



## CORAL BAY COMMUNITY COUNCIL

Mail: 9901 Estate Emmaus, St. John, VI 00830  
8-1 Estate Emmaus, Coral Bay, St. John, U.S. Virgin Islands  
Coralbaycommunitycouncil@hotmail.com Phone/Fax: 340-776-2099  
[www.CoralBayCommunityCouncil.org](http://www.CoralBayCommunityCouncil.org)

Pile Driving Analysis/ Noise

**Impact on the Coral Bay Community  
From Pile Driving and Other Construction Noise  
During Construction of the Proposed SEG Marina**

Gerry Hills, St. John  
St. John Resident Since 2000  
ST. John CZM Commissioner, 2005 - 2012  
August 25, 2014

This is an analysis about the expected noise pollution in Coral Bay if the proposed SEG marina were to be built. Emphasis is on the noise from pile driving, but other construction noise is equally disruptive. Part I addresses pile driving. Part II provides a specific local example of noise disruption and a project gone bad – the Pond Bay Club. Part III is not about noise, but instead lists some of the many organizations that have voiced disapproval of this marina. Part IV is my recommendation to the CZM Commission.

## **I. Pile Driving**

The application by SEG for the marina in Coral Bay states that 1,333 pilings will be driven into the seafloor to support the docks. However, the Environmental Assessment Report (EAR) is almost completely silent about what type of equipment is proposed for the driving, what type of substrate is expected at the bay floor, what the decibel levels will be in the Coral Bay area, and the duration of the pile driving.

There is no Geological Survey of the Coral Bay floor, which is required to determine the type of substrate. The substrate could be anything from soft clay to incredibly hard rock called blue bitch. The pile driving effort could be anywhere from moderately difficult to virtually impossible.

There is no report from an accredited Acoustic Engineer. Specifically, this should be in Section 7.04 (Social Impact) of the EAR. A report should take into account the Geological Survey (not provided), determine the length of time to drive 1,333 pilings, and calculate the decibel level at various distances from the bay in the Coral Bay area. The EAR states partially, in Section 7.04, Social Impact:

“The St. John Marina hopes to have a positive social impact on both visitors and the local community. Decades of unsatisfied demand by the St. John community and recreational boaters will be fulfilled in Coral Harbor through the development of The St. John Marina, which will provide much needed dockage, fuel, provisioning and pumpout services. The St. John Marina will be located on a combination of land leased from a long-time St. John family and purchased property. This highly visible St. John project will be a substantially locally owned

marina, in and of itself constitutes a significant and positive social impact. In addition, further business opportunities in the marine sector will occur once there is a marina to provide the needed support services. The provision of marina facilities in the place of haphazard anchoring and mooring patterns will yield a positive social impact on the St. John and Coral Bay communities.”

The EAR goes on to say that SEG supports such local agencies/organizations as IGBA, KATS, CBCC, Coral Bay Yacht Club, etc., and therefore meets all Social Impact requirements. In my opinion, this is a non-responsive section.

For example, there is no mention that I can find anywhere in the EAR, and definitely not in the “Social Impacts” section, of the effect that protracted noise would have on Coral Bay.

However, this information is readily available. The Internet provides a rich source of information about noise from pile driving. I found a large number of pertinent articles, and have quoted from some of them below. (Notes are cited as such, and are from me.)

1. “Dealing with Vibration and Noise from Pile Driving”. W. Allan Marr, P.E.  
[http://www.geocomp.com/files/technical\\_papers/DealingwithVibration&NoisefromPileDriving\\_Adapted\\_PAPER\\_WEB.pdf](http://www.geocomp.com/files/technical_papers/DealingwithVibration&NoisefromPileDriving_Adapted_PAPER_WEB.pdf)

Within the pile driving industry, companies are aware that this is a noisy and disruptive process. This is an industry paper actually telling contractors how to attempt to minimize complaints from the community about pile driving noise.

“Pile driving produces vibrations and noise that may extend thousands of feet away from the driving activity. People have become increasingly intolerant of these effects. They complain to government agencies and oppose developments that use pile elements. Their opposition is beginning to seriously affect the pile driving industry in the developed countries.”

“Noise from pile driving rarely if ever produces structural damage, but it causes annoyance that may reach a long distance.”

