

# UPDATES ON MARINE TURTLE CONSERVATION IN THE PHILIPPINES

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## ABSTRACT

The Pawikan Conservation Project (PCP) of the Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR) is the lead agency tasked to conserve marine turtles in the Philippines. The PCP was established through Executive Order No. 542 of 1979. The PCP is responsible for the development and implementation of conservation and protection policies, management schemes, nationwide information and education programs to ensure the survival of the marine turtle population in the Philippines. The PCP in coordination and collaboration with Sabah Parks Malaysia, WWF-Philippines, Coastal Resource Management Project (CRMP), Smithsonian Institution, and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce outfitted a total of seven transmitters to five green turtles (*Chelonia mydas*) and two hawksbill turtles (*Eretmochelys imbricata*) from 1998 to 2002 in the Philippine Turtle Islands. Transmission of signals ended in the areas of Tawi-Tawi and Basilan for the green turtle postnesters and in the most southern part of Palawan for the hawksbill turtles. The PCP conducts tagging of marine turtle nesters in the Philippine Turtle Islands. From 1982 to 2001, the PCP had tagged 9843 marine turtle nesters. Tagging results show that green turtle nesters from the Philippine Turtle Islands move to Zamboanga; Negros Occidental; Antique; Basilan; Jolo, Sulu; Tawi-Tawi; Masbate; Oriental Mindoro and recently, Indonesia. Further activities of the PCP in the Turtle Islands are nesting incidence monitoring, hatchery monitoring and operations, and recording marine turtle mortalities. Foreign tag recoveries in the Philippines included marine turtles with tags from Guam, Micronesia, Japan, Taiwan, Palau and Malaysia. Another priority nesting site that the PCP monitors is in Morong, Bataan. A Community Based Pawikan Conservation Project was established in the province of Bataan, in collaboration with the Philippine Rural Reconstruction Movement and the Provincial Government of Bataan. The project's aim is to conserve the olive ridley nesters in the area. The Philippine Congress enacted Republic Act 9147 known as the Wildlife Resources Conservation and Protection Act, which was approved on July 30, 2001. The law enhances the protection of marine turtles in the Philippines since it bans the exploitation of all endangered species throughout its life stages including the protection of its habitat.

## THE PAWIKAN CONSERVATION PROJECT (PCP)

The Pawikan Conservation Project (PCP) of the Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR), is the lead government agency tasked to conserve marine turtles in the Philippines. The PCP was established through Executive Order No. 542 dated June 26, 1979. The PCP is

responsible for the development and implementation of conservation and protection policies, management schemes, nationwide information and education programs to ensure the survival of marine turtles in the Philippines (PCP, 2001c).

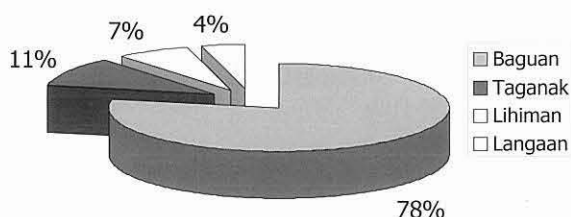


Fig. 1 Tagging Percentage in the Philippines Turtle Island from 1982 - 2001

Table 1. Number of marine turtles tagged in the Philippines Turtle Islands per year per Island

