

Presence of epidermal lesions in resident southern Australian bottlenose dolphins *Tursiops australis* and short-beaked common dolphins *Delphinus delphis* in Port Phillip, Victoria, Australia



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Poster no
P 04



DRI Website

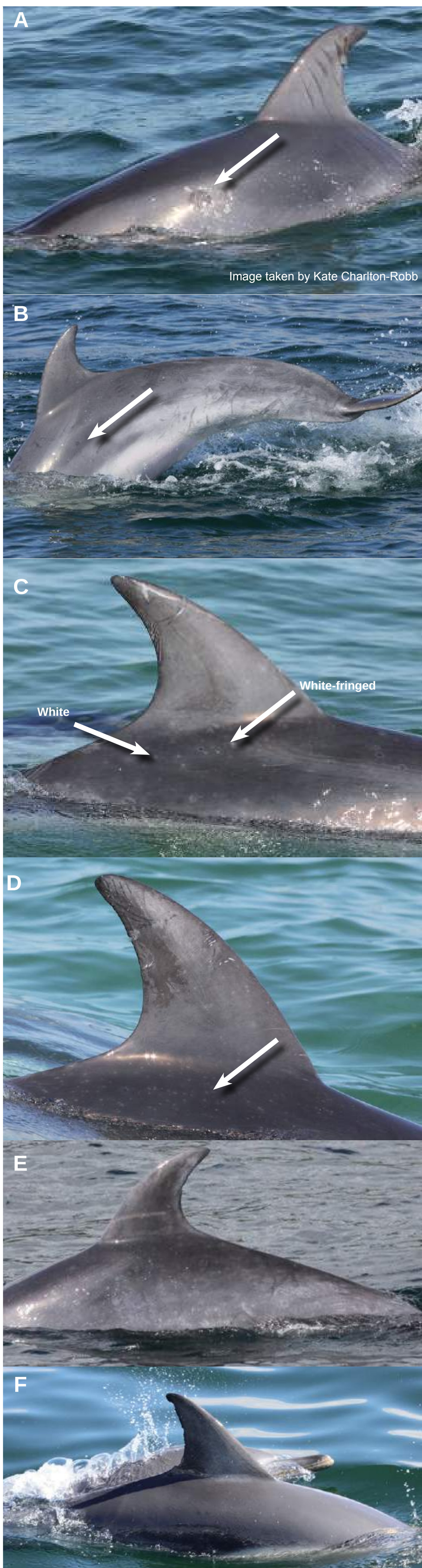
Abstract

Cetacean poxvirus and epidermal lesions are prevalent in many dolphin populations across the world. Severe lesion outbreaks have been recorded in Australia in the Swan River, Western Australia and Gippsland Lakes, Victoria. Prior to 2011, epidermal lesions were present but inconspicuous on the resident southern Australian bottlenose dolphins (SABD), *Tursiops australis*, in Port Phillip. A significant change was noted in February 2011 when a juvenile, 'clean-finned' animal was photographed with extensive epidermal lesions. Dedicated photo monitoring surveys conducted by the Dolphin Research Institute (DRI) in April 2011 recorded five different epidermal lesion types on 73 re-identifiable resident Port Phillip dolphins (72 SABD's and 1 short-beaked common dolphin *Delphinus delphis*). Of these, 40 SABD dolphins showed evidence of lesions; 15 animals exhibited two types of lesions and 25 dolphins a single form of lesion. All affected dolphins displayed

normal behaviours and appeared to be in good condition. The most prevalent type of lesion on re-identifiable dolphins was white; this type was observed on 26 of the re-identifiable dolphins. Twelve re-identifiable animals, were photographed with white-fringed spots, the second most common type. Photographs taken ten days apart of one individual with a large cloudy lesion, showed significant healing with limited signs of the lesion after ten days. The situation in Port Phillip is consistent with descriptions in the literature, with lesions occurring after a change in salinity and mostly in younger animals prior to them developing adult immunity. There is a need to develop a systematic classification protocol for lesions. DRI will continue to monitor the presence and extent of epidermal lesions in the resident SABD and short-beaked common dolphins as part of our on-going core research program.



Figure 1: Heavily lesioned juvenile dolphin photographed during core research survey February, 2011.