“Studies by the World Health Organization have shown that the majority of people become moderately annoyed by steady, continuous sound levels above 50 dB(A) and seriously annoyed at continuous sound levels above 55 dB(A).”

(Note – the estimated db level for the type of drill proposed appears to be approximately 175 to 200 dB, from various sources on the Internet.)

"Figure 2 shows a range of sound levels reported for pile driving for a variety of hammer types and sizes. For the noisiest hammer, one would have to go approximately 300 feet away from the hammer to get below the OSHA 8 hour exposure limit (Note: the OSHA safety limit is 90 dB). One would have to get several miles from the noisiest hammer for the sound level to drop below that causing moderate annoyance for most people."

(Note: The EAR is not specific about the type of drill to be used. It mentions possibly using a vibration type drill some of the time if conditions permit. This would potentially slightly lower the dB levels. However, research also states that vibration drills cannot be used in all locations, and that this process is slower.)

2. "Pile Driving Noise." Wieland Acoustics.

[http://wielandacoustics.com/images/stories/pile\\_driving\\_noise.pdf](http://wielandacoustics.com/images/stories/pile_driving_noise.pdf)

Discussion about vibration drills versus percussion drills. Sound is reduced with vibration hammers, but not significantly. Vibration hammers can be used only under certain soil conditions.

3. "Memorandum. Airborne Noise Levels." Washington State Department of Transportation. <http://www.wsdot.wa.gov/NR/rdonlyres/8D088EE1-8BE9-4A59-8296-451E58CCDDDB5/0/AirborneVibratoryTechMemo.pdf>

Discussion of decibel levels from several projects in Washington State. Measurements were taken at various distances from the pile driving. For example, in the Keystone Ferry Terminal project, using a vibration driver, the airborne sound 40 feet from the actual drill averaged about 100 decibels. (Note: the OSHA safety level is 90 decibels. The level at which people become seriously annoyed is 55 decibels. For this project, we have no data on what the sound levels would be at various distances from the pile driving. It was omitted.)

4. "Naval Base Kitsap at Bangor, Trident Support Facilities Explosive Handling Wharf (EHW-2) Project, Acoustic Monitoring Report." Illingworth & Rodkin, Inc. [http://www.nmfs.noaa.gov/pr/pdfs/permits/navy\\_kitsap\\_ehw2\\_acoustics2013.pdf](http://www.nmfs.noaa.gov/pr/pdfs/permits/navy_kitsap_ehw2_acoustics2013.pdf)

A very long and detailed report, full of charts and technical analysis of noise propagation both underwater and airborne.

The report addresses the potential harm zone to marine life, and states specific underwater decibel levels that must not be exceeded:

- 160 dB RMS for marine mammals during impact pile driving
- 120 dB RMS for marine mammals during vibratory driving; and
- 150 dB RMS for fish and marbled murrelets during both impact and vibratory driving.

"Effect on Injury and Behavioral Zones Based on RMS Sound Pressure Level -- Data from the individual measurements indicate that RMS sound pressure levels exceeded 190 dB at distances of up to 25 meters from the pile and the 180 dB was exceeded at distances up to 100 meters." P.75.

The project consisted of a large pier in a saltwater canal. "257 pilings were put in, with a total of 11,859 strikes. The bottom of the canal where the piles were driven was the same as encountered with the TPP project. Based on the USCS soil classifications the soil ranged from poorly graded gravel-silty gravel to silty sand/gravel. The water depth where the piles were driven ranged from just above the water to approximately 90 feet. The distance from the shore to the piles driven ranged from on land to approximately 600 feet." P. 9. (Note: Since there is no Geological Survey for the proposed marina, it is difficult or impossible to compare the conditions, which may be more difficult in Coral Bay.)

"One to 19 piles were driven in a day with an average over the project of five piles per day." P. 11. (Note: At times, this project used multiple pile drivers. At rate of five pilings per day, driving 1,333 pilings in Coral Bay would take 266 days, or over 53 continuous 5-day weeks of pile driving noise. Other estimates, of time to drive pilings estimated setting of just 3 piles per day, meaning that the pile driving would take approximately 89 continuous 5-day weeks.)

