and wildlife protection during the construction phase of the property.

Questions and/or concerns for the BNT include:

1. The EMP review process
 - a. How will updates to this EMP be treated as it is a "working document"?

LHP - Response

As the construction period progresses, updates to information already included and new information will be shared with DEPP for approval prior to being added to the Construction EMP as a "working document".

- b. Will updates to the Construction EMP and Operational EMP also be subject to similar review and comment?

LHP - Response

Given the Design-Build contracting method, the Operational EMP will be developed consistent as the design progresses and completes and will incorporate environmental best management practices from the construction phase as well. The

Operational EMP will be reviewed and approved by DEPP following the same process of the Construction EMP prior to opening to guests.

2. Trees/plants

- a. Sourcing plants internationally risks introduction of invasive species and diseases.

LHP - Response

Sections 4.3.2 and 5.7.2 in the Construction EMP highlight the plan to guard against invasive plants and plant diseases and pests. The landscape palette will be developed to emphasize native species and will be submitted to DEPP for approval prior to finalization. Any plant material sourced internationally will follow the established protocols of the Bahamas Agricultural Food Safety Authority including phytosanitary certificates.

- b. In addition to the references listed, the planting palette should also be cross referenced against the global invasive species database and informed by local expertise available through the Leon Levy Native Plant Preserve, the national park in Eleuthera.

LHP - Response

The Developer will work closely with the Leon Levy Native Plant Preserve and other local experts if they choose to engage.

3. Wildlife management and monitoring

- a. The described avian protocols may not be appropriate for the habitats on the property as there are different standard protocols for Caribbean waterbirds, wetlands and forests.

LHP - Response

Avian surveys were designed by our in-house PhD-trained ornithologist and vetted through third-party specialists to assure appropriate techniques were applied to various habitats in The Bahamas.

- b. The sponge experiment requires justification. Sponge diseases may be spread or transmitted through these activities and sponges may be subjected to increased predation.

LHP - Response

*The Developer had proposed relocating only large (>25 cm diameter) barrel sponges (*Xestospongia muta*) that fall within the marine construction footprint where they are expected to be directly impacted by construction activities. When damaged or dislodged, large sponges usually die because they are unable to reattach to the reef substratum. Sponges are typically excluded from coral relocation and other mitigation efforts in part because they are not yet recognized as endangered or threatened by IUCN or other agencies and also because proven successful relocation methods are lacking. The Developer offered to relocate large *X. muta* sponges to reduce the potential loss of these large slow growing sponges and to help advance sponge relocation methodologies. Recent experimental efforts to reattach dislodged *X. muta* have had some success. For example, hurricane damaged transplants of *X. muta* placed at 15- and 30-m depth off Key Largo, Florida were documented to have survivorship of 35% and 90% respectively, with nearly 80% of surviving sponges reattaching to the substratum*

and growing after 2 years (McMurray and Pawlik 2009). Our proposed method for *X. muta* relocation would build on previous experimental efforts. To minimize the risks of unanticipated consequences, the Developer has proposed a pilot relocation of 10 sponges out of the Lighthouse Point construction footprint before undertaking further sponge relocation. The receiving areas are within 1 km of the construction footprint and within identical hardbottom habitat, therefore the risk of introduction and spread of disease to the Lighthouse Point area is very minimal. To our knowledge, the only documented disease to affect *X. muta* is Sponge Orange Band (SOB) which is currently thought to spread more from changes in environmental conditions, such as temperature stress, rather than via a microbial pathogen (Cowart et al. 2006, Luter 2010, Angermeier et al. 2011). Monitoring of the pilot *X. muta* relocation would quantify sponge survivorship, condition, and reattachment over a 3-month period as well as the survivorship and condition of the cut base. Monitoring results will be reported to DEPP at the end of three months and any unanticipated negative consequences examined closely. A decision will be made whether not to proceed with relocating the remainder of the large (~25 cm and greater) *X. muta* sponges outside of the impact area based on the pilot project feasibility and monitoring results and discussions with DEPP.

Cowart JD Henkel TP McMurray SE Pawlik JR (2006) Sponge orange band (SOB): a pathogenic-like condition of the giant barrel sponge, *Xestospongia muta* Coral Reefs. 25: 513.

