

Belize's Oil: Doing it Right

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I. Introduction

At the request of the *Belize Coalition to Save Our Natural Heritage* (“the Coalition”), the author and his colleague, Dr. Richard Fineberg, conducted a Rapid Assessment Mission in Belize from April 25 – May 10, 2011. The purpose of the mission was to gather facts and local perspectives regarding oil development in Belize, and then to provide independent advice and suggestions regarding the future of oil development in the country. In particular, the mission sought to provide constructive, independent recommendations for the NGO community, government, and industry with the goal of maximizing the potential economic benefits of oil development and minimizing the negative impacts and environmental risks. Travel support was provided by the Coalition, and the independent experts provided their services *pro bono*. This report briefly describes the author’s findings and recommendations regarding zoning for oil, industry standards, governance, and oil spill risks and planning. Dr Fineberg will report separately his recommendations regarding economic issues.

II. Site Visit

The author was in Belize from April 25 – May 6, 2011, and Dr. Fineberg was in country from May 4 – May 10, thus the two of us overlapped for a couple of days. While in country, I was joined by Coalition Chairman Geovanni Brackett in visits to three Protected Areas - Rio Bravo Conservation and Management Area (northwest Belize), Gladden Spit Silk Cayes Marine Reserve (off Placentia on the southern coast), and Sarstoon Temash National Park (along the southern border with Guatemala).

In touring each Protected Area we were hosted by the established co-management organization for the Protected Area – in Rio Bravo, Edilberto Romero, Director of Programme for Belize and the Association of Protected Areas Management Organization (APAMO); in Gladden Spit, David Vernon, Chairman of Southern Environmental Association and Adrian Vernon, Program Coordinator for Peninsula Citizens for Sustainable Development; and in Sarstoon Temash National Park, Greg Choc, Director of the Sarstoon Temash Institute for Indigenous Management (SATIIM).

In Rio Bravo, the team walked several oil exploration seismic lines cut in 2007 and 2008, and discussed the impacts of the seismic lines with park rangers and staff. In Gladden Spit, the team visited several offshore cayes, the barrier reef, and the whale shark sanctuary just outside the reef, where underwater observations were conducted. And in Sarstoon Temash National Park, the team traveled 10 miles up the Sarstoon River and walked several river-ends of seismic lines, and then several miles up the Temash River to walk seismic lines there. Extensive meetings were held with each co-management organization before and after the Protected Areas visits.



Map 1.

Meetings were held with the Coalition Executive Committee, including: Dr. Melanie Mcfield, Healthy Reefs - Healthy People Initiative; Audrey Matura-Shepherd and Nial Gillet, Oceana; Edilberto Romero and Yvette Alonzo, APAMO; Jim Scott, Belize Tourism Industry Association; Craig Hayes, Turneff Atoll Trust; Candy Gonzalez and Amelita Knowles, Belize Environmental Law and Policy Organization (BELPO); Moses Sulph, President of Citizens Organized for Liberty through Action (COLA); Tanya Williams and Judy Waight, Coalition Coordinators; and others. More in-depth meetings were held individually with several Coalition members.

As well, I was joined by several Coalition members to meet in Belmopan with Honorable Prime Minister Dean O. Barrow, and then separately with Mr. Martin Alegria, Chief Environment Officer for the Department of the Environment (DOE), Ministry of Natural Resources and Environment (MNRE), Jose Espot, Manager of the Esso Loyola Terminal in Belize City, and with Beverly Wade, Fisheries Administrator and staff at the Belize Fisheries Department. Additionally, I requested meetings/tours of the Big Creek Terminal at the Port of Big Creek in Independence, the Belize Port Authority, and the Belize Natural Energy (BNE) oil production facilities at Iguana Creek in Spanish Lookout, but these requests were declined.

When Dr. Fineberg arrived, the team met with in-country experts / consultants Neri O. Briceno and Major Lloyd A. Jones, and together with several Coalition members met with Mr. Andre Cho, the Director and Inspector of Petroleum, Geology and Petroleum Department (MNRE). The team visited the Spanish Lookout area, and observed the oil production facilities from publicly accessible viewing areas. Finally, the team conducted a Public Forum in Belize City on May 5 entitled: "Oil in Belize: Environmental and Economic Implications," and conducted several media interviews.

III. Background: Oil in Belize

Belize has experienced considerable oil exploration activity over the past 50 years. Several hundred km of seismic lines have been shot, aeromagnetic surveys flown, and at least 50 exploratory wells were drilled between 1956 and 1997, about a dozen of which were drilled offshore (Maps 2 and 3). Other than the Maya Mountains in the southwest, seismic exploration was conducted across much of the country during this period.

Since 2003, seismic surveys have been conducted in Rio Bravo Conservation and Management Area in the northwest, Sarstoon Temash National Park (STNP) in the southeast, and in and around the BNE prospect at Spanish Lookout. Aeromagnetic surveys were flown off the north coast. In March 2006, Belize Natural Energy Limited (BNE) announced the first discovery of commercial quantities of oil at Spanish Lookout, about 20 km west of the capitol in Belmopan. More recently, BNE has begun producing from the Never Delay field east of Spanish Lookout. Total current production from the BNE fields is about 1.5 million barrels (60 million gallons) of oil/year, and is transported via tanker truck to the Big Creek Terminal at the Port of Big Creek, from where the oil is exported via tanker.

The Inspector of Petroleum reports that the Spanish Lookout reservoir, which is at about 3,000 feet depth, is estimated to have held a total of 19 million barrels, of which some 6 million barrels have been produced to date (Andre Cho, personal communication). The Never Delay prospect is reported to hold some 6 million barrels. By world standards, these are very small fields, and the present rate of extraction, will be exhausted in 7-8 years. It is important to note that neither BNE nor the GOB produced documentation to support these reserve estimates, thus the estimates may not be reliable.

