Alphonse Foundation
SEYCHELLES

Help us to preserve the Alphonse Group for generations to come...

NOVEMBR 2019

The Alphonse Group of Islands

Situated only 7˚ south of the equator and 400km (250 miles) south-west of Mahé in the Seychelles, the Alphonse Group of Islands hold outstanding biological treasures that deserve to be preserved. The magnificent island threesome of Alphonse, St François and Bijoutier Islands lies in the very heart of the Indian Ocean as part of the Seychelles outer islands.

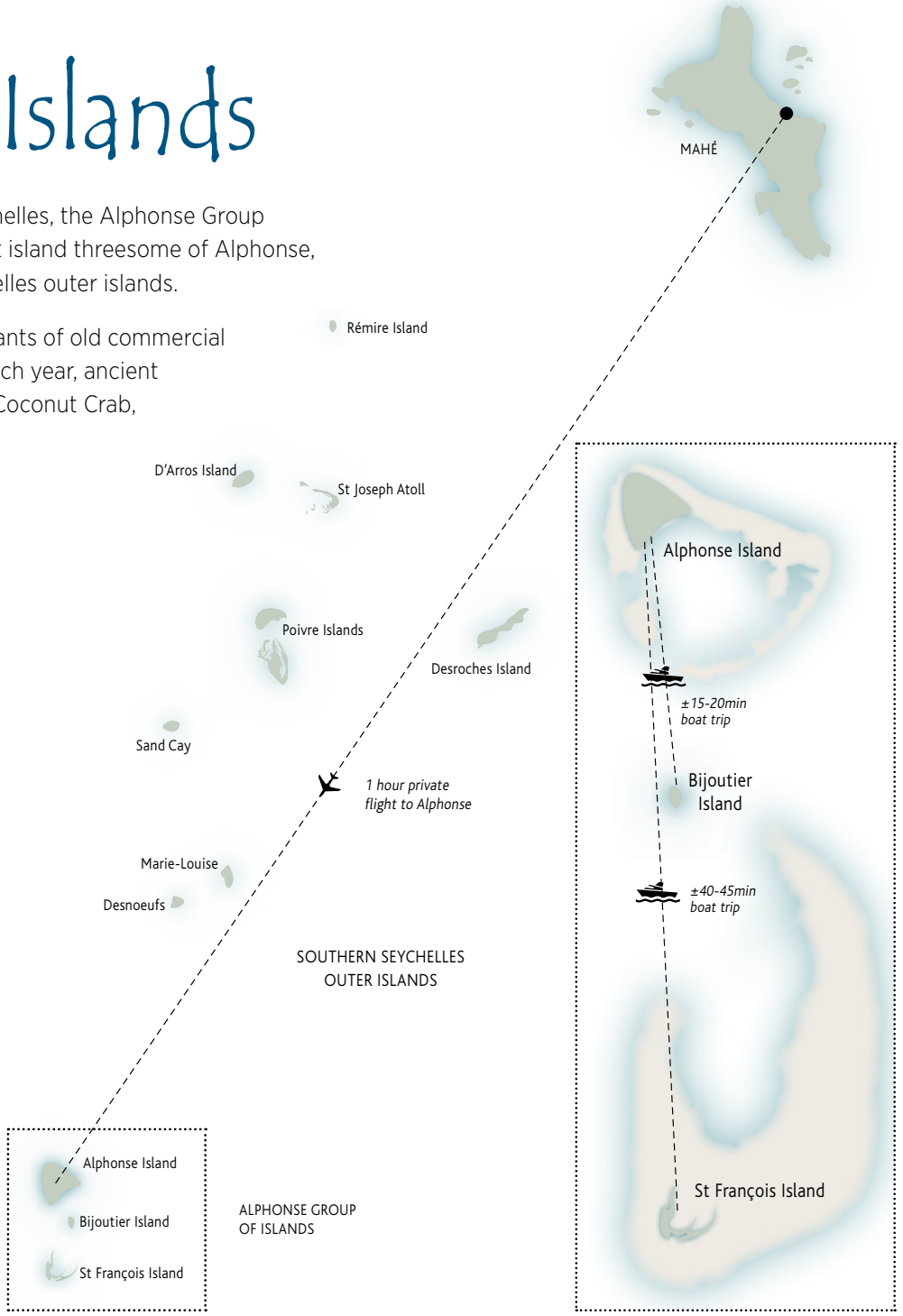
Beautiful white beaches line the edges of the dense natural forest, interspersed with the remnants of old commercial coconut groves and patches of native broad-leaved trees. Here marine turtles lay their eggs each year, ancient ambling tortoises, scurrying ghost and hermit crabs, the biggest crab of the world, the native Coconut Crab, and an interesting array of bird species offer unforgettable experiences to fortunate visitors.

Coconut Crab (*Birgus latro*)

Aldabra Giant Tortoise (*Aldabrachelys gigantea*)

Alphonse Atoll is adjacent to, but separated from St François Atoll by a deep channel called Canal de Mort.

Alphonse Atoll has one island, Alphonse Island, which is a triangular-shaped sand cay situated on the northern rim of the atoll. The St François Atoll, situated c.2km to the south of Alphonse Atoll, has three islands; St François Island, Bijoutier and One Palm. The atolls are considered a part of the Amirantes group, but are separated from the Amirantes bank by a channel, 87km wide and 3000m deep.



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MISSION

Alphonse Foundation is a Seychelles Registered Association bringing together ICS, IDC, AIL and the Seychelles Ministry of Environment to work together for the conservation, rehabilitation and enhancement of Alphonse and St François Atolls ecosystems in harmony with sustainable, low impact human development and eco-tourism.