Hilde Angermeier, Janine Kamke, Usama R. Abdelmohsen, Georg Krohne, Joseph R. Pawlik, Niels L. Lindquist, Ute Hentschel, The pathology of sponge orange band disease affecting the Caribbean barrel sponge *Xestospongia muta*, FEMS Microbiology Ecology, Volume 75, Issue 2, February 2011, Pages 218–230, <https://doi.org/10.1111/j.1574-6941.2010.01001>.

Luter HM Whalan S Webster NS (2010) Exploring the role of microorganisms in the disease-like syndrome affecting the sponge *Ianthella basta*. Appl Environ Microb 76: 5736–5744.

McMurray, S.E. and Pawlik, J.R., 2009. A novel technique for the reattachment of large coral reef sponges. Restoration Ecology, 17(2), pp.192-195.

- c. Nest relocation for most Bahamian species is not expected to result in survival of the individuals. Are there some species that will not be relocated due to low chance of survival or protect status? White Crown Pigeon, Great Lizard Cuckoo and Yellow Crowned Night Herons for example.

LHP - Response

Where possible, areas surrounding active bird nests (i.e., nests with eggs and chicks) will be staked off and avoided during development until the nests are no longer active. Where this is not feasible, bird nests will be relocated to the nearest suitable habitat that will not be developed. Nests will be monitored to determine if this is an effective mitigation measure or not and the EMP will be modified based on learnings from this monitoring. Regarding the particular species listed, the large majority of development will occur in sand strand habitat adjacent to the southwestern and east beaches where lizard-cuckoos have not been documented and no nests of white-crowned pigeons or yellow-crowned night herons have been observed.

- d. Figure 3 on page 132 is not clear and as it describes the categories of stress for corals in

the construction footprint, this needs to be shared so a proper evaluation of the potential impact can be made.

LHP - Response

The purpose of figures 3 and 4 on page 132 is to show more information on the monitoring sampling design of which sites will be monitored in relation to various factors such as shelf location, water depths, benthic habitat types, distance from trestle and what types of affects may be expected (direct, secondary, minimal, no impacts). These two figures only refer to sampling design not discussion of potential impacts. For more information on potential project impacts, please refer to the EIA. Figure 3 of Appendix B shows the allocation of the 36 fixed benthic monitoring sites into potential stress categories associated with construction development. The figure is reproduced below. Categorization of sites is based primarily on proximity to proposed development and operational activities. Control sites are expected to have no impacts associated with the development and are located outside of the Lighthouse Point property. Clearer versions of the figures from pg. 132 are pasted below with correct figure captions.