| Year         | Baguan       | Taganak      | Lihiman    | Langaan    | TOTAL        |
|--------------|--------------|--------------|------------|------------|--------------|
| 1982         | 93           | 302          |            |            | 395          |
| 1983         | 100          | 53           |            |            | 153          |
| 1984         | 171          |              |            |            | 171          |
| 1985         | 576          | 6            |            |            | 582          |
| 1986         | 600          | 74           | 242        | 136        | 1052         |
| 1987         | 309          |              |            |            | 309          |
| 1988         | 637          |              |            |            | 637          |
| 1989         | 493          |              |            |            | 493          |
| 1990         | 198          |              |            |            | 198          |
| 1991         | 528          |              |            |            | 528          |
| 1992         | 322          |              |            |            | 322          |
| 1993         | 124          | 12           | 5          | 8          | 149          |
| 1994         | 462          | 50           | 85         |            | 597          |
| 1995         | 630          | 72           |            |            | 702          |
| 1996         | 96           |              |            |            | 96           |
| 1997         | 601          | 45           | 48         | 76         | 770          |
| 1998         | 343          | 81           | 74         | 59         | 557          |
| 1999         | 439          | 105          | 45         | 25         | 614          |
| 2000         | 290          | 117          | 44         | 36         | 487          |
| 2001         | 395          | 110          | 100        | 66         | 671          |
| <b>TOTAL</b> | <b>7,407</b> | <b>1,027</b> | <b>643</b> | <b>406</b> | <b>9,483</b> |

## TURTLE ISLAND HERITAGE PROTECTED AREA

The world's first transfrontier protected areas for marine turtles, the Turtle Island Heritage Protected Area (TIHPA) was established on May 31, 1996 (Palma, 1997). It is a bilateral agreement between the Governments of Malaysia and the Republic of the Philippines for the conservation and management of the Philippine-Sabah Turtle Islands (Fig. 3), which is considered as the only remaining major green turtle (*Chelonia mydas*) rookery in the ASEAN region (Palma, 1997). To date, there is a proposal to expand the TIHPA to include Derawan Island, Berau District, East Kalimantan, Indonesia.

## RESEARCHES IN THE PHILIPPINE TURTLE ISLANDS, TAWI-TAWI

### Postnesting Movements/Tagging

The PCP conducts tagging of marine turtle nesters in the Philippine Turtle Islands (PCP, 2001c). From 1982 to 2001, the PCP had tagged 9843 marine turtle nesters with 75% in Baguan Island (Table 1 and Fig. 1), which was declared a marine turtle sanctuary on June 08, 1982 by virtue of MNR Administrative Order No. 8 and now referred to as Baguan Island Marine Turtle Sanctuary (BIMTS). Tag

Table 2. Number of complete nests recorded in the BIMTS from 1984 to 2001

| Year         | Jan          | Feb          | Mar          | Apr          | May           | Jun           | Jul           | Aug           | Sep           | Oct           | Nov          | Dec          | Total          |
|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|----------------|
| 1984         |              |              |              |              |               |               | 218           | 628           | 605           | 402           | 341          | 100          | 2,294          |
| 1985         | 274          | 156          | 214          | 238          | 254           | 261           | 369           | 399           | 496           | 511           | 415          | 265          | 3,852          |
| 1986         | 213          | 222          | 213          | 249          | 365           | 457           | 598           | 647           | 578           | 661           | 573          | 435          | 5,211          |
| 1987         | 410          | 253          | 215          | 241          | 396           | 429           | 387           | 453           | 389           | 461           | 97           | 355          | 4,086          |
| 1988         | 260          | 223          | 261          | 155          | 586           | 656           | 789           | 572           | 627           | 684           | 122          | 528          | 5,463          |
| 1989         | 286          | 345          | 168          | 348          | 816           | 682           | 784           | 736           | 794           | 679           | 297          | 259          | 6,194          |
| 1990         | 252          | 209          | 182          | 204          | 165           | 191           | 378           | 473           | 502           | 559           | 448          | 375          | 3,938          |
| 1991         | 509          | 593          | 629          | 659          | 787           | 815           | 1,260         | 1,208         | 1,067         | 835           | 566          | 453          | 9,381          |
| 1992         | 348          | 371          | 579          | 457          | 452           | 661           | 712           | 708           | 546           | 479           | 396          | 359          | 6,068          |
| 1993         | 344          | 327          | 581          | 748          | 817           | 750           | 850           | 782           | 738           | 812           | 634          | 538          | 7,921          |
| 1994         | 428          | 489          | 724          | 910          | 726           | 790           | 784           | 686           | 696           | 648           | 476          | 428          | 7,785          |
| 1995         | 445          | 521          | 931          | 1,160        | 1,526         | 1,853         | 1,437         | 1,289         | 1,756         | 692           | 441          | 260          | 12,311         |
| 1996         | 213          | 223          | 403          | 553          | 734           | 880           | 843           | 862           | 770           | 753           | 579          | 465          | 7,278          |
| 1997         | 384          | 406          | 613          | 802          | 1,318         | 1,760         | 1,885         | 1,439         | 969           | 648           | 374          | 251          | 10,849         |
| 1998         | 171          | 167          | 288          | 505          | 615           | 817           | 907           | 770           | 501           | 386           | 269          | 188          | 5,584          |
| 1999         | 232          | 218          | 379          | 626          | 972           | 1,193         | 1,541         | 1,578         | 1,465         | 1,138         | 659          | 450          | 10,451         |
| 2000         | 282          | 280          | 603          | 830          | 822           | 983           | 814           | 623           | 421           | 293           | 184          | 139          | 6,274          |
| 2001         | 144          | 157          | 321          | 391          | 604           | 904           | 1,014         | 955           | 787           | 552           | 322          | 228          | 6,379          |
| <b>Total</b> | <b>5,195</b> | <b>5,160</b> | <b>7,304</b> | <b>9,076</b> | <b>11,955</b> | <b>14,082</b> | <b>15,570</b> | <b>14,808</b> | <b>13,707</b> | <b>11,193</b> | <b>7,193</b> | <b>6,076</b> | <b>121,319</b> |

