

En octubre de 1987, la experiencia de campo de Fausto fue llamado a cumplir el importante papel de asistir a otros cinco guardaparques en un intenso censo de tortugas en la Isla Pinzón. El censo fue todo un éxito--fueron encontrados 45 nidos de tortugas--y todos los participantes estuvieron de acuerdo que fue Don Fausto quien reconoció las mejores áreas de anidamiento, quien encontró el mayor número de nidos, y quien aseguró el éxito del viaje.

Fausto es también conocido y admirado como un escultor en madera. Sus tallados de madera de tortugas tipo montura y tipo cúpula son tan características que son reconocidas a miles de millas de Galápagos. A pedidos especiales Fausto hace otros animales desde pingüinos a iguanas de tierra, pero sus tortugas son particularmente apreciados tanto por los residentes de Galápagos como por los visitantes. Como persona que ha vivido cerca de las tortugas desde su niñez, y como guardaparque que ha trabajado con ellos en el campo y en cautiverio, Fausto es único en reproducir tortugas de un pedazo de madera a una pieza de arte.

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Luis Ramos (con respecto y cariño conocido como Don Ramos), ha trabajado para la Estación Científica Charles Darwin desde noviembre de 1971. Por muchos años ha servido como el responsable principal en la compra de alimentos, materiales, equipos, y cualquier cosa necesaria del abastecimiento local y recibiendo la carga procedente del continente.

En tiempos pasados, fue Don Ramos quien con su indispensable panga proveyó a los científicos a los barcos en el puerto con destino a otras islas, con sus materiales, y fue el quien recogió a los científicos de retorno de sus actividades. Don Ramos realizó incontables viajes en panga a través del angosto canal desde el pueblo cruzando Bahía Academy a la Estación con materiales llegados del continente en el barco de abastecimientos. Pero, a medida que los caminos mejoraron y la Estación creció Don Ramos comenzó a utilizar los vehículos de la Estación para completar sus viajes para conseguir las provisiones y repartirlas. Para Don Ramos no importa lo ocupado que se encuentre, siempre encuentra tiempo para llevar a alguien que necesita ir al pueblo o para aconsejar sobre lugares para hacer compras. Todos, desde los empleados a los visitantes, se han beneficiado de la habilidad de Don Ramos de encontrar cosas necesarias de escasez en poco tiempo, comprarlas al precio más razonable, y de asegurar crédito cuando el dinero no fue disponible.

La ingenuidad de Don Ramos también le sirve en coser, para el un hobby útil. Cuando cierres, telas, y

la necesidad existe, el puede fabricar cualquier cosa desde mochilas a carpas. Don Ramos tiene la habilidad de copiar la calidad de equipos profesionales e incorporarles modificaciones especiales útiles para la situación de Galápagos. "Hecho por Ramos" no es marca de un prestigioso diseño, pero para la gente de Galápagos, es un lujo local que es disfrutado por todos quienes necesitan reparar o remplazar equipos esenciales de campo, fabricar títeres para programas de educación ambiental, remplazar las cubiertas de asiento de los vehículos, o hacer los interminables arreglos para asegurar el bienestar de todos en la isla.

(Traducción por Aida Luz Aquino.)

FISH IN ASSOCIATION WITH WHALE SHARKS *RHINIODON TYPUS* NEAR THE GALAPAGOS ISLANDS

By: Tom Arnbom and Vassili Papastavrou

The whale shark (*Rhiniodon typus*) is the largest shark and, in fact, is the largest fish. It reaches lengths in excess of 12 m (Castro 1983). Virtually nothing is known about its life history (Wolfson 1983). Four observations of whale sharks have been recorded in the Galápagos Islands (Gudger 1927, 1933; Kasteleyn 1986; Wolfson 1986).

While tracking sperm whales (*Physeter macrocephalus*) off the Galápagos Islands, 91°00'W, 01°00'S, aboard a 10 m sloop, we sighted whale sharks on four separate occasions between 23 February and 20 April 1985 (Table 1). The observations were in an area which is seldom visited (Fig. 1). Little fishing if any is carried out in the area, and no tourist boats pass this way. Tour boats normally cruise along the coastlines. On three occasions, we observed other species of fish in close proximity to whale sharks. The encounters allowed us to make underwater observations and to take photographs.

The whale sharks were estimated to be between 10 to 12 m long by comparing their sizes to the length of the research vessel. None of the whale sharks were moving in any particular direction and their speeds were less than 3 km/hour. One whale shark circled around the stationary boat and approached it within 0.5 m several times.

The first observation was on 7 March and the other three were on 13 April. The distance and time between the second and third observations suggest that they were two different individuals. The fourth observation was of an individual with a noticeably deep cut in the trailing edge of the dorsal fin and therefore was considered to be a different individual from the second and third observations.

Whale sharks appear to prefer areas where the surface water temperatures are between 21 to 25°C with cold water of 17°C or less upwelling into it (Compagno 1984). The four observations south of Isabela Island (Fig. 1) were in an area known for its upwelling and noted for high primary productivity (Feldman et al. 1984). The recorded water surface temperatures were between 23.5 and 26.5°C.