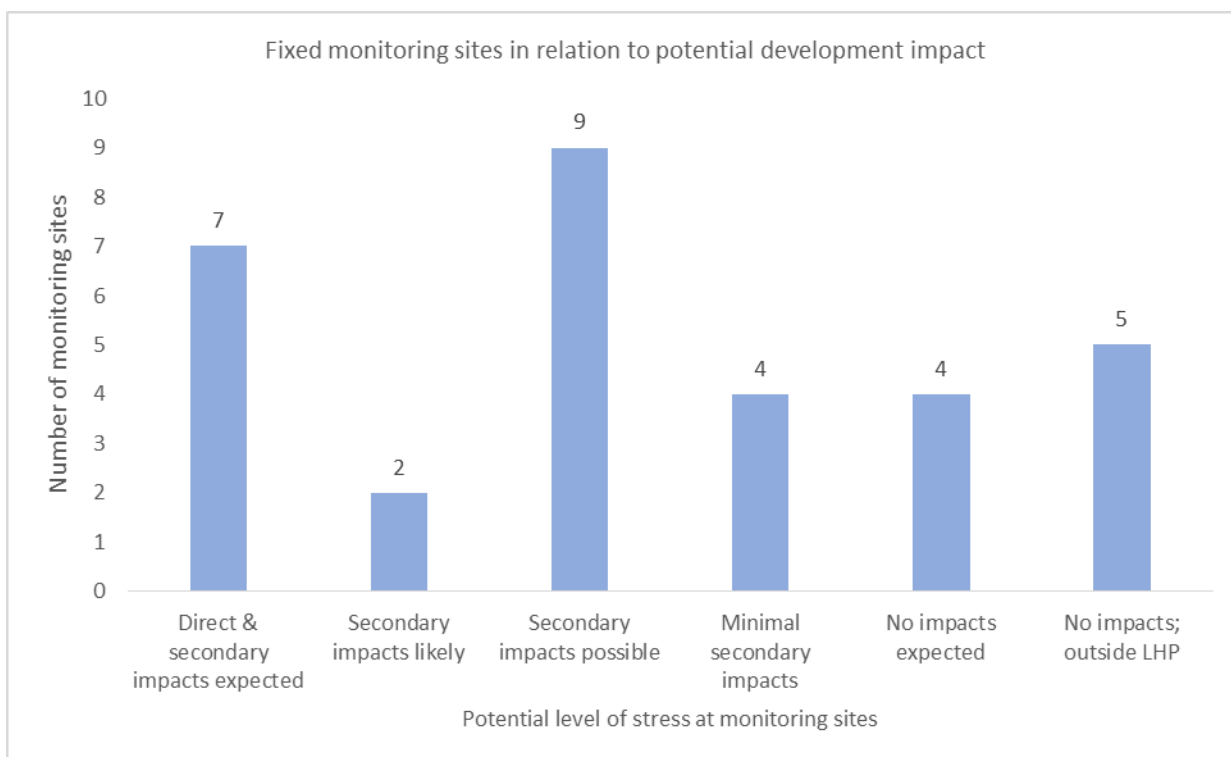
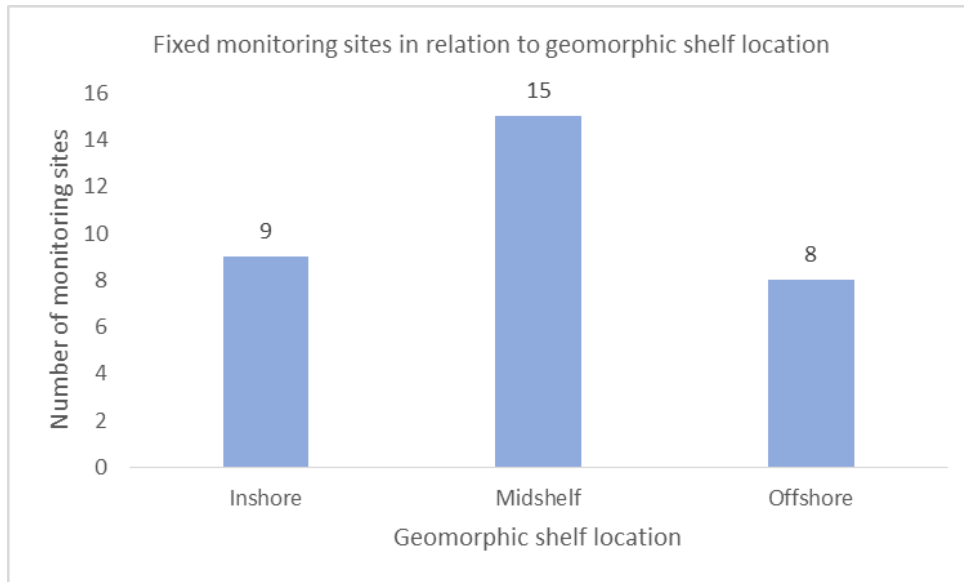
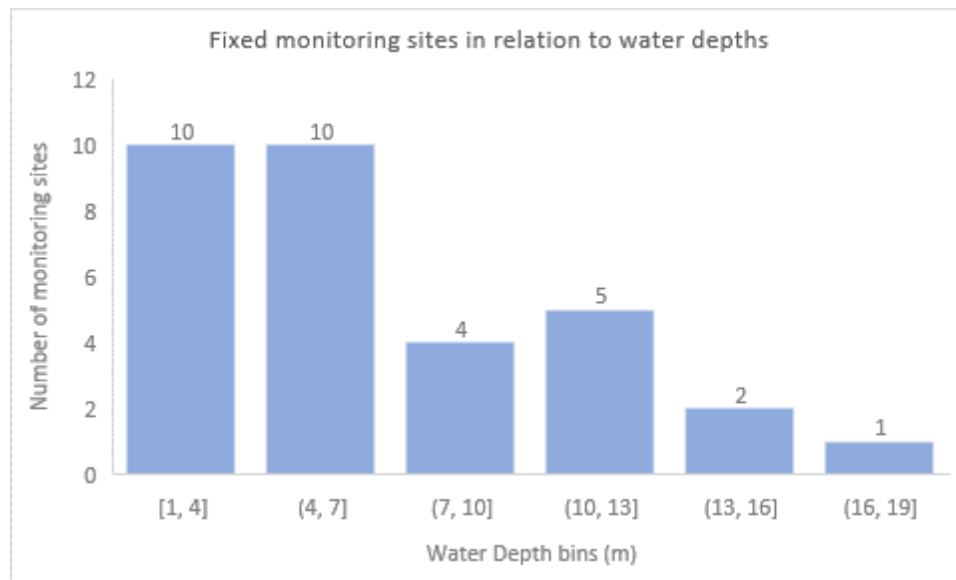