The SEG EAR in Section 6.9 has a few graphs/tables, some text about ambient oceanic decibel levels elsewhere (Alaska, California, open ocean, etc.) and nothing specific about Coral Bay, which apparently was not measured or surveyed. Then there is a claim for which I can't locate any solid reasoning or supporting technical validation: "Based on this information if a vibratory hammer is used the sound created during construction should be 120 dB and below that which injury occurs." (Note: It is not even certain that vibration hammers can be used. In addition, the various claims state 'should', instead of 'will'.)

The EAR also states in Section 6.9. "The threshold for behavioral impacts for all fish is 150 dBRMS (FHWG 2008). Vibratory hammer activities should be below that range." (Note: A Geological Survey of Coral Bay Harbor and the opinion of an independent Acoustical Engineer are required to verify these statements, because they are counter to actual measured results reported above, showing underwater decibel levels significantly greater at distances up to 100 meters.)

5. NOAA did an analysis of the proposed marina, dated July 28, 2014.  
[https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7975&app=WordPdf&authkey=!AH-f2zhH7h\\_d4Gk](https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7975&app=WordPdf&authkey=!AH-f2zhH7h_d4Gk)

NOAA made 15 specific recommendations. Number 4 of 15 stated "4. details of pile driving [Environmental Assessment Report (EAR) states that a vibratory hammer will be used where possible but this is not enough information] and quantification of potential acoustic impacts to sea turtles, including distance of impact estimates for the driving of an estimates 1,333 pile and measures to reduce potential impacts to sea turtles from acoustic impacts." (Note: text appears missing at the end of the last sentence.)

6. The Coral Bay Community Council (CBCC) raised the same issues in its analysis of the project, sent to CZM.

On page 6-13, Sec 6.02 of the EAR, the applicant states: "Impact of Geology on the Proposed Project:.... On the marina area, conditions permitting, piles are anticipated to be driven with a vibratory hammer and local geological conditions are not expected to adversely impact this plan."

CBCC comments: "This is an unsubstantiated statement. There needs to be a geological study to determine feasibility of driving pilings in the seafloor of the bay in the EAR. We did not notice this survey and analysis included. (On a related matter, we did not notice any specification for how deep each piling needs to be driven – which is critical to determining the time/cost and noise generated when doing 1333 pilings.) Unless the piles can be driven easily through solid rock, not addressing this issue fully in this written application stage could lead to the same type of problems faced by Cruz Bay when Grande Bay was developed. We all recall that developer saying later – 'We did not know we would run into ....hard rock!' This geological report and an engineering/cost report about driving the pilings based on that report is a HIGH PRIORITY item to be included in this EAR – for a number of reasons, but especially due to the construction duration and noise pollution consequences to the community and the economy, as well as the marine creatures."

(Note: This doesn't seem to have been addressed yet by SEG.)

#### Conclusions about Pile Driving Noise

- Social Impact not addressed in the EAR

- An extreme nuisance for many months/years

- Potentially dangerous to humans

- Harmful to marine life

- No specifications on type of equipment, depth, substrate composition, estimated time, decibel levels airborne or underwater

- No Geologic Survey

- No Acoustical Engineering

## **II. What happened at Pond Bay Club**

Noise during a construction project is unavoidable, and can have disastrous effects.

This is the actual experience that occurred on St. John with the failed project at Pond Bay Club. Construction noise was extremely disruptive to the Chocolate Hole community. The results from construction noise are addressed below in the sub-section on "Tourism".

The expected noise during construction of the proposed SEG marina would be more than that experienced during the construction of Pond Bay Club, since the project is much larger, there are more buildings, it is directly on a main road, and there are many months of pile driving. Coral Bay, like Chocolate Hole, is a natural bowl, with hills/mountains bordering a bay. Sound propagates up the hillsides. From my house at 600 feet altitude, 2 miles from Coral Bay, I can easily hear late-night live music from Coral Bay restaurants. In fact, we were able to listen to concerts at the ball field from our deck. It is my opinion that pile driving and other construction noise, significantly louder, longer duration, and much more unpleasant than that of a band, would devastate the community.

Pond Bay Club was lauded by its developers in exactly the same fashion that SEG lauds the marina proposal. It will provide jobs, will be a huge economic benefit to the island, will attract tourism, and will be a shining example throughout the Caribbean of a successful resort. Government officials from Tourism and from Economic Development made very similar presentations for Pond Bay Club back then that they recently made for SEG. These presentations and promises are certainly well-intentioned, but none of the promises came true at Pond Bay Club.