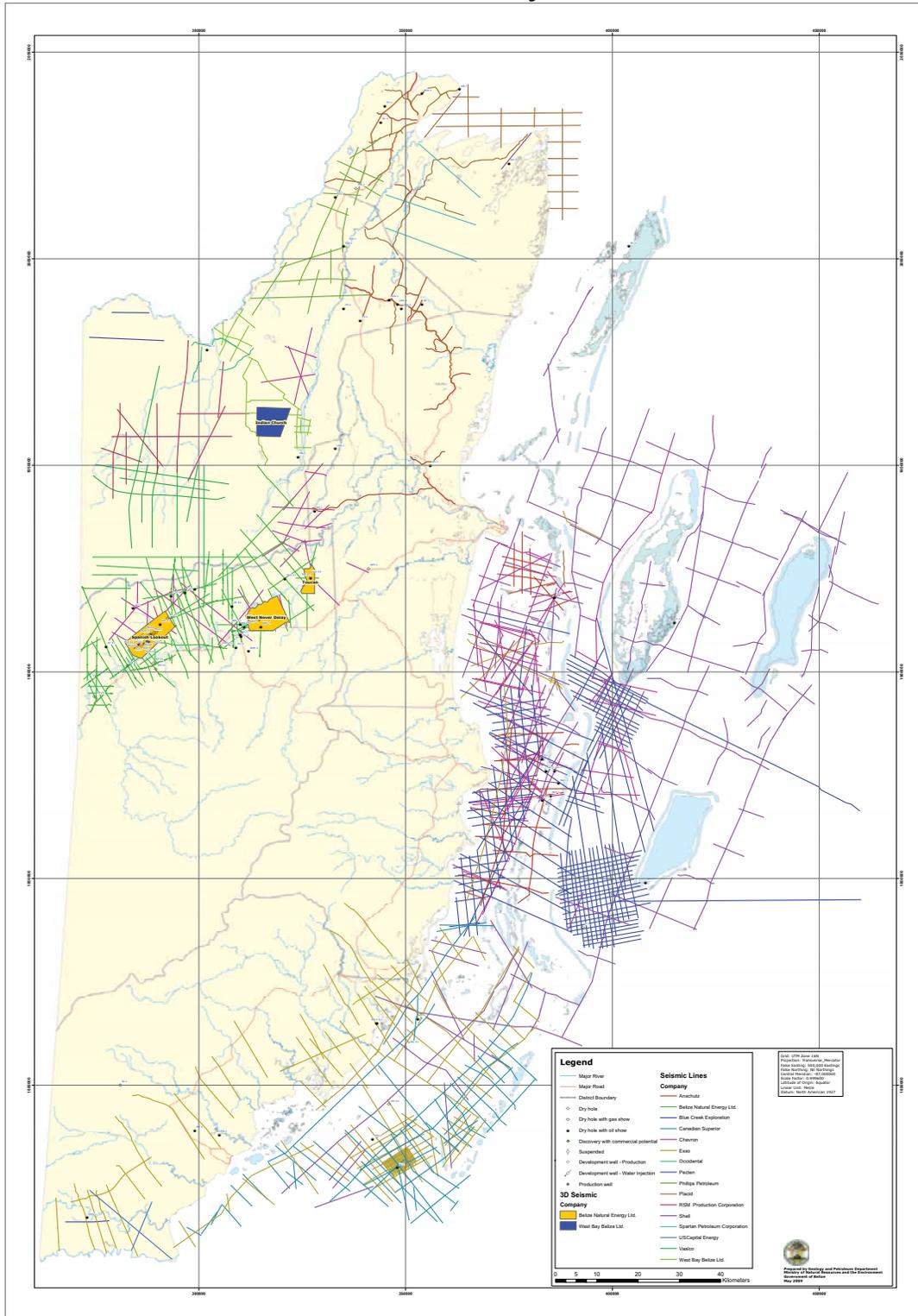
Today, the Government of Belize is actively encouraging additional oil exploration, and some 19 companies have secured interests in the country, including in existing Protected Areas and offshore. The exploration in Protected Areas and offshore has generated significant controversy in Belize, giving rise to establishment of the Coalition. The Belize Barrier Reef System is recognized as a UNESCO World Heritage Site, and Sarstoon Temash National Park is designated a RAMSAR site, as a globally significant wetland ecosystem.

IV. Risks and Impacts of Oil

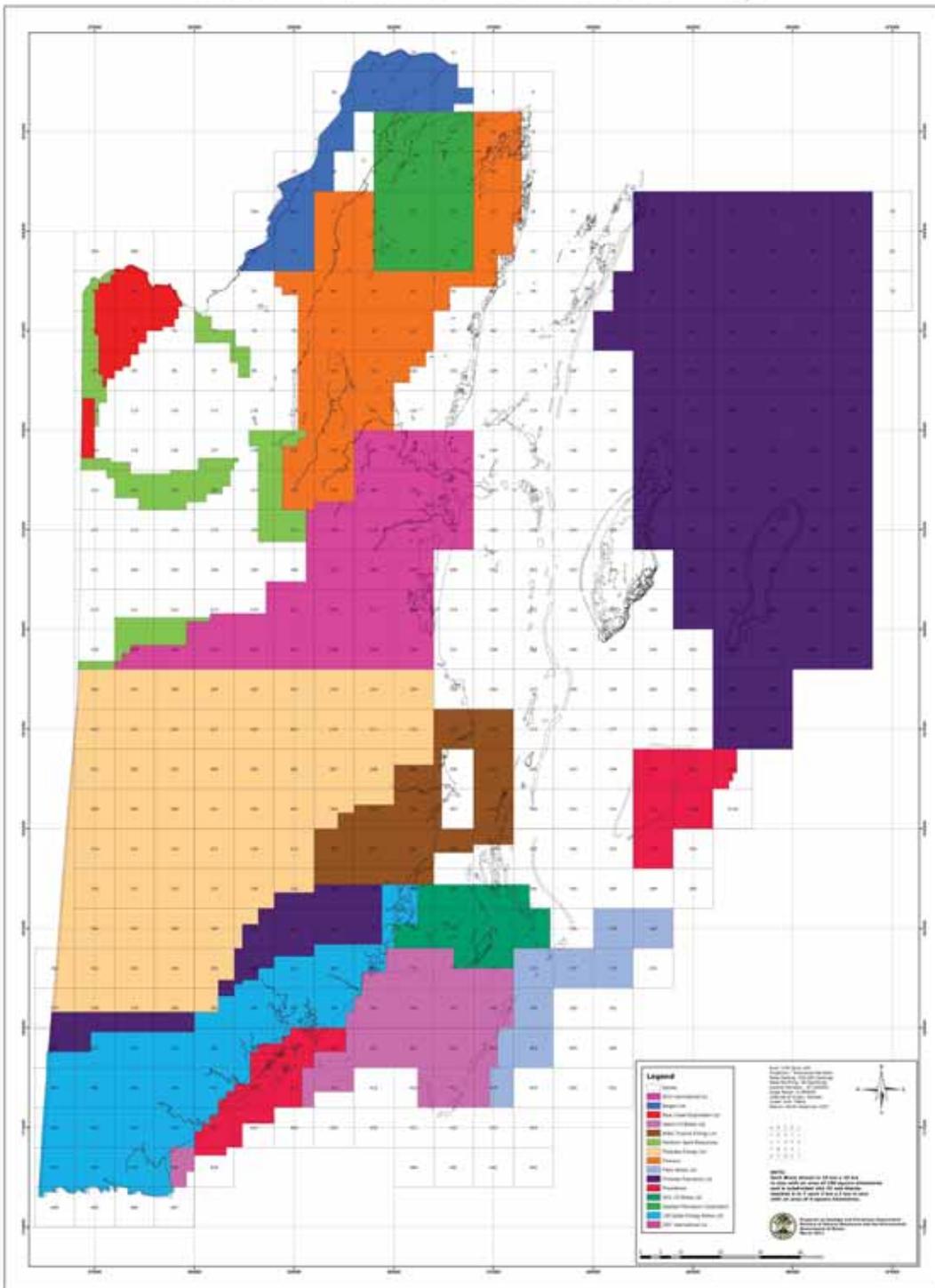
It is beyond the scope of this report to describe in detail the environmental impacts and risks of oil development, but these risks need to be clearly understood by the people of the country. In general, all phases of oil exploration and development cause environmental impacts, even if no accident occurs. Exploration seismic lines on shore fragment habitat and provide access for illegal activities into previously inaccessible areas (which we observed evidence of at both Rio Bravo and STNP); seismic shoots offshore impact the ecology and behavior of marine mammals, invertebrates and fish; exploratory drilling produces wastes and noise; and so on. If oil is discovered and a company proceeds to produce a field, the operational impact increases by orders of magnitude. This impact includes significant infrastructure needed for producing and transporting oil, habitat loss, drill pads, drill rigs, pipelines, storage tanks, pump stations, power generating facilities, roads, housing, air emissions, water pollution, noise, etc.

