

Exploring the Saba Bank

Please check the References and Publications on page 38 to find an overview of the publications which are the result of these expeditions.

1968-1969

R/V Oregon, R/V Pillsbury, R/V eastward Caribbean Cruise E- 33D-70/71
Small samples of fish and possibly other organism have been collected by passing research vessels.

1999

AGRRA expedition

Less than two weeks after hurricane Lenny, the reefs of the Windward islands were surveyed using the Atlantic And Gulf Rapid Reef Assessment (AGRRA) with modifications to detect impacts by hurricane Lenny. Three sites on the Saba Bank were examined and stony coral cover of 11, 26 and 41% was reported, mainly *Montastraea annularis faveolata* (23%). Windward islands were largely influenced by hurricanes; around 1% of all the individually surveyed colonies were physically damaged and >23% was bleached with lowest percentage occurring on the Saba Bank (9%).

1972

CICAR Expedition

The first recorded expedition to the Saba Bank was in May and June of 1972 aboard the Dutch Royal Navy vessel, HMS Luymes. Collections of the benthos were made by hand using Dutch Naval divers. Twenty-five sites were sampled spanning the length and breadth of the Saba Bank. Collections included 37 species of stony corals.

2006

Conservation International expedition In January 2006, Conservation International financed a Rapid Assessment of the Saba Bank. Surveying 17 sites the expedition confirmed the high species richness on the bank and identified many species of fish, coral, sponges and macro-algae. On average researchers found one new species a day including two new species of goby, one new to science, and more than a dozen new species of macro algae as well as previously undocumented macro algal assemblages. As a result of this work Conservation International declared the Saba Bank a Biodiversity Hot Spot.



1989

Corwith Cramer Cruise C-103

During this expedition a depth Recorder profile and sediment sample transect lines were completed.

2007

Royal Dutch Navy, MINA, Harte Research Institute, Conservation International (CI), and Saba Conservation Foundation

An expedition in October 2007 focused on octocorals as well as surveys of fish and conch. Two new species of gorgonian were discovered and for the first time monitoring included surveys for crustacean as well as some ROV deep water exploration. The expedition was used to ground truth a high-resolution bathymetric map based on 2006 survey data from the Dutch Hydrographic Service. Results from all expeditions so far plus a six month survey of fisheries, ship traffic and biodiversity out of Saba, formed the basis for the Saba Bank Special Marine Area Management Plan 2008 (Lundvall, 2008).

1996

Netherlands Antilles Department of Environment (MINA) survey

A first quick field survey of the Saba Bank was commissioned by the Netherlands Antilles Department of Nature and Environment in 1996. The expedition focused on the central and eastern part of the Saba Bank and surveyed approximately 1.8% of the total area. Researchers concluded that the Saba Bank is a regionally unique and relatively pristine ecosystem with high biodiversity and productivity. The survey noted a high abundance of apex predators, which are generally considered good indicators of a healthy ecosystem.

2010

CARIBSAT expedition, M.V. Caribbean Explorer

In November 2010, a team of eight scientists and conservation practitioners came together for a mapping expedition to the Saba Bank with the M.V. Caribbean Explorer. This was part of a joint project called CARIBSAT, between Martinique, Saba and Bonaire, to find ways to use satellite images to map the benthic communities and included data collected from 200 video camera drops. The expedition found that the health of the reefs of the Saba Bank had deteriorated since the first observations in 1972, 1996, and 2002. The general impression was that the Bank is still recovering from the 2005 bleaching disaster, but there is not enough data to exclude other reasons (e.g. overfishing, anchor damage, hurricanes).

2011

IMARES expedition aboard Caribbean Explorer

The October 2011 research expedition aimed to collect data on benthic and reef fish communities; sponges and nutritional sources of the sponge community; seabirds and marine mammals; water quality, water velocity and other physical parameters. A multidisciplinary team conducted video and visual surveys of the benthos, fish and sponges at ten sites, while sea birds and marine mammals were surveyed by means of on-board visual surveys and acoustic data loggers. The first passive acoustic monitoring sensor (noise logger) for marine mammals was placed on the Saba Bank. Water velocity and water quality were also measured on-board. During the expedition 8 sponge species were collected and 37 scleractinian coral species and 85 fish species were identified. Most frequently sighted seabirds were the Brown Booby and Magnificent Frigatebird.

2013

IMARES expedition

An international team of marine biologists collected data on benthic communities at 11 study sites, recording fish abundance and size, reef structural complexity, coral-algal interactions, water quality and connectivity. A preliminary comparison with data from 2011 showed a reduction in snappers, groupers, and grunts, whilst there were noticeably more sharks. Fewer algae were recorded on the bank, possibly indicating a healthier reef, though there appeared to be a gradient with algal cover increasing towards the island of Saba. The expedition was filmed by Mouissie Corporation and broadcast as part of a series on marine life for National Geographic.

2015

IMARES / NIOZ joint expedition aboard Caribbean Explorer

In October 2015 fourteen researchers visited 11 sites on the Saba Bank to continue benthic and fish monitoring as well as to look at productivity. Particular attention was paid to sponge communities. Other areas of the bank were also monitored using camera drops. Research teams diving at sites with a flat bottom, small low growing reefs and a substrate that was partly unconsolidated recorded 18 coral species one of which was new to science (*Meandrina danae*). Together with earlier expeditions this brings the total confirmed number of stony corals on the Saba Bank to around 40 species which includes four unattached, free living varieties of coral (coralliths). These were found by roving divers at a depth of 15-20 meters. One of the conclusions of this expedition was that the Saba Bank includes unique wave-swept habitats, which support free-living corals so far not reported from any other sites.

2016

NIOZ expedition aboard R.V. Pelagia

In August and September, a group of scientists from NIOZ, University of Wageningen and others surveyed 30 sites on the Saba Bank to investigate how environmental conditions are impacting coral reef ecosystem function on the Saba Bank. This work is part of an NWO funded project entitled "Caribbean Coral Reef Ecosystems - interactions of anthropogenic ocean acidification and eutrophication with bio-erosion by coral excavating sponges". Researchers want to gain a better understanding of the hydrography of the Saba Bank and to determine if net ecosystem calcification is occurring. In other words is the Saba Bank growing or eroding and which factors can explain these processes.

2016

DCNA Shark Tagging expedition aboard the Caribbean Explorer

In October 2016 as part of a three year long "Save our Sharks" project the Dutch Caribbean Nature Alliance ran a shark tagging expedition to the Saba Bank. Drum lines were used to catch a total of 22 sharks: sixteen Caribbean reef sharks and six adult Tiger sharks (*Galeocerdo cuvier*). All were fitted with Passive Integrated Transponder (PIT) tags. Four of the tiger sharks were additionally fitted with SPOT satellite transmitting devices, which will be used to track the sharks movements for up to four years via the ARGOS satellite tracking system.

2016

Waitt Institute expedition aboard M.V Plan B

The Saba Bank was included in a Waitt Institute's research voyage to the Dutch Caribbean Windward Islands to collect standardized information on the status of the reefs. The surveys were conducted using GCRMN monitoring protocols in addition to new efforts in large-area reef imaging using photography and advanced image post-processing to create photo-mosaic images of the reefs.

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Shark tagging expedition 2016