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Whale shark behaviors observed in northeastern Quintana Roo, Mexico.

Background: Whale shark feeding aggregations in northeastern Quintana Roo (Yucatan Peninsula) between May and September are a natural phenomenon well known to local people for decades. Since 2001 we have observed these animals, first as tourists and then as part of formal research activities including conventional tagging, aerial survey and photographic identification. During this time we have made significant behavioral observations, other than previously described: passive and active feeding, banking as predatory response, tolerance even to be touched by people.

Methods: Observations were made primarily during snorkeling surveys of the whale shark aggregation between 2001 and 2013. Video documenting and photographic identifications were made using ECOCEAN and our own photographic catalogue of individual Quintana Roo animals. Data collected on each whale shark included its location, sex, total length estimation, tagging, photographs and behavioral observations. Over 1,340 hours were spent in documenting many conducts performed by whale sharks. Important to notice that these observations were made mostly around tourism activities, but many were made before or after tour operation, or on separate sub-aggregations, under SEMARNAT permission: SGPA/DGVS/10048/12

Results: 54,662 photographs were obtained during 366 observation days, plus 1,382 videos for over 315 minutes, on a decade of study and survey. Individual whale sharks in the QR aggregation have also been observed in Belize, Honduras and the Gulf of Mexico and some have visitation records exceeding 10 years. Occasionally, early spring ephemeral aggregations occur, perhaps in response to short term plankton blooms, these are composed by the same individual animals as revealed after photographic identification. These aggregations are mostly male and immature. Larger females seem to stay on the periphery of the aggregation or even form separate small groups. Smaller animals appear to be more curious of humans than are older animals. Many animals feed vertically and some are observed “coughing” and “mouth washing”. Vigorous tail-flapping and increased remora activity often precedes defecation, banking behavior may be social.

Conclusion: Prolonged observation shows that whale sharks have a more diverse behavioral repertoire than known previously and confirming observations made of aquarium-held animals, as well as their ability to synchronize their presence with high productivity occurrence. More detailed studies of group composition are definitely needed, as are functional studies of some of the other intriguing behaviors. Since whale shark behavior is often opportunistic and facultative, and depends on many factors to coincide, like specific weather and oceanic conditions, food concentration as well as anthropogenic

influence, statistical analysis is beyond this study consideration. Do these events play a role in breeding opportunity?

Keywords: Behavior, Aggregation, Plankton Bloom.