

# Pacific Orca Society: Annual Report 2016



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## Report topics:

- Overview
- Explore: Remote Cameras & Network Systems
- Research
- Whales & Corky
- IWC
- Volunteers, Visitors, Carpenters & Caretakers

## Overview (and a little bit of history):

In 2016 OrcaLab continued its quest to provide ways and means for people around the world to become acquainted with whales and their ocean home. The guiding philosophy of learning without interference has been central to OrcaLab's work for the past five decades and has shaped its development of remote systems.



In 1970, a small summer camp on the shores of Hanson Island deployed its first hydrophone to listen to the orcas passing through Blackney Pass. In the years following, the research challenge became how to extend the range of listening so that the orca families could be tracked during their daily travels around the area. Several more hydrophones were established to take advantage of OrcaLab's unique geographical location, and Alert Bay resident, Bill ter Brugge's ability to cobble together remote hydrophone systems from, in some cases, Korean War vintage transducers etc. The result allowed the Lab to listen to and monitor approximately 50 square kilometres of what would become "core habitat" for the Northern Resident orcas throughout the year. Each system consisted of a hydrophone deployed about 20m below the surface connected by cable to a power source (12v batteries) on shore and to a transmitter in a nearby tree. The signal was sent via VHF radio to the Lab.



Each site needed to be in direct line of site of the Lab. Acoustic windows into Blackfish Sound, Blackney Pass and Johnstone Strait effectively created a whale pirate radio! Maintaining the system was forever a challenge. Heavy 12v batteries had to be exchanged at least once a week, and recharged back at the Lab with the help of an overworked generator. Most of the sites involved climbing up steep rocky cliffs, diving, sometimes whacking through bush, and climbing, not for the faint of heart, extremely high trees. Of course, this increased the amount of work being handled by the Lab as recordings were now made whenever orcas were heard, night and day, wherever they were in the area. Fortunately, volunteers from around the world came to OrcaLab and helped to manage the growing number of recordings. Several years later, when the Internet began to be realized, OrcaLab recognized that this was an opportunity to share the experience of listening to whales with a much wider audience. Joining forces with Japan's NTT Data, OrcaLab took on the challenge of broadcasting both live audio and video to the public. It was early days for the Internet and it was only through NTT Data's sponsorship, Soichi Ueda's inspiration and website development, Seiji Inagaki's technical on site expertise, JStream's pioneering vision, and NEUX production guidance that was it possible to achieve results. In those early days, a huge satellite dish (later replaced by wireless radios) relayed the signal, first to Alberta, then to Japan and finally out to the world, a virtual delay of seconds. A small 1x1 inch window (two larger views were offered later) displayed the transmitted live video on computer screens. Audio was less complicated but both feeds inspired a growing dedicated audience who were able to express

their impressions and support with each other and to OrcaLab on the website's community page. The project attracted an audience in 70 countries around the world, and one Japanese viewer called this page "the oasis of my day". This project lasted six years, from 2000 to 2006, three years beyond what NTT Data originally agreed to. Fast forward, how times have changed! Better batteries (though bigger and heavier), additional solar panels, inverters, wireless radios, faster Internet with increased bandwidth, fuel cells and even a stronger boat have made life easier, and the original project much improved with its high definition cameras in old and new locations. Those demanding high trees are still there and the systems still need attention from time to time as weather and seasonal conditions can still take their toll, especially during harsh winters. Behind most of the recent improvements is OrcaLab's partnership with Explore ([explore.org](http://explore.org)). OrcaLab now monitors visually, as well as acoustically, the same 50 sq km area covered by the original hydrophone network. There are cameras above and below water at the Main rubbing beach and at the Cracroft Point camp, as well as others overlooking Robson Bight, on the Parson Island cliff, at the Lab, and even at the Steller Sea Lion haul out on Hanson Island. Many of the improvements have come in the last two years.

2016 was a very busy time. The following sections discuss the efforts to improve the Lab's networks and monitoring systems, research initiatives and results, attendance at IWC66, ongoing issues and concerns, the building maintenance projects and the welcomed volunteers, many visitors, friends, family and, of course, the whales.

## Explore: Remote Cameras/Network Systems



Once again, in 2016, Tim Sears of HDONTAP returned to OrcaLab in July to work on improvements to the camera and wireless systems he had created on behalf of Explore. As before, a large shipment of equipment accompanied his visit. Unlike in 2015 the shipment was delivered to Port McNeill on time. After loading the *June Cove* and transporting it to Alert Bay, the

driveway in Alert Bay was soon littered with discarded cardboard boxes, packing, equipment, fuel and various interesting bits and pieces. The *June Cove* was reloaded, and after arriving at the Lab, the work to replace older cameras with new high definition versions, establish new camera locations, upgrade power supplies and retool the wireless network, began immediately.

Just before this, Tim had once again rented a motor yacht and had cruised up the coast from Vancouver with his wife Tiffany and their daughter Charlie, along with Andrew Olsen and his brother Will. The boat, the *KnotOnCall*, was an improvement over the problem plagued one in 2015 but still presented challenges. Regardless, it was a good solution to housing the crew during their stay. Tim and Andrew, having been to OrcaLab before, knew that their work hours would be long, intense, complicated and unpredictable (to say it mildly). Life around the Lab was already busy with the Northern Resident orcas and Humpback Whales who had arrived by this time.



Everyone soon geared up for the next three weeks flurry of activity. First on the agenda was a trip to the Robson Bight (Michael Bigg) Ecological Reserve to assess the situation at the rubbing beaches and Critical Point which is the most easterly headland of Robson Bight. Paul had already been to the Main rubbing beach before Tim's arrival to confirm that the hydrophone had indeed failed and would need replacing. Fortunately, the high tree camera was still working and the Lab was able to use it to visually observe any whale activity. The lower tree camera had failed during the winter when water got into the housing. It was clear there was a lot of work to be done.

In 2013, Tim had attempted to get a camera working at Critical Point in Robson Bight but numerous logistical problems made this impossible. These problems persisted in 2014 and 2015. In the interval, Tim had retooled this part of the project, and in 2016, he eventually solved the problem of connecting the Critical Point camera to the Cracroft Point (CP) hub.

It is necessary here to describe how the camera network functions. Data from the rubbing beaches and Critical Point are sent via wireless radios to CP and from CP to Internet servers located in Alert Bay. CP has direct line of sight to Alert Bay 18 kilometres distant. Likewise, data

from the rest of the network, from Parson Island and Hanson Island are funnelled to CP and relayed from there: In Alert Bay, fiberoptic cable connects the server to the Telus provider network. This is a fairly complicated process that depends on all the wireless radios, cameras, power sources, and the servers, all working correctly, and at the same time. There are a lot of parts, non ideal conditions, and unforeseen complications poised at any moment to put spanners in the works. In the past, we have described some of the problems that have arisen. But Tim is a problem solver and came back to OrcaLab in 2016 after a lot of preparation.

While at Critical Point, Tim integrated the WWF/Tides Canada donated IC Listen hydrophone into the system. This calibrated hydrophone, deployed in 2015, is independent of the hydrophone already in place off the Critical Point cliff face, and is there to monitor boat noise levels in Johnstone Strait.



OrcaLab has long monitored whale activity in the Robson Bight (Michael Bigg) Ecological Reserve (RBMBER). The Reserve was established in 1982 in recognition of its significance to the Northern Resident orcas and their unique behaviour of rubbing their bodies on the pebbles along certain beaches to the east of Robson Bight. Casual access to the Reserve is restricted. Under a permit granted by BC Parks, Orcalab first placed a hydrophone at the Main rubbing beach in 1996 and at Critical Point in 1998. Acoustic monitoring of the whale activity in both locations has continued to the present. More will be said later with regard to the results of this acoustic monitoring.



