National Conservation Council

Promoting and securing biological diversity and the sustainable use of natural resources in the Cayman Islands

Annual Report 2016

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Statement from Chair

I am pleased to report the passage of a number of significant milestones in the second year of the implementation of the National Conservation Law (NCL). The Conservation Council, together with Department of Environment and the Ministry completed preparations for entry into force of Parts 5 & 7 of the Law, which occurred shortly after the close of this reporting period.[1] This required drafting, review and approval of a number of pieces of subsidiary legislation, in particular, to continue the existing marine conservation regime upon the repeal of the Marine Conservation Law.

The public consultation for the Enhanced Marine Protected Areas was carried out, carefully considered amendments were made to the original nomination based on the public input and a final recommendation was delivered for Cabinet's decision.

As part of the implementation of licencing and permits for the take of marine species the new directives included provision for the licencing of spear guns in accordance with section 22 of the NCL. In a departure from the intention of the Government and Marine Conservation Board policy to phase out spearfishing which had operated for many years the Legislature chose to enable the continuation of spearfishing in the Islands by providing for replacement guns and parts. The Council's view is that as spearfishing will thus continue to be a licensable activity for the foreseeable future, it is difficult for the Council to justify licensing of spear guns in the absence of the expansion of the Marine Protected Areas (MPAs). The reason for this is that section 22(1) requires the Council to be satisfied that any such licensing will not be detrimental to the survival of, nor reduce any population of, a protected species.

When a system for enhanced marine protected areas to meet scientifically-accepted standards was first proposed it was expected that spear fishing pressures would continue to decrease over time. The Council believes, therefore, that it is even more critical that the Cabinet move forward to implement the amended MPA nomination, which itself is a reconciliation of the conservation goals with the wishes expressed in the numerous public consultations.

A 2014 review of 87 MPAs worldwide concluded that successful MPAs that meet five criteria – no take, well-enforced, adequate size, longevity and isolation - succeed, not just measurably, but exponentially, in terms of fish biomass and reef health[2]. The Council is convinced that by establishing and maintaining the proposed enhanced system of MPAs the Cabinet will create successful marine protected areas that will achieve a sustainable balance between traditional fishing, recreational uses and conservation benefit for a stable society with a sustainable economy and a strong tourism product.

Public consultation on one Species Conservation Plan, for fish, was initiated in order to ensure that licencing provisions can be fully implemented.

Green iguana control measures were tested and these will need to be continued and expanded to stem the spread of this invasive species in the Cayman Islands.

[1] Cabinet ordered commencement on 15 August 2016.

[2] Edgar, Graham J. et al 2014 Global conservation outcomes depend on marine protected areas with five key features. Nature 506, 216–220. doi:10.1038/nature13022

Work towards the first Terrestrial Protected Areas nominations continued with preparations sufficiently advanced to recommend funds to be appropriated from the Environmental Protection Fund. Notwithstanding the omission to implement sections 46 and 47 of the Law at the same time as Part 5 and the rest of Part 7 on 15 August 2016 the Council is encouraged that the Council and DoE recommendations for 2016-17 appropriations, which all fall squarely within the four corners of the purpose of the Fund were accepted and that no appropriations were made by Cabinet/Finance Committee which did not.

Policy direction in relation to climate change and greenhouse gas mitigation was provided to Government. The Council is encouraged that this issue is gaining attention together with energy policy as how Cayman responds will have impacts on our ability to deliver on the mandate of the NCL.

The Council provided recommendations to government in relation to the Dart application to remove beach rock from Seven Mile Beach. The importance of a comprehensive and modern National Development Plan, incorporating the 2008 Strategic Beach Management Plan, is well illustrated by this proposal and the response it has received from the public.

Finally, I thank all the Council members and our Secretary for their continued hard work and commitment to the objectives of the National Conservation Law.

M. Christine Rose-Smyth
Chair, National Conservation Council

Chapter 1 Cayman Islands National Conservation Council

1.1 Purpose

The National Conservation Council (the Council, NCC) is established by and to facilitate the goals of the National Conservation Law 2013 (the Law, NCL), that is: to promote and secure biological diversity and the sustainable use of natural resources in the Cayman Islands; to protect and conserve endangered, threatened and endemic wildlife and their habitats; to provide for protected terrestrial, wetland and marine areas; and to give effect to the provisions of certain international conventions (the Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean region, the Convention on Wetlands of International Importance (especially as waterfowl habitat), the Convention on the Conservation of Migratory Species of Wild Animals, the Global Convention on Biological Diversity and the United Nations Framework Convention on Climate Change).

1.2 Statutory Functions

The functions of the NCC are set out in Part 2, section 3 of the Law, in particular in subsection (9):

(a) subject to this Law, managing and making recommendations on the use of the Environmental Protection Fund;
(b) promoting the biological diversity and the conservation and sustainable use of natural resources in the Islands;
(c) co-ordinating the establishment and adoption by the public and private sectors of national policies for the conservation and sustainable use of natural resources, including-
    (i) the use of wetlands and wetland resources; and
    (ii) the excavation of aggregate and fill materials;
(d) recommending and maintaining protected areas and conservation areas and conserving, maintaining and restoring their natural resources in accordance with Part 3;
(e) conserving, maintaining and restoring populations and critical habitats of protected species in accordance with Part 4;
(f) promoting the training of professional and voluntary personnel in the fields of research, management and wardening of protected areas and species and the other natural resources of the Islands;
(g) promoting wider understanding and awareness of the significance of the ecological systems of the Islands, the benefits of conserving natural resources and of the provisions of this Law and the Conventions;
(h) publicising the establishment of protected areas and the designation of protected species and raising public awareness, through educational programmes and other means, of the significance and value of protected areas and species and of the benefits that may be gained from them;
(i) encouraging public involvement, particularly by local communities, in the planning and management of protected areas and the conservation of protected species;
(j) promoting the adoption of guidelines by entities for the integration of conservation issues into their decision making processes and for the achievement of the sustainable use of natural resources;

(k) promoting district, national and regional initiatives, including co-operative enforcement measures and mutual assistance in the enforcement of national laws, in order to further the objectives of the Conventions;
(l) promoting national plans for emergency responses to activities or events, whether caused naturally or not, that present a grave and imminent danger to biological diversity and encouraging international co-operation to supplement such national plans;
(m) promoting national plans for the sustainable management, conservation and enhancement, as appropriate, of sinks and reservoirs of greenhouse gases; and
(n) carrying out such other functions and duties as are specified under this Law and the regulations;

and in subsection (12):

the Council, subject to any directions of the Cabinet, may make orders and guidance notes and issue directives for the purpose of giving effect to the provisions of this Law and such orders, guidance notes and directives may include-

(a) criteria for identifying endangered or threatened species or other species needing protection under this Law;
(b) criteria for evaluating proposals for the establishment and management of protected areas and for the measures required to protect and conserve protected species and their critical habitat;
(c) criteria for the application for, and grant of, monies from the Fund;
(d) criteria for the review, assessment and reporting of activities funded in whole or in part by monies from the Fund;
(e) the form and content of a petition under section 16(3);
(f) procedures for determining the circumstances under which permits and licences may be granted under Part 5;
(g) measures governing the methods and conditions under which the captive breeding or artificial propagation of protected species may be allowed;
(h) procedures for regulating and controlling wild populations and the import, introduction, possession, transportation and release of alien or genetically altered specimens;
(i) procedures for consultation by entities pursuant to section 41(3); and
(j) the carrying out of environmental impact assessments under section 43.

1.3 About this report

This report is prepared in compliance with the duty set out in section 5 of the Law requiring the Council, no later than three months after the end of the financial year, to prepare and submit to the Minister a report of its activities during the preceding year, following which the Minister shall submit it to Cabinet for laying on the table of the Legislative Assembly. The 2014-15 report was submitted on 30 September 2015 and tabled on 27 April 2016.

This is the second annual report of the NCC and covers the period from 1 July 2015 to 30 June 2016 inclusive.

