

Proposal

For the Establishment of a
No Take Zone (NTZ) with the
Marine Protected Area (MPA) around Nikoi Island



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Executive summary

The establishment and sustainable maintenance of a No Take Zone (NTZ) within the Marine Protected Area around Nikoi Island is critical for recovery of overfished and threatened coral reef and marine ecosystem on the east coast of Bintan Island.

Why should this be a priority?

- To protect of the most valuable resource of the island
- To protect the livelihoods of the local population
- To stimulate opportunities for the island's marine tourism
- To strengthen Indonesia's presidential agenda of boosting the marine sector
- To build a better Bintan
- To boost the economic potential of Bintan through marine ecotourism

The international implications of such a program are manifold, as they:

- Demonstrate of environmental commitment with tangible steps
- Assure the local population's welfare is fully integrated
- Address local discontent regarding perceptions of inequitable investment in the area
- Provide opportunity for International visitors to witness conservation in action
- Enhance the sustainable tourism identity
- Establish Bintan as a pilot of conservation innovation in the region

This program provides a unique opportunity to establish a working model of rehabilitation that will position Bintan as a key actor in Indonesian conservation efforts, establishing a pilot program model that can be disseminated and implemented in other areas.

Government involvement is necessary for the success of this program, initially in declaring the zoning, endorsement and legalization of the program under the laws of Indonesia, to ensure that action can be taken if any breach of law occurs.

Even though the east coast of Bintan is zoned as a Marine Protected Area (MPA), only a No Take Zone will produce significant results in the preservation of the local environment.

This program proposes to take a small step, covering 0.01 % of the area of Bintan, but it is a real step in the right direction, which would have enormous significance for the future of the island.

Introduction and Background

What is a Marine Protected Area (MPA)?

Marine Protected Areas (MPAs), are protected areas of seas, oceans or large lakes, where human activity is restricted for conservation, to protect natural and cultural resources. MPA practice can include limiting or restricting of development, fishing practices, seasons and catch limits, moorings, as well as removal or disruption of marine life within the MPA area. MPAs are essential to conserve ocean biodiversity and to maintain productivity, particularly of fish stocks.

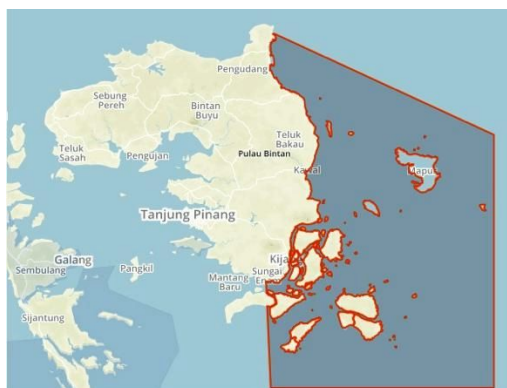
The International Union for Conservation of Nature (IUCN) defines an MPA as *“any area of intertidal or sub tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment”*.

At the present time, there are too few MPAs and too few of those established are effectively managed. As of 2014, more than 6,500 MPAs encompassed 2.09% of the world's oceans.¹

¹ The MPA Atlas <http://www.mpatlas.org/explore/>

Currently, Indonesia's MPAs measure 15.7 million hectares under three different management authorities: 4.7 million hectares managed by the Ministry of Marine Affairs and Fisheries, 5.5 million hectares managed by the Ministry of Forestry, and 5.5 million hectares managed by Local Governments. In order to realize the government's commitment to establish 20 million ha of MPAs by 2020, approximately another 4 million ha of conservation areas still need to be developed.²

The Official MPA Area of Bintan



The large 1,815.17km MPA of the east region of Bintan³, is protected only on paper and through stated zoning.

Within the area there is little if any enforcement, almost no patrolling, and destructive fishing practices are active.

See the appendices for an interview on the Marine Environment of Teluk Bakau and Local Dynamite Fishing Expose for further details.

No Take Zones (NTZs), are areas where all forms of exploitation are prohibited. A No Take Zone can cover an entire MPA, or specific portions.

Current Conditions in the Bintan Area

At Bintan Island, where there are, to date, no 'No Take Zones' established the pressure on the area's marine resources and impending collapse of species and systems is impending if no direct, effective action is taken.

Around the Island, the area's most valuable resources have already been severely depleted; some species, such as sharks and giant groupers, have disappeared from the ecosystem altogether, while others are so depleted that they should be considered for being included on endangered species lists. To ensure this unique ecosystem's health, it is important to consider that classification of endangered species be based on localized regions and populations, rather than global status. An example of this case is the seriously depleted local shark populations, with some species already almost extinct, while the same species' worldwide status remains on the threatened species list.

Despite the fishing and environmental pressure in the area, through small-scale local initiatives, several important adult species has been preserved. This provides Bintan with a unique opportunity to re-populate species, if urgent protection measures be established and maintained. This opportunity for re-generation has primarily been made possible due to:

- Habitat maintenance with regular clean up activities conducted by the Nikoi island team;
- Hiding places in the area provided by ledges, granite boulders caves and crevasses;
- Tourism activities in the area, which limit some fishing activities;
- Local community education activities implemented by The Island Foundation;
- Reporting of illegal fishing practices to the Harbor Master and Department of Fisheries, generally on behalf of the Nikoi island team;
- Resort staff awareness, which results in guest guideline for no damage activities at the ecosystem;
- Protection policy management on behalf of Nikoi Island

² MPA in Indonesia, A Quick Look at the Governance of Marine Protected Areas in Indonesia

³ <http://www.protectedplanet.net/bintan-bintan-locally-managed-marine-area>

The Nikoi Island Marine Conservation Initiative

Nikoi Island⁴ is a 15-hectare private island, situated 8 kilometers off the east coast of Bintan, Indonesia. The successful resort provides employment for more than 100 locals, exposure of Bintan's unique environment to a wide range of international visitors, and a strong vision for more sustainable, culturally sensitive livelihoods and resource management solution for the area.

