



SUMMARY OF HUMPBACK WHALE CALVES: 2012

This document contains a summary of calf encounters during the 2012 humpback whale season in Vava'u, Kingdom of Tonga. For additional information contact Tony Wu. (Version: Sunday, November 4, 2012)



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INTRODUCTION

This document is a summary of encounters with humpback whale mother/ calf pairs in and around the Vava'u island group in the Kingdom of Tonga during the months of July to October 2012.

I use the term “mother/ calf pairs” because my IDs are based on looking at both the adult females and their calves. Baby whales grow and change rapidly in their first few months, whereas body shapes and pigmentation of adults tend to remain the same.

By making the fundamental assumption that an adult female and its calf remain together, i.e., humpback mothers do not swap calves, I can make use of all the physical traits of a given mother/ calf pair for ID purposes. Doing so provides multiple “check points”, so to speak, thereby increasing the odds of making definitive IDs, as well as augmenting the probability of recognising repeat sightings.

One disadvantage of this methodology is the near inability to keep track of the calves after the initial season. If a calf has extraordinary markings or possibly extensive wounds (as was the case with 201114 Tahafa), there is some possibility of recognition after the first season. Barring such obvious physical markers, the calves change too much from the juvenile to adult stages.

My intention with this ID effort is not to track the calves over time, however. The primary goals of this exercise are to:

- 1) Gain insight into the absolute quantity of calves that pass through Vava'u each season (I use the phrase “pass through” because no one knows what proportion, if any, of the calves are born in Vava'u, and my experience to date indicates that most mother/ calf pairs are transient);
- 2) Discern long-term patterns, if any, of relative concentration, movements, locational preferences and density of mother/ calf pairs while they are in Vava'u;
- 3) Keep track of female: male ratio among calves for which I am able to determine sex;
- 4) Attempt to identify repeat mothers in order to gain insight into the frequency of mating and calving;
- 5) Quantify the level of escort interactions with mother/ calf pairs; and
- 6) Record other interesting/ unusual behaviours I see and hear, such as: the sudden appearance of certain obvious physical traits in one season followed by a dearth of that trait in following seasons; the frequent use of vocalisations (not just song) and other sound for communication; heat run competitions among males for females; apparent same-sex intimacy among males; apparent “personalities” of individual whales; courtship behaviour between paired-up males and females; injuries due to both unidentified predators and manmade objects; and other related observations (*Please refer to my [blog](#) for more detailed descriptions of my observations and speculation about these types of topics.*)

As of this writing, I have assigned IDs to 52 mother/ calf pairs for the 2012 season, 31 of which I photographed and ID-ed, with the balance comprising contributions from other people. This exceeds the previous high count of 48 mother/ calf pairs in 2011.

In addition, I recorded 28 mother/ calf pairs for which I had visual confirmation, but was unable to establish ID. Of these 28, I eventually assigned IDs to two, leaving 26 unknown mother/ calf pair sightings.

Highlights from this season include the following points:

- 1) The early part of the season was characterised by unusually favourable conditions. Weather was mostly mild, climate warm, precipitation low, winds low-to-moderate, and underwater visibility excellent. There was however a prolonged drought, so the Vava'u area was suffering from a general lack of fresh water supplies. Toward the latter half of September, precipitation picked up.
- 2) Subjectively, I would characterise overall whale behaviour/ disposition this season as neutral to friendly, similar to the overall mood in 2011 and 2009, and in contrast to that of 2010. There were, of course, exceptions to the general mood.
- 3) The “density” of whales in the area seemed exceptionally high. This is reflected in an elevated Calf/ Boat-day figure and Calf-Sighting Ratio, both of which are significantly higher than the equivalent ratios for previous seasons.
- 4) Once again, the ratio of female to male calves favoured the females. The fact that this has been the case for four years running suggests that this could be the norm.
- 5) The overall level of escort activity seemed to be lower than for the 2011 season, as reflected in the metrics I've formulated to try to quantify and track the level of escort activity. As this is only the second season for which I have kept records pertaining to escort activity, there is insufficient data as yet to speculate much about possible explanations and/ or implications.
- 6) I did not document any long-term escort associations with mother/ calf pairs, unlike for 2011.
- 7) I documented the first three-time mother to date, with the mother of calf 201217 also being the mother of 200816 and 200929.
- 8) The number of individuals with white pectoral fins was exceptional. I documented 21 such individuals (preliminary figure, subject to spending more time cross-checking), including four mother/ calf pairs with both individuals having white pectoral fins, and another six calves with white pectoral fins. For comparison, I documented two such calves in 2011 (201127 Uafitu and 201142 Faua), and zero in all previous seasons.
- 9) I did not document any calves with the types extensive attack injuries seen on a number of the calves during the 2011 season.

For additional background information from the 2012 humpback whale season, please refer to the following blog posts:

[Encounters with Humpback Whales in Tonga | 2012 Season Part 1](#)

[Encounters with Humpback Whales in Tonga | 2012 Season Part 2](#)

[Encounters with Humpback Whales in Tonga | 2012 Season Part 3](#)

[Encounters with Humpback Whales in Tonga | 2012 Season Part 4](#)

[Humpback Whale Heat Run](#)

[Encounters with Humpback Whales in Tonga | 2012 Season Part 5](#)

[Encounters with Humpback Whales in Tonga | 2012 Season Part 6](#)

All of the work referred to in this document has been and is being done on my own time, with my own resources. I do not receive financial or other assistance, and I am not affiliated with any person or organisation involved with cetaceans.

Within this context, I would like to thank the people who have been kind enough to provide photographs, video and related information to help me with this undertaking for the 2012 season:

[Jerry Allen](#)
[Frank Baensch](#)
[Kirsty Bowe](#)
[Ray Chin](#)
[Ma'ata Fifita](#)
[Howard and Michele Hall](#)
[Brenda Kaye](#)
[Emiko Miyazaki](#)
[Takaji Ochi](#)
[Douglas David Seifert](#)

For the avoidance of doubt, any errors or silly statements contained in this document are my own, and do not reflect on any of the people noted above.

If you have photographs of humpback whale mother/ calf pairs from the 2012 season in Vava'u that are not included in this file, or additional information about whales already included in this document, please [contact me](#).

Reference documents:

[2008 Calf Summary](#), [2009 Calf Summary](#), [2010 Calf Summary](#); [2011 Calf Summary](#)

METHODOLOGY

- 1) I recorded GPS locations for all sightings of humpback whale mother/ calf pairs upon initial visual confirmation using a Garmin GPS 72H handheld unit and converted to Google KML format using [HoudahGPS](#). When GPS units were not available, I marked locations by hand on a map.
- 2) Where possible, I entered the water to photograph mother/ calf pairs, escorts and other associated whales if any. I made notes of behaviour, easily recognisable physical traits, and any other noteworthy circumstances.
- 3) When I was able to take photographs of sufficient quality and quantity to establish an ID, I named and assigned a numerical ID to the relevant calf. I downloaded, keyworded and captioned my photos, using [Aperture](#) to stay organised. I determined IDs each evening, recorded GPS data, and wrote down notes to minimise passage of time between encounters and assigning of ID.
- 4) In those cases where I was unable to get sufficient photographs to establish ID, I did not name the calves. I recorded the sightings as unknowns and cross-checked any photos of such juveniles with subsequent ID-ed whales to look for possible matches.
- 5) This season, I received more ID photos from other people than I have in previous seasons. I have collected and organised such photos in a separate [Aperture](#) library, with relevant metadata, comments, and other pertinent information appended.
- 6) In those instances, I have relied on the relevant people for images, location data and anecdotal encounter information. I have made every attempt to secure such data and information as soon after the relevant encounter as possible.
- 7) I have uploaded all GPS and hand-marked location data to [Google Maps, where the locations of all the calves are available for viewing](#). GPS locations are also embedded as hyperlinks throughout this document when there is text that refers to date and location of sightings. Clicking the hyperlinks will take you to Google Maps to view the relevant location.
- 8) The photographs contained in this document represent a small portion of the images collected. For most ID-ed juveniles, I have additional images for verification purposes.

OBSERVATIONS

- 1) Figure 1 below illustrates my cumulative calf counts over the past five seasons (incorporating all ID-ed juvenile whales each season, including those contributed by third parties). Once again, the slope of the cumulative calf ID curve appears similar despite inherent differences among seasons (different periods of stay, varying number of boat-days, different number of people helping, weather variations, etc.).

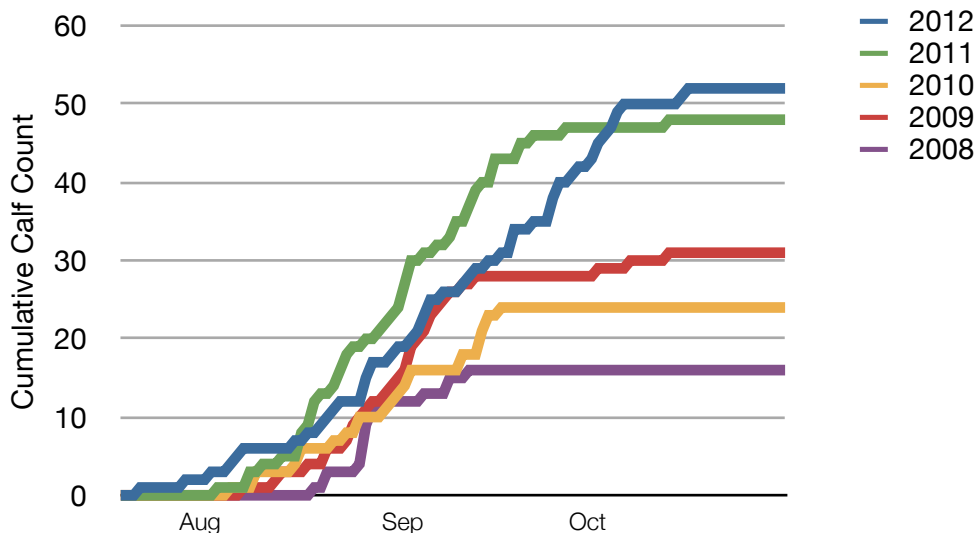


Figure 1: Cumulative ID-ed Calf Count*

* Includes all ID-ed mother/ calf pairs

- 2) During my stay this season, I ID-ed 31 mother/ calf pairs over the course of 34 boat-days (compared with 45 calf IDs over 76 boat-days in 2011; 22 calf IDs over 81 boat days in 2010; 26 calf IDs over 59 boat days in 2009; 16 calf IDs over 67 boat days in 2008; 14 calf IDs over 53 boat days in 2007). This worked out to **0.91** Calf/ Boat-day, with a boat-day being defined as a single day of approximately six hours on the water on a boat looking for whales. These figures do not include calf IDs contributed by other people.
- 3) As is apparent from Figure 2 below, this season was exceptional, with the Calf/ Boat-day ratio significantly exceeding the levels recorded in each of the previous seasons. One contributing factor may be that I was only running one boat at a time this season, whereas in previous seasons, I had two boats on the water on many days. This change was precipitated by a number of factors, the most significant of which was consequential damage from the Tsunami on 11 March 2011. This event effectively eliminated visitor traffic from Japan. As a result, the denominator in my Calf/ Boat-day ratio was lower this year than in past years. It would seem logical however that this consideration should have been offset to a large degree, if not entirely, by my inability to cover as much area on a given boat-day compared to previous seasons.

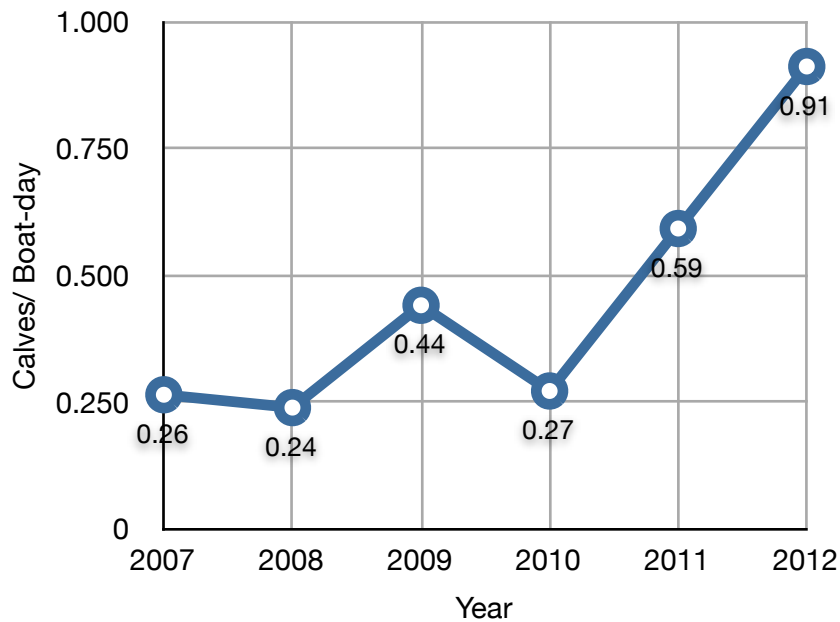


Figure 2: Calves/ Boat-day*

* Boat-day = Approximately six hours on the water

- 4) On a subjective basis, the exceptionally high Calf/ Boat-day ratio for this season is consistent with the high probability and relative ease I experienced of encountering and ID-ing calves this season. There was a noticeably high “density” of mother/ calf pairs, and on balance, a relatively high proportion of those whales were settled, or at least settled enough for me to establish an ID.
- 5) For argument’s sake, if I double the number of boat-days this season from 34 to 68, the resulting Calf/ Boat-day ratio would still be **0.46**. In other words, even if there is a measure of positive bias deriving from a reduction in the number of my boats, an over-simplistic doubling of my boat-day count still results in a very high figure.
- 6) Taking this season’s Calf/ Boat-day ratio together with those of previous years, there is a wide band, ranging from 0.24 in 2008 to 0.91 this season. This suggests to me that the Calf/ Boat-day figure may fluctuate substantially from year-to-year. In other words, there may be no “norm” for expected mother/ calf pair density.
- 7) Moving on, Figure 3 on the following page depicts the total Calf Sighting Ratio for 2009 to 2012, where I have defined Calf Sighting Ratio as = (Total ID-ed calf count + Total unidentified calf count)/ Total boat-days. Once again, for consistency with previous seasons, I only took into consideration the whales I identified and not those contributed by other people. The ratio for this season was **1.68** (*would be 0.84 if I doubled the boat-days*), which compares with **1.01** for 2011, **0.49** for 2010, **0.85** for 2009. This ratio provides a reasonable indication of the overall level of humpback whale mother/ calf pair activity in the Vava’u area, and, once again, the high level this season is consistent with my experience on the water.
- 8) We again found mother/ calf pairs scattered throughout the entire topography of the Vava’u Island group. Please refer to this [Google Map](#).

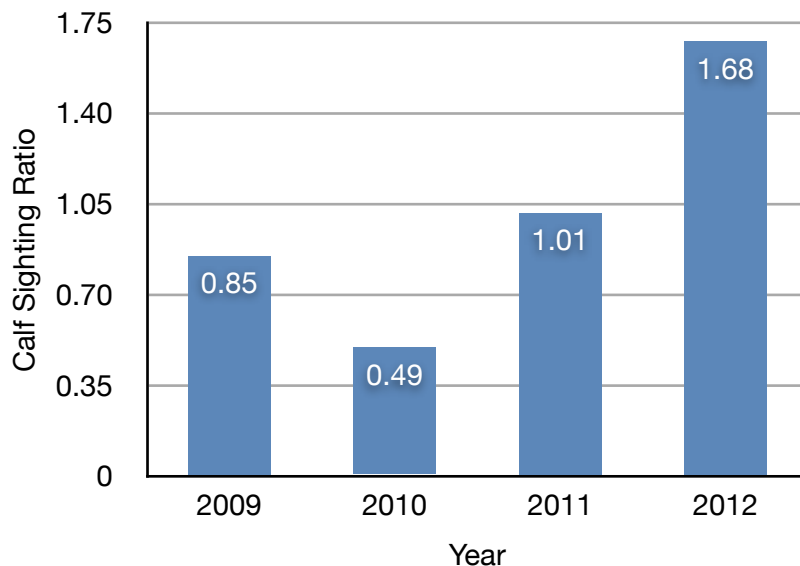


Figure 3: Calf Sighting Ratio*

* *Calf Sighting Ratio = (Total ID-ed calf count + Total unidentified calf count) / Total boat-days*

- 9) As was the case in both the 2011 and 2010 seasons, there were not many calf sightings this year in North Bay; in contrast, there were quite a few in 2009. This season, there were also relatively few encounters in the main channel between Hunga and Nuapapu; there are normally many more in this area.
- 10) Each season, there seem to be areas that are relatively popular among the mother/ calf pairs. The “in” places change, so statements applicable to the 2012 season may or may not have relevance to any other season.
- 11) Within this context, it is worth underscoring the point that extrapolating from limited observation from limited days in any single season to draw conclusions about the dynamics of the humpback whale population that visits Vava’u is inadvisable, at best. Only long-term observation and consistent recording of data may eventually reveal underlying patterns and trends.
- 12) Perhaps the best way to illustrate this is to amalgamate my mother/ calf pair sighting data for all ID-ed and unknown mother/ calf pairs for 2009-2012 (the period for which I’ve been keeping track). Please refer to this [Google Map](#) to see the result. **Note:** *There is so much data that there are two pages to the map, scroll down to the bottom of the list of baby whales to click to the second page and see the complete sighting map.*
- 13) The reason I wish to highlight this is that each season, I come across people making sweeping statements about whales in Vava’u. In most cases, such statements reference doom-and-gloom, are seemingly intended to foment discord, and are backed by no data. Particularly disappointing are individuals purporting to represent large, multinational NGOs who make unsupported, disparaging statements about the whales and whale-watching in Vava’u. The above-referenced map should demonstrate beyond a shadow of a doubt that humpback whale mother/ calf pairs make abundant use of every area of Vava’u. Facts count. Zealotry does not.

14) This year's sightings once again supports my notion that, for the most part, humpback whale mother/ calf pairs use Vava'u as a transit area, visiting for a limited duration before moving on, returning to the area at a later date in some instances. Within this context however, there were a handful of repeat sightings over extended periods of time, as there have been in previous seasons:

- 201209 Kyuu (2 encounters/ 10 days);
- 201212 Juuni (2 encounters/ 10 days);
- 201217 Juunana (2 encounters/ 26 days). 3x mother - see below;
- 201221 Nijuuichi (2 encounters/ 37 days);
- 201224 Nijuuyon (3 encounters/ 13 days);
- 201226 Nijuuroku (2 encounters/ 21 days); and
- 201235 Sanjuugo (3 encounters/ 21 days).

15) The ratio of female to male juveniles once again favoured females. This has been the case for four years running. This year, we counted 16 females and 12 males (13 females and 10 males in 2011; 7 females to 4 males in 2010; 14 females to 9 males in 2009). Given the consistency of these sex-ratio records, I am discounting chance and other possible explanations, and leaning toward the conclusion that there may be a slight bias in female births to males among southern hemisphere humpbacks.

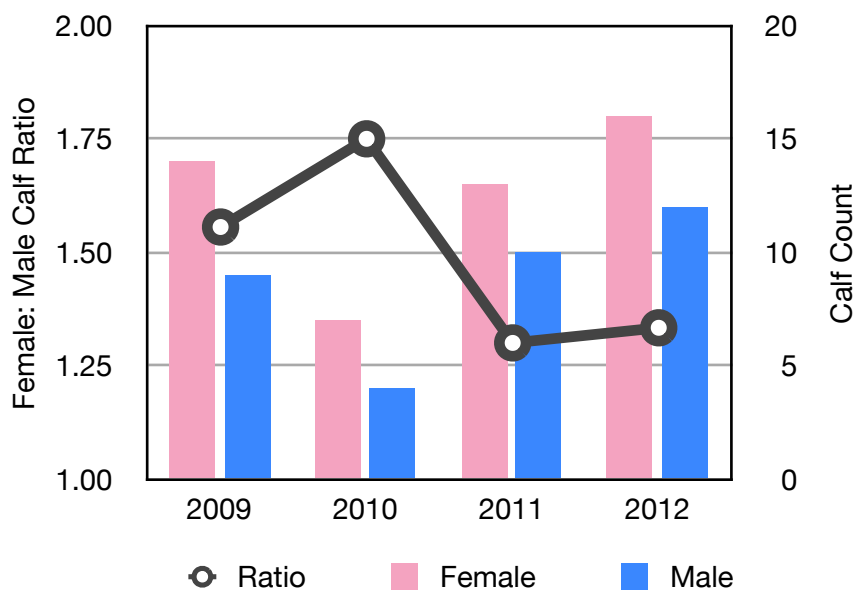


Figure 4: Ratio of Female to Male Juveniles

16) The escort ratios this season were all lower than they were last year, as is apparent in Figure 5 below. Out of 52 ID-ed mother/ calf pairs, 27 were accompanied by escorts in at least one encounter with the relevant mother/ calf pair, a ratio of 0.52. Out of 68 total encounters with those 52 ID-ed mother/ calf pairs, 30 encounters involved at least one escort, a ratio of 0.44. In the case of unidentified mother/ calf pairs, the ratio was 0.23. I only calculated one ratio for unidentified mother/ calf pairs because we had only one encounter with each pair.

