



July 2, 2015

Cayman Islands
Department of Environment
P.O. Box 10202
Grand Cayman KY1-1002
Via Email: doe@gov.ky

Dear Sirs:

On behalf of the Diving Equipment and Marketing Association (DEMA), I am writing to you in regard to the proposed cruise ship berthing facility planned for Grand Cayman Island. DEMA strongly urges the government of the Cayman Islands to cease plans to build a cruise ship berthing facility in George Town Harbor.

DEMA is a non-profit trade association (501 (c) 6) based in the United States, representing the diving consumer and business interests of the recreational scuba and snorkel diving industries all over the world. DEMA's mission is to promote sustainable growth in safe recreational scuba diving and snorkeling while protecting the underwater environment.

DEMA speaks on behalf of diving businesses around the world, including in the Cayman Islands and the US, and represents millions of divers, thousands of whom visit Grand Cayman every year to enjoy the clear waters and living reefs currently found there. Many of these divers arrive in Grand Cayman by air and some by cruise ship, but all are interested in participating in recreational diving and enjoying the Cayman Islands' natural underwater environment, one of the jewels of the Caribbean. Grand Cayman is one of the birthplaces of recreational dive travel and has long been a premier location for divers from the US seeking a destination close-to-home. In fact, in the 2014 annual Reader Survey conducted by on-line diving magazine, Scuba Diving, the island garnered 11 Top 100 Readers Choice Awards, including No. 1 for Overall Best Destination in the Caribbean/Atlantic.

DEMA is very concerned about the environmental impact of the proposed cruise ship berthing facility as portrayed in the Environmental Statement dated June 2, 2015. From the projected requirement to destroy living coral reefs and the uncertainty regarding environmental and geologic impacts of the facility, to the lack of increases in disembarkation rates per hour even with the new berthing facility and loss of recreational diving, it appears that this project is not in the best economic interest of the diving or tourist industries in Cayman.

DEMA has at least two overarching concerns regarding this proposed facility; the overall economic impact to the diving industry in the Cayman Islands, and the direct environmental damage caused by the destruction of Cayman's most precious natural resource, its coral reefs. We fear the environmental damage will irreparably harm Grand Cayman's reputation (and future) as a premiere diving destination.

Economic Concerns

In discussing the marine ecology of the project site the Environmental Statement clearly indicates that, "The nearshore reefs are economically significant to the Cayman Islands, as they represent an important component of the water sports industry (snorkeling and diving) that brings cruise and overnight tourists to the Cayman Islands." DEMA strongly agrees with this statement.

Although predictions contained in the Environmental Statement indicate an overall increase in cruise ship passenger revenue by \$CI 245M over a 20-year period if the facility is built, these predictions are based on minimum growth projections of 1% per year for cruise ship passengers, which may not occur after the coral reef in the George Town Harbor area is effectively removed and replaced with a cruise ship berthing facility.

During the same 20 year period the revenue loss from water-related tourism is projected to be at least \$CI 6.5M annually, for a net present value over 20 years of more than \$CI 120,000,000, not including a similar annual revenue loss over the three year construction period (a total net present value of almost \$CI 140,000,000). The reason for this loss, as stated in the Environmental Statement, is the degradation of the very coral reefs that are currently attracting all visitors, including cruise ship visitors. It seems likely that the projected annual growth of cruise passengers will be similarly affected, reducing the projected 1% per year growth as a result of building the cruise facility.

How Much Do These Visitors Spend?