The immediate surrounds of Nikoi already operate in a similar manner to a protected marine park. The resort practices non-destructive marine tourism activities, and through The Island Foundation⁵ Nikoi implements programs for local education, environmental cleanups, and marine culture preservation and marine protection.

While the resort has played a substantial role in establishing replicable models for best practice in marine conservation for the area, Nikoi Island is not in a position to enforce, or even suggest, a code of ethics or environmental management guideline to local stakeholders, which is what is needed to ensure that this heritage is not lost in the years to come. This role can only be implemented through the endorsement and enforcement of related Indonesian agencies in cooperation with local leadership and community stakeholders, who must work in cooperation for establishing a successful program that would truly result in the implementation of established policies.

With appropriate mechanisms for protection and rehabilitation of the area's delicate ecosystem, Bintan has the potential to become a world-class destination for a variety of marine activities, which are further detailed in this proposal. This would provide many entrepreneurial and employment opportunities for local populations, who would overtime see the greater benefit of protecting the environment than depleting it.

With local conditions in some cases reaching tipping points in terms of species and habitat preservation, if we do not see timely establishment of a viable, solid program for protection of the area, efforts undertaken to date to establish a sustainable marine destination will have been in vain, and the related potential economic growth will move somewhere else.

About the Nikoi Marine Habitat

The reefs around Nikoi are part of the Sunda shelf, which covers a massive area of approximately 1.85 million square kilometers; with sea depths over the shelf rarely exceed 50 meters and extensive areas, including the area around Nikoi at less than 20 meters. This shallow depth results in strong tidal friction, currents and tidal flow through the entire area. In areas where substrate is available, marine life is prolific with soft corals gardens, while closer to the surface there are hard corals. There are a wide variety of underwater habitats around Nikoi, including:

- Fringing reefs
- Mangrove flats
- Sand flats
- Rubble patches
- Sea grass beds
- Soft coral gardens
- Boulders with swim through / ledges
- Granite canyons encrusted with invertebrates and soft corals
- Man made jetties
- Submerged island reef

The habitat's unique flora and fauna have a higher diversity per square mile than any other area around Bintan, 230 species of fish have been identified so far and more are being counted on an ongoing basis.

The area has hosted a variety of studies on marine biodiversity, with papers written by students from

⁴ <http://www.nikoi.com/>

⁵ <http://www.theislandfoundation.com/>

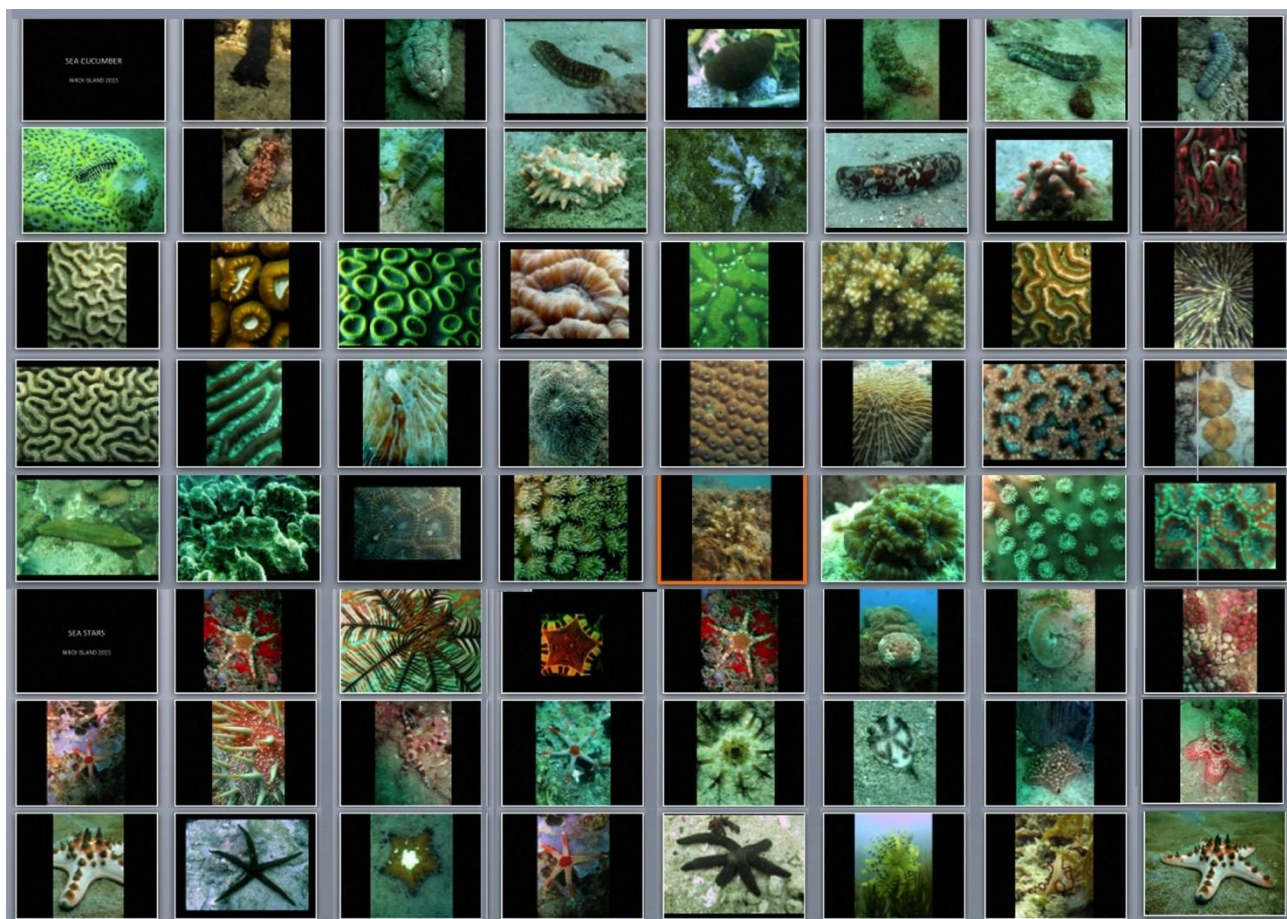
Universitas Maritim Raja Ali Haji (UMRAH) of Tanjung Pinang including:

- Mangroves identification, diversity and distribution
- Coral transects and analysis
- Fish transect and diversity
- Sea grass identification and analysis

Species documented in the area, includes:

- | | | | |
|--------------|---------------|--------------|----------------|
| • Fish | • Sea stars | • Cuttlefish | • Nudibranch |
| • Hard coral | • Sea urchins | • Octopus | • Sea cucumber |
| • Soft coral | • Crustacean | • Squid | • Sea grass |
| • Sponges | • Cephalopod | • Seashells | |

Some examples of, in some cases highly unique, species photographed in the area:



The Primary Causes of Habitat Deterioration in the area

Education in marine sustainability and health, and livelihood opportunities that support, rather than destroy these systems is very limited in the area. Currently the fishing practices used are not considered to be destructive, however they are rapidly depleting the remaining fish species stocks.

Fish populations are decreasing, while demand for fish is increasing, and the decline of mature fish has led to an increase in the number of juveniles being caught, which results in re-stocking becoming increasingly challenging. Water pollution is also threatening spawning grounds and inshore of many species.

If there is to be any hope of recovering this important and delicate local marine ecosystem for future generations to come, immediate measures must be taken to protect the area, its marine habitat and inhabitants. Any delay in taking action will result in a more severe recovery challenge, with some chances of species recovery being lost forever.

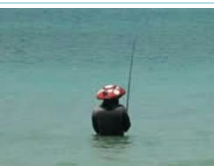
The primary cause of marine ecosystem deterioration include:

- Overfishing** The area has been overfished for a long time, and at this point all commercial species are scarce. Some species have vanished including species of sharks, mackerel, and giant barracuda. For further details see the following section which provides more details on the types of fishing techniques being used in the area and their impacts.
- Oil Spills & pollution** Periodically during the northeast monsoon, oil discarded from tankers and cleaning companies located further north in the South China Sea reach Nikoi's shores. In 2014, the worst spill experienced to date covered rocks, contaminating one of the most successful small turtle breeding and nesting small beaches in the region.
- Damage due to nets** In addition to the discarded nets of novice fishers, ghost nets from further afield reach the reef. As well as this, anchoring of the pukat traps is a major cause of damage to live coral in the area.
- Floating trash** Floating trash and debris are washed onto beaches each day, with peaks occurring during the northeast monsoon. Documentation has shown trash floating into the area from as far as China, Thailand, and Vietnam.
- Anchoring** Anchoring on the reef is a major concern and has serious impacts on the delicate reef. Continued anchoring in areas that host soft coral, has been destroying the breeding ground of many species.

