FinBook

An identification catalogue for dolphins observed in the Swan Canning Riverpark

Fifth Edition – June 2015

GOVERNMENT OF WESTERN AUSTRALIA
SWAN RIVER TRUST
RIVER GUARDIANS
DOLPHIN WATCH
Murdoch UNIVERSITY
Curtin University

Foreword

It is with great pleasure that, as Patron of Dolphin Watch, I write the Foreword to the fifth edition of this splendid book which is based on the very best science. Using the book as a guide, we have already developed a deeper understanding of the animals that are held dear by so many West Australians.

The book makes it possible to identify individual dolphins and to build up a more comprehensive picture of their habits and needs. We know so much more about the 'secret lives' of our dolphins, an essential pre-requisite to ensuring their future in our waterways. In the six years of Dolphin Watch, the project has grown to nearly 900 trained volunteers, producing more than 15,000 reports representing close to 2500 hours of observations, truly amazing totals!

Thanks to our well established smartphone App, 74 users have already uploaded close to 700 reports and we are now streamlining data collection electronically to complement the more traditional online monitoring form. It is a great addition to the program, as is Junior Dolphin Watch which is now providing an exciting and educational schools-based program.

There is no doubt that the knowledge gained by reference to this book is crucial to ensuring the survival and wellbeing of dolphins in the Swan Canning Riverpark. Good policy decision making and sound management practices will be underpinned by the data generated. Moreover, the book sets a standard for future programs that aim to monitor and protect populations of other endangered animals. We should all be proud of this terrific book. I congratulate all concerned in producing the latest edition and am sure it will continue to be used extensively and to good effect.

Professor Lyn Beazley AO FTSE

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How to use FinBook

This is the fifth edition of FinBook, our annual guide to the Bottlenose Dolphins (*Tursiops aduncus*) inhabiting the Swan Canning Riverpark.

We hope experienced Dolphin Watchers enjoy the opportunity for an update on our Riverpark dolphins and that newcomers to Dolphin Watch can begin their own journey of discovery with these fascinating and unique creatures.

We use the markings on the dorsal fins of dolphins to identify individual animals. These markings come from interactions with other dolphins and sometimes from 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.

On the next page are images of Gizmo's dorsal fin from 2011. Can you notice any differences between his fin then and now? (see page 16)

Right (from top): Gizmo's dorsal fin, and Gizmo (in front) with another dolphin in 2011. Cover: Akuna and Moon's calves. All photos by Delphine Chabanne.

FinBook sections

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.

1. Adult females

Group 1: Females regularly seen together in the entire estuary.

Group 2: Females regularly seen on their own.

Group 3: Females seen in the Fremantle Harbour Port and the lowest reaches of the estuary.

2. Juveniles

Group 4: Riverpark juveniles. Weaned since late 2013/early 2014, juveniles have started exploring adjacent waters.

3. Adult males

Group 5a: Older males often seen together.

Group 5b: Younger males often seen together.

Group 6: Males, visitors from Cockburn Sound.

Photo: Delphine Chabanne

Each dolphin has a profile that provides:

- **the dolphin's name**
- **images of the left and right side of the dolphin's dorsal fin**
- **the dolphin's age-class (adult/juvenile/calf)**
- **the dolphin's known or suspected sex**
- **for adult females with a dependent calf, images of the calf**

