

Marine Life Society of South Australia Inc.

Newsletter

April 2014 No. 410

“understanding, enjoying & caring for our oceans”

Our Next Meeting (Annual General Meeting)

We are holding our AGM for this year at **7pm** on Wednesday 16th April 2014 at the Holdfast Bay Community Centre, 51 King George Ave, Hove. Dr Scoresby Shepherd, our Patron, will give his annual address to our group at the meeting.

We will use this as an opportunity to ask Scoresby to autograph copies of his recent book “Ecology of Australian Temperate Reefs” (with Graham Edgar). Bring your own copies of the book along, if you want them signed by Scoresby.

All members need to be financial for 2014-5 to be eligible to vote at the AGM. A financial member shall be entitled to appoint (in writing) a natural person who is also a member of the Society to be his/her proxy.

Annual reports from the 2013-4 committee (President & Secretary) are included in this newsletter. The Treasurer’s annual report will be presented at the AGM.

A new committee (and Society Officers) will be elected at the meeting. Nominations received for committee positions are as follows: -

President – Steve Reynolds (nominated by Dan Monceaux)

Treasurer – Ruth Trigg (nominated by Dan Monceaux)

Phill McPeake (nominated by Phill McPeake)

Secretary – Dan Monceaux (nominated by Steve Reynolds)

Committee Members – David Muirhead (nominated by Dan Monceaux),
Corrie Van Der Hoek (nominated by Steve Reynolds)

There is only one committee position being contested, that of Treasurer. A vote by members needs to be held for just that one position (Treasurer) but the remaining committee positions only need to be ratified (rubber-stamped) by financial members present at the meeting (in person or via proxy).

Officers of the Society will be appointed following the election of the new committee i.e. Auditor, CCSA Councillor, Editor, Library Officer, Photo Index Officer, Reef Monitoring Rep, Social Officer, Website Manager, Assistant Website Manager and any other positions that may be deemed necessary.

Thanks to Retiring Committee Members

Philip Hall, our President for almost 20 years will not be continuing in the position. Nor will long-standing committee members Neville Skinner and Chris Hall. We wish them all the best and thank each of them for their contributions to our Society over many years (including Margaret Hall, wife of Philip).

Farewell to CCSA’s Peta Montgomery

Peta Montgomery has retired from her position as Executive Support Officer for the Conservation Council of SA after 17 years in the job. "It has been a joy and a privilege to work in the sector and to have met and worked with so many passionate environmentalists over the years," Peta said. "I have known quite a number of you for much of my time at CCSA and I would like to thank you for your support, advice and friendship over the years. My role with members, councillors and representatives has always been an extremely rewarding part of my job. The wonderful Gemma Weedall (who has been our State Election Campaigner over the last six months) will be covering parts of my role (including Council matters) for the next few months whilst the organisation goes through a range of planning processes. Gemma will be working on Monday, Thursday and half of Tuesday each week and her email is: gemma.weedall@conservationsa.org.au. My very best wishes to all of you for your future endeavours. Warm regards, Peta"

We wish Peta all the best in her retirement.

New Members

We had a few new members join our Society late last year. Documentary film-maker Danimations Pty Ltd became a Corporate Member. Carl Charter, Lisa McLean and Corrie Van Der Hoek joined us as individual (single) members. David Muirhead re-joined our Society this year and Ruth Trigg and Sandra Kanck have both joined us too now. We welcome these people to our Society and we look forward to seeing them at our meetings soon. As Secretary, it has been my personal pleasure to welcome them all to our Society.

Membership Fees Now Due

On that note, our annual membership fees became due again on 1st April. Only financial members will be able to vote during the meeting (no vote if not paid before the meeting).

More on the MDC information signs

As reported in our March newsletter, the Marine Discovery Centre at Henley Beach in South Australia has developed 3 interpretive signs, at the West Beach Surf Lifesaving Club, the Henley Sailing Club, and at the end of Marlborough St Henley Beach.

The Marlborough St sign is the closest sign for the 7,000 Marine Discovery Centre visitors per annum. The project promotes catchment to coast issues, including biodiversity and ecosystem restoration and catchment management. This includes improved environmental behaviours of our community.

The West Beach Surf Lifesaving Club sign highlight coastal issues, waves, tides and currents. The Henley Sailing Club sign features important information about coastal dunes and how they need protection.

The Marlborough St sign features seagrasses and stormwater, and promote ways in which the general community can help. Activities which assist our catchments, such as recycling, fixing car oil leaks and using lawn clippings for mulch are promoted.

Partners in the Marine Discovery Centre signs include Marine Life Society of SA (MLSSA), the Adelaide Airport, the City of Charles Sturt, the EPA, Landcare and Coastcare. For more information, contact Tim Hoile, Director of Marine Discovery Centre, 333 Military Rd, Henley Beach SA 5022 or www.marinediscoverycentre.com.au.

Philip Hall recently sent us this email message, accompanied by two photo of one of the signs: - "Hi Folks, The signs are up and look great. Margaret and I went to see the one at the end of Marlborough Street this afternoon. One pic shows the sign and Tim and I shaking hands on a job well done in the other."



Tim sent us this “Final Report for Seaweed Signs” as follows: -

“25 March 2014

Philip Hall, President - Marine Life Society of South Australia (MLSSA)

Re: Final Report for Seaweed Coastal Signs

Dear Philip, We're thrilled to say all signs were installed recently. Thank you very much for supporting the Marine Discovery Centre (MDC) to develop 3 interpretive signs for the West Beach Surf Lifesaving Club, the Henley Sailing Club and Marlborough St – our closest sign to the MDC.

Kelly Mader, NRM Project Officer from the City of Charles Sturt requested that the MDC manage the development and design of these signs. We are very proud of the fact that all of our signage projects have been completed on time and are very professional in all aspects. Each sign is installed at a prominent place in consultation with the Council. We have positioned your logo in the most prominent position and we are most grateful for your support.