Figures 6 A-E: Lesion types identified on Port Phillip dolphins. 6A: Black lesion, identified as a tattoo lesion, identified by Dr Marie-Francoise Van Bressemer from photos. SABD identified as 'Ariel's Calf'. 6B: Black-fringed lesion on SABD. 6C: Two lesion types on same SABD, white and white-fringed lesions. 6D: Numerous small, white lesions on SABD. 6E: Generalised blemishes on 'Jeb's' body were confirmed by Dr Marie-Francoise Van Bressemer but not included in analysis. 6F: Common dolphins swimming in SABD pod appeared clean

Location

Port Phillip, Victoria, Australia (Figure 2) is a semi-enclosed embayment of 1930 km² and is home to approximately 120 resident SABD and 20 short-beaked common dolphins. DRI has monitored the SABD in Port Phillip since 1991 and the common dolphins since 2007.

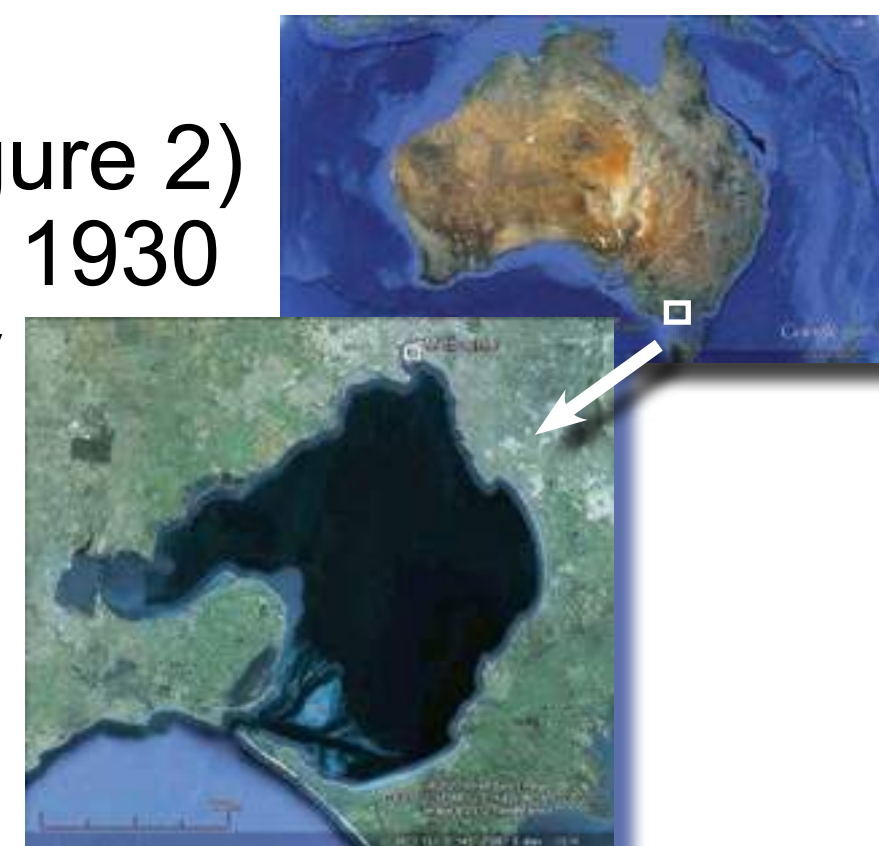


Figure 2: Location of resident SABD and short-beaked common dolphins in Port Phillip, Victoria, Australia

Background

- Prolific epidermal lesions photographed on juvenile dolphin February 2011. This was the first record of a dolphin profoundly affected by lesions in Port Phillip (Figure 1)
- Lesions had been previously observed on Port Phillip dolphins but were less conspicuous
- Dr Pdraig Duignan affirmed that lesions may be cetacean pox based on images
- DRI contacted Victorian Department of Sustainability and Environment (DSE) wildlife managers to inform them of the significant increase in lesions levels
- DSE sponsored dedicated 'lesion' surveys
- Recent changes in environmental conditions in Port Phillip due to drought breaking

Image analysis

- 1426 high quality images examined
- Lesions on any part of the dolphin's body that could be clearly seen in the photograph were scrutinised
- Lesions categorised based on characteristics in Wilson *et al.* (1997) (Table 1)
- Fin images matched against DRI's historical catalogue to allow for on-going monitoring of individual dolphin health

Table 1: Lesion categories as characterised in Wilson *et al.* (1997)

