

# Dolphin Watch Annual Report

2014-15





## Preface

Dolphin Watch has established itself as one of Western Australia's premier citizen science projects.

Since its inception in 2009, Dolphin Watch has trained 890 volunteers who have logged more than 15,000 reports and contributed more than 2500 volunteer hours. Their efforts have helped unlock some of the mysteries of the Swan Canning Riverpark's resident Indo-Pacific Bottlenose Dolphins.

Our catalogue of dolphin fin-prints, *FinBook*, allows our Dolphin Watchers and the community to quickly and easily identify individual dolphins and behaviours. Access to this information and the new Dolphin Watch smartphone App enable our volunteers to contribute valuable observational and photographic data to Murdoch and Curtin universities' Coastal and Estuarine Dolphin Project. This helps to protect and manage the long-term future of the dolphins. It also influences development of sound river management strategy and policy.

I thank all our Dolphin Watchers for their on-going commitment, the dedicated Swan River Trust staff and our university partners for ensuring that Dolphin Watch remains a leading collaborative citizen science project.

**Albert Jacob MLA**  
**Minister for Environment; Heritage**

**Photograph (right): Delphine Chabanne (front cover): Trudy Klessens**









## Message from our Patron Professor Lyn Beazley

I am so honoured and delighted to be Patron of Dolphin Watch. It is now six years since, with some trepidation, we set about a bold experiment to put Dolphin Watch in place.

With a totally professional and dedicated team, and an amazing cohort of brilliant volunteers that continues to grow, we now have a truly iconic program. With an innovative approach we continue to evolve. We have now established Junior Dolphin Watch that is enriching the learning of students in 17 schools and have entered the world of 'Apps' with Coastal Walkabout, into which entries continue to grow.



This year I became the WA Australian of the Year: I am sure my association with Dolphin Watch was one of the reasons for my award. In turn I now have the opportunity to give back by spreading the good news about the program across the length and breadth of our State.

To hear about such a successful citizen science program is an inspiration to others as they plan and implement their own projects to protect and cherish the environment. I look forward to another successful year as Dolphin Watch continues to set the standard and we monitor our precious dolphin population.

**Professor Lyn Beazley AO FTSE**

**Photograph (left): Trudy Klessens**



# Foreword

In our sixth year of the Dolphin Watch project we have seen some incredible milestones.

The Dolphin Watch smartphone App has had several upgrades this year and we look forward to working with our volunteers and Gaia Resources to create version two. Volunteers have reported their excitement at being able to use it on the go.

I'd like to congratulate Gaia Resources on becoming a finalist in the Western Australian Information Technology and Telecommunication Awards (WAITTA). Gaia will represent Western Australia in the national awards and we wish them the best.

Junior Dolphin Watch is engaging hundreds of students who are keen to help conserve one of the Riverpark's most iconic species. Students have been monitoring dolphins with their classes and have participated in activity days by the rivers and created some amazing dolphin related projects.

We have now trained 890 Dolphin Watch volunteers who have contributed 15,886 monitoring reports since the start of the project in 2009.

Volunteers contributed 1306 hours this year, equivalent to 174 days of full time work. An amazing result with some equally amazing information gathered about the dolphins as you will see later in this report.

Special thanks again this year to Jennie Hunt and Robert Broadway, our Dolphin Watch team volunteers that assist us with data collection and collation. As always, they go above and beyond to

upgrade systems, retrieve information and liaise with our hard working volunteers when they need assistance.

Thanks to the research teams from Murdoch and Curtin universities. Not only have they helped train new volunteers, but they have helped educate community, starred on-screen and in print, created publications, provided information and answers for volunteers and Trust staff and have taken that all in their stride while busily working on their own research projects.

I'd also like to thank the staff at the Swan River Trust for their support and assistance with the project since its inception in 2009. Riverpark Officers have helped monitor dolphins and Trust staff have attended and assisted at events and training. A special mention to the Trust Communications team for their hard work over the year to bring you all the information, events, activities and publications you have come to expect.

Since its inception in 2009, Dolphin Watch has been brought to you by the Swan River Trust. On 1 July 2015 the Swan River Trust was formally merged with the Department of Parks and Wildlife. Accordingly, the 2014-15 Dolphin Watch Annual Report will be the final report delivered under the Swan River Trust brand. Moving forward, the Dolphin Watch project and all associated reports will be brought to you by the Department of Parks and Wildlife.

Thank you all so much for your involvement in this fantastic project. More eyes on the Riverpark means we learn more about dolphins and how to look after them and their home.

**Marnie Giroud**  
**River Guardians Program Manager**  
**Swan River Trust**



Photograph: Stewart Allen

# Contents

Preface from the Minister of Environment Hon Albert Jacob.....	ii
Message from Dolphin Watch Patron Professor Lyn Beazley .....	iv
Foreword .....	v
Dolphin Watch staff and scientists.....	2
Junior Dolphin Watch .....	6
Monitoring dolphins .....	7
Dolphin research in the Riverpark .....	8
Dolphin Watch research findings 2014 - 2015.....	12
Dolphin Watch volunteer profile.....	20
Dolphin Watch award winners .....	22

**Photograph (right): Delphine Chabanne**







# Dolphin Watch staff and scientists

## **Professor Lyn Beazley AO FTSE** **Chief Scientist of Western Australia 2006-13**

Professor Lyn Beazley was appointed Chief Scientist of Western Australia in 2006 and completed her term in December 2013. Lyn was awarded Officer of the Order of Australia in January 2009 and is a member of the new Technology and Industry Advisory Council (TIAC) to the Western Australian Government. In March 2011 she was inducted into the inaugural Western Australian Women's Hall of Fame. Lyn was also inducted into the Science Hall of Fame at the 2013 WA Science Awards.

Lyn undertook her undergraduate studies at Oxford University and her doctorate at Edinburgh University. Her research career has spanned 30 years. She is Winthrop Professor in Zoology at the University of Western Australia, where she built up an internationally renowned research team that focused on recovery from brain damage. Her research also changed clinical practice in the treatment of infants at risk from pre-term delivery.

Lyn has served on numerous bodies advising State and Federal Governments, such as the NH&MRC Fellowships Committee (2006-09) and Australian Research Council (ARC) Advisory Groups, for whom she continues to provide expert advice. She is a member of the National Science Colloquium for the Australian Synchrotron and currently



chairs the Scientific Advisory Panel for Western Australia's Low Emissions Energy Development (LEED) Fund.

In 2015 Lyn was awarded the honor of becoming WA Australian of the Year.

## **Swan River Trust**

### **Dr Kerry Trayler** **Principal Scientist**

Kerry has a background in aquatic ecology and more than 25 years' experience working in research, education and management roles. She is the Principal Scientist at the Swan River Trust and oversees the River Science program. She is actively engaged in a wide range of research activities that are focused on the river system including those that are focused on the river dolphins. Kerry is always keen to share information about our river system with the community including training citizen scientists as part of the Dolphin Watch and Prawn Watch projects.



### **Jason Menzies** **Community Engagement Program Manager**

Jason has been with the Swan River Trust for four years and manages the community engagement



program. Jason is an environmental scientist with 12 years of experience in delivering community engagement, education and behaviour change programs across Western Australia. Jason is responsible for delivering the community engagement projects at the Trust and assisting with projects such as Dolphin Watch.

### **Marnie Giroud** **River Guardians Program Manager**

Marnie Giroud has served for seven years in the role of River Guardians Program Manager which incorporates the Dolphin Watch and Prawn Watch projects. Marnie presents to community on RiverWise practices including river and dolphin conservation, trains new Dolphin Watch volunteers and coordinates the Trust Dolphin Watch team which provides events, education, volunteer management, information and data collation for the Murdoch and Curtin universities' Coastal and Estuarine Dolphin Project (CEDP).



### **Rachel Hutton** **Community Engagement Officer**

Rachel Hutton has spent eight years in the role of Community Engagement Officer which incorporates the River Guardians program and





Dolphin Watch and Prawn Watch projects.

Rachel helps create River Guardians publications, manages the website and social media platforms, delivers community engagement initiatives, helps manage volunteers and coordinates events and presentations. Rachel plans and delivers Dolphin Watch and Prawn Watch training events and the annual Dolphin Watch Day event.

**Carol Logue**  
**Communications**  
**Administration Officer**

Carol Logue joined the Swan River Trust in 2013 in the role of Communications Administration Officer working with staff to deliver the River Guardians program. Carol's tasks include various administrative functions, managing memberships, and assisting with event management.



**Linley Brown**  
**Education Officer**

Linley Brown began working with the Trust in February 2012, she re-joined the team again in mid-2014. Linley manages the River Rangers program and River Guardians school education program.

Linley educates school students on the importance of river protection and conservation while assisting them with practical projects like planting,



water testing and river clean up events. Linley successfully developed and trialled Junior Dolphin Watch and now manages 17 schools engaged in the project.

**Miranda Holker**  
**Publications Officer**

Miranda Holker has worked with the Swan River Trust for seven years and is responsible for the creation of Trust publications including annual reports, plans and web communications.