OrcaLab began to experiment with remote cameras in the 1990s and during the NTT Data collaboration was able to show to the world the orcas rubbing from the vantage of two trees above the beach. Step by step, the quality of the video imagery has improved. Prior to 2015, analogue surveillance cameras were used, and in 2016, on the same trees, new higher grade high definition 1080p cameras replaced the 720p cameras Tim had previously installed.

Retooling the rubbing beach camera system in 2016 was not easy, especially for Andrew, who spent an entire day suspended from the high tree! Because the orcas had already arrived back in the area,

and the project had been unintentionally delayed until after their arrival, it was necessary to work around the movements of the whales and avoid being at the beaches at the wrong time. Our knowledge regarding the movements of the whales, and the presence of the Ecological Reserve wardens was very helpful. From their vantage on the "Cliff" opposite the Reserve on Cracroft Island, the wardens had a clear view of any whales approaching the beach from either the west or east. For the most part, the whales cooperated and only once was the crew caught off guard and had to lie low (literally hiding in the bushes) until the whales carried on to the west. After the tree cameras were in place, an underwater camera was installed as well. Over the years, there have been a few film projects that have used underwater cameras to film below the surface and capture this singular behaviour. These projects were successful but short term and always presented the potential of disturbing the whales during filming as the site needed to be manned. A remote system offered a better chance to witness repeated undisturbed activity. With the existing surface cameras and the infrastructure already in place, underwater imagery sent remotely to the CP hub was possible, but how and where to place the camera needed thoughtful consideration. The physical layout of the beaches is tricky, as known from previous hydrophone installations. After a position was determined, special care was needed to put the camera securely on a metal frame and bolted to the rocks off to the side of where the whales rub.

Once the overhead and underwater cameras were operational, Tim connected the Lab to these cameras and the Lab waited patiently for the whales to visit the beaches. The degree of turbidity in the water was unexpected. From above, the waters often seem crystal clear, but this was not the case underneath. The waters below the surface, perhaps as a reflection of how much daylight is available under the shadow of the tall Vancouver Island mountains, were quite dark and murky. The current, at times, was surprisingly quite strong as well. Despite these conditions, the whales did not disappoint, and with their dramatic white and black markings, were clearly visible as they passed the camera. Numerous events involving single and multiple whales were recorded. On separate occasions, two females, A42 and A50 were determined to be pregnant and that one young whale, A88 is a female after she obligingly turned sideways to the camera while being identified from an above surface camera. Sea lions, salmon and other fish, diving mergansers, a Lion's Mane jellyfish and even a nudibranch showed up on the underwater camera as well.





It soon became apparent that operating two tree cameras and monitoring the underwater camera all at the same time was going to be a challenge. Each of the two tree cameras were designed to be manipulated remotely from the Lab. The underwater camera has a fixed view and cannot be moved around. The Lab had already had some experience with operating cameras remotely. In earlier days, a joy stick device was used and those who had gaming experience were the

much better operators! Tim had provided the Lab with a different and easier system but it still required a fair amount of concentration by the camera operator. Everyone was tasked with practicing but those who were calm, and steady of hand, were the most successful at following the whales along the beach. The two surface camera views overlapped and needed to be operated separately so the Lab assigned two persons to the task, and a third person to watching and noting the underwater camera activity.

The surface cameras were able to follow the whales for some distance east beyond the Ecological Reserve boundary, requiring the camera operators to stay on task for quite some time. Pacific White-sided Dolphins, Bigg's orcas, a Grey Whale, Dall's Porpoise were seen on the surface cameras from time to time.

As these cameras are located in the Reserve, they double as surveillance cameras capable of monitoring any happenstance human activity in this sensitive area. In 2016, there were unfortunately several such events: Kayakers were seen close to shore travelling west on the heels of orcas just after their rub; an unwitting whale watch boat, ignorant of the Reserve's boundaries, followed whales east; and one very persistent and belligerent motor yacht continually harassed a large group of dolphins offshore for hours. The information, pictures and videos from these events were made available to BC Parks.

In 2016, on the cliff face (locally called the "Wall"), near to where the Parson Island hydrophone, an older camera and a wireless radio were already located, Tim decided that a new camera, was necessary to provide a closer view of events happening on this side of Blackney Pass. The older camera, higher up on the cliff, offers a wide panoramic view of the entrances of Blackney Pass, Baronet Pass and the Hanson Island shore opposite but the view is typically distant. Before the new camera was installed, Tim upgraded the existing solar power capacity, added new batteries and a new fuel system at the same operations base high on the ridge with the older high tree camera and wireless radio nearby. Andrew was given the task of being suspended over the cliff and drilling the new camera mount, with its camouflaged housing, in place.





All well and good except when part of the rock wall fractured as Andrew was driving in the pin that held his safety line. The huge shard dropped, barely missing brother Will working below! Everyone stopped for a very long moment and contemplated what might have been! Will and Andrew, shook it off and came back to the Lab with their shard trophy, and later even packed it for the ride home. Andrew successfully got the camera in place and Tim integrated it into the growing array of camera views.



OrcaLab's camp, "CP" on the most western end of West Cracroft Island has a long history with OrcaLab going back three decades. In 1986, OrcaLab deployed a hydrophone off Cracroft Point as part of the then expanding remote hydrophone network. In 1993, OrcaLab established a summer camp on this site. Tents were first, later a crude shack, and then a much improved structure to house equipment and volunteers who manned the camp. In 1994, underwater video cameras were placed within the large kelp forest that lies just offshore. Not only were there beautiful images of kelp and the myriad fishes, but also ones of otters, sea lions, birds, seals and a first look of an orca (to be repeated many times) underwater. Over the years following, the daily life of the kelp forest was recorded and documented. At the same time, a surface camera operated by a volunteer documented the scene from CP's strategic location. Orcas entering or leaving Johnstone Strait, whether via Blackney Pass, Weynton Pass or Broughton Strait have to pass Cracroft Point at some point. In 2000, video from this site was broadcast for the first time to the Internet. After 2006, surface and some underwater video recordings were continued while volunteers observed, monitored and documented the movements of whales and any other relevant activity. In more recent years, working with Explore, both surface and underwater video were again streamed to the Internet on a continuous basis.



In 2016, a lot of work was done to improve the power supply system at CP. New solar panels were added and the old ones reorganized on top of the shelter's roof. This optimized the exposure of sunlight on the solar panels without impacting on the site's limited space. Mark McCallum, who was on hand to put a metal roof on the main house at OrcaLab, organized this work. New batteries were set up, and a new fuel cell was added to the power supply as well. Fuel cells, as a means of charging the batteries that supply power to the cameras, have the advantage of running continuously as long as the fuel lasts. Fuel does not need to be refurbished too often so this was more efficient and reliable than the battery/generator/inverter system. During the 2015-2016 winter, caretakers, David and Brittney Cannamore, ran generators at Parson Island and CP to keep the batteries charged and all the systems (cameras, hydrophones and the Internet) working. This required numerous, almost daily, trips across to Parson Island and over to CP to haul gas and run the generators in each location. The condition of the older batteries and the lower solar capacity made life particularly difficult that winter and harkened back to the old days of hauling batteries up and down, to and from hydrophone stations. Somehow, David and Brittney managed. The summer improvements Tim was able to initiate were welcomed and timely. A new wind generator was also erected at CP to further enhance the power systems. Its effectiveness as a power contributor is still being assessed. The remote surface camera was replaced with a 1080p version and an underwater camera was reinstalled using the same type of frame and housing as the one at the rubbing beaches.

