

## Kate Ryan\_2009\_Humpback Whales

**Hauser, N., Peckham, H., Clapham, P., (2000). Humpback whales in the Southern Cook Islands. J. Cetacean Res. Manage 2(3): 159-164.**



I undertook a critical review of the above mentioned research paper. Despite reading and re-reading this research paper I was unable to find a stated research question per se. However, within the introduction the researchers identified a problem e.g. a dearth of knowledge with specific reference to the biology and behaviour of the humpback whale population in the Cook Islands (Area VI).

In particular the researchers noted that no field studies to date had been conducted on Cetaceans in Area VI. Noteworthy, the researchers highlighted the knowledge which they had gleaned from previous research on the adjacent areas of IV and V, which was evidenced by the list of references dating from 1965-1995 within the research paper introduction. It appears to me that the justification for this two year exploratory survey was based on the lack of information on humpback whales in the Cook Islands. Perhaps the lack of information identified as a problem by the researchers formed the research question for this exploratory survey! This two year exploratory survey was conducted to discover and observe the presence of humpback whales in the Cook Islands in order to describe new knowledge/information about them.

The lack of knowledge concerning the humpback whale is important, because as the researchers in their introduction clearly state, that while there is research available regarding humpbacks in Areas IV and V, virtually nothing is known about humpbacks in the Cook Island group (Area VI). Additionally I critiqued the research paper by (Hauser & Clapham 1998-2005) and although the authors used various research methods to identify and record individual humpbacks the question still remains as to whether the humpbacks in this region ever originated from the Cook Islands (Area VI). Furthermore, any knowledge that the researchers had previously gathered regarding the biology of the humpbacks, was revealed through commercial whaling records in the 20<sup>th</sup> century.

A general description of humpbacks can be found in the following link [http://www.iwdg.ie/species\\_profiles.asp?speciesID=2103](http://www.iwdg.ie/species_profiles.asp?speciesID=2103). From my own research on this site, I discovered that the fluke of each whale is unique and as distinct as a human fingerprint. Furthermore because of the individuality of each fluke it has become an important research tool for data collection in recent years. In their two year exploratory study the researchers catalogued individual whales through fluke identification using the research tools of photography and video-recording using a camcorder.

These research tools were used by the researchers in order to identify and record important new information on individual whales in the Cook Islands.



From my own research on ([http://www.iwdg.ie/species\\_profiles.asp?speciesID=2103](http://www.iwdg.ie/species_profiles.asp?speciesID=2103)) I discovered a behaviour which has been linked with reproduction which is called “singing”, which is a complex pattern of sounds made underwater by male humpbacks only. I also noted from the research paper that acoustic detection using a HTI hydrophone was used to record songs and the information the researchers gathered is displayed within the research paper under data and sample collection (Pg161).



In the two year exploratory survey the following research methods were used to gather information on the humpback whale population in area VI: Observation, video recordings, photographs, hydrophones, interviews, skin samples. Also sighting forms (originally developed in 1991) were used and the results were analysed by the researchers in addition to examining previous sighting records retained by the Cook Islands Natural Heritage Trust. Collectively, these research methods were used by the researchers to discover and describe new facts and information which could be used to inform further research in area VI. The authors detail their collective “efforts and sightings” which were displayed in a table format (Pg161). The table contained important information which reflected the location, dates, survey hours, sightings and group class and they analysed the group size by standard deviation (sd) and the hours of song recordings. However, the survey did not quantitatively calculate the number of whales in the area.

From the discussion section I conclude, that this two year survey does suggest that the Cook Islands (Area VI) appears to be a mating, breeding and calving ground for humpbacks in this previously understudied area. However this initial two year exploratory study formed the basis for further research by (Hauser & Clapham 1998-2005) and interestingly, I noted that despite a further research period of six years that similar conclusions were drawn except for the recommendation that satellite tagging be used in the future on humpback whales in the Cook Islands. The surveys had to be carried out on the lee side of the Cook Islands. This raises the question as to what other important observations could have been made on the

other northern, eastern and southern aspects of the Cook Island Group which could have contributed to the survey. The authors did highlight the following obstacles which prevented them from gathering/discovering new facts. Namely, the inclement weather conditions, the lack of substantial landmasses and the areas of fathomless water which rendered the researchers powerless to observe from the other aspects of the Cook Islands other than the lee side. The authors do make further recommendations and suggestions for future studies. Namely, the need for underwater observations, intensive photographing, a biopsy based genotyping with microsatellite DNA and genetic sampling of humpbacks over a longer period of time. Furthermore having read the conclusions from the research paper (Hauser & Clapham 1998-2005) I have ascertained that in comparison to their initial assumptions from their preliminary two year exploratory survey the researchers still cannot determine the exact purpose of the Cook Islands regarding the humpback whale. Also due to the lack of conclusive evidence, the researchers could only make the assumptions that the Cook Islands may serve as a temporary breeding ground for humpbacks. I also learned that “maternally transmitted fidelity” (Pg 6) may have been lost through the illegal whaling in the 1960s.

Unanswered questions remain regarding the humpback population identification and their abundance in the Cook Islands. In order for future researchers to follow the extent of the humpback whale movement in the Cook Islands, further “collection and comparison of additional photographic or genetic individual identification data” (pg 162) will be needed. The authors do state that area VI humpback population was heavily depleted by “commercial whaling” (pg 162) and they speculate that either the USSR may have depleted the humpback population by commercial whaling or that the stocks lie elsewhere. Therefore the population of humpback whales in this region remains ambiguous. I learnt from reading this research paper that mitochondrial DNA of different whales was used to prove (Baker et al 1994, 1998) the distinction between whales of the different areas. However, due to the small gene pool from Tonga, the results were too inconclusive to suggest division between Tonga and portions of Area VI.

To conclude in my opinion this two year exploratory survey cannot state definitively that the Cook Islands do represent a mating and calving ground for humpback whales, it can only make assumptions based on observation. The authors did collect a variety of data and used important data collection methods such as the tool of observation. The authors utilised a variety of other supplementary data collection methods, which lent a lot of credibility and strength to the important tool of observation. Additionally, they conducted an analysis of the data using standard deviation. This research paper lays down the foundations for future experimental studies. While the survey is credible the hidden bias is acknowledged by the researchers of having to remain on the West (leeside) side of the island, largely due to the inclement weather conditions and other aforementioned obstacles. Finally, in my opinion despite the variety of data collection methods used in the survey the researchers were unable to confirm the identity and abundance of the humpback population as having originated from the Cook Islands (Area VI).



## References

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[http:](http://www.iwdg.ie/species_profiles.asp?speciesID=2103)

[//www.iwdg.ie/species\\_profiles.asp?speciesID=2103](http://www.iwdg.ie/species_profiles.asp?speciesID=2103)

<http://www.acsonline.org/factpack/humpback.htm>

Pictures are courtesy also of the IWDG (Irish Whale and Dolphin Group)