Miranda writes and edits stories for the Trust. Her contribution to the Dolphin Watch project includes assisting at events, photography and coordinating content and design for FinBook and the Dolphin Watch annual report.



**Department of Parks and Wildlife**

**Douglas Coughran AM**  
**Senior Wildlife Officer,**  
**Marine Wildlife Operations**

Doug specialises in marine wildlife protection and has extensive experience in marine mammal incident management. He manages whale disentanglement operations in WA and trains interstate conservation staff to national accreditation in this field. He is part of an international network of experienced



operation team leaders sharing and contributing to the ongoing improvement of the management of marine mammal incidents. Doug is a member of a committee from 12 countries that provides advice to the International Whaling Commission (IWC) on the welfare of whales entangled in fishing gear. Doug facilitates access to beached and stranded cetaceans and other marine wildlife along the coastline of WA for scientific sampling and management of animal welfare. Doug is a graduate of Edith Cowan University in Environmental Management and was a Churchill Fellow in 2004. Doug was awarded a Member of the Order of Australia (AM) in the Queen's birthday honours list in 2010.

**Murdoch University**

**Professor Lars Bejder**  
**MUCRU Research Leader, Murdoch University**  
**Cetacean Research Unit**

Dr Lars Bejder is the Research Leader of Murdoch University's Cetacean Research Unit (MUCRU). His areas of expertise fall into three categories: analysing and developing quantitative methods to evaluate complex animal social structures; evaluating impacts of human activity (coastal development, tourism, habitat degradation) on cetaceans; and fundamental biology and ecology, including assessing abundance and habitat use of marine



wildlife. He works closely with wildlife management agencies to optimise the conservation and management outcomes of his research.

**Dr Hugh Finn**  
**Post Doctoral Research Fellow, Wildlife Conservation, Conservation Biology**

Dr Hugh Finn became involved with dolphins in the Riverpark during his PhD research in Cockburn Sound and the Swan River from 2000 to 2003. Hugh supervises research students and provides training and support for Dolphin Watchers and information and advice to the River Guardians team and the community.



**Dr Nahiid Stephens**  
**Lecturer/Researcher**

Nahiid is a Lecturer in Anatomical Pathology in the School of Veterinary and Life Sciences at Murdoch University. Her research interests include pathology – especially marine mammal and wildlife pathology, disease surveillance in cetaceans, and wildlife as vectors for emerging diseases. As the veterinary pathologist for Murdoch's Marine Mammal Health Project, Nahiid works closely with Dr Carly Holyoake. Their research is focused on investigating mortality



events and determining baseline health and epidemiological information on disease levels in marine mammals in Western Australia through opportunistic post-mortem examinations and sampling.

**Delphine Chabanne**  
**Research Scientist**

Delphine Chabanne is a research scientist with MUCRU and is working on a Population Assessment project to characterise the population size and structure of dolphins around the Perth region.



Delphine's research will help to assess the abundance, habitat use, and ranging and residency patterns of dolphins using photo-identification, behavioural sampling, GIS, and line transect sampling.

Delphine's main research interests focus on the conservation of the Indo-Pacific Bottlenose Dolphin (*Tursiops aduncus*) population in the Swan-Canning estuary and adjacent waters of Perth, Western Australia. Delphine is currently conducting boat-based surveys to collect biological and ecological data in order to improve the assessments of the conservation status of the dolphin population.

**Shona Wharton**  
**Honours Student**

Shona Wharton is an Honours research student with MUCRU and has completed a Marine Science degree at Murdoch University. Her research investigates the benefits and validity of citizen science research in the context of a project (Dolphin Watch) that incorporates a smartphone App, particularly looking at how citizen science and professional research can work together to increase the understanding of the information collected on a dolphin community.



**Curtin University**

**Dr Chandra Salgado**  
**Senior Research Fellow Marine Biologist**

Dr Chandra Salgado is a Senior Research Fellow with the Centre for Marine Science and Technology. Her main research interests are anthropogenic impacts on marine animals (including noise), vocalisation, distribution, migration patterns of marine mammals, and statistical analysis of biological data. Chandra provides presentations and training for Dolphin Watchers, supervises research students and collates and analyses data provided by volunteers.





Recent assignments include analysis of Blue and Humpback Whale vocalisation and experimental design and analysis of studies on ecology and behaviour of marine mammals.

**Sarah Marley  
Researcher**

Sarah is a research assistant with the Centre for Marine Science and Technology (CMST) at Curtin University. Her main research interests centre on marine mammal behaviour and acoustics, and she has worked on several projects involving Blue Whales, Humpback Whales and Bottlenose Dolphins. One of the projects Sarah is currently working on aims to assess how dolphins use their acoustic environment at various locations. Using a combination of visual and acoustic monitoring methods, Sarah can simultaneously record dolphin sounds and vessel noise from acoustic recorders in the Swan River while also tracking dolphin movements and behaviour from a land-based theodolite station. This will help us to understand aspects of dolphin behaviour in a noisy environment.



**Dolphin Watch data volunteers**

**Jennie Hunt**

Jennie Hunt was the inaugural recipient of the Chief Scientist's Citizen Scientist award for dolphin monitoring, and subsequently volunteered to help with data entry. She has been collating data since July 2011. Initially paper-based, the introduction of website reporting and the assistance of Robert Broadway's amazing data manager means it is now processed electronically.



Jennie reviews the weekly data that is logged on the website and the App by Dolphin Watch volunteers to ensure its quality and reliability. She provides a weekly update on Dolphin Watchers' reports for the Swan River Trust and is an invaluable member of the Dolphin Watch team.

Jennie has received pins from the Department of Parks and Wildlife for her huge contribution to the Dolphin Watch project. Jennie also volunteers for Kings Park as a guide and in various other roles. She is an active member of Rotary.

**Robert Broadway**

Robert has worked in the computer industry for many years. Now retired, he has volunteered to assist the team by harnessing the power of the computer to analyse reports submitted by Dolphin Watch volunteers.



Inconsistencies requiring personal attention are identified and followed up by Jennie Hunt. As a result, the introduction of new technology can be more easily tested and Dolphin Watch training fine-tuned so that data passed to the scientists continues to improve in quality and timeliness.

# Junior Dolphin Watch

Junior Dolphin Watch participation among schools in the Swan Canning Catchment has continued to grow this past year.

To date, 924 students from 17 schools have engaged in Junior Dolphin Watch. Some schools like Aquinas College, who are lucky enough to sit directly on the river, have made Junior Dolphin Watch an ongoing project within their Year 8 science program.

Other schools that are unable to visit the river on a regular basis sign up to take part in one-off environmental activity days to learn more about the Swan Canning Catchment and its resident dolphins. At these activity days, students learn how to care for our rivers, understand that healthy rivers equal healthy dolphins, and get a taster lesson on how to spot dolphins and identify behaviours.

Junior Dolphin Watch school incursions are adapted to suit the needs of the teacher and students. Year 11 and 12 biology students receive incursions that focus on population dynamics and understanding Dolphin Watch data, while younger students learn about the detrimental impacts of wastes and in particular fishing line on our dolphin population.

Teachers that engage in the program continue to be provided with free Dolphin Watch incursions, National Curriculum-linked teacher resources, loan of the Dolphin Watch kit box of resources and on-going support from the Dolphin Watch team.

All students are taught our four key messages:

- Enjoy dolphins from a distance
- Leave dolphins to feed themselves
- Slow down for dolphins
- Take your rubbish home



**Swan River Trust Education Officer Linley Brown dolphin watching with students from Aquinas College. Photograph: Miranda Holker**



# Monitoring dolphins

The Dolphin Watch team has been monitoring dolphins for six years and has streamlined reporting processes with simple and environmentally friendly online and smartphone App monitoring options for volunteers to log their sightings. Volunteers can quickly and easily log their observations through these electronic mediums. They also help staff to log volunteer hours for submission to the Department of Parks and Wildlife's Community Involvement Unit as part of a volunteer rewards program.

Data quality has improved noticeably this year, with more volunteers reporting on presence and absence of dolphins, data that is important for research scientists. Having this extra information helps researchers understand where high concentrations of dolphins are occurring rather than just relying on sightings.

A large number of videos and pictures of dolphins were received this year and volunteers have documented some amazing activities. Judges found it difficult to select their favourite photo for this year's Dolphin Watch Photographer Award from such a wonderful selection. Dolphin Watchers have, as always, kept their distance, being extra careful not to disturb dolphins when observing and photographing them.

We look forward to another exciting year training more Dolphin Watch citizen scientists to help monitor and care for dolphins and their home, the Swan and Canning rivers.

## FinBook

Delphine Chabanne from Murdoch University has created the fifth edition of *FinBook*, our annual guide to the Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) inhabiting the Swan Canning Riverpark. Dolphin Watch volunteers will be able to update their knowledge on these Riverpark residents and newcomers to Dolphin Watch can begin their own journey of discovery with these fascinating and unique creatures.