- **Job gains.** During the construction phase, some jobs were definitely created. Much of the labor was not from St. John, however. Most of the construction labor came from St. Thomas on the daily ferry. Today, there are obviously no long-term jobs.
- **Economic benefit.** Some local craftsmen were hired as subcontractors. However, many were simply not paid. The estimate at the end of the project was that local contractors were owed over \$650,000 by the developer, who simply walked away from the debt. This was a huge loss to the local population, instead of a gain.
- **Tourism.** During the Pond Bay Club construction, which lasted two years or so before shutdown, there was incredible noise which adversely affected tourism. Villas in the Chocolate Hole area had to publicly state that excessive noise was likely. Tourists immediately posted negative comments all over websites like TripAdvisor telling people to avoid Chocolate Hole and St. John. Many tourists, still unaware of the noise, came anyway, left angrily, and demanded refunds and/or placement in

alternate properties away from the noise. Losses to the villa owners and to the economy were enormous. The problem in Coral Bay is significantly greater than that in Chocolate Hole, with a larger project, more buildings, over a longer time period, with restaurant closures, a massive construction site along the public road and blocking views of the bay, and with pile driving. Noise in Coral Bay reverberates up the hillsides, and carries to hundreds of properties. VRBO, a popular site for listing vacation rentals lists 98 properties for rent in Chocolate Hole. VRBO lists 175 properties for rent in Coral Bay. I believe that it is extremely naïve, and also extremely incorrect for the Virgin Islands Department of Tourism to state publicly that there are benefits to tourism from this project. On the contrary, it is obviously a huge disaster just waiting to happen. I believe that Coral Bay and St. John tourism would take an enormous hit for the duration of the construction, and for years beyond. The proof is in Pond Bay for everyone to look at, remember, and learn from.

- **Shining example to be proud of.** The Pond Bay Club site is in shambles. A disgrace. No further comment is necessary.

### **III. Who Has Spoken Against The SEG Marina**

Opposition has included the following, and others:

1. Over 200 St. John residents or visitors sent letters to CZM through CBCC, who collected and printed the letters. Three sets of over 160 letters were given to CZM at the Public Hearing, and many more are being provided. Each letter was individually written, was not mass-produced, and was not a form letter.
2. Over 350 people, either residents, landowners, or frequent visitors to St. John who could not attend the Public Hearing signed a statement opposing the marina. The names have been provided to CZM.
3. Fish and Wildlife issued a report in letter format, dated August 18, 2014.  
[https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7976&app=WordPdf&authkey=!AH-f2zhH7h\\_d4Gk](https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7976&app=WordPdf&authkey=!AH-f2zhH7h_d4Gk)

The report contained a number of specific comments and recommendations, including this statement: "Based on the above, we recommend that a CZM permit for the proposed action not be issued until our concerns and recommendations are addressed in the EAR and subsequent permit applications."

4. NOAA issued a report dated July 28, 2014, which was focused mainly on the water-based section of the project.  
[https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7975&app=WordPdf&authkey=!AH-f2zhH7h\\_d4Gk](https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7975&app=WordPdf&authkey=!AH-f2zhH7h_d4Gk)

“On the other hand, as we expressed after reviewing the previous version of the marina, which consisted only of a marina for smaller vessels, similar to the currently proposed North Club, we continue to have concerns regarding the potential project impacts to seagrass beds and water quality in the bay. In response to the past permit application for a smaller marina, we had recommended that the applicant explore avoidance and minimization of project impacts to seagrass, including through alternatives such as the construction of a marina at an alternate location. Instead, when Summer's End acquired the property, they proposed a larger project that includes the currently proposed marina for small vessels and vessels up to 120 feet in the South Club and up to 80 feet in the North Club based on notes in our project file. While they have redesigned the project to incorporate grated decking and extend into deeper water away from shore in order to avoid the need to dredge, the project has gotten larger rather than smaller, resulting in greater impacts to benthic habitat that is used by sea turtles as well as creating the potential for greater water quality impacts in the bay, which contains habitat for ESA-listed and proposed corals in addition to sea turtles. For this reason, we continue to have concerns regarding this project. As part of the federal permit process, a Section 7 consultation under the Endangered Species Act (ESA) will be required. As part of this consultation, the following information will be required to address all temporary and permanent impacts, including direct and indirect effects, to ESA resources: “

(Note: 15 separate items were listed as necessary for compliance.)