Some examples of local devastation due to fishing techniques



Local Fishing Techniques and Impacts

	Net fishing	Done on the edge and top of the reef, at various tidal levels – the size of mesh dictates catch, smaller mesh catching smaller the fish.
	Practitioners	Primarily Teluk Bakau community members.
	Impacts	Reef fishes such as parrotfish, wrasses, rabbit fish etc. Smaller mesh catches countless ornamental species with no commercial values.
	Bubu Traps	A traditional trap originally weaved from local organic material. Today the <i>bubu</i> is a wire mesh cage dropped on the sea floor or next to reefs, often weighted down with live reef, and drawn to the surface by a rope or with hookah rigs on a portable compressor.
	Practitioners	Teluk Bakau fisherman, and on a more industrial scale Kawal.
	Impacts	With up to 10 bubu every 10 to 20 meters from Kidjang targeting coral trout for the live fish trade, the bubu are catching reef fish of all sorts. This method can wipe out certain species from the reef, including longnose butterfly fish and wrasses. When traps are not picked up, top predators such as cuttlefish and stingray come in and eat the caught fish. When live coral broken off the reef is used for weighting this system is disastrous.
	Notes	Without control and guidelines overuse of this system can devastate a reef system. The mesh, once sponsored by the department of fisheries, is cheap and breaks easily, and is generally discarded if it becomes damaged or difficult to dislocate underwater.
	Pukat Fishing net	A floated fine meshed net, which is anchored on the bottom of the reef, waiting for the low tide along the fringed reef. Teams of divers herd fish along the reef edge and scoop them up. The mesh is so small that everything gets caught in it. Occasionally divers pound stones on the reef to scare and herd the fish into the trap. Illegal in most places, this practice is increasing at Bintan, in part due to the lack of bigger fish, which are now depleted.
	Practitioners	Primarily experienced teams from the Kidjang area, who travel to Nikoi and other areas for fishing.
	Impacts	This method is truly devastating. Entire populations of reef fish, from small damsel to boxfish etc. are taken, and entire species can be wiped out in just one session. Inedible species are sold to fish farms as aquaculture food.
	Notes	This method is drastically reducing local biodiversity and no doubt robbing science of the opportunity to identify unknown species.
	Line fishing	This method is generally recreational, as the catch is small compared to time invested. Local staff no longer practice line fishing due to the disappearance of bigger fish such as gaji, and the area is too far for local fisherfolk, except for a team of about 20 that target fusilier's type fish, which move around.
	Practitioners	Teluk Bakau fishermen, local and Singaporean tourists, and one team from Kidjang.
	Impacts	This is the most sustainable practice in the area, as the method is low impacts if not abused, however repeated fishing in the same areas has taken a toll on resident species.
	Local Spearfishing	Traditional spearfishing in the area uses locally made spear guns, and is generally restricted to shallow waters; as catches are limited; this method is usually conducted in addition to other harvesting methods.
	Practitioners	Kawal fisherman of Bajau decent, who maintain knowledge of cuttlefish mating seasons.
	Impacts	Impacts are minimal, primarily targeting cuttlefish or larger species.

	Notes	Local community stakeholders would suffer from a ban on this type of fishing, hence the importance of including them in the program plan whether or not they originate from Teluk Bakau.
	Sport Spearfishing	This recreational method is done with scuba gear, generally using fast boats, and modern spear guns and slings to strike hunted fish. This method targets the largest species that can be caught.
	Practitioners	Local guides from Tantung Pinang and Singaporean tourists.
	Impacts	This method uses dive tanks to reach species in deeper waters and hard to reach places, and it decimates more remote species, such as giant stingrays, batfish, and groupers.
	Notes	Sport fishing guides, who receive high premium rates for this tourism experience, are unsupportive local stakeholders for conservation No Go Zone discussions to date.
	Kelong Platforms	The method is the most successful commercial enterprise on the Bintan coast. Floating platforms are towed out to sea by local fishing boats that are then anchored in the seabed. They shine lights, which attract small bilis fish, and squid. The catch is flashed-boiled on site, brought to shore each morning and dried on pandanus leaf mats. Families then sorts and grade the fish, which are sold to wholesalers in Tanjung Pinang.
	Practitioners	Primarily Kelong originating from Malang Rapat.
	Impacts	Targets <i>ikan bilis</i> after spawning season during transition of the monsoons, the impacts of this efficient, combing method are enormous. 2014 was a disastrous bilis season, potentially an early sign of a species collapse. This method also deprives top predators and other large species of food.
	Notes	Kelong increase each year. While using the platforms, Kelong crew also line fish on site. Establishing a Kelong free area would allow for breeding, and species could repopulate and spill over into adjacent areas.
	Hand Harvesting	Gathering seafood by hand includes picking shellfish, clamshells, trocus shells, and sea cucumber from coastal areas; this method can also involve some digging to unlodge the harvest.
	Practitioners	Individual fisherfolk from Kawal, and Bubu on hookah rigs.
	Impacts	Impacts are devastating. Sea cucumber are almost completely gone, and as they are 'the cleaner of the reef', additional impacts are being seen with an overgrowth of algae especially in sandy areas. The only remaining clams are those that are too big to be handled by one person, or too deep to dig out.
	Notes	Shellfish and sea cucumber are sold to local restaurant, primarily Kelong and Singaporean seafood places.
	Dynamite Fishing	Uses explosives to stun or kill schools of fish for easy collection. Underwater shock waves produced by the explosion stun the fish and cause their swim bladders to rupture. This rupturing causes an abrupt loss of buoyancy a small number of fish float to the surface, but most sink to the sea floor.
	Practitioners	Migrants to the area
	Impacts	This illegal practice is extremely destructive. Explosions indiscriminately kill large numbers of fish and other marine organisms while causing substantial destruction to the surrounding ecosystem, and underlying habitat, such as coral reefs. The explosives used are also dangerous for the fishermen themselves, often resulting in accidents and injuries.
	Notes	While destructive fishing methods such as dynamite fishing have

been completely stopped around Nikoi, it continues in surrounding areas with evidence of dynamite fishing behind Mapur Island and other areas.

Program Strategies

Program Socialization and Local Stakeholder Endorsement

Several focused discussion group activities have already been undertaken with local fishing communities in the area. The non-formal approach used helped to ensure open feedback dialogue, and wherever possible respond to concerns, so that the design of this proposal's would meet local opinion.

Mixed response has been received from local stakeholders who rely on fishing practices to meet their local livelihood needs. Feedback tended to vary depending on the fishing technique used by the stakeholders, trust that the program could indeed be actualized in such a way that it would provide real economic benefit for local the stakeholders, as well as the perceived ability for accountability in program implementation on behalf of local leadership in the area.

The majority of local groups have expressed support for the proposed program, combined with statements that unless direct economic incentive for shifting local activities and practices was clearly viable - in terms of local livelihoods and direct income generated through the program activities - the program would be challenging to implement in a conflict-free, sustainable manner.