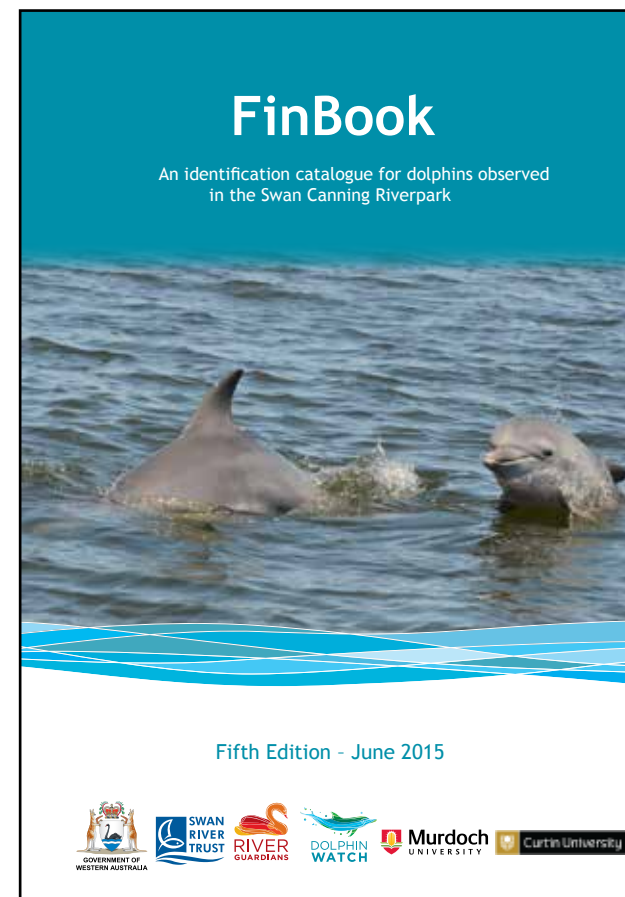
The markings on the dorsal fins of dolphins identify individual animals and are the result of interactions with other dolphins, as well as shark attacks or entanglements. Young dolphins often have fins that lack markings – we refer to them as 'clean fins'. *FinBook* is a catalogue of dolphin fin-prints. The identification tables show the right and left sides of the dorsal fin for each of the dolphins observed regularly in the Swan and Canning rivers.

*FinBook* is divided into three sections according to the dolphins' age-sex classes and the most recent observations of individual dolphins in the Riverpark. Each section is subdivided according to the level of associations between dolphins as well as their distribution in the Riverpark.

The dolphin behavioural guide features again in the latest edition and will help to educate the community on dolphin behaviours in the Riverpark.

For the second time, a feature on an individual dolphin has been included and is a lovely look at the individual nature of each animal.

*FinBook* is available to download for free from the River Guardians website – [www.riverguardians.com](http://www.riverguardians.com).



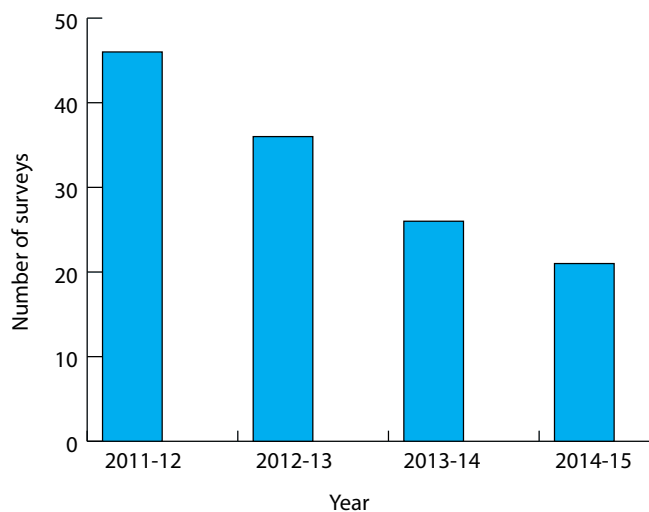
# Dolphin research in the Riverpark

**Delphine Chabanne – Murdoch University**

## Survey effort

Over the last four years (June 2011–May 2015), researchers have conducted boat-based surveys in the Swan Canning Riverpark to assess the population of dolphins. Those surveys followed a systematic route from the Inner Harbour of the Port of Fremantle upriver to the Causeway Bridge near the Perth CBD and to the entrance of the Canning River by the South of Perth Yacht Club.

From June 2011 to May 2015, 129 surveys were conducted (Figure 1) including 21 between June 2014 and May 2015.



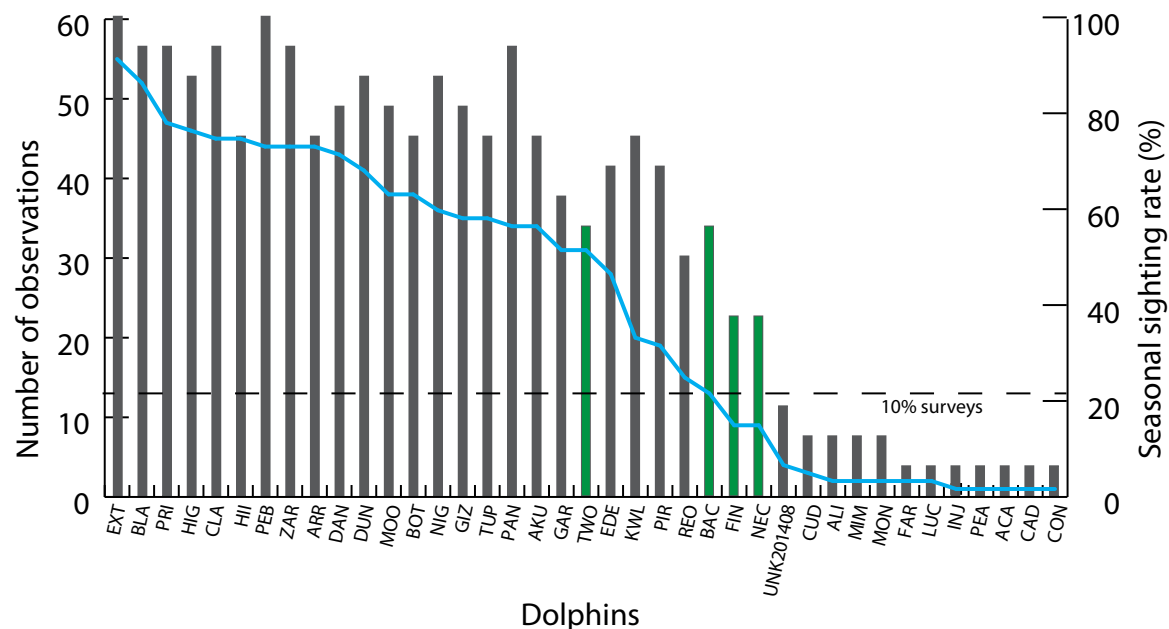
**Figure 1: Number of surveys per year**

## How many resident dolphins were identified in the Riverpark?

From June 2011 to May 2015, 52 individual dolphins (including 13 calves) were photo-identified in the Swan Canning Riverpark.

To define which dolphins are regularly seen and are present year-round (i.e. resident) in the Riverpark, a combination of measures are used, such as number of sightings and seasonal rate of sighting (Figure 2).

Among the identified dolphins (excluding calves), 20 adults (including Tworakes who has been presumed dead since October 2013) and four juveniles were sighted in at least 10% of the total number of surveys (129) since June 2011. We describe these dolphins as being “frequently seen” within the Riverpark. In addition, the majority of those dolphins (19) had a Seasonal Sighting Rate (SSR) greater than 70%, describing them as year-round within the estuary.



**Figure 2: Number of observations (blue line) and Seasonal Sighting Rate (SSR; in grey) for each identified dolphin (excluding calves). Green bars are dolphins (TWO, BAC, FIN, and NEC) presumed dead. Based on 129 surveys between June 2011–May 2015.**



Some dolphins were sighted in more than 10% of surveys, but had SSRs of less than 70%. Thus, while these dolphins frequently used the Riverpark, they were not seen in as many seasons as the 19 dolphins with high (>70%) SSRs. The Riverpark dolphins also range into the coastal waters adjacent to the Riverpark and some dolphins appear to spend more time along the coast than in the estuary. For example, Garden, Eden, Kwillena Lookalike and Resource (and her calf Product) were also observed in the coastal waters.

Some dolphins were observed in less than 10% of surveys and not year-round (SSRs < 25%). One insight that we have gained is that these 'occasional' dolphins are residents of Cockburn Sound. Occasional females (i.e. Cuddles, Farm, Inja, Peanut, Acacia, Candy, and Corner) were mainly observed with resident males in the portions of the Riverpark closest to the ocean. It appears that the Riverpark males bring coastal females into the estuary during consortships – this may allow them to avoid contact with other males (who might try to capture the female). Not all occasional males were observed at the same period of the study. Backpack and Fingers were the only males to visit in the Riverpark until their presumed death. Since then, Montaro, Mime and Ali have started exploring the Riverpark and are often seen with other resident dolphins of the Riverpark.

## Disappearances

Four dolphins - one adult female and three adult males (Tworakes, Backpack, Fingers and Neck) - were regularly seen in the estuary between 2011 and 2013.

