Welcome to BioNews

BioNews is a monthly newsletter featuring results and implications from recent biodiversity research and monitoring on and around the six islands of the Dutch Caribbean as well as an overview of recent publications, current efforts and upcoming events.

For any questions or feedback, or if you would like to make a contribution, please contact us at research@DCNA.nature.org

Editor’s Notes

This month’s issue focuses on marine monitoring. The results of the 2013 lobster fisheries monitoring project on the Saba Bank are in and on Curaçao a sea turtle monitoring programme is developing in line with regional efforts. Monitoring with standardised protocols, using appropriate methods, guarantees the collection of comparable data and provides added value to our islands and the region as a whole.

Sea Turtle Conservation Curaçao

Six species of sea turtles are found in the waters surrounding the Dutch Caribbean islands with regular nesting activity occurring annually on the sandy beaches of Aruba, Bonaire, Curaçao, St. Eustatius and St. Maarten. Because sea turtles undertake remarkably long transboundary migrations and because they are slow to reach sexual maturity (20 – 30 years), they require significant international cooperation and long-term monitoring in order to best understand their population trends.

Once amazingly abundant, Caribbean sea turtles have seen a rapid decline since the time of European expansion in the Americas. Scientists estimate that in the 1600s, over 90 million Green Turtles were present the Caribbean seas. Today the number is estimated at a mere 300,000. Hawksbills have plunged 99.7% from 11 million to 30,000. Fishing gear entanglement, illegal harvesting, coastal development, marine pollution and climate change still remain serious threats to the recovery of global sea turtle populations.

Having been involved with sea turtle conservation for more than two decades, Sea Turtle Conservation Bonaire (STCB) has gained important knowledge and understanding not only of sea turtles ecology and biology, but also of best practices for conducting scientific research. STCB staff and volunteers are well-experienced in catching, measuring and weighing the animals while causing the least amount of stress, they know when and where to do beach patrols and they know how best to protect sea turtle nests.

Photo credits:
All photos courtesy of SHAPE Photography & B.S. & R.D. Kirkby unless otherwise credited.
Layout & Design: Robert Jan van Oosten.

Measuring sea turtles during the Sea Turtle Monitoring Workshop on Bonaire (May 2010)
Photo credit: Sea Turtle Conservation Bonaire (STCB)

Hawksbill turtle released during sea turtle workshop on St. Maarten.
Photo credit: Sea Turtle Conservation Bonaire (STCB)
After becoming an established organisation on Bonaire and widely respected within the regional sea turtle conservation community, STCB is actively sharing its knowledge in an attempt to strengthen and support sea turtle monitoring and conservation efforts on the other Dutch Caribbean islands. In addition to leading workshops on Bonaire with several visiting island conservation organisations, STCB recently visited St. Maarten to conduct an assessment of potential sea turtle feeding areas, providing important information to support the St. Maarten Nature Foundation in implementing appropriate and effective in-water monitoring efforts.

On Curaçao, 2013 brought increased sea turtle conservation and protection on the island with the establishment of four new Ramsar sites and the legal ban on destructive gillnet practices, which will come into effect in May 2014. Additionally, a dialogue between STCB and CARMABI began with the idea of developing and implementing a sea turtle nest monitoring programme on Curaçao using Bonaire as a model. In February 2014, Curaçao has officially taken the next step in the protection of the island’s charismatic and threatened sea turtles. Recent discussions between the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC), the Dutch Ministry of Economic Affairs, STCB, the Curaçaoan Ministry of Health, Environment and Nature and the Ministry of Foreign Affairs as well as CARMABI and Uniek Curaçao have led to a collaborative agreement to develop a monitoring programme to assess the health and status of Curaçao’s sea turtle populations. The aim is to initiate a beach patrol programme to monitor nesting activity of sea turtles on the Shete Boka beaches throughout the nesting season (May - December) and perform head count surveys of feeding sea turtles in one of the key feeding areas on Curaçao – Boka Ascension. The data collected will not only be used to determine the presence and species composition of sea turtles in Curaçao and identify trends over time, but will also contribute to a regional dataset that monitors Caribbean-wide sea turtle population trends and will allow Curaçao to properly manage this precious endangered species.

To learn more about or get involved with sea turtle conservation on Curaçao, contact the Ministry of Health, Environment and Nature, CARMABI or Uniek Curaçao.

Below you will find an overview of the research work underway in the Dutch Caribbean in February 2014.