Therefore, one of the most crucial elements of success of the initiative in the inception and ongoing implementation stages is that it be launched based on an open, inclusive community-based approach and that the No Take Zone program management fall under the jurisdiction of the traditional Desa Teluk Bakau fisherfolk Village leadership.

Aside from their ability to guide the program's successful community-based approach, the Kawal fishermen are keepers of an extensive body of knowledge related to the local marine ecosystem, locally applicable sustainable fishing practices, and technics for local resource management. These key stakeholders are ideal supervisors, consultant and team members for the program's design and implementation. The combination of program employment and sense of program ownership this would generate would go a long way to help ensure that the local fishing community perceives and receives direct benefit from the program, and that support would be maintained.

Establishment of No Take Zone (NTZ) within the Bintan MPA area

To ensure widespread and cohesive private sector, civil society and governance support for the No Take Zone mission, program initiation should begin with a comprehensive public awareness campaign that clarifies the parameters, benefits and infraction implications within the No Take Zone.



Local endorsement of enforcement techniques and team recruitment and capacity building will include hands-on training in various methods for monitoring and enforcement as well as supporting activities

proposed in the following restoration of habitat section.

The area proposed for the No Take Zone is:

1. Half a mile surrounding Nikoi Island and adjacent reef: **No Take Zone (NTZ)**
2. Area after the half-mile mark to one-mile radius: **Buffer zone where only line fishing is permitted**
3. Past the one-mile radius the spill over effect will in time provide fish stock that allows the local fishing industry to recover any losses of revenue by not fishing within the NTZ. This income will then increasing year by year, as fish repopulation re-establishes its natural cycles.



Bintan No Take Zone (NTZ) Map

The circumference of the NO TAKE ZONE (NTZ) is based on:

- 1/2 mile zoning
- 5.5 nautical miles
- Total 2.4 nautical square miles

This proposed area is:

- Less than 0.66% of the Teluk Bakau area
- Less than 0.01% of the zoned Bintan MPA area

To date Bintan does not have any NTZs, and considered in the context of the Bintan MPA the proposed area for this preliminary NTZ is 'a drop in the ocean' on what would ideally be zoned for NTZ in the longer term. A small-scale success should however go a long way in establishing community buy-in, and capacity for increasing the scope of NTZs in the area and the general health of Bintan's MPA on an more ongoing basis.

Enhancement of Governance & Enforcement of the NTZ

The success of the Bintan NTZ will be extremely dependent on approval of, clear communication around, and enforcement of related guidelines and procedures.

In this regard, a critical step in program implementation will be ensuring that:

1. The NTZ zoning is supported by relevant official agencies and the laws of Indonesia
2. The NTZ's monitoring and reporting is conducted under the auspices of local populations
3. Government agencies focus their assistance on addressing infraction
4. Serious repeated offenses are strictly enforced and demonstrated to be punishable by law

Establishment of a Bintan Marine Conservation Park Entrance Fee

As explained earlier, it is anticipated that at the program outset, the NTZ zoning initiative will not be supported by 100% of the local community stakeholders. To mitigate program failure and / or conflicts around the program it is paramount that local community stakeholders experience an immediate,

equitable, and direct benefit from the program. Promises of a better future, expression of concern about environmental degradation, or attempts at third party enforcement will not solve the issue when keeping rice on the table and children in school is the primary concern.



A solution to addressing this critical issue is the establishment of a nominal ***Bintan Conservation Park Entrance Fee***.

Not only would this strategy provide immediate support for addressing direct employment within the program's direct activities, it would clearly demonstrate to local stakeholders that environmental protection provides viable, alternative livelihoods opportunities. This mechanism will help ensure self-sufficiency so that as time goes by, and the program establishes, it can continue to run and grow in an independent, resilient manner.

In 2013, through the Nikoi Resort, 5,800 guests visited the island. If a very reasonable Rp. 150,000- Park Entrance Tag Fee were applied for such visitors, the annual income generated would likely exceed USD 70,000 from Nikoi guests alone, with divers and snorkelers from other resorts in the area boosting the program sustainability strategy's revenue even further. The proposed fee is very reasonable and should not be an issue for visitors to pay, by comparison, since 2007, all visitors traveling in Raja Ampat has been required to pay an entrance fee of Rp. 1,000,000/person/ year.⁶

Communications around the Park Entrance Fee program initiation also provide an excellent opportunity to showcase Bintan in a positive manner by socializing the program's mission in:

- Environment recovery and conservation
- Community development and marine ecosystem education
- Sustainable tourism and thinking

Local Activities for Marine Habitat Restoration

The following step-by-step plan, follows established and successful model practices that have been implemented at Nikoi to date and can be further socialized to the program team, empowering them in stewardship for the area's Marine Habitat Rehabilitation and Protection. These activities can be undertaken once the No Take Zone, and program funding has been committed and established.