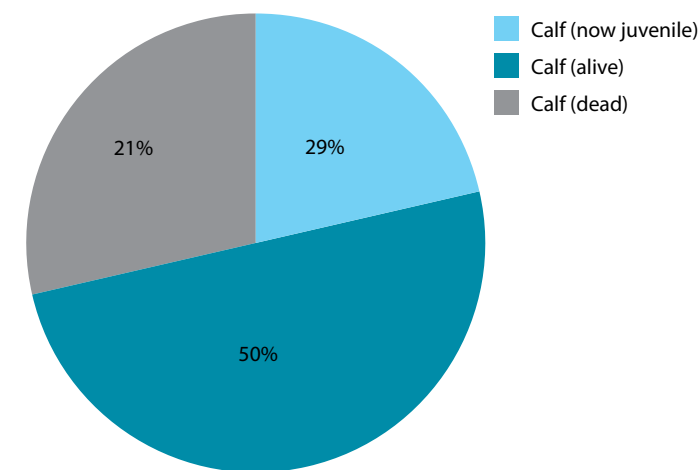
Tworakes was observed with a fresh shark-attack wound in October 2013 and has not been seen since then.

Neck was last seen in coastal waters in January 2013. However, Neck has an unusually large range and has been sighted in Shoalwater Bay and Warnbro Sound in the past. It is possible that he has moved back to those waters (thanks to Barb Green, Cockburn Sound Management Council, for sharing her photo-identification catalogue).

In February 2013, Fingers was observed with fishing line tangled around his tail flukes. He was last seen in July 2013 in the Inner Harbour and the lower reaches of the estuary and was in a debilitated state. His mate, Backpack, was mostly observed on his own after the loss of Fingers. Backpack was last seen in late April 2014.

## How many resident dolphin calves are currently in the Riverpark?

Since the beginning of boat-based research (June 2011), 80% (8 out of 10) of the resident females were seen with a total of 14 dependent calves.



**Figure 3: Current status of the resident dolphin calves reported since 2011**

Unfortunately, three (21%) of the calves didn't survive (Figure 3). Daniele's calf (2013) and Tupac's calf (2015) died a few days after birth and Highhope (Highnitch's calf 2011) was found deceased in January 2013 at only 1.5 years old.

Zari, Night, Gizmo, and Garden (all males) were calves in 2011 and are now all juveniles. They spend a lot of time together and were seen several times in the adjacent coastal waters in the last few seasons.

The youngest ones, Highnitch's calf and Panuni's calf, were born in early 2015.

### **Sarah Marley - Curtin University**

Since November 2013, Curtin University PhD student Sarah Marley has been busy collecting data in the Swan Canning Riverpark. But after almost 20 months of data collection, her fieldwork has now come to an end.

During this time Sarah has deployed 11 noise loggers throughout the Riverpark with the aim of studying the underwater acoustic environment used by our Bottlenose Dolphins. These noise loggers record sounds produced by abiotic (wind, waves, currents), biotic (crustaceans, fish, dolphins), and human sources (vessel traffic, machinery, construction) in the river system. This will allow Sarah to compare the acoustic composition of different locations throughout the Riverpark, and examine how dolphins cope with living in areas with different levels of underwater noise.

She has supplemented this 'underwater approach' with visual observations of dolphins at the surface. With her team of undergraduate volunteers, Sarah has collected almost 400 hours of visual data over the past two years. Sarah and her team used a theodolite to track the movements of dolphins and vessels at two sites within the Riverpark: in Perth Waters (east of Narrows Bridge) and Fremantle Port (west of Fremantle Bridge). In addition to movement patterns, Sarah also recorded group composition, the presence of calves, and group behaviours. This will help provide more detailed information on dolphin responses to noisy environments.



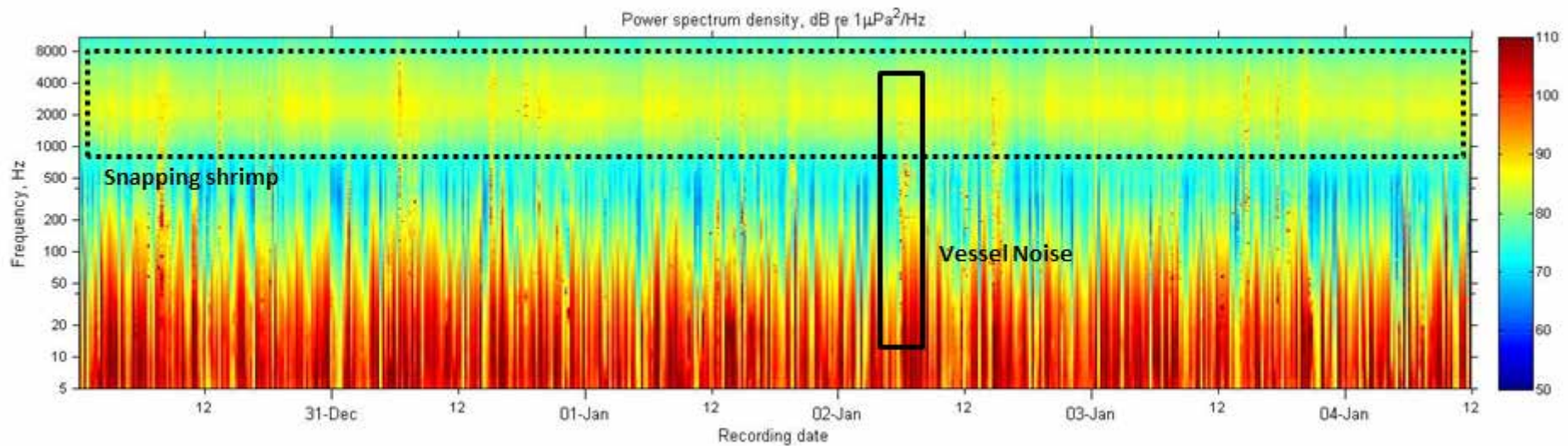
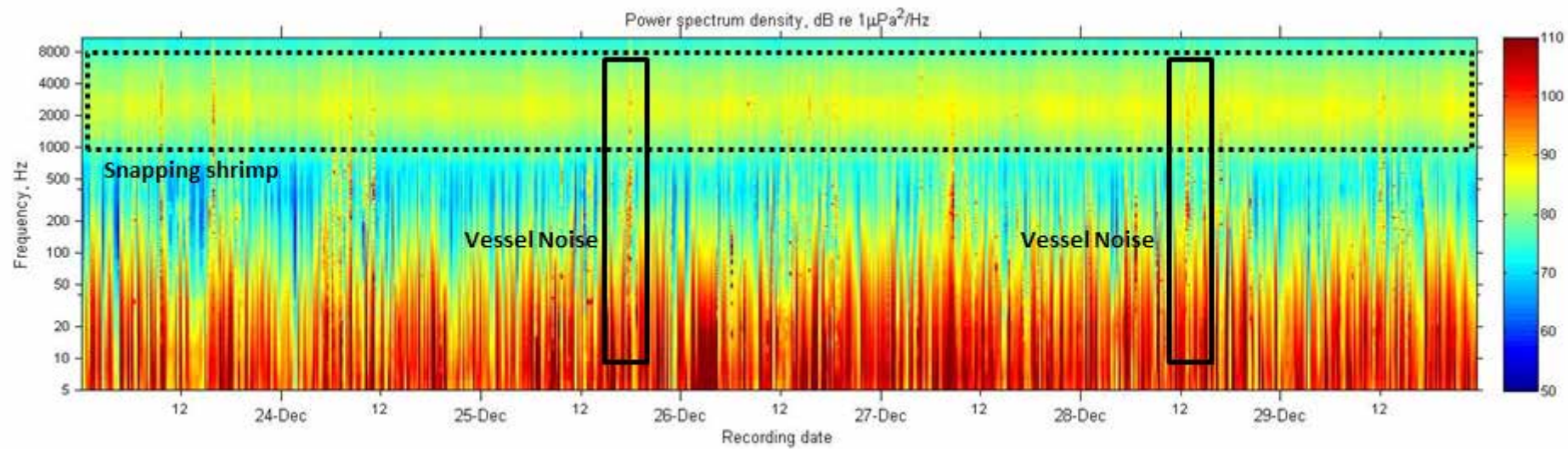
**Curtin University PhD student Sarah Marley deploys a noise logger in the Fremantle Port, with assistance from Curtin University volunteer Nick Riddoch. The noise logger will be deployed for several weeks to capture sounds from the underwater environment as part of Sarah's dolphin research in the Swan River. Photograph: Fremantle Port Authority**

Preliminary analysis has begun on the first logger deployment, which was situated near the Narrows Bridge. From this data, Sarah has found evidence of snapping shrimp, fish calls, vessel traffic, and machinery noise in her acoustic recordings. She is now investigating whether any patterns exist in the occurrence of these sound sources, and is

hoping to publish the results later this year. From examining this singular location, her next step will be to compare multiple locations throughout the Riverpark for their acoustic characteristics.

Sarah is hanging up her binoculars for now – but will still be seen around the river recreationally during work breaks.





Spectrogram of underwater noise recorded near the Narrows Bridge, showing some examples of prominent sound sources. (Noise artifacts not removed).