Figure 3: Allocation of long-term monitoring sites into potential stress categories associated with construction development. Impacts expected are for sites that fall within the “directly impacted” development footprint. Categorization is based primarily on proximity to proposed development and operational activities. Control sites are expected to have no impacts associated with the development and are located outside of the Lighthouse Point property.

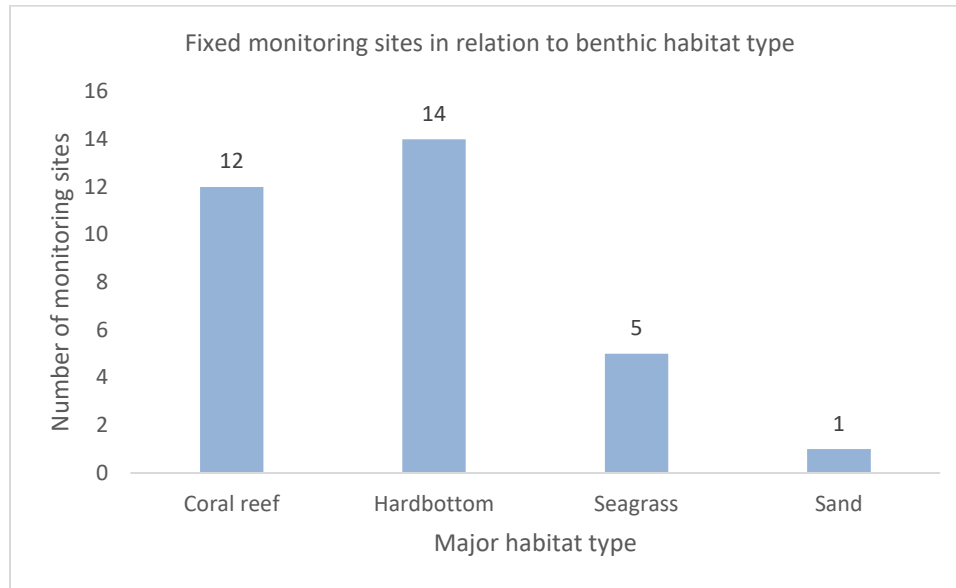
Figure 4. A-D: Allocation by different factors for the first 32 out of a total of 36 fixed monitoring sites that will form the Lighthouse Point long-term marine monitoring network.