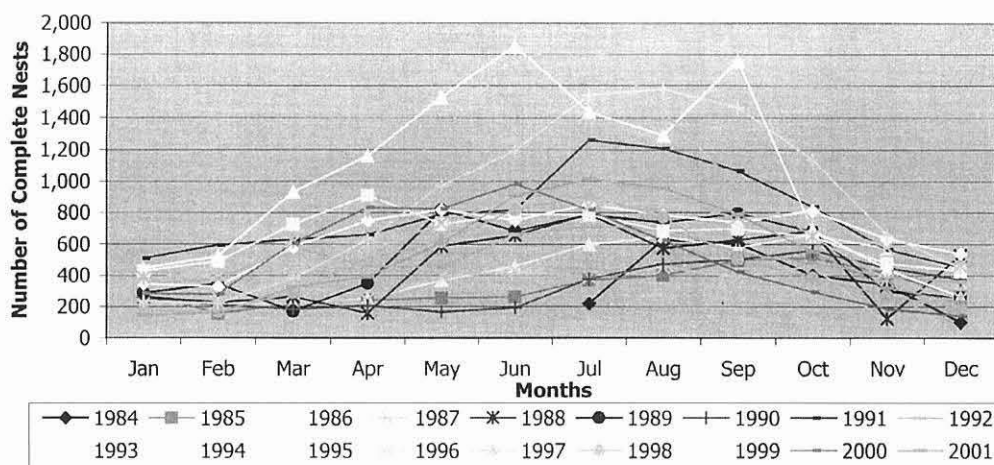


Fig. 2 Number of complete nests recorded in the BIMTS from 1984 - 2001

returns reported to the PCP show that green turtle nesters of the Philippine Turtle Islands move to the provinces of Zamboanga; Negros Occidental; Antique; Basilan; Jolo, Sulu; Bongao and Sitangkai, Tawi-Tawi; Sumisip, Basilan; Aroroy, Masbate; Mansalay, Oriental Mindoro; and recently, Karang Pulau Panjang, East Kalimantan, Indonesia (PCP, 1985-2001a).