The underwater camera at CP proved to be somewhat difficult. In 2015, the high definition underwater camera had been dislodged (it had been secured by rocks) and the cable broken by either a large wave or, as most of us believed, by a humpback passing close to shore. Water got into the housing and the camera was destroyed. It was replaced by a temporary older analogue type camera. This worked adequately until taken out at the end of the season ahead of the winter storms. It had been a long held hope to install an underwater camera in time to watch the kelp forest grow in the spring, so Mark Worthing and Jesse Howardson, who were caretaking Hanson Island in May, had a go with a digital camera Tim had recycled from another project. Unfortunately, an unseasonably fierce storm also dislodged this camera, and it was tossed to and fro on the surface by waves before it could be retrieved. It too was destroyed. A new 1080p camera was purchased and ready to go when Tim arrived in the summer. However, the initial installation was also not successful, although luckily, this time the camera was not damaged. Finally, it was determined that the frame used to secure the housing may not be suitable in this location where

the currents (and critters) are so strong, and by the fact that there is nowhere to bolt the frame onto a convenient rock. The type of frame had proved useful at the main rubbing beach where it could be bolted right to the rocks. It was decided to try the new digital camera in the housing alone, and securing this with rocks piled on top. This was indeed more successful. Volunteer and master diver, Debs Allbrook and Paul made the dive and chose a good location next to an urchin clad rock face looking out into the kelp.

It was noted that the kelp forest off CP, once extensive, was now much reduced. However, the view into this world was still fascinating and refreshing.



The Lab's remote camera was upgraded with a newer model and relocated to lessen the vibrations caused by everyone walking on the deck. The outside microphone, there to capture the sound of orca blows, was moved to a place where casual conversations could not easily be heard.

Tim next had to make sure all the new configurations for the eight separate camera systems, hydrophones and power supplies, worked smoothly, and that the amount of available bandwidth was able to produce high quality results that were easy to access and use. Back at the Lab, he set up a new monitor which displayed all camera views on the screen. It soon became apparent that the consumption of bandwidth was taxing the entire system which was under performing. Tim solved this by portioning the Internet use according to immediate priorities. This solution made continuous monitoring and operation of the cameras possible, although it gave the volunteers, who had been spoiled by unlimited bandwidth use, a moment's pause.



Tim also made it possible for Explore to live stream the surface camera at CP, operated by videographer Megan Hockin-Bennett, and made sure there was a way to transfer and store the data from the ICListen hydrophone at Critical Point.

Pressed to get the rented *KnotOnCall* back to Vancouver Tim, joined once again by his wife Tiffany, weighed anchor, leaving Andrew and Will to tidy up. Tim rejoined them after driving back "up Island" and together they did what they could to finish up.



However, there was still one last installation, at the sea lion haul out on Hanson Island, to complete. This was left for Andrew to finish on his own when he returned in September. For the past ten years, sea lions have hauled out onto rocks along the Hanson Island shore about a kilometre south of OrcaLab. Sometimes over two hundred sea lions stretch out on these rocks from September to May each year. It is classified as a winter haul out where male, female and young Steller Sea Lions, and the occasional California Sea Lion, haul out each year. They are noisy, smelly, gregarious, photogenic and perhaps most importantly present during the time of year when there are few whales. The new camera would fill a gap and a desirable alternative for viewers and allow

the Lab to collect additional data beyond a daily count. Again, the timing for the camera installations was a bit off as the sea lions were already hauling out by the time Andrew got back. Fortunately, the sea lions have the habit of leaving the rocks at high tide to engage in foraging off shore, providing time to head into the rocks with the equipment. Megan, Momoko and Paul helped Andrew on site. The sea lions did not entirely cooperate as it took time to get the installation fully up and running, but the sea lions unexpectedly seemed to accept the intrusion fairly well. Sea lions have spooked very easily when other boats have approached the rocks too quickly and too closely, so Paul was careful to gently ease the boat into a deep indent next to the rock chosen to mount the camera.



This camera is proving to be a great addition to the network. It is intimate without disturbing the sea lions' normal behaviours. We worried that the sound of the camera being moved in its housing might bother the sea lions but this has not been the case. As a result we have even been able to watch young sea lions nursing. The power source for this camera is not yet perfect and quite dependent on sunny conditions to keep it going (there is no fuel cell at this location) so there have been gaps in the monitoring. We will address this problem when it is feasible to do so.



Overall, the effort to upgrade and improve systems was very successful. OrcaLab is deeply grateful for the resources Explore and Tim Sears have provided and look forward to the images and events of 2017.



On a related topic, OrcaLab's power systems have benefitted from the attention of Steve Lapp and Paul McKay for many years. Both are devoted to finding alternative energy systems as a solution to global warming. Steve, Professor of Energy Systems Engineering Technician (ESET) and Technologist Program at St. Lawrence College in Ontario, has long taken an interest in OrcaLab and even volunteered in 1995. Over the years he has guided and advised OrcaLab as to how upgrade energy systems, even challenging his students to come up with ways to measure OrcaLab's energy consumption and find solutions for its off the grid problems.

The amount of energy used at OrcaLab has gone up with every improvement of its monitoring and life style demands. Steve and Paul McKay collaborated to bring new solar panels, inverter and batteries to Hanson Island and CP in 2013. Both Steve and Paul were aware that better batteries and increased capacity would further benefit the project. To that end, Paul and Steve kept in touch. Paul provided a donation which was kept in reserve until the time when he and Steve found a suitable battery solution. The new batteries arrived in late November and were then installed at the Lab. Life is getting easier!

## Research

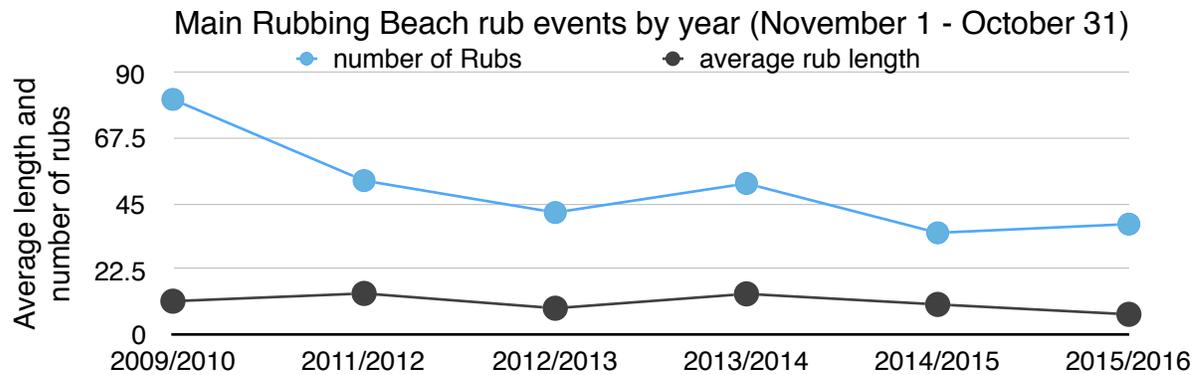
OrcaLab often gets asked what is it that we are hoping to achieve. Fair enough question! A lot of work has gone into creating OrcaLab, the physical site, the hydrophone, camera and wireless systems. Each year, a group of volunteers, from around the world comes to OrcaLab to learn and assist the work. It is a busy, busy place .