The report concluded with this:

“Note that, once the ESA Section 7 consultation has begun, we may require additional information to that listed above in order to complete our determination. Finally, the project may require an essential fish habitat (EFH) consultation with NMFS Habitat Conservation Division (HCD) as part of the federal permit process. By letter dated June 2, 2006, NMFS HCD provided comments to the USACE in response to a previous major land and water application for a small boat marina only in the same location. At the time, NMFS HCD had significant concerns regarding the proposed marina and associated impacts to the dense seagrass beds in the area, as well as potential impacts to water quality. Therefore, I recommend that you contact Ms. Lia Ortiz with NMFS HCD regarding EFH consultation requirements.”

(Note: This was one of the many Special Conditions attached by CZM to the permit for the previous, smaller marina, and it was never met. NOAA has repeated the same objections, and it appears that NOAA is even more concerned now that the project has increased in size.)

5. CBCC submitted a 19-page document to CZM, dated August 4, 2014.  
<https://onedrive.live.com/view.aspx?cid=9F78A94DCD9236CE&resid=9F78A94DCD9236CE!7895&app=WordPdf&authkey=!AML6KoaOvMjo0wg>

The document is extremely thorough, and includes mention of multiple problems with information, or lack of information in the EAR, public opinion, reasons why the marina doesn't meet approval standards, etc.

6. A report was provided to CZM by David Silverman of Coral Bay and CBCC. Mr. Silverman had a position similar to that of a CZM Commissioner where he lived previously, and submitted this: "Over the ten years which I served as a Coastal Commission member, I reviewed many private dock applications, a public marina application, and countless residential projects and subdivisions, both large and small, within the coastal zone. As a consequence of this background I am very familiar with the Coastal Zone Management Act and its implementation."

David also testified at the Public Hearing about the contents of the report. The report is 35 pages long, full of references to specific sections of the CZM act. It documents many specific instances where the proposed marina is not consistent with the CZM act, and therefore must be denied by law.

This application is NOT CONSISTENT with **CZM Goals** 1, 3, 4, 5 and 8.  
It is NOT CONSISTENT with CZM **Development Policies** 1, 5, 6, 8 and 9.  
It is NOT CONSISTENT with CZM **Environmental Policies** 1, 2, 4 and 9.  
It is NOT CONSISTENT with CZM **Amenity Policies** 2, 4, 5 and 6.

(Note: Below I have excerpted text from just two of these 18 separate inconsistencies with the CZM act, to show the thorough level of evaluation and the degree that the proposal does not follow the CZM act, which is part of Virgin Islands law. The other sections are equally descriptive.)

**CZM Act Goal 1:** – protect, maintain, preserve and, where feasible, enhance and restore, the overall quality of the environment in the coastal zone, the natural and man-made resources therein, and the scenic and historic resources of the coastal zone for the benefit of residents of and visitors of the United States Virgin Islands;

**Analysis why the marina proposal doesn't meet this:** -- "The applicant proposes to build an extensive marina complex situated above lush marine meadows and within critical habitat of federally protected endangered species (corals and marine turtles). This activity cannot be construed to be protecting, maintaining, preserving, enhancing or restoring the quality of the natural environment in the coastal zone, since, by the applicant's own statements,

'seagrasses are impacted after approximately 2 weeks of shading (and) this will result in the loss of seagrass within the marina due to vessel shading. This will probably be seen as loss of density as well as denuding of some areas especially around larger boats which are permanently moored.' (Major Water EAR, Page 5-4) The goal also speaks of protecting the man-made, scenic and historical resources of the coastal zone. This proposed development will dramatically change the viewshed of Coral Bay Harbor, as clearly indicated in the renderings of the finished project prepared by the applicant. Such changes do not maintain or preserve scenic resources of the coastal zone.

The applicant may claim that this project will 'enhance the overall quality of the environment' and specifically refer to the man-made resources therein. However 'quality' is not an objectively defined term, and the vast majority of Coral Bay residents have said that this project will degrade, not enhance, the quality of the man-made environment."