MLSSA will also gain:

- promotion from our website – number 1 (Google) in the world for “Marine Centre”
- an invitation to the End-of Year Sponsorship Celebration
- appreciation in the community as an organisation with high integrity

We continue to strive to provide the “world’s best interactive marine science learning experience.”

MLSSA’s sponsorship for this project assists us to keep our visiting children’s excursion fees down to less than \$10 for a whole day!

If you have any queries please contact me on: 08 8115 7402 or THoile@star.catholic.edu.au .

Once again thank you for this opportunity.

Yours sincerely, Tim Hoile, Director”

Grey Nurse Sharks, *Carcharias taurus*

by Steve Reynolds

I have been busy doing an online course through Duke University. I was doing an 8-week Coursera course titled “Marine Megafauna: An Introduction to Marine Science and Conservation”. At least two other people that have been associated with our Society also did the same course with me. It should be all over by the time that you read this newsletter. I have enjoyed doing the course, learning the subjects and (hopefully) achieving a certificate. It is fair to say that doing the course took up some of my time normally spent on activities such as this newsletter. I thought that I could offset some of the time lost by including one of my writing assignments for the course in this newsletter: -

- *The mackerel shark Carcharias taurus* has been known by several scientific names, and is often still referred to by names that have long since been superseded.
- Although the shark has been described as occurring within my Australian State's waters (South Australia), I have never seen one, or even heard of one being sighted or captured.
- The shark has been described as dangerous to man and was hunted and killed to the verge of extinction years ago. It is still threatened by fishing practices.

Carcharias taurus is a mackerel shark (Order Lamniformes). Common names for the species include Grey/Gray Nurse Shark, Sand Tiger Shark & Spotted Ragged-tooth shark. Other Lamniformes include Mackerel Sharks, Thresher Sharks & Basking Sharks. There are 7 families of Lamniformes in total. The name Grey nurse shark is used in both Australia and the United Kingdom. It is the second-most-used name for the shark. The Grey nurse shark belongs to the family Odontaspidae (sand tiger family), which comprises some 5 species.

Carcharias.taurus has an elongated tail with a long upper lobe, a short, flattened snout, two large dorsal fins of similar size and three rows of large teeth. The species grows to a length exceeding 3 meters. The coloration for adults of the species is described as being bronzy above, gradually becoming paler below. Juveniles are said to have reddish or brownish spots scattered on the tail and rear of the body. These spots tend to fade with age. This shark is found off of some of the coasts of Australia, Africa, America & South America (western & eastern Atlantic Ocean, western Indian Ocean & western Pacific Ocean). It is found in shallow bays, sandy coastal waters, and rocky or tropical reefs from shallow waters down to a depth of some 200 meters. Aggregations of them are often found by divers around rocky outcroppings in offshore waters. There are two populations of them in Australia, an east coast population and a west coast population. The east coast population lives along the coast of New South Wales and southern Queensland. The west coast population lives in the southwest coastal waters of Western Australia. Their numbers are thought to be in the low hundreds.

Their lifespan is unknown but thought to be somewhere between 16 & 25 years. They make long coastal migrations for reproductive purposes. Males of the species fertilise females internally, via one of a pair of appendages called claspers, during copulation. Claspers are extensions of the male shark's pelvic fins. The species is ovoviviparous, which means that they produce eggs that develop and hatch inside the body. As many as 16-23 eggs may form in the two uterine chambers of the female. As these eggs hatch in the female's uteruses, the strongest pup in each uterus will cannibalise its weaker siblings prior to being born. Male Grey nurse sharks reach sexual maturity at 4-6 years and females at 6-8 years.

Grey nurse sharks have numerous fine-pointed teeth. These are curved and very sharp, and designed for capturing prey. They are said to be nocturnal feeders, actively foraging at night in relatively shallow reef areas. Their diet includes fish, small sharks, stingrays, squid and crustaceans such as lobsters and crabs. Fish eaten will include both large and small bony fish

Whilst researching the above details, I discovered that Grey nurse sharks are able to achieve almost neutral buoyancy by swallowing surface air and holding it in their stomachs. The near-neutral buoyancy that they achieve enables them to hover motionless in the water. I have probably witnessed this for myself, having dived in an aquarium with several of them in 2005.

Grey nurse sharks are gentle and are not considered dangerous. They would only attack a human when provoked. There appears to have been no fatalities from Grey nurse shark attacks. Grey nurse sharks, with their large teeth, have a ferocious look about them. They were long considered man-eaters and were hunted to near extinction. They have since been given some protection via legislation and marine protected areas.

In December 2002, ten grey nurse shark critical habitat areas were declared in Australia's New South Wales' waters with associated regulations to control fishing and diving activities.

The species had been declared both vulnerable and endangered. Unfortunately, some fishing practices continue to cause injuries and even death to grey nurse sharks. They still need much more protection to ensure their survival.

Dr Peter (Scarey) Last has made major contributions to Indo-Pacific ichthyology particularly within the fields of systematics, biodiversity and biogeography. He is regarded as a world authority on the taxonomy of sharks. Peter plays an active role in the IUCN Shark Specialist Group assessing the conservation status of Australasian sharks. He discovered the high levels of elasmobranch biodiversity in local endemic species in the Indo-Pacific region which has led to the increasing focus on the conservation of sharks and rays. Peter has studied the elasmobranch faunas in India, Japan, Thailand, Philippines, Borneo, Indonesia and New Zealand. Indonesian and the Philippines. In these countries, sharks and rays are overfished and his work has led to the development of national plans of action for shark management and conservation.

For further reading on the subject, the FishBase website has a webpage (date unknown) for Grey Nurse sharks at <http://www.fishbase.org/summary/Carcharias-taurus.html>. Peter

Last & John D Stevens published a 513-page CSIRO book titled "Sharks and Ray of Australia" in 1994. Dicken, M. L.; Booth, A. J.; Smale, M. J.; Cliff, G. published a paper in 2007 titled "[Spatial and seasonal distribution patterns of juvenile and adult raggedtooth sharks \(*Carcharias taurus*\) tagged off the east coast of South Africa](#)". (*Marine and Freshwater Research* 58: 127. [doi:10.1071/MF06018](#)).