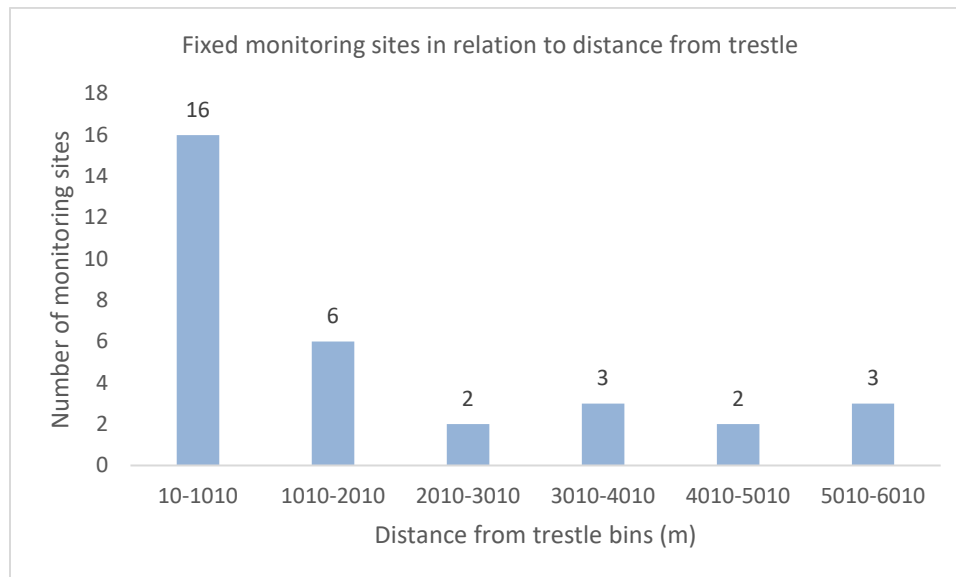
A. Fixed monitoring sites in relation to geomorphic shelf location.



B. Fixed monitoring sites in relation to water depths.



C. Fixed monitoring sites in relation to benthic habitat type.



D. Fixed monitoring sites in relation to distance from trestle.

- e. Relocation of minimally motile invertebrates may increase vulnerability to predation or they may severely impact relocation sites due to their feeding ecology or behavior. How will they be monitored afterward? The timeline of two days for relocation prior to intended impact to the seafloor, is a long time considering the mobility of spiny lobster or conch.

LHP - Response

Mobile invertebrates such as the long-spined urchin, Diadema antillarum, will be relocated outside of the construction footprint. To avoid predation, these will be

relocated to adjacent similar habitat and within holes and crevices where predators cannot easily get to them, thus reducing vulnerability. Movement of other key mobile invertebrates such as sea cucumber, conch, and lobster will be just prior to new pile driving. They will be moved to like habitat just out of the impact area and will not be monitored after the move. This is believed to be a rare event; during two years of monitoring the Lighthouse Point area, no queen conch and only occasional lobsters have been observed in the construction footprint.

- f. Monitoring of sessile invertebrates will continue for three years, but the frequency of the monitoring is not specified.

LHP - Response

The frequency of monitoring of relocated corals and other sessile invertebrates (e.g., barrel sponges) over the three-year period is specified in Table 6 of Appendix C- Lighthouse Point Marine Mitigation Plan. For fate-track monitoring of corals and sponges, monitoring is anticipated to be conducted at 3, 6, 9, 12, 18, 24, 30, and 36-month intervals (8 monitoring events in total).

Proposed Coral Translocation Monitoring Plan for LHP													
Year	Preconstruction	Year -1				Year 2				Year 3			
Quarter	Baseline	1	2	3	4	1	2	3	4	1	2	3	4
Phase 1- outplant coral colony and pilot barrel sponge fate tracking													
Phase 1-monitoring of inshore and midshelf construction footprint for regrowth of barrel sponges (timing will need be adjusted around construction activities)													
Phase 2 Outplant o coral colony and all barrel sponge fate tracking													
Phase 2-Monitoring of construction footprint for regrowth of barrel sponges (timing will need be adjusted around construction activities)													
Outplanting site ecological monitoring (includes AGRRA benthic and fish indicators)													

Table 6: Monitoring schedule for performance evaluation.

The frequency of monitoring of sessile invertebrates as part of the broader Lighthouse Point marine environmental monitoring is specified in Appendix B Table 2. Monitoring of fixed plots will occur at two levels: 1) Visits by on-site biological technicians at least once every 2 weeks or around any suspected stress events (e.g., high turbidity events) to photograph and assess condition of tagged corals using qualitative visual metrics (Table 1A); 2) Re-imaging and community-level monitoring every 6 months using a rotating panel design that quantifies metrics in 12 of the 36 fixed stations per monitoring interval

(Table 1B). At each 6-month monitoring interval, control sites that are outside of the development footprint will also be monitored with impacted sites (paired treatment and control).