#### Nesting Incidence Monitoring

Also, the PCP conducts nesting incidence monitoring. Nesting incidence monitoring is conducted to estimate the marine turtle nesting productivity of the island (PCP, 2001c). Nesting Incidence monitoring is concentrated in the BIMTS. Objectives of nesting incidence monitoring are:

- To estimate population of nesting marine turtles
- To determine peak and lean season of nesting
- To provide additional information to determine an estimate of hatchling production

Based from the nesting incidence monitoring of the PCP in the BIMTS (Table 2 and Fig. 2). The BIMTS peak and lean seasons for nesting of marine turtles are in the months of July-September and November-February, respectively.

#### Hatchery Operations

The PCP also conducts hatchery operations in the Turtle Islands. Those nests in danger of inundation, poaching, and predators are transferred to the hatchery. Marine turtle hatchlings are counted and released during night time or early morning when the sun has not yet risen. Release of the hatchlings is at random places in order to prevent spatial habituation of offshore predat-

tors. From 1985 to 2001, the PCP had released 927,348 hatchlings from the BIMTS to the wild.

#### Satellite Telemetry

Among the projects of the TIHPA is the marine turtle satellite tracking project, which started in October 1998. The PCP of PAWB-DENR in coordination and collaboration with Sabah Parks Malaysia, World Wildlife Fund-Philippines, Coastal Resource Management Project (CRMP), Smithsonian Institution, and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce outfitted five Platform Terminal Transmitters (PTT) to five green turtles and two PTTs to two hawksbill turtles (*Eretmochelys imbricata*). The project uses the ARGOS system to estimate the location class of the PTTs attached to the marine turtles. Transmission of signals ended in the areas of Tawi-Tawi and Basilan for the green turtle postnesters and in the area of Palawan for the hawksbill turtles (PCP, 1998-2001b). Detailed information about this project can be found on <http://www.oneocean.org/ambassadors>, which is maintained and updated by the CRMP.

### MONITORING OF OTHER SIGNIFICANT NESTING SITES

#### Morong, Bataan

Another nesting area monitored by the PCP is Morong, Bataan. Morong, Bataan is situated west north west of Manila, Philippines (Fig. 4). It is a nesting site for olive ridley nesters (*Lepidochelys olivacea*), though there were no reported "arribada." The PCP in coordination with the Provincial Government of Bataan and Philippine

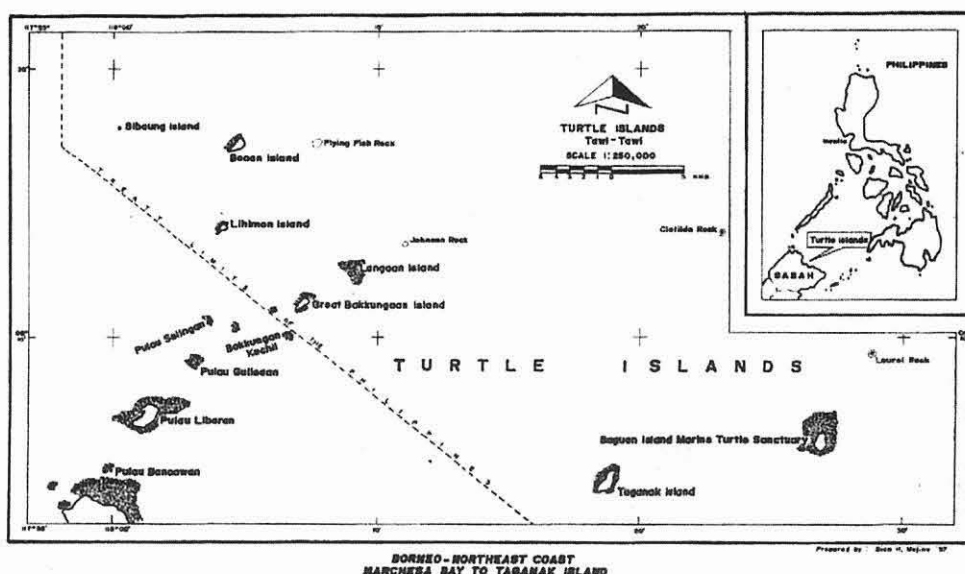


Fig. 3 Map of the Philippines Turtle Island

Rural Reconstruction Movement (PRRM), a Non-Government Organization (NGO), helped establish a marine turtle hatchery and field station in the province of Bataan from a grant by the United Nations Development Program (UNDP). Nesting of olive ridleys in Bataan occur from September to February (PCP, 1998-2001b). Tagging and hatchery activities are conducted by the community based marine turtle conservation project.