Lesion name	Colour	Shape	Texture	Elevation	Border	Location
Black	Black	Circular; amorphous with round outline	Smooth	Flush, indented	Sharp, diffuse, both	Dorsal fin and body
Pale/White	White	Circular; amorphous with round outline	Smooth	Flush	Sharp, diffuse, both	Dorsal fin and body
Cream	Cream	Circular; amorphous with round outline	Smooth	Flush	Sharp, diffuse, both	Dorsal fin and body
White fin-fringe	White	Amorphous with round outline, amorphous with jagged outline	Smooth	Flush	Sharp, diffuse, both	Along outer edge of dorsal fin
Abraded fin tip	White	Amorphous with jagged outline	Smooth	Flush	Diffuse, both	Top third of leading edge of dorsal fin
Cloudy	Blue-grey	Circular; amorphous with round outline	Smooth	Flush	Sharp, diffuse	Dorsal fin and body including over other lesions
Lunar	Black, white, cream, blue-grey	Amorphous with round outline, amorphous with jagged outline	Uneven	Raised and indented	Sharp	Dorsal fin and body
Dark-fringed spots	Pale centre, dark surrounds	Circular	Smooth	Flush, indented	Sharp, diffuse	Dorsal fin and body
White fringed spots	Normal or black centre, white or cream surrounds	Circular	Smooth	Flush, indented	Sharp, diffuse	Dorsal fin and body
Orange	Orange	—	Smooth	Flush	—	Over the entire visible surface
Patches	Orange or rust, brown	Amorphous with round outline, amorphous with jagged outline	Smooth	Flush	Sharp, diffuse, both	Dorsal fin and body