Island Conservation Society (ICS) is a Seychelles registered NGO which was established in April 2001, with the objective to promote the conservation and restoration of island ecosystems, sustainable development of islands, and awareness of their vulnerability and vital importance to the planet's biodiversity. ICS is a member of the International Union for Conservation of Nature (IUCN).

Islands Development Company (IDC) is a parastatal company that was registered in April 1980 and has been entrusted with the management and development of the outer islands owned by the Government of the Seychelles. IDC is committed to working towards ensuring that development activities are done in a sustainable manner and to continuously support environmental conservation and protection of species and ecosystems of the outer islands of the Seychelles.

Alphonse Island Lodge (AIL) operate the only tourist resort in the Alphonse group. Since taking over the existing infrastructure in September 2013, AIL has increased guest numbers while working to minimize the environmental impact of any changes. AIL have contributed significant funds to the Alphonse Foundation to help numerous projects. Conservation programmes are implemented by Island Conservation Society which has resident staff on Alphonse Island and all programmes are managed by the ICS Head Office based on Mahé.

Sustainable development is the pathway to the future we want for all

Conservation is something held very close to the hearts of everyone on Alphonse Island. Alphonse is committed to protecting the unique fauna and flora of the area with ongoing research, rehabilitation and monitoring programs, focusing especially on sea turtles, seabirds, giant tortoises, sensitive marine habitats, forest rehabilitation and birds, such as the Shearwater. This dedication to conservation has at all times been at the centre of the mission to create an exclusive island that is intimately connected to the natural environment. AIL provides support through its membership on the board of the Alphonse Foundation and resort guests contribute essential funding to the activities of ICS through a conservation donation. ICS offers a weekly presentation which provides progress and discussion of environmental topics for guests on the island.

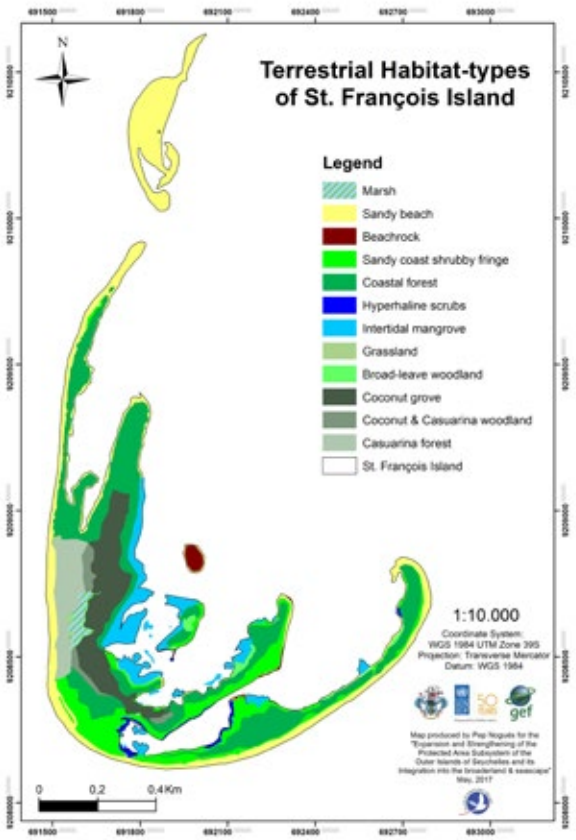
The Alphonse Group Conservation Centre was established in February 2007 out of an agreement between the Partners of the Foundation.

Alphonse Island Lodge, **Islands Development Company** and **Island Conservation Society** have come together to form the Alphonse Foundation to manage and execute strategies and projects to protect our species and environment through means of public funding.

Native Vegetation Rehabilitation

The Portuguese discovered Alphonse Atoll, nearby Bijoutier and St François Atoll in the 16th Century, naming the group San Francisco. In 1730, the French gave the islands their current names. After 1770, settlers were sent to Alphonse to establish plantations of maize or cotton, so presumably the native vegetation was somewhat impacted even in those early days.

Alphonse was a particularly fertile island, due to deposits of guano left by huge colonies of seabirds in the past and between 1925 and 1955 over a million coconuts were harvested annually.