Over the years, OrcaLab has amassed a continuous data base pertaining to the presence, movements, associations and behaviours of the whales in the area. We study orcas, both Resident and Bigg's (Transient) but primarily the Northern Resident orca community. Our remote hydrophone system has enabled us to monitor 24/7, year round, and record whenever orcas are vocal within the 50 square kilometres covered by the hydrophones. Additionally, we note each time whales are observed from either the vantage of OrcaLab in Blackney Pass, or from any of our "out-camps", especially from CP overlooking Johnstone Strait. We routinely garner information from other reliable sources; from the whale watch boats, other researchers and any number of other contributors. Each summer we work closely with BC Parks Ecological Reserve wardens, especially Marie Fournier, and throughout the year with Fisheries and Oceans Canada's Jared Towers, to exchange information on the identification and movements of the whales. These observations are carefully combined with our own information to provide a detailed daily record summarized in the daily incidence records which we have kept consistently since 1985. These data were used to help prove the case for designating Johnstone Strait and Blackfish Sound as Critical Habitat for the Northern Resident orca community. Our recordings, notebooks and summarized incidence have been shared with other researchers, and have contributed to numerous scientific publications. As well, many film crews have visited OrcaLab over the years, documenting our work with orcas and contributing to public awareness of them and the problems they face. For the past two decades we have also observed Humpback Whales in Blackney Pass and off Cracroft Point. We are still refining how these data are accumulated and quantified so that the information is useful to the overall Humpback research effort in the area.

During the summer, Paul investigated the condition of the rubbing beaches in the Ecological Reserve. In recent years, we have noted that the orcas' use of the Main rubbing beach, where the OrcaLab remote hydrophone and cameras are located, has declined.

**comparison of rubbing beach use**

| <b>Comparison of use</b> | <b>Nov. 2009 - Oct 2010</b> | <b>Nov. 2011- Oct 2012</b> | <b>Nov. 2012 – Oct 2013</b> | <b>Nov. 2013 – Oct 2014</b> | <b>Nov .2014 - Oct 2015</b> | <b>Nov. 2015 - Oct 2016*</b> |
|--------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|
| <b>No. of events</b>     | 146                         | 126                        | 101                         | 104                         | 86                          | 80                           |
| <b>No. of rubs</b>       | 81                          | 53                         | 42                          | 52                          | 35                          | 39                           |
| <b>First rub</b>         | July 3                      | July 9                     | July 6                      | July 18                     | July 16                     | June 11                      |
| <b>Last rub</b>          | Oct 4                       | Sept 24                    | Sept 16                     | Sept 17*                    | Oct 21                      | Oct 1                        |
| <b>Rub median</b>        | 5 min                       | 8 min                      | 2 min                       | 4 min                       | 5 min                       | 1 min                        |
| <b>Rub average</b>       | 11.43 min                   | 14.1 min                   | 9 min                       | 13.95                       | 10.31                       | 3.97                         |
| <b>Shortest rub</b>      | 0.5(<1min)                  | 0.5(<1 min)                | 0.5(<1 min)                 | 0.5(<1 min)                 | 0.5 (<1 min)                | 0.5 (<1 min)                 |
| <b>Longest rub</b>       | 84 min                      | 84 min                     | 65 min                      | 96 min                      | 37 min                      | 23 min                       |



Contributing factors may include the shorter summer/fall season. In the past, the season typically started soon after the summer solstice and ended late October or into November, but for the past five years, the season has been delayed until mid July and ended mid September. Also, fewer orca families now visit the area, partly due to the declining abundance of available Chinook and Chum salmon, the Resident orcas' main prey.

There is possibly one additional explanation for the decline in use of the Main rubbing beach. There are three beaches in the Reserve at which the whales rub. Increasingly, the whales seem to prefer Strider beach to the west of the Main beach, a trend which began a few years ago. We do not have a hydrophone or camera at this location but from their vantage point on the "Cliff" directly across from the Ecological Reserve, the wardens are able to report when the whales are using either beach. Sometimes, after a long rub at Strider they would either just do a perfunctory brief rub, or a mere pass over the Main beach, pass offshore, or turn before even getting to the beach. This preference was becoming noticeable. Paul decided to investigate the condition of the two beaches to see if there were any differences. He had observed, on his many trips to service the Main beach system, that the amount of beach pebbles had declined and that the amount of sand deposits had increased.



On 18 August, Paul visited Strider and the Main beaches. Videographer Megan Hockin-Bennett, and volunteer Debs Allbrook accompanied him. While Megan filmed the state of the beaches and a commentary by Paul, Debs took Megan's GoPro and filmed the length of both beaches underwater.

Normally, when a whale rubs, the pebbles make a distinctive sound as they are displaced by the whale - rather like the sound of "rain sticks" when turned upside down. Listening for that distinctive sound on the hydrophone was very difficult this year. Was this because the deep beds of pebbles had disappeared, and the whales were rubbing on the "quieter" sand? We have traditionally used the sound of pebble displacement to calculate the beginning and end of a rub. Fortunately, the surface camera was able to provide rub data, at least during the day. Nighttime was problematic until a hydrophone replacement later in the summer. We took this into consideration when evaluating the number of 2016 rubs.

Strider was interesting because part of the beach turned out to be similar to the present condition of the Main beach. However, Marie Fournier, pointed out that the whales typically rubbed on the part of Strider that still had lots of pebbles. Later in the summer, we showed BC Parks and Species at Risk representatives, the video Megan put together from the beach investigation. Afterwards, the condition of the rubbing beaches was discussed and concern expressed that resumed logging at Schmidt Creek to the east of the Main beach may be having an impact. In 2003, Geomorphologist Thomas Millard, wrote a technical report, "Schmidt Creek Sediment Sources and the Johnstone Strait Killer Whale Rubbing Beach" for the Forest Service and recommended that, given the complexities of contributing factors, not only intensive monitoring of conditions of the beaches was warranted to determine the causes of sediment delivery but that caution was needed during logging operations. There has been no follow-up to these recommendations in the ensuing 13 years. Paul's raising the alarm was therefore warranted.

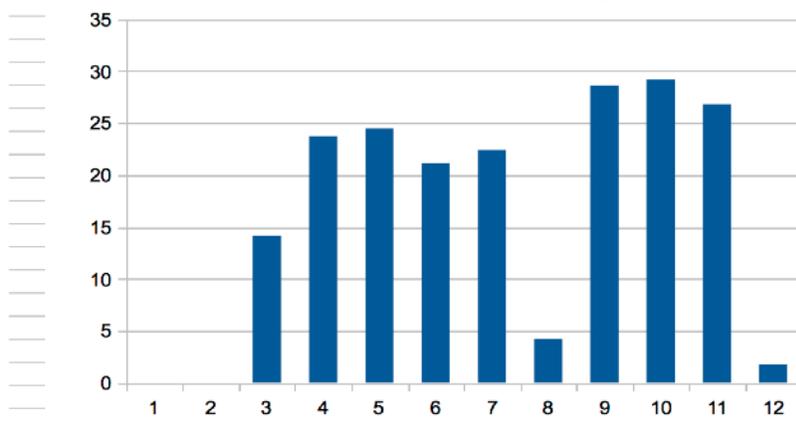


In our 2015 report, OrcaLab's collaboration with Professor Herve' Glotin, Head of Scaled Acoustic Biodiversity (<http://sabiiod.org>) & Dyni projects Institut Univ. de France (IUF), UMR CNRS LSIS, Univ. Toulon (UTLN) was discussed. Prof Glotin is currently streaming our acoustic data into his lab for analysis. He and his students have been developing signal localization techniques and are using the six hydrophones in OrcaLab's network as a data resource. Last year, they offered a three dimensional profile of the extent of each hydrophone in the network.