1.4 Composition of the Council

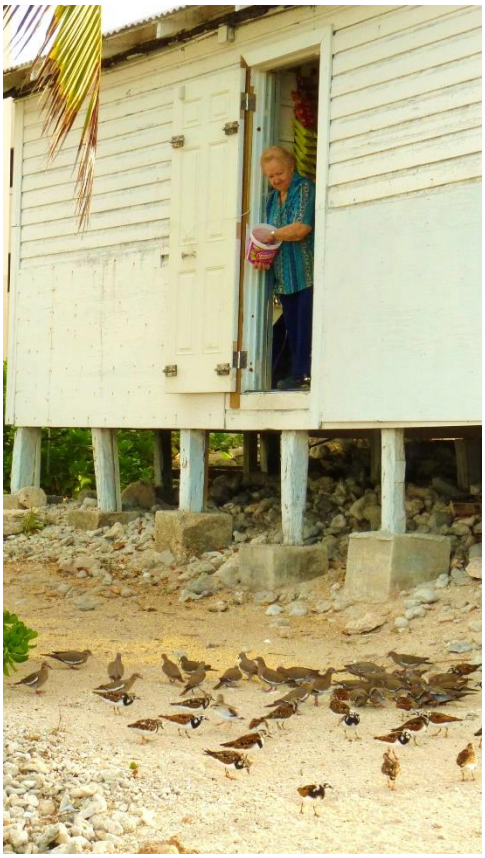
The Law regulates the composition of the Council. It is composed of thirteen voting members (section 3(2)) who are more specifically identified in Schedule 2:

(a) the Director or his nominee from the Department of the Environment;
(b) the Deputy Director of Research in the Department of the Environment;
(c) the Director of the Department of Agriculture or his nominee from the Department of Agriculture;
(d) the Director of Planning or his nominee from the Department of Planning;
(e) a person nominated by the National Trust and appointed by the Cabinet; and
(f) eight persons appointed by the Cabinet.

The Cabinet appoints the Chair (Schedule 2). Amongst the Cabinet appointees at least four shall have relevant scientific or technical expertise and they are chosen such that there is at least one person from each of the six electoral districts. Biographies of Council members as at 30 June 2016 are given in Appendix 5.1.

The position of representative for North Side has been vacant since January 2015 awaiting the appointment by Cabinet of member to represent that district. The two year term of all appointed members of the Council will expire in September 2016; members are eligible for re-appointment by Cabinet.

The Department of Environment is charged with appointing a Secretary to the Council (section 6). John Bothwell, Senior Research Officer, was so appointed at the first meeting of the Council held on 25 September 2014 and has remained Secretary throughout the 2015/16 Council year.



Chapter 2 Council Activities, July 2015 – June 2016

2.1 Governance

Section 3 governs the proceedings of the Council. Seven voting members of the Council constitute a quorum. The decisions of the Council are by simple majority and the chair has a casting vote only. The Council is obligated to meet in a place open to the public and cause to be prepared and published the agendas and minutes of all meetings. The Council may, subject to the Law, regulate its own procedure.

The Council's Manual of Policy and Procedure contains rules for administration of the Council, a Code of Conduct, a procedure for Disclosure of Interests and for a Register of Interests. The Council chose to adopt the model Code of Conduct proposed by the Commission for Standards in Public Life.

In respect of Disclosure of Interests Schedule 2 of the Law provides, in subsection 9:

(1) If a member of the Council has any pecuniary or other interest in any matter to be dealt with by the Council he shall disclose the fact to the chairman and shall not take part in any meeting at which the matter is considered or discussed.
(2) A member of the Council who fails to comply with subparagraph (1) commits an offence and is liable-
    (a) on summary conviction to a fine of twenty thousand dollars and to imprisonment for two years; or
    (b) on conviction on indictment to a fine of fifty thousand dollars and to imprisonment for five years,

    unless he proves that he did not know that matter in which he had an interest was the subject of consideration at that meeting.
(3) A disclosure under subparagraph (1) shall be recorded in the minutes of the meeting of the Council.

The Register of Interests is open for inspection at the Department of the Environment. No disclosures of interests were made in the reporting period.

It is anticipated that the Council members will become subject to the provisions of the Standards in Public Life Law (as amended) on its commencement.

The Department of Environment's Freedom of Information staff have been delegated to administer Freedom of Information requests to the Council. None were received in the reporting period.

2.2 Meetings

The Council held general meetings quarterly on the following dates: 25 August 2015, 23 November 2015, 24 February 2016, and 18 May 2016. All meetings were held at the Ground Floor Public Conference Room at the Government Administration Building, Elgin Avenue. Notices, agendas and minutes were published on the Department of the Environment website (www.doe.ky/conservation-council/) in accordance with the statutory requirement and the Council's Policy and Procedure Manual.

Council also conducts non-binding working groups every two or three weeks in order to prepare for the quarterly meetings. A record of member attendance at general meetings and working groups is included in Appendix 5.2.

Matters for the Agenda are cast as Board Papers which may consist of Information Papers or Working Papers prepared by the Department of Environment and papers prepared by Council members either individually or as Committee chairs. Matters for decision are usually presented with a recommendation and a draft motion for approval as the resolution of the Council.

2.3 Preparation for coming into force of Parts 5 & 7 of the National Conservation Law

The NCL is being brought into force in stages. Law 24 of 2013 was passed by the Legislative Assembly on 13th December 2013 and received the assent of the Governor on 22 January 2014. The first commencement order, made in Cabinet on 9 September 2014, caused Parts 1 and 2 and Schedule 2 to come into force on 12 September 2014. Parts 3, 4 and 6, section 50, and Schedules 1, 3 and 4 came in to force on Earth Day, 22 April 2015.

Part 5 (Permits & Licences) and Part 7 (General) of the Law remained un-commenced during this reporting period and continued to be a primary focus for the Council in conjunction with the Department of Environment and the Ministry of Environment, in particular in relation to licencing various activities, e.g., the use of fish pots, previously managed by the Marine Conservation Law (MCL), and now to be managed under Part 5 of the National Conservation Law.

For Part 5 these preparations culminated in the approval, at the May 2016 general meeting, of:

a) National Conservation Council (Licence and Permit) Directives, 2016 and the delegation of administration of routine applications for such grants of permits and licences be delegated to the Department of Environment on the Council's behalf.
b) A draft Species Conservation Plan for Fish to be issued for public consultation. The consultation period was set at not less than double the minimum period required by section 17.
c) In order to preserve existing licencing practices during the consultation and adoption period for the Species Conservation Plan for Fish, an Interim Directive prohibiting the take of any of the fish species listed in Schedule 1 Part 1 and Part 2 of the NCL with a spear gun, seine net, gill net or fish pot is prohibited without a licence, taking effect immediately upon the coming in to force of Parts 5 and 7 of the NCL and the repeal of the MCL;

and the endorsement of Cabinet Regulations:

d) National Conservation (General) Regulations, 2016;
e) National Conservation (Fees and Forms) Regulations, 2016.

In relation to Part 7, Guidance Notes for the use of the Environmental Protection Fund and a Directive for the carrying out of Environmental Impact Assessments were also approved at May 2016 general meeting and subsequently Gazetted.

2.4 Conservation of Land & Species

Enhanced Marine Protected Area System. The public consultation on the DoE's nomination of enhancements to Cayman's marine parks system of protected areas took place between 26th August and18th December 2015 in all districts. The presentations were made by the Director DoE with staff members on hand to assist with hands-on reviewing of the maps and materials by the attendees. The Chair attended all the public consultation meetings and several members of Council attended in their own districts. Council members, Mr. Ebanks and Mr. Conolly, engaged with district leaders and dealt with their concerns on behalf of their constituents. Minister Panton participated in all but one meeting and Minister Kirkconnell participated in each Sister Islands meeting.

The Council reviewed all written submissions and the DoE's recommendations for amendments to the original nomination to address and adopt the public feedback consistent with the original goals, i.e. to achieve 40-50% coverage of protected areas with simplification of the zones and enhancement of no-take. The approved amended nomination was delivered to the Minister of Environment on 10 March and the Council made a presentation to caucus on 21st March 2016. No indication of a date for consideration of the nomination by Cabinet had been advised.

Species Conservation Plans A Fish Species Conservation Plan was received from Department of Environment and approved for issue for public consultation as described in section 2.3 above.