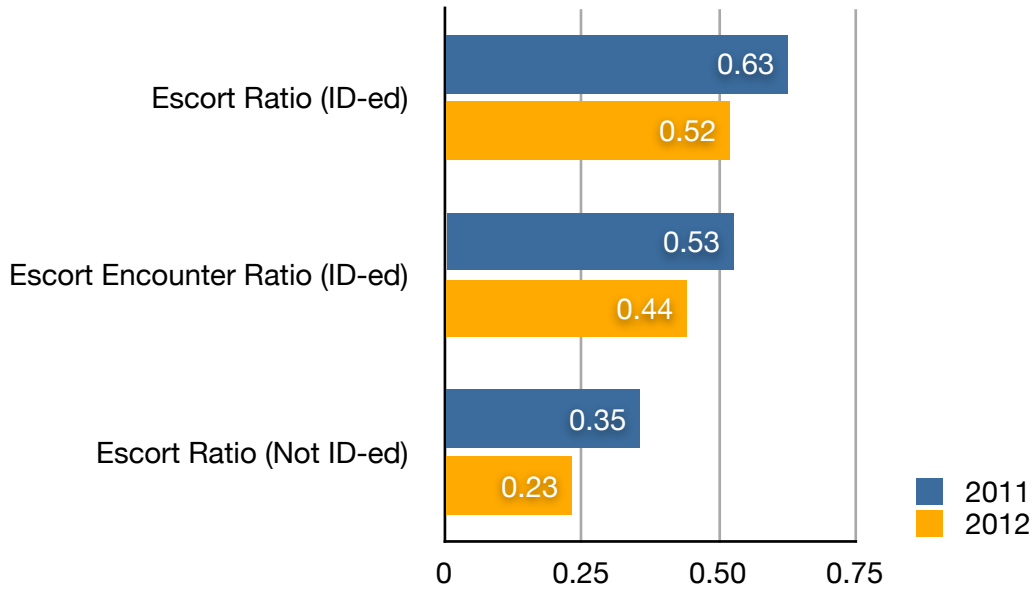


Figure 5: Frequency of Escorts with Mother/ Calf Pairs*

- **Escort Ratio (ID-ed)** = ID-ed mother/ calf pairs that were accompanied by at least one escort in at least one of our encounters as a ratio of the total number of ID-ed mother/ calf pairs
- **Escort Encounter Ratio (ID-ed)** = Total number of encounters with ID-ed mother/ calf pairs that involved at least one escort as a ratio of the total number of encounters with all ID-ed mother/ calf pairs
- **Escort Ratio (Not ID-ed)** = Unidentified mother/ calf pairs that were accompanied by at least one escort in at least one of our encounters as a ratio of the total number of Unidentified mother/ calf pairs

17) Taken at face value, this seems to suggest the possibility that the ratio of eligible/ interested males to females already with calves could have been lower this year than it was last year. Possible contributing factors might include fewer males in the area (could they have gone elsewhere?); males heading back south relatively early (mated and lost interest early?); more single females than last year (though that might be difficult to reconcile with the high number of females with calves); less cooperative/ willing females with calves this year; and probably more potential considerations that have eluded me. In any event, it will take more observation and data collection to see what, if any, pattern might emerge.

18) It is interesting to note that the Escort Ratio for the Unidentified mother/ calf pairs is lower than that for the ID-ed mother/ calf pairs in both 2011 and 2012. Common wisdom has it that the presence of escorts makes it more difficult to have successful encounters with mother/ calf pairs, the rationale being that escorts “push” mother/ calf pairs to keep moving. My own experience suggests that there is little to no such relationship, and that escorts “calm” mother/ calf pairs as often as, perhaps more than, they “push” them to move. Some females also seem predisposed to avoid contact from any species. It will be interesting to see if this disparity in the Escort Ratio between the ID-ed and non-ID-ed mother/ calf pairs remains constant going forward.

- 19) Unlike the 2011 season, I did not document any long-term associations between escorts and mother/ calf pairs.
- 20) Despite the lack of opportunity to document any long-term escort relationships this season, I did have an interesting observation relating to escorts. On two occasions (involving calf 201233 and calf 201242), there were males that appeared to be challenging one another for the right to claim primary escort position with the respective females. As the battles ensued, the males appeared to become so preoccupied with their competitive displays that they forgot about the females. The males traveled further and further from the mother/ calf pairs as they continued to jostle for dominance, until they completely lost track of the females, leaving the respective mother/ calf pairs in peace. I cannot recall ever having witnessed this type of behaviour before, but it is certainly possible that I did, but did not take notice, given that I really only became interested in escort behaviour last year.
- 21) On 28 September, I witnessed and photographed a group of three male whales engaged in intimate behaviour. The first time I recorded such seemingly amorous interaction among males was in 2010. In that case, there were also three males involved. I have observed and photographed many intimate episodes between male and female humpback whales. In both 2010 and this year, the interaction among the male whales could easily have convinced me that male/ female courtship was taking place. I have learned that it is necessary to confirm visually with photos or video the sex of all whales involved in seemingly intimate interaction, as there is obviously some role for same-sex intimate behaviour among humpback whales. It is very tempting and easy for an inexperienced person to jump to conclusions. See this [blog post](#) for more details on this fascinating topic.
- 22) One of the most rewarding aspects of keeping track of the mother/ calf pairs is documenting repeat mothers. This year marked the first three-time mother that I have documented to date. The mother of 201217 Juunana is also the mother of 200816 Chibi-chan and 200929 Floppy. There may be more repeat mothers among this year's mother/ calf pairs. I have not yet had time to compare all of this season's mothers with all of the mothers in previous seasons.

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|-----------------|-------------------|-------------------|------|-----------------|----------------|
| Female 1 | 200801 Scratches | 200904 Stitches ♀ | | | |
| Female 2 | 200816 Chibi-chan | 200929 Floppy ♀ | | | 201217 Juunana |
| Female 3 | | 200920 Mama's Boy | | 201107 Fitu | |
| Female 4 | 200814 Jet | | | 201115 Tahanima | |
| Female 5 | | 200913 Luna ♀ | | 201132 Toluua ♀ | |

Figure 6: Repeat Humpback Whale Mothers Documented in Vava'u

- 23) I witnessed in the water for the first time two mother/ calf pairs socialising. They swam side-by-side, with the mothers in the middle and calves on the outside for five to ten minutes. The mothers interacted; it did not seem that the babies were permitted to do so. I was unfortunately unable to take a photograph, but I hand-drew a diagram of what I witnessed (see this [blog post](#)).

- 24) There was an exceptional number of whales with white pectoral fins. As of this writing, I have documented 21 such individuals (subject to additional review when I have time). Among those whales are four mother/ calf pairs with both adult and baby having white pectoral fins, and another six calves with white pectoral fins. For comparison, I documented two such calves in 2011 (201127 Uafitu and 201142 Faua). Last year was the first time I documented calves with white pectoral fins, and this season, there were at least ten. There were also many other adult whales with white pectoral fins and with partial white pigmentation on their pectoral fins, many more than I've noticed in other seasons. I am interested in the sudden appearance and disappearance of obvious physical traits such as white pectoral fins because I believe they may be indicative of underlying genetic closeness. If this were to be the case, and if these traits appear in clumps, then there may be the possibility that individuals travel to some degree in tandem with relatively closely related whales. There is, to the best of my knowledge, no other information or evidence to suggest that this happens.
- 25) A simple way to test this possibility would be to biopsy a number of whales with similar physical traits when they appear in substantial numbers within a single season and test for genetic similarity. There are at least two issues that make this difficult. First, it is impossible to predict in advance which physical traits will appear in large quantities in a given season, so it is impossible to know in advance which trait(s) to look for. Second, I do not have access to biopsy equipment or genetic laboratories. Keeping track of obvious physical traits is the best I can do for the time being. If and when I get sufficient time, I hope to go back through my archives and pick out all the whales with white pectoral fins (and split dorsal fins) for past seasons, in order to see if I can discern and document any patterns.
- 26) I did not document any whales with split dorsal fins this season. There were two calves (201210 and 201216) with notches in their dorsal fins, and calf 201217 has a somewhat unique double dorsal fin.
- 27) One of the babies with white pectoral fins, calf 201243, was not accompanied by its mother or any other adult whale. Given that juvenile humpbacks are entirely dependent upon their mothers for sustenance and protection, this calf most likely did not make it. I have seen abandoned/ lost calves in other instances, so this is perhaps not unusual. There was also a calf that stranded in Ha'apai earlier in the season. A number of people worked together to re-float that whale, but again, without its mother, a humpback calf has no chance for survival.
- 28) Calf 201242 appears to have acorn barnacles (*Coronula diadema*) all over its body, with discolouration of skin appearing in patches where the barnacles are most concentrated.
- 29) A number of the babies also exhibited "scrape" wounds, for lack of a better term. I have noticed these in past seasons, but have not kept meticulous records. These wounds are characterised by scrape-like patterns along the dorsal area, between the dorsal fin and fluke. Most often, these wounds are on both sides of the body, and only affect the top ridge of the body, almost as if someone used a brillo pad or steel wool to scrape down the length of the calf's body. Some adults also exhibit this wound pattern. I am certain that these are wounds and not pigmentation, as I have seen and photographed fresh wounds with scrape/cut marks still bleeding. I have no idea what causes this, and am at a loss to imagine a scenario explaining these wounds, but they appeared on calves 201219, 201230, 201232, 201237, 201241, 201242, 201247.

Table 1: Humpback Whale Calf Identifications

Vava'u, Kingdom of Tonga (Jul-Oct 2012)

[\(Click here to see map of sightings\)](#)

| # | NAME | | DATES/ LOCATIONS (# ESCORTS) |
|----|-----------|---|--|
| 1 | Ichi | | 23 Jul (0) |
| 2 | Ni | | 30 Jul (0), both mom and baby have white pectoral fins |
| 3 | San | ♂ | 03 Aug (0), 11 Aug (0) |
| 4 | Shi | | 06 Aug (1) |
| 5 | Go | | 07 Aug (0), both mom and baby have white pectoral fins |
| 6 | Roku | | 08 Aug (0) |
| 7 | Shichi | | 16 Aug (0) |
| 8 | Hachi | ♀ | 20 Aug (0) |
| 9 | Kyuu | ♀ | 21 Aug (5), 30 Aug (3) |
| 10 | Juu | ♀ | 22 Aug (1) |
| 11 | Juuichi | ♀ | 23 Aug (1), 24 Aug (0) |
| 12 | Juuni | ♂ | 27 Aug (1), 05 Sep (0) |
| 13 | Juusan | ♀ | 27 Aug (0) |
| 14 | Juuyon | | 28 Aug (0), white pectoral fins |
| 15 | Juugo | | 28 Aug (1) |
| 16 | Juuroku | ♀ | 31 Aug (1) |
| 17 | Juunana | | 03 Sep (2), 28 Sep (0) |
| 18 | Juuhachi | ♀ | 01 Sep (1) |
| 19 | Juukyuu | ♂ | 04 Sep (0) |
| 20 | Nijuu | | 05 Sep (0) |
| 21 | Nijuuichi | ♂ | 06 Sep (0), 12 Oct (1) |
| 22 | Nijuuni | ♀ | 06 Sep (0), white pectoral fins |
| 23 | Nijuusan | | 08 Sep (0) |
| 24 | Nijuuyon | ♀ | 27 Aug (0), 06 Sep (1), 08 Sep (0) |
| 25 | Nijuugo | ♀ | 05 Sep (0), both mom and baby have white pectoral fins |

Table 1: Humpback Whale Calf Identifications (cont'd)

Vava'u, Kingdom of Tonga (Jul-Oct 2012)

[\(Click here to see map of sightings\)](#)

| # | NAME | | DATES/ LOCATIONS (# ESCORTS) |
|----|-------------|---|--|
| 26 | Nijuuroku | | 11 Sep (0), 16 Oct (1) |
| 27 | Nijuunana | ♀ | 13 Sep (0), white pectoral fins |
| 28 | Nijuuhachi | ♂ | 12 Sep (1), 13 Sep (1) |
| 29 | Nijuukyuu | | 18 Aug (3), both mom and baby have white pectoral fins |
| 30 | Sanjuu | | 17 Sep (6) |
| 31 | Sanjuuichi | | 15 Sep (1), 17 Sep (0), initially recorded as Unknown 201218 |
| 32 | Sanjuuni | ♂ | 19 Sep (1) |
| 33 | Sanjuusan | ♂ | 19 Sep (4) |
| 34 | Sanjuuyon | ♂ | 19 Sep (0), 21 Sep (0) |
| 35 | Sanjuugo | ♀ | 22 Sep (1), 11 Oct (1), 12 Oct (0) |
| 36 | Sanjuuroku | | 25 Sep (0) |
| 37 | Sanjuunana | | 26 Sep (2) |
| 38 | Sanjuuhachi | | 29 Sep (0) |
| 39 | Sanjuukyuu | ♀ | 01 Oct (0) |
| 40 | Yonjuu | ♀ | 02 Oct (0), white pectoral fins |
| 41 | Yonjuuichi | ♀ | 02 Oct (0) |
| 42 | Yonjuuni | ♂ | 03 Oct (2) |
| 43 | Yonjuusan | | 04 Oct (0), white pectoral fins |
| 44 | Yonjuuyon | | 05 Oct (0) |
| 45 | Yonjuugo | ♂ | 05 Oct (1) |
| 46 | Yonjuuroku | ♂ | 06 Oct (2) |
| 47 | Yonjuunana | | 25 Sep (1) |
| 48 | Yonjuuhachi | | 26 Sep (0), initially recorded as Unknown 201225 |
| 49 | Yonjuukyuu | ♂ | 25 Sep (0) |
| 50 | Gojuu | | 28 Sep (1) |
| 51 | Gojuuichi | ♀ | Oct 16 (0), Oct 17 (0), Oct 18 (1), white pectoral fins |
| 52 | Gojuuni | | Oct 15 (1) |

Table 2: Unidentified Humpback Whale Calf Sightings

Vava'u, Kingdom of Tonga (Jul-Oct 2012)

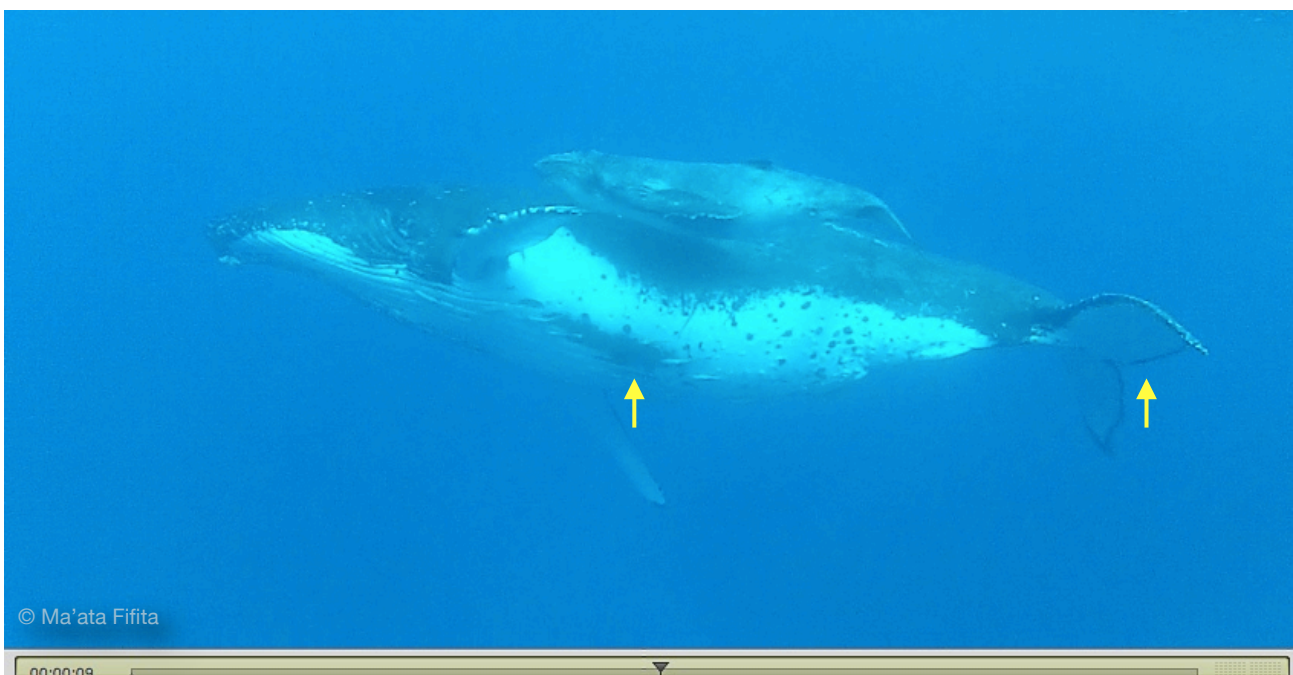
([Click here to see map of sightings](#))

| # | DATES/ LOCATIONS (# ESCORTS) | # | DATES/ LOCATIONS (# ESCORTS) |
|----|--|----|------------------------------|
| 1 | 15 Aug (0), two photos from Ma'ata, no GPS/ location | 26 | 01 Oct (0) |
| 2 | 22 Aug (0), didn't record location | 27 | 06 Oct (0) |
| 3 | 25 Aug (0) | 28 | 29 Aug (2) |
| 4 | 25 Aug (0) | | |
| 5 | 27 Aug (0) | | |
| 6 | 30 Aug (0) | | |
| 7 | 01 Sep (0) | | |
| 8 | 01 Sep (1) | | |
| 9 | 03 Sep (1) | | |
| 10 | 03 Sep (0) | | |
| 11 | 04 Sep (0) | | |
| 12 | 05 Sep (0) | | |
| 13 | 06 Sep (1) | | |
| 14 | 06 Sep (0) | | |
| 15 | 13 Sep (0) | | |
| 16 | 13 Sep (0) | | |
| 17 | 14 Sep (0) | | |
| 18 | 15 Sep (1) , Redesignated calf 201231 | | |
| 19 | 17 Sep (0) | | |
| 20 | 17 Sep (0) | | |
| 21 | 19 Sep (1) | | |
| 22 | 20 Sep (2) | | |
| 23 | 25 Sep (0) | | |
| 24 | 25 Sep (0) | | |
| 25 | 26 Sep (0) , Redesignated calf 201248 | | |

Table 3: Timeline of Sightings – Humpback Whale Mother/ Calf Pairs

Vava'u, Kingdom of Tonga (Jul-Oct 2012). **Blue** = full moon. **Green** = new moon. **Red** = Unknown calf.

| JUL | CALF (ESCORTS) | AUG | CALF (ESCORTS) | SEP | CALF (ESCORTS) | OCT | CALF (ESCORTS) |
|-----|----------------|-----|---|-----|--|-----|-------------------------|
| 1 | | 1 | | 1 | 201218 (1), Calf 07 (0), Calf 08 (1) | 1 | 201239 (0), Calf 26 (0) |
| 2 | | 2 | | 2 | | 2 | 201240 (0), 201241 (0) |
| 3 | | 3 | 201203 (0) | 3 | 201217 (2), Calf 09 (1), Calf 10 (0) | 3 | 201242 (2) |
| 4 | | 4 | | 4 | 201219 (0), 201224 (1), Calf 11 (0) | 4 | 201243 (0) |
| 5 | | 5 | | 5 | 201212 (0), 201220 (0), 201225 (0). Note: 201212 and 201220 interacted. Calf 12 (0) | 5 | 201244 (0), 201245 (1) |
| 6 | | 6 | 201204 (1) | 6 | 201221 (0), 201222 (0), Calf 13 (1), Calf 14 (0) | 6 | 201246 (2), Calf 27 (0) |
| 7 | | 7 | 201205 (0) | 7 | | 7 | |
| 8 | | 8 | 201206 (0) | 8 | 2012023 (0), 201224 (0) | 8 | |
| 9 | | 9 | | 9 | | 9 | |
| 10 | | 10 | | 10 | | 10 | |
| 11 | | 11 | 201203 (0) | 11 | 201226 (0) | 11 | 201235 (1) |
| 12 | | 12 | | 12 | 201228 (1) | 12 | 201221 (1), 201235 (0) |
| 13 | | 13 | | 13 | 201228 (1), Calf 15 (0), Calf 16 (0) | 13 | |
| 14 | | 14 | | 14 | Calf 17 (0) | 14 | |
| 15 | | 15 | Calf 01 (0) | 15 | 201231 (1) | 15 | 201252 (1) |
| 16 | | 16 | 201207 (0) | 16 | | 16 | 201226 (1), 201251 (0) |
| 17 | | 17 | | 17 | 201230 (6), 201231 (0), Calf 19 (0), Calf 20 (0) | 17 | 201251 (0) |
| 18 | | 18 | 201208 (0), 201229 (3) | 18 | | 18 | 201251 (1) |
| 19 | | 19 | | 19 | 201233 (4), 201234 (0), Calf 21 (1) | 19 | |
| 20 | | 20 | | 20 | Calf 22 (2) | 20 | |
| 21 | | 21 | 201209 (5) | 21 | 201234 (0) | 21 | |
| 22 | | 22 | 201210 (1), Calf 02 (0) | 22 | 201235 (1) | 22 | |
| 23 | 201201 (0) | 23 | 201211 (1) | 23 | | 23 | |
| 24 | | 24 | 201211 (0) | 24 | | 24 | |
| 25 | | 25 | Calf 03 (0), Calf 04 (0) | 25 | 201236 (0), 201247 (1), 201249 (0), Calf 23 (0), Calf 24 (0) | 25 | |
| 26 | | 26 | | 26 | 201237 (2), 201248 (0), Calf 25 (0) | 26 | |
| 27 | | 27 | 201212 (1), 201213 (0), 201224 (0), Calf 05 (0) | 27 | | 27 | |
| 28 | | 28 | 201214 (0), 201215 (1) | 28 | 201217 (0), 201250 (1) | 28 | |
| 29 | | 29 | Calf 28 (2) | 29 | 201238 (0) | 29 | |
| 30 | 201202 (0) | 30 | 201209 (3), Calf 06 (0) | 30 | | 30 | |
| 31 | | 31 | 201216 (1) | | | 31 | |



01. ICHI

First ID-ed calf of the season.
The mother was quite shy,
allowing only one entry into the
water.