(Although I'm not fond of American spellings, I used a few of them in the above article as it was written for American judges/adjudicators. The same applies to an article regarding leatherback turtles further below.)

Report Sightings of Giant Australian Cuttlefish in SA Waters

Giant Australian Cuttlefish occur right across southern Australia, but one of the most interesting aspects of their biology is that they aggregate to breed near Point Lowly in northern Spencer Gulf in South Australia. This is the only known breeding aggregation of Giant Cuttlefish in the world, but in recent years the numbers on this breeding aggregation have declined and we aren't sure why. Recreational SCUBA divers, and commercial fishers, boaters and scientists are being invited to spot, log and map sightings of Giant Australian Cuttlefish (adults and eggs) in South Australian waters, especially in northern Spencer Gulf, through Redmap. Cuttlefish numbers off Point Lowly have been declining, especially over recent years. Could this be because they are choosing to aggregate and lay eggs somewhere else? Help Redmap determine whether this iconic species is breeding elsewhere in northern Spencer Gulf or South Australia. Just log on to www.redmap.org.au and tell Redmap where in South Australia you have seen Giant Australian Cuttlefish (*Sepia apama*) in aggregations (more than 10 Cuttlefish) or if you have spotted cuttlefish eggs. If you have a photo that's even better – Redmap has a team of scientists to verify the identity of the submitted photo. Remember, there is currently a ban on the take of cuttlefish in the waters of northern Spencer Gulf. To register your sighting, visit redmap.org.au or contact the SA Redmap Team: sa@redmap.org.au.

A Redmap brochure requesting the community to document possible aggregations of cuttlefish (outside Point Lowly) can be found at http://www.redmap.org.au/assets/media/uploads/2013/10/30/REDMAP_SA%20Cuttlefish%20Flyer.pdf.

Leatherback Turtles, *Dermochelys coriacea*

by Steve Reynolds, Amber Compton & Nolan Powers

Four Leatherback Turtles, *Dermochelys coriacea* were sighted between 17th Dec 2013 & 27th Jan 2014. These sightings were reported to Redmap. One of these was sighted in SA by Shaun Henderson on 17th December 2013. Details can be found at

<http://www.redmap.org.au/region/sa/sightings/1152/>. The other sightings were in Tasmania. According to the web page found at

<http://www.redmap.org.au/sightings/1237/>, a Leatherback Turtle caught up in cray pot floats and released north of King Island at Xmas time was approximately 6 foot long.

Dermochelys coriacea is the largest living species of marine turtle, and also has the widest global distribution of any reptile. This species is listed as critically endangered globally and endangered in Canada. Leatherbacks undertake long distance migrations (up to 18,000 km round-trip) between tropical breeding and foraging grounds and northern temperate foraging grounds.

Amber Compton did the same course as me through Coursera/Duke University (see above). Her written assignment done at the same time as my Grey Nurse Shark article was about Leatherback Turtles: -

- "The leatherback sea turtle is the only sea turtle that has a soft leathery shell of connective tissue rather than a hard bony shell.

- The largest recorded leatherback was almost ten feet long from the tip of its beak to the tip of its tail. It was found washed up on the coast of Wales in 1988, and weighed 2,019 pounds.
- Leatherbacks don't have the hard chewing plates for crushing like other sea turtles, so they are unable to eat hard bodied prey.
- The Pacific population of the Leatherback continues to decline rapidly, while the Atlantic Population is rebounding.

The leatherback sea turtle *Dermochelys coriacea* is the only species of the family Dermochelyidae. There are only seven species in this family of sea turtles, most of which are endangered. The leatherback's scientific name is of Greek and Latin origin and broken down refers to the soft skin covering their shell, and having the natural color (sic) of leather. They are also known by an alternate name *Dermochelys coriacea schlegelii* or the Pacific leatherback.

The leatherback is the largest of the sea turtles, some becoming nearly as large as a small vehicle, up to 7ft (2m) long and weighing up to 2,000 pounds (900kg). They are named for their soft leathery carapace that is composed of connective tissue that is oil saturated and situated over loosely interlocking dermal bones. Their coloring (sic) is mostly black with a pinkish white plastron, and spotted markings on their carapace and flippers. The leatherback has the largest range of any turtle in the world and possibly of any vertebrate. They are found mostly in tropical waters, but have been found as far north as Alaska and Iceland and as far south as New Zealand and The Cape of Good Hope. They are pelagic and most often found in the open ocean though they have been known to enter shallower waters of bays and estuaries. The leatherback is federally listed as a critically endangered species. The global population as of 1996 was estimated to be 30-40,000, with the populations in the Pacific drastically declining.

Leatherbacks have a long history dating back at least 70 million years. They survived the mass extinction that killed the dinosaurs. Their average lifespan in the wild is estimated to be 45 years. Breeding of these animals takes place in the open ocean. Females return to beaches near where they were hatched to nest. The night time nesting takes place every 2-3 years for an individual female. Throughout the nesting season a female can return every 8-12 days to lay another clutch of eggs laying 5-10 clutches in a single season. On average a nest contains 50-170 eggs, though many are not viable. It takes 8-10 weeks for the eggs to hatch, and many of the young never make it to the open water. The age of maturity for these animals is largely unknown, though a study in the North Atlantic estimated that the turtles there reached maturity at an estimated age of 24.5 to 29 years of age.

Leatherback turtles are very limited in what they eat due to their sharp edged but delicate jaws. Unable to eat hard bodied prey they feed almost exclusively on jellyfish and salps. Leatherbacks are a very deep diving species when foraging. They can dive to depths of 4,200 feet (1,280m) and stay at depth for upwards of 85 minutes. They also have the largest migration for foraging and breeding of any sea turtle.

An interesting fact that I found while researching this species is that the sex of the offspring depends on the temperatures in the nest while incubating. In order for the nest to have both male and female offspring the temperature must remain on average 85.1 degrees Fahrenheit (29.5 degrees Celsius). When temperatures are higher they produce females, and lower temperatures produce males. Once they reach the ocean males will spend the rest of their lives at sea.