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<tr>
<th>Category</th>
<th>Subject</th>
<th>Islands</th>
<th>Organisation: Lead Scientist</th>
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<td>Mammals</td>
<td>Invasive Vervet Monkey survey</td>
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<td>Mammals</td>
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<td>Birds</td>
<td>Pilot study of post-fledging survival of Yellow-shouldered Amazon Parrots</td>
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<td>Plants</td>
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<td>Seagrass beds assessment (extent, health impacts and threats)</td>
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<td>Invasives</td>
<td>Invasive seagrass colonisation, productivity and herbivory by sea turtles in Lac Bay</td>
<td>BON</td>
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<td>Socio-economic</td>
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<td>Ecosystems</td>
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<td>SAB</td>
<td>Adrian Delnevo</td>
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Don't see your research on this list? Email us: research@DCNA.nature.org
Below you will find an overview of the monitoring programmes for which fieldwork took place on the islands in February 2014. Please check our website for a complete overview of all long-term monitoring programmes that are in place in the Dutch Caribbean (www.dcnanature.org/resources/research-monitoring).

<table>
<thead>
<tr>
<th>Category Subject</th>
<th>Islands</th>
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</tr>
</thead>
</table>
| Mammals Marine mammal sightings | BON, SAB, EUX, SXM | BON: Martin de Graaf
STINAPA: Jessica Berkel |
| Mammals Bat abundance, distribution, reproduction and behaviour | ARU, BON | FFNA: Indra Zaandam
STINAPA Bonaire: Fernando Simal
CARMABI: Clifford de Lannoy |
| Birds Annual Yellow-shouldered Amazon parrot roost counts | BON | DRO: Frank van Slobbe
STINAPA: Fernando Simal |
| Birds Red-billed Tropicbirds diet composition | SAB | Adrian Delnevo and students |
SCF: Kai Wulf |
| Birds Red-billed Tropicbirds breeding success (and egg loss) | SAB, EUX | Adrian Delnevo
SCF: Kai Wulf |
| Birds Flamingo abundance (monthly counts) | BON | DRO: Frank van Slobbe
STINAPA Bonaire: Fernando Simal |
| Reptiles Sea turtle in-water surveys | SXM | Nature Foundation: Tadzio Bervoets |
| Reptiles Sea turtle foraging grounds monitoring | BON | STCB: Mabel Nava |
| Reptiles Sea turtle sightings | BON, EUX, SXM | IMARES: Martin de Graaf
STINAPA: Jessica Berkel |
| Fish Fisheries landings | BON, SAB, EUX | IMARES: Martin de Graaf
STINAPA: Malaysian Belin |
| Fish Shark tagging and migration | SXM | Nature Foundation: Tadzio Bervoets |
| Fish Shark observations by divers | SAB | IMARES: Martin de Graaf & SeaSaba |
| Molusks Queen Conch reproduction, distribution & abundance | SAB, EUX | IMARES: Martin de Graaf
SCF: Jimmy van Rijn
LVV: Erik Boman (St. Eustatius) |
| Crustaceans Lobster reproduction | EUX | IMARES: Martin de Graaf
SCF: Jimmy van Rijn
LVV: Erik Boman |
| Crustaceans Lobster larvae abundance | SAB, EUX | IMARES: Martin de Graaf
SCF: Jimmy van Rijn
LVV: Erik Boman |
| Plants Seagrass monitoring | SXM | Nature Foundation: Tadzio Bervoets |
| Plants Reforestation project on Klein Bonaire | BON | STINAPA: Elsmarie Reutenboom |
| Plants Phenology study of cyclical activity columnar cacti and agave (associated with ongoing bat monitoring programme) | ARU, BON | FPNA: Indra Zaandam
STINAPA Bonaire: Fernando Simal |
| Plants Phenology study of columnar cacti and native tree species on Bonaire | BON | STINAPA Bonaire: Paulo Bertool 
 & Fernando Simal |
| Plants Ongoing study of flora of Aruba, Bonaire and Curaçao | ARU, BON, CLJ | Naturalis/WUR: André van Proosdij |
| Terrestrial Biodiversity Habitat structure, composition, and diversity; remote and automated monitoring of invertebrates, mammals, birds, amphibians and reptiles | SAB | Adrian Delnevo
SCF: Kai Wulf |
| Invasives Lionfish abundance | ARU, BON, CLJ, SAB, EUX, SXM | STINAPA Bonaire: Ramon de Leon
CARMABI: Mark Vermeij
STINAPA: Jimmy van Rijn |
| Environmental Water quality in Simpson Bay Lagoon and Great Bay and ponds | SXM | Nature Foundation: Tadzio Bervoets with SLAC |
| Environmental Cloud forest monitoring of variable environmental parameters on Mt. Scenery, Windwardside and Fort Bay | SAB | SCF: Tom van ’t Hof & Kai Wulf |
| Geomorphological Beach profile change over time | BON, SAB, EUX, SXM | STINAPA Bonaire: Ramon de Leon
SCF: Kai Wulf |
| Human impact Diver visitation | BON, SAB, EUX, SXM | STINAPA: Jimmy van Rijn
BON: Martin de Graaf
Nature Foundation: Tadzio Bervoets |