Mom's body pattern similar to
201213 and 201221.

Images are frame grabs from
video footage taken with a
GoPro Hero 2.

When & Where: [23 July \(0\)](#)



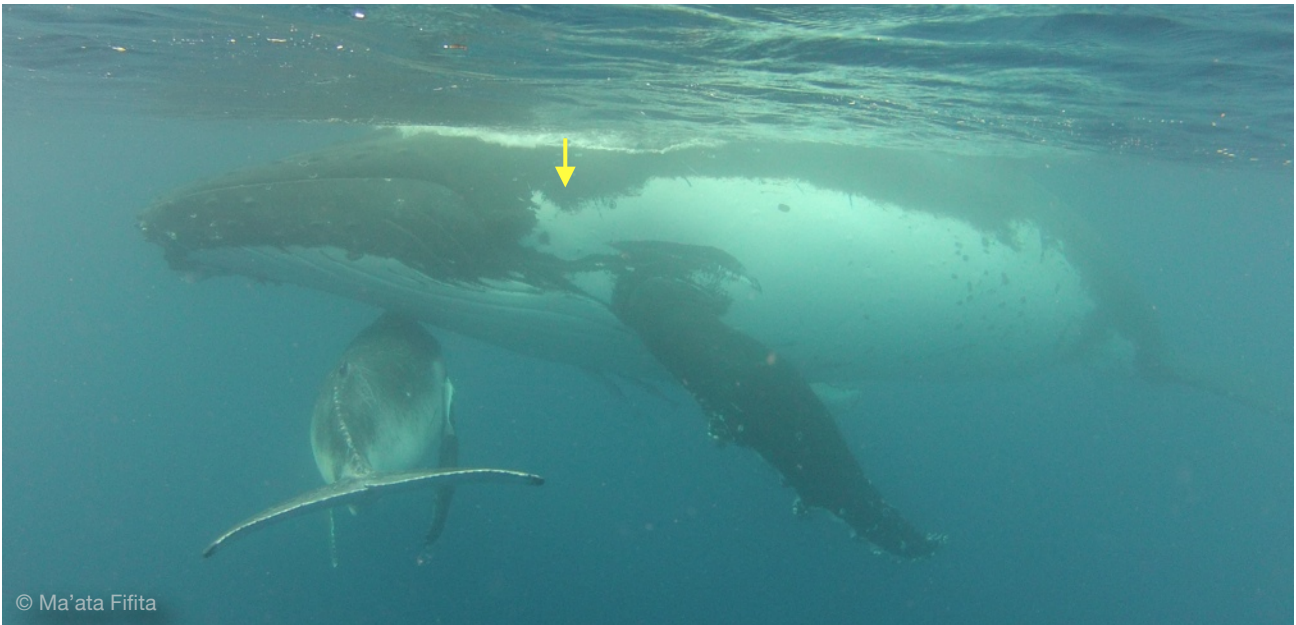
© Ma'ata Fifita

02. NI

Spotted south of Euakafa.

Mother's pectoral fins easily recognisable. Baby also has all-white pectoral fins.

When & Where: [30 July \(0\)](#)

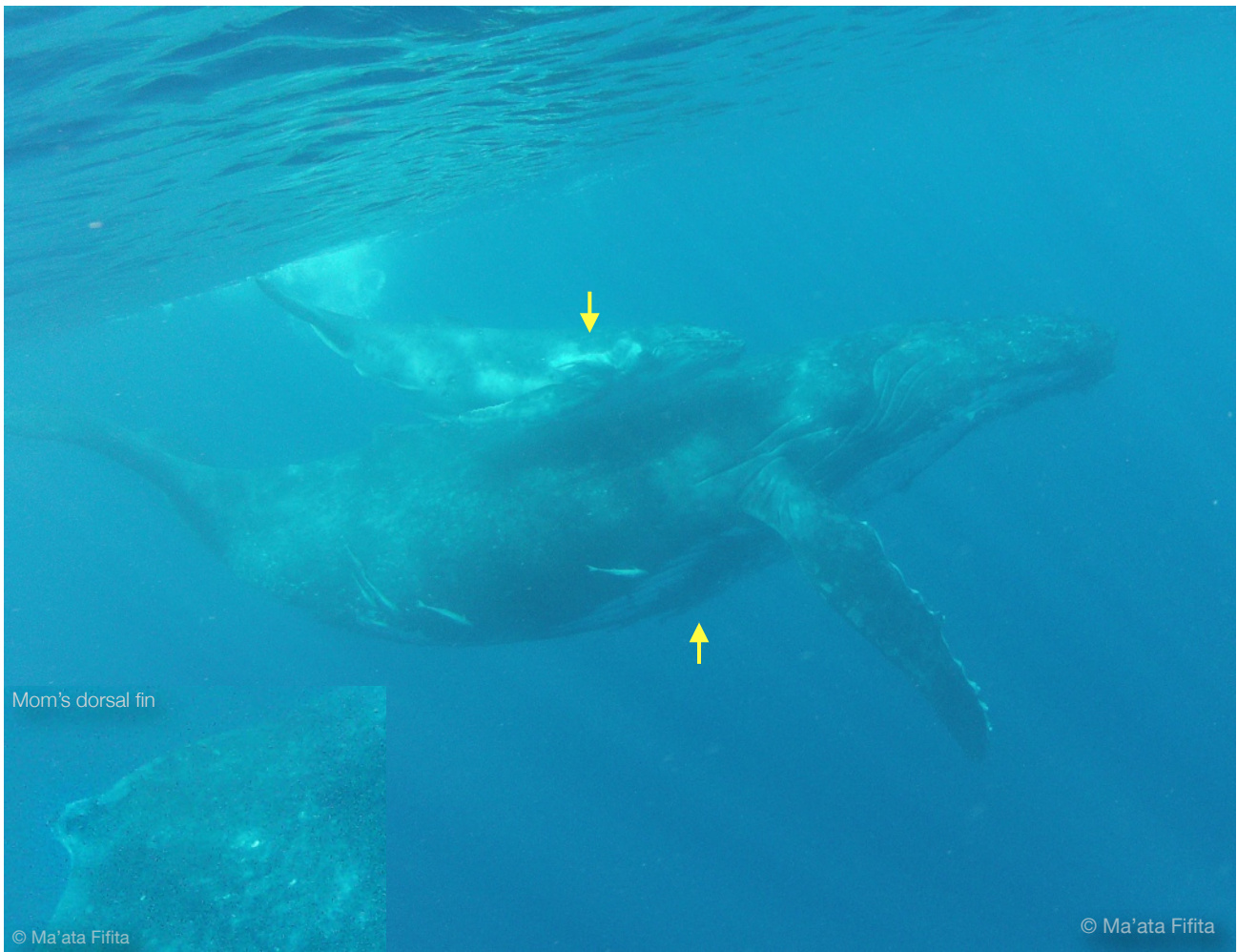


03. SAN ♂

Two encounters with this mom and baby. Mom easily recognisable from body pattern.

When & Where: 03 Aug (0),
11 Aug (0)



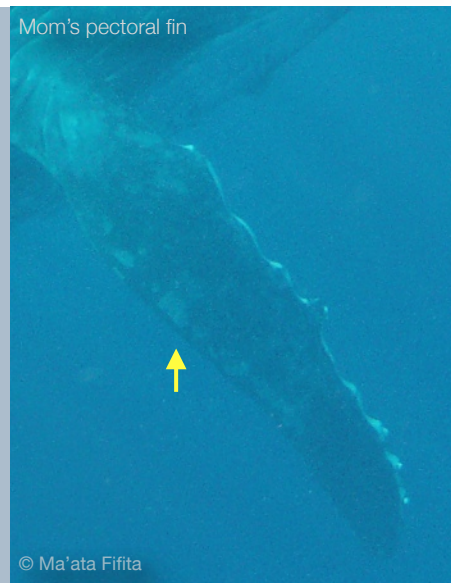


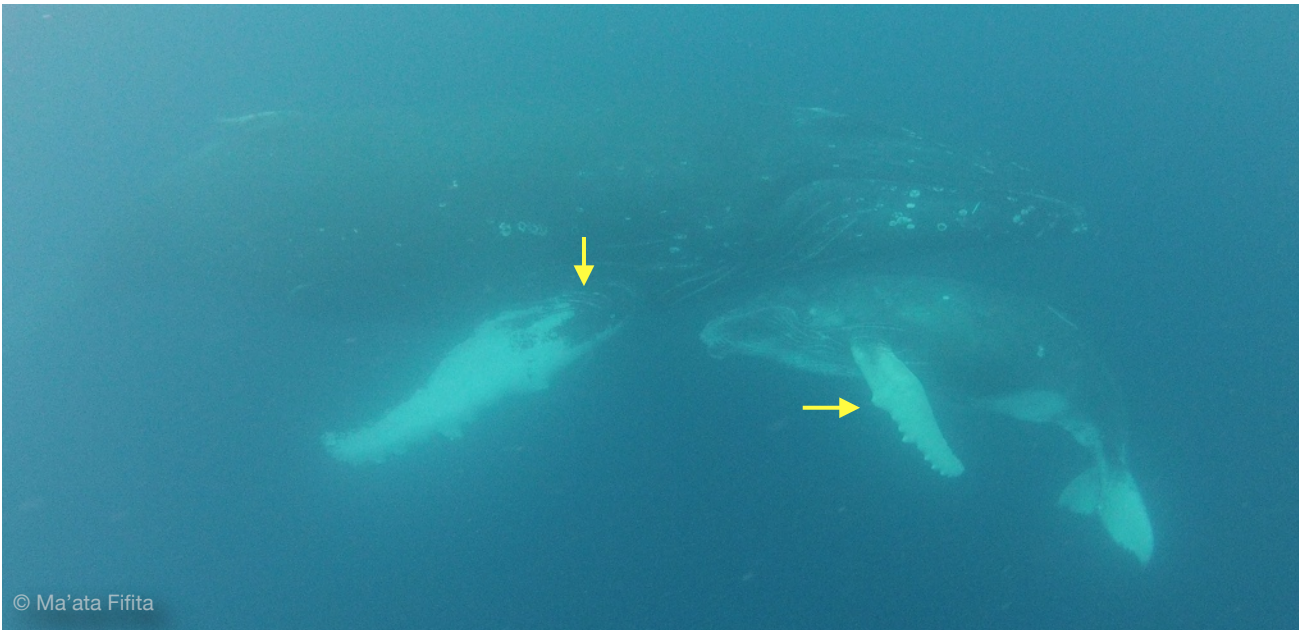
04. SHI

Mom very dark, with some distinguishing marks on the trailing edge of her pectoral fin.

The pair were initially accompanied by an escort, but at one point, the escort and the mother/ calf pair split suddenly and took off in opposite directions.

When & Where: 06 Aug (1)



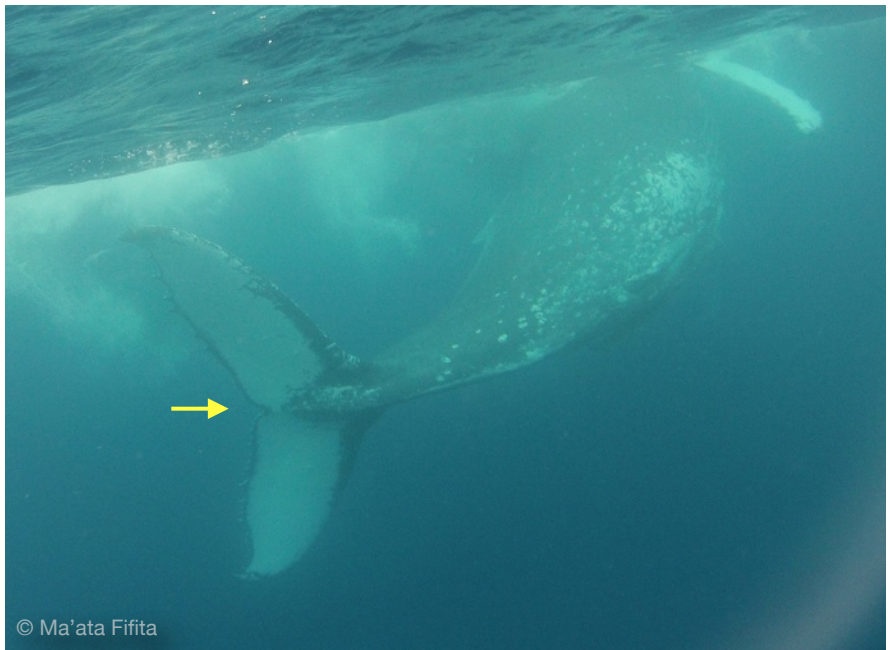


© Ma'ata Fifita

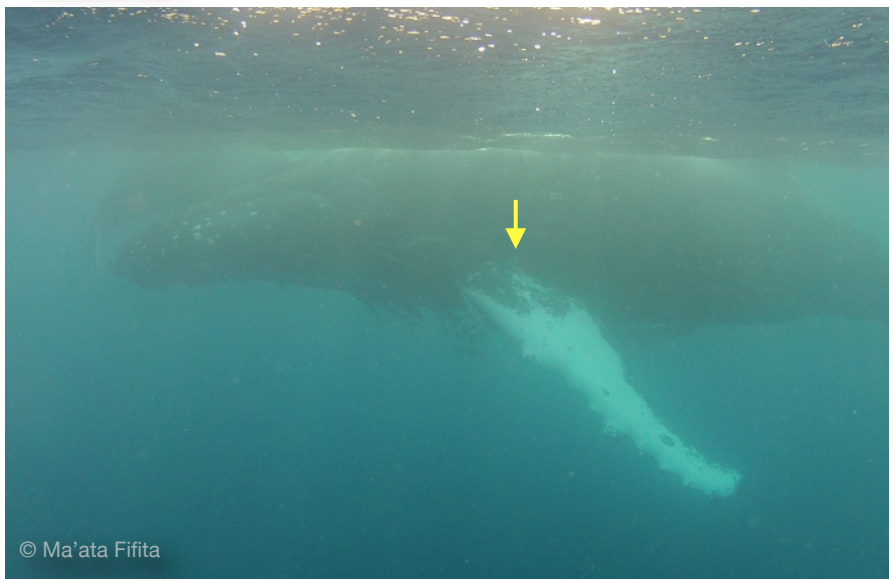
05. GO

Mother and calf pair, both with all-white pectoral fins.

When & Where: 07 Aug (0)



© Ma'ata Fifita



© Ma'ata Fifita



© Ma'ata Fifita

06. ROKU

Mom dark, with distinguishing marks on her pectoral fin. Both mom and baby have hooked dorsal fins.

When & Where: 08 Aug (0)

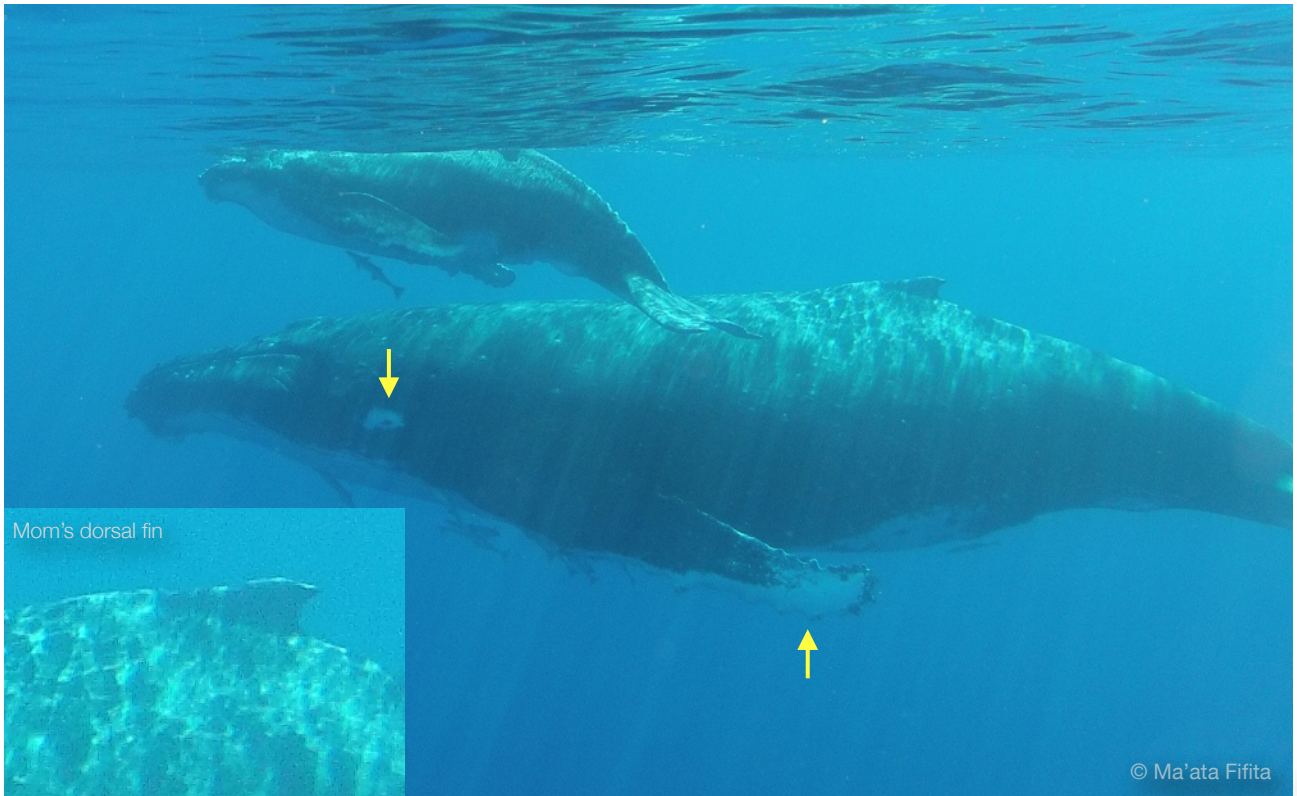
Mom's dorsal fin

Calf's dorsal fin



© Ma'ata Fifita

© Ma'ata Fifita



07. SHICHI

Mother has a distinctive white patch behind her eyes, and whitish tips on her pectoral fins.