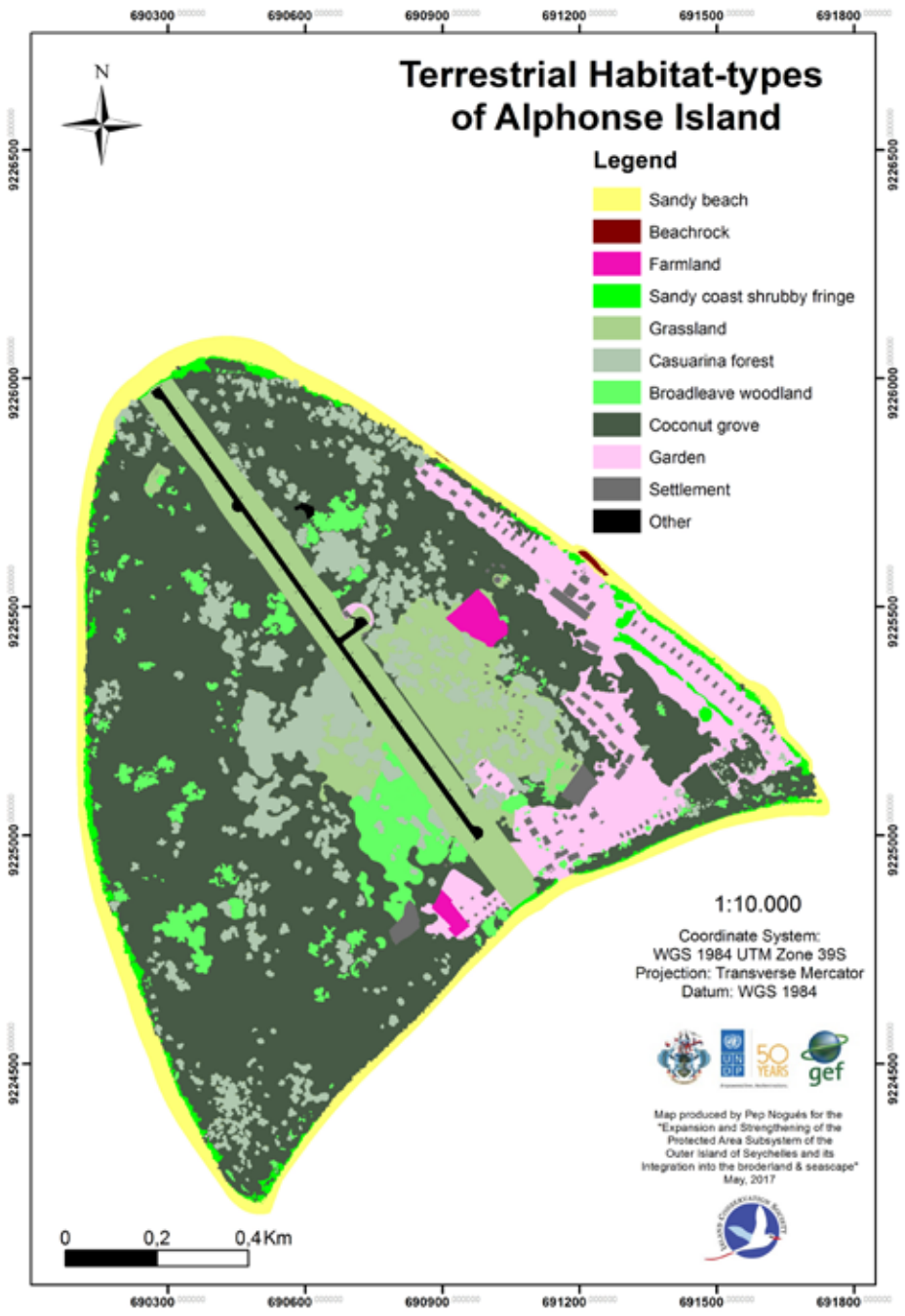
Red Mangrove (*Mangliye Rouz*)

When IDC took over management of the island in 1983, the intention was to continue coconut production and develop crop and animal farming, tourism and timber production. But increasing labour and transport costs made agriculture unviable and only tourism was developed, after the construction of a runway at the end of 1999.

Today, abandoned coconut plantations cover much of Alphonse and St François Islands, with casuarina and scrubland dominating the remainder of the islands. Stands of broad-leaf tree species are evident and scattered over the island with a native coastal vegetation fringe along much of the coastline. St François embraces the only Mangrove forest of the Group, that serves many important functions, including water filtration, prevention of coastal erosion, coastal protection from storms, carbon storage, and biodiversity protection.

THE MAIN NATIVE SPECIES ARE:

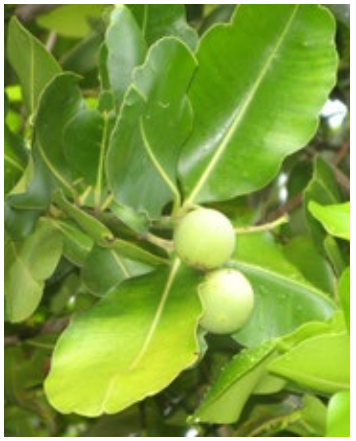
- Mangliye Rouz (*Rizophora mucronata*)
- Vouloutye (*Scaevolataccada)*
- Bwataba (*Tournefourtia argentea*)
- Bwakasan Bordmer (*Guettarda speciosa*)
- Takamaka (*Calophyllum inophyllum*)
- Bwablan (*Hernandia nymphaeifolia*)
- Bwatorti (*Morinda citrifolia*)
- Porse (*Cordia subcordata*)
- Bonnenkare Bordmer (*Barringtonia asiatica*)
- Bwamapou (*Pisonia grandis)*
- Bwasousouri (*Ochrosia oppositifolia*)
- Bodanmyen (*Terminalia catappa*)



Native Species

Bwa Torti (*Morinda citrifolia*)

Bwa Taba (*Tournefourtia argentea*)



Takamaka (*Alexandrian laurel*)

ICS provides technical support to IDC for the implementation of the rehabilitation of native vegetation ecosystems, the reparation of degraded terrestrial ecosystems impacted by sustainable activities and the prevention and control of invasive alien species.

AIL is responsible for its own landscaping, which adheres to set biosecurity protocols in terms of what species can and cannot be planted, in order to avoid introducing non-native and potentially invasive species of plants, animals or pathogens.

Plant for Tourism

Islands are global diversity hotspots. The interaction between native plant and animal components is essential to the maintenance of a healthy ecosystem.

Visitors learn about the vegetation rehabilitation on the island while walking in the native forests, visiting our native plant nursery and planting an indigenous tree.

Aldabra Giant Tortoise

Giant tortoises naturally are only found in the Seychelles and the Galapagos Islands.

The Aldabra giant tortoise is an iconic species for Seychelles, reaching curved carapace lengths of over 150 centimetres and weights of over 250 kilograms in adult males. These gentle giants have been known to live at least 160 years in the Seychelles. The Aldabra tortoise is the longest living animal on Earth.

In the 19th Century Charles Darwin recommended protection of the tortoises of Aldabra Atoll, this being one of the first species in history to be offered special protection for its survival.