1. As part of fisheries monitoring on Saba and St. Eustatius by Meike Scheidat and Martin de Graaf (IMARES).

Don’t see your monitoring programme on this list? Email us: research@DCNAnature.org
The decline of spiny lobster populations has become a significant environmental and economic concern within the Caribbean region, with total annual landings in decline since 1995. Although the lobster trap fisheries mainly target lobsters, shallow water reef fish like small groupers are also landed. If not properly managed, trap fisheries like any other type of fishery in the Caribbean may result in over-fishing and biodiversity loss and may even alter the ecosystem structure. Assessing the status of the lobster and reef fish population and the possible impact of the lobster trap fishery on the Saba Bank’s marine life is therefore vital to ensure the protection and sustainable use of the area’s natural resources.

The status of the Saba Bank’s Caribbean Spiny Lobster fishery and its effect on the Bank’s fish stock was the focus of a recent study by MSc Imke van Gerwen (2013). Her study is part of the Fish and Fisheries Research Programme that is being conducted on Saba, St. Eustatius and Bonaire under the supervision of Dr. Martin de Graaf of IMARES and Dr. Leo Nagelkerke of Wageningen University on behalf of the Ministry of Economic Affairs. Van Gerwen collected basic
fisheries data throughout 2012 and compared it to similar studies conducted in 2000 and 2007, as well as analysed biologically relevant data such as length frequency of the caught lobsters and reef fish, size at maturity of lobster and species composition of landed and discarded reef fish.

One of the main findings of the study is that the Saba Bank’s spiny lobster population may be showing signs of decline, following a similar trend to the rest of the Caribbean. While the number of lobster traps hauled per fishing trip has increased (from 59 to 80 between 1999 and 2012), the number of lobsters landed per trip has actually decreased (from 83 to 52 between 1999 and 2012). The total catch of lobster was estimated as 62 tonnes in 1999, 92 tons in 2007 and 38 tonnes in 2012. The high catch in 2007 was attributed to the higher number of estimated fishing trips in 2007 (1000) compared to 1999 (650) and 2012 (600). No obvious changes in fishing areas on the Saba Bank were observed during 1999-2012.

Of the 49 reef fish species recorded as landed catch, the most common were grunts (White Grunt, Cottonwick), small groupers (Red Hind, Coney) and Queen Triggerfish. Throughout 2012, eight to ten tonnes of mixed reef fish were landed, and an additional ten tonnes of mixed fish were discarded, mainly consisting of grunts, boxfishes and nurse sharks.

The study does, however, highlight some noteworthy achievements towards a more sustain-

able lobster fishery on the Saba Bank. A 2000 study of the Bank’s fisheries (Dilrosun, 2000. Monitoring the Saba Bank Fishery) found that there was a high percentage of under-sized and berried (carrying eggs) lobsters in the catch. Nowadays, a number of regulations are in effect, such as the required use of a biodegradable panel in traps to prevent ‘ghost-traps’, the ban on landing berried lobsters, and the establishment of a legal size limit for landed lobsters.

This 2013 study found that compliance to these regulations is high as the number of under-sized lobsters in the catch has decreased, and practically no berried lobsters and lobsters in ecdysis (moulting phase) are brought in. Furthermore, the mean size of landed male and female lobster showed that predominantly large, mature lobster are landed, well above the minimum legal size of 95 mm carapace length.

To ensure that fishermen, wholesalers, restaurants and consumers can continue to benefit from harvest of Caribbean Spiny Lobster in a sustainable way without endangering the Bank’s marine life, status of lobster and reef fish populations will be closely monitored, assessment models will be developed to determine the stock status and, if required, additional rules and regulations may be implemented.