When & Where: 16 Aug (0)



© Tony Wu | www.tonywublog.com



Mom's dorsal fin

© Tony Wu | www.tonywublog.com

© Douglas Seifert | www.douglasseifert.com

08. HACHI ♀

Mother very dark. Calf extremely friendly.

When & Where: 20 Aug (0)



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09. KYUU ♀

Two encounters with mom, calf, two different escorts. Mom somewhat wary, but not too bad. Calf inquisitive and friendly.

On 21 Aug, the male sang while the trio moved. After about 10 minutes, four other males showed up. A frantic heat run ensued.

On 30 Aug, male sang and two other males challenged unsuccessfully. Escort sang after chasing off challengers.

When & Where: 21 Aug (5); 30 Aug (3)



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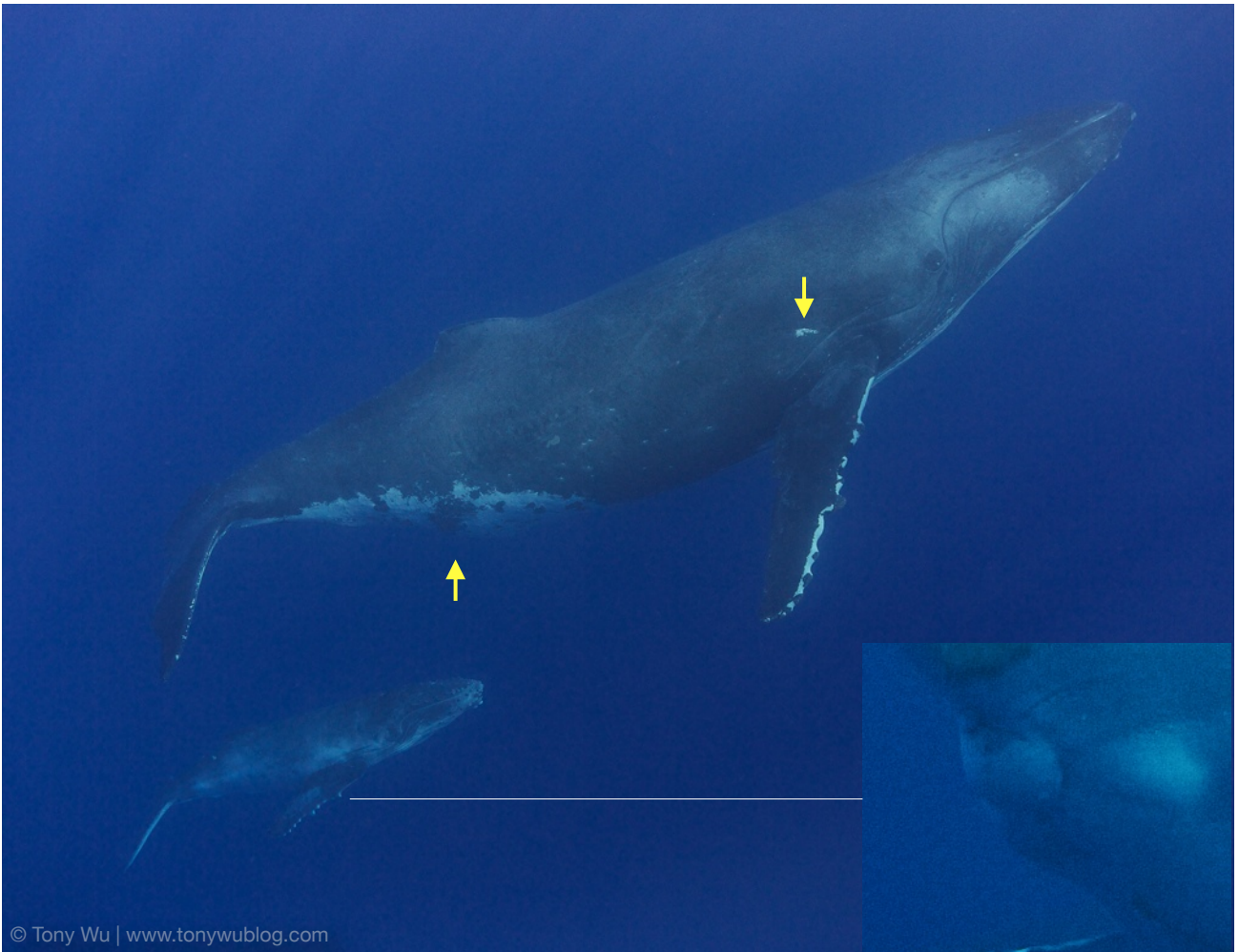


© Tony Wu | www.tonywublog.com



Mom's and calf's dorsal fins

© Tony Wu | www.tonywublog.com



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10. JUU ♀

Mother, calf and escort encountered in late afternoon. Constantly on the move. They only stopped once, and I was only able to get a single pass.

Calf has a notch in its dorsal fin, as does calf 201216.

When & Where: 22 Aug (1)



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Mom's dorsal fin

© Tony Wu | www.tonywublog.com



Calf's dorsal fin

© Tony Wu | www.tonywublog.com



11. JUUICHI ♀

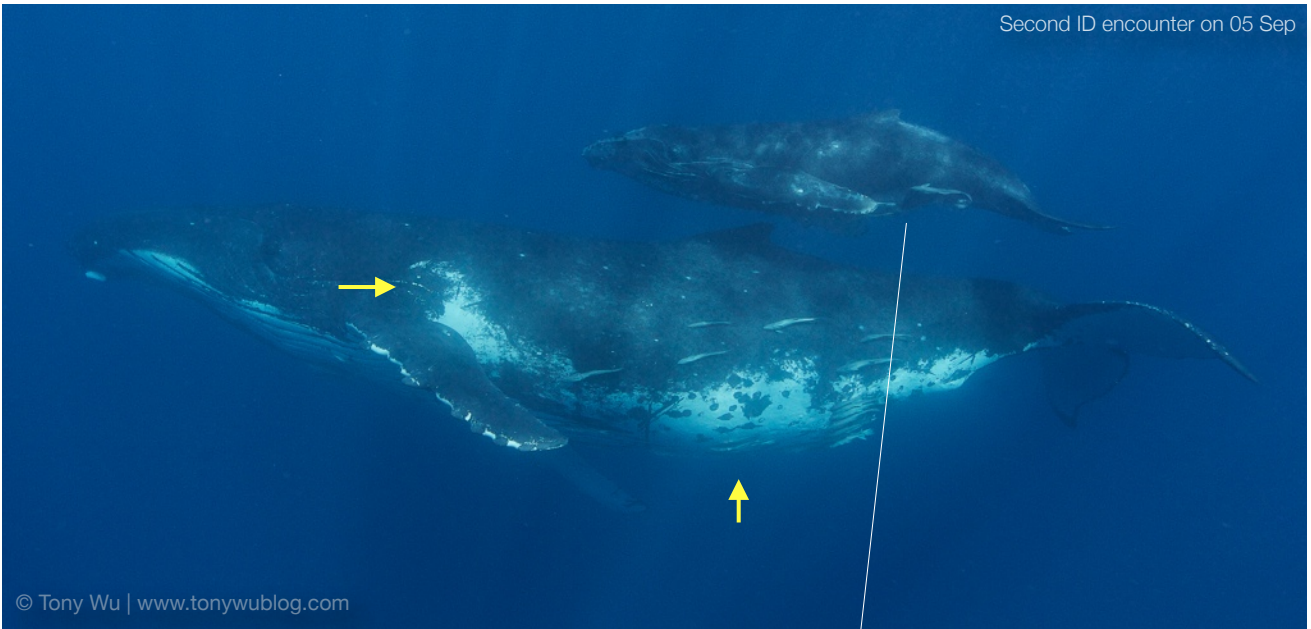
Mom, calf and escort.
 Mom was really laid back, letting the calf play. Calf was very, very playful, approaching swimmers closely, performing many twirls in the water.

This mom and calf were apparently around for several days, with the final sighting on 24 August.

When & Where: 23 Aug (1), 24 Aug (0)



Second ID encounter on 05 Sep



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12. JUUNI ♂

First encounter on 27 Aug: Mom, calf, escort in very murky water. Only managed two drops. Even though I was near the whales, I could barely see them

Second encounter on 05 Sep: Similar behaviour as the first time. Mom wary, difficult to approach. Visibility was terrible. Only able to manage one pass plus a fleeting glimpse.

On 05 Sep, this mother/ calf pair associated with calf 201220 briefly... Mom and calf + Mom and calf. I saw the two pairs socialising in the water, but I was unable to get a photograph of this interaction due to distance and poor visibility. Very frustrating, as this was the first time I have seen two mother/ calf pairs interact.

When & Where: 27 Aug (1), 05 Sep (0)



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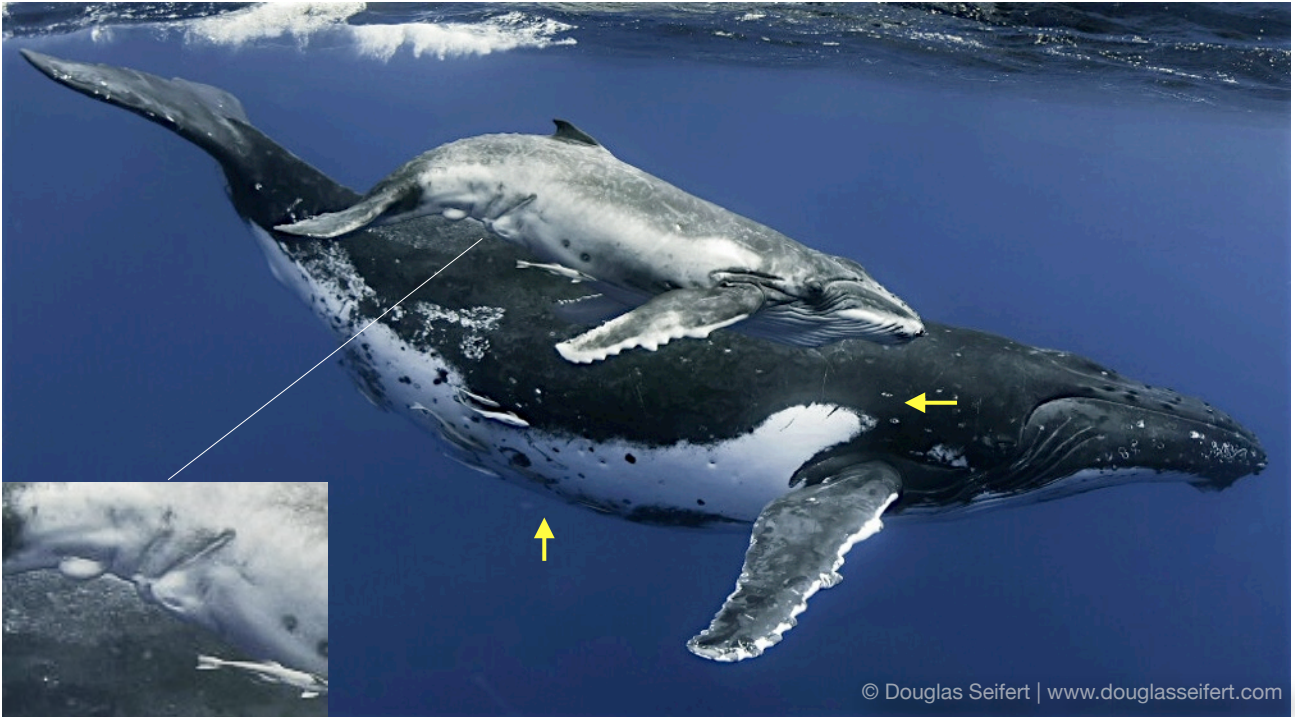
Mom's and calf's dorsal fins

© Emiko Miyazaki

Initial ID encounter on 27 Aug



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13. JUUSAN ♀

Only one drop with this mother and calf.

Mom's body pattern similar to 201201 and 201221.

When & Where: [27 Aug \(0\)](#)



14. JUUYON

Only one drop with this mother and calf. Mom was extremely skittish and headed straight out to sea.

Mother is dark all over, with a visible patch of white on the lower jaw, and she has a blocky dorsal fin. Calf has white pectoral fins.

When & Where: [28 Aug \(0\)](#)

Mom's dorsal fin



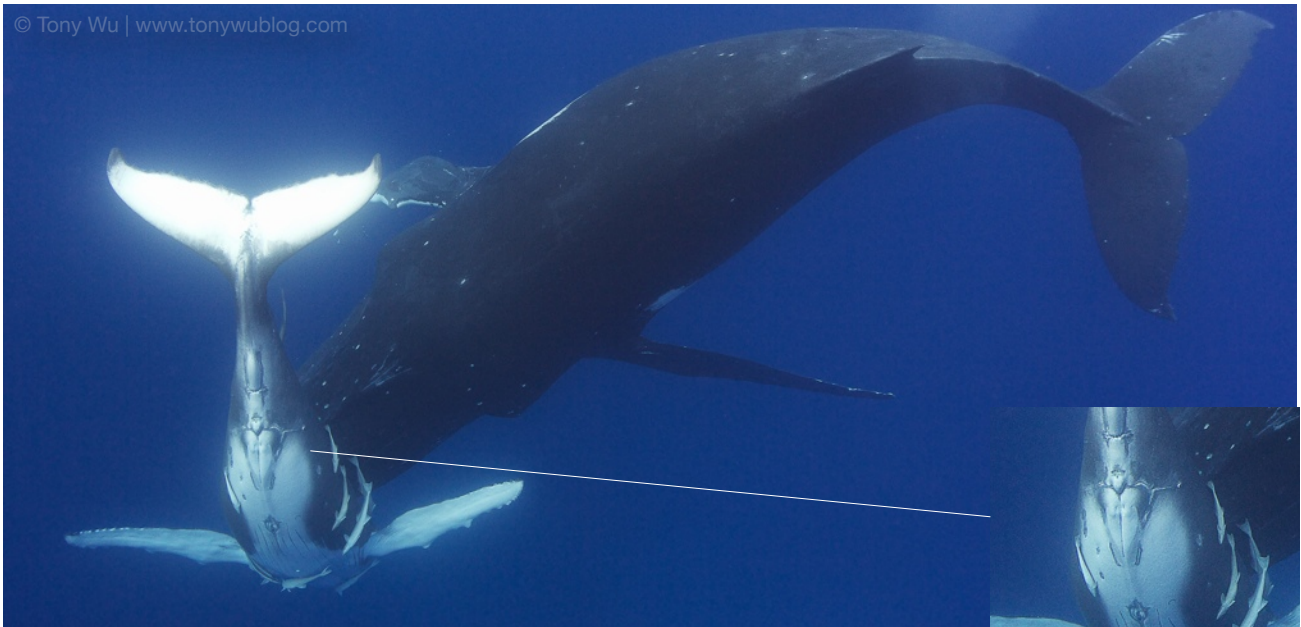


15. JUUGO

Mother, calf and escort. Mom has an easily distinguishable white area around and to the rear of her eye.

Note that the calf has white pectoral fins, and the escort has an unusual pattern of white pigmentation on its pectoral fin.

When & Where: 28 Aug (1)



16. JUUROKU ♀

This mom, calf and escort were very relaxed.

The mother is easy to recognise from the pattern on her body. The calf has a notch in her dorsal fin, similar to calf 201210.

When & Where: 31
Aug (1)



Mom's dorsal fin

© Emiko Miyazaki

Calf's dorsal fin

© Emiko Miyazaki





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17. JUUNANA

Two sightings of this female and calf.

Of note, this mom is the first third-time mother that I've documented. She is the mother of 200816 (Chibi-chan) and 200929 (Floppy ♀).

During the first encounter on 03 September, there were high winds and rough seas, so only managed a single drop with the female, calf and escort.

A challenger approached, and the escort rebuffed it twice at high speed and with extreme prejudice!

There were no escorts present at the second encounter on 28 September.

Mom's dorsal fin visible while she was doing a tail slap



© Emiko Miyazaki

Calf's unusual split dorsal fin



© Emiko Miyazaki



© Kirsty Bowe

17. JUUNANA (CONT'D)

There is a slight difference in the right and left sides of the mother, with the placement of the signature spot in different areas of the white stripe along her flank.

Also note the calf's unusual split dorsal fin. The other splits this season include

calves 201210 and 201216, which both have splits that are more like notches. This calf's dorsal looks almost as if there is a second mini-dorsal behind the main dorsal fin.

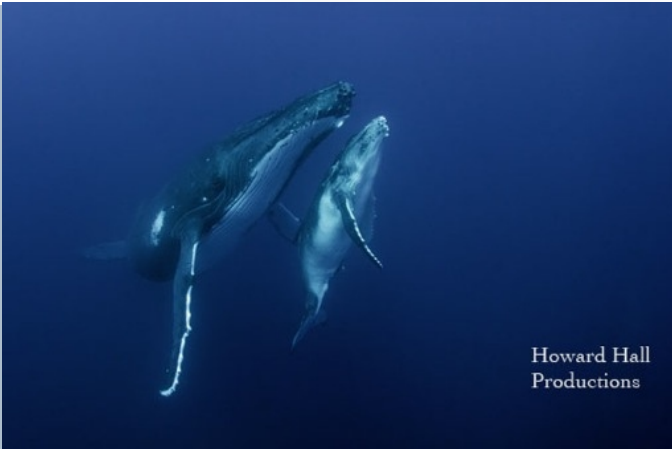
When & Where: [03 Sep \(2\)](#),
[28 Sep \(0\)](#)



18. JUUHACHI ♀

The female and calf were with a dark escort. The calf made close passes on several occasions.

When & Where: 01 Sep (1)





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19. JUUKYUU ♂

Mom is dark all over with few distinguishing features. Made it relatively difficult to find her in the area of poor visibility and dark water where this encounter took place.

Male calf highly inquisitive and interactive.

Mom accommodating of her calf's high energy level and desire to play at the surface while she rested below.