FUN FACTS

In April 2016, six female and three male giant tortoises were transferred from Mahé to Alphonse Island on a four day journey on board the IDC barge, Enterprise II.

These tortoises were taken to Mahé off Aldabra 40 years ago and were kept in captivity for the duration of their time on Mahé.

FRENCH NAME:
Tortue Géante d'Aldabra

CREOLE NAME:
Torti Zean / Tortidter

SCIENTIFIC NAME:
Aldabrachelys gigantea

IUCN RED LIST STATUS:
VULNERABLE

When humans first discovered Alphonse Island there were no giant tortoises recorded. An Unknown number was introduced prior to 1954 and 15 animals of unknown origin were present on Alphonse during 1954–1959.

By 2010 only 25 Tortoises were remain on Alphonse. In 2016, nine adults and 15 juveniles were introduced to the island by ICS. Today, 76 tortoises roam freely on the island and contribute to improving the genetic diversity of the Alphonse tortoise population.

All the tortoises on Alphonse Island have been specially microchipped to allow ICS to effectively monitor the population size and study the movement patterns, behaviour, growth and survival of individuals.

Seabirds & Waders

Early accounts such as that of Captain Fairfax Moresby who, after visiting Alphonse in 1821, wrote that Alphonse along with other outer islands hosted millions of seabirds that build nests on the Bwamapou and other dwarf trees which cover the surface of the islands.

Crab Plover (*Dromas ardeola*)

Greater Frigatebird (*Fregata minor*)

Red-footed Booby (*Sula sula*)

Today, only five species of seabirds breed in the Alphonse Group. These are:

- Wedge-tailed Shearwater (*Puffinus pacificus*)
- Fairy Tern (*Gygis alba*)
- Brown Noddy (*Anous stolidus*)
- Black-naped Tern (*Sterna sumatrana*)
- White-tailed Tropicbird (*Phaethon lepturus)*

Common species roosting seasonally in the Alphonse Group:

- Red-footed Booby (*Sula sula*)
- Greater Frigatebird (*Fregata minor*)
- Lesser Frigatebird (*Fregata ariel*)
- Lesser Noddy (*Anous tenuirostris*)
- Greater Crested Tern (*Sterna bergii*)
- Saunders's Tern (*Sternula saundersi*)

The Alphonse Group is an Important Bird Area (IBA) for these species:

- Crab Plover (*Dromas ardeola*)
- Ruddy Turnstone (*Arenaria interpres*)
- Black-naped Tern (*Sterna sumatrana*)
- Saunders' Tern (*Sterna saundersi*)

WHERE DO RED-FOOTED BOOBIES GO TO BREED?

Research began in 2017 to track the movements and activity patterns of Red-footed Boobies that roost in spectacular numbers on St François Island. The discovery in 2016 highlighted that the population of the Malagasy region might have been underestimated. There are records of activity patterns in the region, where immature birds tend to widely disperse outside of the breeding season and frequent some non-breeding islands which is the case of the Alphonse Group. The project aims to use satellite tracking devices to determine these birds go when they are not found in the Alphonse Group. This will enable the appropriate conservation measures to be taken to help safeguard their roosting habitat.

Wedge-tailed Shearwater (*Puffinus pacificus*)

Fairy Tern (*Gygis alba*)

Brown Noddy (*Anous stolidus*)

Black-naped Tern (*Sterna sumatrana*)

White-tailed Tropicbird (*Phaethon lepturus*)

Sea Turtles

Four species of sea turtles frequent the waters of the Seychelles and two species, namely green and Hawksbill turtle, use our islands as their breeding grounds.

ICS conducts monitoring activities to assess status and trends of turtle nesting populations and foraging aggregations, and to identify critical nesting and foraging areas, in order to better understand the biology of turtles and to determine which sites warrant inclusion within the Seychelles Protected Area network.

Hawksbill Turtle

FRENCH NAME:
Tortue Imbriquée
CREOLE NAME:
Kare
SCIENTIFIC NAME:
Eretmochelys imbricata
IUCN RED LIST STATUS:
CRITICALLY ENDANGERED

- Alphonse Group: Estimated population is between 30 – 40 nesting females.
- Populations were severely depleted due to the harvesting of their shells, which were used to make curio and jewellery products throughout the 20th century.
- Amongst the most endangered of all sea turtles. Listed as critically endangered on the IUCN Red List of Threatened Species.
- Fully protected under the Seychelles law since 1994.

Green Turtle

FRENCH NAME:
Tortue Verte
CREOLE NAME:
Torti / Tortidmer
SCIENTIFIC NAME:
Chelonia mydas
IUCN RED LIST STATUS:
ENDANGERED

- Alphonse Group: Estimated population is between 35 – 45 nesting females.
- This species was largely exploited in the past for its meat, which was a local delicacy. Listed as an endangered species on the IUCN Red List of Threatened Species.
- It is now fully protected under Seychelles law since 1994.

WHERE DO POST-NESTING SEA TURTLES GO?

Research was initiated in 2017 in order to discover the migrations of post-reproductive adult sea turtles of the Alphonse Group. Turtles are known to be highly migratory with breeding areas often separated from foraging grounds by 100s or 1000s of kilometres. Adult turtles only spend approximately 5 – 10% of their time at the nesting areas and the other 90 – 95% at their feeding grounds. Over 3 years, a total of ten satellite devices have been deployed on ten post-nesting adult turtles in order to determine the location of the foraging habitat and migratory corridors of the turtles that breed in the Alphonse group. To date, two Green Turtles travelled to Boudeuse, four appeared off the east coast of Africa; and one remained at the south of St François. While two Hawksbills travelled northwards to the Seychelles bank and the other headed to Ile Platte. The project is being implemented by ICS in collaboration with the Alphonse Foundation and Luth Association.

