

13 Years of Reef Check Reef Monitoring at Red Sea Diving Safari, Egypt



Standardized and comparable data on the condition of coral reefs worldwide are an essential basis for counteracting the decline of reefs.



This poster presents a local reef monitoring program, launched by Red Sea Diving Safari (RSDS) and Reef Check team scientist Stephan Moldzio in 2009. Annual Eco Diver courses and Reef Check surveys are being conducted to monitor the condition of the main dive sites.



The Course

The REEF CHECK method is learned through a combination of theory lessons and practical exercises. The course includes presentations, a beach exercise on land, exercises in the water, tests and certification and lasts four days. On the fifth day, a complete survey is conducted at two depths, where the collected data is entered into the Reef Check database. Diver with Reef Check Eco-Diver Certificate can participate in Reef Check Surveys in the Indo-Pacific region and thus collect scientific data. As an alternative to the Eco-Diver courses, there are also half-day courses, called "Discover Reef Check".



During the 4-day course, participants learn and practice the Reef Check (RC) methodology on land as well as under water and practice the identification of various indicator organisms.

After the course, five RC surveys are conducted annually on different reefs. In addition to the newly certified course participants, RC Eco Divers from previous years also join on a regular basis..

The determined data is submitted to the RC headquarters and are being included in the international database <https://www.reefcheck.org/global-reef-tracker/> which to date contains 14,817 survey data records of 5,447 reefs in 101 countries and territories (as of June 2022). The data is publicly available and will be used for scientific publications, including the latest global report of the GCRMN "Status of coral reefs of the world 2020" <https://gcrmn.net/2020-report/>.

RSDS has been a pioneer in eco-tourism for 30 years and invites its guests to participate in various workshops, reef checks, research activities and environmental activities, or to experience Egyptian nature and culture at first hand on excursions with the local Bedouins.

The house reefs are actively protected, which is reflected in the abundance of corals and fish in general, so that many regular guests return.

With its comprehensive environmental concept, RSDS is emphatically committed to the protection of reefs and mangroves, recycling management, resource efficiency and the gradual switch to renewable energies and cooperates with various environmental organizations, the Egyptian national parks and other initiatives.

We believe this is a best practice example of sustainable ecotourism that protects the reefs and natural resources, collects data on the condition of the reefs, raises awareness, supports the local population and culture, and provides a sustainable source of income for the local population.



Fish

During the fish survey different fish families, as well as three individual species are counted in a 5 m wide and 5 m high "tunnel-transect", as indicators for overfishing, respectively the trade with marine fish. If a reef is overfished, the survey will most likely include fewer large fish such as groupers, snappers, etc. than in an unfished reef in a protected area.



Invertebrates

The invertebrate survey looks for nine groups of invertebrate indicators, most of which hide deep in the reef during the day, and the numbers of reef clams are also recorded by size classes. They also provide information on overfishing (lobsters, reef clams, sea cucumbers), the souvenir trade (triton shell, pencil sea urchins), the aquarium trade (coral shrimp), or shifts in the food web (sea urchins, crown-of-thorns starfish).



The Survey

During the surveys, a 100 m transect line is used along the reef and the frequency of certain indicator organisms, substrate categories or human influences is recorded. Three Buddy Teams conduct a survey along this line for fish, substrate and invertebrates/human influences, and record the data on underwater charts. The "Reef Check" indicator groups are selected to provide the best possible information about the health status of a reef, especially with regard to human influences such as overfishing, coral breakage, over-fertilization, garbage and coral bleaching.



Human Influences

Within the framework of the invertebrate surveys are also carried out to record various human influences, such as physical damage to corals by divers, boats or even dynamite fishing, as well as plastic waste, discarded fishing nets and broken fishing lines. Also coral bleaching, coral diseases and feeding damage caused by crown-of-thorns starfish or coral eating snails are recorded.



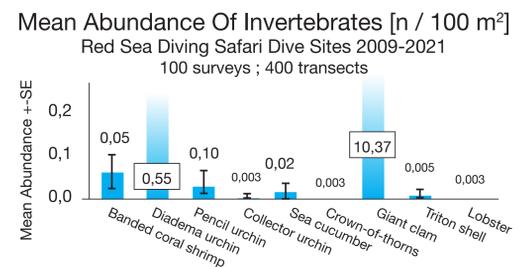
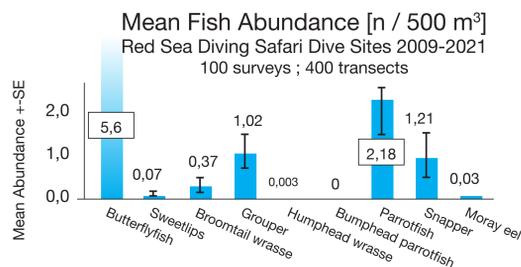
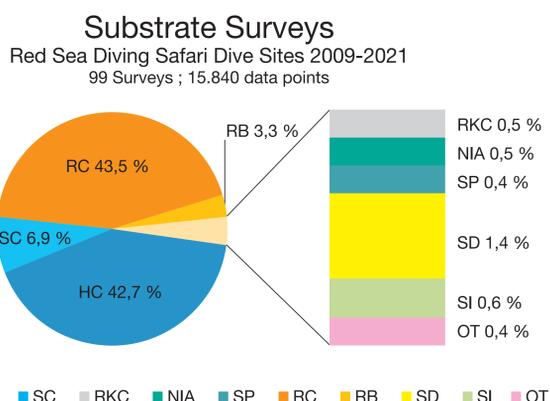
Substrate

The substrate survey captures different substrate categories, 160 data points per depth contour. The degree of hard and soft coral cover is an important measure of the health of a reef. When a reef is damaged, the coral cover usually decreases, combined with a decrease in biodiversity. If there is an imbalance within the ecosystem, or if eutrophication/sewage is a problem, algae can displace the corals and prevent the re-settling of coral larvae. However, there is a high variability in coral cover, as it also depends on natural factors - for example, reef topography.



Sightings outside the transect

Representatives of the megafauna are also registered if they are sighted outside the transect, before or after the survey. Their presence is also an indication of an intact ecosystem.



The Data

Reef Check is "Citizen Science" and includes marine scientists and volunteers; it is the largest coral reef monitoring Organization worldwide. Reef Check data from all over the world are collected in an international database and is statistically evaluated. Since Reef Check is a standardized method, the data can be compared worldwide and show changes in the health status of the reefs.

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