Bantay Pawikan, a people's organization (PO) was formed in the area in CY 2000. The members of the PO are previous egg collectors. This PO recognized the need for marine turtle conservation in their area and was enlightened in the need to protect their natural resource. This was achieved in coordination with the Provincial Government of Bataan and PRRM-Bataan Chapter. The Provincial Government and PRRM provided a source of livelihood for the PO. The PCP provided technical assistance for the PO and trained them in resource management. Also, the PCP provided tags, tagging forms and some office materials.

#### Lian, Nasugbu, and San Juan, Batangas

Batangas province is located southwest of Luzon island (Figure 4). The three municipalities, Lian, Nasugbu, and San Juan serve as nesting areas for olive ridley turtles (PCP, 1998-2001b). The PCP provides technical assistance for the concerned citizens and Local Government Units (LGU) in the area. The PCP provides tags and tag-

ging forms in monitoring the nesting activities. It is still in its initial phase of gathering baseline data.

#### Panikian Island, Pitogo, Zamboanga del Sur

Panikian Island is located south of Mindanao Island (Figure 5). The whole island is 6.65 hectares with white sandy beach. Green and hawksbill turtles nest in the said island. The PCP provides technical assistance and tags for the personnel of the Pawikan Conservation Center in the said island. Tagging and hatchery management are conducted in the area.

### MARINE TURTLE DISTRIBUTION RESEARCH

This research aims to determine the distribution, movement, and species of marine turtles present in the Philippines (PCP, 2001c). All DENR Regional Offices and field stations report to the PCP sightings of marine turtles. Through the DENR Special Order No. 884 dated September 28, 1989, all Regional Technical Directors of the Environmental Management and Protected Areas Sector were designated as Field Action Officers of the PCP. All reports regarding marine turtles are forwarded to the PCP. NGOs, LGUs, and the public are encouraged to report to the DENR Offices or directly to the PCP, sightings, opportunistic captures, and exploitation of marine turtles.