The remoras (*Escheneidae sp.*) observed with whale sharks off the Galápagos were positioned on the dorsal side of the head, underside of the jaw, and close to the pectoral fins and the gill slits. Remoras are hitchhiking fish that attach themselves to all manner of hosts, e.g., sharks, rays, turtles, and whales (Tinker 1978). They feed upon various animals in the plankton, scraps of large food items that fall from the mouth of their host, and potentially on external parasites and feces (Tinker 1978). Numerous unidentified small teleosts (lengths < 0.2 m) were present around the mouth and gill slits of one of the whale sharks. Off the Galápagos, one whale shark was surrounded by a school of yellow-finned tuna (*Neothunnus macropterus*) with individuals approximately 0.75 m in length. Springer (1957) noted that whale sharks were feeding on small fish in the middle of schools of black-finned tuna (*Thunnus atlanticus*). Although the whale shark and the tuna species may compete for the same prey, their association may also be beneficial for both species. Foraging tuna which "herd" prey species into denser schools would benefit a whale shark which was feeding on the same prey. The prey species may be more vulnerable to tuna when the whale shark feeds and creates confusion among the prey species. However, no feeding behavior of whale sharks was observed off the Galápagos.

Two species of sharks, a tiger shark (*Galeocerdo cuvieri*) and a hammerhead shark (*Sphyrnidae sp.*), were observed within 10 m of the whale shark. The smaller sharks recorded together with the whale shark may have been attracted to the concentrations of organisms exploited by whale sharks or may just have been casual visitors. Normally, whale sharks feed on food much too small to be attractive to other large sharks. Sharks (other than whale sharks) have been reported as following sperm whales (Gambell 1970) which are of a similar size to a whale shark. Many fish of the open ocean seek protection in the vicinity of larger fish (Eibl-Eibesfeldt 1970).

While the whale shark swims at a relatively slow speed and often at the surface, it would be worth pursuing a behavioral study of the whale shark and its relationships to other species of fish. The present observations and earlier reports of sightings west of the Galápagos Islands suggest that this area may be suitable for such studies. We suggest that

photographic identification of natural markings, such as spots on the whole body and the shape of the dorsal and caudal fin, could be used for individual identification of whale sharks. The techniques proposed are discussed by Arnbom (1987) with reference to sperm whales.

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Table 1. Summary of the four whale shark observations off the Galápagos Islands, 1985. Surface water temperatures are extrapolated from measurements made at 3 hour intervals (0600, 0900, 1200, etc.).

Observation Number	Date	Time	Latitude	Longitude	Surface Water Temperature (°C)	Depth (m)	Other Species
1	7 March	0655	1°21'S	91°12'W	23.5	3,000	<i>Neothunnus macropterus</i>
2	13 April	1010	1°08'S	91°12'W	26.0	2,000	<i>Galeocerdo cuvieri</i>
3	13 April	1140	1°10'S	91°11'W	26.5	2,000	Sphyrnidae sp. Escheneidae sp. Other small teleosts
4	13 April	1350	1°11'S	91°11'W	26.5	2,000	- - - -

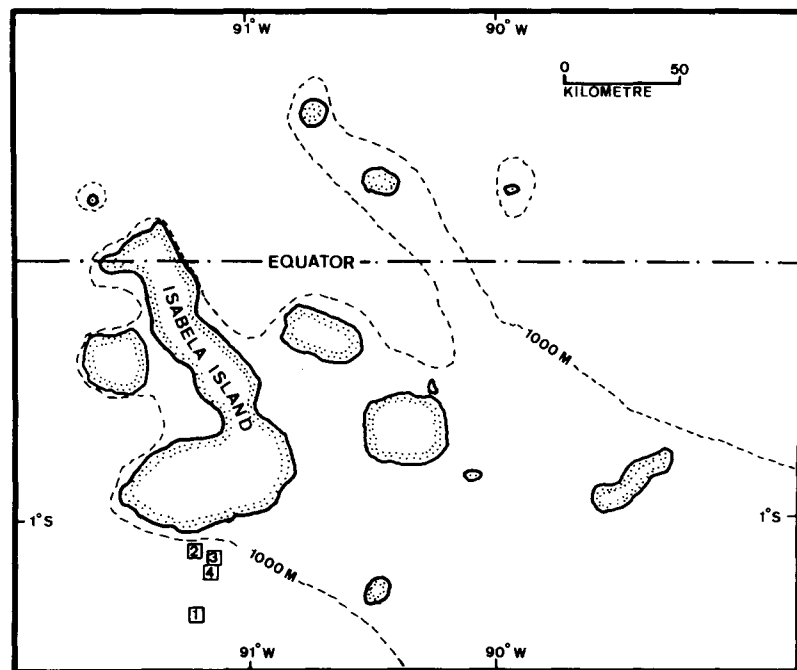


Figure 1. Isabela Island and surrounding waters where whale sharks were sighted. Numbers 1-4 indicate areas of sightings. A dashed line indicates the 1,000 m depth contour. Isla Isabela y el mar alrededor donde se vieron los tiburones ballena. Los números indican los sitios. La línea rayada representa la curva de nivel de 1,000 m profundidad.