Adult females

Group 1: Females regularly seen together in the entire estuary

Left side **Right side**

Name
Claw

Sex
Female

Age
Adult

First recorded
2009

Name
Daniele

Sex
Female

Age
Adult

First recorded
2009

Notes
Daniele lost her first calf in January 2013

FinBook catalogue photos by Delphine Chabanne

Left side | Right side

Name
Highnitch

Sex
Female

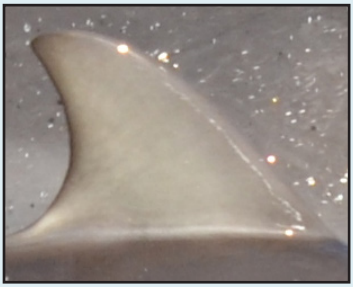
Age
Adult

First recorded
2001

Notes
Highnitch lost her previous calf Highhope in January 2013

Name
Highnitch's calf

Born
January 2015



Left side Right side

Name
Moon

Sex
Female

Age
Adult

First recorded
2001

Notes
Mother of juvenile dolphin Night

Name
Moon's calf

Born
May/June 2014

Left side **Right side**

Name
Tupac

Sex
Female

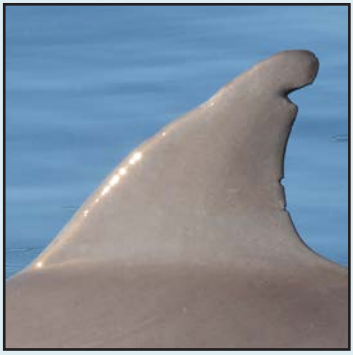
Age
Adult

First recorded
2001

Notes
Mother of juvenile dolphin Gizmo

Tupac lost her newborn calf in January 2015

Group 2: Females regularly seen on their own

	Left side	Right side
Name Akuna **Sex** Female **Age** Adult **First recorded** 2009		
Name Nala (Akuna's calf) **Born** Late 2013/ Early 2014		

Right: Nala makes a playful leap at Point Roe in Mosman Park. Photo by Delphine Chabanne.

	Left side	Right side
Name Dunedoo **Sex** Suspected female **Age** Adult **First recorded** 2009		

Group 3: Females seen in the Fremantle Harbour Port and the lowest reaches of the estuary

Left side **Right side**

Name
Eden

Sex
Female

Age
Adult

First recorded
2009

Notes
Mother of juvenile dolphin Garden.

Name
Eden's calf

Born
Early 2013

	Left side	Right side
Name Panuni **Sex** Female **Age** Adult **First recorded** 2011		
Name Panuni's calf **Born** Early 2015		

	Left side	Right side
Name UNK201408 **Sex** Female **Age** Adult **First recorded** 2013		
Name UNK201408's calf **Born** Before 2013		
		

Juveniles

Group 4: Riverpark juveniles weaned since late 2013/early 2014

	Left side	Right side

Name
Garden

Sex
Unknown

Age
Juvenile

Notes
Eden's previous calf

Name
Gizmo

Sex
Male

Age
Juvenile

Notes
Tupac's previous calf

Gizmo suffered a severe fishing line entanglement in April 2012 that seriously damaged his dorsal fin; Water Police officers freed Gizmo in June 2012

Left side | Right side

Name
Night

Sex
Male

Age
Juvenile

Notes
Moon's previous calf

Name
Zari

Sex
Unknown

Age
Juvenile

Notes
Tworakes' previous calf

Tworakes has not been seen since late 2013 after being bitten by a shark

Adult males

Group 5a: Older males often seen together

	Left side	Right side

Name
Arrow

Sex
Male

Age
Adult

First recorded
2009

Name
Blackwall

Sex
Male

Age
Adult

First recorded
2001

Notes
Hunk missing out of peduncle (probably old shark attack wound)

Left side | Right side

Name
Bottomslice

Sex
Male

Age
Adult

First recorded
2001

Name
Hii

Sex
Male

Age
Adult

First recorded
2001

Group 5b: Younger males often seen together

	Left side	Right side

Name
Extreme

Sex
Male

Age
Adult

First recorded
2009

Name
Kwillena lookalike

Sex
Male

Age
Adult

First recorded
2011

Notes
Kwillena lookalike was first seen with shark attack bite marks in winter 2014

	Left side	Right side
Name Pebbles **Sex** Male **Age** Adult **First recorded** 2009		
Name Print **Sex** Male **Age** Adult **First recorded** 2009		

Group 6: Males, visitors from Cockburn Sound

	Left side	Right side

Name
Ali

Sex
Male

Age
Adult

First recorded
2011

Name
Mime

Sex
Male

Age
Adult

First recorded
2011

Left side **Right side**

Name
Montaro

Sex
Male

Age
Adult

First recorded
2011

Foraging and feeding

Dolphins that are actively searching for prey like finfish, squid and octopus are said to be foraging. Foraging is the most common activity for dolphins in the Riverpark. When dolphins are catching, processing and eating prey, they are said to be feeding.

