



Research Update

by Jim Darling, Ph.D.



The Whale Trust research program to date has focused on behavior, social organization and communication of humpback whales. These are areas of study that, on one hand are typically the most difficult to find funding from traditional institutions due to the long time frames and exploratory nature, and on the other hand are the most fascinating, the most likely to provide critical insight into the nature of the animals and their environment, and whose understanding is vital to meaningful conservation and management programs.

Our study of humpbacks on the Hawaiian breeding grounds had its beginnings in the late 1970s, where Jim Darling and Flip Nicklin began some of the first studies on living humpback whales. Questions that arose at that time regarding the function of the humpback whale song were still unresolved in the 1990s, and led to their return to Hawaii in 1996 and the current research program, now in its 10th full season. In 2002, the research program was expanded significantly with the complementary investigation and Ph.D. project of Meagan Jones to describe humpback female behavior patterns on the breeding ground. Both studies are currently very active.

The study of humpback song has made significant strides over the years from the first basic questions of who sings (the males), to who joins singers (males), to looking at different aspects of the context of the song and broader male behavior patterns, and hypothesizing song function. The current (2006) working hypothesis is that the song organizes males during the breeding season, possibly through it providing a measure of association of different males, and this organization may account for the range of male relations around a female ranging from cooperative to competitive. This idea will be tested over the next few seasons, with detailed investigation of male-male relationships, analysis of song similarity versus degree of singer separation, and playback experiments where specific types of song are played to singers and their reactions measured.

The younger study of female behavior and reproductive strategy delves into one of the least known, yet one of the most important, aspects of humpback whale behavior. This study focuses on the impact reproductive status might have on female behavior patterns, including association patterns and specific interactions with males during the breeding season. There is little doubt females come to Hawaii for the purpose of mating, and theory would suggest they, in some way, “choose” the fittest male available. This study will provide insight into how they may achieve this objective, clearly critical to their reproductive success. The first stage of this study, Meagan’s Ph.D work, involves one further field season (2007) before final analysis and reporting.

Whale Trust is also assisting with two related studies on humpback whales. The first is the description of a newly discovered population of humpback whales in the northern Philippine islands conducted by Jo Marie Acabes of the Philippines. Funds granted to this study allowed, among other things, recording of songs for comparison to those of Japan and Hawaii as part of the song study described above. Second, Elisa Girola, a student of the University of Trieste in Italy is using songs and data collected during our studies in Hawaii to determine if there is a connection between the song characteristics and the size (age) of the singer.

The ultimate objective of all this work is a definitive description of humpback whale behavior on the breeding grounds, and real insight into the mating systems and social organization of this species and whales in general. The results of these studies have been, and will continue to be, presented in scientific journals and conferences as well as in popular media. This past year, results of our research were presented at scientific and popular conferences, published in scientific journals, and in the coming year, will be featured in the upcoming National Geographic Magazine, and are a large part of an ongoing documentary filmed by Daniel Opitz on humpback whales in Hawaii.