Seven Mile Beach Marine Park In March 2016 the Council wrote to the Minister for the Environment in relation to an application by Dart Realty for permission to carry out site investigations with a view to large scale removal of beach rock at Long Point, Seven Mile Beach seaward of block and parcel 11B17. Council wished to make its views available to Cabinet as approval of works in Cayman waters is reserved to the Cabinet (section 21 NCL). Council was opposed to the preliminary investigation and ultimately any other removal of the beach rock for the following reasons:

1. The site is within the Seven Mile Beach Marine Park, a protected area under the NCL.
2. Permission would create a damaging coastal works precedent in an area where previous recommendations to government were that none should be permitted.
3. Long Point is ecologically, culturally and recreationally important in its current state, as are the few other areas of submerged beach rock along Seven Mile Beach.
4. Beach rock provides protection from erosion and wave attack risks.
5. Dart Realty had not provided any alternative to this proposal nor any reason why there is no alternative to the rock removal.
6. Removal of 1,500 square feet to an unspecified depth was not necessary to enable a determination whether the substrate is in fact beach rock or ironshore, nor to test if the material is crushable for return to the beach.
7. The preliminary investigation itself was potentially the solution that Dart Realty is seeking.

The Council drew attention to the Beach Review and Assessment Committee (BRAC) Interim Report of May 2003 which contained recommendations based on Dr Seymour's earlier report, Seven Mile Beach: A Natural History. The BRAC called for a Strategic Beach Management Plan as a high priority to enable a dynamic comprehensive policy and management tool. In addition, the BRAC had recommended that "no development should

be permitted seaward of the historical vegetation line with the obvious exception of jetties and docks (except for Seven Mile Beach where no docks or jetties should be permitted)".

Terrestrial Protected Areas - Project Future (EY Report Recommendations) In December 2015 the Council provided recommendations to Cabinet via the Ministry of Planning that 13 of the 69 parcels identified by Caucus with potential for divestment by the Crown be reserved for their environmental value.

Conservation Agreement Workshop The Council participated in a workshop held on November 11 and 12 facilitated by The Nature Conservancy (TNC) to build capacity among stakeholders, including legal professionals, Planning Department, Department of Environment and Lands and Survey. The workshop was led by Hans Birle, TNC Associate General Counsel and Jonathan Rotter, TNC Lead Senior Legal Counsel.

2.5 Implementation of section 35

Section 35 of the NCL deals with the importation, introduction and release in any part of the Islands of live or viable specimens of an alien or genetically altered species. It has far-reaching implications for not only the conservation and protection of the natural environment but also public health and sustainable agricultural and horticultural practices.

Alien Plant Importation Advisory Committee

An ad hoc Alien Plant Importation Advisory Committee composed of the Council Chair, Fred Burton, and representation from the Departments of Environment and Agriculture was formed in June 2015 as a result of the implementation of amendments to the Plants (Importation and Export) Law (1997R) and the complementary section 35 of the Law on 22 April 2015 and representations from the plant import industry. The purpose of the Committee was to prepare a memorandum of understanding among the Council, DoE and Department of Agriculture (DoA) for consultation on alien plant import licensing during the period needed to develop Council directives. A draft MoU was prepared and initial assessment of the scope of work needed to develop draft directives made. In the interim the DoE continued to advise the DoA on the importation of alien plant species (and also animals, principally for the pet trade) in to the Cayman Islands. DoE also acts on behalf of the CITES Scientific Authority (Endangered Species Trade & Transport Law, 2004) to advise the Management Authority on the importation of alien species in to the Cayman Islands under the Endangered Species Trade and Transport Law, 2004 which came into effect in the course of July and December 2015. The initial assessment of the scope of work needed to develop draft directives identified the need for DoE and the Council to develop a systematic assessment in relation to existing wild populations as well as proposed introductions that might cause harm to any of the natural resources of the Islands and procedures for regulating and controlling such populations and introductions. Such a systematic assessment was deemed to be beyond the capacity of DoE in terms of staff availability to devote the time required to the project during this reporting period.

MRCU – Oxitec Application

On 18 May 2016 the Council considered the application under section 35(2) by Dr William Petrie of the Mosquito Research and Control Unit (MRCU) for permission to import 1.65 kilograms of genetically modified *Aedes aegypti* (OX513A) yellow-fever mosquito eggs in a maximum of twelve shipments at approximately monthly intervals for the purposes of rearing

and release in a limited trial for a population suppression project, to be conducted in West Bay, as a potential first phase of a rolling *A. aegypti* control program.

Wild female mosquitoes are the primary vector responsible for transmitting several diseases which effect humans, e.g., yellow fever, dengue and zika.

The role of the Council was to assess whether the activities contemplated by the application would constitute a threat to the biodiversity of the Cayman Islands. The Council conducted intensive research into the prior history of research trials into the efficacy of the OX513A mosquito and current best practices for assessment and evaluation of genetically modified mosquitos including reviewing:

a) the 2009 Risk Assessment for the East End trials;
b) the WHO Guidance Framework Testing Genetically Modified Mosquitos 2014;
c) the Preliminary Finding of No Significant Impact prepared by the U.S. FDA's Center for Veterinary Medicine and the Draft Environmental Assessment for Investigational Use of *Aedes aegypti* OX513A prepared by Oxitec Ltd. in relation to its 2015 application for a release in the Florida Keys;
d) the World Health Organisation's recommendations regarding the use of Genetically Modified Mosquitoes for mosquito population reduction in relation to reducing the transmission of *Aedes*-borne diseases, including Zika virus; and
e) a substantial body of peer-reviewed and other literature.

In granting the approval sought the Council summarised specific reasons for assessing the risk to the biodiversity of the Cayman Islands as limited as follows:
i) *Aedes aegypti* is not a native species to the Cayman Islands; ii) *A. aegypti* is associated with humans and their infrastructure; iii) for both the above reasons elimination of *A. aegypti* is unlikely to expose a niche for another non-native species to occupy, but it was noted that a potential for *A. albopictus* to spread in longer term application of the method had been raised by other assessments; iv) *A. aegypti* does not feed on non-humans and is not a normal food source for native fauna; v) The genetic material in the insects cannot be transmitted by ingestion; v) *A. aegypti* is a short-range flyer and its mating behaviour is highly species specific; vi) The lethal factor confers a strong selective disadvantage on the offspring; vii) given the disease transmission risks of *A. aegypti* suppression would occur by alternative means of pesticides which pose risks to non-target organisms.

Among conditions attached to the permit the MRCU was required to continue public outreach throughout the study period and to provide a report to the Council of progress as at June 30, 2016 (see Appendix 5.3) and at the conclusion of the project.

2.6 Invasive Species Committee

The Committee remained focused on the Green Iguana problem in 2015-16. A Green Iguana Removal Plan which had been prepared on behalf of the Committee by the Department of Environment Terrestrial Unit and Frank Rivera-Milan of the US Fish and Wildlife Service was given preliminary Council approval on 13 January 2016 and ratified at the general meeting of 18 February 2016. The Committee's goals for the Sister Islands were biosecurity and eradication. For Grand Cayman the objective was for a small scale cull to test management options. The year-end report of the Committee is attached as Appendix 5.4, including utilisation of the appropriation from the Environmental Protection Fund voted for assessment and a test culling pilot project.

2.7 Climate Change Committee

Lisa Hurlston-McKenzie, Wallace Platts and Tim Austin came together in August 2015 and were formally confirmed as the Climate Change Committee at the general meeting held on 23 September 2015. The Council adopted the Committee's recommendation to give support to Cabinet's decision to request the U.K. Government to extend the ratification of second commitment period of the Kyoto Protocol to the Cayman Islands. In November 2015 the Committee produced a Climate Change Policy Development Memorandum for the Council which was shared with Government. This Memorandum included pre and post-Kyoto proposals and challenged the country to take seriously our obligations to address climate change. It also recommended a Climate Change Addendum to the Environment Charter between the Cayman Islands and the United Kingdom as the best way forward given that it is an existing bilateral agreement, and a model which other Overseas Territories could be encouraged to adopt in their Charters, thus positioning the Cayman Islands as a leader in this area on the international stage.

The Chair of the Committee attended a workshop in Brussels hosted by the Association of Overseas Countries and Territories of the European Union (OCTA) in February 2016 which followed-up on the 13th EU-OCT Forum held in February 2015. The workshop focused on methodology for accessing the 11th European Development Fund for climate change and disaster risk reduction. Priority areas for funding opportunities broadly fall under integrated and sustainable land, coastal and marine management. The Chair succeeded in having storm water management included within the category of water management and security. Projects within OCTs are yet to be determined. The Chair briefed the Cabinet Office, the head of the Cayman Islands U.K. office and the Department of Environment on the opportunities presented by the workshop.

The Committee continued to provide input in to the National Energy Policy Review through the Department of Environment which sits on that panel.