Recent data from the Environmental Statement seems to indicate that the average visitor arriving by cruise ship spends far less than visitors arriving by air, which air travel includes the majority of divers visiting Grand Cayman:

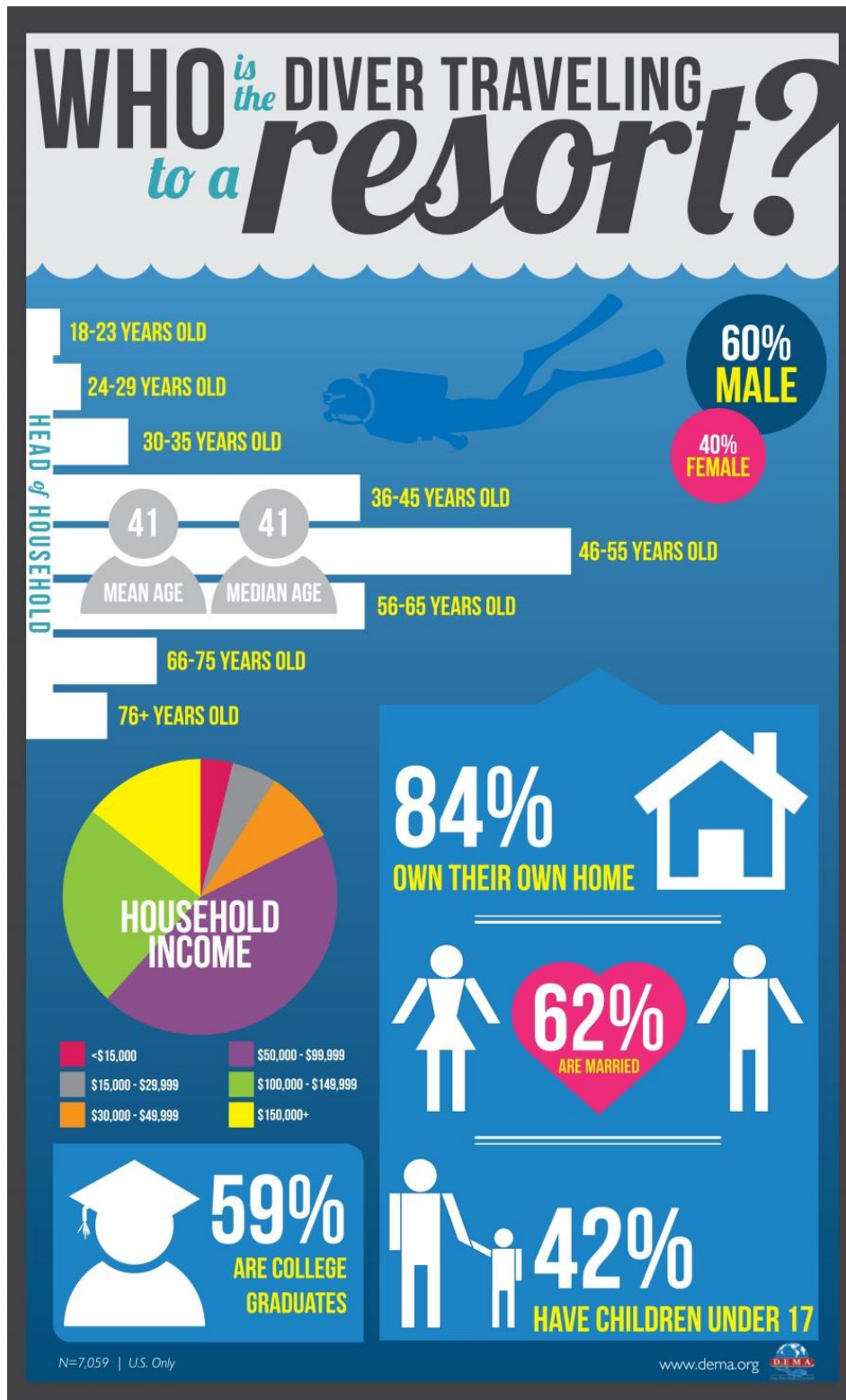
Cayman Visitors per year	Number of Visitors	Percent of Visitors	Spending During Cayman Visit	Percent of Spending	Average Spend per Visitor
Cruise Arrivals	1,400,000	80%	\$CI 115,000,000.00	23%	\$CI 82.14
Air Arrivals	345,400	20%	\$CI 381,000,000.00	77%	\$CI 1,103.07
Total Cayman Visitors	1,745,400	100%	\$CI 496,000,000.00	100%	\$CI 284.18

It appears that 20% of the Cayman visitor population – in this case, the population arriving by air – accounts for (almost) 80% of overall Cayman visitor spending. An increase in the outreach to those tourists arriving by air, especially divers, could result in a significant increase in tourism-related revenues, with fewer construction and dredging requirements. This is indeed possible because the diving consumer is typically affluent, spends significant time at a destination when traveling to dive, and is attracted to the natural resources currently available in the Cayman Islands.