Leatherbacks are listed as critically endangered by the IUCN. There are many threats to this species including humans who have a large impact on them in that they are hunted for their meat and their eggs are taken for the yolks in some areas of the world. Often they are caught accidentally in the fishing industry. Pollution is also a major threat. Plastic bags floating in the open water can be mistaken for jellyfish and eaten. Many things are being done to protect this species including protection of nesting beaches, education about the dangers of pollution, and limiting the longline bycatch by restricting the use of longline fishing.

Leatherback expert Dr. James Spotila was awarded the International Sea Turtle Society's Lifetime Achievement Award at the 32nd Annual International Sea Turtle Symposium for his work in research, conservation, and biology. He served as the society's founding president in 2001. He's published more than 150 scientific papers in his career, and published a book, *Sea Turtles: A Complete Guide to Their Biology, Behavior, and Conservation*. Spotila earned his Ph.D in vertebrate zoology and physiological ecology at the University of Arkansas. Currently he is researching the biology of sea turtles, crocodile, salamanders, and giant pandas.

Further reading:

National Marine Fisheries Service, NOAA Fisheries, Office of Protected Resources, November 19, 2013

http://www.nmfs.noaa.gov/prot_res/species/turtles/leatherback.html

U.S. Fish and Wildlife Service: North Florida Ecological Services Office, Leatherback Sea Turtle Factsheet, February 2012. Multiple authors

<http://www.fws.gov/northflorida/seaturtles/turtle%20factsheets/leatherback-sea-turtle.htm>

Use of skeletochronological analysis to estimate the age of leatherback sea turtles *Dermochelys coriacea* in the western North Atlantic by Larisa Avens, J. Christopher Taylor, Lisa R. Goshe, T. Todd Jones, and Mervin Hastings. Printed October 2009 Published online July 13, 2009 <http://www.int-res.com/articles/esr2009/8/n008p165.pdf>

Nolan Powers (10 years old) also wrote about the Leatherback Sea Turtle for the Marine Megafauna Writing Assignment #2: -

* "The leatherback is the largest sea turtle and the fourth largest reptile, behind three crocodiles. The largest leatherback ever recorded was 900 kilograms.

* Leatherbacks dive deeper than any other sea turtle – approximately 1230 meters with an air supply lasting 35 minutes.

* The female leatherback enters a trance-like state when laying eggs. Humans can touch them without the females being disturbed.

The leatherback's scientific name is *Dermochelys coriacea*. The taxonomic classification is in the kingdom Animalia, phylum Chordata, class Reptilia, order Testudines and family Dermochelyidae. There are no living species in the same family, but six in the same order including hawksbill, loggerhead, flatback, Kemp's ridley, olive ridley and the green sea turtle. Some of the many common names for *Dermochelys coriacea* are leatherback, leathery turtle, lute turtle, trunkback and coffin back.

The leatherback has a black carapace with white dots. It has a teardrop form and a very large head. It can grow from 1.5 to 2.1 meters long, and can weigh from 250-900 kilograms. The leatherback's carapace differs from other sea turtles. It has no scutes, which are bony scales overlaid by horn found on all other sea turtles. Instead, its carapace is made up of millions of osteoderms which are deposits of bone in the thick skin. It has five ridges on its carapace to help it stay streamlined. It has a concave plastron, which is the underside of the carapace. Its flattened forelimbs can grow to 2.7 meters in "wingspan." The leatherbacks' habitat is the open ocean. Leatherbacks can be found in all oceans of the world except the Antarctic. They normally breed in the tropics and feed in sub-polar regions. There are approximately 90,000 individuals left.

The lifespan of the leatherback is normally 30-40 years. Scientists have observed behavior which might be mating, but hasn't been proved. First, the male lunges onto the female's back 3-4 times but the female escapes. The last time, the female does not resist the lunge and the male positions his plastron posterior to the female's carapace. The male dives under water and starts to roll laterally back and forth. The male fertilizes the eggs. The female can lay up to 110 eggs in a clutch. She digs a hole on the beach with her flippers, lays the eggs and covers the hole with sand. Females may lay up to 9 clutches in the nesting season. 1 in 1000 sea turtle hatchlings survive to maturity, but the age of maturity is uncertain.

The leatherback is primarily carnivorous. Its main diet is jellyfish. It may also eat tunicates, which are small marine invertebrates. It can eat squid, which it finds at

moderate depths. Its longest and deepest dives for food are at dusk, and the shortest and shallowest are at dawn. This is because they benefit from the vertical migration of deep sea creatures which happens every night. During the day, it swims with its mouth open at the surface and jellyfish float into its mouth.

The leatherback is the only sea turtle capable of thermoregulation. In the sub-polar regions, it is always actively swimming so its body temperature could rise 18 degrees Celsius above the surrounding ocean water. In these areas, the leatherback spends only 0.1% of the 24-hour day resting. In the tropics, it swims slowly because it does not want to overheat. It also distributes blood to its carapace, flippers and plastron differently depending on the temperature of the surrounding water. Leatherbacks have been studied to understand how dinosaurs could have controlled their body temperature.

The leatherback is listed as endangered by the Endangered Species Act. One of the reasons is that fisheries capture leatherbacks in their overlarge nets as bycatch when targeting fish. Scientists are developing shorter nets because the fish that the fisheries are targeting are not deep-dwelling fish. A fisherman named Sinkey Boone created a Turtle Excluder Device (T.E.D.) for shrimp trawling. A T.E.D. releases turtles without the shrimp escaping. Another threat is human consumption of leatherback eggs and meat. To protect the leatherbacks, people patrol the beaches for poachers during the egg-laying seasons. Light pollution on roads and beach houses often disorient hatchling leatherbacks when crawling to the ocean because they go towards the brighter lights instead of the moon. Leatherbacks often mistake plastic bag litter for jellyfish. This clogs up their digestive system. Some U.S. states and counties have banned plastic bags from grocery stores.