Proposed 6-month benthic monitoring schedule (continued for duration of construction phase)																													
Month	pre constru	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6							
Week	baselin e/annu	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
visual assessment/scoring of tagged colonies (2-person team)																													
Flagging of sites with colony level bioindicators beyond thresholds; triggered additional monitoring/adaptive actions																													
colony level Photomosaic of fixed plots on 12 sites + controls																													
community level monitoring of 12 sites + control																													
Report of change and statistical analysis for causes																													
LHP Environmental Team monitoring synopsis meeting + recommendations																													

Table 2: Monitoring Schedule.

- g. Removal of predators in fish throughways highlights lionfish and “others”. Does this include species such as barracuda, sharks and groupers? How will these removals be conducted and how will they affect restricted or regulated species? Is this actually feasible long term and what is the environmental effect?

LHP - Response

Control of lionfish and other potential predators to migrating bonefish will not be undertaken during the construction phase of the project. Towards the end of the construction phase as components of the pier and small vessel marina are completed, the fish populations within the throughways will begin to be monitored during planned six-month resource monitoring events. The Lighthouse Point Operational EMP will examine the design and management of the fish throughways in detail including lionfish and other predatory fish mitigation approaches. Removal only is planned for lionfish.

- h. Several species of bats occur seasonally on Eleuthera. Is it possible to allow seasonal bat populations to complete their migration before sealing the entrance to roosts?

LHP - Response

No consistent bat roosts are known at Lighthouse Point, be they utilized by resident or migrant bats. If bats are observed roosting during development, the Environmental Management Team will be notified to determine how to minimize impacts to bats. Bat use of buildings should be minimal as design specifications will minimize or eliminate vertical gaps that are preferred roosting habitat in buildings.

- i. Disinfection of small boat bilge and SCUBA gear if used consistently in the same area may not be useful or environmentally friendly. Research has shown that SCTL related

microbes are closely associated with marine sediment. Broad spectrum disinfectants may cause more harm.

LHP - Response

*In Florida in 2014, stony coral tissue loss disease (SCTLD) appeared to spread following bleaching and sedimentation events, but despite extensive research since then, the etiology of SCTLD still remains unknown (Landsberg et al 2020 <https://www.frontiersin.org/articles/10.3389/fmars.2020.576013/full>). The most recent research suggests it is a disruption of the symbiosis between a coral and its zooxanthellae (Landsberg 2021 https://floridadep.gov/sites/default/files/Work_Final%20Report_FINAL_508.pdf). Based on the findings of this USGS study, it is believed that SCTLD is a viral disease of zooxanthellae leading to coral host death. There are many species of zooxanthellae and those in one genus, *Breviolum*, are more susceptible to the disease. Colonies of the more susceptible species sometimes have zooxanthellae of this susceptible genus.*

The Developer will use disinfection protocols deemed safe and effective by The Bahamian government once they become available. Until those instructions are received, sodium percarbonate will be used which quickly decays into oxygen and water.

- j. For clarity related to their coral nursery success, were these corals grown in situ or in the lab and transplanted to reefs? 2000 corals were transplanted with 90% survival on the main reef. What was the overall survival rate? How many corals were actually planted on the main reef being rehabilitated?

LHP - Response

For clarity purposes, Disney has transplanted over 2000 corals over the life of the project. These corals were grown on permitted in-water nurseries in partnership with Perry Institute for Marine Science. These have been planted on several reefs with any mortality almost entirely related to snail predation and hurricane damage. Of the 2000, over 500 were transplanted on our main reef with a survivorship of approximately 90% prior to Dorian. Post Dorian/COVID surveys indicated Dorian and bleaching reduced survivorship to 80% but the overall tissue growth has increased 20% since 2019 and the reef is now considered self-sustaining.

- k. Moorings and buoys can create fish aggregation sites. Will these be monitored for effects on wildlife?