DEMA’s own research studies indicate diving consumers from the US who visit land-based resorts such as those found on Grand Cayman have the following demographic characteristics:

- More than 38% have a yearly household income greater than \$US 100,000, compared to only 15% of all US households. These visitors have the money and time to spend on visits to Grand Cayman.
- More than 24% have children between the ages of 11 and 17 compared to 18% of all US households, furthering the opportunity for the Cayman Islands to attract an audience whose family members will visit time and again throughout their lives. A total of more than 42% have children younger than 17 years.
- More than 50% have a net worth between \$US 1million and \$US 2million, compared to less than 8% of all US households.
- More than 84% are homeowners compared to 77% of US households, with 29% of these homes having a market value in excess of \$US 500,000. By comparison only 10% of US households have homes with a similar market value.

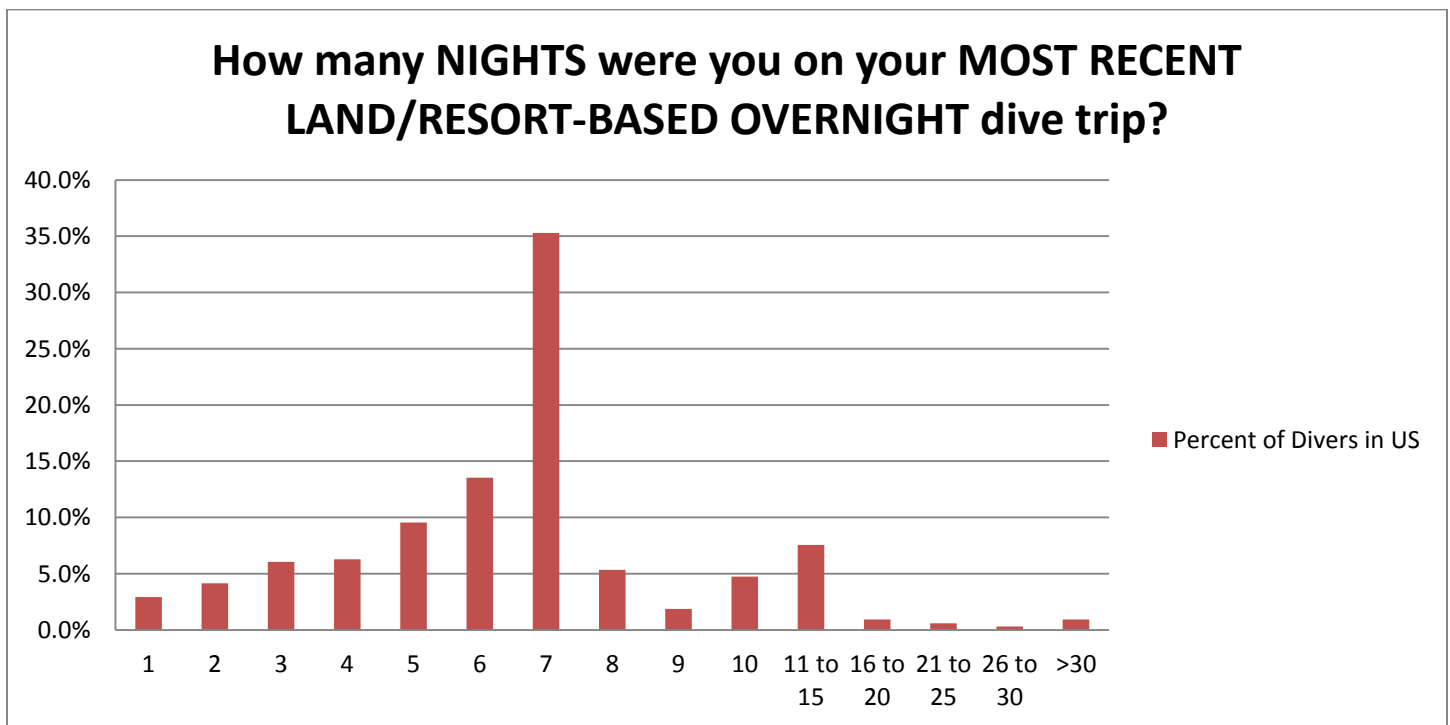
[DEMA’s full analysis of divers visiting land-based resorts can be found here.](#) A summary “infographic” of this diving visitor appears below.