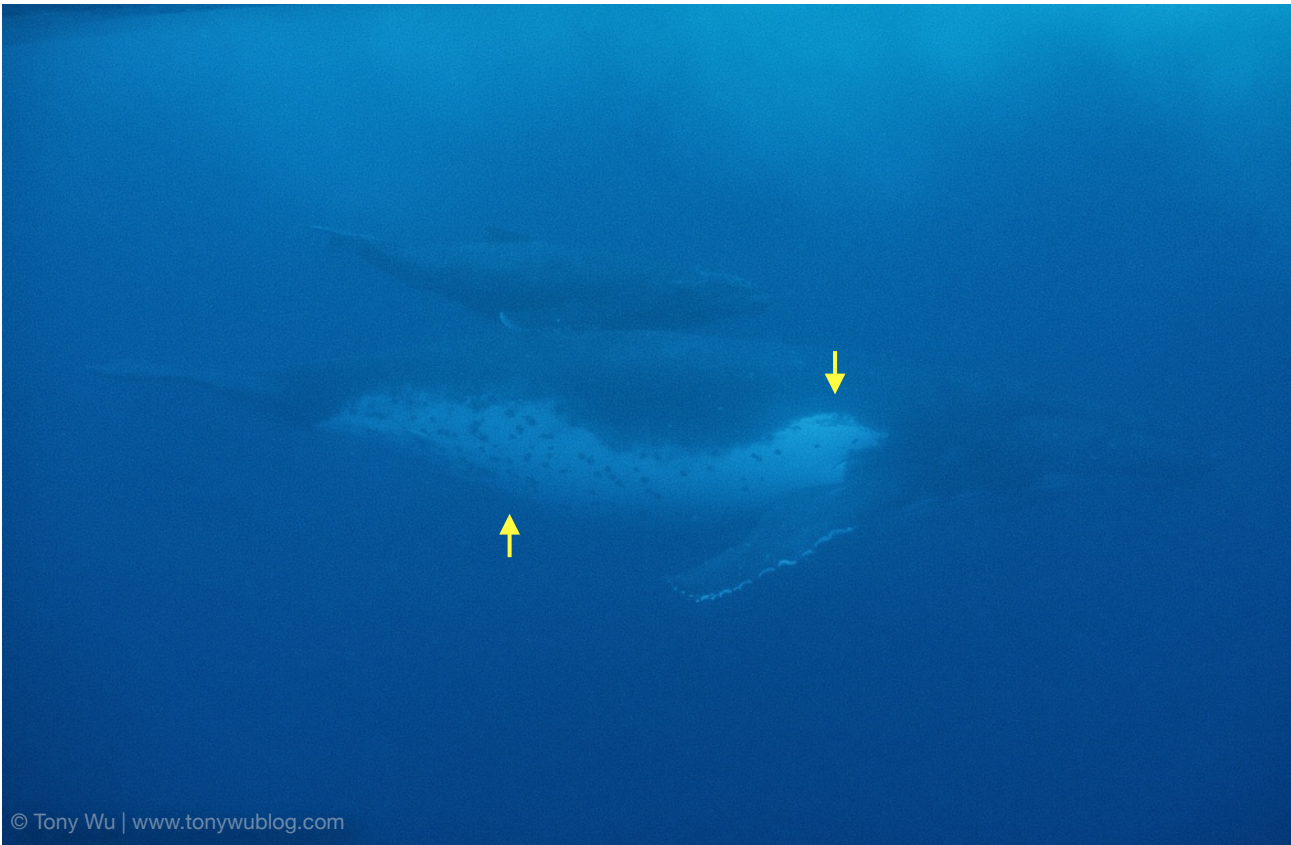
When & Where: 04
Sep (0)



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20. NIJUU

This mom and calf pair surfaced while we were following calf 201212. There were overcast skies, rough seas and poor visibility underwater.

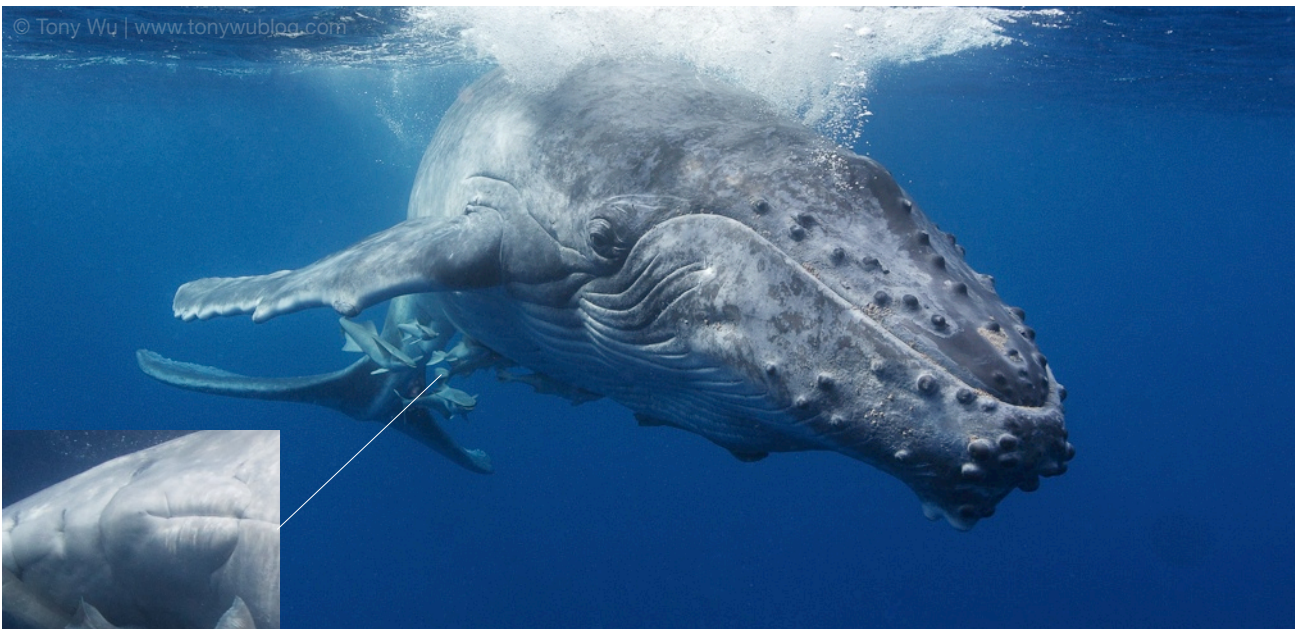
This mom and calf associated together and socialised with mother/ calf pair 201212 for five to ten minutes.

I saw them in the water together, but was unable to get a photograph due to the difficult conditions.

This is the first time I have visually confirmed two mother/ calf pairs socialising in the water.

More details in [this blog post](#).

When & Where: [05 Sep \(0\)](#)



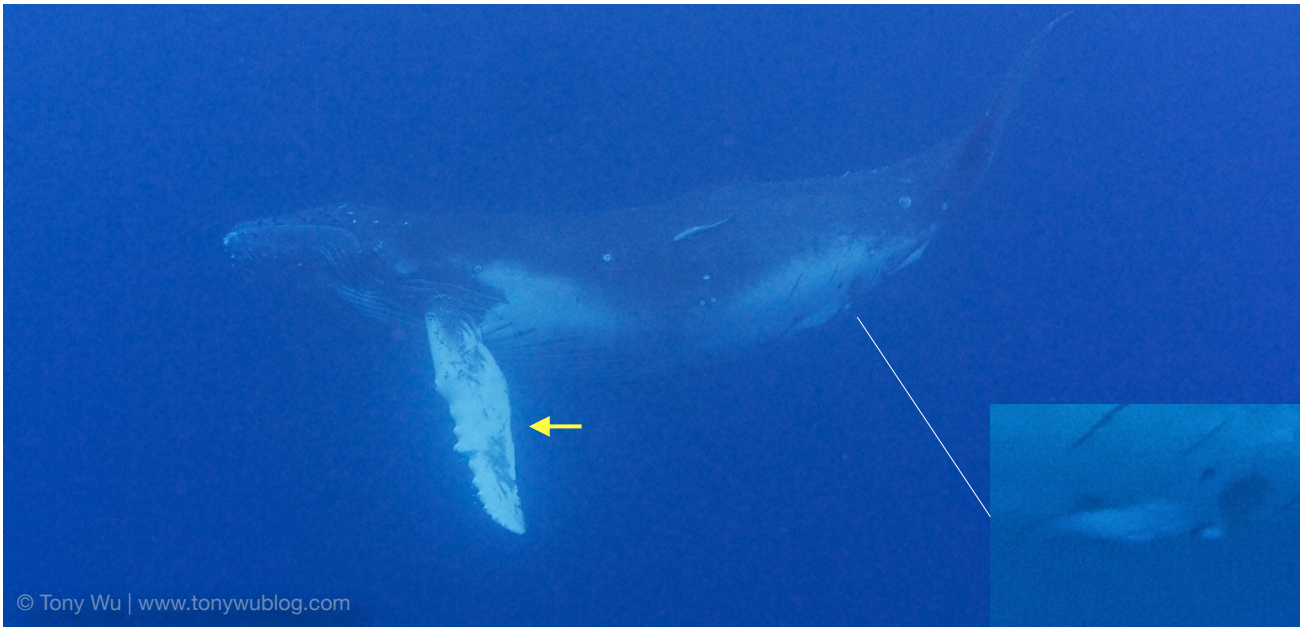
21. NIJUUCHI ♂

One of four mother/calf pairs we came across on this day. Mom wary, but stopped a few times to let the calf play. Calf was extremely energetic and rowdy, just like a boy calf should be.

Escort sang during second encounter.

When & Where: 06 Sep (0), 12 Oct (1)





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22. NIJUUNI ♀

One of four mother/calf pairs on this day. Mother extremely wary. I had to swim a long way, and the mom moved off just as I got within sight.

The female calf has white pectoral fins.

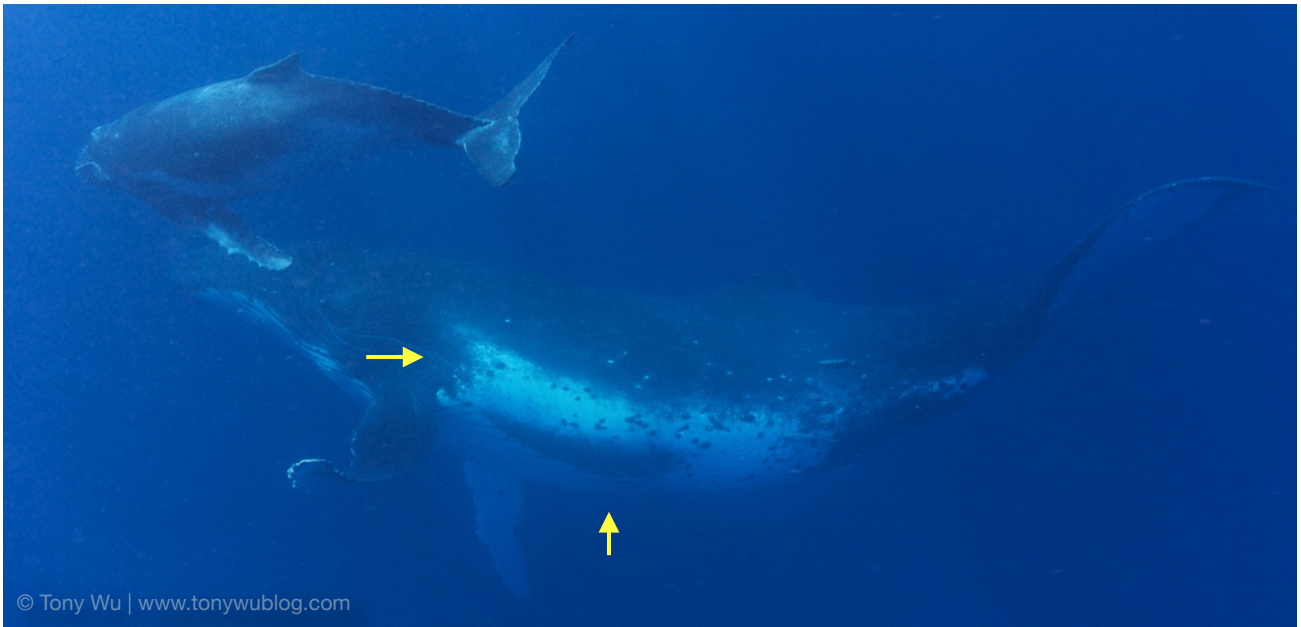
When & Where: 06
Sep (0)



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23. NIJUUSAN

Mom elusive and avoided contact. Only managed one drop.

When & Where: 08
Sep (0)

Mom's dorsal fin



© Emiko Miyazaki

Calf's dorsal fin



© Emiko Miyazaki



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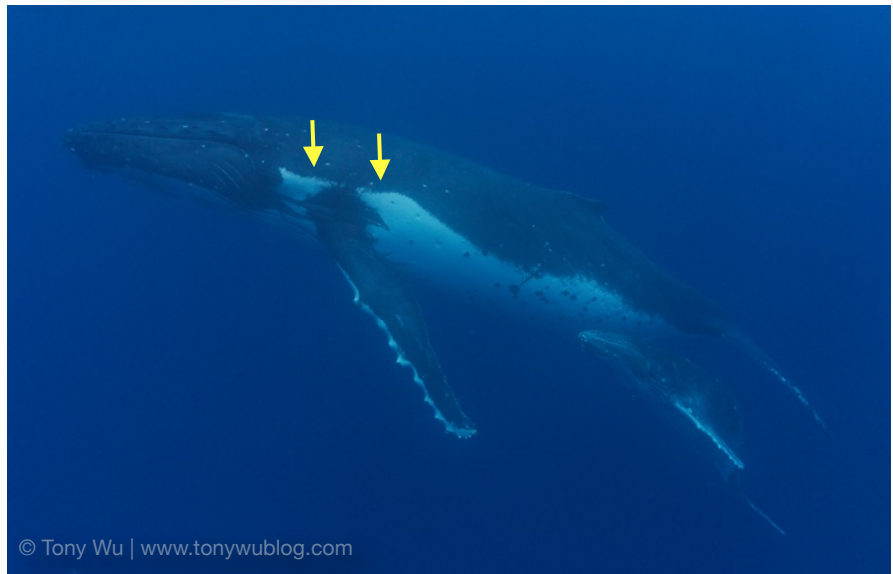
24. NIJUUYON ♀

Interesting/ unusual behaviour during 08 Sep encounter: When the calf came up to breathe, mom swam off some distance, perhaps 200m. I was in the water and found the calf, followed it, thinking it would go back to mom, but the calf never did. Just swam along, happily playing. I kept up until I was about the pass out from exhaustion, then I saw the mom rejoin her, appearing out of the bad visibility to the right of me. According to people on boat, mom had gone some distance away and tail-slapped.

When & Where: 27 Aug (0), 06 Sep (1), 08 Sep (0)



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25. NIJUUGO ♀

Both mom and baby have all-white pectoral fins and are easy to distinguish.

When & Where: 05
Sep (0)



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26. NIJUURUKU ♂

This female and calf were totally chilled out. The calf always stuck close to its mom, but the pair were settled and in no apparent hurry to move.

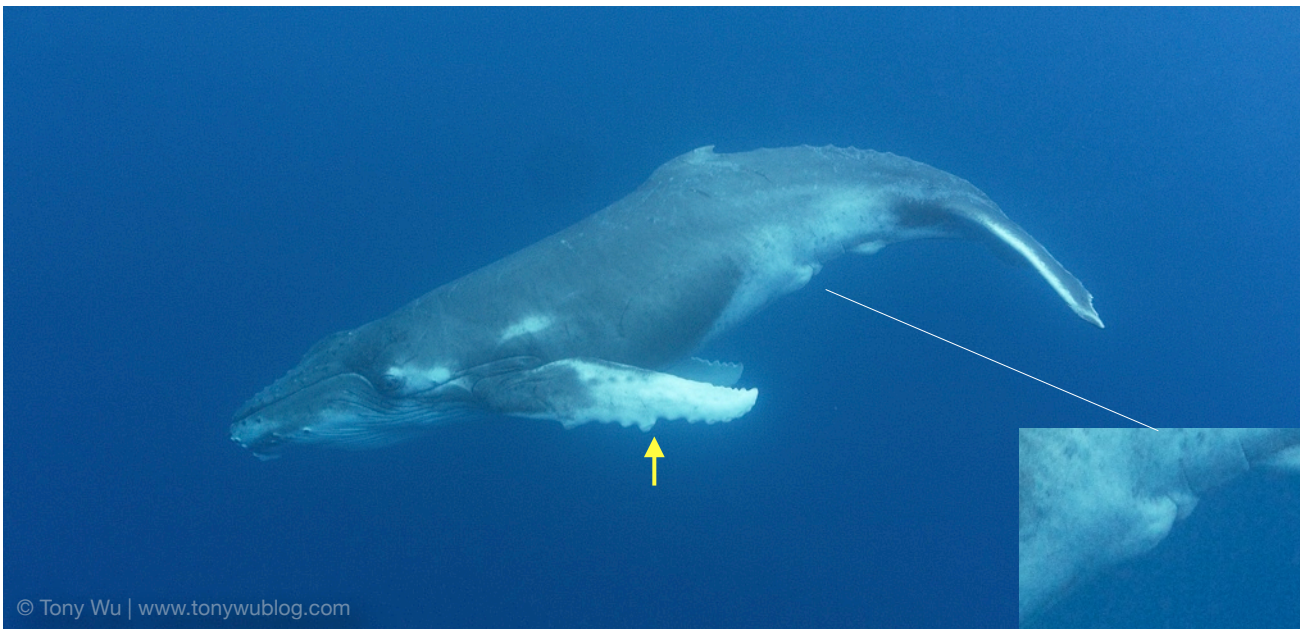
When & Where: 11 Sep (0), 16 Oct (1)



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27. NIJUUNANA ♀

This encounter was on a difficult day. Grey/overcast. Winds and swells ok, but whales were generally not friendly.

There were 7 mother/calf pairs reported on this day, all moving constantly. We encountered three mother/calf pairs, but I was only able to get into the water with this one.

Mom is dark over most of her body. The escort was protective of the mother/calf pair.

Calf is easily recognisable by the pattern of its white pectoral fins

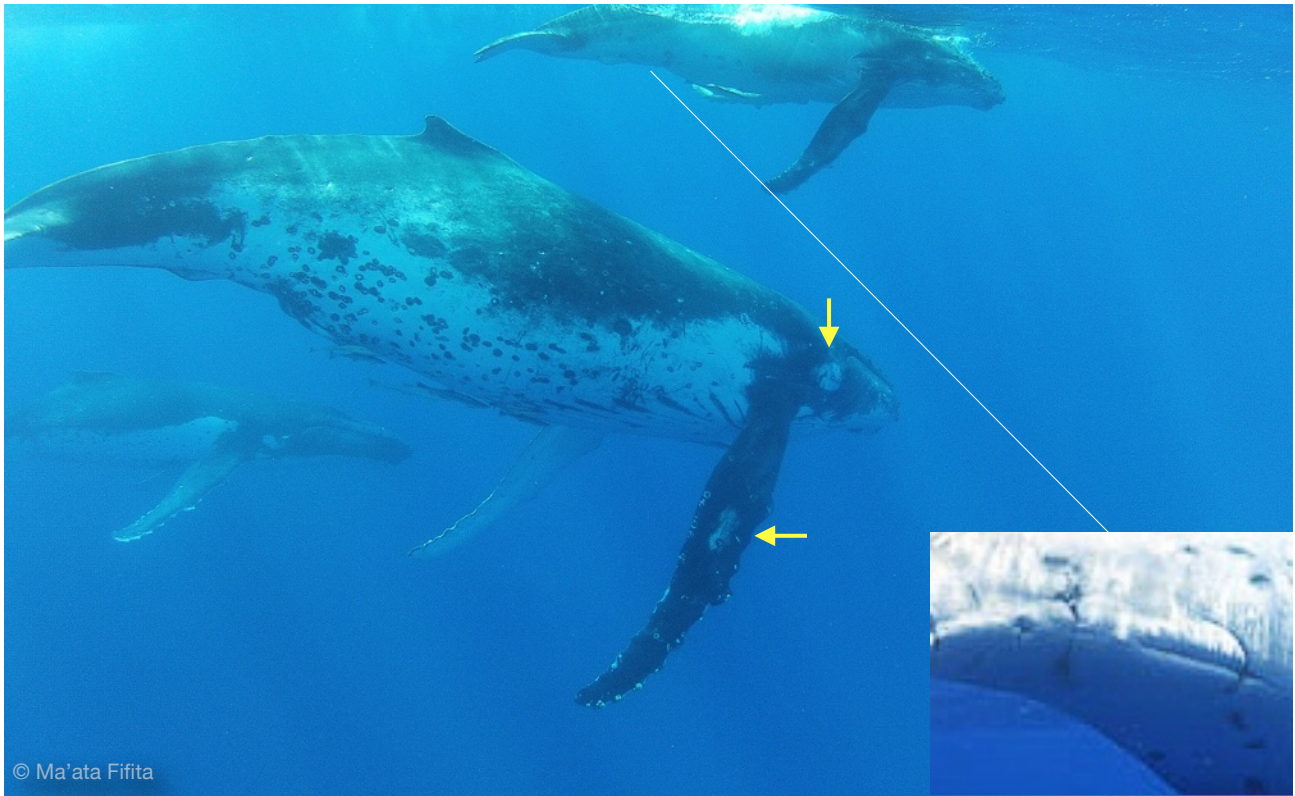
When & Where: 13
Sep (1)



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28. NIJUUHACHI ♂

Two encounters on consecutive days. In both cases, the mom and baby were relatively relaxed.

There was an escort on both days (not certain if it was the same escort). During the second encounter, the whales moved a lot, with the calf breaching continually.