# Dolphin Watch research findings 2014 - 2015



The average number of times a dolphin from the Riverpark dolphin community has been sighted has been relatively stable over the last decade. Figure 4 shows sightings per day (interpolated from sightings per hour). The year 2015 shows the fewest, but this is probably because only the first couple of months of data from 2015 had been collected at the time of analysis for this report.

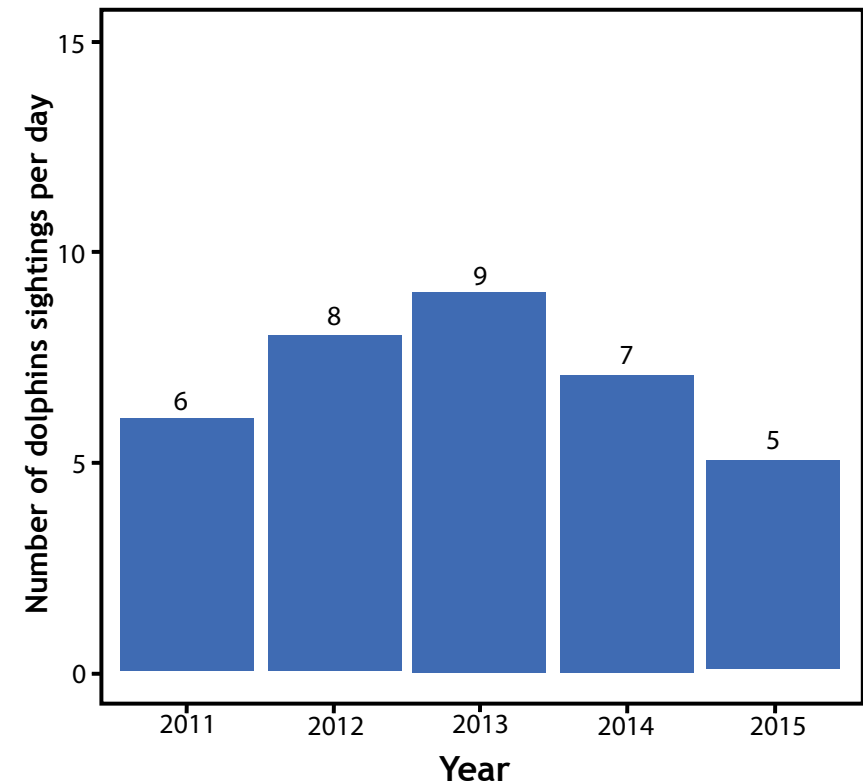


Figure 4: Average number of dolphin sightings per day for each year since 2011.

Juvenile dolphin leaping  
Photograph: Delphine Chabanne



In 2014, the total number of dolphin sightings was relatively high in monitoring zones 2 to 5 which corresponds with the Canning River. These sightings also corresponded with relatively high search effort by Dolphin Watchers. A similarly high sighting rate with a high search effort occurred in zone 9. Zone 9 is the body of water near the CBD called Perth Water, between the Narrows Bridge and Heirisson Island.

In contrast, zones 1, 20, 21, 26 and 31 all had relatively large numbers of sightings, but had comparatively lower effort. In other words, there was a greater likelihood of sighting a dolphin at these sites than other sites for the same time spent searching. This could be because dolphins spend more time at these locations when they are there, or they move through the area more frequently, or they do both of these.

These zones, with the highest sightings/hr (lower panel in Figure 5), corresponded to locations at the entrance of the Canning River, Melville Water towards the Narrows Bridge, Freshwater Bay, and the Fremantle Inner Harbour. This pattern is evident when correcting the number of dolphins sighted (upper panel in Figure 5) by the effort (in hours) of time searching for dolphins (middle panel in Figure 5).

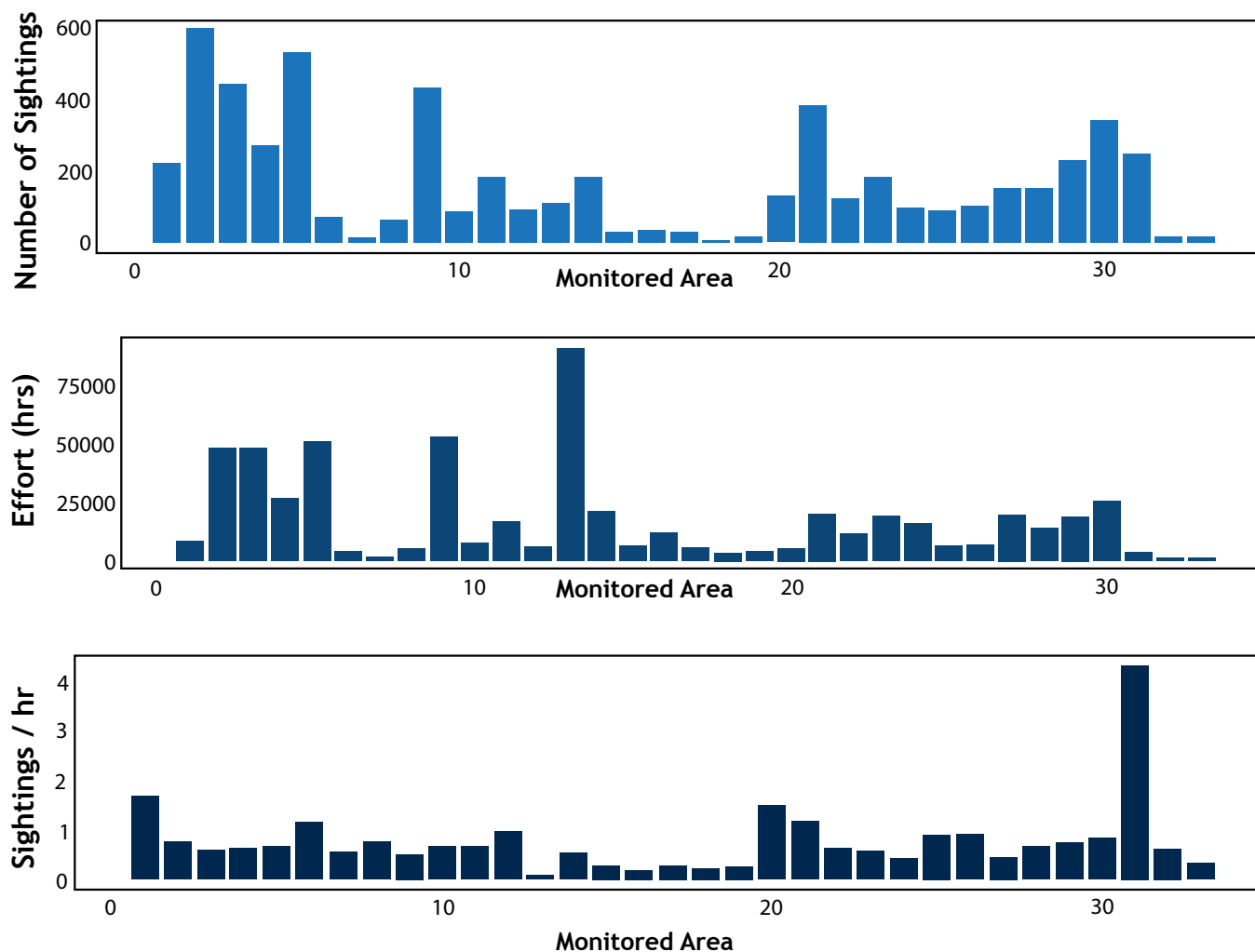


Figure 5: Number of dolphin sightings (top panel), effort searching by Dolphin Watch members (in hours; middle panel), and dolphin sightings per hour of search effort (lower panel) in 2014.