It should also be noted that, in addition to the data available from the full analysis of the resort-based diver, among some 24,000 divers worldwide also surveyed by DEMA in 2014, the Cayman Islands was ranked number three among those diving resort locations visited in the previous 12 months. The data for the top 10 destinations is shown below:

To where have you traveled on your INTERNATIONAL OVERNIGHT dive trip(s)/vacation(s) during the PAST 12 MONTHS?		
Rank	Answer Options	Response Percent
1	Cancun-Cozumel	32.9%
2	Bahamas	25.2%
3	Cayman Islands	22.0%
4	Belize	16.7%
5	Mexico (other than those listed)	16.5%
6	Honduras	15.8%
7	Bonaire	14.6%
8	Virgin Islands (US)	11.0%
9	Turks and Caicos	10.5%
10	Jamaica	9.6%

According to this same 2014 DEMA research, the average diver spent seven nights on their latest overnight, international land-based resort dive trip:



Since the affluent individual described in the demographic profile of the diving consumer visiting the Cayman Islands, as presented herein, is concerned with the environment and with the sustainable use of natural resources (Source: Murch, Arvin. 1971. "Public Concern for Environmental Pollution." *Public Opinion Quarterly* 35:100-106), it should be a very real concern to the Cayman Islands that any environmental degradation, especially of the magnitude being described in the proposed berthing facility Environmental Statement, is likely to have a negative impact on the perception of pristine diving which the Cayman Islands now enjoys in the minds of diving consumers.

While we understand that the George Town Harbor area will receive the greatest impact, and other dive sites remain available, with the destruction or re-location of Soto's Reef, the re-location or destruction of the Balboa, and the destruction of Devil's Grotto, it is likely that the number of divers visiting the Cayman Islands will dramatically decline as public perception develops regarding this project's environmental impact, resulting in an immediate and adverse economic impact. Assuming most divers arrive by air, a decline of even 10% in diving visitors to Cayman

for a single year would result in a projected loss of more than \$CI 38,000,000 in tourism revenue. In effect, the Cayman Islands will be trading the current affluent and sustainable diving consumer for a cruise consumer who spends far less on average per visit than the diver traveling to Cayman by air. Such a trade could have devastating impacts on the number of divers visiting the Cayman Islands, with a resulting impact on the Cayman economy, as well as on DEMA member businesses based in Cayman.

In summary of this point, the diving consumer from the US visiting Grand Cayman is affluent and interested in diving in the type of world-class and pristine diving environment that is currently found in the Cayman Islands. These divers are known to stay an average of seven hotel nights on a dive vacation, and according to the Environmental Statement, those arriving by air generate an average of more than \$CI 1,100 per visitor. **In our opinion, there is considerable doubt that this affluent visitor will continue to visit the Cayman Islands for recreational diving should that world-class diving be degraded due to construction and operation of the proposed cruise berthing facility.**

Direct Environmental Concerns

DEMA agrees with the Environmental Statement which states that, “The development of the proposed project will have a significant impact on the marine ecology within George Town Harbor, in particular the coral reefs and associated habitat surrounding the project site...Key ecological impacts would include coral destruction, habitat fragmentation and reduced biodiversity.” The Environmental Statement projects the following impacts:

Construction Phase Impacts:

- Direct impact on approximately 15 acres of coral reefs and marine habitat within the project footprint.
- Indirect impact (increased stress on and degradation of) additional 15 to 20 acres of coral reefs and associated marine habitat located within approximately 200 meters from the project footprint due to elevated turbidity and sedimentation levels, particularly during dredging and land reclamation works.
- Elevated risks of spills and pollution associated with construction traffic, material storage and operations, and site runoff.