Bold type indicates main diagnostic features of each lesion type

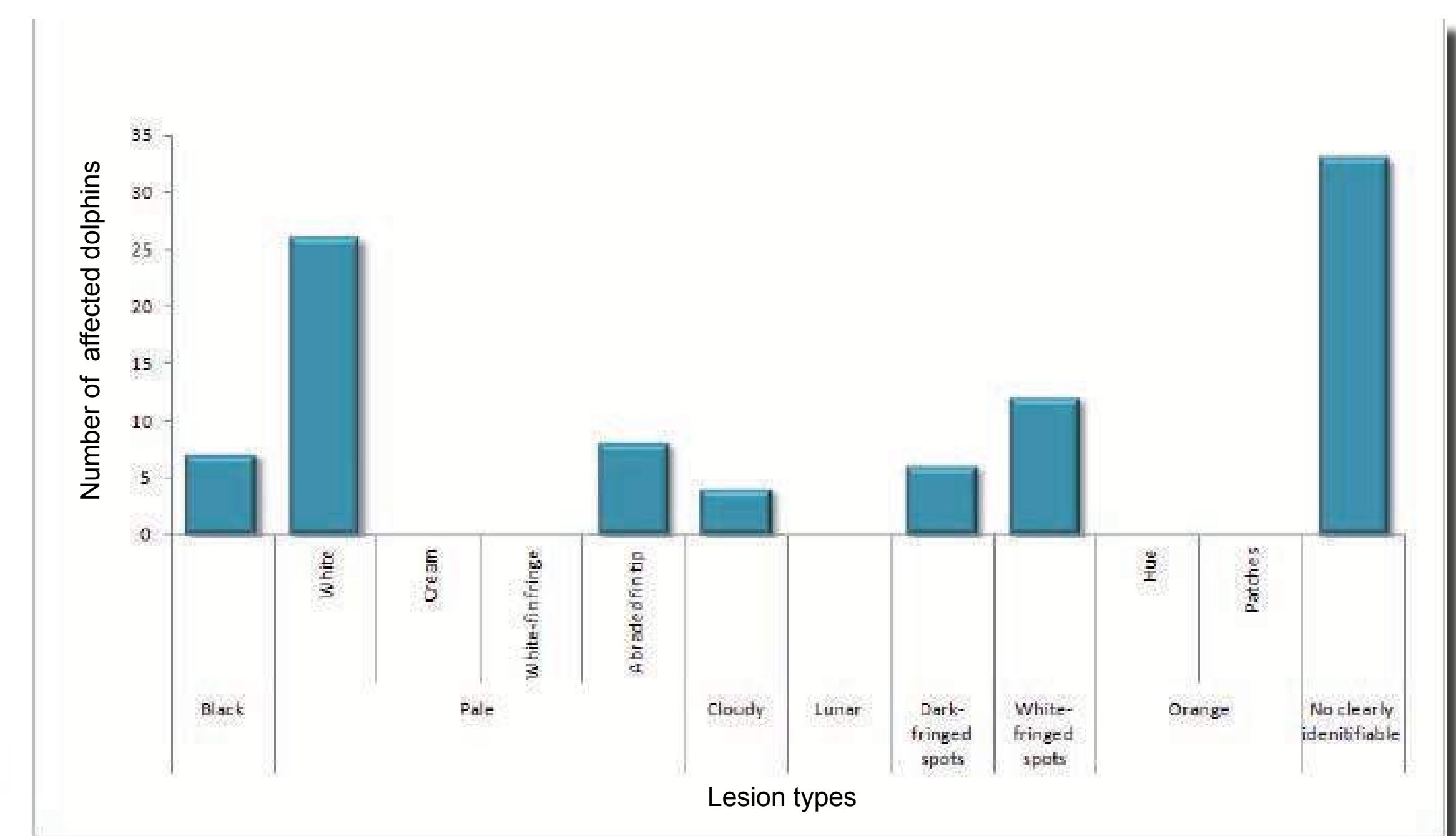


Figure 3: Lesion types clearly verifiable on resident dolphins in Port Phillip, 72 SABD and one short-beaked common dolphin. Categories based on Wilson *et al.* (1997)

- Of the 73 re-identifiable dolphins, 33 had no verifiable lesions, 25 had one type and 15 had two types (Figure 4)
- Common dolphins observed travelling in a mixed species pod with SABDs appeared to be lesion free
- Black lesions on SABD (Figure 6A) identified by Dr Marie-Francoise Van Bressemer as tattoo lesions based on images
- Cloudy lesion photographed on a SABD on April 7th was barely visible 10 days later (Figures 5A and 5B)

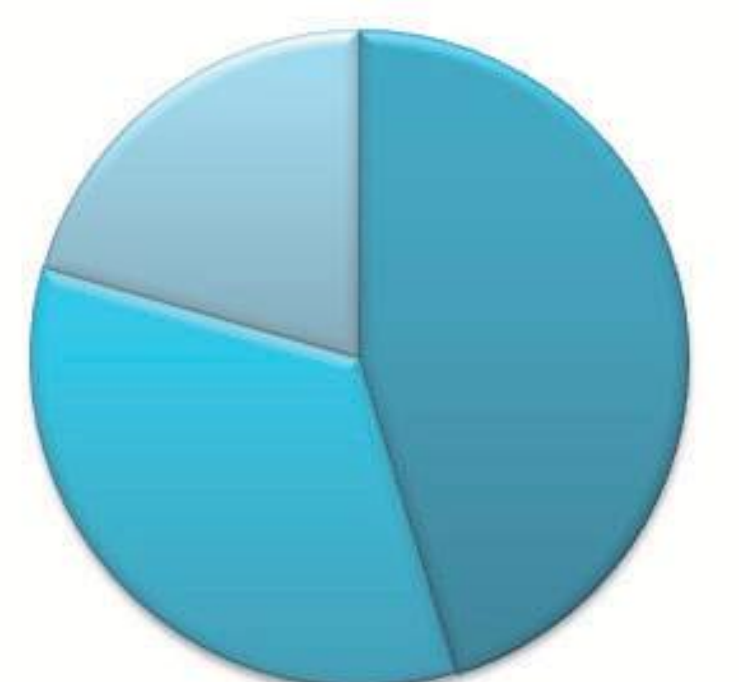


Figure 4: Number of lesion types verifiable on re-identifiable dolphins in Port Phillip, 72 SABD and one short-beaked common dolphin. Categories based on Wilson *et al.* (1997)



Figure 5A: SABD photographed April 7th, 2011 with cloudy lesion below dorsal (arrow shows location) Figure 5B: Same dolphin photographed 10 days later, cloudy lesion is barely visible



Where to from here?

DRI will:

- Monitor lesions on the resident dolphins as part of our on-going core research program
- Collaborate to develop a systematic approach to monitor epidermal lesions in southern Australian
- Review two-decade photo dataset for historical trends
- Continue to communicate findings to agencies

Acknowledgements Kate Charlton-Robb, Monash University, for assistance during surveys. Dr Pdraig Duignan, University of Calgary, for comments on images of lesion-affected dolphins. Ian Potter Foundation for support of core research program. Dr Hugh Finn, Dr Carly Holyoake and Dr Nahiid Stephens, Murdoch University. Dr Marie-Francoise Van Bressemer, Cetacean Conservation Medicine Group, Germany for comments on images of lesion affected dolphins. Victorian Department of Sustainability and Environment. All images taken under DSE research permit no 10004770.

Reference Wilson, B., P. M. Thompson and P. S. Hammond (1997). "Skin lesions and physical deformities in bottlenose dolphins in the Moray Firth: Population and prevalence and age-sex differences." *Ambio* 26(4): 243.