2.8 Cruise Berthing Facility Environmental Assessment

The Council's powers and duties, relating to Environmental Impact Assessments (EIAs) were not in effect in the reporting period. However the framework which forms the basis of the draft regulations for EIAs was used to conduct the George Town Cruise Berthing Facility EIA, during the previous reporting period. The Council, during the previous reporting period, determined that it would withhold comment on the EIA process until it had reached the stage at which the Council, under Part 7 of the Law, would normally provide its views on the Environmental Statement. On that basis the Council issued four commentaries after the issue of Environmental Assessment Board Review of the Draft Environmental Statement as follows:

a) Commentary following issue of Environmental Assessment Board Review of the consultation draft Environmental Statement and completion of public consultation. 26 August 2015

b) Observations and comments on the scientific basis and results of a second Benthic Habitat Characterisation Survey conducted by CSA Ocean Sciences Inc. 2 October 2015

c) Credibility and Conflict of Interest in the Cruise Berthing Environmental Assessment Process. Part 1 - Adherence to IFC Performance Standards. 18 November 2015

d) Credibility and Conflict of Interest in the Cruise Berthing Environmental Assessment Process. Part 2 - Good Governance of Government Driven Infrastructure Projects. 18 November 2015

The first commentary supported the conclusions and recommendations of the Environmental Assessment Board. Subsequent commentaries responded to elements of the continuation in the post Environmental Statement phase of the project. Copies of these commentaries are available on the NCC section of the DoE website.

2.9 Outreach and Education

Council made limited headway in developing its own website and social media presence during 2015-16. However it is expected that this project will be completed in 2016-17.

Conservation Council Earth Month Initiative In April 2016 Council promoted and participation in a Caribbean-wide Beach Plastics Survey to provide data for a crowd-sourced study of density of beach plastic debris on inhabited and uninhabited Caribbean Islands. Through appearances in various media Council was able to recruit volunteers to survey beaches on all three islands and contribute a substantial body of data for the Western Caribbean. The results are expected to be published in 2017.

https://www.caymancompass.com/2016/04/10/haitian-trash-identified-on-cayman-beaches/

http://cayman27.ky/2016/04/conservation-council-beach-survey/

http://cayman27.ky/2016/04/citizen-scientists-talk-trash-as-found-on-cayman-shores/

http://cayman27.ky/2016/04/beach-trash-survey-aims-to-enlist-help-from-citizen-scientists/

Conservation Council member for East End, MacFarlane Conolly, with Mrs Babry Conolly and Mrs Aliceann Kirchman participating in an Earth Month's Beach Plastics Survey at Colliers. April 2016.

For Earth Day itself Council issued a message calling attention to the global theme - Trees For The Earth, to the Planning Department's Draft Guidelines for landscaping and the article "Cayman Friendly Landscaping" in the Department of Environment's Flicker Magazine (D/PD_Library/Policy_Drafts/070427_-_Grand_Cayman_Landscape_Guidelines.pdf and http://www.doe.ky/wp-content/uploads/2015/09/Flicker22compressed.pdf)

In connection with the opening of the Paris Agreement to combat climate change through mitigation of greenhouse gas emissions (agreed by 193 parties in November 2015) for ratification on Earth Day, the Council called for continual urging of our elected leaders and

governmental bodies to act decisively on the implementation of the National Energy Policy, the Cayman Islands Climate Change Policy and the review and update of the National Development Plan.

Chapter 3 Financial

3.1 Council Budgets and Expenses

Budgeted and unaudited actual/accrued expenses for the Conservation Council are shown in the table below. Amounts (unaudited) in CI$.

	Budget 12 month period Jan 2017-Dec 2017 inclusive	Budget 6 month period June 2016-Dec 2016 inclusive	Budget 12 month 2015-16	**Unaudited Actual / Accrued Expenditure 12 month 2015-16**	Budget 9 month period September 2014-June 2015 inclusive	**Unaudited Actual / Accrued Expenditure September 2014-June 2015**
Council compensation. Travel sister islands member	24,000	12,000	25,112.68	**17,200** **2,776.04**	20,112.68	**11,300.00** **1,345.31**
2015-16 Marine Protected Areas consultation; commencement of one Species Conservation Plans consultation			8,988	**2,232.40[a]** **824.19[b]** **300.00[c]** **527.60[c]**		
2016-17 Public relations and outreach	8,400	4,200				
Other						**417.62**
	32,400	16,200	34,100.68	**25,871.23**	20,112.68	**13,062.93**

a – Sister Islands travel and accommodation DoE staff and one Council member
b – Food – refreshments at public meetings
c – Advertising, public relations. Internal printing and copying was not accounted for separately by DoE.
All information as reported by Department of Environment.

The Council budget for the financial year 2016-17 (18 months) was again included with the Department of Environment's budget. The Chair continues to be of the view that the Council's budget and expenses should be accounted for separately in core government accounts.

3.2 Environmental Protection Fund

Section 3 (9) of the NCL provides that the Council manage and make recommendations on the use of the Environmental Protection Fund (EPF, Fund). Although sections 46 and 47 which provide in greater detail for the operation, management and reporting on activities funded from the Fund were not implemented in this reporting period and the Fund continued to be operated under the pre-existing 1997 legislation[3] recipients of EPF appropriations have provided information to the Council to enable the following reporting to be made.

At the conclusion of the Budget Debate on June 19, 2015, it was announced that the Standing Finance Committee had approved the appropriation of CI$5.18 million, to be disbursed from the Fund as follows:

- CI$2.5m to be spent on costs associated with the Cruise Port EIA (equity injection, Appropriation EA 143, Ministry of District Administration, Tourism and Transport);
- CI$1.0m on the Integrated Solid Waste Management project (equity injection, Appropriation EI53, Ministry of Home Affairs, Health and Culture);
- CI$180,000 marine patrol vessel replacement; and
- CI$1.5 million to be added to Appropriation FSC 13 - Environmental Research and Services - to cover elements of FSC 13 and to enable further (i) conservation related operational expenditure, and (ii) conservation related projects and initiatives.

Applications of the EPF funding were as follows:

	2015-16 Budget (1,000s)	Unaudited Actual/Accrued Expenditure (1,000s)	Variance
Cruise Port EIA (MDATT)	2,500	1,070	-1,430
Integrated Solid Waste Management Project (MHAHC)	1,000	1,000	0
Marine Patrol Vessel (DOE)	180	128	-52
Green Iguana Pilot Project (NCC) FSC 13	200	109	-91
Blue Iguana Reserve (NT) FSC 13	200	200	0
Completion of Total Economic Valuation of Marine Resources (DOE) FSC 13	75	67	-8
Parrot Amnesty FSC 13	35	0	-35
Stingray Study (DOE) Expropriated with Ministry approval for emergency Coral Reef Restoration FSC 13	80	44.4	-35.6
Environmental Operational Costs FSC 13*	910	910	0
Tire Waste Disposal (MHAHC)**	0	1,250	1250
Total	5,180	4,778.4	-401.6

* Environmental Operational Costs FSC 13 was allocated to the Ministry of Environment to offset operational costs of the Department of Environment.

[3] The 1997 legislation describes the purpose of the Fund as “defraying expenditure incurred in protecting and preserving the environment of the Islands”

** The Tire Waste Disposal was publicly reported (e.g. Caymanian Compass on 27 June and 17 August 2016) as having been “earmarked” during the 2015-16 financial year. It was not reflected in the 2016-17 appropriations from the Environmental Protection Fund. Council’s request for further clarification was unanswered at the time of completion of this report.

The unaudited actual total figure of $4,612,900 may be compared to the 2016-17 Plan and Estimates of forecast expenditure for 2015-16 of $4,390,000.

Further details of the Cruise Port EIA, Integrated Solid Waste Management Project, Marine Patrol Vessel, Green Iguana Pilot Project and the Blue Iguana Reserve as reported to the Council are included in appendixes 5.5, 5.6 & 5.7.

The Cayman Islands Government 2016-2017 Annual Plan and Estimates contained the following details of the Fund in the notes to the Forecast Financial Statements for 2016-17. Amounts in $000s.

Plan & Estimates July 2016 - December 2017 Environmental Protection Fund	18-Month Budget 2016/17	12-Month Forecast 2015/16	12-Month Unaudited Actual 2014/15
Opening Balance	57,970	56,897	51,089
Interest	535	214	0
Transfer into EPF	7,970	5,463	5,808
Interest transfer to General Revenue	-535	-214	0
Transfer to General Revenue	-6,750	-4,390	0
Closing Balance	59,190	57,970	56,897

The Council notes that the Forecast Financial Statements for 2015-16 had included forecast 2014-15 income of $5,248,000 and interest earned of $206,000 which would be transferred to general revenue.