Operations Impacts:

- Sediment re-suspension caused by cruise ship traffic to and from the facility will result in elevated turbidity and sedimentation levels on adjacent reefs.
- Increased runoff, with associated increase in sediments and other pollutants.
- [Increased risk of pollution due to accidental discharges and spills \(cruise ship sewage, bilge water, etc\).](#)
- Increased risk of introduction of invasive species from ballast water.
- Turbidity and sedimentation associated with maintenance dredging operations (if required).
- Increased risk of marine incidents, and associated potential for damage to nearshore reefs.
- Currently cruise ships arriving in the Cayman Islands drop anchor in an area that has been in use for this purpose for more than 30 years. Thus, this area’s reefs have long been damaged by these anchors, and are likely not at risk for further significant damage. However, one positive impact of a cruise berthing facility may include the reduced need for using an anchor on an offshore reef.

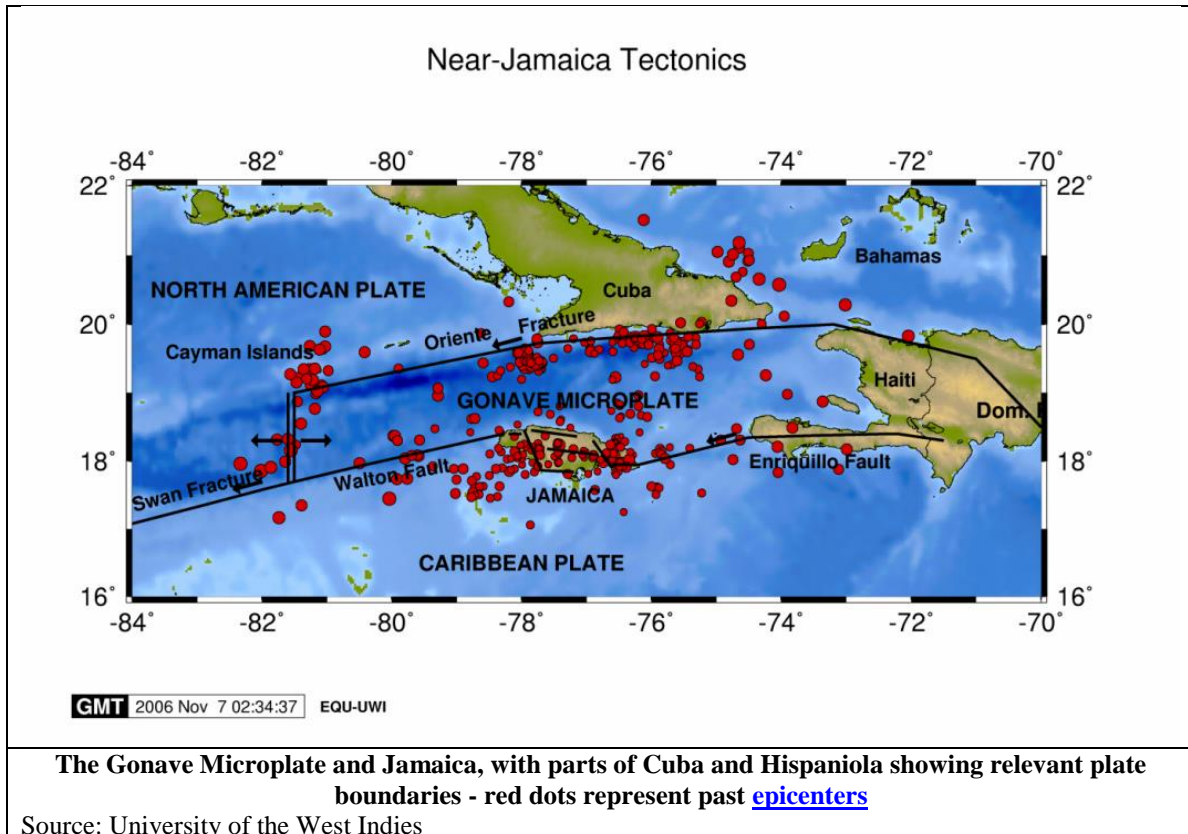
Turbidity, Silt, Dredge Debris and More – As described in the Environmental Statement, there have been no true investigations of the makeup of the material in and around the proposed berthing project site. Before such a project is considered or launched, there should be no doubt as to the makeup of this subsurface material as it will have an immediate impact on the type of dredge and the mitigation techniques required to prevent total destruction of the diving sites near George Town Harbor.