In addition, there is a very real risk of catastrophic discharge of oil at each phase – exploratory drilling (as in the BP Gulf of Mexico disaster), production, pipeline transport, and tanker transport. Spill risk can be reduced by applying Best Available Technology (BAT) and internationally accepted management processes. But regardless of how much spill risk is mitigated, it cannot be reduced to zero. There will always remain a chance of a low-probability / high consequence event (such as a major offshore blowout or tanker spill), which could change the character of Belize for decades or permanently. Complex systems can fail from a combination of human error and equipment malfunction, and large spills can result in many unforeseen ways. Further compounding the risk, oil spills in aquatic environments cannot be successfully contained or recovered, environmental damage cannot be restored and can be permanent. This risk is an important consideration for Belizeans in deciding where to allow oil development in the country.

Belize Seismic Surveys and Wells



Belize Petroleum Contracts Map



Map 3, Geology and Petroleum Dept., March 2011, Government of Belize

V. Public Referendum

The Coalition's goal is to secure permanent prohibitions on oil exploration and development in Protected Areas and the entire offshore environment in Belize, and is collecting signatures on a petition that would trigger a nationwide referendum on this issue. The Petition, pursuant to Section 2 (1) (b) of the Referendum Act, is entitled: "Ban on Oil Exploration and Drilling Offshore and in Protected Areas in Belize – Referendum Petition," and at the time of our site visit had gathered most of the 17,000 signatures (10% of registered voters) necessary to call the Referendum.

The Referendum Petition reads, in part:

WHEREAS our marine resources and protected areas offer unequivocal economic value by providing jobs and income for some 3,000 fisherfolk and 20,000 tourism industry workers;

WHEREAS the Belize Barrier Reef System has been designated a World Heritage Site and deemed as possessing outstanding universal value;

WHEREAS the invasive nature and unwarranted risks involved in oil exploration and drilling offshore and in protected areas negatively impacts the economic, social, and environmental benefits to the people of Belize;

WE therefore believe that this matter is of sufficient national importance that it should be submitted to the electorate in the whole of Belize for their views through a referendum.

The Coalition expects that the Referendum will come to a vote in late 2011.

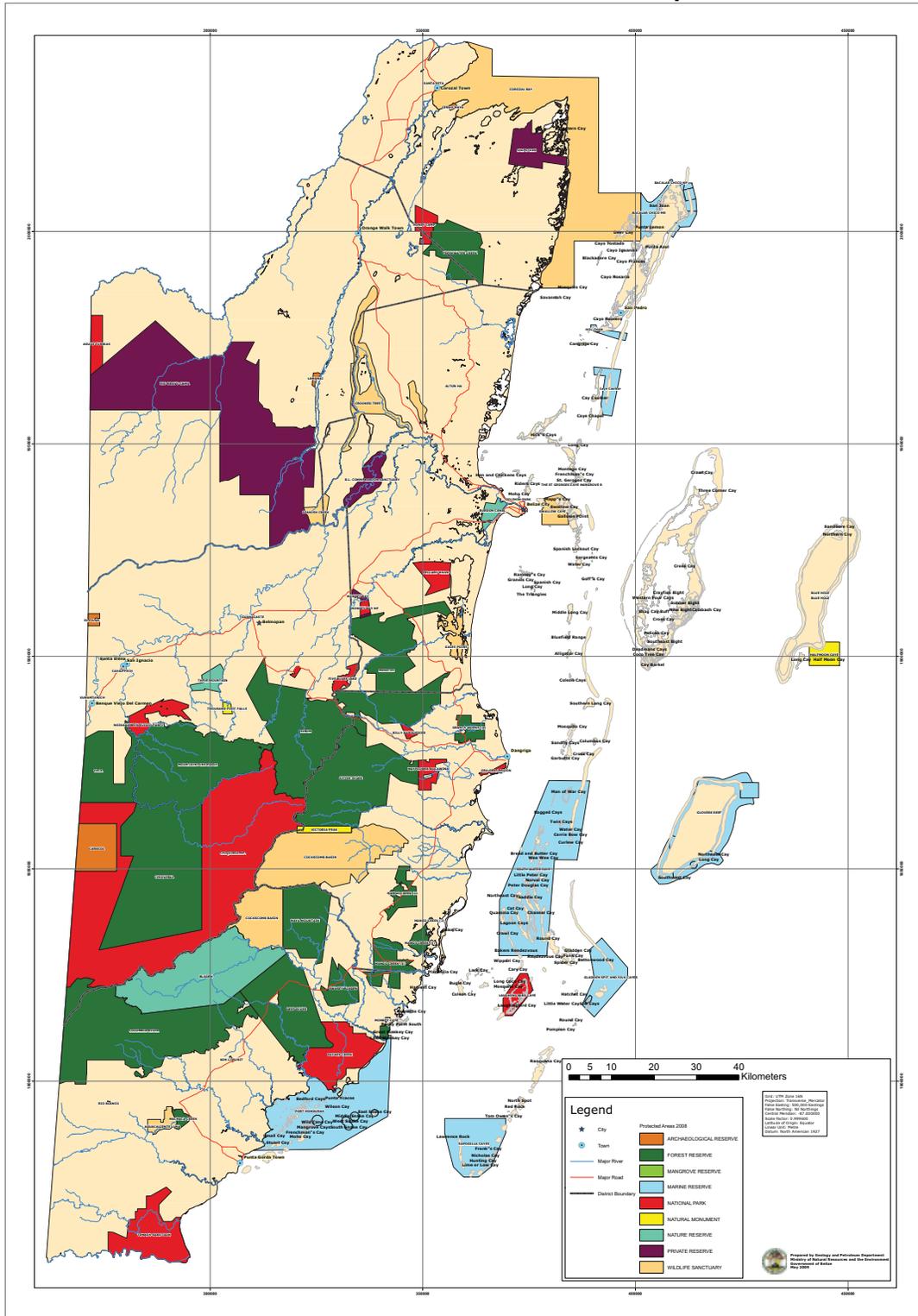
VI. Belize Protected Areas

Belize has an extensive, globally significant Protected Areas system of which to be quite proud. As stated by the Biodiversity and Environmental Resource Data System of Belize (BERDS, 2011):

Belize has a very high level of terrestrial and aquatic biodiversity. Belize hosts more than 150 spp. of mammals, 540 spp. of birds, 151 spp. of amphibians and reptiles, nearly 600 spp. of freshwater and marine fishes and 3,408 spp. of vascular plants. The country is unique, not only in the total number of species present, but also in the vast array of ecotypes and their species richness.