The approved appropriations from the EPF for the 2016-17 18 month period were as follows:

Appropriation request detail	CI$000s
Stingray Study (DoE) (DoE – carried over from 2015-16)	50
Traffic-calming proposal for SIRI (DoE – carried over from 2015-16)	150
Cayman Parrot Amnesty Project (DoE – carried over from 2015-16)	35
Green Iguana Control (NCC)	365
Conservation Land Purchase (NCC)	6,000
Emergency Coral Reef Restoration (DoE)	150
TOTAL	6,750

Due to the importance and relevance of management of the Environmental Protection Fund to various sections of the National Conservation Law the Council wrote to the Minister of Environment, copying the Minister of Finance on 16 July 2015 raising concerns with the appropriation of monies from the Environmental Protection Fund for projects not closely associated with the purposes set out in section 46 of the Law notwithstanding the relevant sections of the Law (46 and 47) were not yet in force. Section 46(1) of the National Conservation Law, 2013, provides: "[The] environmental protection fund [is] to be used for the acquisition and management of protected areas and for measures to protect and conserve protected species and their critical habitat". The Council considers that a mere relationship with the environment is not sufficient to create the required nexus to justify funding from the Environmental Protection Fund. Nor is it appropriate to support recurring operational costs with the Fund. For this reason the Council produced Guidance Notes on the Use of the Environmental Protection Fund in May 2016. The Council was greatly encouraged by the nature of appropriations approved for the 2016-17 period.

Chapter 4 2016-17

4.1 Goals & Objectives

With impending commencement of almost all of the National Conservation Law the Council will be turning to articulating policy for long and short-term goals and objectives. It is expected that such a policy document will be an outcome of a Council retreat to be held in October 2017.

Besides expected repetitive objectives, specific objectives that have already been established for the financial year 2016-17 are.

1. Continued lobbying for Cabinet approval of the Enhanced Marine Protected Areas.
2. Review Management Plans (to be produced by the Director) for the Marine Protected Areas.
3. Creation of first terrestrial protected areas, from the 2016 nominations procedure, including protection of suitable Crown land.
4. Production of directives for the importation and release of alien or genetically altered species, including policies for assessment and evaluation of risk.
5. Creation, consultation and implementation of three Species Conservation Plans.
6. Outreach to government entities starting with those most likely to be impacted by the section 41 duty to consult on environmental matters.
7. Consider issues related to the take and possession of specimens of protected species (plants and animals, alive or dead, and for a variety of reasons) by individuals and institutions, leading to the creation of a suite of directives to regulate these activities, with a view to controlling unsuitable take while minimising regulatory impact on sustainable use.
8. Provide input to the review of the National Climate Change Policy.
9. Explore and activate outreach and education opportunities with conservation partners.

In measuring the achievement of prior year objectives Council notes that the number of Species Conservation Plans fell short of expectations. Council looks forward to receiving draft Plans in the coming period to put planning in this area back on track.

4.2 Schedule of General Meetings for 2016-17

Council meetings are scheduled for 24 August 2016 and 30 November 2016. Quarterly general meetings for 2017 will be determined at the 30 November 2016 meeting.

Photographic Credits: Cover – Isabelle Brown; all others – Christine Rose-Smyth

Chapter 5 Appendixes

5.1 Council Members as at 30 June 2016

Christine Rose-Smyth Chair; Bodden Town, Plants, Terrestrial & Marine Biodiversity

Christine Rose-Smyth has called the Cayman Islands home since 1985 and has lived in the district of Bodden Town since 1998. She is a life member of the National Trust for the Cayman Islands and BirdsCaribbean, was been a member of the Cayman Islands Orchid Society from1992-2016, and is also a member of the Friends of the Botanic Park. She is a volunteer administrator for eBird, the Cornell University global, online, bird data website.

Christine is an avid field naturalist, promoter of citizen science and supporter of conservation outreach and education. For example, since 2013 she has participated in ecosystems services data collection, field work for the UKOT Millennium Seed Bank project, co-curated Passing Through, an exhibit seen by over seventy-five hundred visitors and twelve hundred school children during its twelve month run at the Cayman Islands National Museum and mounted a complementary International Migratory Bird Day Festival for the National Trust.

Under the name Verdant Isle Orchid Research she conducts studies of Cayman Islands native orchids, including ecology, genetics, pollination and in vitro propagation. Previously she published research on deep-sea crinoids, pleurotomarian slit shells, and acroporid reef corals.

Christine Rose-Smyth holds degrees in natural science (Trinity College, Dublin) and law (University of Liverpool). She was admitted to the Cayman Islands bar in 2006 (currently non-practicing) and was a member of the Institute of Chartered Secretaries and Administrators, London from 1994 until her retirement from fellowship of the Institute in 2012. Altogether, Christine has twenty years' experience in the Cayman Islands financial and legal services industry.

Davy Ebanks West Bay and Marine Conservation

Davy Ebanks was born in Grand Cayman on April 11th 1957. He was raised and spent his early years in West Bay. After graduating from CIHS, Davy trained at the Caribbean Meteorological Institute and Air Traffic and Aeronautical Information Services School in Barbados. Davy's varied career includes experience as a boat captain of both charter and party boats, in restaurant and golf course management and as a construction project manager.

A lifetime fisherman, boater and outdoorsman Davy is keenly interested in the preservation of all things Caymanian and its marine environment in particular. Having served as a member of the Marine Conservation Board for 14 years Davy brings valuable continuity and perspective to the National Conservation Council.

Davy Ebanks currently live in Newlands and operates a commercial farm in Northward, growing a variety of crops which are sold locally to restaurants and supermarkets.

Lisa Hurlston-McKenzie George Town and Sustainable Development & Climate Change

Lisa Hurlston-McKenzie is an environmental professional with over 20 years' experience in the research, practice, policy and teaching of sustainability, environmental assessment and

climate change. She is the author of numerous publications on climate change policy and adaptation for small islands.

Lisa has managed projects aimed at enhancing the sustainable development and climate resiliency of the Cayman Islands and Caribbean region. Her efforts have also helped to advance burgeoning green building industries locally and regionally.

Through the design of a Carbon Offset Programme for the National Trust for the Cayman Islands, Lisa has facilitated practical solutions for businesses, government and the community to support local climate action through renewable energy and energy efficiency projects that directly benefit schools and wetland conservation.

Lisa is a past Judge for the Governor's Award in Design and Construction Excellence as well as the Governor's Conservation Awards. She was appointed to the Human Rights Commission which promotes and upholds the environmental rights enshrined in the Cayman Islands' Bill of Rights. Lisa continues to serve on the National Conservation Council as the George Town District Representative, returning to the district in 2001, and Chair of the Climate Change Subcommittee.

McFarlane Conolly East End and Sustainable Development

Hermon Howard McFarlane Conolly is a 63 year old native of East End, Grand Cayman. He is a retired banker who spent 34 years at his chosen profession before retiring in August 2006 at the level of Senior Vice President of one of our leading banks.

Mr. Conolly's managerial skills and his interest in planning lend themselves well to the challenge to ensure environmentally sustainable development. As a grandfather of 15, Mac is committed to ensuring that measures are put in place to conserve, protect and preserve the resources of our islands for future as well as present generations.

Wallace Platts Sister Islands and Terrestrial Biodiversity

Born (1940) and raised in Prince Edward Island, Canada, Wallace Platts paid his way through university by working on oil tankers. He graduated with an honours degree in political science and joined a large oil company, working in the two fields of human resources and corporate secretariat during his career. He was certified in both these professions. Twice he left the company for two-year stints of volunteer work abroad - as a high school teacher in Jamaica and much later as a town manager in Papua New Guinea. Wallace retired and emigrated with his wife, Edna, to Cayman Brac in 1992.

Nature study had been Wallace's avocation in Canada, where he contributed to field naturalist societies in Toronto (treasurer of the Toronto Field Naturalists' Society) and later in Calgary. In the Cayman Islands he has immersed himself in nature and history and accepted responsibilities with the National Trust both on Cayman Brac and at national level. He was fortunate to do field work with older Brac residents, and with Dr. George Proctor and other international experts.

Wallace is dedicated to nature conservation and has a blog to share findings and ideas. (**www.naturenotes19n79w.ky**). While also involved in tutoring English and music, and in composing, his central quest is the identification and preservation of the varied habitats and the wild plants and creatures of his adopted island, Cayman Brac.