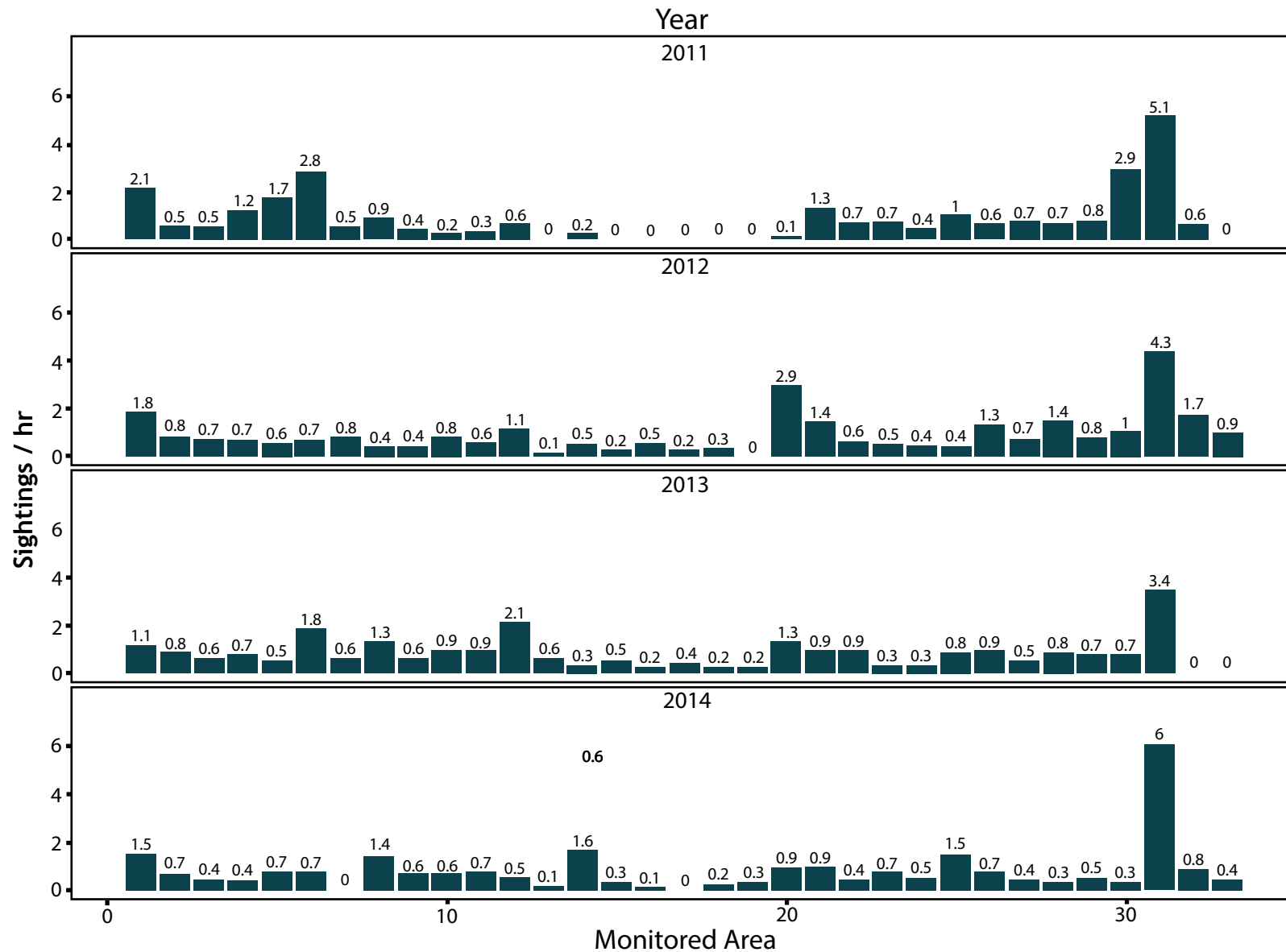


Figure 6: Number of dolphin sightings per hour of search effort in 2011, 2012, 2013, and 2014.



Over the last four years of Dolphin Watch monitoring, a very similar pattern has been revealed, meaning that dolphins are consistently choosing to spend more time at these locations (Figure 6).

Behaviours such as foraging and socialising are often seen at these areas. Other locations are important for these activities as well, and are used to transit from one point to another. There is some variability in the use of these areas from year to year, which is most likely from annual variability in the environment and prey distribution.

Dolphins also shift the amount of time or frequency of use of some areas within the Swan Canning Riverpark each season (Figure 7).

During Autumn 2014, dolphins were sighted most frequently (per hour of search effort) in the Fremantle Inner Harbour followed by the mouth and the upper reaches of the Canning River.

In winter, dolphins continued to be sighted frequently at the entrance of the Canning River, but were also frequently sighted in Melville Water near the Narrows Bridge and in the Fremantle Inner Harbour.

In spring, dolphins were sighted most frequently at the Fremantle Inner Harbour, followed by the mouth of the Canning River. Finally, in summer, Freshwater Bay was the most common area to sight dolphins (per hour of search effort).

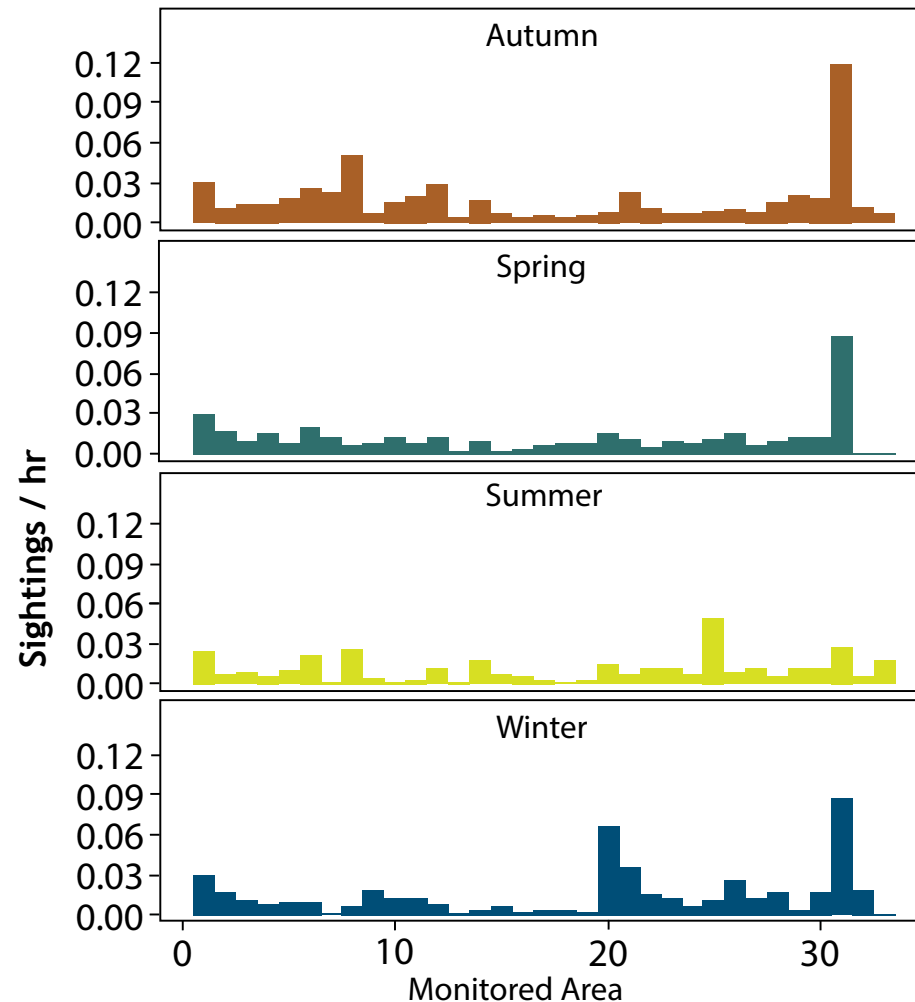


Figure 7: Number of dolphin sightings per hour of search effort in the different monitoring zones in 2014.

The distribution of dolphin sightings (per hour of search effort by Dolphin Watchers) mostly mirror the general distribution of sightings rates during systematic scientific boat surveys conducted by Murdoch University (Figure 8). Despite biases inherent in data collected in non-systematic surveys such as community-collected data, the similarities in these patterns validate and support general trends resulting from Dolphin Watch monitoring.