Belize has 18.53% (approx. 2.61 Million acres / 1.05 Million hectares) of its land and sea resources protected under a variety of management structures: approx. 6.66% in conservation management reserves, 0.20% in archaeological reserves, 9.35% in extractive reserves, less than 0.01% in bird sanctuaries, and a further 2.32% in officially-recognized private reserves. In all, the Protected Areas system of Belize comprises 115 reserves of varying levels of protection and purpose.

Belize Protected Areas Map



Map 4., Geology and Petroleum Dept., 2011, Government of Belize

In October 2003, work began on developing a comprehensive National Protected Areas Policy and Systems Plan founded on the need to ensure that biodiversity conservation becomes an important and integral part of national social and economic development. The adopted guiding principle being that the potential contribution of the Protected Area system to national development and poverty alleviation is maximised, thereby putting the system on a sound and rational footing (BERDS, 2011).

Belize Protected Areas as of 2009 include 15 Archaeological Reserves, 7 Bird Sanctuaries, 17 Forest Reserves, 1 Mangrove Reserve, 19 Marine Reserves, 17 National Parks, 1 National Public Reserve, 6 Natural Monuments, 3 Nature Reserves, 7 Private Reserves, 26 Private Reserve Candidates, 1 Reserve, 11 Spawning Aggregation Sites, and 7 Wildlife Sanctuaries. These Protected Areas range in management regime from general use to no-take. Belize is also part of the Mesoamerican Biological Corridor (MBC), a network of Protected Areas linked by biological corridors stretching from Mexico to Panama (BERDS, 2011).

The National Protected Areas Policy and Systems Plan process was a comprehensive, strategic assessment of existing Protected Areas. The process identified significant gaps in inclusion in Protected Areas several under-represented ecosystems onshore in the north, and areas outside of the barrier reef offshore.

From this process, the National Protected Areas Policy (NPAP) was completed and endorsed by the GOB in November 2005, and the National Protected Areas System Plan was endorsed and accepted in January 2006 (Yvette Alonzo, APAMO, pers. communication, 2011). However, according to APAMO, the National Protected Areas Policy:

“...does not address the necessary analysis of watersheds that should be incorporated into more protected area management designation. To better classify Protected Areas in Belize a national land use policy (which is currently being worked on) is necessary. Additionally we need to develop zones within our protected areas that indicate what are core conservation areas and what are multiple use areas (some protected areas have this but many don't).”
(Alonzo, pers. com., 2011).

As well, it is unclear how the existing Protected Areas in Belize conform to the International Union for the Conservation of Nature (IUCN) classification of Protected Areas globally. APAMO recognizes the need to align Belize's Protected Areas classifications with the IUCN designations (Alonzo, pers. com.).

The IUCN Protected Area classification is a well-recognized global standard, as briefly listed as follows (IUCN, 2011):

Ia. Strict Nature Reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphic features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Ib. Wilderness Area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II. National Park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III. Natural Monument or Feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small, protected areas and often have high visitor value.

IV. Habitat/Species Management Area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V. Protected Landscape/ Seascape

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI. Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area more...

In general, it is recommended that extractive industry, such as oil and mineral development, be excluded from all IUCN Category I – IV Protected Areas, and in many cases such development is incompatible with Category V and VI Protected Areas.

As well, the National Parks System Act (NPSA) of Belize sets forth rigorous restrictions for use of national parks, nature reserves, wildlife sanctuaries and natural monuments. In general, the NPSA reserves these Protected Areas solely for protection, education, recreation, and scientific research. Clearly, oil exploration and development is incompatible with such designations.

VII. Maya Land Rights

Significant areas of southern Belize are traditional Maya lands and communities. Some traditional Indigenous lands were incorporated into national Protected Areas, such as Sarstoon Temash National Park (STNP), and these areas have been subject to oil exploration. The Sarstoon-Temash Institute for Indigenous Management (SATIIM), representing the Q'eqchi and Garifuna Maya of southern Belize, has taken a position in strong opposition to oil development in STNP, as well as offshore (SATIIM, 2011).

There exist specific legal and political protections for the rights of Indigenous land ownership in Belize. The Belize Supreme Court ruled in 2007 (*Cal vs. Attorney General of Belize*, 2007) that:

- “without the legal protection of the rights to and interests of the customary land, the enjoyment of the right to life and the very lifestyle and well-being of the Maya communities would be seriously jeopardized.”
- “the rights and interests of the Maya communities in their property are anchored in the Maya customary land tenure system and which does not make them any less deserving of the Constitution’s protection afforded to other forms or species of property.”

Yet to date, the Government of Belize (GOB) has not fulfilled its obligations under this court ruling to fully identify Maya lands, and to award clear land title.

Another obligation regarding Indigenous lands and rights derives from the Government of Belize (GOB) vote at the U.N. General Assembly in September 2007 to approve the U.N. Declaration on the Rights of Indigenous Peoples (UNDRIP). Among other things, governments acceding to UNDRIP agree to the following provisions (relevant to the issue of oil drilling on Indigenous lands in Belize):

- “to respect the rights of Indigenous Peoples to their lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.”
- “Indigenous Peoples have the right to the conservation and protection of the environment and the productive capacity of their lands, territories and resources.”
- “Indigenous Peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.”
- Governments “shall consult and cooperate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.”

With regard to Belize’s obligations under UNDRIP, Supreme Court Justice Conteh reiterated in his 2007 ruling the following:

- “Article 42 of the Declaration, the United Nations, its bodies and specialized agencies including at the country level, and states, are enjoined to promote respect for and full application of the Declaration’s provision and to follow up its effectiveness”
- The GOB should be “unwilling or even loath to take any action that would detract from the provisions of the Declaration importing as it does, significant obligations for the State of Belize in so far as the Indigenous Maya rights to their land and resources are concerned.”
- “Article 46 of the Declaration requires that its provisions shall be interpreted in accordance with the principles of justice, democracy, respect for human rights, equality, non-discrimination, good governance and good faith.”
- “the GOB is bound, in both domestic law in virtue of the Constitutional provisions that have canvassed in the Maya case, and international law, arising from Belize’s obligation there under, to respect the rights to and interests of the Mayas as members of the Indigenous Maya community, to their lands and resources.”

VIII. Marine Reserves

The Healthy Reefs – Healthy People Initiative describes the global ecological significance and local economic importance of the Mesoamerican Barrier Reef in its 2010 Report card for the Mesoamerican Reef (HRI, 2010) as follows:

The overall ecoregion covers approximately 464,419 km², with 192,648 km² in watersheds and 271,771 km² in diverse marine habitats. In 1997, the leaders of the four nations (Mexico, Belize, Guatemala, and Honduras) signed the historic Tulum Declaration, which pledged support for conserving this shared resource.