Christina Pineda National Trust for the Cayman Islands

Christina is a Caymanian with familial roots in Cayman Brac. Christina has served as the Executive Director of the National Trust for the Cayman Islands since 2012. She is an accredited mediator and practised as a litigation attorney prior to taking up her role at the National Trust. Christina holds degrees in Law and Computer Science and is a Microsoft Certified Systems Engineer. In her current role, Christina is responsible for ensuring that the National Trust carries out its mandate to protect environmentally sensitive and historically significant sites across all three Cayman Islands.

During her time at the Trust, Christina has developed the biennial Governor's Conservation Awards, Island Offsets carbon offset programme, Heritage Heroes Youth Conservation Club, Families in the Wild nature programme, Adopt Nature programme and the Save Our Sites endowment campaign.

Ever the nature lover and a Duke of Edinburgh Gold Award holder, Christina spent 6 weeks hiking the Indian Himalayas after graduating high school and has led multiple hiking expeditions in Grand Cayman. She also led relief trips to several Central American countries to assist poverty stricken areas and to rebuild homes after natural disasters.

She resides in the district of West Bay with her husband.

Patricia Bradley Avifauna & Biodiversity

Best known in Cayman as the author of The Birds of the Cayman Islands, Patricia Bradley began her career as a field and conservation biologist in Africa. She has been studying and writing about Caribbean birds since 1974 and on Cayman's birds since 1983. Besides several field guides she has written many articles, reports and monographs for ornithological and conservation journals and the Cayman Islands Government.

Patricia was one of three instigators of the National Trust for the Cayman Islands in 1986, and continues to act as a Trust Council member and as its Environmental Programmes Committee chair. She was an office holder of BirdsCaribbean from 1989 to1996 (previously SCO and SCSCB) promoting regional conservation of habitats and wetlands, with special emphasis on West Indian Whistling-Duck and seabirds.

Patricia Bradley conducted the first censuses of the Cayman Parrot populations in the mid-1980's. More recently her observations on bullfinches are expected to lead to the formal raising of the Grand Cayman Bullfinch to full species status.

Frederic J. Burton Terrestrial Biodiversity

Frederic J Burton moved to Cayman to work for the Mosquito Research & Control Unit in 1979 and remained there until 1991, when he left his final position as MRCU's Deputy Director to lead the newly-formed National Trust for the Cayman Islands' environmental programmes. At the Trust, he played a leading role in establishing the Cayman Islands' first terrestrial protected areas.

Fred has also mapped the dry land vegetation communities on all three islands, and classified the natural plant communities in work that later culminated in his publishing the IUCN Red List status of all Cayman's native plants. While still at the Trust he worked on conservation of a wide range of animal species across the islands, including the Cayman Brac Parrot and Little Cayman's Red-footed Booby. On Grand Cayman Fred began what

has developed into the globally recognized Blue Iguana Recovery Programme, which he formed with local and international partners in 2002 and led as its volunteer Director until 2015. Mr. Burton was awarded the M.B.E. in 2007, for services to protected endangered species in the Cayman Islands.

Gina Ebanks-Petrie Director of Environment

Gina Ebanks-Petrie, was born in the Cayman Islands. She holds a Bachelor of Science (Hons.) degree in Biology from the University of Guelph in Ontario, Canada and a Master of Science (Distinction) in Environmental Management from the University of Stirling in the U.K. She has one son, Duncan, who is eighteen years old.

Ms. Ebanks-Petrie is a founding member of the National Trust for the Cayman Islands and served on its Council in various capacities for 24 years. She has worked in the Department of Environment for over 30 years and was appointed Director of Environment in 1996.

Under her leadership the Department of Environment works to promote and facilitate responsible management and sustainable use of the natural resources and environment of the Cayman Islands through various programmes and strategies. The Department undertakes activities that fall within the broad categories of environmental management recommendations; sustainable development and environmental policy advice; environmental research, monitoring and assessment; protected area management; and permitting and advisory services for various boards and committees.

Timothy Austin Deputy Director of Research, Department of Environment

Tim works at the Department of Environment as Deputy Director, Research and Assessment, with responsibilities for the DOE's scientific team working on natural resources research and monitoring programmes. Tim grew up on the North West Point of Grand Cayman and from then, when not attending the Catholic School, spent his time with his younger brother roaming the ironshore, fishing and snorkeling, firmly instilling a passion for the natural and marine environments. By 1978 he had acquired his first boat, and although no engine, rowed or sailed countless miles exploring the North Sound and its surrounding seagrass beds and mangroves. In 1984 he qualified as a SCUBA diver at Eden Rock and logging his early diving hours with Peter Milburn and other local dive operators on Grand Cayman's North and West Walls fortified a desire for a career in marine sciences as a lifelong ambition. He acquired a Bachelor's degree in Zoology and Marine Biology from the University of Reading (UK) and a Masters in Oceanography and Marine Biology from the University of Southampton (UK). He then worked for five years as a Research Assistant at the Tropical Marine Research Unit based at the University of York (UK) including working on Marine Protected Areas in Egypt and Kenya, before returning to Grand Cayman permanently in 1995 to begin a career with the Department of Environment.

Adrian Estwick Director of Agriculture

Haroon Pandohie Director of Planning

Colleen Stoetzel Planning Officer, representing the Director of Planning

5.2 Council Attendance Register

Council Member	Representation	General Meetings (4)	Workgroup Sessions (20)
Christine Rose-Smyth	Chairperson; Bodden Town, Plants, Terrestrial & Marine Biodiversity	4	19
Davy Ebanks	West Bay and Marine Conservation	4	17
Lisa Hurlston McKenzie	George Town and Sustainable Development & Climate Change	4	16
McFarlane Conolly	East End and Sustainable Development	4	14
Brian Tomlinson	North Side	-	-
Wallace Platts	Sister Islands and Terrestrial Biodiversity	4	18
Christina Pineda	National Trust for the Cayman Islands	3	18
Patricia Bradley	Avifauna & Biodiversity	3	16
Fred Burton	Terrestrial Biodiversity	4	19
Adrian Estwick	Director of Agriculture	0	0
Haroon Pandohie	Director of Planning	1	1
Colleen Stoetzel	Planning Officer, representing the Director of Planning	4	10
Gina Ebanks-Petrie	Director of Environment	4	20
Timothy Austin	DoE Deputy, Research	4	19

5.3 MRCU Interim Report

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CAYMAN ISLANDS
GOVERNMENT

Mosquito Research and Control Unit

The Secretary
National Conservation Council
c/o Department of Environment
Cayman Islands Environmental Centre
580 North Sound Road
George Town, Grand Cayman

6th July, 2016

Oxitec/MRCU Project : progress as of 6th July, 2016

Below is a brief outline of the Oxitec/MRCU GM *Aedes aegypti* release project to date:

The Certificate of Occupancy for the Mass Rearing Unit was obtained from BCU/DoP in mid-June and was sent to the NCC as part of the permitting requirements. MRCU/Oxitec then received the project permit from DoE which enabled MRCU to apply and further obtain the Import Permit from DoA, subsequently issued on the 20th June, 2016.

The first consignment of 150g (approximately 1.4 million) OX513A *Aedes aegypti* eggs arrived in Cayman from the UK on Thursday 30th June, 2016, without any issues. The eggs have now been hatched and the first batches of mosquitoes are being reared in the facility. Providing that the rearing process goes well and that the weather conditions are appropriate, the first release of the male *Aedes aegypti* is planned on July 14th, 2016, or subsequent days thereafter.

Over the last four weeks there has also been a vigorous public outreach campaign to include radio, TV, newspaper, leaflet distribution, house-to-house contact and a Town Hall meeting. This will continue in strength and be expanded upon throughout this month.

MRCU/Oxitec will continue to update you as we continue the first phase of the project.

Best regards,

.....William D. Petrie.....
Dr. William Petrie
Director, MRCU

DEPARTMENT OF ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

Report

Experimental culls on invasive Green Iguanas, 2016

Executive Summary:

Surveys show that Grand Cayman's invasive Green Iguana population is doubling every 1.5 years, threatening a catastrophic impact on the natural environment and socially unacceptable problems for agriculture, infrastructure and residential areas.

Experimental culls in June 2016 resulted in the removal of 18,838 Green Iguanas, mainly from western Grand Cayman. Bounty hunter groups and skilled hunters under contract both averaged approximately 100 iguanas culled per day.