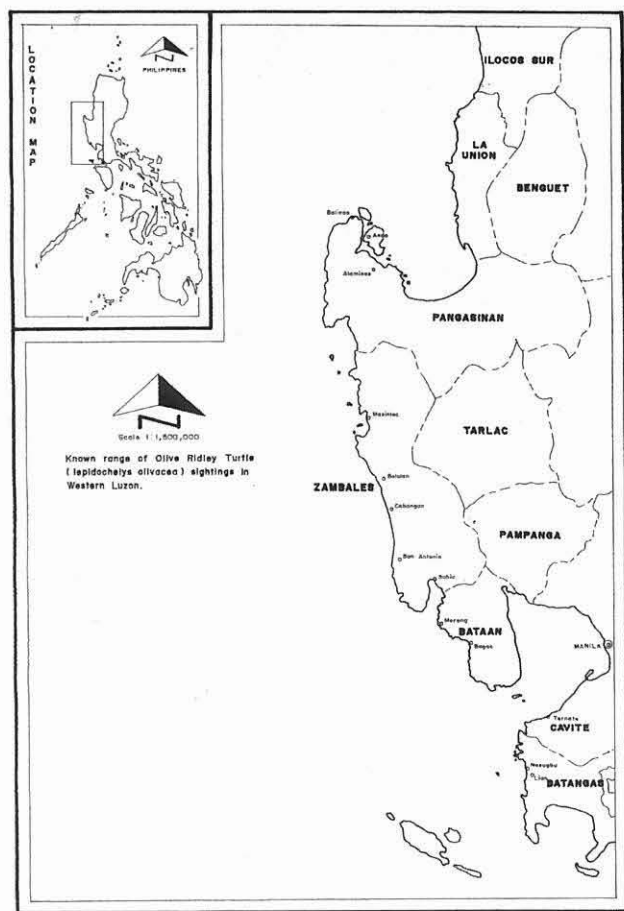


Fig. 4 Map of Morong, Bataan and Nasugbu, Batangas

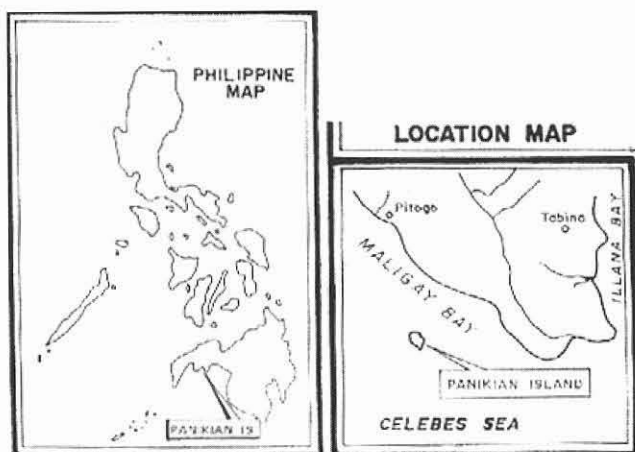


Fig. 5 Map of Panikian Islands, Pitogo, Zamboanga del Sur

The PCP provides tags and tagging forms to the DENR Offices, NGOs, and other concerned citizens. The PCP through post mail and prepaid postcards receives the reports. The DENR personnel are instructed to tag marine turtles whenever applicable and fill out the tagging form accordingly. When the report reaches the PCP, tokens of appreciation in the form of t-shirts or caps with a Certificate are sent through the DENR Office in the area for the person concerned with direct involvement in marine turtle conservation.

From these reports, the species of marine turtles and its age group found in the Philippines per area are identified and the movements of tagged marine turtles can be monitored. Five species of marine turtles had been reported found in the Philippine waters; the green turtle (*C. mydas*), hawksbill turtle (*E. imbricata*), olive ridley turtle (*L. olivacea*), loggerhead turtle (*Caretta caretta*) and, leatherback turtle (*Dermochelys coriacea*) (Trono, 1992).

### FISHING EFFORTS AND BY-CATCH

Most of the turtle by-catch reported to the PCP came from fish corral (fish trap) found all over the Philippines (PCP, 1985-2001c). Local fishermen report turtle by-catch to the local DENR Field station and other government agencies in the area for tagging and release. Prior to release, the marine turtles are measured and history of its capture is documented. Photos are also taken and submitted to the PCP together with the documents for species verification. Here, it can be stated that fish corrals can contribute in the monitoring of marine turtle movements as long as a continuous Information Education Campaign is conducted especially for the local fishermen regarding the ecological importance of the marine turtles and the studies conducted by the government in order to save these endangered reptiles. As long as the fishermen report their by-catch to the DENR/PCP and does not kill the marine turtle, by tagging the marine turtle, its movement

can be monitored and its feeding area may be identified and protected, thus increasing the chance of the marine turtles in the Philippine waters to survive.

## FOREIGN TAG RECOVERIES

De Veyra (1994a) originally reported marine turtles recaptured in the Philippines, which were tagged from Yap, Micronesia; Yakushima Island, Japan and Sabah, Malaysia. From 1993 to 2001 foreign tag recoveries in the Philippines included marine turtles with tags from Palau, Guam, Japan, Taiwan, Malaysia and from the SPREP (South Pacific Regional Environment Program) Tagging Program. However, there are some individuals who report marine turtles with foreign tags to the countries concerned instead of the DENR. Anecdotal reports gathered through habitat surveys stated that fishermen in various parts of the country encountered marine turtles with tags that read Australia, and Italy.