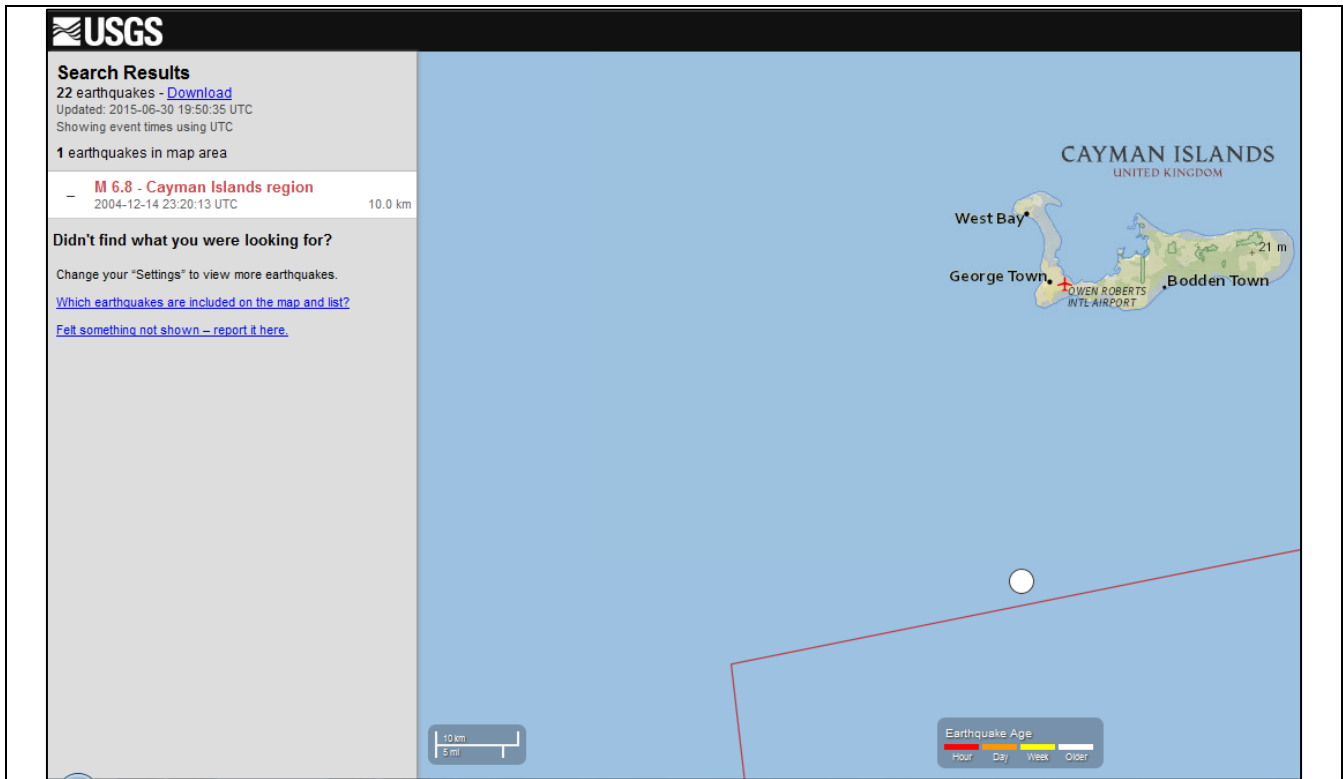
In addition to the fate of the reefs being considered for removal, DEMA is gravely concerned about the health of the reefs not marked for direct destruction by dredging but impacted by the action of the sediment suspended in the water and settling on the reef during the dredging operation. Further, as outlined in the Environmental Statement, the surrounding reef will be impacted by the need for periodic future “maintenance” dredging, as well as dredging which is required following significant storm action. This maintenance action will further endanger living coral and risk additional future economic problems for those in the watersports industries.