Coral Reefs

Coral reefs are important marine life. Home to 25 percent of all marine life on the planet, they form the nurseries for about a quarter of the ocean's fish. Coral reefs might not be able to survive the havoc wrought by humankind.

Corals are only found in the shallow surrounding waters of the Alphonse Group. This is because the algae (*zooxanthellae*) found in their tissues need light for photosynthesis and prefer water temperatures between 23-29°C. Climate change induces increased coral bleaching events that affect coral reefs worldwide. This results from the expulsion of algae from coral polyps during periods of stress (e.g. prolonged elevated temperatures). The loss of algal nourishment can cause the polyps to starve and die.

ICS conducts annual surveys to assess the abundance, diversity and health of coral reefs,and help identify and address key threats in order to protect sites around the surrounding islands. Sea Surface Temperature (STT) loggers have also been deployed around Alphonse and St. François Atolls to closely monitor changes in sea water temperature over time.

The data is gathered and used in conjunction with coral and fish monitoring programmes that help us to monitor our dynamic underwater world.

The intense El Niño experienced in 2016 caused coral die-off along an important part of the Alphonse reefs. Bleached corals were observed at unexpected depths of over 35 meters in certain areas. Loss of corals was mostly due to prolonged heat stress with temperatures exceeding 29°C for over 22 weeks.The ICS coral reef and SST monitoring will forecast the strengthening of El Niño, detect the more resilient coral species and oversee the status and loss of biodiversity. Well-protected reefs today typically have much healthier coral populations and are more resilient.

Conventional conservation measures like minimizing pollution, limiting fishing pressure and establishing marine protected areas are indispensable strategies to protect marine ecosystems to which the Alphonse Foundation is committed to improving on year-on-year. And it is through the collection of such ecological data that allows ICS to advise the Foundation on best management practices.

The Seychelles endemic Anemonefish (*Amphiprion fuscocaudatus*)

Goniastrea Coral Colonies & Giant Clam

Acropora Coral Colonies

Subsistence Fisheries

Throughout most of the world, fisheries are in crisis. Roughly 90% of the world's fish stocks are fully or over-exploited, with more than a third fished at unsustainable levels. Overfishing not only threatens marine ecological integrity, but also puts economies at risk. Improving and adopting good fisheries management is critical to sustain global fish populations and fisheries.

In Seychelles, progress in managing local fisheries has been slow. However, a number of key initiatives have been implemented in order to contribute to making the fisheries more sustainable. Fishing activities around the Alphonse Group are closely monitored by ICS in order to set good fisheries management to ensure the sustainability of optimal conditions of fish stocks.

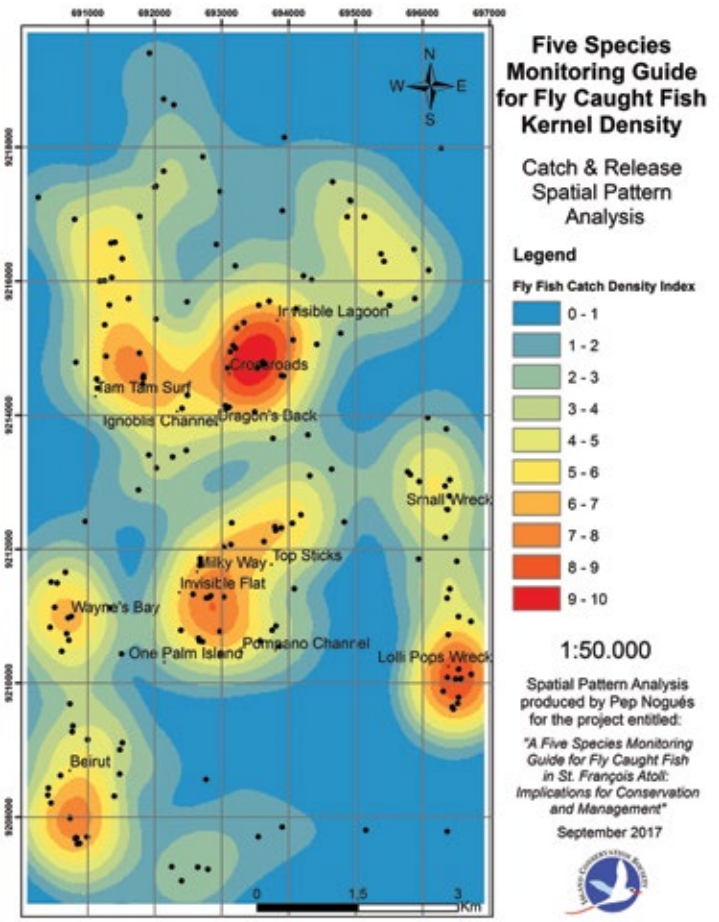
Conservation efforts have been set by ICS to monitor the subsistence fishery that take place on the Alphonse Group, feeding hotel and IDC staff and guests in order to ensure healthy stocks of fish into the future.

All fish that is caught for consumption are recorded by ICS in order to estimate and monitor indices of abundance, biomass and fishing pressure of demersal species targeted by the subsistence fishery around the islands.

CATCH & RELEASE Recreational Fisheries

Recreation angling is an incredibly popular leisure activity worldwide. This activity can not only bring economic prosperity to remote locations, but it can also help enhance conservation efforts for marine ecosystems. This is especially the case when catch-and-release (C&R) is practiced, with the caveat that fish need to be caught and handled in a manner that minimizes the effects on their biology and ecology.