Leatherback Expert: Dr. Scott Eckert

Dr. Scott Eckert is a professor of biology at Principia College. He was awarded the National Marine Fisheries Service Recognition Award in 1984. He served as the chairman of the U.S. Pacific Marine Turtle Recovery Team. He was invited to establish his research program at Duke University's Nicholas School of the Environment Marine Laboratory. Dr. Eckert has published more than 100 general interest articles about sea turtles and whale sharks. He was the first researcher to successfully use satellite telemetry to study the long-term movements of leatherbacks.

Further Reading:

Lehrer, J. 1993. *The World of Turtles and Tortoises*. Tetra Press, Blacksburg, VA.

Ernst, C. H., Lovich, J. E., Barbour, R. W. 1994. *Turtles of the United States and Canada*. Smithsonian Institution.

Eckert, S. A., Eckert, K. L., Ponganis, P., Kooyman, G. L. 1989. Diving and foraging behavior of leatherback sea turtles (*Dermochelys coriacea*). *Canadian Journal of Zoology*, 67(11). <http://www.nrcresearchpress.com/doi/abs/10.1139/z89-399#UxH0DoV0lpv>

During week 5 of the 8-week course, we had to read "Jellyfish Support High Energy Intake of Leatherback Sea Turtles (*Dermochelys coriacea*): Video Evidence from Animal-Borne Cameras" by Heaslip SG, Iverson SJ, Bowen WD, James MC (2012) - *PLoS ONE* 7(3): e33259. doi:10.1371/journal.pone.0033259."

Many thanks to both Amber and Nolan for giving us their permission to reproduce their course assignments in our newsletter.

During week 4 of the course, we had read "Behaviour and Physiology: The Thermal Strategy of Leatherback Turtles" by Bostrom BL, Jones TT, Hastings M, Jones DR (2010) - *PLoS ONE* 5(11): e13925. doi:10.1371/journal.pone.0013925.

We had studied both "Sea Turtle Anatomy, Diversity and Biogeography" and "Sea Turtle Biology and Ecology" during week 2 of the course.

According to the video footage provided for the latter: - The "superlative" Leatherback (is/has):

- Largest turtle (500+ kg)
- Oldest sea turtle (90 mya)
- Most extensive range
- Deepest diving (1200 m+)

- Longest migration

Leatherbacks eat jellyfish, and other soft-bodied invertebrates. The mouth and throat are lined with papillae pointed backward to help them swallow.

I found a piece titled “Satellite tracking identifies risk zones for leatherback turtles” posted on <http://conserveturtles.org/turtleblog/blog/2014/03/04/satellite-tracking-identifies-risk-zones-for-leatherback-turtles/> by the Sea Turtle Conservancy (STC). It said that the last large populations of the leatherback turtle are at risk because their migratory routes in the Atlantic Ocean converge with the locations of industrial fisheries, a new study shows. Visit <http://conserveturtles.org/turtleblog/blog/2014/03/04/satellite-tracking-identifies-risk-zones-for-leatherback-turtles/> for more details.

Meanwhile, I read on one of the two Facebook pages for Marine Megafauna that Green sea turtles are not so-named for the colour of their shell, but actually for the fact that the colour of the fat under their shells is green. YouTube video footage of a Green turtle eating a jellyfish can be seen at <http://www.youtube.com/watch?v=DmNOsOm0JiE> . It was part of our Week 5 studies for the course.

But back to the leatherback turtle, I wrote an article titled “Sea Turtle Sighting At Somerton” for our newsletter. It can be found at http://www.mlssa.asn.au/cgi-bin/Newsletters.cgi?year=2001&nl=MLSSA_NL_281_September_2001.htm .

More on Melaleucas

by Steve Reynolds, David Muirhead & Brian Brock

The March newsletter article on Melaleucas (“Identification of a Melaleuca” by Steve Reynolds) is great, but I disagree with the ‘classification table’ (which was merely derived . . . from a botanical book source, so I’m criticising that source, not Steve!) in this regard: *M.brevifolia*, though at times a ‘straggly’ or ‘straggling’ shrub, most often is a nice, adequately dense (it is often used as a screening plant/informal hedgerow in drier more saline sites, and looks fab in mass plantings or in lines as part of wider windbreaks and revegetation corridors, alongside larger spp. e.g. *halmaturorum*, *lanceolata*, and many non-Melaleucas e.g. mallee gums, *Callistemon rugulosus*, various Acacias, Hakeas, etc.. etc..) usually quite shapely even symmetrical shrub (bit like inverted cone, but with the added attraction of a tendency for the new growth, (quite slender, long, light green branchlets, found mainly on upper i.e. denser part of the bush, esp. after good rains) to weep or droop (almost sheoak-like but that is exaggerating things a bit) giving the whole plant a nice soft ‘fuzzy and weepy’ habit which is not a bad effort given they mainly grow in harsh, challenging sites e.g. around brackish ephemeral ‘salt lake’ depressions in marginal farming areas. The pale, papery bark is also attractive in its own right.

In last month’s article titled “Identification of a Melaleuca”, David Muirhead had suggested that Brian’s Melaleuca may have been *M.halmaturorum*. Brian Brock now says that his Melaleuca is actually *M.halmaturorum* (SA swamp paperbark), adding that the type specimen was found on Kangaroo Island. Brian further explained that ‘halmaturorum’ comes from ‘halmatos’, Greek for a leap or spring.

Brian sent a sprig of his *M.halmaturorum* to me through the mail, saying, “With a hand lens, you can see glands under the leaves (decussate phyllotaxis). It (*M.halmaturorum*) is sometimes called Kangaroo honey-myrtle.

Here is a scan of the sprig of *M.halmaturorum* that Brian mailed to me: -



Last month's article "Identification of a Melaleuca" included the following details about *Melaleuca halmaturorum*: -

Other Common Names: Blistered Paperbark, South Australian Swamp Paperbark, Kangaroo Island Paperbark.