“Ghost-traps” refer to traps that have been left or lost in the ocean by fishermen, for example due to storms or passing boats, and continue to catch fish and lobster, creating an endless fishing mechanism.
The results of the research “What is St. Eustatius’ Nature Worth?” demonstrate that nature of St. Eustatius is worth $25 million per year and contributes enormously significantly to the wellbeing of its people. Over a 1,000 people including local residents, tourists and citizens of the Netherlands took part in this research. Development scenarios such as livestock management, agricultural development, and tourism expansion were assessed on their profitability. The research programme TripleP@Sea presents the research topics that support the island of St. Eustatius in its development of sustainable food production, expansion of the tourism sector and land-use scenarios. The provision of a toolbox for sustainable development of tropical islands is the focus point of this four-year project with seven PhD tracks.

The results of both projects provide excellent input and rational for the development of the St. Eustatius Nature Policy Plan. During the workshop further steps will be taken in the development of the Nature Policy Plan, which should specify the policy necessary to ensures long-term social and economic values that are provided by St. Eustatius’ natural resources.

You are invited to discuss the sustainable development of St. Eustatius!

Content:
Presentation of the results of What is St Eustatius’ Nature Worth?, kick-off of the St. Eustatius Nature Policy Plan and introduction of the project TripleP@Sea.

When and where:
CNSI building, St. Eustatius, April 23 2013 from 8:00 a.m.

Organisers:
VU University Amsterdam and WKICS (What is St Eustatius’ Nature Worth?); Wageningen UR (TripleP@Sea)

Contact:
Stijn Schep (Stijn@wkics.com) for What’s St. Eustatius’ Nature Worth?
Diana Slijkerman (Diana.slijkerman@wur.nl) for TripleP@Sea
Reports and Publications

Below you will find an overview of the reports and publications on biodiversity related subjects in the Dutch Caribbean that have recently been published. The listed publications can be downloaded from the Dutch Caribbean Biodiversity Database (DCBD) - www.dcbd.nl/resources


Lang, M.A.; Sayer, M.D.J. eds. (2013)

Containing the following relevant articles:
• Ali, F; Collins, K; Peachey, R.B.J. (2013) The role of volunteer divers in lionfish research and control in the Caribbean. pages 7-12.

Loh, T.; Pawlik, J.R. (2014)


List of Acronyms

ARU Aruba
BON Bonaire
CUR Curaçao
SAB Saba
EUX St. Eustatius (Statia)
STINAPA Stichting Nationale Parken Bonaire
SXM St. Maarten

CaMPAM Caribbean Marine Protected Areas Management
CARMABI Caribbean Research and Management of Biodiversity Foundation
CBD Convention on Biological Diversity
CIEE Council on International Educational Exchange
DCBD Dutch Caribbean Biodiversity Database
DCNA Dutch Caribbean Nature Alliance
DRO Directorate of Spatial Planning and Development, Bonaire
EPIC Environmental Protection In Caribbean
EEZ Exclusive Economic Zone
FPNA Fundacion Parke Nacional Antil<br>
IMARES Institute for Marine Resources and Ecosystem Studies
IUCN International Union for the Conservation of Nature
IMO International Maritime Organization
IVC Venezuelan Institute for Scientific Research
LVV Department of Agriculture, Animal Husbandry and Fisheries
Min EZ Ministry of Economic Affairs
NBC Naturalis Biodiversity Center, Leiden, the Netherlands
NIOZ Royal Netherlands Institute for Sea Research, The Netherlands
SCF Saba Conservation Foundation
SLAC Simpson Bay Lagoon Authority Corporation, St. Maarten
STCB Sea Turtle Conservation Bonaire
STENAPA St. Eustatius National Parks
STINAPA Stichting Nationale Parken Bonaire
TEEB The Economics of Ecosystems and Biodiversity
UoS University of Sheffield, UK
VU Amsterdam University, the Netherlands
WIDECAST Wider Caribbean Sea Turtle Network
WKCS WolfsKater International Consultancy Services B.V.
WUR Wageningen University and Research Center, the Netherlands
UoB University of Bristol, UK
UoS University of Sheffield, UK
VU Amsterdam University, the Netherlands
WIDECAST Wider Caribbean Sea Turtle Network
WKCS WolfsKater International Consultancy Services B.V.
WSNP Washington Slagbaai National Park
WUR Wageningen University and Research Center, the Netherlands
Calendar

_BioNews provides you with an overview of nature conservation and management related events coming up in the next months._