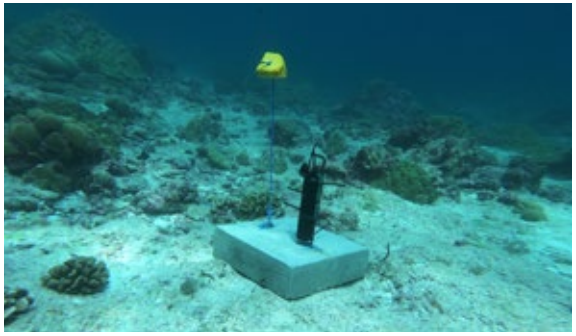
In the context of C&R recreational angling, active stewardship is particularly important since the adoption of best practices is critical for making this activity sustainable. A Code of Conduct for Recreational Fisheries ('best practices') has been created and permanently applied to the recreational fishing activities conducted in the Alphonse Group. Since 2017, the Alphonse Fishing Company in collaboration with ICS has been collecting catch data on the six most charismatic species targeted by fly anglers: the Giant Trevally, Indo-Pacific Permit, Milkfish, Yellow-Margin Triggerfish, and Moustache Triggerfish and Bonefish. This project is ongoing and contributes to our understanding of where catch rates are highest, and whether catch rates change seasonally, however, there have been no studies ever conducted that assess how individual fish of these species respond to C&R.



Giant Trevally Project

In 2018, we have embarked on an exciting new project to study the movement patterns of Giant Trevally (GT), as well as how they respond to being handled and released. To accomplish this, we have deployed over 70 receivers ('listening stations') in the waters of the Alphonse Group and implanting GTs with transmitters to monitor how they use areas where they are actively fished as well as areas where they are not. Some of these transmitters will provide information on the depth and swimming speed of the GTs, shedding light on their behavioural response to natural and human disturbances. Related to this is an assessment of their physiology and short-term activity patterns following C&R. Collectively, this work will help hone the Code of Conduct and enhance the broad conservation objectives for the Alphonse Group.

The research being conducted on GTs is also serving a template for addressing similar questions for other target species in the Alphonse Group, including Milkfish and Bonefish. These efforts will also be expanding to Astove and Cosmoledo so that Codes of Conduct can best match the recreational fisheries of these other exciting destinations.



OUTSTANDING NEEDS FOR THE CURRENT **GIANT TREVALLY PROJECT**

The SeyCCAT grant received only partially covers the costs of the Giant Trevally research we are currently conducting. There is only partial funding from Bonefish & Tarpon Trust, although they are redoubling their efforts in 2019 to attempt to close the gap. Based on logistical challenges with shipping hazardous goods, we are also faced with greater expenses for shipping batteries needed for the acoustic receivers. In addition, harsh seas have resulted in the loss of several acoustic receivers that leave gaps in the telemetry array. The harsh salt conditions have also taken a toll on a number of the PIT tag readers and GPS watches, so they will need to be replaced. We also require additional international travel support for the lead Principle Investigators to participate in necessary Giant Trevally stress physiology work that is a requirement of the SeyCCAT grant. This work could be conducted in concert with the completion of the Bonefish catch and release study on the following page. In short, there are current gaps in funding of the GT project which need to be addressed to ensure the longevity and effectiveness of the project, implemented by true experts in the field.

POTENTIAL RECREATIONAL FISHERIES PROJECTS for the Alphonse Island Group




BONEFISH
SPATIAL ECOLOGY

Given that Bonefish are a mainstay of the recreational fishery and that there is a history of Bonefish declines and recovery in the Alphonse Island Group, it would be wise to understand the spatial ecology and movement patterns, especially in light of additional protection via the proposed protected area. In short, being able to quantify the spatial ecology of Bonefish for such a robust population would be able to act as a reference for all other Bonefish populations in the Seychelles.

An opportunity currently presents itself because of the existing acoustic array deployed around Alphonse Atoll. What we propose is to surgically implant acoustic transmitters in 30 Bonefish from Alphonse Atoll and track their movement patterns for 12 months. This would provide some basic but important information related to habitat use, as well as potentially provide clues as to when and where Bonefish on Alphonse Atoll migrate to spawn.

Given that Bonefish are the backbone of recreational fisheries, not only in the Alphonse Island Group, but throughout the Seychelles, it is imperative to use a scientific approach to assess how Bonefish respond to catch and release.

MILKFISH STRESS PHYSIOLOGY, POST-RELEASE BEHAVIOUR, AND MOVEMENT

Milkfish are another important yet enigmatic fish species targeted in the catch-and-release fishery in the Seychelles. Milkfish are the sole living species in the Chanidae family, and are known for the relentless fight when on the end of a fishing line. Although they are also used for aquaculture in parts of their range, there are large gaps in knowledge related to their physiology and spatial ecology in the wild. One challenge to working on them in the wild is the capture rates, meaning that a prolong approach is needed to fill some of these gaps. As such, we propose that we begin to address some of the mysteries of Milkfish physiology and movement. For the physiology work, this will rely on being available/present when Milkfish are being captured and using point-of-care physiology metres (already on Alphonse) to measure the stress response via non-lethal blood samples. Stress response will be compared against fight intensity, body size and other relevant parameters. For a subset of fish, we also propose to test the use of pop-off accelerometers loggers to measure the post-release activity of Milkfish (and compare this against stress patterns). Given the pelagic nature of Milkfish, we also propose to use SPOT tags (satellite tags) to track longer-term movement patterns following the release of a subset of individuals. Collectively, this research will provide novel information on Milkfish.