Beach Cleaning	Beaches will be are cleaned twice a day around the island. Every day.
Moorings	Nikoi's boat, and fisherman on their way to fishing ground further afield now use the moorings that have been placed around the island, which dramatically minimize impacts due to anchoring.
Net removal	Nikoi staffs regularly remove nets from the reef during surveys and while taking guests diving. Ghost nets on Mapur Island's black rock have been documented, and four dives to clear them out have been conducted, with more scheduled to complete the task.
Substrate Formation	After the Nikoi jetty was damaged in a severe storm, it was cleaned and the pilling removed and dropped in a sandy area to create new substrate, on which a variety of corals are now growing. Many species of fish make use of the area and use it for hiding from predators, there is even a moray eel now in residence there.
Disaster	Removed from the typhoon belt, and tsunami and earthquake risk zones, the area is

⁶ <http://rajaampatbiodiversity.com/entrance-fee/>

Response	relatively free from natural disasters. Human made disasters do however impact the area, primarily solid waste pollution and oil spills. After most spills, the beaches are completely cleaned mostly Nikoi staff. If the spill is more serious an emergency is declared and booms and equipment are used to deal with the incident. The local government is informed, and various agencies collect samples. Documentation is also collected and data entered in a database.
Minimization of pollution	Nikoi island's goal is to minimize environmental footprint on all fronts, including waste and energy consumption. Buildings are built primarily with driftwood, and paint is used sparsely to minimize any toxicity. Natural mosquito control techniques are used as well as avoidance of any chemical pesticides throughout the area.
Eco tourism	All activities, aside from the rescue and dive boats are non-polluting. Sailing, long boarding, windsurfing, and kayaking, are used instead of jet skies, or motorized board sports. Dive masters monitor snorkeling and diving, and no products are taken from the sea based on strict guidelines for no touching or removing any live organism.
Endangered species protection	Both green and hawksbill turtles nest on the island. Nests are protected, monitored and, if needed, relocated to ensure preservation of the species and maximal survival rates of turtles returning to the ocean.
Education	Staffs receive tuition on marine conservation, some of which are now handling conservation programs. Students from the marine university do fieldwork on site, and received master degrees in marine biology based on their research and studies.

Funding

This initiative, which provides an active working model for sustainable marine conservation in Indonesia provides a good opportunity for showcasing sustainable, community-based solutions that address the broad reaching missions of programs such as the World Bank' Coral Reef Rehabilitation and Management Program - Coral Triangle Initiative (COREMAP-CTI)⁷, which has already committed US\$ 47.38million to Indonesia's coral protection initiatives. LIPI (Lembaga Ilmu Pengetahuan Indonesia) / DKP (Departemen Kelautan dan Perikanan's Coral Reef Rehabilitation and Management Program (COREMAP)⁸ is a good potential partner for the program's implementation.

Components targeted for funded support include: staff salaries, meeting attendance, preliminary community outreach seed funding, environmental clean up at project initiation stages, reporting and project administration. Should this proposal be met with a favorable response, a detailed budget will be established in cooperation with key project stakeholders, and the project includes a sustainability and exit strategy through the inclusion of the Marine Conservation Park Entrance Fee component.

Conclusion

Nikoi, and other resorts in the area have clearly demonstrated that the Bintan area has enormous potential for sustainable development as a world-class tourist destination. The implementation of a program such as the one outlined in this proposal would go a long way to achieving that goal, while building upon established activities in the area in educating current and future generations in successful practices in marine conservation, and protecting local livelihoods and local food supply.

That being said, without the establishment of an effective No Take Zone (NTZ) within Bintan's MPA, there is little chance that the marine environment will recover from its current rapidly declining condition. In that case, the likely rapid downward spiraling deterioration of the local ecosystem is inevitable. The time to act is now, as the pressure on the reefs, and the fish stock may be close to reaching the point of no

⁷ <http://www.worldbank.org/projects/P127813/coral-reef-rehabilitation-management-program-phase-iii?lang=en>

⁸ <http://www.coremap.or.id/welcome/>

return for maintaining the area's diversity and marine tourism potential. Unless this program is implemented, the countless papers, studies and other environment-based project conducted in the area will have no visible improvement to show.

The first step is to declare the No Take Zone (NTZ) as quickly as possible, and to then to immediately proceed on to program implementation with the general public and community stakeholders of the NTZ area. International exposure of the program through Nikoi guests – thousands of whom come to stay on site from over 30 different countries each year – will support the NTZ regulations being respected and adhered to. Aside from Nikoi guests, the media attention that the establishment of the NTZ will likely generate, will increase interest in the Bintan area on behalf of:

- Like minded, environmentally, and community conscious investors
- The scientific community who can study the impacts of the system's implementation
- International writers and journalists
- Politicians and leaders with commitment to establishing solutions for sustainability in the region

Contact for Further Information

For further information or to discuss this proposal please contact:

Contact Person name : Michel Lippitsch

Contact person email : Michel@nikoi.com

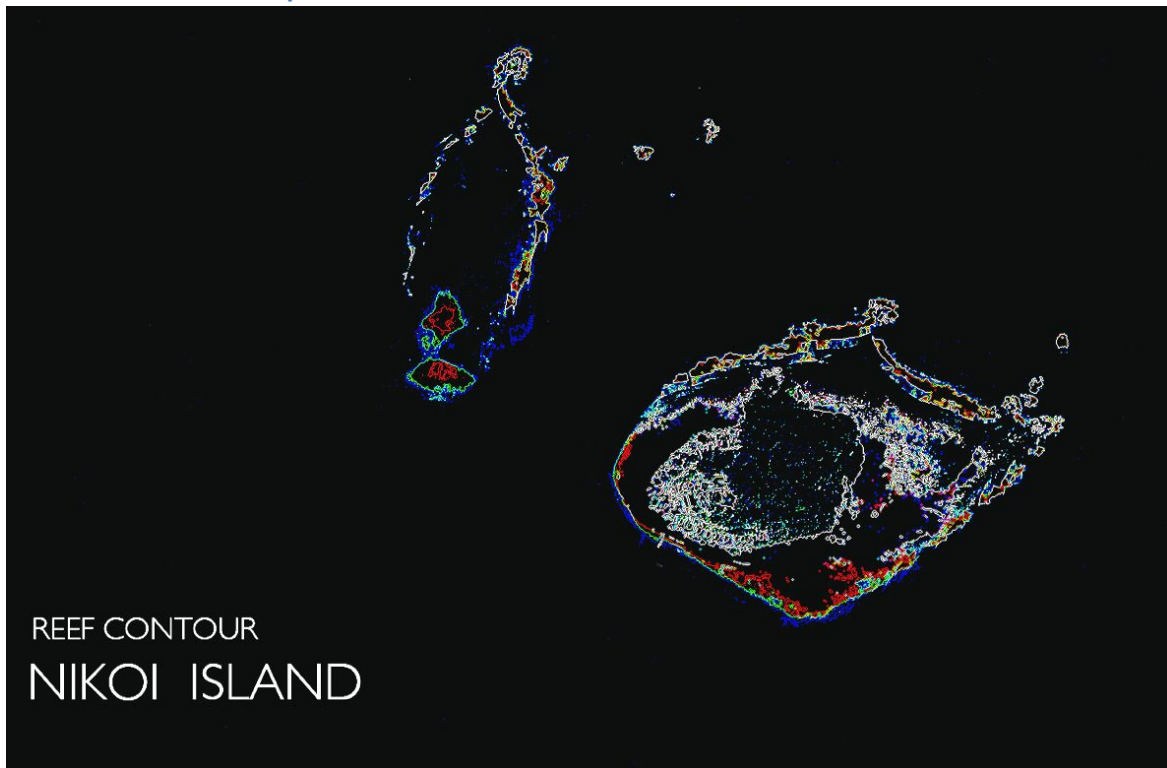
Contact person telephone : +65 85365214554