In 2016, a glitch occurred in the continuous stream when Tim had to fragment the Internet use due to bandwidth considerations. Streaming to Prof Glotin's lab resumed when this was solved. In December, the streaming was halted again but the resolution of the problem was less complicated.

| 2016       | number of files 6ch | Go            | days       |
|------------|---------------------|---------------|------------|
| 1          | 0                   | 0             | 0          |
| 2          | 0                   | 0             | 0          |
| 3          | 10169               | 203,38        | 14         |
| 4          | 17081               | 341,62        | 24         |
| 5          | 17618               | 352,36        | 24         |
| 6          | 15214               | 304,28        | 21         |
| 7          | 16123               | 322,46        | 22         |
| 8          | 3026                | 60,52         | 4          |
| 9          | 20591               | 411,82        | 29         |
| 10         | 21004               | 420,08        | 29         |
| 11         | 19309               | 386,18        | 27         |
| 12         | 1260                | 25,2          | 2          |
| <b>TOT</b> | <b>141395</b>       | <b>2,9 To</b> | <b>196</b> |

number of recorded day in full time 6 chan, per month in 2016



Prof Glotin provided a quick look at the stream in the 6 hours after resumption. He also provided a summary per month of the recorded volume in Go, and in cumulative time (in days) for 2016. Prof Glotin commented that they had noted several events and will be soon working on noise profiles as well. These data will dovetail nicely when we begin to get results from the ICListen hydrophone we installed in 2015 and began streaming in 2016. This is a dedicated calibrated hydrophone located off Critical Point in Robson Bight.

The ICListen hydrophone was donated by WWF and Tides Canada and installed with the help of Jackie Hildering and Roger McDonell. Streaming was delayed until 2016 because Tim needed to integrate it into the systems. Once it became functional, data stored locally on the hydrophone were transferred to a hard drive daily as the available space on the hydrophone is limited. The streaming and the transfer worked perfectly until October when issues with the software developed. If these problems can be resolved transferring files will resume, and hopefully someone will be found to help analyze the data pertaining to noise levels in Johnstone Strait and retrieve the good recordings of orcas.

Work into defining matriline call usage continues. By monitoring the same area for decades OrcaLab has been able to gain knowledge of specific matriline (mother/offspring groups) and determine particular aspects of their call usage. Matriline are now considered the basic social unit within the orca community. A mother passes on to her offspring the acoustic traditions she gained from her mother. As individual matriline do not necessarily travel with the other matriline which form their pod, being able to tell the matriline apart allows us to follow their independent movements in the area, determine who they are associating with, and to some extent what behaviours they are engaged in.

Mention should again be made of some of the results from having an underwater camera at the rubbing beach. There were three notable events. On 11 August, the A42s were at the

beaches. When A88 or Cameleon, A42's third oldest offspring, passed in front of the camera, we were able to determine definitely that Cameleon is female. This is good news for the future of this group. During August, the drone project conducted by Lance Barrett-Lennard and John Durban determined that Cameleon's mother Holly (A42) was pregnant when their aerial photos revealed her widening girth. On 17 August, just days after this announcement, Holly was filmed underwater, appearing very pregnant, at the Main rubbing beach. In January 2017, Jim Borrowman saw Holly's group in eastern Johnstone Strait. It is not unusual for her group to return during the winter. Although Jim was not 100% sure, he thought there may be already a little new one with Holly. On 4 September, A50 or Clio, was likewise seen passing in front of the camera and she too looked to be pregnant!



The camera at the sea lion haul out has a lot of potential as well. Not only the daily and seasonal habits of the sea lions can be observed but also intimate behaviours like nursing as pictured.



In previous reports we have mentioned Steven Ness. Steven was a graduate student at the University of Victoria who worked in Dr George Tzanetakis' lab in the Department of Computer Sciences. Dr Tzanetakis, years ago, took on the task of dealing with OrcaLab's large database of recordings. The recordings were digitized. Over the 5 - 6 years it took to do this, both in Victoria and at OrcaLab, Steven worked on developing a website that provided access to the recordings and the documentation. This effort, in part, earned Steven a PhD. After graduation, Steven moved on but never forgot his involvement with OrcaLab or the Orchive website he created. He has since married and settled in California. Steven and his wife, Dandan who is an electrical engineering graduate of U Vic, came for a visit this past summer. Though their visit was brief,

they managed to see whales (which Dandan had never seen before) and have a discussion about computer photographic recognition techniques and the possibility of creating identification tools for when whales are distant or at less than perfect angles. This could aid identification of individuals, especially when the whales travel on the far side of Blackney Pass. With Residents, this is normally less of an identification puzzle as we have the advantage of listening to their calls for such purposes, but sometimes it is important to understand what individuals are doing. This problem is amplified when identifying Bigg's orcas as acoustics are not helpful for identification purposes, and for Humpbacks whose dorsal fins are small and who do not have the habit of travelling in a predictable pattern. The discussion with Steven and Dandan is ongoing.

## Whales & Corky



Of course, the reason for OrcaLab is, and always has been, the whales. Paul first came to Hanson Island in 1970. He and his family pitched a tent in what has now become the front garden with its apple tree. Since arriving from New Zealand and obtaining his Ph.D. at U.C.L.A. Paul joined the faculty of the University of British Columbia, conducting neurophysiological research there, and also behavioural research at the Vancouver Public Aquarium with Skana and Hyak.

When it was no longer possible to work with captive orcas, he visited Alert Bay, known as "Home of the Killer Whale", and talked to First Nations people and fishers about where to set up a camp to observe orcas. In the summer of 1970, he and his family and friends settled on a small protected bay on Hanson Island, overlooking Blackney Pass. They soon deployed a hydrophone and listened, for the first time, to free orcas passing offshore. They created a Lab in a tree house that looked out over the water and installed equipment including a tape recorder and an oscilloscope. Soon, they began to recognize individual orcas and gave them names such as Nicola, Tulip, Wavy, Hooker, and Forward Fin. At the end of that summer they returned to Vancouver, where Paul continued his research at the university, and planned the return to Hanson Island next year. That second summer, the tent was replaced by a hand built, free style house

built from plastic, salvaged materials and driftwood. It was replaced 10 years later by a more formal house. When the tree house burned down, a new lab was built on the shore nearby. In the years since, much change has come to OrcaLab, but the guiding philosophy of studying orcas from a shore base has remained.

The Northern Resident orca community which they came to study has also evolved over time. The population has more than doubled since the 1970s, whales have lived and died, and the families have slowly changed. Despite its growth, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the Northern Resident community as "Threatened" to reflect the conservation concerns regarding the vulnerability of this small discrete population. Southern Residents are designated as "Endangered" to reflect their more precarious situation. There are approximately 300 individuals in the Northern Resident community while the Southern Residents struggle to maintain a population of around 80. Not only is the Northern Resident community larger, it is more complex than their southern counterpart, having three clans rather than just the one for the Southern community. This may be a factor in their growth. The Southern community has also not fully recovered from the captures of the 1960s and 1970s when 45 individuals were removed from the population. Less than 20 were removed from the Northern Resident community during the same period. In 2017, the oldest known Southern Resident, and oldest orca anywhere, Granny (J2), went missing and is presumed to have died. She was estimated to be over 90 years of age and a cornerstone of this troubled community. The oldest Northern Resident, Nabannah (W3) is approximately 80. On average, female orcas live fifty years and males 29 years. Ages of orcas born before studies began in the early 1970s are estimated. Orcas are long lived and the longevity of female orcas provides stability and continuity between generations. The captures most likely severely curtailed that continuity for the Southern Residents and for the A5 pod of the Northern Residents who were reduced by half in 1968 and 1969.

Perhaps, like others who study orcas, Orcalab carries on because each year brings surprises, new understandings, sometimes the poignancy of losing familiar whales, and always the joy of seeing families return. Their story is never over and never grows old.