**March**

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<th>Date</th>
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<td>17 - 21</td>
<td>Conference World Climate Research Program Conference - Latin America &amp; Caribbean: Developing, Linking and Applying Climate Knowledge - Montevideo, Uruguay</td>
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<td>17 - 19</td>
<td>Meeting DCNA Board Meeting - St. Eustatius</td>
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<td>18</td>
<td>Event National Bird Count - Aruba</td>
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<td>19</td>
<td>Meeting Fisheries Committee meeting - St. Eustatius</td>
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<td>20</td>
<td>Meeting EEZ Committee meeting - St. Eustatius</td>
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<td>24 - 28</td>
<td>Meeting 47th Meeting of the Ramsar Standing Committee - Gland, Switzerland</td>
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<td>26 - 28</td>
<td>Meeting 15th Session Western Central Atlantic Fishery Commission (WECAF) - Port of Spain, Trinidad</td>
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<tr>
<td>31 - 4</td>
<td>Workshop GEF/UNEP/CABI Workshop “Policies, Strategies and Best Practices for Managing Invasive Alien Species in the Caribbean” - Port of Spain, Trinidad</td>
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**April**

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<td>7 - 11</td>
<td>Symposium Mangrove Symposium. Annual Meeting of the Western Division of the American Fisheries Society - Mazatlan, Mexico</td>
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<td>8 - 9</td>
<td>Meeting Wider Caribbean Sea Turtle Network (WIDECAST) annual meeting</td>
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<td>9 - 12</td>
<td>Meeting 2nd Convention on Biological Diversity (CBD) Dialogue Seminar on Scaling up Finance for Biodiversity - Quito, Ecuador</td>
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<tr>
<td>10 - 17</td>
<td>Meeting 34th Annual International Symposium on Sea Turtle Biology and Conservation - New Orleans, Louisiana (USA)</td>
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<tr>
<td>21 - 25</td>
<td>Event STINAPA Bonaire Junior Rangers Exchange with Saba Conservation Foundation (Bird and fish monitoring) - Saba</td>
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<tr>
<td>23 - 24</td>
<td>Meeting UNEP-CEP Meeting on Scenarios for Transboundary Marine Mammal Management in the Wider Caribbean - San Juan, Puerto Rico</td>
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<tr>
<td>24 - 25</td>
<td>Event Opening of the Caribbean Netherlands Science Institute (CNSI) - St. Eustatius</td>
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<td>28</td>
<td>Event Caribbean Endemic Bird Festival - St. Eustatius</td>
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<tr>
<td>28 - 8</td>
<td>Meeting 27th Meeting of the CITES Animals Committee, 21st Meeting of the CITES Plants Committee and Joint AC/PC Session - Veracruz, Mexico</td>
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**May**

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<tr>
<td>5 - 8</td>
<td>Workshop Wetland Education Workshop - Bonaire</td>
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<tr>
<td>6 - 7</td>
<td>Workshop “Towards the creation of a strategy for the control of lionfish in the Mesoamerican reef” - Guatemala City, Guatemala</td>
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<tr>
<td>6 - 9</td>
<td>Conference 33rd Session FAO Regional Conference for Latin America and Caribbean - Santiago de Chile, Chile</td>
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<tr>
<td>12 - 14</td>
<td>Workshop Workshop on “Invasive Alien Species management strategies” - Saint Martin</td>
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<tr>
<td>14</td>
<td>Conference World Coral Reef Conference - Manado, Indonesia</td>
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<tr>
<td>19 - 23</td>
<td>Meeting NetBiome CSA meeting - Canary Islands, Spain</td>
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<tr>
<td>26 - 30</td>
<td>Conference 39th Annual Conference of the Caribbean Studies Association - Mérida, Mexico</td>
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**June**

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<tr>
<td>2 - 6</td>
<td>Symposium 2nd Sharks International Symposium 2014 - Durban, South Africa</td>
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<tr>
<td>3 - 5</td>
<td>Meeting 7th Meeting of the Consultative Committee of Experts of the Inter-American Sea Turtle Convention (IAC) - Tampa, Florida</td>
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<tr>
<td>23 - 27</td>
<td>Meeting 18th Meeting of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) - Montreal, Canada</td>
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**July**

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<tr>
<th>Date</th>
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<tr>
<td>TBD</td>
<td>Meeting SPAW Scientific and Technical Advisory Committee (STAC) meeting - Cuba</td>
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<tr>
<td>2 - 4</td>
<td>Conference 38th Annual Conference of the Society for Caribbean Studies - Glasgow, Scotland, UK</td>
</tr>
<tr>
<td>7 - 11</td>
<td>Meeting 65th Meeting of the CITES Standing Committee - Geneva, Switzerland</td>
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**DCNA Contact Information**

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If you do not wish to receive future issues of BioNews, or if you have suggestions of colleagues you would like us to add to our mailing list, please contact us on research@DCNAnature.org