The region's economies are highly dependent on marine resources, especially tourism and fishing industries. In Belize alone, the reef was estimated to contribute approximately \$395 - \$559 million US dollars in goods and services each year. Here more than most places, the health of our people – our communities and our economies – depends on our ability to restore, nurture, and maintain healthy reefs.

The unique character of the Mesoamerican Reef attracted global attention with the inscription of the Belize Barrier Reef Reserve System as a UNESCO World Heritage Site in 1996. UNESCO describes the unique attributes of the Belize Barrier Reef system, as follows (UNESCO, 2011):

The coastal area of Belize is an outstanding natural system consisting of the largest barrier reef in the northern hemisphere, offshore atolls, several hundred sand cays, mangrove forests, coastal lagoons and estuaries. The system's seven sites illustrate the evolutionary history of reef development and are a significant habitat for threatened species.

The reef extends from the border with Mexico to the north, to near the Guatemalan border to the south. The Belize submarine shelf and its barrier reef, represent the world second largest reef system and the largest reef complex in the Atlantic-Caribbean area. Outside the barrier, there are three large atolls: Turneffe Islands, Lighthouse Reef and Glover's Reef.

Between the mainland and the barrier reef is an extensive offshore lagoon, which increases in width and depth from north to south. In the north, water depth averages 2-3 m over a flat, featureless bottom 20-25 km wide. South of Belize City, the shelf gradually deepens forming a channel between the mainland and the outer platform, reaching a depth of 65 m in the Gulf of Honduras. The approximately 450 sand and mangrove cays confined within the barrier and atolls range in size from small, ephemeral sand spits to larger, permanent islands capable of sustaining human settlements.

A total of 178 terrestrial plants and 247 taxa of marine flora have been described from the area. There are over 500 species of fish, 65 scleritian corals, 45 hydroids and 350 molluscs in the area, plus a great diversity of sponges, marine worms and crustaceans. The area harbours a number of species of conservation concern, including West Indian manatee, green turtle, hawksbill turtle, loggerhead turtle and American crocodile. The West Indian manatee population (300-700 individuals) is probably the largest in the world. Several bird species of

conservation concern are found in the cayes and atolls. Major seabird and waterbird colonies include those of the red-footed booby (3,000-4,000 individuals) on Half-Moon Caye, brown booby on Man O'War Caye, and common noddy on Glover's Reef. Other noteworthy breeding birds are the brown pelican and the magnificent frigate bird. The Belize coral reef ecosystem is distinctive in the Western Hemisphere on account of its size, its array of reef types and the luxuriance of corals thriving in such pristine conditions. There are several unusual geophysical features including the nearby contiguous shelf edge barrier reef, the complex maze of patch reefs and faros in a relatively deep shelf lagoon, the unusual reef types in a small area, the presence of atolls, and the large offshore mangrove cays.

In June 2009 the Belize reef was inscribed on the UNESCO's list of "World Heritage in Danger (UNESCO, 2011)." The HRI 2010 Reef Report Card itemizes the principal threats to the reef ecosystem as follows: coastal development and dredging, inland land clearing and agriculture, invasive species (e.g., lionfish), overfishing, hurricanes and storms, rising temperatures, and potentially oil development.

Belize currently has the highest level of protected status in its offshore waters in the Mesoamerican Reef system, at about 13%. However, only 2% of its offshore waters are entirely protected as no-take reserves. The Mesoamerican Reef system contains 7 critically endangered species, 7 endangered spp, and 17 vulnerable marine species.

Findings & Recommendations:

IX. Zoning for oil development.

Finding:

Oil exploration has occurred across Belize without a comprehensive nationwide zoning / spatial planning effort. Clearly, there are extensive areas in Belize where oil and gas development can occur with minimum environmental, economic, and social risk and impact. The BNE development at Spanish Lookout and Never Delay appears to constitute such an area. Such areas across the country should be zoned for careful oil exploration and development. Just as clearly, there are areas where the risks and impacts are too great for oil development to be permitted. Exploration has occurred, and is continuing, in Protected Areas, including marine reserves, national parks, core protected areas, and on Indigenous Maya lands, all of which raise serious legal and ethical issues. Regardless of how careful industry and government may wish to proceed with oil development, there will be unavoidable impacts, and there will continue to be risks of catastrophic impact.

Recommendations:

1. Adopt the Public Referendum – The citizens of Belize deserve accurate information on the potential risks and benefits of oil development offshore and in Protected Areas (PAs), and then deserve the right to vote on the issue. This is a decision for Belizeans, and should be made with accurate understanding of the upside and downside of their decision. It is my respectful recommendation that the government and people of Belize opt to exclude all current Protected Areas and marine environments from oil development. Oil drilling is clearly incompatible with most Protected Area designations, at very least the IUCN Category I – IV areas, encompassing most of Belize’s PAs. As well, it is important to recognize that any offshore oil drilling could result in a large oil spill, which would spread with currents and winds in an uncontrollable manner. Such a large oil spill in Belize’s offshore waters could not be contained, could not be recovered, would almost certainly oil shorelines, and would likely cause severe and long-lasting environmental and economic damage which could not be restored. Any offshore drilling, no matter where it is conducted, would expose the entire offshore reef system to oil spill risk. Thus, the offshore waters cannot be zoned in such a way as to provide protection to sensitive areas, such as existing marine protected areas. It is also true that drilling in onshore semi-aquatic environments, such as Sarstoon Temash National Park, presents similar risk both to the park itself and to offshore waters to where oil would flow in the event of a spill. Additionally, the presence of oil development in PAs and offshore would compromise the existing tourism amenity of these valuable areas, thereby diminishing the existing sustainable tourism economy. And oil development in internationally recognized areas such as the Belize Barrier Reef Reserve System World Heritage Site, and the Sarstoon Temash National Park RAMSAR site, would place in jeopardy such global recognitions, with a corresponding loss in tourism and scientific value. With the approval of the referendum, Belize would receive global recognition for its commitment to its marine and Protected Area ecosystems, which could enhance tourism development. Such action could represent a significant and marketable reputational asset for Belize’s tourism industry. For the above reasons, I strongly encourage the people and government of Belize to adopt the Coalition’s Referendum prohibiting oil development offshore and in Protected Areas. Adoption of this policy would still leave most of the land of the country open to careful, well-managed oil and gas development. As well, I encourage the Government of Belize to negotiate a similar prohibition of offshore drilling along the entire Mesoamerican Reef with Guatemala, Honduras, and Mexico.
2. Moratorium on oil exploration in Protected Areas and Offshore – The Government of Belize (GOB) should immediately suspend existing permits and withhold issuance of additional permits / contracts in Protected Areas (PAs) or offshore until the Coalition’s Public Referendum on this issue is decided. Government should not compromise any of the Protected Areas or offshore areas that would be deferred from oil development by the referendum. Of immediate concern is the U.S. Capitol Energy seismic permit for Sarstoon Temash National Park for work this summer, which should be suspended. The GOB should

- negotiate with all holders of existing permits in PAs and offshore to voluntarily suspend operations until the will of the people is known on the Referendum.
3. GOB should abide the results of Referendum – Although the Public Referendum is advisory only and does not legally bind the GOB to its result, I strongly recommend that GOB consider the Referendum binding upon the government. If the result is to prohibit oil development offshore and/or in PAs, then the GOB should negotiate a buyback of interests conveyed to the contractors at a fair market value of what the companies have invested to date.
 4. GOB should complete its comprehensive land use policy – A nationwide land use policy should be completed, to further classify lands and waters in appropriate management designations; e.g. additional protected areas, etc. This should incorporate all pre-existing efforts, including the National Protected Areas Policy and System Plan. This land use policy should carefully evaluate all watersheds in the country. As well, all Protected Areas should be evaluated and aligned according to the IUCN Protected Area classifications.