The escort parted ways with the mother/ calf pair. The female and calf then settled down.

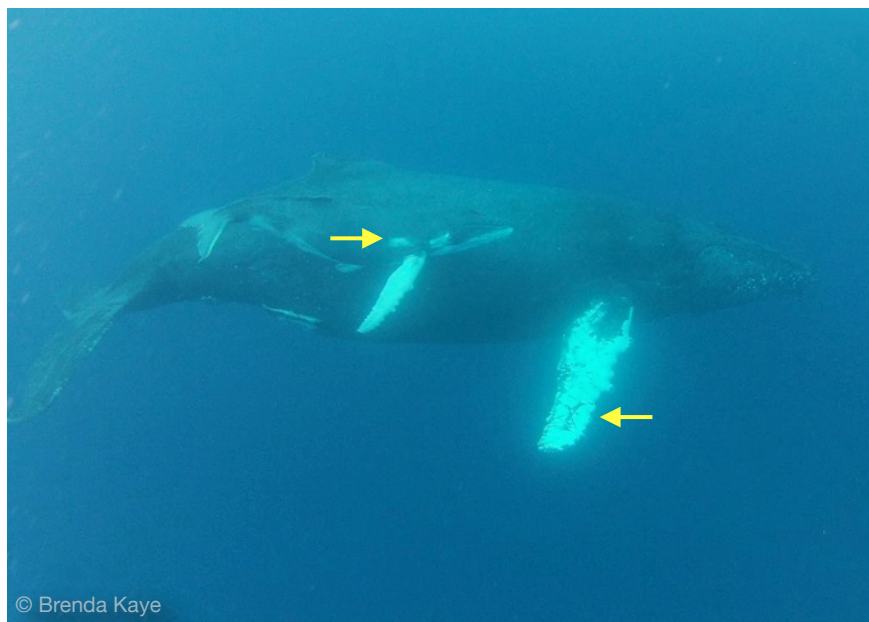
When & Where: 12 Sep (1),
13 Sep (1)

29. NIJUUKYUU

Encounter with this mother/ calf pair was in an active heat run involving three males, inclusive of the primary escort, which was defending the mother/ calf pair in a very aggressive manner.

Both the mother and baby have white pectoral fins.

When & Where: 18 Aug
(3)





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30. SANJUJ

This mom and calf were in the middle of an intense heat run involving the mother/calf pair, the lead escort, and five challengers.

There was a lot of action covering a lot of area. Eventually two of the five challengers peeled off.

We left the heat run when they were headed out to sea.

Both the baby and the female are mostly dark.

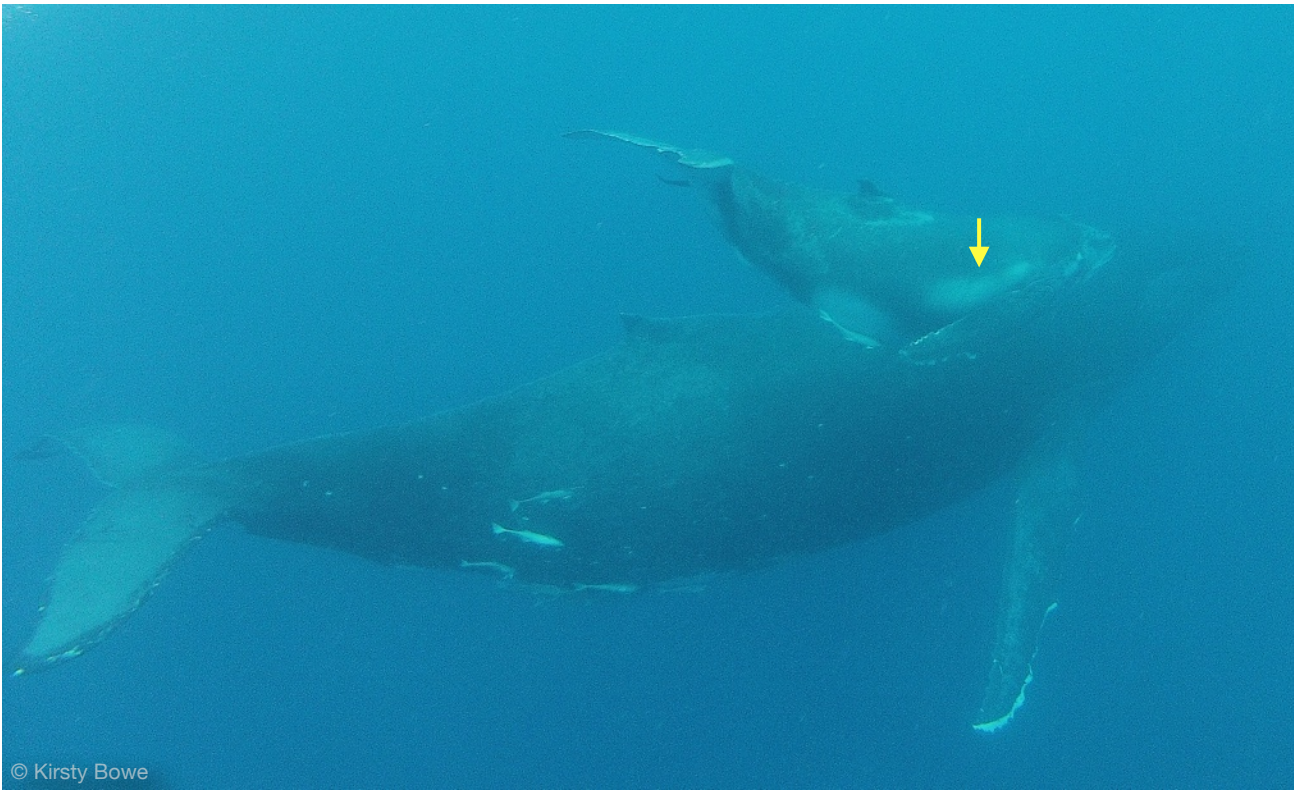
When & Where: 17
Sep (6)



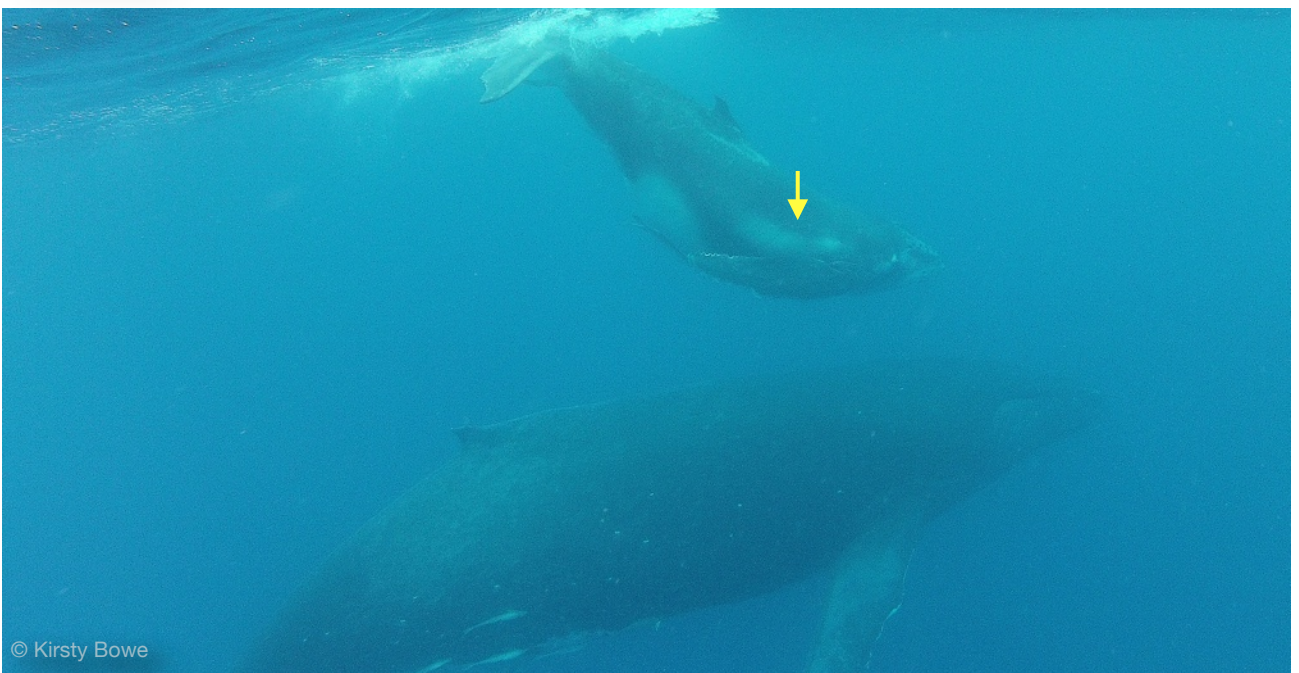
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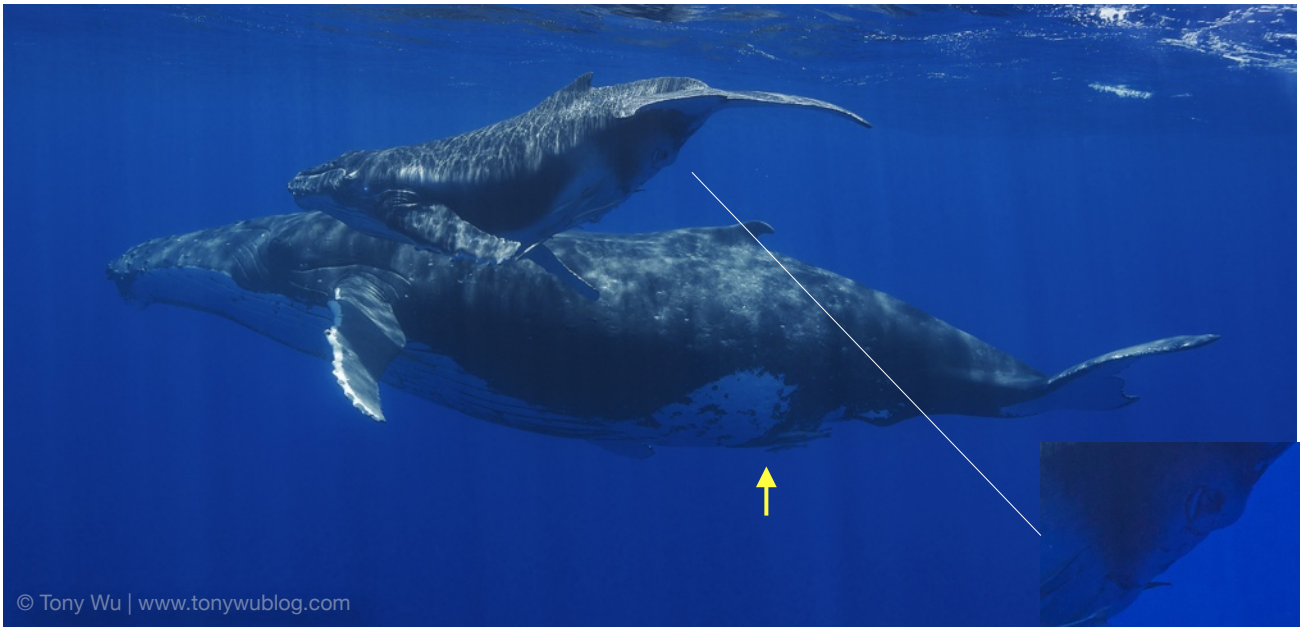
© Kirsty Bowe

31. SANJUUCHI

Designated this as unknown calf 201218 after the initial encounter on 15 September, but assigned ID as confirmed calf 201231 based on photos from the second encounter.

There was an escort during the first encounter, but not the second.

When & Where: [15 Sep \(1\)](#),
[17 Sep \(0\)](#)



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32. SANJUUNI ♂

This female, calf and escort took some time to settle down and relax.

The calf was exceptionally sticky to its mother, never leaving her side.

The mom's dorsal fin comprises a pronounced hook.

When & Where: 19
Sep (1)



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33. SANJUUSAN ♂

Female and calf in the middle of a heat run with four males. The males seemed to lose the plot, as they eventually separated from the mom and baby, while continuing their

competitive displays and fighting among themselves (See also calf 201242). Calf's fluke has black ventral surface.

When & Where: 19 Sep (4)



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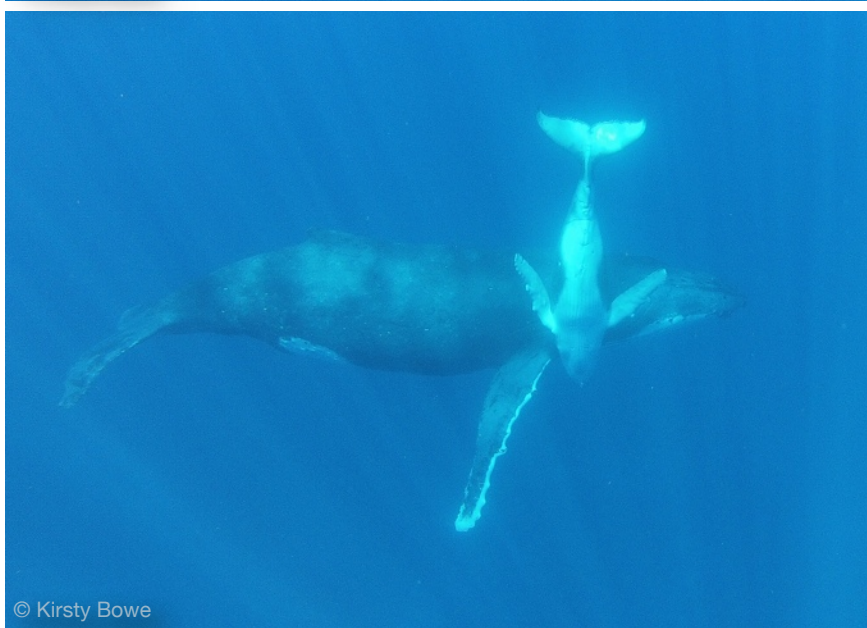
34. SANJUUYON ♂

Two encounters with this mom and calf. On both occasions, the pair were relatively settled, with the calf curious.

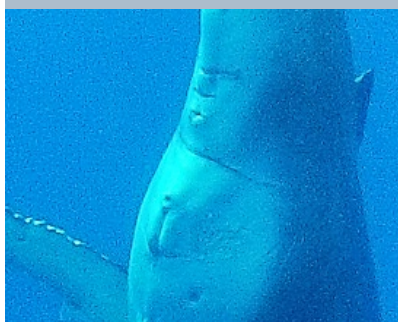
When & Where: 19 Sep (0), 21 Sep (0)



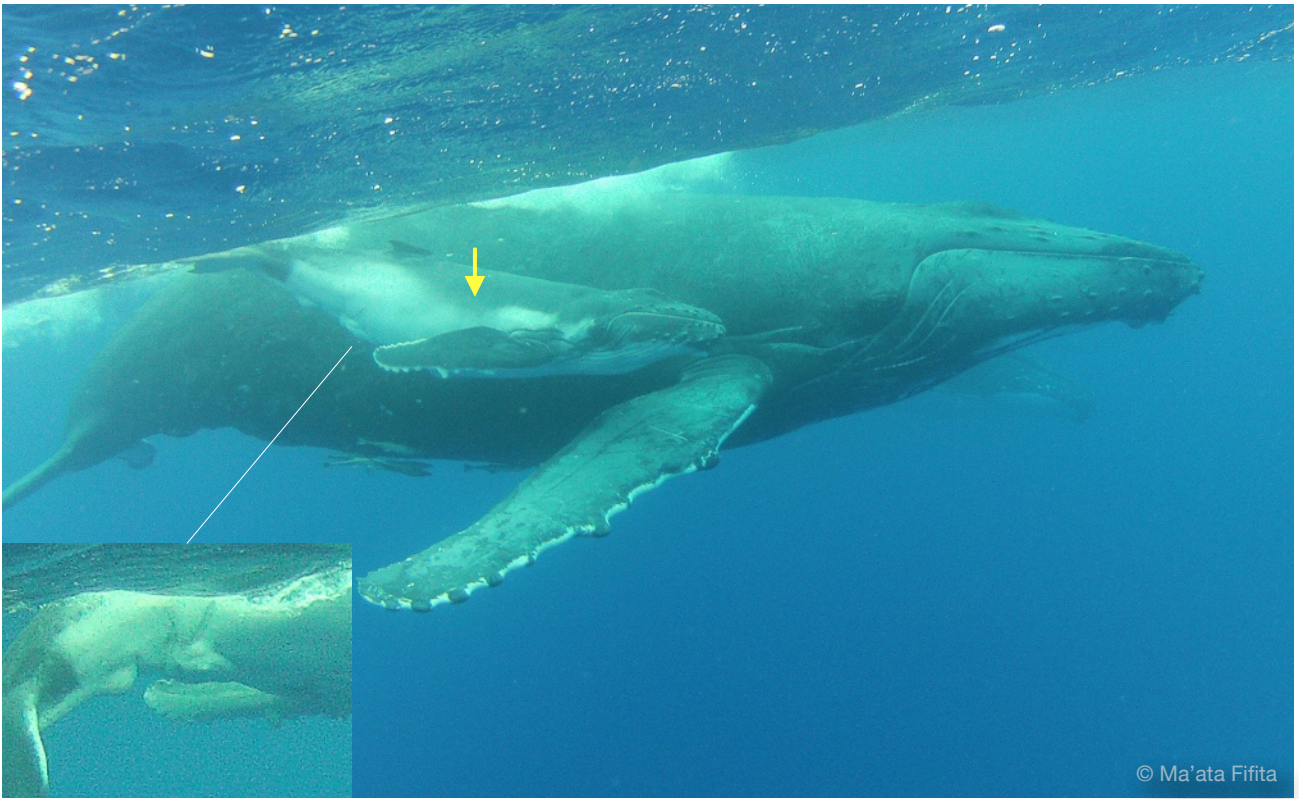
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35. SANJUUGO ♀

Mother and female calf, accompanied by an escort that sat down deep. Relatively relaxed, though mom seemed nervous at times. Calf friendly.

The has an "X" on her right pectoral.

When & Where: 22 Sep (1), 11 Oct (1), 12 Oct (0)

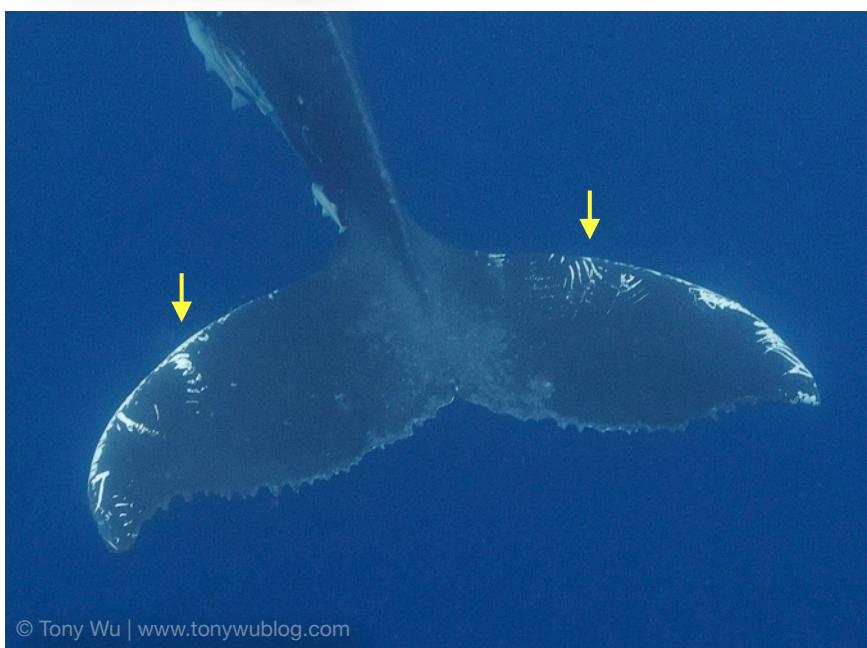


Confirmation of re-sighting using mom's right pectoral fin: 12 Oct (Left); 11 Oct (Mid); 22 Sep (Right)

36. SANJUUROKU

Visibility was poor, and it was cloudy overhead. This female and calf were not settled, constantly on the move. We only managed a couple of drops. The mother has distinct scratch marks on dorsal surface of her fluke.