Status: Indigenous to Western Australia, South Australia and Victoria.

Plant Description: Shrub or tree, 2–7 m high with white and papery, often peeling, bark. Leaves opposite, each pair at right angles to the preceding pair, lanceolate, 3–8 mm long, 1–2 mm wide, thick, flat on top, curved below. Flowering in spring to early summer with flowers white, few to many, crowded into spikes at the ends of the branches. Each flower with 8–12 stamens much longer than the 5 minute petals. Fruit an ovoid capsule, 4–5 mm diameter, borne singly or a few together on the old wood.

Habitat: Usually grows in low lying areas with saline soils and around salt lakes. Mature trees can withstand waterlogging. More common in the north-west of Victoria but occasionally found further south.

Report for 2013/2014 by the President - Philip Hall

Overview

Before I begin my annual report I would like to remind members and friends of part of MLSSA's history. I have had the honour of being the Marine Life Society of South Australia Inc. (MLSSA) President since January 1994 so this is the start of my 20th year as the MLSSA President. I have also been a committed member of MARIA (Marine Aquarium Research Institute of Australia) and MLSSA for some 35+ years.

MLSSA (and its predecessor MARIA) has been a prominent marine conservation Society for more than 35 years. The Society has prospered during this time and has achieved many successes and made much progress in Marine Conservation education.

We started life as a diving organisation but over the years, age has taken its toll so we no longer organise diving trips away as a group on long weekends or have weekly dives. Instead we mainly concentrate on shore based education with assistance from a few friendly divers, both inside and outside of MLSSA, who supply photographs and information for our use.

One notable success was to secure a grant of \$32,000 from Coastcare to create seven sets of educational materials for schools in SA. Approximately \$70,000 of "In Kind" support by MLSSA members was also a feature. The kits were based on a successful Victorian example called the Octopusses Garden. Ours was titled Jewels of the Sea and comprised a reproduction of the Victorian guide book, a new one specially created for South Australian students, 3 kits containing DVD's, videos, charts, books and much other material for Junior Primary students. A similar set of more advanced kits for senior students was also created. One kit of hand puppets was produced for Special Classes. These are still available to

schools to borrow from the Nature Education Centre at Urrbrae (formerly Norwood NEC at Norwood). Following the publication of the two books accompanying the kits, with the SA one to be distributed to all SA school libraries, a considerable amount of time was spent by me supplying copies of them to the schools and other interested parties. Although only schools in SA were given copies, teachers from as far away as Tasmania ordered them through a very efficient publicity drive by the SA Education Department.

On many occasions we have written to Ministers and Government organisation in order to ask for the solving of various environmental problems. We have always received courteous replies and sometimes action eventuated, but not always. Often action took a long time to eventuate but what occurred was always to the benefit of the environment.

One such success was in having a limited ban on sea life collection on local beaches being extended to the whole State.

We helped with other conservation groups to get the Leafy Seadragon protected and lobbied with them successfully to have it made the State Marine Emblem.

Following on from this I personally met with the then Premier Mike Rann and explained why MLSSA believed the Weedy Seadragon should also be protected. This he agreed to do and announced at the meeting that it would be done. Subsequently the protection was granted and also included all sygnathids in SA waters.

Representing MLSSA, Margaret and I have given many talks to community groups, children's parties and schools over the years. Often we were booked for further talks before the end of the talks. The pictures we used all came from our Photo Index.

At MLSSA meetings for many years we had speakers on a broad range of interesting subjects relating mainly to marine life.

Our Library is extensive and has grown over the years. It is available for members and the general public under strict loan conditions.

For many years we were able to support Dragonsearch (which built on Steve Reynolds collection of data on Leafy and Weedy Seadragons) and Reefwatch. Presently SACRED is being supported by MLSSA.

The various Marine Discovery Centres in SA at Hallett Cove School, the Star of the Sea School at Henley Beach and Port Vincent Primary School on York Peninsula have had support from MLSSA over the years and this has been much appreciated by the community.

More than 20 years ago, because of our good name in the Conservation movement, we were given a permit to access Granite Island for research dives at any time. The recent death of the Harbourmaster has meant a change in the system and we will now have to apply on a needs basis. Our good name still is respected by the DTI.

The Society has conducted transect line dives at various SA sites including Port Noarlunga Reef and Fisheries Beach near Cape Jervis and we assisted the Museum with Collection dives for specified creatures which were allowed to be collected with a Museum Permit at Edithburgh, Giles Point and Stansbury. On one occasion at Edithburgh Jetty Phill McPeake caught an Anglerfish which proved to be an unknown species.

Members used to collect marine creatures for personal aquaria and displays but now photographs are taken instead. These are often used when talks are given, added to our Photo Index and used in our annual calendar.

This collecting activity led to various codes being introduced such as A Diving Code of Practice, A Seadragon Code and A Code of Ethics with regard to collecting activities. We naturally operate under a Constitution and recently added a Code of Conduct. The Membership section has recently been updated with a fresh membership procedure being added to the Constitution.

Aquarium displays were put up at various locations in SA and several members and I used to enter Temperate Marine Aquaria in the Royal Show with good success.

As a result of interest in our displays I collated a booklet from articles published by MLSSA and MARIA (the predecessor of MLSSA) and an unpublished one by myself and produced a "How To" booklet on the building of a Temperate Marine Aquarium. I presented this at a laboratory Managers Conference from all over the state at Hallett Cove School. This

creature collecting was discontinued in favour of photographic displays as previously stated.

Our photographic activities led to one of our members thinking it would be possible for MLSSA to produce a marine life calendar of SA creatures. In part it was hoped proceeds would assist in the creation of a MLSSA website. Both were successfully done and the website and calendar have gone through several formats.

We created the first calendar in 1999. They have been all very successful and several editions completely sold out. Many copies have been sent overseas to America, several countries in Europe, Japan and China. Many have been purchased by SA Government Departments. We have been fortunate to have had almost continual sponsorship by various firms and Government Departments with conservation aims and credits.