X. Industry Standards

Finding:

Government and industry standards and regulations applied to the oil industry in Belize are currently insufficient to protect the environment and the public interest. To ensure responsible oil and gas development on the lands zoned for such, standards and regulations need to be enhanced.

5. Belize should require the oil industry to meet API standards – The GOB should require that all oil and gas development meet American Petroleum Institute (API) and American Association of Mechanical Engineers (ASME) standards (as some other countries have). Such a requirement could be imposed either by an amendment to the Petroleum Act, or by a Statutory Instrument (S.I.) from the Minister of Natural Resources and Environment. API standards include some 500 time-tested industry standards used by the oil industry around the world, covering all aspects of petroleum development including the following: exploration and production; oil field equipment and materials; wellhead equipment; drilling equipment and processes; well cementing; drilling fluids; well control systems (including blowout preventers); well completion; hydraulic fracturing; petroleum measurement; marine transportation; vapor control; pipeline construction welding, operation, leak detection, and maintenance; storage tanks; valves; tank truck operations; refining; safety and fire protection; training; health and environmental issues; pollution prevention; remedial technologies; groundwater management; information technology; emergency response; and security. The API standards also incorporate the U.S. Integrity Management (IM) protocols, and designate High Consequence Areas (HCAs) where consequences of an oil spill are greater, thus requiring enhanced design standards. Again, these are established by industry, and should be required as minimum standards in Belize.

6. EIA required for all oil exploration and development - The GOB should return seismic exploration to Schedule I in the EPA, whereby all seismic exploration will require an Environmental Impact Assessment (EIA). Aeromagnetic surveys etc., with no on-ground or on-water activity, could remain exempt from this requirement.
7. Amend EPA to require an ECP, fees, bonds – Amend language of Section 20 of the Environmental Protection Act (EPA) as follows, to require an Environmental Compliance Plan (ECP): EIA approval “shall” (changed from “may”) be subject to signing an ECP, payment of an Environmental Monitoring fee, posting of guarantees or performance bonds, etc.
8. Risk Assessment required for each oil development project – To the extent the EIA process does not require such now, the GOB should require completion of a comprehensive Risk Assessment for each oil development project. This Risk Assessment would identify all potential risks and risk mitigation measures. Note: this should be required in addition to the EIA requirement.
9. Independent audits should be required regularly - In addition to the requirement to meet API/ASME standards, the GOB should establish a regular schedule for independent audits of facilities and operations to certify compliance. This should include, at a minimum, management audits every 4 years, compliance audits quarterly, and site/facility/plant audits every 2 years. The audits should be conducted by organizations not connected with either the company or the GOB; should identify specific issues of lack of compliance, with remedial actions proposed; and should be made public.
10. GOB should immediately order an independent compliance audit of existing petroleum facilities in Belize – The GOB should immediately order independent engineering compliance audits of the production facility at Spanish Lookout / Never Delay; the Esso Loyola petroleum product import terminal at Belize City; and the Big Creek petroleum export facility at Big Creek. For instance, even though we were not allowed to tour the facility at Spanish Lookout, it appeared from outside the facility that some of the oil storage tanks are riveted tanks, and thus may not be consistent with API standards for safe petroleum tanks.
11. Gas flaring should be prohibited – Flaring of natural gas into the atmosphere should be prohibited, except under specific exemption granted by the DOE. These flares waste valuable energy, degrade local air quality, and unnecessarily contribute additional carbon to the global atmosphere.
12. Seismic exploration regulations should be developed – The GOB should develop and enforce regulations on seismic exploration comparable to those imposed by the government of Canada. The Canadian regulations include stipulations for exploration licenses and explosives permit processes; plans, reports and notices; restrictions; shot-hole and surface energy source operations; restoration of damaged property; handling, loading and detonation of explosives; offences and fines; and minimum distances to structures. Note: the Canadian regulations require the consent of the landowner and occupants before any seismic exploration is conducted. Regulations should prohibit seismic shots from being conducted within 100 meters of any surface water source, such as a river or lake. We observed some seismic shot-holes within 20 meters of the Temash River in

- STNP. Further, I recommend that any / all seismic lines not be allowed within 1 km of any road or waterway, in order to reduce the access for illegal activities. As well, stipulations should be imposed to require reasonable restoration and replanting along seismic lines. We observed several seismic lines just north of Punta Gorda that had been cut through coastal mangroves reportedly over 40 years ago.
13. Support to co-management organizations for restoration and monitoring of seismic lines - The GOB should require seismic exploration companies to provide sufficient financial resources to co-management organizations in areas where oil exploration is to be conducted, with which the organization can effectively patrol and monitor seismic lines, in particular to prevent illegal activities ensuing from access the lines provide into sensitive areas. Seismic lines in sensitive areas provide new corridors for illegal activities, including illegal logging, hunting, poaching of parrot nests, and so on. Such lines and access also increase wildfire risk. The co-management organizations should present a reasonable budget to the company, and the government should ensure that this budget is paid as a condition of the seismic permit.
 14. GOB should enhance information to citizens regarding oil development – The GOB seems currently unable (or unwilling) to make oil development, environmental, and regulatory information easily accessible to the public. This must change. For instance, the Geology and Petroleum Department maintains a master list of where all contractors are in the permitting process, but assert that this is for internal purposes alone. Such a real-time, master list (or spreadsheet) should be provided to the public, perhaps on the Department’s website. As well, information regarding the characteristics of the oil reservoirs (depth, size, pressures, composition of the oil, etc.) should be publicly available. And the Department of the Environment (DOE) has a location identified for linking the Environmental Compliance Plans (ECPs) on its website, but at the time of this writing, have yet to post any ECPs there.

XI. Governance

Finding:

The GOB is very new to the issue of regulation and oversight of oil development, and should seek to enhance their capacity in such. In contrast, the oil industry is a globalized effort, with considerable technical, legal, and political capability. Additionally, the government needs to dramatically enhance its transparency and accountability to its citizens on these issues.