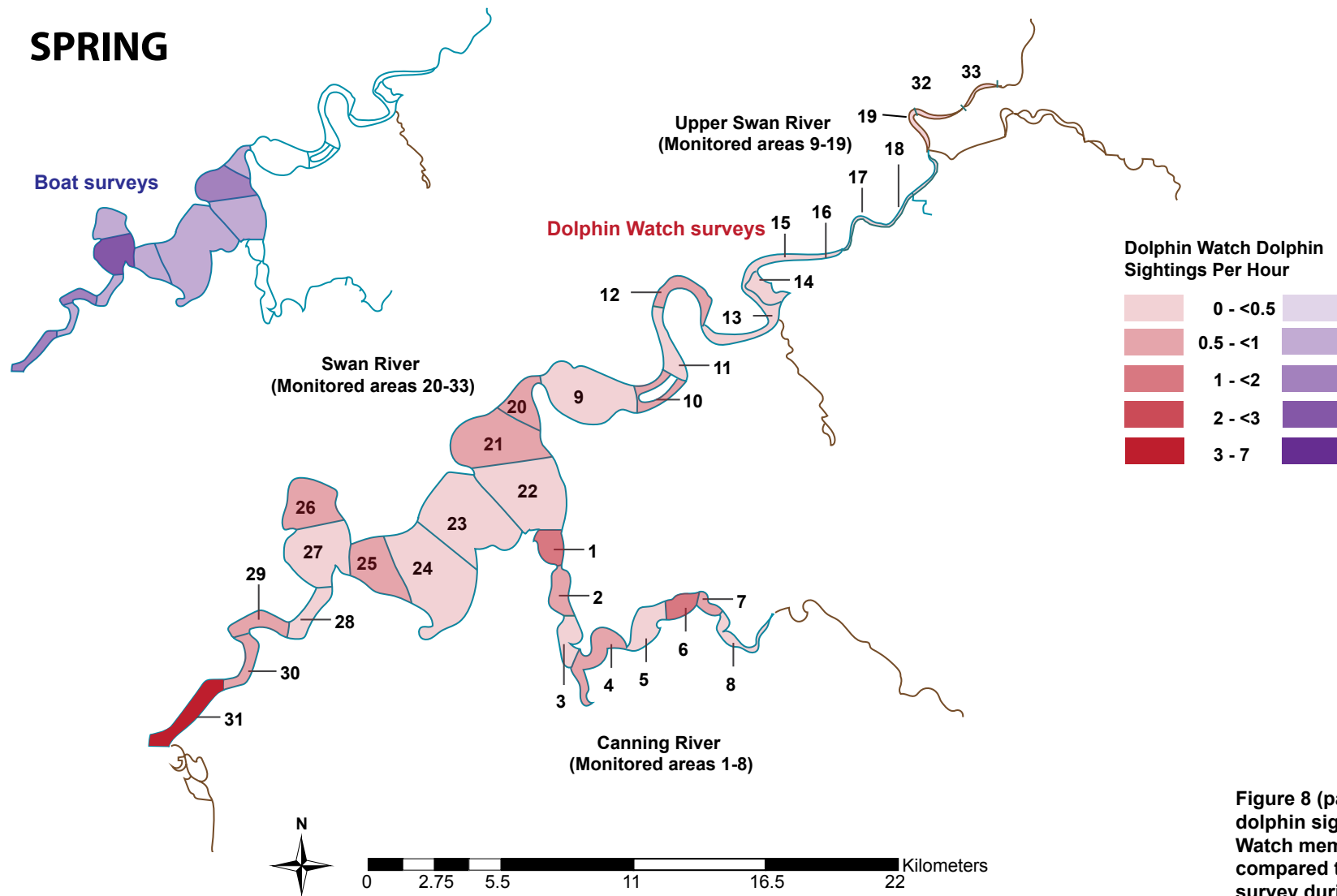
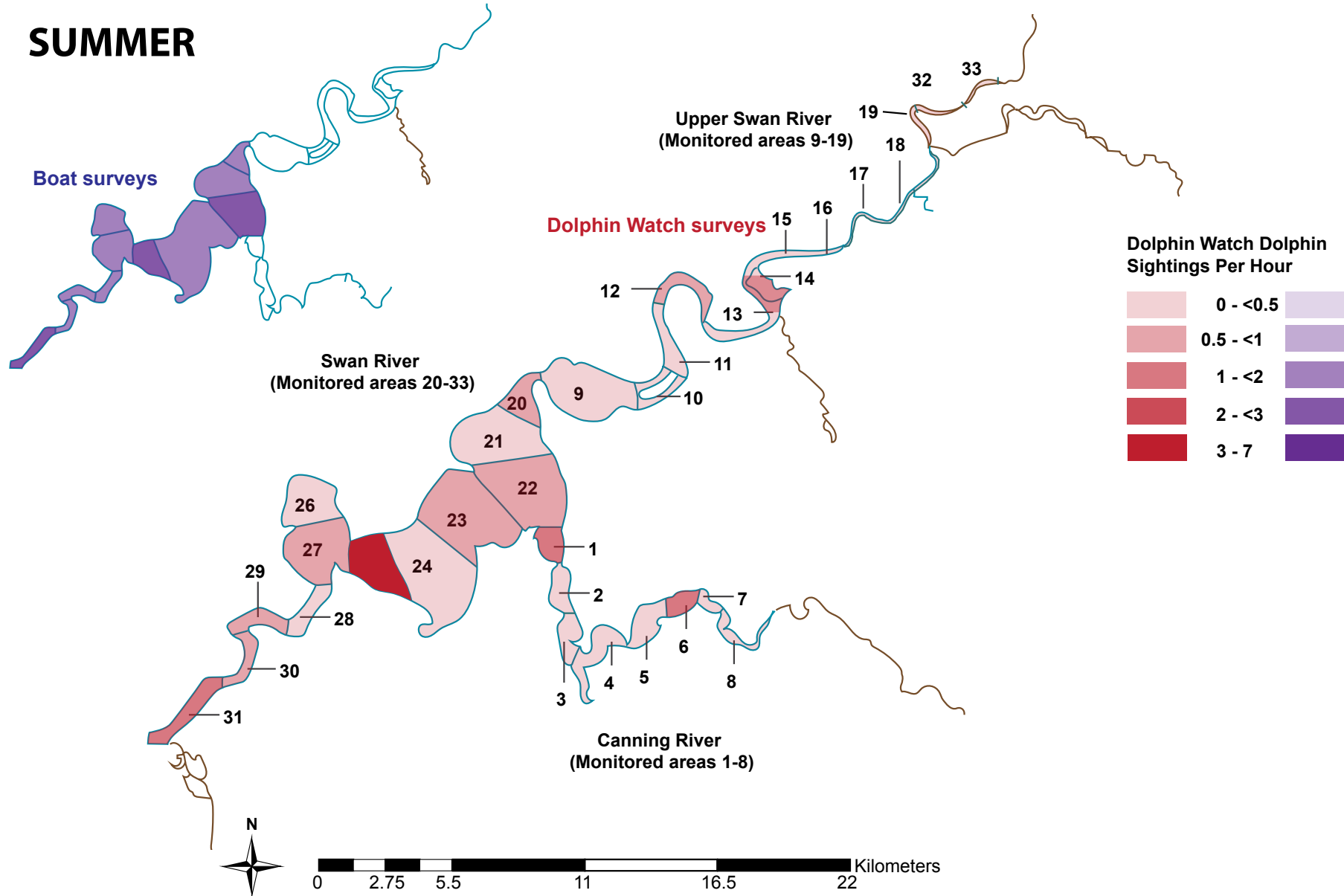


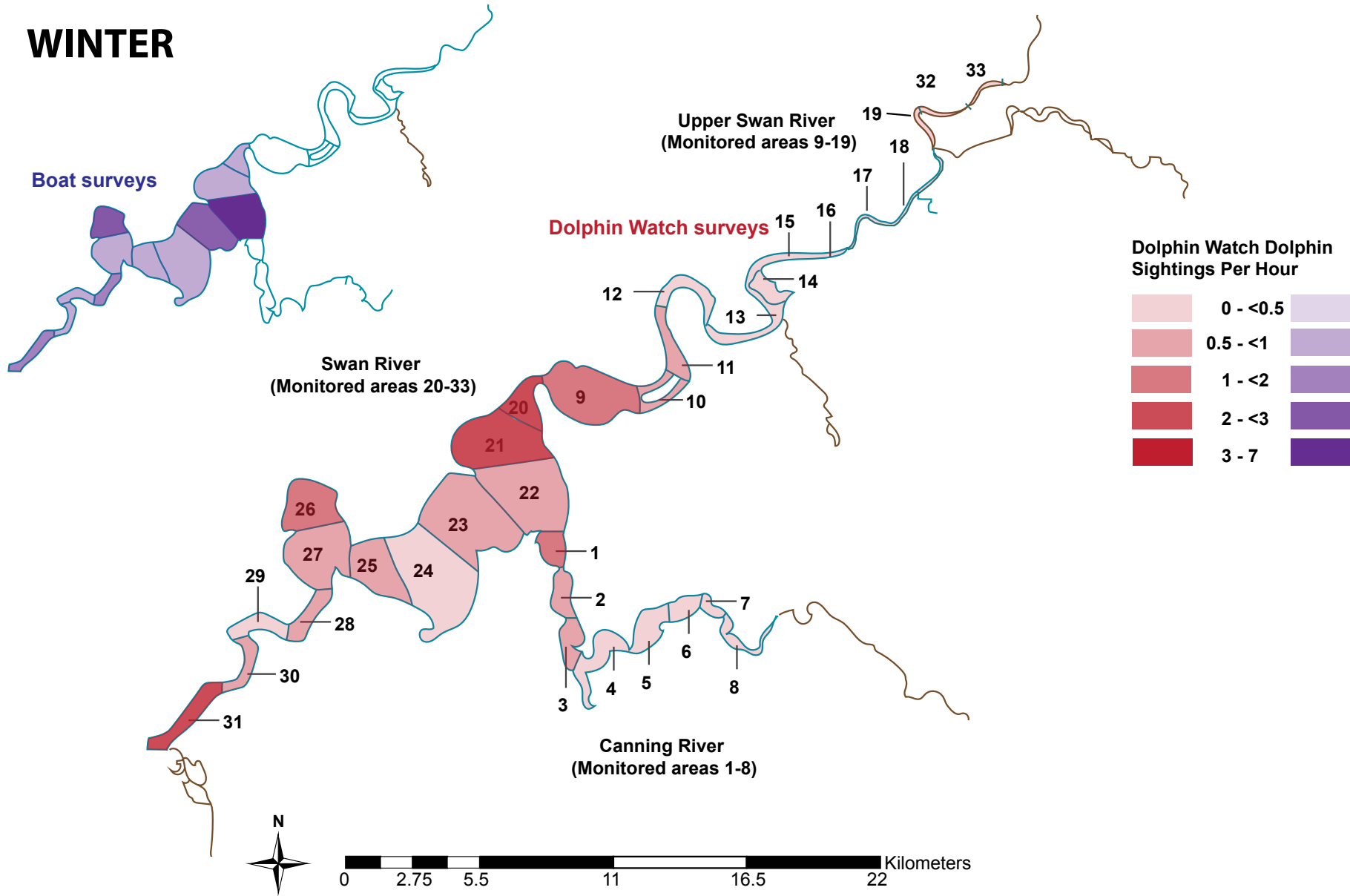
Figure 8 (pages 16-19): Distribution of average dolphin sightings per hour made by Dolphin Watch members across zones in 2014 (red); compared to the distribution of sightings per survey during vessel transects in 2014 (purple).