When & Where: 25 Sep
(0)





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37. SANJUUNANA ♂

This female and baby were accompanied by two escorts when we came upon them.

The whales were restless while the two escorts were present. Eventually, one (with white pectoral fins) prevailed and the other one departed.

After that, the three remaining whales slowed a bit, though they kept moving, as often seems to be the case when multiple escorts are involved.

When & Where: 26 Sep (2)



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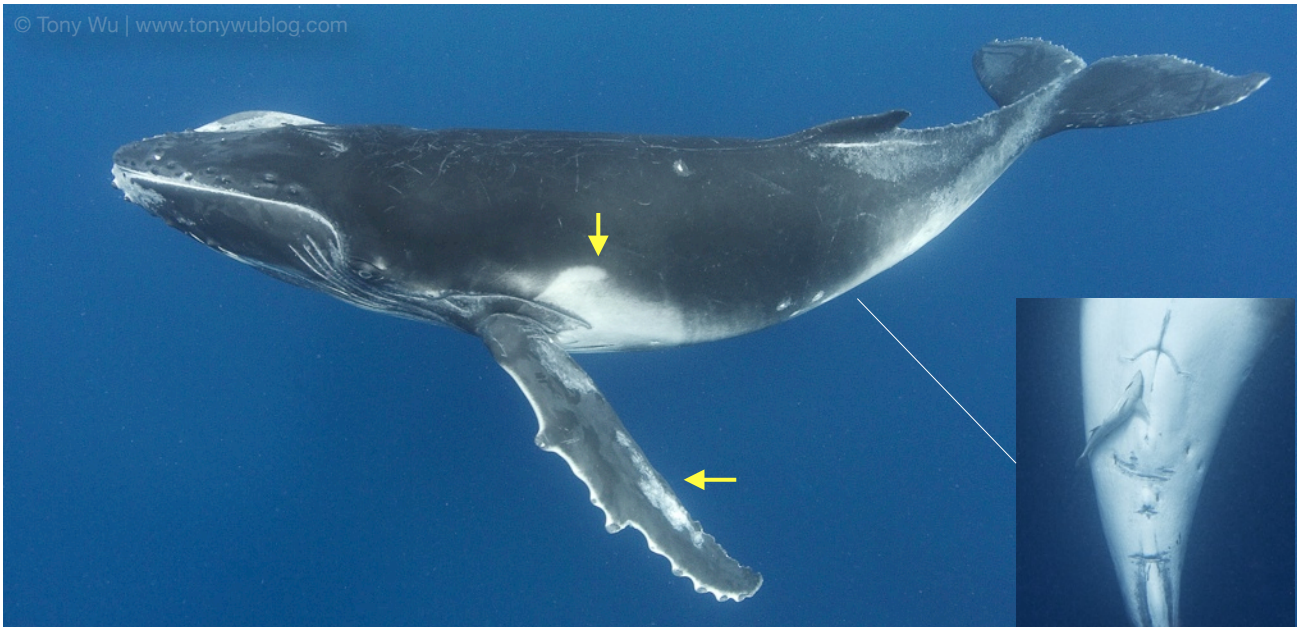


Mom's dorsal fin

© Emiko Miyazaki

Calf's dorsal fin

© Emiko Miyazaki



38. SANJUUHACHI ♂

Mom totally dark, with strange habit of “leaking” air from blowholes, though not on every dive. More detail in [this blog post](#).

Calf was somewhat inquisitive, but basically stuck to mommy. The adult was not too friendly. They put on a big show of tail slaps and breaches for us though.

When & Where: 29 Sep (0)



Mom's dorsal fin



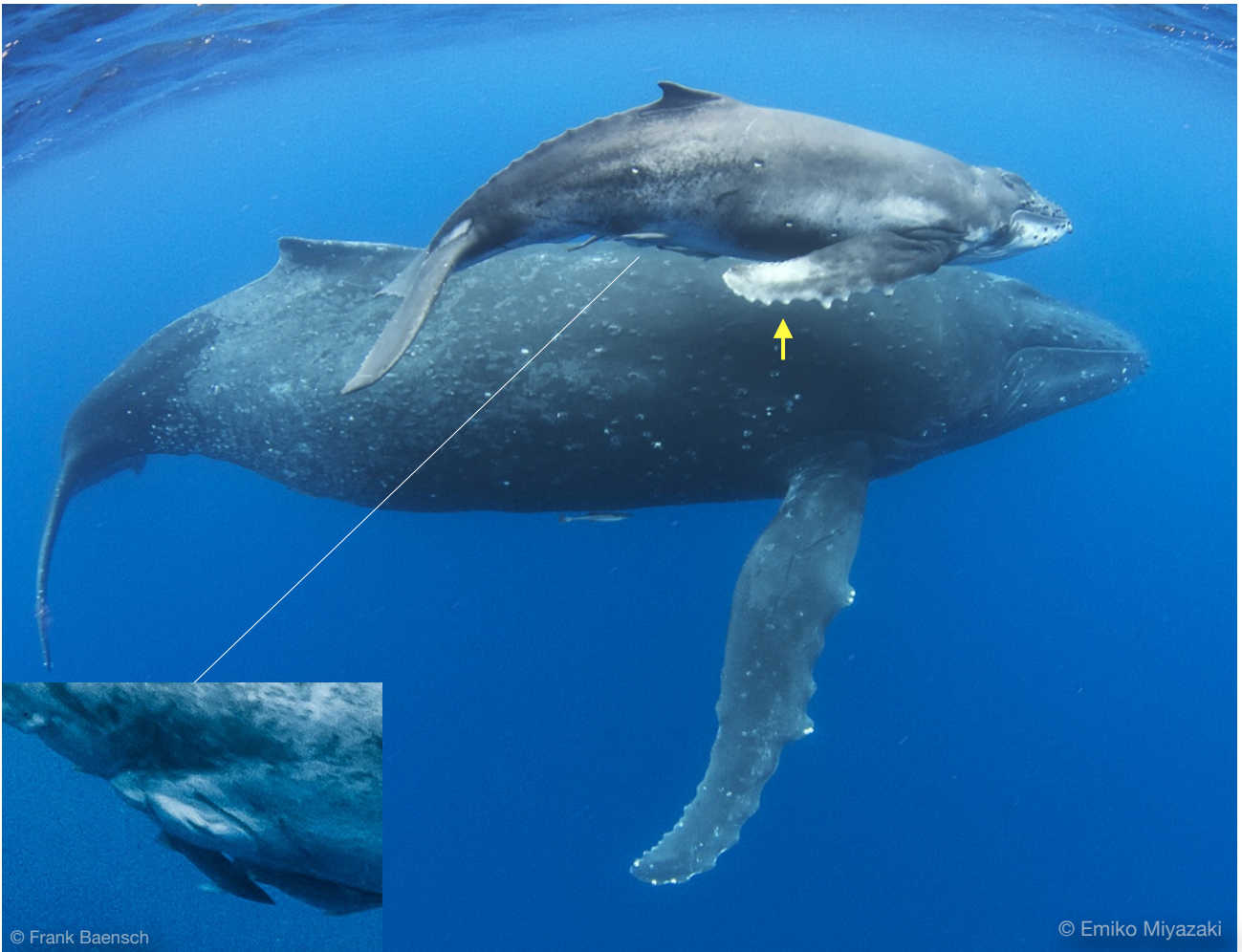
© Emiko Miyazaki

Calf's dorsal fin



© Emiko Miyazaki



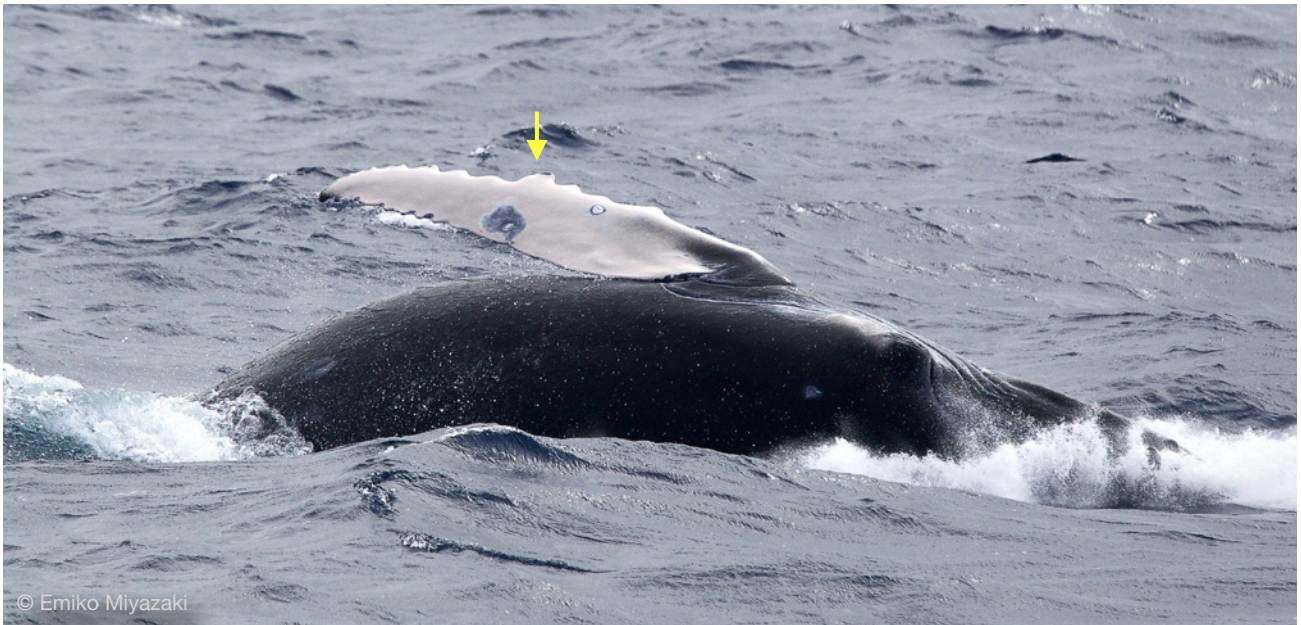


39. SANJUUKYUU ♀

Mom dark all over, extremely shy. We only managed a single drop.

When & Where: 01 Oct (0)





© Emiko Miyazaki

Mom's dorsal fin



© Emiko Miyazaki

Calf's dorsal fin



© Emiko Miyazaki

40. YONJUJ ♀

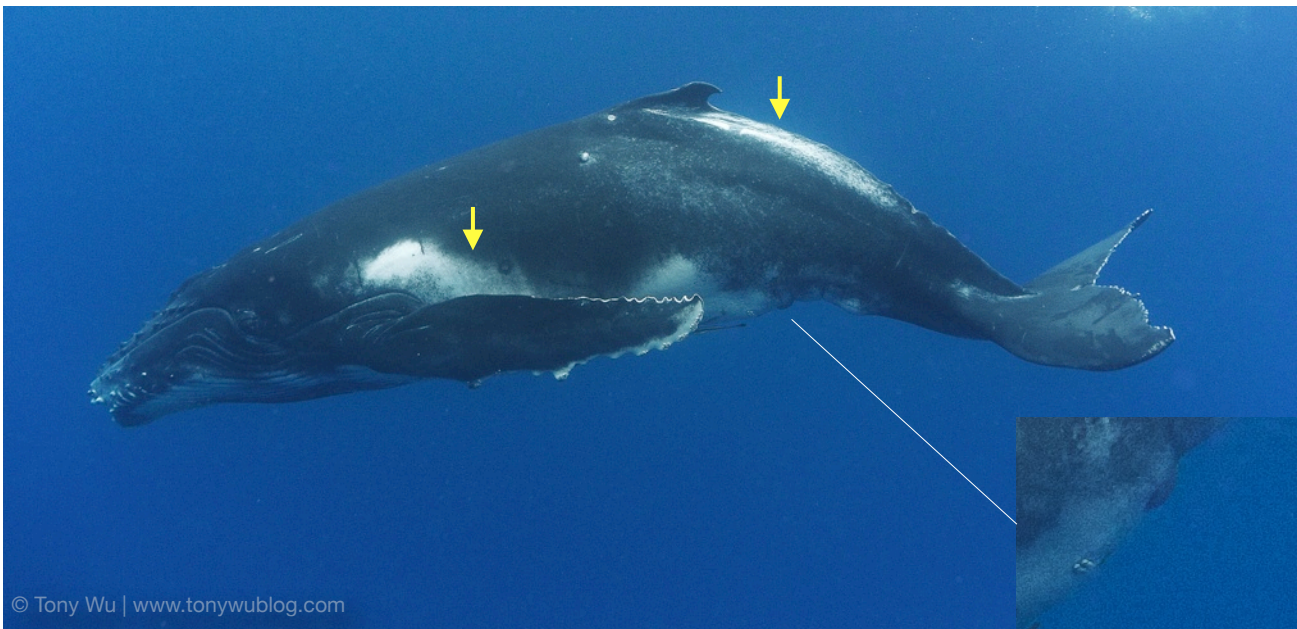
Only have surface photos for this one. The calf has white pectoral fins with easily recognisable marks, and is female, so by process of elimination, it is possible to confirm that this calf is different from the other ID-ed calves with white pectoral fins.

It is interesting to note that this mother's distinctive dorsal fin shape is similar to that of the mother of calf 201214, which also happens to have white pectoral fins.

When & Where: 02 Oct (0)



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41. YONJUUCHI ♀

We encountered this mother/ calf pair traveling down the coast of Hunga (north to south) at moderate speed. They didn't stop, but stayed in the shallows, which allowed us a few passes.

The adult is predominantly dark.

Note the scrape wounds from dorsal to fluke on the baby, and to a lesser extent the mom. Similar markings were also present on a number of other calves this season, as well as in past seasons. I am not sure what causes these marks.

When & Where: 02 Oct (0)



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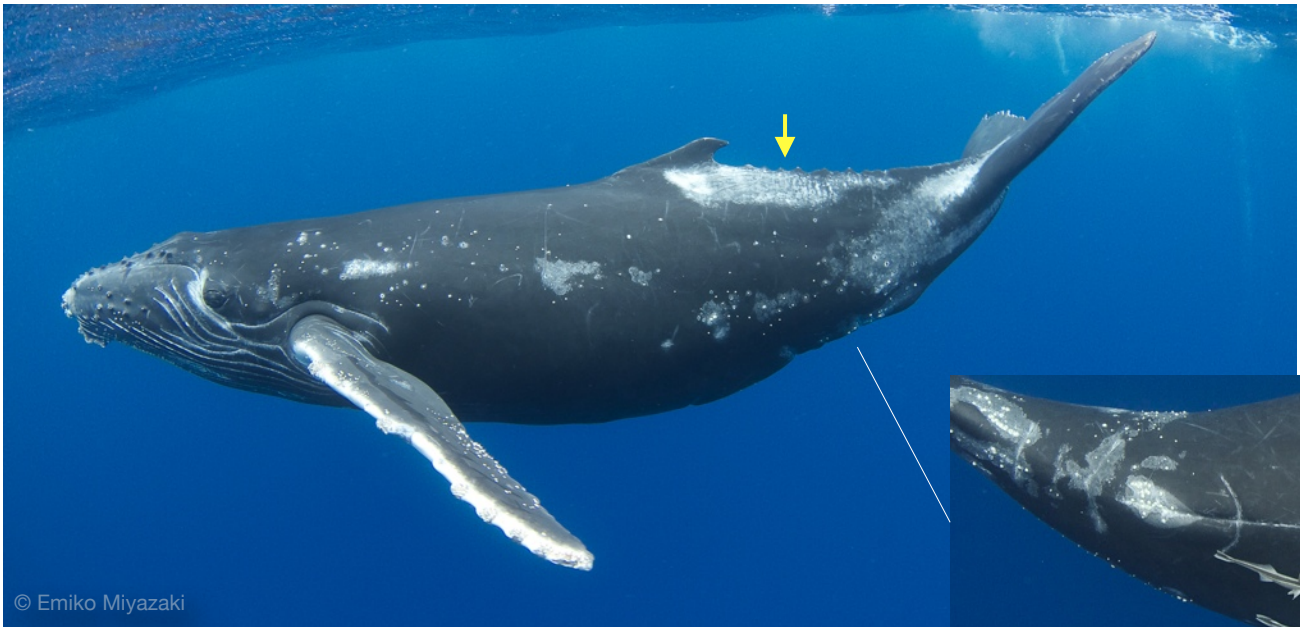
Calf's dorsal fin

© Emiko Miyazaki



Mom's dorsal fin

© Emiko Miyazaki



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42. YONJUUNI ♂

Mom and calf are both dark all over, including ventral surfaces, with the mom having white pectoral fins. Reasonably relaxed and friendly.

There were two escorts with them, but the males left the mom/ baby and continued scuffling by themselves, reminiscent of the heat run with calf 201233.

Note that the calf has what appears to be an infestation of acorn barnacles (*Coronula diadema*).

When & Where: 03 Oct
(2)

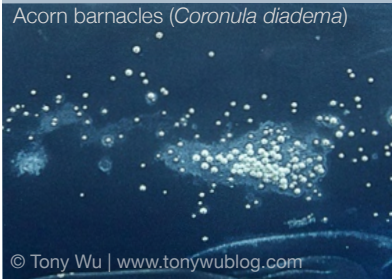


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Acorn barnacles (*Coronula diadema*)



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43. YONJUUSAN

We found this calf by itself, with no mother or other adult whales in the vicinity. The calf was diving up and down, moving along at a relatively slow pace. It did not look panicked, but there

is little doubt that it had somehow become separated from its mother.

Humpback whale calves of this size depend on their mothers for nutrition and

protection, so this calf unfortunately will not survive.

When & Where: [04 Oct \(0\)](#)



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44. YONJUUYON

Mom and calf are both dark. Mother has lots of spots. Calf has scrape marks between dorsal fin and fluke.

This pair stayed within a small area, but pinged around at random. Skies were overcast and visibility poor. The conditions and the whales' behaviour made it very difficult to find them.

When & Where: 05 Oct
(0)



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Mom and calf dorsal fins

© Emiko Miyazaki



45. YONJUUGO ♂

This mother and calf hung around the same area for much of the day, along with an accompanying escort.

The whales were relaxed, resting for 15-20 minutes at a time, and not moving far after surfacing to breath. Calf was playful, twirling above its mother.

The left side of the mother's fluke is truncated and ragged, perhaps from an old injury. Her left pectoral fin has raking marks. The calf also has a pattern of dark scratches or raking marks on the ventral side of its fluke.

The weather was bad and the visibility poor, so it was somewhat difficult to locate the whales.

When & Where: 05 Oct (1)





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46. YONJUUROKU ♂

This mother/ calf pair was being pursued by two escorts far west of White Patch.