15. Enhance government capacity for oversight of petroleum sector – The GOB should enhance its skills, staffing levels, and training to more effectively regulate the petroleum sector, and the GOB should develop a 10-year plan to do such. In this effort, GOB should consult with Norway’s Oil for Development (OfD) program of assistance to developing countries in managing the petroleum sector, as well as potential assistance through the U.S. government.

16. GOB should adopt as National Sustainable Development Policy modeled on the IFC Performance Standards on Social and Environmental Sustainability - The International Finance Corporation (IFC) of the World Bank Group, has established 8 performance standards with which to evaluate decisions regarding financing private sector development projects in developing countries, as follow: Social and Environmental Management System; Labor and Working Conditions; Pollution Prevention and Abatement; Community Health, Safety, and Security; Land Acquisition and Involuntary Resettlement; Biodiversity Conservation and Sustainable Natural Resource Management; Indigenous Peoples; and Cultural Heritage. First and foremost in this framework is the central tenet of “do no harm” to people or environment. The GOB should consider adopting these standards as national policy for sustainable development.
17. GOB should sign and implement EITI – The Government of Belize (GOB) should sign and fully implement the Extractive Industry Transparency Initiative (EITI), a global reporting standard for extractive industry payments and revenues to enhance standards of transparency and accountability. In general, government secrecy on these issues can lead to perverse behavior of government, even to kleptocracy. To date, more than 30 countries have signed up to EITI. Implementation of EITI must be consistent with the following criteria (<http://eiti.org/eiti/principles>):
- Regular publication of all material oil, gas and mining payments by companies to governments (“payments”) and all material revenues received by governments from oil, gas and mining companies (“revenues”) to a wide audience in a publicly accessible, comprehensive and comprehensible manner.
 - Where such audits do not already exist, payments and revenues are the subject of a credible, independent audit, applying international auditing standards.
 - Payments and revenues are reconciled by a credible, independent administrator, applying international auditing standards and with publication of the administrator’s opinion regarding that reconciliation including discrepancies, should any be identified.
 - This approach is extended to all companies including state-owned enterprises.
 - Civil society is actively engaged as a participant in the design, monitoring and evaluation of this process and contributes towards public debate.
 - A public, financially sustainable work plan for all the above is developed by the host government, with assistance from the international financial institutions where required, including measurable targets, a timetable for implementation, and an assessment of potential capacity constraints.
- This should also include a requirement for petroleum companies operating in Belize to subscribe to Publish What You Pay (PWYP) re: all payments made to the GOB (royalties, taxes, bonuses, etc.), and for lobbying, etc.; as well as for companies to annually Publish What You Earn (PWYE) from resource extraction in Belize.

18. GOB should implement rigorous Conflict of Interest disclosure protocols – The GOB should institute a rigorous system for disclosure of financial relationships of all senior government officials, with annual public reporting of any/all income or other financial interests. This should include any interests government officials may hold in any company or organization for which that government official may be called on to make policy decisions, and/or any such relationships held by family members. The Ombudsman and Attorney General should review each annual official disclosure, and decide whether or not a financial interest of a government official constitutes a conflict of interest, and require the divestiture of any such interest. All reviews and disclosures should be made public.
19. All oil exploration & development contracts should be public – It is important that all contracts and concessions made by the GOB to oil companies, including Production Sharing Agreements, be made public so that the public can determine if the contracts are truly in the highest and best public interest.
20. GOB should institute an Open Meetings Act – GOB should institute an Open Meetings Act (“Sunshine Law”), whereby most meetings of government officials are open to the public, and noticed to the public beforehand.
21. GOB should implement legal standards for co-management agreements – The GOB should implement the APAMO National Protected Areas Co-Management Framework for Belize, to ensure that co-management agreements have the weight of law, and are fully enforced.
22. GOB should abide its obligations to protect the rights of Indigenous Peoples – The Government of Belize (GOB) should redouble its efforts to implement its obligations under the U.N. Declaration of the Rights of Indigenous Peoples (UNDRIP), as well as its own domestic laws. This must include securing Free and Prior Informed Consent (FPIC) before any commercial activity (such as oil exploration and development) is permitted on Indigenous lands in the country.
23. GOB should develop a National Sustainable Energy Policy – The GOB should initiate and implement a national energy policy that speeds the transition from fossil fuel energy economy to a sustainable energy economy as soon as possible. Some government revenue from oil development should be earmarked for subsidies to energy efficiency initiatives, as well as clean, low carbon energy generation – solar, wind, biomass, etc.

XII. Oil Spill Risk & Planning

Finding:

At present, there exists considerable risk to the marine environment of Belize from ship traffic calling at Belize ports and in transit (on innocent passage) offshore. These include freight / cargo ships and cruise / tour ships, some carrying over 500,000 gallons of heavy fuel as bunkers on board. As well, there are tankers exporting crude oil from Big Creek, and petroleum product tankers importing product into the Loyola Terminal at Belize City. It is reported that in 2009, some 53 million gallons of crude oil was exported and 32 million gallons of refined product was imported into Belize (Jones, 2010). Further, as reported by Jones 2010: “In 2007 an estimated 3958 ships sailed to the ports

in the Gulf of Honduras region, including 307 tankers.” The World Wildlife Fund states that: “the steady traffic of oil tankers – transporting more than 1 million tons of crude oil a year from the port of Santo Tomas de Castillo in Guatemala – puts the reef at constant risk of a catastrophic oil spill” (WWF, 2010). Several ship casualties have occurred in recent years (e.g., the freighter Helga sinking earlier this year off the barrier reef with tens of thousands of gallons of heavy fuel oil onboard). And as stated by Jones, 2010: “Belize currently has no oil spill response mechanism in place to effectively deal with a spill at sea.” And as much of the shoreline of the country is covered by mangrove forest, oil spill shoreline cleanup would be virtually impossible. Fortunately to date, there have been no major oil spills offshore, but the risk certainly exists for a major offshore spill.