In 2016, 19 of the 34 Northern Resident matriline returned. The size of these matriline ranged from 1 to 17. Some only managed a day, others longer. The "core" group consisted of four families, the A30s, A42s, and A23/A25s. Each group was present for approximately a month, much less than in past years. The decrease in the number of visiting families and the shorter length of their stay is representative of the trend for the past several years as discussed. In the past, the summer season usually began at the end of June, early July and lasted through to November. Now, it begins mid July and virtually ends mid September. As mentioned the most plausible reason for this change is the lack of abundance of available prey but there are other probable contributing factors.

Orcalab believes the decline of use is significant and has wondered if the disappearance of certain key older females has played a role. Younger females may have less history, and therefore less site fidelity, with this area. The change in usage by the A1 pod matriline is perhaps the most

striking. The three A1 matriline have been traditionally at the centre of summer activity. Historically, nearly 98% of the days when Northern Residents were present, at least one A1 matriline, was present. The A34s, along with Kaikash (A46), who is the sole surviving member of the A36 matriline, were present only nine days in 2016. The A30s were better at 36 days but this was still half of their traditional attendance.

It does seem that the A5s have retained the most site fidelity of any group. They continue to be present both in summer and winter which is a historic pattern that has persisted since studies began. Of all the groups, the A5s are the most likely to return in the winter and they have been observed as far south as Georgia Strait several times historically. This habit led directly to their captures in 1968 and 1969 when they lost a total of 12 members, including Corky (A16) who is the last survivor of those captures.



It is going to be interesting to see how 2017 plays out. As it is OrcaLab's routine to record whenever the whales are vocal, the work of following the Northern Resident orcas acoustically demands about the same amount of effort regardless of the number of returning families. The whales tend to be vocal during almost all of their behaviours, and even if only a single group is present and the amount of vocalizations decreases, tracking continues.

Sightings of the Bigg's orcas have increased. Bigg's orcas range from Alaska to California, but often the same groups are seen repeatedly, showing clearly their preference for the Johnstone Strait and Blackfish Sound area. Bigg's orcas differ from the Resident fish eating orcas as they depend on other marine mammals, seals, sea lions, porpoises and even other whales, for food. Seals and sea lions have healthy populations in this area and this may be encouraging the Bigg's to return. Killing a seal is relatively easy for Bigg's orcas but sea lions are a much more arduous affair. Killing a sea lion may take up to two hours or more and requires the co-operation of all the Bigg's in the group(s).

In 2011, OrcaLab observers watched Bigg's orcas hunt a sea lion across Blackney Pass, deep in Parson Bay. A Humpback was quite close to the scene. As the Bigg's boxed in their prey, the Humpback moved in closer and then left the bay, coming out to the outer side of the Parson Island navigation light. As the Humpback lay on the surface two other Humpbacks approached

and all three swam into the midst of the hunt still in progress. The view was distant but the impression was that the Humpbacks were possibly blockading the hunt. Almost every year since there have been other similar incidents where Humpbacks have intervened with a sea lion hunt. Two of these occasions were sufficiently documented that the idea that the Humpbacks are actively interfering has become clearer. The Bigg's were unsuccessful at obtaining their prey on both of these occasions.

Over 60 Humpback Whales now return each year to the Johnstone Strait and Blackfish Sound area (<http://www.mersociety.org>). They started to return to the area in the 1980s, and each year the number doing so has increased consistently. Quite a few favour Blackney Pass where they rest, feed and socialize. Rather solitary, they spend their days pretty much going about their own business, occasionally forming pairings or small "loose" groups. As their season progresses they seem to become increasingly social. By September, they begin to vocalize more often and sessions may even last for over three hours. This usually happens at night when it is difficult to determine who is calling. In 2016, however, OrcaLab happened to be recording both Humpback and Resident orca calls in Blackfish Sound during one afternoon. Luckily, researcher Jared Towers, who was on scene in Blackfish Sound, reported that it was "Twister" calling. During that unusual event, it was noticed that "Twister" made several shifts in pitch that sounded like an attempt to match those of the Resident orcas. Previously on other occasions, Humpbacks had been noticed sounding like Bigg's orcas. In 2016, the first Humpbacks arrived in April and at year's end there were still a few around. This is much later than in previous years. Possibly there are Humpbacks who may now choose to not fully make the long trip to warmer winter sites.

Pacific White-sided dolphins have been present in this area since 1993. Whether it is a singular dolphin or an aggregation of 500+, dolphins are usually present most days during the summer and the fall, and often at other times as well. They too may be part of the Bigg's attraction to the area. The dolphins' interactions with other species, including humans, are always interesting and noteworthy.

Dall's Porpoise, Minke, and even the occasional Grey Whale, were also observed in 2016.

## Corky

OrcaLab has long advocated for the release of Corky from captivity. Corky, as many of you know, is a female orca who belongs to the A5 pod of the Northern Resident community. At about four years of age, she was captured and taken away from her mother, in 1969, at Pender Harbour on the Sunshine Coast north of Vancouver. It was the second year in a row the A5 pod had the misfortune to be caught. In total, twelve members were removed. Corky was sent to Marineland of the Pacific, Los Angeles, California. Other A5 pod orcas from the 1968 capture were already there. All but one, Orky, died soon after Corky's arrival. Orky and Corky remained together until Marineland closed in 1986. The pair were then sent to Sea World, San Diego where Corky, who had 7 pregnancies while at Marineland, stopped ovulating. Orky died a year later.

In the early 1990's a campaign to "Free Corky" was begun. Over the years, protests, petitions, appeals, banners and demonstrations were conducted on Corky's behalf. The origins of the film Free Willy, Keiko's rehabilitation and release, and even the film "Blackfish" can be traced back to Corky. She and Lolita (from the Southern Resident orca community), are the two longest surviving captive orcas, and as such, recognizable faces of the anti captivity movement.

"Blackfish", which exposed the tragedy behind the death of trainer Dawn Brancheau and the messy truths about captivity, finally drove a wedge into Sea World's seemingly invincible facade. Stock prices plummeted, audiences declined, and their breeding programme was curtailed. "Blackfish" along with the recent death of the film's dubious star Tilikum has definitely helped to reinvigorate the discussion around orca captivity.

The dream of giving Corky another chance to come back to her home waters has persisted and it has evolved. When she was young, and her mother still alive, Corky was considered, despite Sea World's intransigence, to be a good candidate for release. A lot was learned from the return of the orphaned orca Springer in 2002 about the importance of the role of near family to the success of rehabilitation. Keiko, unlike Springer whose history and place in her community was known, had a much more difficult passage to freedom because his origins were largely unknown. Despite the fact that no relative in Corky's community from the time of her capture is still alive, she has a sister and brother in the present A5 pod. Though they have never met they are still close kin and share the same dialect. Corky has been in captivity for 47 years, a very long time, so the plan now is to create a "retirement" home for her.



During the spring, David Kirby, author of "Death At Sea World", visited with Paul who took him to Freshwater Bay on Swanson Island and Double Bay on Hanson Island. Both of these sites in Blackfish Sound are considered possible locations for a retirement home. Freshwater Bay had been suggested years ago, and Double Bay more recently after the fishing lodge went up for sale. Paul had talked with the owners of the resort about the project and they expressed interest.

David later sent photographer, Mary Grace McKernan, to take pictures for the article he wrote soon after for TakePart: [www.takepart.com/feature/2016/06/14/killer-whales-new-life-after-seaworld](http://www.takepart.com/feature/2016/06/14/killer-whales-new-life-after-seaworld)

Larry Pynn of "The Province" newspaper likewise picked up on Corky's story and wrote:

<http://theprovince.com/feature/bringing-corky-home-b-c-captured-killer-whale-a-60s-sole-survivor-servant-of-seaworld>

And in August, PETA (People for the Ethical Treatment of Animals) interviewed Paul, toured the Lab and the proposed retirement sites for their video appeal for Corky on their website.