POTENTIAL RECREATIONAL FISHERIES PROJECTS

for Astove & Cosmoledo Atolls

DISTRIBUTION AND CAPTURE HISTORY OF GIANT TREVALLY FOR ASTOVE AND COSMOLEDO ATOLLS

Given the expansion to recreational angling effort for Giant Trevally to Astove and Cosmoledo Atolls, as well as an interest in managing that fishery accordingly, we suggest that PIT tagging and spatial capture patterns of fish begin. This work would parallel what is occurring in the Alphonse Group, with the synchronous use of PIT tagging to tag individual fish and GPS watches to track where fish are being marked and potentially recaptured. This work would also act as an important precursor to expanding acoustic telemetry research to Astove and Cosmoledo Atolls.

Manta Rays

Reef Manta Ray (Manta alfredi) population have suffered drastic declines over the past 75 years as a result of targeted fishing practices which aim to supply manta gill plates to the traditional Chinese medicine market (Peel 2017). As manta rays exhibit extremely slow life history characteristics, the impact of these unsustainable pressures on the population has put the species to an even greater risk of extinction.

ICS is collaborating with Manta Trust to research and understand the population dynamics and movement patterns of reef manta rays by using established research techniques such as photo-identification, satellite telemetry and genetic analyses of tissue samples.

Photographs of ventral surface of manta rays allow for individuals to be accurately identified across multiple time scales, as the unique pigmentation and shading patterns that are displayed in this area of the animal are present from birth and do not alter with development.

A total of 57 Manta Rays have been photo-identified by ICS staff and recreational divers in the Alphonse Group waters. Valuable information that provides better understanding of their population dynamics and demographics in Seychelles. Due to the existing acoustic receiver array around the Alphonse Group there is also potential to collaborate with other projects in the Seychelles acoustically monitoring Manta Ray distribution and population movements, this will require additional funding to bring to fruition.

Marine Mammals

Seychelles is located in the Indian Ocean Whale Sanctuary. There are 41 species of cetaceans occurring in the Indian Ocean, of which 25 have been sighted in Seychelles waters.

Dolphins as well as Humpback whales and Sperm whales have all been observed around the majority of the Outer islands.

Visual and acoustic surveys help ICS to determine the species and numbers of cetaceans that frequent the waters around the Alphonse group.

Spinner Dolphin (*Stenella longirostris*), Bottlenose Dolphin (*Tursiops truncatus*), Melonheaded Whale (*Electra dolphin*) and Humpback Whale (*Megaptera novaeangliae*) have been recorded by using a combination of opportunistic visual and acoustic surveys by means of submerging a hydrophone to detect cetaceans' vocalizations. Calls of Blue Whales (*Balaenoptera musculus*) and Fin Whales (*Balaenoptera physalus*) have also been heard in the vicinity.

Baited Remote Underwater Video

(BRUV) GLOBAL FINPRINT PROJECT

Nearly one quarter of the world's sharks, rays and skates ("elasmobranchs") are threatened with extinction, with many of the remaining species either approaching this status or too poorly studied to be assessed. Overexploitation by fisheries to supply large markets for dried fins and meat are principally responsible for this situation, with the effects of overfishing sometimes coupled with habitat loss.

The Global FinPrint project aims to identify global hotspots of reef sharks and rays abundance and diversity, with a key focus on coral reef ecosystems.

ICS took part in this large-scale effort by surveying the coral reefs and associated shallow habitats, such as seagrasses of the Alphonse, St. François and Bijoutier Atolls in order to build a picture of the status of the populations of elasmobranchs on the Alphonse Group and around the world. A total of 100 BRUV stations were successfully deployed.

Results showed the mean relative abundance of sharks being higher at Alphonse than St François, however the reverse trend was observed for rays, whereby St François recorded a higher mean relative abundance. Grey reef sharks and Tawny nurse sharks were the most abundant across both sites.

Blotched Stingray (*Taeniura meyeni*),
Giant Guitarfish (*Rhynchobatus djiddensis*) &
Bluefin Trevally (*Caranx melampygus*)

Sicklefin Lemon Shark (*Negaprion acutidens*)

Grey Reef Shark (*Carcharhinus amblyrhynchos*)

Beach Clean-Up

Some of our best-loved marine wildlife is under threat from the waste and litter in our oceans, with hundreds of species accidentally eating non-biodegradable plastic materials or becoming entangled in marine debris. ICS conducts regular beach cleans and invites resort guests and staff to participate in removing all debris that washes up on our beaches.

By collecting as much rubbish off the beaches as possible we are minimizing the destructive impact of human trash on marine and human life. Reducing our waste will help to protect our environments, our tourism and our fishing industries. We all have a part to play in turning the tide on litter!

ICS keeps a detailed record of what we find and remove off the beaches. Over 2 tons of marine debris is removed annually from beaches in the Alphonse Group. Since 2011, a whopping 12,277 flip-flops, 19,753 plastic bottles, 5,112 glass bottles and over 3 tons of miscellaneous have been removed off our beaches. Alarmingly, the amount of debris removed keeps increasing over the years. ICS educates visitors on how our environmental footprint impacts our oceans across the globe creating public awareness in order to encourage people to be part of our fight against marine litter.

OUR MISSION: ALL ONE OCEAN!!

ICS educates visitors on how our environmental footprint impacts our oceans across the globe creating public awareness in order to encourage people to be part of our fight against marine litter.

Fish Aggregating Devices

FAD WATCH PROGRAM – DETECTION & REMOVAL

What are FADs? A Fish Aggregating device (FAD) is an artificial object that fishermen put in the ocean to attract fish. They are commonly made up of a metal or plastic frame or a bamboo raft covered with shade material or netting and have fishing nets or ropes hanging down from the corners to a depth of 20 to 50 metres. They can be drifting or anchored and have been used by fishermen around the world for centuries. However, in the last decade due to increased use of tracking technologies the number of drifting FADs by fishermen has increased rapidly. The increase in number of deployments has seen an increased number of lost DFADs. These lost DFADs continue to drift with ocean currents and a large number eventually come into contact with reef, land and 'beach', becoming stuck in a wide range of habitats.