Many of the pictures used in the calendars are now in our Photo Index (previously mentioned) which was created to supply school children and others with free images for use in projects and it is to be found on our website. Professional users have to apply for permission to use images that I supplied as requested. Not for profit and Government organisations are charged a basic fee for use. These fees have not changed for many years and need to be reviewed.

We have published monthly newsletters since the beginning of MLSSA, generally with marine related articles. Our annual Journal published in December is our attempt at much more learned articles containing detailed marine information. In the early years Phill McPeake and I worked together to get the Newsletter and Journals prepared by Steve Reynolds ready for printing. Later when I was editor as well as President I created many Newsletters and several Journals. On many occasions I went with member and contributor Brian Brock to take pictures to illustrate his articles.

I spotted a pamphlet on the protection of the Western Blue Groper (WBG) on a West Australian Government website at a time when we had begun to ask for the protection of both the Western Blue Groper and the Harlequin Fish. As we are endeavouring to get the WBG protected in SA waters we asked permission to generate a SA version. The WA Government Department concerned gave their permission. We worked with our (then) DENR to create one, with Phill McPeake doing all of the design and layout. The DENR was to print and distribute the pamphlet but economies meant this was not to be the case. So MLSSA recently printed 500 copies as a trial and only a few still remain. A newer edition with several changes is envisaged for the future.

Recently we worked in conjunction with the Marine Discovery Centre (MDC) at Henley Beach to produce three information signs for the shoreline. These were put in place in March this year. We have been associated with the MDC for many years. When it was originally being set up Phill McPeake designed and installed a refrigerated cooling system for their marine aquaria. MLSSA then made many dives collecting material to start up the systems.

As the recipient of the many MLSSA intended emails I answered queries or direct enquiries to appropriate sources of information, as well as coping with spam and junk emails. The volume of all types of emails has increased exponentially over the last couple of years.

We received a request for assistance from a member of Eco-Action on Kangaroo Island recently. A spearfishing competition was to be held and one of the target species was the Harlequin Fish. Concern was felt that as this was a vulnerable species it should be removed from the list. We were asked to try and help do this. I requested the Committee give me permission to handle the matter. This was granted. I contacted the organisers and explained why the fish should be removed from the competition. They considered my request and then informed me the fish was removed. I then gave them 40 copies of the Western Blue Groper leaflet to pass on to competitors to help protect it

We started a book called The Beachwash Guide many years ago when a new member joined with an idea for a guide to the seashore creatures and items found during beachwalks. Members compiled the writing and I took most of the pictures. Apart from some editing it is nearly ready for publication either as an E book, or as a hard copy publication, or both.

Our membership of the Conservation Council has enabled us to use them as a meeting place for many years and as a post box which I clear on a Friday afternoon, and I wish to thank them for all their support over the years.

Now to the 2013 – 2014 Annual Report.

This year has had some very good moments for MLSSA but poor with regard to meeting attendances. They were so scarcely attended in early 2013 that several meetings did not have a quorum. This has now improved.

We have mostly met at the Holdfast Bay Community Centre (HBCC) and we thank them for their hospitality. The Centre requires all electrical equipment that we use to be “Tagged and Tested”. This has been done by Phill McPeake. He has also updated our laptop but this is now approaching the end of its useful life and may need replacement soon even just for meetings and talks.

Phill has taken on the management of a substantial \$10,000 research grant awarded to Janine Baker late last year.

Phill McPeake and I have produced another well received calendar for 2014 and we (mostly Phill) have completed the 2015 edition to try to ensure it is ready for distribution at the AGM in April 2014.

MLSSA has sponsored the erection of three signs along the seashore together with the Star of the Sea Marine Discovery Centre (MDC). These new signs are erected at West Beach Surf Lifesaving Club, Henley Sailing Club and at the end of Marlborough St, Henley Beach (at the top of the ramp that the MDC uses for Marine Trails). They look superb and should have a 20+ year life. They will help explain the flora, fauna and features of the coastline to the general public which is an educational focus for MLSSA. I know Margaret and I always find such signs invaluable and always photograph them to assist us later in our walks when on holiday.

Recently our membership has been increased by people just lodging money into our account then emailing us to say they have joined, without filling out an application form or contacting us prior to the lodgement in any way. In the past, new members came along to some meetings to get a feel for the Society and us for them and then applied to join. So we have created a new membership protocol to ensure that in this digital age we have an up to date joining procedure written into the Constitution. These rules were checked by the EDO legal team and passed as OK.

It was thought that MLSSA needed a Code of Conduct for all members and this was created and approved by the Committee. It has now been on our website for some months.

Our library has expanded slightly by the purchase of some new books. Members should be aware that the library contents can be ascertained by emailing the Librarian at MLSSA and may be borrowed on application.

The MLSSA website needs an overhaul and Ralph Richardson is preparing to do this during the year.

The Western Blue Groper Leaflet (as explained previously) was completed by Phill McPeake and 500 copies were printed. Some went to Alex Gaut at the CCSA for distribution to various conservation groups, 150 to the Star of the Sea MDC to give single copies to classes (for their libraries) attending this year, some to a spearfishing group holding a competition on KI and the rest retained for MLSSA members or others who request them. It may be necessary to print more if the demand is there. Some reviewing of the leaflet may be needed.

A December Journal was produced and also newsletters for most months this year by Steve Reynolds. It is certain that apart from one member not on email there will be no more hard copies produced, only electronic copies, and a complete electronic set will be available on our website.

Thank you to the Committee for your invaluable support, assistance and advice during the year which was most gratefully received. I would like to also take the opportunity to thank everybody who has been on the Committee during my time as President for their support

and assistance. One person above all I will thank and that is my wife Margaret. Without her assistance and support I would have not been able to do the job as well as I have done. Thank you, Margaret.

Secretary's Annual Report 2013-14

Our Society is about to undergo some rapid changes. Three long-standing committee members will not be continuing in their positions. One of them is our President, Philip Hall, who has held the position for almost 20 years. A long-standing committee member has already resigned from his position on the committee. Another long-standing committee member has indicated that he won't be continuing on the committee. Our Treasurer of almost 24 years made a late decision to renominate for another year in the position.

