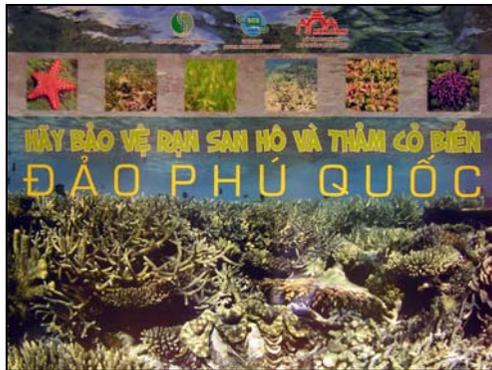


## Fisheries *Refugia* as a Tool for Integrated Fisheries and Habitat Management at Phu Quoc Archipelago, Viet Nam

### Project Summary

The Phu Quoc Archipelago was selected as a coral reef and seagrass demonstration site of the UNEP/GEF South China Sea Project. This archipelago is a priority site of the Viet Nam Biodiversity Action Plan and the diverse marine ecosystems (seagrass, coral reefs, and mangroves) surrounding the 14 islands support a range of pelagic and demersal fisheries. The main objective of this demonstration site was to develop and establish a co-ordinating mechanism among provincial sectors and between Viet Nam and Cambodia in management of coastal waters of Kien Giang and adjacent transboundary areas. Other activities involved enhancing public awareness regarding the significance of seagrass and coral reefs for fish stocks and improving the capacity of provincial policy makers, managers and local communities to guide the sustainable use of natural resources and habitats at the site.



Public awareness poster regarding corals at Phu Quoc

The key achievements of the site include: the development of a rich database of information on coral reef and seagrass communities which has been used in the zoning of two pilot areas for management, namely the An Thoi coral reef sub-site (400ha) and the Ham Ninh seagrass sub-site (6,300 ha); effective operation of a cross-sectorial Project Steering Committee; improved awareness and business practices within the tourism sector; and use of data and outputs as part of

broader coastal and marine planning at the archipelago. The mid-term evaluation of the project identified however, that a key threat to the longer-term sustainability of project interventions at Phu Quoc was a low level of integration of fisheries issues into habitat management and vice versa. This threat was considered particularly high at the Ham Ninh commune, which is almost entirely dependent on fishing in the adjacent seagrass sub-site.

### Issues and Challenges

The Ham Ninh seagrass sub-site represents 8 percent of the total known area of seagrass in the South China Sea. It supports a variety of economically important species including swimming crab, cuttlefish, shrimp, rabbitfish, octopus, strombus snail, and seahorse. The species are harvested using a wide range of fishing gear and practices, including gill nets, demersal seines, pelagic purse seines, demersal trawl, push netting, traps, intertidal gleaning and raking, and hookah diving.



*Strombus* snails gleaned for food

Intensity of fishing operations in the near shore waters of the site are such that serious community concern was expressed regarding the degradation and loss of seagrass habitat as a result of fishing and consequent effects on the longer-term availability of local fish resources critical for local income and food. The widespread use of active fishing gears such as demersal trawls and push nets in seagrass areas of the site was noted as a key source of conflict between fishermen.

## Fisheries *Refugia* as a Tool for Integrated Fisheries and Habitat Management at Ham Ninh

In this connection the focal point of the UNEP/GEF South China Sea Project in Viet Nam was consulted and the fisheries *refugia* concept was introduced to the Phu Quoc Management Board as a means of improving the management of fish stock and habitat links at Ham Ninh. The use of the fisheries *refugia* concept was well received by the Kien Giang Department of Science and Technology (DoST) and Department of Fisheries (DoF), as well as representatives of the Ham Ninh commune.



Fishing intensity is high in the vicinity of Phu Quoc

Subsequent consultations were undertaken with commune fishermen, fish traders, and women involved in inshore gleaning and processing. It was noted that by emphasising the “sustainable use” aspects of *refugia* rather than the “no-take” approach adopted as part of classic marine protected areas systems adverse reactions at the community level were avoided. This was viewed as being a necessary pre-requisite for any dialogue regarding improved fishing practices within the site. A joint project involving DoST, DoF, the UNEP/GEF fisheries component and Phu Quoc demonstration site, Phu Quoc MPA Authority, Border Army, and fishermen and fish traders of the Ham Ninh Commune was launched in 2007 to establish and manage a pilot fisheries *refugia* site at the Ham Ninh seagrass area.

### The Approach

The overarching goal of the fisheries *refugia* pilot activity is to improve the integration of fisheries and seagrass habitat management at Ham Ninh through the establishment and management of critical fisheries *refugia* (spawning and nursery areas), to improve the longer-term security of fisheries yields and to reduce the rate of seagrass degradation and loss. Specific activities conducted to date include: development of an inventory of fisheries *refugia* sites for important fish species, including seasonality of spawning and age/size of recruitment from nursery areas for key species; preparation of a fisheries profile for Ham Ninh commune; identification of specific fisheries and habitat management issues at the site; and recommendations for future management. It is planned that operational management of fisheries *refugia* at Ham Ninh will be undertaken by Kien Giang's Department of Fisheries under the guidance of the local MPA Authority.

### Importance of Community Participation in Identification of *Refugia* Sites

At the time of project development information regarding the links between fish stocks and habitats at Phu Quoc was scarce. Little or no data on the distribution and abundance of fish eggs and larvae were available for identification of spawning locations or important nursery locations for fish stocks. This problem was largely overcome by a high level of involvement of fishermen from the local commune in all consultations and exercises to identify *refugia* sites.



Local fishermen involved in identifying spawning and nursery areas for different species and defining *refugia* locations

The level of acceptance by fishermen of the *refugia* concept was such that they ultimately led activities to identify specific spawning and nursery areas in consultation with local fisheries and environment department staff, and border army officials. This provided sufficiently high level of interaction between all sectors that management issues and solutions could often be discussed and agreed at-sea aboard small-scale fishing vessels. Such dialogue was necessary to enable the level of sharing of ideas and perspectives between stakeholders required to identify solutions to problems directly related to the primary source of food and income for the local community. Involvement of scientists from Viet Nam's Institute of Oceanography in the process assisted in the interpretation of local community and fishermen knowledge.



Surveying distributions and abundance of resources

### Potential for Replication

It is anticipated that the experiences gained at this demonstration site will be suitable for application in other areas of Viet Nam and the South China Sea generally where over-fishing and the use of inappropriate fishing gear are significant impediments to more sustainable use of fisheries resources and habitats. The achievements at Phu Quoc were considered during the third Regional Scientific Conference and have been used by the Regional Working Group on Fisheries as a basis for the development of national programmes of activities as part of a planned project to establish a regional system of fisheries *refugia*.

In the past many marine protected areas in Southeast Asia have been promoted in terms of their potential to improve the state of fisheries and their habitats, but have rarely included mechanisms to ensure the effective integration of fisheries considerations into management. In contrast fisheries departments and ministries largely focus on achieving sustainable yields from fish stocks. Experience of this pilot activity at the Phu Quoc site suggests that cross-sectorial co-ordination can be achieved through the fisheries *refugia* concept that has provided a platform for building partnerships and enhancing communication between the environment and fisheries sectors, at the provincial and local levels.



Mooring points for dive and fishing boats established in reef areas to reduce anchor damage.

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