<http://headlines.peta.org/abducted-family-corkys-story-will-break-heart/>

A wonderful video of Corky's A5 family, filmed and produced by Megan Hockin-Bennett from her time at CP was used for both the TakePart and PETA stories.



Late September, Paul made two reconnaissance trips to Double Bay, the first so Megan could use her drone to take aerial video and pictures of Corky's potential retirement site, and the second to facilitate a survey of Double Bay depths. Roger McDonnell came in his vessel *Gizmo* with his diving gear, and Jim Borrowman with Marie Fournier came in Jim's skiff equipped with a depth sounder. Roger dove at the entrances to Double Bay to assess the bottom, and Jim & Marie took numerous measurements of depths throughout Double Bay. Altogether, the effort created a depth profile of Double Bay that will be very helpful in planning for Corky's retirement home.

Finally, Michael Reppy, long time Corky advocate and anti captivity campaigner, made a quick visit to tour the potential retirement sites and discuss strategies.

All in all, the Corky initiative made some positive steps in 2016. Trying to wrestle an agreement with Sea World is still very difficult, but no one is giving up and hopefully she will retire before Paul and Helena!



# IWC

Every two years the International Whaling Commission holds its Plenary session.

“The IWC currently has 88 member governments from countries all over the world. All members are signatories to the International Convention for the Regulation of Whaling. This Convention is the legal framework which established the IWC in 1946.” (<https://iwc.int/home>)



IWC66 was held in Portoroz Slovenia as was IWC65 in 2014. Portoroz, on the Adriatic coast near Piran, has been a much appreciated venue. Close to Italy, Paul and Helena made a personal side trip to Tuscany and Umbria prior to the start of the committee meetings on 19 October. After touring Florence, they went to Paciano in Umbria and visited with Sidney Holt and his sons at their olive orchard during harvest time. Paul has known Sidney since 1975 when they both attended the Indiana University Whale Symposium in November of that year. Sidney, who has attended at least 52 IWC meetings, was instrumental in saving thousands of whales by his scientific and conservation efforts. Sidney, quite

elderly now at 90 years of age, managed to attend the IWC66 Plenary where he enthusiastically distributed a limited edition of his recently completed book “Save the Whale”.

Although it meant arriving in Portoroz a week before the Plenary, attending the Committee and Sub-committee meetings proved to be a good idea, as a fair amount of substantial material was presented and discussed in more detail than in the Plenary. The Scientific Committee had already met earlier in the year in Bled, Slovenia. Their report was available in advance of Plenary.

Paul, on behalf of Dolphin Connection, took advantage of the allowance for NGOs to make interventions during the Committee and Plenary sessions. This was the first time NGOs had been allowed to do so. In Panama, IWC64, and at IWC65, NGOs had been able to deliver a small limited number of formal statements, if time allowed. The IWC, unlike other international fora such as CITES, has struggled to welcome and incorporate “civil society” but there has been definite progress in recent meetings.

Once the Plenary began to grind through its very long agenda, Paul, provided a daily summary which he posted, along with photos on <http://orcalab.org/orcalabblog>. The conservation side of the IWC offers some light at the end of this very long tunnel. Quietly and in the background, the IWC has been taking steps towards increasing its efforts for conservation.

But, and it is a big BUT, the IWC is still locked in a stalemate between the pro whaling countries and their opponents who love whales and defend them as fiercely as Japan's acolytes defend the view that whales are a resource to be "harvested". The sticking point is the need for a 3/4 majority on any resolution to change the rules. So even though the moratorium established in 1986 remains in place, so does the means for Japan to slip through and continue whaling under the guise of scientific whaling. Japan pushes forward despite a ruling by the International Court of Justice (ICJ) that its "scientific whaling" was not credible science, rather commercial whaling in disguise. Japan is determined not to give way on any quarter and uses its influence to block sensible efforts such as the South Atlantic Whale Sanctuary, and inexplicably and mean spiritedly, the efforts to save Mexico's tiny Vaquita dolphin from extinction. New Zealand's tiny Maui dolphin is also being hung out to dry, in this case and also inexplicably by its own country, and may well be gone forever by the time the IWC meets again. Japan's Commissioner Joji Morishita will be the Chair of the next IWC Plenary meeting in Brazil. It will be interesting to see him in this role, as he will have to at least appear to be fair, and his eloquent interventions on behalf of Japan's whalers will be muted.



The whales do have many friends at the IWC and it is heartening to witness how steadfast and hard working they are in the face of continuous frustration. Throughout the meeting, a stalwart threesome - Howie, Arno, and Bernhard - stood behind their protest banners just outside of the Hotel Bernadin venue in clear view of the delegates coming and going to and from the hotel entrances. Denied entry, all day and every day, they stood steadfastly by their anti whaling pleas.

After IWC66 closed, pro-whale NGOs got together to discuss ways forward, and were treated to an impassioned appeal by Paul Gouin, one of the architect's of the 1982 moratorium decision, to introduce ethics into the discussion of the future of the IWC. His proposal is to have 2 countries introduce a resolution for a permanent Ethical Ban on commercial whaling at the next IWC meeting. The ban would not affect aboriginal subsistence whaling. Like the 1982 vote on the moratorium, it might take a few meetings to achieve a 3/4 majority vote, but there are so many arguments in favour that it is achievable, and when it happens the long fight for whales will at last end.

Paul and Helena would like to thank Dolphin Connection for sponsoring their attendance at IWC66.

After returning from the IWC, Paul was invited to attend a screening of the NRD film "Sonic Sea" at the Marda Loop Justice Film Festival in Calgary. "Sonic Sea" grapples with the effect of ocean noise on cetaceans and Paul had been interviewed for the film two years before. It is an important film about a subject vital to the future of whales.



## Volunteers, Visitors, Carpenters & Caretakers

In 2016, Orcalab welcomed 18 volunteers from Austria, Canada, Finland, Germany, Japan, UK and USA. Most came for several weeks during the summer and helped with observations, recordings, documentation, and with general chores. Several, Tomoko Mitsuya, Momoko Kobayashi, Megan Hockin-Bennett, Megan Howes, Shari Manning,

Chelsea Meney, Luen Yeung, Kat Misale, and Dylan Smyth had been to Orcalab before. OrcaLab welcomed for the first time, Debs Allbrook, Lauren Horncastle, Niklas Haussemann, Lucy Etheridge, Linda Helski, Kim Register, Isabelle Hurley, Myriam Widmann, and Jenny Lapp.



Tomoko marked her 17th year, Momoko her 7th and Megan Hockin-Bennett her 3rd. Tomoko first came as a very young woman passionate about orcas and was able to develop and apply her skills for acoustic recognition. Momoko has returned regularly, to embrace not just her passion for the whales, but also her love of the OrcaLab lifestyle, the friends she has made, and her burgeoning photographic skills. Both Tomoko and Momoko are involved with reviving the "Orcalab Support Society" to help promote the cause of whales in Japan. Megan Hockin-Bennett is a wonderful videographer and photographer and has been in charge of the camp at Cracroft Point for the past two years. Megan skilfully has produced several beautiful short videos from material she filmed while at Cracroft Point using audio selections provided by the Lab. The videos highlight Megan's considerable talent as a videographer and she now has her own production company, "WildSky Productions". Megan is very busy throughout the year with various related endeavours.

We are very grateful to all of our 2016 volunteers.

In 2016, the increased number of volunteers invited to come was in response to the need to have someone operate the cameras throughout the daytime, someone to manage audio recordings and someone outside to observe and photograph at the same time.