I don't intend to set out the events that occurred within the Society during the past year, other than to say that it hasn't been a pleasurable one for me. My one concern though is the future of our Society.

2013-4 was disappointing in many ways. I want to experience a better year in 2014-5. Although our Society achieved its usual short list of successes, there should have been more to talk about.

A marine life society anywhere in the world should have a good active membership. It should hold regular meetings. Many of its members should spend much of their time in the marine environment, observing, recording and reporting everyday occurrences.

Examples of good marine life societies can be found regularly on social networks such as Facebook. Several Facebook groups appear to be more active and more dedicated than our Society has been in recent years. If you care to take a look at groups such as M.E. Dive Club or the British Marine Life Study Society, you will see just what I mean.

As a Facebook user, I see discussions on many relevant topics and ever so many great underwater photographs taken by a growing number of divers with cameras. I am a member of Facebook groups interested in topics such as Edithburgh jetty, nudibranch identification, sharks and marine turtles. Then there are pages dedicated to groups such as Redmap, Reef Watch and the Scuba Divers Federation of SA.

It is strange that an 'ad hoc' group such as the M.E. Dive Club Facebook group (160 members as at 19/3/14) appears to be so active and dedicated when it comes to the Marine Environment.

The majority of our Society's long-standing members absolutely refuse to use Facebook as a tool, even though our 'sister' group in Britain, the British Marine Life Study Society, obviously considers it appropriate (with over 525 members as at 29/12/13).

Facebook is a great way of promoting our Society to the State, the nation and the world. We had some reasonable success when I started a Facebook page for our SA Marine Life calendars at the request of our President a couple of years ago. When pressed to authorise a page dedicated to our Society, however, he responded by insisting that the 'calendar' page be closed down.

A Society member offered to setup an online voting system via "Ballotbin", only to have his proposal rejected.

Even though our Society has long-embraced the use of email and the Internet, our committee has shunned the use of cloud-based technology and social media. A Wikipedia page regarding the Society that had been setup was 'canned' by the committee. It can be found at

https://en.wikipedia.org/wiki/Marine_Life_Society_of_South_Australia .

Our current policy for Society meetings only schedules General Meetings three times a year (February, April & November) and no Committee Meetings whatsoever unless absolutely necessary. Most committee discussions have occurred via email, often with tragic results.

We don't have a Social Officer to organise social events any more, even though a member offered to fill the position a couple of years ago, only to be told that it wasn't necessary.

I want all of these circumstances to improve in 2014-5. Certainly, if someone is prepared to act as our Social Officer, let's give them the opportunity to do so.

With all of this in mind, I would like to be your President for 2014-5. I am not under any illusion about the amount of work that is involved. I only want like-minded people to be on the committee with me. With the help of a like-minded committee, we could then start a Facebook page for our Society. We could also resurrect our calendar Facebook page. We could then go on a membership drive. We need more members who don't mind spending lots of time in the marine environment. We could then hold regular dives, field trips and social events.

We could hold more meetings each year, both General Meetings & Committee Meetings, with regular guest speakers.

We could have a brain-storming session of all the marine conservation related groups and persons operating in SA. MLSSA could act in the way that the CCSA does for (mostly) terrestrial conservation matters. We could actually be a Peak Body for marine conservation in South Australia.

With just a few more diving members, we could re-join the Scuba Divers Federation of SA as a legitimate dive club.

Our Society needs members who are interested in participating in our activities and projects. People who are prepared to assist with our website, newsletter, journal, calendar, Beach Wash Guide and photo index.

Meanwhile, I need your attendance and vote at our AGM, so please make a point of attending the meeting so that your vote counts.

Long-standing committee members Philip Hall (our President for almost 20 years), Neville Skinner and Chris Hall will not be continuing in their respective positions. We wish them all the best and thank each of them for their contributions to our Society over many years (including Margaret Hall, wife of Philip).

Steve Reynolds
Secretary 2013-4

Treasurer's Annual Report 2013-14

Phill McPeake's Treasurer's Report will be presented at the April AGM.

Editor's Annual Report 2013-14 by Steve Reynolds

We were able to publish our usual number of newsletters for the year, plus our annual Journal. Many thanks go to the few people who contributed to both publications over the year.

My thanks to Phill McPeake for printing a few hard copies of the newsletter each month and the annual Journal. As reported in our March newsletter though, our newsletter and Journal are not expected to be published in hard copy form in the future. Philip Hall has decided that, with one exception, no further hard copies of our newsletter or Journal will be printed.

The 2013 Journal was quite large and was not finalised until Christmas Eve. I was still able to email small sections of the Journal out to members during December though. I was hopeful that, under this method of delivery, our members may have the opportunity to read each and every article in the Journal.

It is difficult to know at the time of writing this report, since I have received little feedback or comment regarding the Journal. (I could say the same about the previous Journal too.)

It always seems, to me, to be the authors themselves that get the most satisfaction out of the Journal. One such example is that of regular Journal contributor, Brian Brock. He sent me a letter discussing several matters related to our 2013 Journal. He started off by saying, "Dear

Steve, Thanks for copies of the last newsletter & Journal . . . The Journal was a good last of the printed run to go out on. In contrast to TS Eliot, the print run ended “not with a whimper but a bang”. Congrats on the many years of Newsletters & Journals.”
The occasional feedback from someone like Brian makes the effort worthwhile. Thanks, Brian.

Photo Index Officer’s Annual Report 2013-4

by Steve Reynolds

Our Photo Index still remains somewhat in limbo until someone is able to process images for posting to our website. Two sizes of each new image are required for the website. No new images have been processed for some time (years?). It would be fair to say that the lack of progress on our Photo Index is most disappointing.

Webmaster’s Annual Report 2013-4

by Steve Reynolds

Ralph Richardson is preparing to do a much-needed overhaul of our website during this year.