Turtle entangled in a ghost net

FAD removal by ICS diver

ICS Staff removing FADs

While FADs do have clear benefits for fishermen, there are a number of environmental concerns about their usage. Fishing around FADs has been shown to catch greater numbers of juvenile tropical tunas as well as increasing the amount of by-catch (non-target species such as turtles, sharks, rays and corals) when compared to non-FAD fishing. FADs are also a hazard for navigation, especially at night. In the Indian Ocean 10-14,000 FADs are deployed each year and worldwide FAD deployments are estimated at 50-100,000 per year.

In order to prevent and mitigate at the maximum level possible FAD beaching across the ICS managed islands, such as the Alphonse Group, ICS has signed a MoU with the Sustainable Indian Ocean Tuna Initiative (SIOTI), IDC and Seychelles Fishing Authority (SFA) to implement a FAD Watch program. Thisprogram aims to obtain real time information of FADs when drifting into sensitive ecosystem areas. Then, an automated alert system reports whenever a FAD arrives within 5 nautical miles (seen in grey on the map) and provide GPS co-ordinates, trajectory and estimated projected time of beaching. This allows ICS staff time to plan and intercept FADs before beaching occurs, damages reefs and/or impacts on key marine fauna.

Unfortunately, the system only works for FADs that have a sophisticated satellite buoy attached, and therefore many FADs continue to become entangled on the reefs causing significant damage to coral and other marine wildlife to drown. If a FAD washes up ashore it presents a significant challenge to nesting turtles. The wave action quite quickly breaks the FAD apart, the nets then become caught in the shoreline vegetation making them very difficult to remove from the beach. Once removed from the reef or beach ICS has the difficulty of disposal. The synthetic nets and ropes that are used in typical FAD construction are not easily disposed of, particularly on small islands such as Alphonse. The materials have to be stored until such a time as they can be removed by a supply vessel and sent to Mahé for recycling.

2019

CONSERVATION PROJECT PROPOSALS

Conservation projects undertaken by the Island Conservation Society around the Alphonse Group of Islands that need specific financial support of the Alphonse Foundation:

Fish Conservancy

USE OF TELEMETRY ARRAY TO STUDY THE MOVEMENT PATTERNS OF RECREATIONALLY TARGETED SPECIES ON ST FRANÇOIS ATOLL

Many of the fish species targeted on St François Atoll are rather data-deficient when it comes to best practices for C&R as well as knowledge of their populations. In order to change this dynamic, we are willing to set up a telemetry array that has the potential to monitor the movement patterns of multiple fish species.

This pilot work, St François Atoll-scale, is very ambitious but will provide the potential to solve most of the mysteries surrounding the targeted species. Acoustic tagging is the technique of choice. It can be used to monitor the presence of fish species by knowing (recapturing) their movements. Acoustic tags get surgically implanted in the abdominal cavity of the fish. The small incision is stitched up, heals, and becomes invisible in a very short period of time.

Tag-Recapture data will help to estimate the fish movements as well as define how large an area needs to be protected to ensure protection. Whether the amount of movement differs by fish size/age and help to understand if a fishery might target a specific life stage that has more/less movement than other life stages. In addition, obtaining capture rates can be proxy for population size, catch ability and fishery capacity.

Eradication of Pests

ERADICATION OF INTRODUCED SHIP RATS (*RATTUS RATTUS*): – THE FIRST STEP TO ALPHONSE ECOSYSTEM RECOVERY

Predation and competition from Ship Rats have a huge impact on Alphonse Island ecosystems and represent a key limiting factor for their recovery.

Ship rats are controlled by mostly setting Rat traps and poison-baited stations around sensitive areas on a regular basis. By reducing the size of this rat population we minimize its negative impacts on the environment, human health and the current economic activities.

This never-ending management operation has its benefits but its own limitations too. Recurrent rat control does not allow ICS to take conservation efforts to the next level and propose further re-introduction of endemic land-bird species such as the Seychelles Magpie-robin (*Copsychus seychellarum*), which once populated Alphonse Island, or introduce the Seychelles Fody (*Foudia seychellarum*) amongst other species threatened with extinction.

Rat eradication is our big challenge. It requires sufficient economic resources to complete the operation, the full commitment of stakeholders and rigour and professionalism when applying procedures to prevent reinvasion.

Eradication is the most cost-effective rapid response to ecosystem recovery. However, its success can only be achieved by obtaining a realistic budget and, by clearly defining the roles and responsibilities of each stakeholder.

The production of a complete Eradication Plan proposal including aspects of feasibility, logistics and implementation of the eradication techniques will be produced if financial support is obtained.

We won't have a future if we do not respect our environment

Male Diadem Eggfly (***Hypolimnas misippus***)

Magpie-Robin (***Copsychus seychellarum***)

Seychelles Fody (***Foudia seychellarum***)

CONTRIBUTE

Please support our Conservation Projects...

Alphonse Foundation
Mauritius Commercial Bank
Caravelle House
Victoria – Mahé
Account Number : 225002
IBAN number : SC08MCBL0607000000000225002USD

By supporting our conservation efforts, you are keeping close to nature's heart...

PHOTO CREDITS: Pep Nogués, Byron Anderson, Ariadna Fernández, Chris Narty, Sam Balderson

Alphonse Foundation
SEYCHELLES

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Alphonse Island SEYCHELLES

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