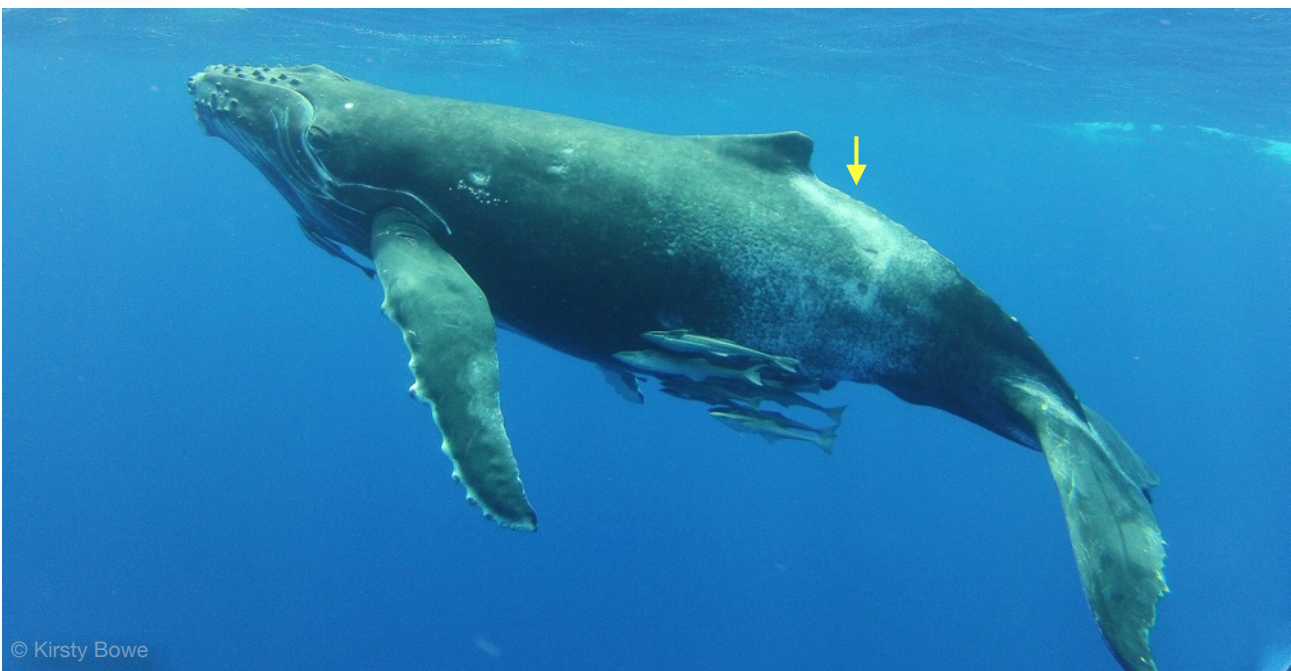
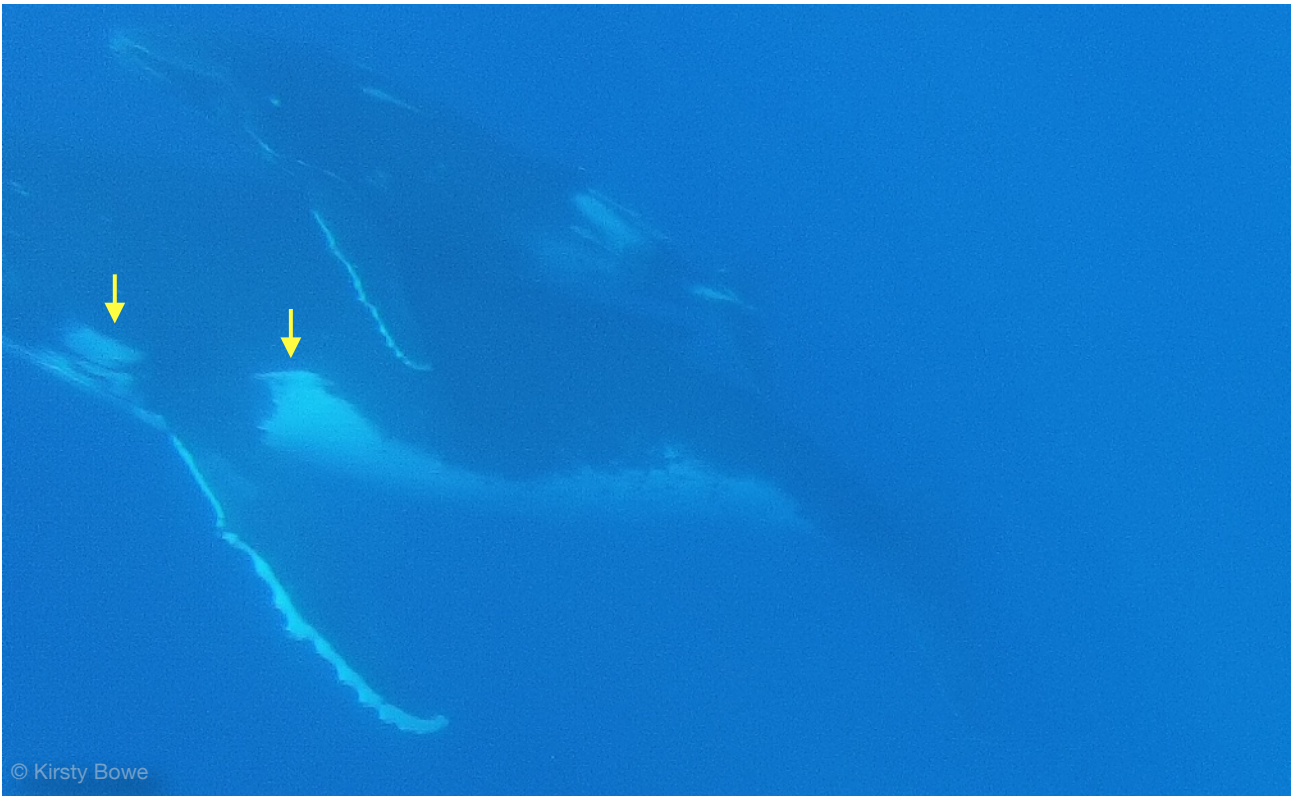
The whales were in the middle of a large group of pilot whales, estimated at over 100 individuals. The pilot whales left them before the humpbacks reached the islands.

The whales moved in toward White Patch at high speed, then slowed down, going past Tungasika. From there, they headed toward the inside of Hunga and down to Luamoko, where we left them. They continued south.

When & Where: 06 Oct (2)



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47. YONJUUNANA

Only two photos, one partial of the mom.
Assigned ID by comparing with initial 47 calf
IDs and using process of elimination.

The calf was really friendly with both adults,
nuzzling both of them, so much so that it was
initially difficult to ascertain which adult was

the mother. The calf was large, and very
friendly.

Note: Mother is similar to mother of 201224.

When & Where: [25 Sep \(1\)](#)



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48. YONJUUHACHI

Initially designated as Unknown calf 201225.

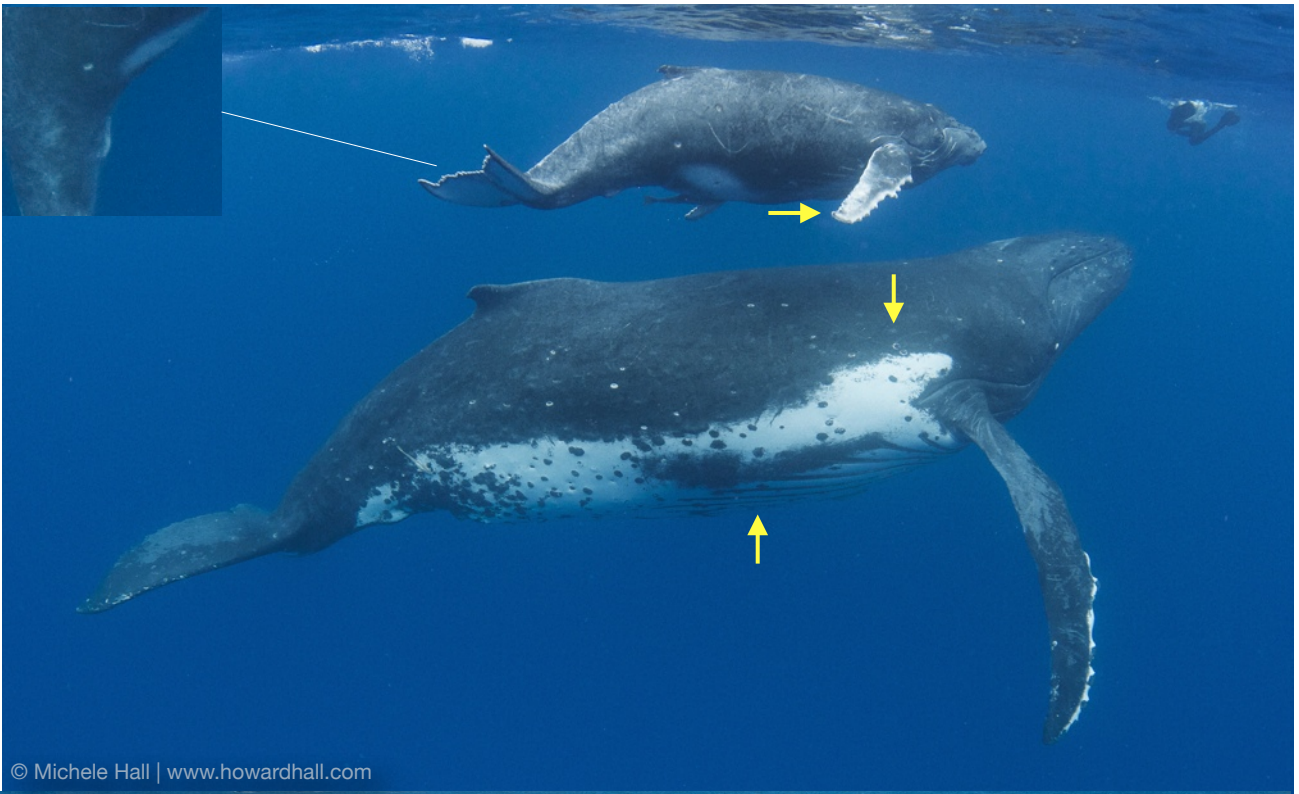
It was overcast. The whales were deep and they swam off as soon as we entered the water, so I only took one photo.

I used a process of elimination to cross-check this underwater image against the other ID-ed mother/ calf pairs.

No other mother this season with primarily dark pigmentation has the two distinct dots at the top of white area on the lower abdomen.

When & Where: [26 Sep \(0\)](#)





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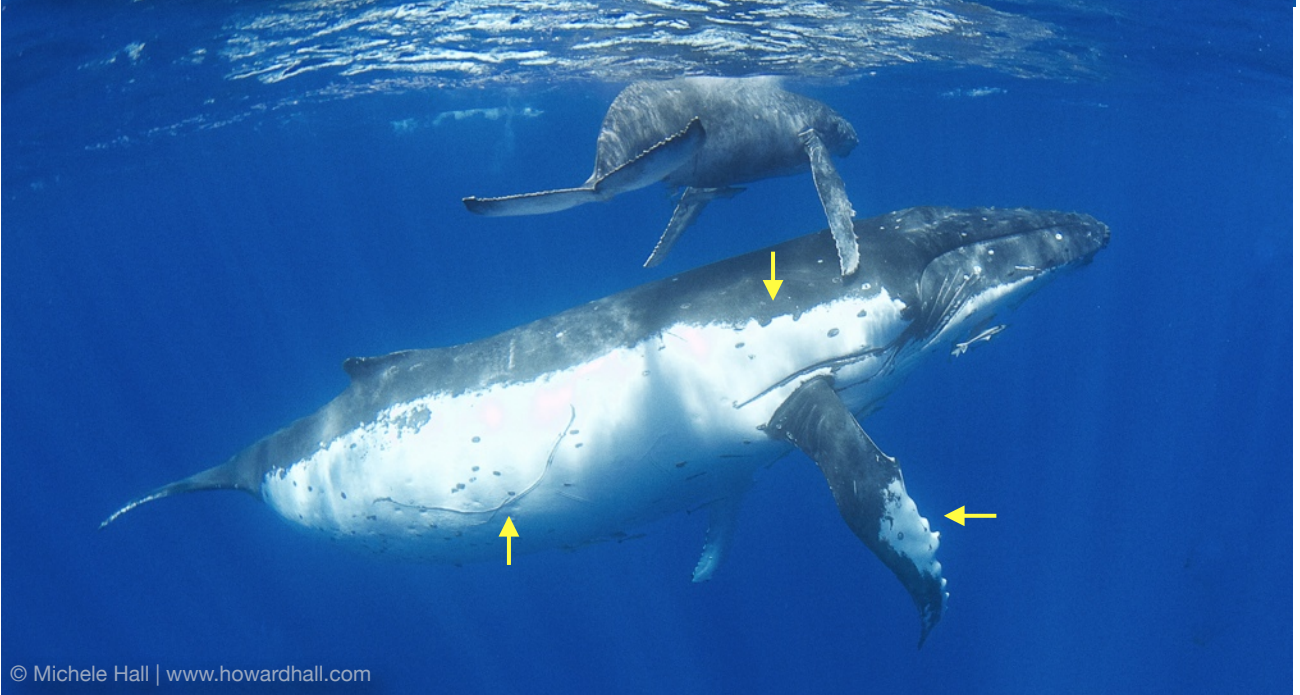
49. YONJUUKYUU ♂

Mother and calf in North Bay. Mother's body print conforms to a relatively common archetype, but the spots in the white areas make her easy to distinguish.

When & Where: [25 Sep \(0\)](#)



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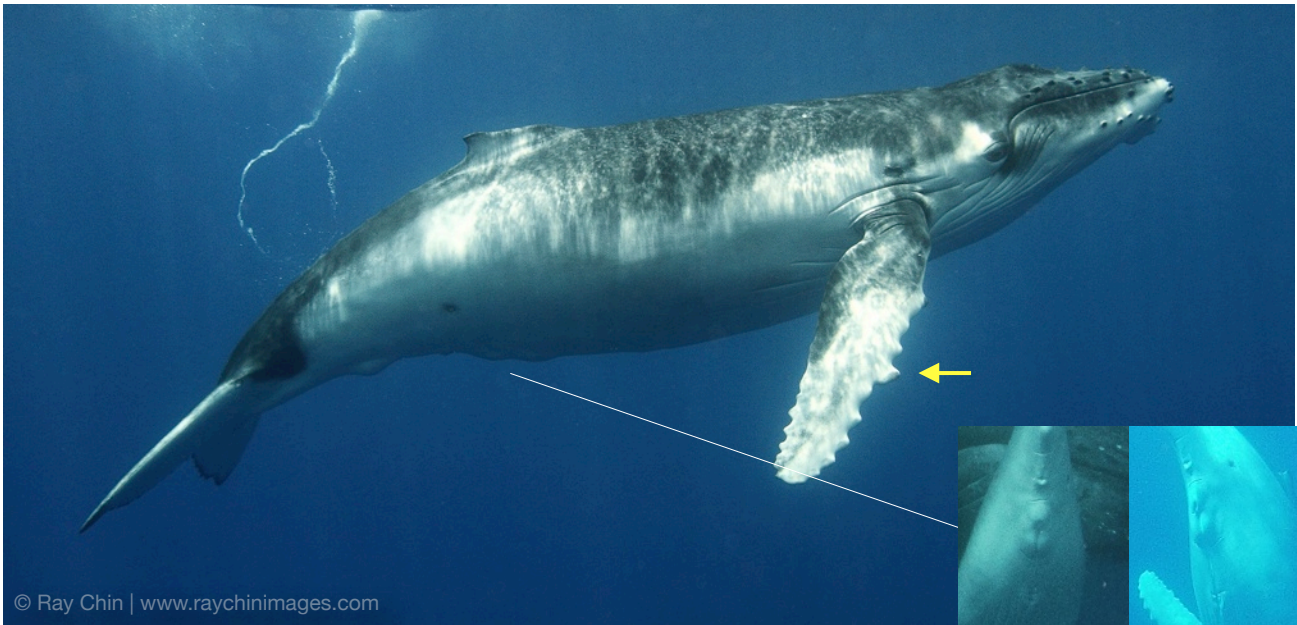
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50. GOJUJ

Mother, calf and escort very friendly and inquisitive. The mother is easily distinguishable by the high proportion of white pigmentation on her body, the prominent scar on her right side,

and the unusual white pattern on her pectoral fins.

When & Where: 28 Sep (1)



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51. GOJUUICHI ♀

Very small calf, encountered on three consecutive days. On the first two days, there was no escort, and the pair were calm. On the third day, there was an escort with them, and the behaviour was totally different. They moved constantly.

The calf's small size/ young age make it difficult to determine sex, but I am making an educated guess that it is female, given two photos that appear to indicate the beginning of mammary development.

The mother is easily recognisable by the patterns on her pectoral fins. These are not injuries, as they appear on both sides.

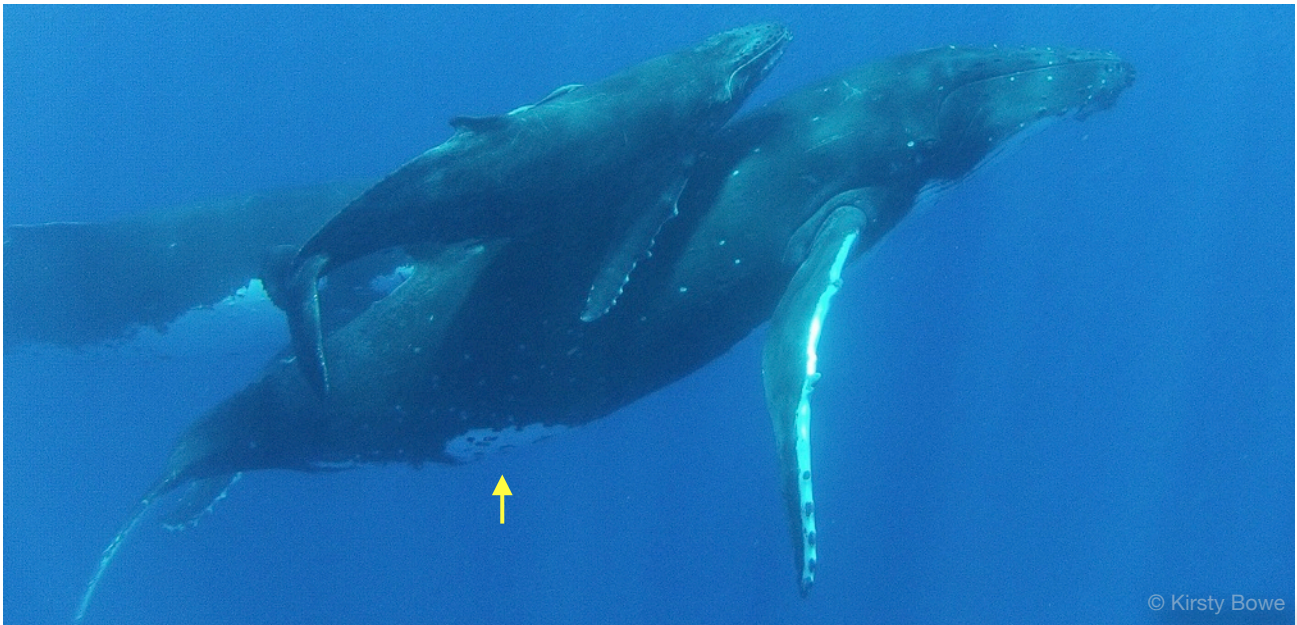
When & Where: Oct 16 (0), Oct 17 (0), Oct 18 (1)



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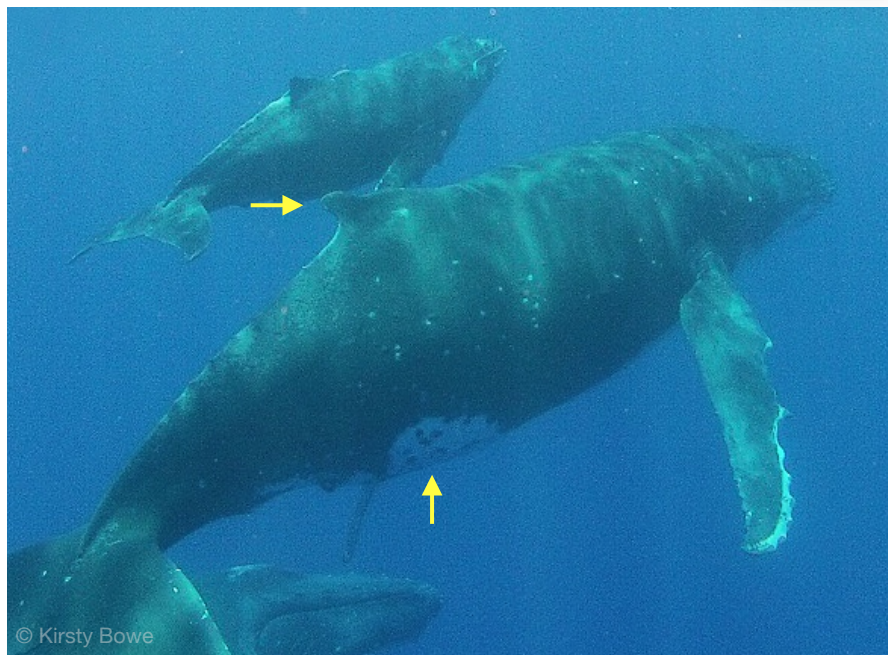
© Kirsty Bowe

52. GOJUUNI

Only a few shots of this dark mother and calf, so difficult to determine ID.

Cross-checked the spot pattern on the white patch on the mom's lower ventral area with all other dark moms, and also compared to mom's dorsal fin shape to all other dark moms.

When & Where: Oct 15 (1)



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