Land-Based Concerns - An additional problem raised in the Environmental Statement is the fact that the 7.7 acres of new land created by the dredge tailings as part of the facility are subject to liquefaction, should additional earthquakes take place on or near Cayman. Although perhaps not as prominent or frequent as hurricanes, earthquakes are still devastating in and around the Caribbean. Cayman lies very close to an active fault line (the Gonave Microplate) and along with other islands in the Caribbean has suffered major earthquakes in the past. A 6.8 magnitude earthquake took place near Cayman in December 2004 three months after the Cayman Islands were hit by Hurricane Ivan. A 7.0 magnitude earthquake in Haiti in January of 2010 killed an estimated 230,000 people, injured some 300,000 more, and made a million people homeless in one of the world’s ten deadliest natural disasters. A week later, the Cayman Islands experienced a 5.9 magnitude earthquake.

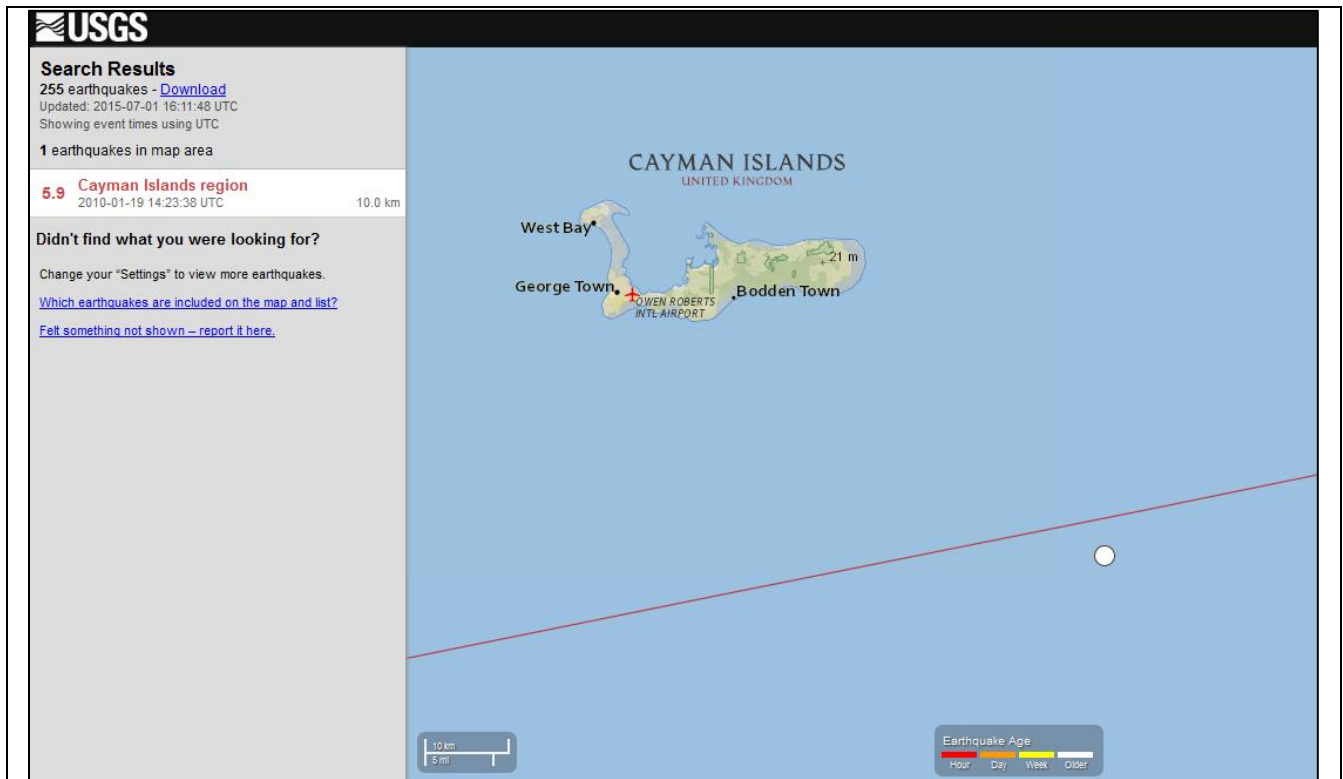
Although these earthquakes and others near and around Cayman have traditionally caused only minor damage in the Cayman Islands, the presence of a new and artificial spit of land that is subject to this liquefaction phenomenon represents a real danger to those who are present when the earthquake strikes, and important to this discussion, presents the risk that additional reef damage will occur during the dredging required to re-build the berthing facility following an earthquake.