As the new volunteers were arriving, Paul left for a brief trip to San Francisco to attend the memorial for long time whale advocate and friend, Mark Berman. Mark, who had visited Hanson Island, and was a great supporter of OrcaLab, had campaigned tirelessly for dolphins and whales and against captivity. He is sorely missed.

On 16 July, the Pacific Orca Society held a Board meeting to discuss the future of OrcaLab. All Board members, Flora Cook, Oonagh O'Connor, Jeff Jones, Helena and Paul were present, with Karol Sinats participating via Skype from Victoria. Flora's husband, Jamie Guenther, and Jeff's wife, Marianne Mikkelsen came along as well. The meeting went well and the Board thoughtfully addressed the options open to the future direction of OrcaLab.

Orcalab welcomed many visitors and family during last summer. Friend and fellow Greenpeace compatriot from the early days, Rod Marining, came to Hanson Island with his daughter Mirissa and her two young boys. Paul's son, Yasha returned once again with his family in time for his daughter Amelia's 11th birthday. Amelia, who has celebrated her birthday on 19 July on Hanson Island before was keen to do so again. Peter Thomas came again with his daughter, Regina and her two boys. Peter has been coming to Hanson Island since the early 1970s, and Regina since she was a young girl. Long time supporter and friend Andrew Morse came all the way from New York with his daughter Julie. Andrew had been to Hanson before but this was Julie's first time. Helena's sister Pat returned with her son and grandson, Tim and Peter. It is gratifying to see the succession of these generations having the chance to experience this unique place. Leslie and Val Viers (Beam Reach Marine Science and Sustainability School, Colorado College Physics/ Environmental Science) paused their sail boat wanderings to drop in. Whale and Dolphin Conservation's Rob Lott came once again. Rob was an assistant in 1990 and 1991 and has returned almost every year since. Last year, he got to spend time (his long held dream) at CP with Megan Hockin-Bennett and this year managed to briefly do so again. As is his habit, Rob jumped in and helped wherever he was needed and found time for discussion of issues and the future. Shirley Roburn, a postdoctoral researcher from McGill University came briefly to interview Paul. Michael Reppy touched in to discuss ideas concerning Corky, Bruce Logan, a friend from Paul's early Vancouver days, visited in time to help move equipment up the Parson cliff, Geordie Harrower landed (somewhat literally) on the shore for a very brief hello, and Paul and Helena had a lovely lunch with supporter Audrey Swartz-Rivers and her husband John, both of whom had long careers in NASA, in Telegraph Cove. Earlier, Audrey had created a large panel showing the Northern Resident orca "family tree" for the Whale Interpretive Centre in Telegraph Cove in time for the annual "Opening Meeting" held there in June.





In October, David Howitt and Barbara Bender returned to Hanson Island as part of their honeymoon aboard their sailboat. They sailed from their home in Friday Harbor, Washington braving the about-to-change fall weather. David goes a long way back with OrcaLab. In the past and still quite recently, David has volunteered his time to numerous OrcaLab efforts, from being an assistant and providing valuable technical support, by driving Corky's bus "Freedom" and laying out "Corky's Freedom Banner" in venues along the entire coast

from California to Alert Bay, by helping during the return of Springer, by saving Paul from climbing those very high trees, and always by being a friend. Barbara, a whale enthusiast in her own right, will be a wonderful partner for David as they go forward together.



Two unexpected visitors, a brother and sister grizzly bear pair also landed on Hanson Island after swimming across from Cracroft Island where their progress along the length of that island had been observed over several days. Megan, at CP, saw them just in time to see them disappear into the woods. Then the whale watch vessel *Lukwa* saw them swimming in the entrance of Blackney Pass and watched as they hauled themselves out of the water onto the little island adjacent to Hanson Island. The *Lukwa* notified the campers nearby. From there the pair swam across to Hanson Island and traversed overland to Double Bay at the opposite end of the island. They then island hopped to Alert Bay. In Alert Bay, the bears found a great plum tree and a cautious welcome and stayed until wildlife officers could capture and transport them to the mainland. It was quite the saga which had impressed everyone. Our tenting volunteers never saw the grizzlies but were absolutely sure that every noise coming from the woods must be them!

Besides the upgrades to the network systems, OrcaLab also continued to work on infrastructure repairs and renovations. Mark McCallum returned to help Mike Durban fix the bath-house heating system, and also put a new metal roof over the old storage shed and part of the main house, much as he had done on the Lab roof the year before. Mike had found a piece of 36" diameter steel pipe from which he cut a new drum to replace the old one used as a bath-house heater. He then managed to put it on a trailer and haul it up to Alert Bay from Ladysmith. In Alert Bay, this extremely heavy object was winched carefully on to the *June Cove* under the supervision of Dave Towers. This load was then carried on the bow of the *June Cove* to Hanson Island, and after landing on the beach, Mike and Mark supervised as the drum was tilted and "dropped" to the beach, then rolled and coaxed up the hill toward the bath-house by an enthusiastic crew of assistants. There it sat until Mike and Mark readied it and the space where it would finally rest. After the site was cleaned, new brick works layered in and the drum welded, everyone was

gathered up again to give the final heave to and set the heater in place. After a few more finishing touches, Mike lit the heater up for the first time. There were a lot of cheers as it had been a long time since the bath-house had been used for showers and sauna. The ocean filled bathtub on the rocks in front of the main house had been used in the meantime, and although a great solution, it was labour intensive and more limited. Mark did some final tidying of the pipes, fabricated a new door and it was finally good to go! Then, as extra good fortune, rain finally ended the unusually dry summer. The creeks filled up, and the water supply was sufficiently replenished to allow for regular showers. Everyone was very happy!



Next Mark tackled the main house roof with its many irregular angles. Once all the old shingles, tar paper and insulation were removed, sorted and dealt with (the old wood made lovely bath-house fires and lots of showers!) Mark hauled up the metal sheets and set them in place. He replaced one of the sky lights and removed another. In 2017, we hope to have Mark back to finish the rest of the main house roof and skylights. Mark in the meantime has become a father!



For the past three winters, OrcaLab, and Paul and Helena in particular, have had the good fortune to have Brittney and David Cannamore as caretakers. Every year since 2014, David and Brittney have packed up their cat Porter and bunny rabbit Penny, and made the long trek south from Alaska to look after OrcaLab for the winter. In 2014, David came back as a summer volunteer as he had done years before. In the fall he left to meet up with Brittney, and together they travelled back to Hanson Island for their first winter sojourn. They have been steadfast, enthusiastic, reliable, good natured, competent, and always willing to learn. They have faced many challenges and soon found

out that Hanson Island in the winter is a very different place than summer with more wind, rain, cold and many short, darker days. They were called on to change batteries, run up hills or get over to CP to start generators so that the Internet connection was kept going, fix water lines, put up with limited bathing facilities, buck and chop their own wood, keep the systems running, and, of course, watch and listen for whales. They did this with grace and resilience.

During their three winters at OrcaLab, Brittney learned to knit and created:

Fair Weather Remedies: <https://www.facebook.com/fairweatherremedies/?pnref=lhc> while David continued to write, not just his novel. but also his blog [raincoastwanderings](https://raincoastwanderings.com/): <https://raincoastwanderings.com/>.

They are now moving on in their lives, having found some land in Gustavus, Alaska where they plan to build a home. OrcaLab is going to miss them very much and will be forever thankful to them for what they have done.

We are very grateful to all of our supporters for making what we are doing possible. We anticipate that 2017 will be another productive year, and look forward to sharing many more exciting moments with you.

Please take good care, and thank you so much!

*Helena + Paul*