Generally, dolphins consume prey underwater. However, as dolphins cannot chew, they sometimes throw larger prey around the surface or drag it along the bottom to break it up into smaller pieces. If you see dolphins chasing or eating fish, be sure to record this information. Information about what fish species dolphins are eating is very helpful.

Foraging behaviours

Foraging dolphins are usually spread at least 10 metres apart and may be much farther. Occasionally dolphins may be closer together. In deeper water, foraging dolphins often mill around in an area for several minutes. So, you might see them surface for a few breaths, dive again for a few minutes, then surface again for a few breaths. We refer to this behaviour as ‘mill forage’.

Sometimes, when dolphins are in a hurry to get back underwater, you will see them surface for one quick breath, either by leaping out of the water or by humping their body at the surface. We refer to this as a 'rapid surface'. Dolphins often travel along the edges of the rivers while searching for fish and display a forage/travel combination. For example, they often travel through marinas and moorings or along the edge of Point Walter. Sometimes, they stop and engage in mill forage for a little while, before moving on.

Foraging behaviours in shallow water are a little different. Indications of foraging in shallow water include:

- **fast swimming** (sometimes with streams of water coming off the dorsal fins, which is called 'rooster-tailing'); and
- **bottom-grubbing** (dolphins poking around in the mud, sand, seagrass or seaweed with their beaks).

Other foraging behaviours include:

- **belly-up fish chase** (i.e. dolphins swimming around on their backs while chasing fish – their eyesight and echolocation work best in a slightly downwards direction, so it can be easier to keep track of fish that way); and
- **herding fish against a structure** (e.g. a wall or breakwater).

A dolphin 'rooster-tailing' and herding fish in the shallows. Photo by Matt Kleczkowski. Other behaviour guide photos by Holly Raudino, Kate Sprogis, Delphine Chabanne and Stewart Allen.

Resting

Dolphins that are engaged predominantly in a resting state and are not actively foraging/feeding, travelling or socialising are said to be resting.

Resting is not often observed in the Swan Canning estuary. This may be because of the shallow waters in the two rivers - dolphins seem to prefer waters more than 8 metres deep to rest in. The Riverpark dolphins are also frequently disturbed by vessel traffic and other human activities. Resting groups are commonly observed in the deeper parts of Owen Anchorage (southwest of Fremantle) and the Cockburn Sound.

In contrast to foraging dolphins, resting dolphins are often clumped closely together. The classic resting pattern involves groups of usually four or more that are tightly-spaced (i.e. less than 2 metres between dolphins), moving slowly (usually in a meandering pattern but sometimes in a straight line), and taking multiple breaths (four to eight or more) at each surfacing, then diving within a few seconds of each other.

Resting dolphins may be submerged for several minutes and may surface pointed in another direction.

Resting dolphins often ‘snag’ at the surface for a few seconds. Snagging is when dolphins hang motionless at the surface with their tail beneath the water and the front part of their body exposed to the air. They look a little like sausages when they do this, hence the term.

Sometimes you will see dolphins scan their head from side to side while snagging. This most likely means they are using their echolocation to take a scan of the area. They may do this while foraging too.

Socialising

Like humans, dolphins are very social animals. Dolphins that are engaged in social interaction with other dolphins are said to be socialising.

The most obvious sign of socialising is body-to-body contact between dolphins. The bellies of dolphins often turn pink when they are socialising – this is because the tissue becomes perfused (blood flowing close to the skin) with blood.

Sometimes, you may see leaps and/or fast swims while dolphins are socialising. These behaviours can also occur while dolphins are foraging, so it's a good idea to watch for a while before jumping to conclusions about what dolphins are doing.

Sometimes, calves in a group might be socialising while their mothers are in another group foraging.