For related footage see : www.Nikoibelowthewater.weebly.com

Appendix

Maps

Nikoi Reef Contour Map



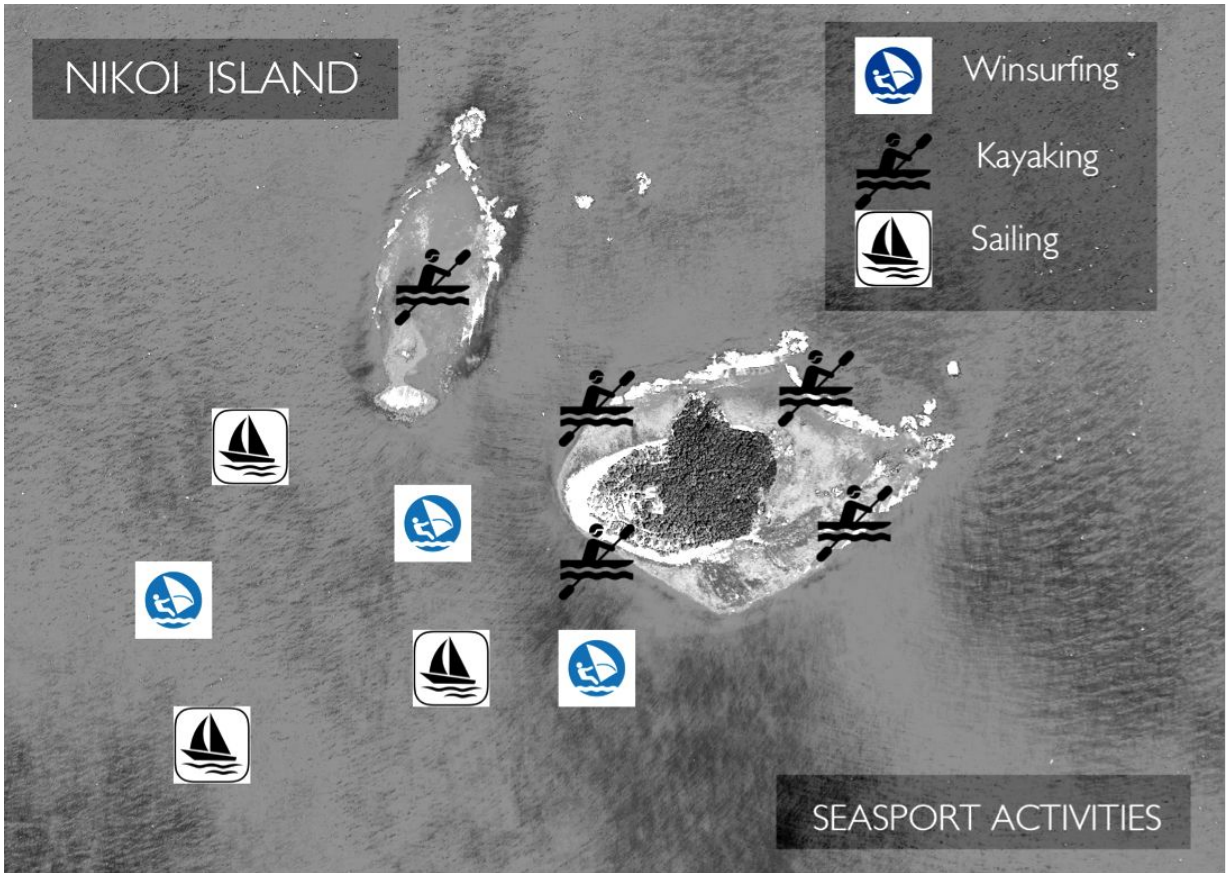
Nikoi Mooring Map



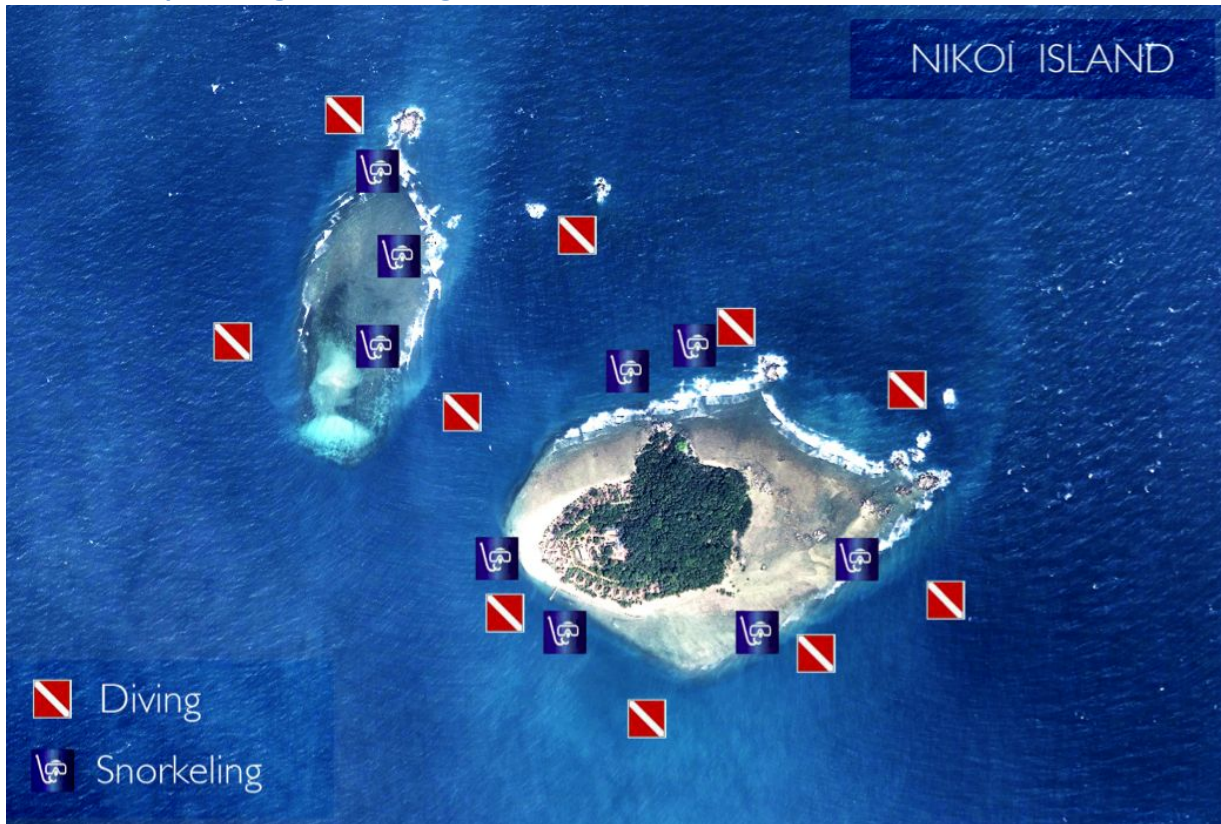
Coral Trout Spawning Ground Map



Activities Map – Sea sports



Activities Map – Diving & Snorkeling



Attachments

Any of the attachments listed below can be downloaded from [this folder](#)

- MPA in Indonesia, A Quick Look at the Governance of Marine Protected Areas in Indonesia
- ARC Center of Excellence: What Are the Benefits of No Take Zones and How are They Used
- Bubu Traditional Fish Trap Nikoi Island, Lippitsch
- Zoning & Coordinates Nikoi Island (2015), Michel Lippitsch
- The weather Nikoi Island, Michel Lippitsch
- Side Scan Sonar Nikoi Island, Michel Lippitsch
- Metode Survei Karang (2012), Try Febrianto & Tito Anri Yadi, Fakultas Ilmu Kelautan & Perikanan Univesitas Maritim Raja Ali Haji Tanjungpinang
- Keanekaragaman Jenis Ikan Karang di Perairan Pulau Nikoi (2012), Tito Anri Yadi, Fakultas Ilmu Kelautan & Perikanan Univesitas Maritim Raja Ali Haji Tanjungpinang
- Identifikasi Jenis Mangrove di Pulau Nikoi (2012), Nur Yasin, Fakultas Ilmu Kelautan & Perikanan Univesitas Maritim Raja Ali Haji Tanjungpinang
- Tingkat Tutupan Ekosistem Terumbu Karang di Perairan Pulau Nikoi (2012) Try Febrianto, Fakultas Ilmu Kelautan & Perikanan Univesitas Maritim Raja Ali Haji Tanjungpinang
- Preliminary Inventory of Marine Fauna & Flora in Pulau Nikoi, Chua Sek Chuan & Sabaraj Rajathurai
- Interview on the Marine Environment of Teluk Bakau
- Local Dynamite Fishing Expose

- Pukat Net Fishing Expose
- Kelong Fishing Expose
- Draft design Bintan MPA program branding & visitors badge
- Draft design Bintan MPA Brochure