Use of the DoE compound for receiving and counting dead iguanas is not viable as a long term arrangement. Bounty hunting proved to be problematic in practice, and for future work the contract approach is recommended.

The scale of the Green Iguana control challenge exceeds DoE's current capacity, and requires Government to consider options to resource this major undertaking.

Rationale:

On 24th February, 2016 the National Conservation Council (NCC) accepted a proposal from its Invasive Species Committee to conduct experimental Green Iguana culls on Grand Cayman, and delegated the implementation of this proposal to the Department of Environment (DoE).

The reasons behind this proposal were as follows:

1. Population surveys by DoE of the Green Iguana population indicate that a major population explosion of this invasive species was underway, rising from about 200,000 in 2014 to 300,000 in 2015, doubling every 1.5 years.
2. Impacts to domestic environments, commercial landscaping, agriculture, utility infrastructure, and natural environments are so severe that current Green Iguana population levels, let alone the ongoing increase, is unacceptable to society.
3. Almost no locally relevant information or experience was available to assess what an effective control program would cost, or how it should be designed to be most cost-effective and manageable. Gathering this information and experience required trying out different approaches in practice.

Funding granted from the Environmental Protection Fund to the NCC was available for this work in the 2015-16 financial year.

The Experiments:

Two culling experiments were conducted by DoE in June, 2016. One involved skilled hunters under contract to clear specific areas. The second experiment tested a limited "bounty" approach.

<u>Skilled hunters under contract:</u>

The first experiment focused on three specific areas in western Grand Cayman, where Green Iguana population densities are very high: The Shores subdivision, the SafeHaven Golf Course, and the Britannia Golf Course.

Three experienced iguana hunters, who were licensed firearms users with suitable air rifles, were contracted by DoE. Each hunter was contracted to work on one of the three areas. The contracts were structured with a strong performance bonus incentive to bring the Green Iguana populations in these areas down by at least 90% in two weeks.

All iguanas culled in these areas were brought to DoE for counting, and to obtain biological data relevant to forward planning.

The three areas were surveyed by DoE staff before and after the culls, to record the actual change in Green Iguana population density and so to measure the success of the culls.

Restricted Bounty:

A public meeting was held by DoE in December 2015, to which all resident persons who had experience in, or interest in culling Green Iguanas, were invited. All attendees at that meeting were later invited to participate in the restricted bounty experiment. From that pool of interested and motivated people, 18 individuals came forward to be registered as cullers for a one-week experiment that followed the skilled hunter trial. The primary focus area was from Grand Harbour to Barkers, including George Town, the Seven Mile Beach and West Bay.

Registered cullers agreed to observe conditions relating to humane killing of iguanas, and to bring freshly culled iguanas at set times to DoE for counting. Registered cullers were free to involve other people under their registration, making independent financial arrangements, provided all persons operating under the registered cullers observed the same conditions.

Counted iguanas from registered cullers were tallied for a final payment to each registered culler of $5 per iguana.

Findings:

Effectiveness:

Skilled hunters under contract were successful in two of the three areas. In both golf course properties, Green Iguana populations were brought well past a 90% reduction in two weeks. However, as soon as the cull ended, Green Iguanas very rapidly re-invaded from adjacent land.

In the Shores subdivision, skilled hunting was less effective, at least in part because a large proportion of the target iguanas were relatively inaccessible and hard to detect due to mangrove habitat and canals.

In two weeks, the three skilled hunters removed a total of 4,370 Green Iguanas from these three sites, killing an average of 100 iguanas per day and achieving overall a 93% reduction of the population in all three sites at the start of the cull.

Bounty hunters were also effective, removing 14,468 Green Iguanas mainly from western Grand Cayman, in one week. Registered cullers (in groups including their associates) each culled an average of 109 Green Iguanas per day.

Costs:

Direct payments to hunters / cullers were as follows:

Method	Total Iguanas Culled	Total Payment	Average cost per Iguana
Skilled Hunters	4,370	$ 25,000	$ 5.72
Bounty Hunters	14,468	$ 72,045	$ 5.00

However, there was considerable variation between skilled hunters: the most cost-effective skilled hunter culled 3,024 iguanas for $10,000 which is equivalent to $3.31 per iguana.

In addition to payments to hunters, the main cost to DoE was an immense demand on staff time, preceding and during the culling experiments.

For example, at least 349 staff person-hours were expended in counting the 14,468 iguanas from the restricted bounty experiment alone. Costs during the restricted bounty experiment also included rental of a disposal skip, and protective clothing for staff handling iguana carcasses. Factoring in these indirect costs, the real cost to the Cayman Islands Government during the restricted bounty experiment was equivalent to $5.91 per iguana.

The full expenditure record for the trial culls is presented at the end of this document.

Operational limitations and concerns:

In the course of these two experimental culls, a number of operational limitations and concerns became apparent. These are important considerations in planning future operational Green Iguana control measures.

1. The demand on DoE staff time required by the experiments was unsustainable, as this diverted many staff from a wide range of primary duties for an extended period. The Department cannot continue on this basis, and certainly cannot envisage operating a larger scale operation of that kind with existing resources.
2. The cost of the operation in financial terms was higher than DoE staff and management feels is ideal.

3. Offensive odour and contamination of the counting and disposal area created an unpleasant working environment, and stimulated complaints from neighbouring buildings and workers.
4. During the limited bounty experiment, conditions imposed on the hunters were not effectively communicated to their subordinate team(s). As a result inhumane treatment of iguanas occurred, and a growing number of unaffiliated persons sought to get involved. By the end of the week, this led to some disorderly and even aggressive interactions with DoE's counting staff.
5. Scaling up the operation to the level required to reverse the Green Iguana population growth will require an approach which reduces DoE overheads, and keeps down the per-iguana cost. DoE estimates a cull of 177,500 adult and sub-adult iguanas per year will be necessary to initiate a decline in the Green Iguana population if we begin the operational cull in 2017. This implies an operation almost ten times larger than the recent experimental culls.
6. In the first year of a sufficiently resourced cull, a biomass of the order of 200 tons of iguana carcasses per year will be generated and will have to be disposed of. During the June 2016 experiments it already became clear that incinerator capacity at the George Town landfill would be nowhere near sufficient to handle this kind of mass, in event it is brought back into service. While it is possible that some fraction of the cull may be taken for human consumption, we must expect that the vast majority will have to be received by and disposed of at the landfill facility. Arrangements may need to be developed with the Department of Environmental Health.

Future Strategy Alternatives:

Bounty Hunting:

By its nature, bounty hunting requires an independent agency to count culled Green Iguanas in order to calculate and justify payments to hunters. At operationally useful scales, this requirement creates a major overhead which DoE cannot meet with existing staff resources. Other issues with management of humane treatment of iguanas, difficulties in paying government funds to unregistered members of the public, handling of old, decomposing carcasses etc, all combine to make this a severely problematic option.

"Honeypot" Hunting:

The observed pattern of rapid immigration to recently culled sites such as golf courses (which support high densities of Green Iguanas), suggests that sustained culling in such areas could

progressively draw in and kill iguanas from surrounding lands. Such immigration can be extremely rapid: for example after the skilled hunter cull successes were verified by surveys, immigration of iguanas from surrounding areas resulted in an 82% rebound in these three cull sites, in only two weeks.

A network of appropriately spaced honeypot areas could effectively clear iguanas from a much larger area. The optimal spacing of honeypot areas would initially have to be determined on the ground, by survey work, and may vary depending on land use in and around the culling zones.

If honeypot culling was conducted as a sequence of culling contracts in the specified area, repeated at appropriate intervals, the honeypot area would act as a population trap, drawing in and removing iguanas from surrounding areas, for as long as the effort continued. This approach could be implemented without the overhead burden of counting culled iguanas, by issuing repeating contracts with performance incentives based on before-and-after population surveys. This is the payment structure we used successfully in the skilled hunter experiment, and it should work equally well without any requirement to receive and count the culled iguanas.

Progressive Area Clearance:

By beginning an area-by-area cull from one end of the island and proceeding systematically forward, an area cull operation can avoid being undermined by reinvasion. As with honeypot culling, this approach also can be implemented without the overhead burden of counting culled iguanas, by issuing contracts with performance incentives based on before-and-after population surveys.

Before-and-after surveys to measure culling contract fulfillments:

In the course of population surveys in 2014 and 2015, and additional surveys focused on the cull areas in the experiments, we have found our survey techniques to be consistently accurate and reliable, provided that observers are well trained. We can therefore be confident in using these surveys to assess contract performance and estimate the numbers of iguanas being culled.