Dolphins are very creative in terms of how they interact physically. So, for example, dolphins may:

- rub their bellies together;
- rub their belly against the side of another dolphin;
- stroke each other with their tail flukes or pectoral fins;
- 'goose' (nudge another dolphin's underside with its beak); and
- swim with pectoral fins overlapping.

Not all social interactions are friendly. Some interactions, particularly among males, are antagonistic. The rake marks you see on many dolphins are often the result of unfriendly interactions. The rake marks come from dolphins raking their teeth across the skin of other dolphins.

Specific behaviours

Milling and diving in one place

Dolphins surfacing independently of each other in one general area. This behaviour pattern implies that dolphins are searching for fish. When dolphins are resting or socialising, they tend to dive and surface at (or nearly) the same time. 'Milling' means dolphins are hanging around an area for several minutes during which time they may dive and surface several times and often change direction. They are usually (but not always) spread at least 10 metres from other dolphins.

Chasing fish

To record dolphins chasing fish, you must observe the fish being pursued. If you are able to confirm which fish species the dolphins are chasing, please note this.

Swimming fast

Dolphins swimming at faster than normal cruising speeds. Dolphins may swim fast when foraging, chasing fish, socialising or chasing each other. In shallow water, you may see a spray of water come off the dolphins.

Dolphin behaviour guide

Dolphin with fish in mouth

Dolphins with fish (including squid and octopus) in their beak. Sometimes dolphins throw the fish around the surface as well. If you are able to confirm which species the dolphins are chasing, please note this.

Snagging

Dolphins hanging motionless at the surface with their tails beneath the water and the front half of their body at the surface. They look like sausages when they are doing this, hence the term ‘snagging’. Dolphins may turn their head from side to side to scan the water. Snagging most often occurs during resting bouts but may occur during pauses in other activities.

Travelling straight, consistently in one direction

Dolphins that move in one direction. This occurs most often when dolphins are travelling and implies a directed effort to make progress in a particular direction. Dolphins often travel straight for periods and then, if they locate a fish, stop and mill around an area to forage for a little while.

Dolphin behaviour guide

Body contact between dolphins

Direct body-to-body contact between dolphins. This generally occurs when dolphins are socialising.

Social interaction (body contact, splashes etc.)

Obvious social interaction between dolphins usually involves body-to-body contact. You will often see splashes, bellies flushed pink with excitement, fast swims or leaps by dolphins interacting with each other. Socialising often occurs in tightly-spaced groups of three or more dolphins, but may occur between two dolphins (between a mother and calf).

Leaping out of the water

The entire body of a dolphin is out of the water. May occur when dolphins are foraging (i.e. a quick breath so they can get back underwater rapidly) or when they are socialising.

Milling and diving alone more than 20 metres from other dolphins

Dolphins that are widely spaced from each other and are diving and surfacing in an area. This behaviour pattern occurs exclusively during foraging and feeding. It implies that dolphins are searching for fish in the area. Dolphins are spread out to minimise competition for fish (i.e. to get out of each other's way).

Baby position

Calves travelling just behind and to one side of their mother. When a calf surfaces in baby position (BP), its head surfaces near the mother's mid-section. Travelling in BP allows calves access to the mammary slits located in the mother's tail region and also provides a small hydrodynamic benefit. Young calves spend a lot of time in BP; as they grow older, they spend less and less time there. If calves are stressed, they usually return to BP (if they were away from their mother). Infants or newborns swim by the side of the mother's head. Be sure to confirm that the dolphin in BP is actually a calf and not just another dolphin travelling close by. The best way to confirm BP is to see if the calf is smaller than the mother and if the calf maintains BP for several breaths.

Dolphin Watch

Dolphin Watch was developed by the Swan River Trust, together with Murdoch and Curtin Universities, as a collaborative, citizen science research and education project in 2009. The project's data feeds into the Coastal and Estuarine Dolphin Project.

Researchers from Curtin and Murdoch work with the Trust's River Guardians program to train Dolphin Watch volunteers in techniques for monitoring the movement and behaviour of dolphins in the Riverpark. Records submitted by Dolphin Watch volunteers are forwarded to Curtin University and Murdoch University for analysis. There are now 890 trained Dolphin Watch volunteers.