LHP - Response

Mooring buoys will only be utilized during the construction phase of the project during periods of coral and sponge relocation and monitoring. They are not intended to be permanent and will be removed at the end of the marine construction phase.

- l. An advanced warning system will be used to announce impending loud noise and allow animals to move out of the area. How will this system affect marine mammals and minimally motile species?

LHP - Response

The sound system is a recording of the underwater construction noise that will be ramped up during the 30 minutes of Marine Mammal Observer and click detection prior to the start of construction. This is meant to warn mainly vertebrate animals of

the impending construction noise. It is unclear how it would affect minimally motile organisms which will be moved just outside of the immediate impact area to adjacent like-habitat.

4. Local and National Science capacity and involvement

- a. The “Government Departments and Local Non-Governmental Organizations” heading references NGO’s, but does not list any local NGO’s. No other NGO’s are referenced except for PIMS and BTT.

LHP - Response

The Developer will work with DEPP to determine the appropriate governmental and non-governmental entities to engage as the Developer measures and adapts to various environmental concerns.

- b. The Leon Levy Native Plant Preserve is mentioned but seems to be considered a government entity. The Bahamas National Trust is not mentioned in regard to this relationship.

LHP - Response

This language should instead read “...or other properties suggested by the Government” for clarity purposes.

- c. Will the coral and bird surveys have independent baselines collected by local experts? How will this regular work support development of local expertise?

LHP - Response

The Developer has supported baseline surveys of bird and coral populations at Lighthouse Point over the past two years as part of the pre-construction baseline and will continue to support this and other supplemental wildlife monitoring during construction. The survey methodologies and data collection/quality control procedures follow standard protocols that are widely accepted. Depending on the availability of experts, the persons conducting the monitoring are usually a combination of outside, Disney, and local experts that are all trained and certified in the appropriate survey techniques. Local experts are included whenever possible and training of locals to become experts is also emphasized. The on-site Bahamian biologists (to be hired) will also be trained during the first year of the project in the appropriate methodologies and may or may not participate in the coral and bird surveys after the first year. All survey monitoring data will be transparent and provided and reported to DEPP on a quarterly basis during construction. The American Bridge Environmental Manager, a local expert, is responsible for synthesizing and reporting all of the environmental monitoring surveys as part of the larger project.

- d. Motus tags on snakes require equipment to locate or track them. What devices will be employed? How will this information be used for science, and in connection with commercial activities considering new ABS regulations? Will local scientists be trained in the use of the equipment?

LHP - Response

The Motus system that will be used is made by Cellular Tracking Technologies (<https://celltracktech.com/>). It consists of a Motus tower that works in conjunction with nodes that detect the presence of Motus tags within ~200m of each node. Data from the

system will be used to learn about the behavior and ecology of tagged species, which will be shared through Access and Benefits Sharing (ABS) agreement terms with the government. Data may be shared with other organizations based on data sharing agreements that can be reached between the Developer and each interested party. Data will also be used to develop best management practices for development and operation of projects like Lighthouse Point that will likewise be shared.

- e. A Motus tower if installed at the location can support data collection for birds and other wildlife as well. Will this information be made freely available to local conservation partners?

LHP - Response

The Developer welcomes the opportunity to collaborate with local conservation organizations serving in good faith efforts. Beyond data provided to The Bahamian government as per Access and Benefits Sharing agreement terms, data may be shared with other organizations based on data sharing agreements that can be reached between the Developer and each interested party.

- f. Bonefish Tarpon Trust is going to monitor migrating fish species such as bonefish, what about marine mammals?

LHP - Response

The purpose of the bonefish research is to determine if the bonefish are migrating through the area of the marina and pier to determine what modifications to the facilities can be made to help facilitate it if they do. It is assumed marine mammals will be in the area. How we cohabitate with them will be addressed by best practices highlighted in Section 4.8.5 since the hard facilities are less of an issue compared to human behavior and activities.

- g. "Statistical analysis will only be undertaken on the 6-month monitoring datasets every monitoring period." is unclear. Benthic survey data statistical analysis can be done more frequently or entered into a database that allows access to local biologists for more regular analysis. Comparison between sites can be conducted between control and impact area from the first assessment. After that, trends can be assessed periodically.