By way of historical reference, some of the greatest damage that took place in the City of San Francisco in the 1906 earthquake was in the areas of that city subject to this same liquefaction phenomenon.





Epicenter of the December 2004 Earthquake near Cayman (Magnitude 6.8). Note proximity to the red fault line.
Source: US Geological Survey Website



Epicenter of the January 2010 Earthquake near Cayman (Magnitude 5.9). Note proximity to the red fault line.
Source: US Geological Survey Website

Impact of dredging material disposal – The Environmental Statement calls for 169,000 cubic yards of material to be dumped in an area 1.25 miles offshore (west) of the project site. Any such dumping should require at least the same environmental impact study as is required to intentionally sink an artificial reef made from any material. There seems to be little information as to how the proposed dumping site links to the shallow reefs, and without this information on the continuum of biodiversity and the web of interaction, the results of simply dumping debris could be damaging to both areas. Apparently no such study has been undertaken.

Since the proposal calls for underwater areas close to popular dive sites to be transformed to accommodate the berthing facility, even a partial failure to create the economic benefit projected in the Environmental Statement will be devastating to the long term environmental and economic survival of the Cayman Islands. Once the damage to the underwater environment is done, there is no turning back. In our opinion, any potential economic upside of this project is inadequate when compared to the greater risks involved with the potential for failure of this project to create positive economic benefit, and the long-term environmental risks involved.

In conclusion of this topic, even though the Environmental Statement suggests several possible mitigation measures for both construction and operation phases of the facility, the Statement also indicates that such enormously expensive mitigation measures as relocating whole sections of coral reef, “will not achieve a ‘no net loss,’ and success is not guaranteed.” With the natural coral reefs being perhaps Cayman’s greatest natural resource and the primary asset that attracts diving and non-diving (cruise) tourists, the willful destruction of this coral reef to create a cruise ship berthing facility seems a short-sighted plan and potentially a horrific blow to the long term economic and environmental survival of the people of Cayman.

Conclusion

The Cayman Islands has a unique and irreplaceable resource in their natural coral reefs. These same reefs have attracted visitors for many years, and are the basis for the attraction of recreational scuba divers and snorkelers to Cayman, as well as cruise-conveyed visitors. This attraction is so strong that Cayman became one of the first locations sought out for dive travel by participants in the recreational diving community during the fledgling years of the sport.

The loss of 15 to 30 acres of living reef which will no longer be available to attract diving or cruise visitors will be irreversible and devastating to Cayman and to the world diving community at large. DEMA strongly urges that the Cayman Islands Government cease plans to initiate this project due to the high potential for negative environmental impacts and their adverse economic results. Such negative impacts could be detrimental to the people of Cayman and devastating to the recreational diving community visiting the islands.

We would be pleased to help in any way you deem appropriate and stand ready to assist. Thank you for the opportunity to provide input on this critical issue.

Sincerely,



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