The public plays an essential role in monitoring this iconic species as citizen scientists. By becoming a member of the River Guardians program, people become more informed about river conservation issues and can participate in activities to help the rivers and their associated wildlife. With hundreds of trained Dolphin Watchers observing dolphins, the information is helping to provide more observations to be analysed by research scientists.

The Dolphin Watch project will continue to expand research capabilities and encourage volunteers to participate through online monitoring, smart phone applications and other initiatives.

Originally monitoring was confined to the upper reaches of the Swan and Canning rivers. However, community interest was so great that now the entire Riverpark is monitored by Dolphin Watchers.

Volunteer information, photographs and video help build a picture of the community of dolphins in the Riverpark. Dolphin Watch shares information and expertise so that industry, government and the community can develop effective river management activities and policy to help protect dolphins and their habitats.

Dolphin research

Coastal and Estuarine Dolphin Project

Research for the Coastal and Estuarine Dolphin Project (CEDP) is driven by the belief that the best future for Perth's dolphins lies with ecosystems that are healthy and resilient and with communities that are actively engaged in caring for their local dolphin populations and the environments they inhabit.

CEDP (**http://mucru.org/**) addresses the health, ecology and conservation of dolphins in the Perth region. Curtin University and Murdoch University founded CEDP as a response to the deaths of six dolphins within the Swan River in 2009. CEDP works in partnership with state and local government, industry and the community of Western Australia.

Current CEDP Research

Since 2011, CEDP researchers have been assessing dolphin abundance and distribution within a study area extending from Rockingham to Scarborough along the coast and inland to the cities of Perth and Canning. The resident dolphin population in the Riverpark is very small, so it is vital that we understand its status and connections to other populations. Other CEDP research is investigating the effect of man-made noise on dolphins.

CEDP researchers work with the Swan River Trust and Dolphin Watch volunteers to analyse the Dolphin Watch sighting information. These analyses have already revealed valuable insights into the Riverpark dolphins.

The overall objectives of CEDP are to:

- conduct rigorous and innovative research into the ecology of dolphins in the Perth region;
- provide scientific information and advice to industry and government to support the conservation of dolphins and their habitat; and
- share information and expertise with the public to improve community-based conservation and monitoring for dolphins.

Dolphins in the Riverpark

Dolphins are a unique part of the Riverpark. What do we know about the ecology of the dolphins inhabiting the Swan and Canning rivers?

A resident community

The Riverpark is home to a resident community of about 22 dolphins, excluding calves. These dolphins account for nearly all the Dolphin Watch sightings in the Riverpark, although dolphins from nearby coastal areas are occasional visitors.

The dolphins are classified as resident because they use the Swan Canning estuary year-round. Based on our knowledge of Bottlenose Dolphins elsewhere, these animals are also likely to be life-long residents of the estuary. Seven of the residents were first identified in 2001, when the first research on the Riverpark dolphins was undertaken. Two occasional visitors – the males Fingers and Backpack – were first sighted in Cockburn Sound during 1993. Since their deaths, another male alliance resident in Cockburn Sound – Ali, Mime and Montaro – has been visiting the lower reaches of the Swan Canning estuary.

The resident dolphins in the Riverpark are said to comprise a community of dolphins because they range over similar areas (the Riverpark and adjacent coastal waters) and frequently interact and associate with one another. These ranging and association patterns distinguish them from other dolphins that may be resident in Cockburn Sound or Owen Anchorage.

Photo: Delphine Chabanne

Caring for dolphins in the Riverpark

It's easy to help care for dolphins in the Riverpark by following these simple rules.

Enjoy dolphins from a distance - never approach a wild dolphin and ensure you stay at least 30 metres away if you're in the water or 100 metres if you're in a boat.

Slow down for dolphins - dolphins often form resting groups in the middle reaches of the estuary, so keep an eye out for dolphins, and slow down if you spot any.

Never feed dolphins - it is illegal and leaves dolphins vulnerable to entanglement, boat strikes and disease.