Before-and after surveys would remain a DoE overhead, but these require a lower staff commitment than daily counting of culled iguanas.

Expenditure 2015-2016

The following expenditure was made by DoE up to 30th June 2016, from EPF funds authorized through the National Conservation Council, for the experimental green iguana culls reported above.

GL Date	Vendor Name	Line Description	Debit
15-Dec-15	Cayman Airways	GWYQEP - M. Vallee - Green Iguana Meeting - PO # 3211	127.05
18-Dec-15	Tortuga Rum Co	Refreshments - Green Iguana Meeting - Dec 10th - PO # 3213	53.58
18-Dec-15	Foster's Food Fair	Refreshments - Green Iguana Meeting - Dec 10th - PO # 3212	60.11
02-Jun-16	DoE petty cash	Scale Weight Etc. - Iguana Culling	51.25
08-Jun-16	AL Thompson's Home Depot	Hand Sanitizer-dusk masks- litter trays - Green Iguana Project - PO # 3723	39.95
08-Jun-16	Cost U Less	Sponges-Gloves-Bleach-Clipboards-Receipt Book - Green Iguana Project - PO # 3722	51.12
08-Jun-16	Kirk Home Centre	Safety Goggles & Coveralls - Green Iguana Project - PO # 3721	29.42
08-Jun-16	Roper Enterprises Ltd	Rubber Apron - Green Iguana Project - PO # 3720	26.95
08-Jun-16	Uncle Bill's Home Improvement Centre	Rain Suit- Green Iguana Project - PO # 3719	30.50
10-Jun-16	Cost U Less	Sponges-Gloves-Bleach-Clipboards-Receipt Book - Green Iguana Project	20.99
16-Jun-16	AL Thompson's Home Depot	3 x storage totes & rubber boots - Iguana Project - PO # 3730	131.00
21-Jun-16	Cost U Less	Tents x 2 - Green Iguana Project - PO # 3759	399.98
23-Jun-16	Kirk Home Centre	Coveralls - Iguana Project - PO # 3752	82.40
23-Jun-16	Cost U Less	Rubber Gloves - Iguana Project - PO # 3745	50.00
23-Jun-16	AL Thompson's Home Depot	Wheel Barrow - Iguana Project - PO # 3751	135.00
26-May-16	Burke, Troy	Project Mobilisation - Green Iguana Culling	3,000.00
26-May-16	McLean's Culling Services	Project Mobilisation - Green Iguana Culling	3,000.00
26-May-16	R & B Garden & maintenance services	Project Mobilisation - Green Iguana Culling	3,000.00
20-Jun-16	Burke, Troy	Green Iguana Culling - June 2016	2,000.00
20-Jun-16	Ebanks, Clell Brad	Green Iguana Culling - June 2016	2,000.00
20-Jun-16	McLean's Culling	Green Iguana Culling - June 2016	2,000.00

	Services		
23-Jun-16	Professional Waste Management	Delivery & removal of container Jun 20th - 27th 2016 - Iguana Project - PO # 3753	925.00
01-Apr-16	Rivera-Milan, Frank F	Correct expense of Dr. Rivera-Milan payment from DEC1415..0014-AP	7,070.00
04-Apr-16	Rivera-Milan, Frank F	Iguana Surveys and report, Feb & March, 2016	2,680.00
04-Apr-16	Royal Bank of Canada	Bank wire charges	35.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	2,930.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	8,395.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	6,280.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	100.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	735.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	970.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,145.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,275.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,345.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	2,440.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	11,640.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,015.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,095.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,240.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,280.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,420.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,060.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,195.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,285.00

30-Jun-16	Ebanks, Clell Brad	Iguana Culling Performance Incentive	5,000.00
30-Jun-16	McLean's Culling Services	Iguana Culling Performance Incentive	5,000.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	6,200.00
TOTAL			**109,044.30**

5.5 EPF: Cruise Port EIA (MDATT)

Report provided to the NCC by Ministry of District Administration, Tourism and Transport in relation to expenditure from the EA143 Appropriation (Cruise Port EIA Equity Injection) via email. Amounts (unaudited) in CI$.

Appleby	26,100.00
Business Research & Economic Advisors	4,606.25
CIG - Public Works	55,000.00
Civil Engineering Consultant Royal Haskoning DHV*	827,031.25
Mott Macdonald Limited	78,393.38
Pinnacle Media Group	420.00
PricewaterhouseCoopers	42,434.40
Stabler, Denise Ann	13,750.00
West Indian Marine Ltd	22,140.00
	1,069,875.28

*Civil Engineering Consultant was a contract that was executed prior to June 30, 2016, but the funds have not yet been disbursed.

No response was received as at the date of completion of this report to the Council's request for reasons for payment to a Department of Public Works employee.

5.6 EPF: Integrated Solid Waste Management Project (MHAHC)

Report provided to the NCC by Ministry of Home Affairs, Health and Culture in relation to expenditure from the 2015-16 EPF Appropriation EI53, via email. Amounts (unaudited) in CI$.

CI$1 million of the ISWMS appropriation was drawn-down from EI 53 and spent in 2015/16 FY. The Ministry of Health's annual report will provide details.

Council notes that the Foster Wheeler Landfill Site Environmental Review report on the Cayman Islands' landfills, which is described as a report following on from an environmental review of existing environmental information and initial risk assessment, and which provided a series of recommendations for targeted risk based environmental sampling and monitoring is available at http://ministryofhealth.gov.ky/sites/default/files/36082rr009i3.pdf

5.7 EPF: DOE Report - Marine Patrol Vessel

Report provided to the NCC by Department of Environment. Amounts (unaudited) in CI$.

2015-16 EPF Approved Capital Funding - DoE Patrol Vessel $180,000.00

Dept.	Vendor	Description	Final Cost
DoE Boat	Dusky Marine	Dusky 33 Open Fisherman + Shipping Fees	$79,803.17
DoE Boat	Compass Marine	Dusky Structure Alterations	$8,050.00
DoE Boat	Hybur Ltd.	Dusky Shipping	$8,994.75
DoE Boat	SAGC - Port Authority	Port Fees - Dusky	$322.54
DoE Boat	Cayman Power Sports and Marine	Suzuki Outboard Engines	$31,000.00
		Subtotal	**$128,170.46**

The Department of Environment have taken receipt of the boat and engines purchased and the structural alterations (side-access door) have been substantially completed (see photo).

Protecting the future of Cayman's heritage

Report to National Conservation Council – Environmental Protection Fund 2015-16

In the financial year ended June 30, 2016 the National Trust applied to the Cayman Islands Government for and received an appropriation of CI$200,000 to assist the Trust's Blue Iguana Recovery Programme (BIRP).

Funds were allocated as follows (amounts in CI$):

	Total for project $	*Expenses paid out to 30 June 2016 $*	*Balance to pay $*
QEII Botanic Park – Fencing of the Park perimeter - NT contribution	59,043	34,543	24,500
Colliers Wilderness Reserve – Visitor Centre	140,957	0	140,957
Total	200,000	34,543	165,457

QEII Botanic Park – Fencing of the Park

There were a number of fatalities due to dog attacks at the QEII Botanic Park this year. Consequently, a perimeter fence was commissioned to prevent further dog attacks on the free roaming population of Blue Iguanas. This project is being undertaken in collaboration with the QEIIBP which is contributing 50% to the total cost.

Fencing contractors: Abbott Thompson Fencing and Jordan Chainlink Fence.

Colliers Wilderness Reserve - **Visitor Centre**

The National Trust partnered with the Cayman Islands Department of Environment in an EU grant to establish a new protected area, the Colliers Wilderness Reserve, for the rapid recovery of the population of Grand Cayman Blue Iguanas (*Cyclura lewisi*). Colliers Wilderness Reserve serves to protect Grand Cayman's xerophytic shrubland ecosystem and is one of the island's key biodiversity habitats. This project included construction of key infrastructure to begin operating sustainable nature visitor activity in the Colliers Wilderness Reserve. Driveway, parking and a ground level walkway have been completed and now the Trust is finalizing the visitor assembly shelter with interpretative signage.

As at June 30, 2016 site plans and all drawings were being finalized by the architect and the Trust expects to commence site works shortly. Total cost to complete the project is estimated to be in the region of CI$200,000, which is significantly more than the funding assistance provided by the appropriation. The Trust will bear the excess of the cost.