**CZM Act Amenity Policy 6:** – to ensure that development will not interfere with the public's right of access to the sea where acquired through customary use, legislative authorization or dedication, including without limitation the use of beaches to the landward extent of the shoreline.

**Analysis why the marina proposal doesn't meet this:** – "There are approximately 50 boats on DPNR-approved moorings within the footprint of the proposed marina. Many of these boats have utilized the same mooring location for many years. Displacing almost half of the legally moored vessels in Coral Bay Harbor and relocating them into densely packed mooring fields with substantially less privacy and greater risk of collision with neighboring vessels is clearly not consistent with this CZMA goal.

Additionally, the proposed 'mooring field' does not have appropriately designed facilities to accommodate the vast majority of vessels currently utilizing Coral Bay Harbor. This plan effectively monopolizes the entire harbor to the benefit of one private group, and is clearly not consistent with the letter or the intent of this policy. Furthermore, as detailed elsewhere, there is considerable doubt as to the legality of a private developer constructing and managing a public mooring field; this responsibility is specifically assigned to DPNR under the VI Boating code."

#### **IV. My Recommendation to the CZM Commission**

My opinion as a St. John citizen for fourteen years and as a former CZM Commissioner for 7 years is that this proposal fails in virtually every conceivable measure – aesthetically, socially, environmentally, and legally. Do not approve.

To: J.P. Oriol  
Acting Commissioner, DPNR

From: Gerry Hills

Date: August 26, 2014

Subj.: Public Testimony about proposed SEG Marina

Enclosed is a copy of an analysis of noise pollution resulting from driving 1,333 pilings into Coral Bay Harbor.

I have made three copies and put into individual envelopes to help distribute to the two voting Commissioners, and to the CZM staff.

I have also sent a PDF version to you and to Anthony Richards. You may distribute this if you wish.

Hope this helps in your analysis.

Please feel free to contact me regarding this.

[stjohncaptain@aol.com](mailto:stjohncaptain@aol.com)

340-642-3360

Gerry Hills  
St. John

## **Addendum to Pile Driving Analysis**

From: "Hudson River PCBs Superfund Site, Phase 1 Final Design Report, Attachment J - Noise Impact Assessment". Epsilon Associates, Inc.  
[http://www.epa.gov/hudson/pdf/2006\\_03\\_21%20Phase%20I%20FDR%20ATTACHMENT%20J.pdf](http://www.epa.gov/hudson/pdf/2006_03_21%20Phase%20I%20FDR%20ATTACHMENT%20J.pdf)

This report analyzes the propagation of airborne sound from both vibration and impact pile drivers, and what proper mitigation should be. It is 41 pages long, plus additional photos and illustrations, and contains enough scientific data to properly assess the effect on the community.

The EAR produced by SEG should contain a similar analysis, which should be included in the Social Impact section. Instead, this section contains only a couple of non-specific paragraphs about noise, and concludes only that noise levels underwater "should be" below 120 dBA. There is nothing about expected airborne noise, its impact on the community, and necessary mitigation.

I have combined two charts into one, for simplicity.

Expected Decibel Levels, at various feet from the source, Tables 4-4b and 6-4

	Vibratory Driver	Impact Driver
100 feet	90	92
200 feet	84	86
300 feet	81	82
400 feet	78	80
500 feet	76	78
575 feet	75	
600 feet		76
700 feet		75

(Note: 75 dBA is the "Residential Daytime Control Level". For this project, residences were within a mandatory mitigation zone (specifically a barrier, shroud, quieter equipment, etc.) if they were within 575 feet of a vibratory driver, or within 700 feet of an impact driver.)

The decibel level of a moving locomotive, at 50 feet, is 88 dBA. P. 37.

From other sources - -

The OSHA safety limit in a workplace is 90 dBA.

The level at which people are moderately annoyed is 50 dBA.

The level at which people are extremely annoyed is 55 dBA.

Depending on the equipment used, size of pilings, etc., the sound level at the source in Coral Bay Harbor could be in the range of 175 to 200 decibels. We don't know, because the EAR doesn't include any analysis.

In any case, the absolute least amount of noise expected is roughly the equivalent of a moving locomotive from 50 feet away, off and on, all day long, for a year.