## RESOURCE MANAGEMENT AND PROTECTION

### Habitat Survey

In habitat surveys, nesting sites are identified and verified (PCP, 2001c). Also, species of marine turtles present in the area are identified, age group of marine turtles present in the area, and the degrees of exploitation effected on marine turtles. The populace knowledge on laws related to marine turtle conservation is also noted. Based from habitat surveys, nesting areas of marine turtles had been declared marine turtle sanctuaries. A total of nine sites had already been declared marine turtle sanctuaries.

### Surveillance and Confiscation

The PCP conducts surveillance on trade establishments. The PCP reports to the DENR confiscation team those establishments engaged in marine turtle trade to effect confiscation. The PCP does not have police powers to confiscate marine turtle products in establishments.

### Regulated Marine Turtle Egg Collection (1984 to 2001)

From 1984 to 2001, the PCP was in-charge of the permit system in the regulated collection of marine turtle eggs in the Philippine Turtle Islands. In the regulated egg collection (Palma, 1997 and De Veyra, 1996), 60% of the eggs collected goes to the permit holder, 10% for the

Marine Turtle Conservation Foundation, and 30% for conservation. The 30% of the eggs collected are reallocated in the hatcheries. In BIMTS, there is no collection because it is a sanctuary. De Veyra (1994b) stated that from 1987 to 1993, the BIMTS contributed 55.19% of the total egg production in the Philippine Turtle Islands.

In July 30, 2001 Republic Act No. 9147 otherwise known as the "Wildlife Resources Conservation and Protection Act" was approved. The Republic Act prohibits any person who willfully and knowingly exploits wildlife resources and their habitats. The PCP no longer implements egg collection in the Philippine Turtle Islands.

## NATIONWIDE CAMPAIGN ON MARINE TURTLE CONSERVATION

For the whole Philippines, the PCP conducts information education campaigns (IEC) regarding marine turtle conservation (Cruz, 2000). The IEC focus on marine turtle biology, species identification, marine turtle conservation, and its ecological importance. The PCP had produced documentary films, radio plugs, primers, brochures, bookmarks, billboards and postcards. The audiences in the IEC are encouraged to report marine turtle captures, slaughter, and exploitation to the nearest DENR Office in their area. In return, the PCP gives Certificates of Appreciation and t-shirts or caps to those who have first hand contribution in the conservation of marine turtles.

## LOCAL NETWORKING

Several Memorandum of Agreement and Understanding taken by DENR that were made in relation to marine turtle conservation are as follows:

Turtle Islands Heritage Protected Area Green Turtle Satellite Tracking Project. MOA with WWF-Philippines, Coastal Resource Management Project (DENR Project) signed June 23, 1998.

MoU for the conservation and protection of the outstanding biodiversity and natural resources of the Philippines, including the Sulu-Sulawesi Marine Ecoregion. MoU with WWF-Philippines signed on September 26, 2001.

MoU to cooperate and collaborate jointly in activities promoting marine turtle conservation and sustainable resource management in the Province of



Bataan. MoU with the Provincial Government of Bataan and Ugnayan ng Nagkakaisang Lakas at Diwa (UNLAD) Philippine Rural Reconstruction Movement (PRRM)-Bataan Chapter signed November 23, 2001.

Turtle Conservation and Protection - signed on September 12, 1997[RDC1].

Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia signed on June 23, 2001.

## INTERNATIONAL AGREEMENTS

International agreements related to the conservation of marine turtles in which the DENR is involved are:

Turtle Islands Heritage Protected Area - Memorandum of Agreement between the Governments of the Philippines and Malaysia on the joint management of the Philippine-Sabah Turtle Islands, signed on May 31, 1996.

Memorandum of Understanding on ASEAN Sea

## ACKNOWLEDGMENT

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