Take your rubbish home with you or dispose of it in a rubbish bin. When fishing on the rivers please fish responsibly. Dolphins, particularly calves, can become entangled in fishing line. Make sure you dispose of unwanted fishing line in a rubbish bin, use a biodegradable fishing line and help sustain fish stocks by taking only what you need.

If you see dolphins in distress, call the Department of Parks and Wildlife WILDCARE Helpline on **(08) 9474 9055**. The Helpline provides 24-hour state-wide referral for anyone who finds sick, injured or orphaned native wildlife.

WILDCARE helpline

FOR SICK, INJURED OR ORPHANED NATIVE WILDLIFE

(08) 9474 9055

Night's story

Story and photos by Delphine Chabanne

My name is Night just because my mum's name is Moon. I don't really know how old I am but scientists think that I may be around six years old. When they started photographing me like a star on the red carpet, I wasn't that little but my mum was nearby. They thought that I could be two or three years old at that time.

Since 2014, I've had a sibling. Yes, I know whether it's a little brother or sister but I won't tell you. Mum is busy taking care of it now, which is fine by me. I grew up and I can take care of myself. I still like to say hi to mum and my sibling every now and again.

What do I do with my time now that I don't have to follow mum? Well, you may not be surprised that I love fishing and hanging out with my buddies Gizmo and Zari. I'm sure you all know them.

My friend Gizmo had some hard times in the past. A human left their fishing line and it became tangled in Gizmo's dorsal fin. Not a fun time for him and his mum Tupac. Luckily, he is now free and we have good fun together.

I have another friend Garden, who is not as cool as Zari and Gizmo. Perhaps I feel this way because we rarely hung out when we were younger. Our mums didn't spend much time together.

Scientists have discovered that I am a male. I had that little arrow in my back for a millisecond taking a bit of my skin and blubber so they could find out more about me. Honestly, I barely felt it. Since then, I have explored the waters outside the Riverpark and my buddies and I have had fun visiting our neighbours.

I don't know what my future will be but so far, the Riverpark is still my home and Gizmo and Zari are my best mates. Maybe I will live with them forever and we will become the stronger male alliance of our Riverpark community.

Reducing nutrients to care for dolphins in the Riverpark

The Swan and Canning rivers are an important habitat for Bottlenose Dolphins. The Riverpark serves as a nursery to raise their calves and as a meeting place to socialise and feed. Good quality habitat in the river system will continue to support the growth, survival and reproduction of these dolphins.

There are abundant fish resources in the Swan Canning river system with more than 130 fish species and a multitude of invertebrates, including crabs, prawns and molluscs.

If we want to continue to see dolphins in the river system we must protect its ecological health so that these food resources remain available and abundant.

Nutrients such as phosphorus and nitrogen can threaten the Riverpark's ecological health and habitat value by promoting algal blooms, deoxygenation and fish kills.

We know from the Swan Canning Water Quality Improvement Plan that we need to halve the amount of nutrients entering the Swan Canning river system in order to protect water quality and ecological health.

Everyone living in the Swan Canning Catchment has a role to play in reducing nutrients and protecting dolphin habitat. You can do this by:

- Only applying fertiliser when it's needed in spring or early autumn – follow application rate instructions, don't over apply and never over water.
- Growing local native plants – they need less water and fertiliser, and attract native birds, lizards and insects.
- Composting your leaves and grass clippings so they don't wash into drains and add nutrients to the rivers.
- Keeping garden weeds away from drains - they may end up in rivers and displace foreshore vegetation.
- Keeping harmful chemicals away from drains.

Check out **www.riverguardians.com** for more helpful tips and information.

Glossary

Calf – a dolphin still dependent upon its mother, usually less than five years old

Dorsal fin – the fin on a dolphin's back (its dorsal surface)

Juvenile – a young, immature dolphin, usually about 4–10 years old

Leading edge (of dorsal fin) – the front edge of the fin (versus trailing edge)

Peduncle – an anatomical term for the tail stock of a dolphin

Sub-adult – a dolphin that is not quite adult-size but larger than a juvenile

Photo: Alistair Ritchie

FinBook

Department of Parks and Wildlife

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