# SUMMER

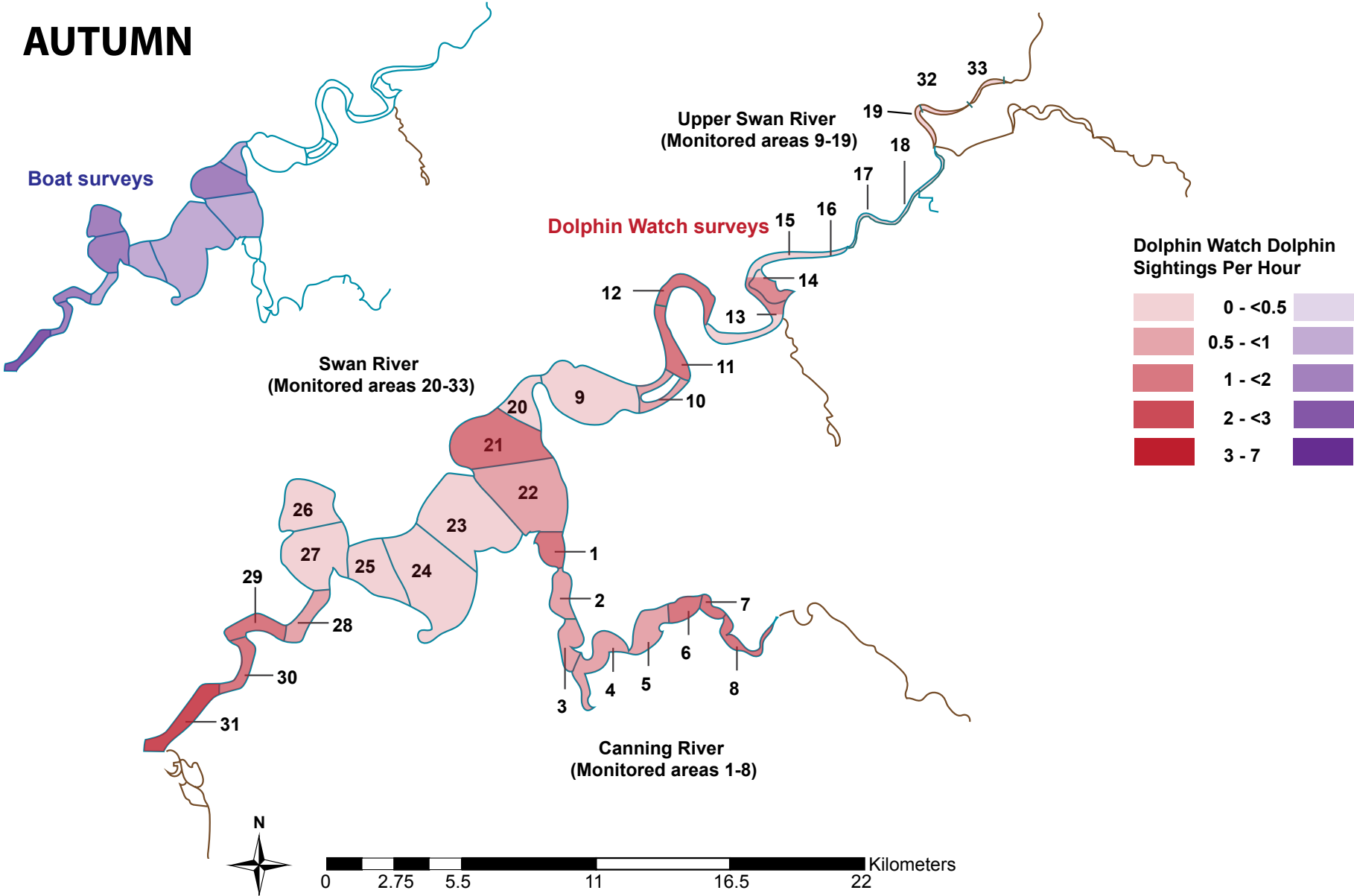


# WINTER





# AUTUMN



# Dolphin Watch volunteer profile

## Darren and Emily Hamley

**Darren:** In the weeks leading up to Emily's sixteenth birthday, she was counting down the days. It was not the number of days until a big party, but the number of days until she could finally sign up as a Department of Parks and Wildlife volunteer. About six months prior to her sixteenth birthday, we saw an article in our local paper about this new project called Dolphin Watch. We just had to wait until Emily was old enough. The idea that we could be a part of a project that allowed us to spend time at the river, watch out for dolphins recording their behaviour and contribute to science all at the same time was incredibly exciting. Not to mention an official Dolphin Watch hat and t-shirt was on offer.

I have a degree in Biological Science and at the time Emily was in year 11 at high school, but both of us shared a passion for wildlife watching. This was the perfect opportunity for us.

After Dolphin Watch training at the zoo, we spent many hours together walking along the river in Shelley, kayaking the Canning River and looking for dolphins from the café at the High Road bridge. One adventurous day, we spent eight hours dolphin watching. We rode our bikes for a complete lap of the main body of the Swan River from Applecross to Perth, Perth to Fremantle and back to Applecross. We did not see a single dolphin, but we enjoyed it all the same!

The biggest change in our dolphin watching came when we bought an inflatable dinghy. Being on the



Dolphin Watch volunteers Darren and Emily Hamley. Photograph: Michelle Hamley

water brings a whole new level of data collection. We see dolphins on the boat on most outings and are now able to use *FinBook* to get reliable identifications of the dolphins.

Apart from becoming familiar with these spectacular creatures, we have also really enjoyed the Dolphin Watch events. There is something

special about meeting up with a big group of like-minded people.

**Emily:** Gizmo is our favourite dolphin. He is so easy to identify, even from a distance because of his floppy dorsal fin. We like to joke and say that Gizmo is the Nemo of the river dolphins with his 'lucky fin'.

Our first official Dolphin Watch Day cruise was a day we will never forget. Marnie announced that she had a special dolphin prize pack for the volunteer who could answer a question. We looked at each other eagerly saying, "We have to get this!" The question was "What species of dolphin do we have in our river?" Before I could stop him, Dad quickly replied "Common bottlenose!" Which of course is incorrect, it is Indo-Pacific Bottlenose. I took about a week to forgive him.

Our good memories spent volunteering for the Dolphin Watch project are too numerous to count, and we hope to spend many more hours together enjoying the beautiful Swan River. To this day we feel so lucky that even as two regular citizens of Perth, we are able to contribute data that will help the Swan River Trust to better understand these amazing animals.

**Dolphin Watch volunteer Emily Hamley's love for dolphins has also seen her volunteer at Monkey Mia. Photograph: Darren Hamley**





# Dolphin Watch award winners



## 2015 Dolphin Watcher Award

### JOAN MUNRO

*Awarded to the volunteer who contributed the most amount of monitoring time.*

Joan and her husband are keen community members who care for the environment in many ways including volunteering to rehabilitate areas and dolphin watching. Joan has been volunteering for the Dolphin Watch project for more than three years. This is the second time Joan has won this award and it is easy to see why as she provided 250 reports and spent 278 hours volunteering her observations and reports for the project this year.

**Above from left to right: Joan Munro with Swan River Trust General Manager Rod Hughes, Susan Harper with Swan River Trust Principal Scientist Kerry Trayler, Sarah Guiton with Murdoch University Research Scientist Delphine Chabanne. Photographs: Miranda Holker**

## 2015 Citizen Scientist Award

### SUSAN HARPER

*Awarded to the volunteer who contributed excellent citizen scientist observations of dolphins and their surroundings.*

Susan has won this award for the second time. Her attention to detail and evidence of learning within the project (i.e. the importance of non-observations, identifications, behaviours) helped the judges to choose her from a strong field of excellent citizen scientists.

Apart from a willingness to observe on days when most are not, she also shares her learning with others. Susan has also followed up on river incidents as she was dolphin watching by contacting the relevant authorities. She is a great citizen scientist and River Guardian. Susan provided 187 reports and volunteered 138.5 hours this year monitoring for the project - an outstanding effort.

## 2015 Dolphin Watch Photographer Award

### SARAH GUITON

*Awarded to the volunteer who contributed an outstanding dolphin photo.*

Sarah has been volunteering for the Dolphin Watch project for almost a year and has contributed 44.7 hours of volunteering time. Sarah provided 197 reports and provides the Dolphin Watch team with lots of amazing photos. Sarah's photo was chosen by Swan River Trust staff and was noted for its reflective quality, sharp focus, serene subject matter and dolphins that are easily identified through the clear and close dorsal fin image.

**Photograph:  
Sarah Guiton's award  
winning image**



[www.riverguardians.com](http://www.riverguardians.com)