24. GOB should commission a Vessel Traffic Risk Assessment – The GOB Port Authority should commission a comprehensive vessel traffic risk assessment for ships calling at Belize ports and for vessels transiting on innocent passage offshore. The Risk Assessment should identify all potential casualty scenarios – power grounding, drift grounding, collision, etc.; and identify a risk mitigation plan. The risk mitigation plan should consider such issues as enhanced aids to navigation, vessel traffic routing agreements (e.g., northbound and southbound lanes), vessel traffic tracking / monitoring, communication / reporting requirements, enhanced pilotage requirements, severe weather plans, rescue tug arrangements, potential tug escorts, alcohol testing protocols, and so on. It would be appropriate for Belize to join Honduras, Guatemala, and Mexico in a regional vessel traffic risk assessment.
25. GOB should Commission a refinery feasibility study – As Belize exports crude oil and imports refined products, refining crude in-country would reduce the amount of hazardous cargo transported in Belize waters, thus reducing risk of oil spills. Blue Sky had refined some crude oil at Spanish Lookout, but this effort was suspended. Subsequently, Blue Sky has been purchased by BNE, and BNE has recently announced it is considering refining at Spanish Lookout once again. Of course, without sufficient supply available, a refinery would not be economically feasible. A feasibility study should identify what amount of proven reserves would justify construction of a refinery in Belize, to supply the country with locally produced petroleum products.
26. GOB should expedite development of a National Oil Spill Contingency Plan – Belize’s National Emergency Preparedness Plan for Oil Spills (NEPPOS) was adopted by GOB in 1995, but has yet to be fully developed or implemented (Jones 2010). A Draft National Oil Spill Contingency Plan (OSCP) was developed by the National Emergency Management Organization (NEMO) in 2008, but this falls short of being an operational plan. There is clear need for the GOB to expedite development of a national OSCP. This should identify worst-case spill scenarios, response equipment available in-country, detailed relationship with Clean Caribbean Americas and Obrien Oil Spill Cooperative (two oil spill response organization contractors), pre-contracting and training responders, worst-case discharge plans, in-situ burn protocols, dispersant protocols, and so on. On this, Belize should prohibit in-situ burning or chemical dispersant use in waters in and around the reef system, and/or in waters shallower than 200 m.

27. GOB should ensure its oil spill liability regime will cover worst-case discharges – The GOB is party to two of the three international oil spill liability regimes: the 1992 Civil Liability Convention Fund and the 1992 International Oil Pollution Liability Fund (IOPC Fund). These cover spills from ships, and provide up to about \$300 million USD to cover liability from tanker spills. I recommend that the GOB consider acceding to the third fund: the Supplementary Fund, providing over \$1 billion USD coverage. It should be cautioned however, that the international liability regime does not provide full coverage for environmental damage caused by oil spills, nor bunker (fuel) spills from ships. Alternatively, the GOB could consider rescinding its accession to the international liability regimes, and establish its own liability regime unilaterally (as in the U.S with the Oil Pollution Act of 1990).
28. GOB should establish a Regional Citizens’ Advisory Council (RCAC) – Informed citizen engagement has been found to significantly enhance the safety of shipping and/or oil development in general, and to reduce the risk of marine oil spills and other environmental damage (PWSRCAC, 2011). Accordingly, a legitimate, representative RCAC should be established for public engagement in maritime issues in Belize. The Belize RCAC should be comprised of representatives of each principal stakeholder group in Belize waters (tourism, commercial fishing, Indigenous Peoples, co-management organizations, etc.), and have funding to support a full-time staff and commission its own research and consultancies.
29. GOB should request IMO PSSA designation for marine waters of Belize – The United Nations International Maritime Organization (IMO) designates certain marine regions of the world oceans as Particularly Sensitive Sea Areas (PSSAs). A PSSA designation allows for the establishment of various measures to control international shipping activities (vessels on innocent passage) to provide enhanced protection of the region, including vessel traffic routing, strict application of MARPOL, Vessel Traffic Services, etc. Currently, there are twelve PSSAs globally, including Australia’s Great Barrier Reef, Sabana-Camaguey Archipelago in Cuba, the Galapagos in Ecuador, waters surrounding the Florida Keys in the U.S., and the Papahānaumokuākea Marine National Monument (northwestern Hawaiian Islands), in the U.S., and others. IMO A.982 (24) *Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs)* stipulates certain criteria to be considered for marine areas to be designated a PSSA, including: “ecological criteria, such as unique or rare ecosystem, diversity of the ecosystem or vulnerability to degradation by natural events or human activities; social, cultural and economic criteria, such as significance of the area for recreation or tourism; and scientific and educational criteria, such as biological research or historical value.” The Mesoamerican Barrier Reef satisfies these criteria, and is at significant risk from international ship traffic in offshore waters. I encourage the governments of Belize, Mexico, Guatemala, and Honduras to petition the IMO for PSSA designation for waters along the Mesoamerican Barrier Reef, and to enact rigorous safety standards for shipping in the region.
30. The GOB Environmental Management Fund needs to become fully operational – The Environmental Management Fund (EMF) established in the Environmental

Protection Act (EPA), should collect sufficient funds with which the GOB can fulfill its legal mandates. I asked the Department of Environment for copies of the budget audit for the EMF (as required by law), but this request did not receive a reply. The independent audit needs to be conducted as required, and released to the public.

XII. References

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Appendix 1.

Author (Rick Steiner) Oil / Environment work history

- Alaska – Professor and conservation biologist at University of Alaska from 1980 – 2010. In early 1980s conducted workshops in Eskimo communities re: risks of offshore oil development proposed along Arctic coast; participated in 1989 Exxon Valdez oil spill -- advised emergency response, helped develop the U.S. Oil Pollution Act of 1990, co-founded the Prince William Sound Science Center, initiated establishment of the Regional Citizens Advisory Councils (RCACs), and proposed settlement of government / Exxon legal case, and use of most funds for habitat protection. Conducted educational programming in oil and environment issues.

- Russia – Co-Principal Investigator for project on oil spill prevention and response on Sakhalin Island; served as foreign technical expert on public review commission for the Siberia Pacific Pipeline project, testified to Russian government on oil royalty and taxation issues, and served on IUCN / Shell panel to review the Sakhalin II project and its threat to the critically endangered Western Pacific Gray Whale.
- Kazakhstan and Azerbaijan - worked with civil society groups to enhance oil sector and government transparency, and enhance government take of oil revenues.
- Africa – in Nigeria, worked with Nigeria Ministry of Environment, NGOs, and state governments in assessing and mitigating damage from oil development in Niger Delta, and served as expert witness in legal cases. In Mauritania, worked to enhance citizen involvement in oil sector oversight.
- Pakistan - developed and served for Pakistan Ministry of Environment / UNDP as Chief Technical Advisor for first comprehensive oil spill Natural Resource Damage Assessment in a developing nation in 2003 – 2004, for Tasman Spirit oil spill in Arabian Sea
- Lebanon - during Israeli / Hezbollah war of 2006, advised the government of Lebanon on issues involved with the Jiyeh oil spill caused by Israeli air strikes; briefed the Israeli government in Tel Aviv on the spill and recommendation for a financial settlement from Israel to Lebanon.
- China – advised NGOs in China on Dalian oil spill, 2010.
- Gulf of Finland – conducted workshops in 2005 on behalf of U.S. State Department on oil spill prevention & response in Finland, Russia, Estonia.
- Canada – advised Indigenous tribes and NGOs in B.C. re: risks of marine oil transport
- U.K. – advised Shetland Island government on Braer Oil Spill, 1993.
- U.S. – conducted several projects in the U.S. re: oil spill prevention and response, including for State of Hawaii, advised groups in Gulf of Mexico BP spill in 2010, speaking engagements re: risks of oil, etc.
- Other - Authored dozens of technical and popular publications on environmental risks of oil, including an international manual on environmental damage assessment and restoration after large marine oil spills for United Nations Environment Program (UNEP), comment regularly to international media on oil risks, marine environmental issues, and operate *Oasis Earth* as a consultancy for oil / environment issues globally.