LHP - Response

Survey data gathered from land-scape mosaics and in-water benthic community characterizations will be collected and reported every six months from 1/3rd of the fixed benthic BACI monitoring sites spread around Lighthouse Point. These coral survey data will be reported to DEPP bi-annually in conjunction with the quarterly construction related monitoring for water quality and fixed colony fate tracking undertaken by on-site biologists. Comparison between sites and any trends will utilize generalized analysis of variance to determine if changes are significant between control and treatment sites. These statistical analyses will be conducted after each monitoring event.

5. Environmental management

- a. The no discharge policy within the marina may lead to increased discharge outside the marina nearby. Monitoring is required to determine the potential impact of these activities. Will pump out facilities be accessible to local vessels or vendors of marine activities will the cost support adherence to the spirit of no pump out guidance?

LHP - Response

There will be no discharging from boats within or outside of the Marina per the Construction EMP.

- b. Waste management includes burning of waste and no transport to landfill. Where will solid waste be disposed of? Will it be removed from the island and does this mean disposal at sea? Is disposal expected in the waters of The Bahamas?

LHP - Response

No waste at any time during the construction of the project or under operations will be disposed of in the waters of The Bahamas or at sea. With the exception of vegetation which will be burned during the clearing phase, solid waste will be loaded onto the supply barge and returned to the United States for disposal. See Construction EMP Section 5.4 – Site Waste Management Plan.

- c. EPA guidelines for air scrubbers will be used for incineration. What will be the disposal method for the filters and captured particulates from the air scrubbers? What volume of contaminants are expected to be produced or captured?

LHP - Response

See Construction EMP Section 8.5 – Solid Waste Generation and Disposal which states that burn boxes will be used as a temporary disposal method during construction to dispose of waste on site such as clean wood and vegetative waste. All plastics and steel will be separated and shipped to recycling facilities in the United States.

- d. Will the fuel storage containers be above ground? If so, will they then have additional containment pools capable of holding the full volume of the container plus any fire suppression water?

LHP - Response

During construction, fuel will be stored on land in approved fuel cells. These fuel cells will offer double wall containment to ensure no leaking of fuel on to ground or into water. The fuel storage will be located in a lined and bermed area. See Construction EMP Section 8.6 – Fuel Storage for further detail.

- e. Have hydrological assessments been conducted to determine the connectivity between the wetlands, groundwater and marine areas? Surface and groundwater monitoring is needed to detect any leak or contamination as early as possible.

LHP - Response

Information on the shallow freshwater groundwater lenses that occur within the Lighthouse Point area was referenced in the Lighthouse Point EIA and based on a Water Resources Assessment of The Bahamas that was conducted by the US Army Corps of Engineers (2004). See Construction EMP Section 6.1.1 – Maintenance of Water Quality and Water Quality Monitoring, Section 6.4.2 – Water Quality Monitoring, and Appendix G – Water Quality Monitoring Protocol for further detail on surface and groundwater monitoring. A more detailed hydrogeological investigation of the seasonality and flow of groundwaters including possible connectivity between ponds and nearshore marine waters is expected to be conducted during the construction phase of the project to inform the operational phase water quality monitoring plan.

- f. 25% of the total coastline will be impacted. How much of the sandy, rocky or vegetated coastlines will be affected respectively? This could be 80% of the sandy shoreline.

LHP - Response

Per studies conducted for the Lighthouse Point EIA, less than 50% of the sandy shoreline and less than 10% of the rocky shoreline will be affected by the coastline impacts. No affects to vegetated coastline is planned.

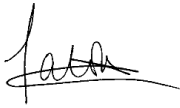
- g. How much area will actually be cleared for nature trails and viewing areas and how wide will they be? Is this area represented in the overall impact calculation?

LHP - Response

Yes, the trails currently in program are represented in the overall impact calculation. The current design includes trails up to 15 ft. in width leading from the East Beach to the Lighthouse. Any future expansion trails are not included in the current program.

If you have any comments of concerns, we would be happy to make ourselves available for further discussions on the matter.

Sincerely,



Falon Cartwright
Director of Science and Policy

Managing National Parks | Preserving Our Future

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