October 2008 - November 2008

SYDNEY SHELLER

Newsletter of the Shell Club of Sydney
NSW Branch, The Malacological Society of Australasia Limited ACN 067 894 848

Next Meetings:

24th January 2009
(1.30pm for 2pm – 4pm)

28th February 2009
(1.30pm for 2pm – 4pm)
(normally 4th Saturday)

Ryde Eastwood Leagues Club
117 Ryedale Rd, West Ryde, Sydney

View old shell newsletters on line
www.sydneyshellclub.net

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Treasurer: Peter Pienaar
Secretary: Kim Bishop
Raffles: Kim Bishop
Sheller Editor: Steve Dean
Librarian: Steve Dean
Annual Shell Show Mgr: Steve Dean
Special Projects Mgr: Vacant
MSA Delegate: Chris Barnes

Shell Club of Sydney Mission Statement:

To appreciate, understand and preserve shells and their environment and to share this with others.

Some of the Annual Shell Show "Shell of the Show" exhibits.

Some of the topics inside:

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Note: The Sydney Shell Club is a branch of the Malacological Society of Australasia (MSA) It is preferred that you are also a member of the MSA. MSA membership can be organised through Des Beechey
desbee@optushome.com.au
26 Malga Ave, Roseville Chase NSW 2069

Annual Shell Show 2008

Annual Shell Show 2008 Results			
Category	**1st**	**2nd**	**3rd**
Shell of Show	Sandra Montague	Maureen Anderson	Kim Bishop
Conidae (less than 50mm)	Peter Pienaar	Peter Pienaar	Peter Pienaar
Olividae	Chris Barnes	Steve Dean	-
Volutidae	Peter Pienaar	Peter Pienaar	-
Cypraeidae (less than 50mm)	Chris Barnes	Chris Barnes	Steve Dean
Variation of a single species	Steve Dean	Kim Bishop	Sandra Montague
Large Shells	Steve Dean	-	-
Favourite Shells	Kim Bishop	Sandra Montague	Jack Hannan
Other gastropod family	Steve Dean	Sandra Montague	-
Junior	Ambrose Tant-Phillis	-	-
Conchologists of America	Kim Bishop	Steve Dean	-
Best contribution to show	Steve Dean	Peter Pienaar	Kim Bishop

Our annual show this year was a great success. At the last minute the club switched rooms and gave us the large Auditorium. This gave us plenty of room for the exhibits and educational displays and a huge screen for the talk.

Four of our members who normally put in multiple exhibits were unable to be there so the number of displays was slightly down on last year. (Ron, Ashley, John, and Trevor) Of the members who came, some put in fewer entries than normal, but most put in more than normal, so there was still an excellent display. The quality of exhibits was even higher than in the past, making it near impossible to judge the winners. Scores in each category were very close.

There were two educational exhibits, both of which were excellent. These were judged for the COA award. The one that won had spectacular photographs and colourful inserts, making it superior to most museum exhibits. Perhaps Kim has an opportunity for a new career.

There was only one junior competitor this year, but other children attended.

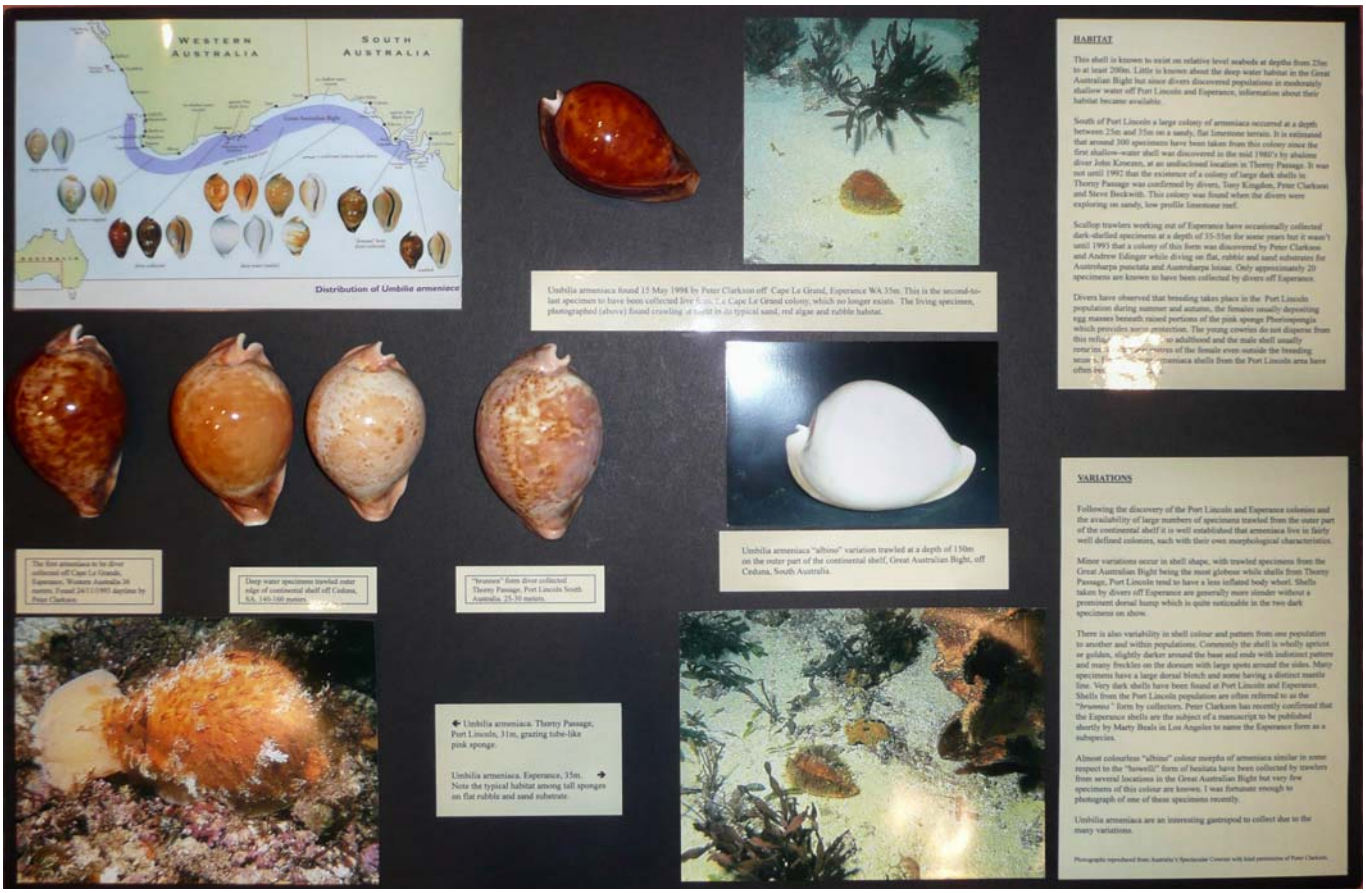
Des Beechey provided us with a talk on identification of Epitoniidae, in particular NSW species. He mentioned that a number of species actually have world wide distribution, so in the past may have been given different names in different oceans. Perhaps with this knowledge, it is time to revisit the names of specimens you have found abroad.

Below are the remainder of the exhibits in shell of the show:


Variations Of One Species
Oliva miniacea
Oliva miniacea miniacea marratti
Oliva miniacea miniacea
Oliva miniacea miniacea efasciata
Oliva miniacea miniacea johnsoni
Oliva miniacea miniacea sylvia
Oliva miniacea miniacea
SW Annual Shell Show
Sydney, October 2007
First Prize

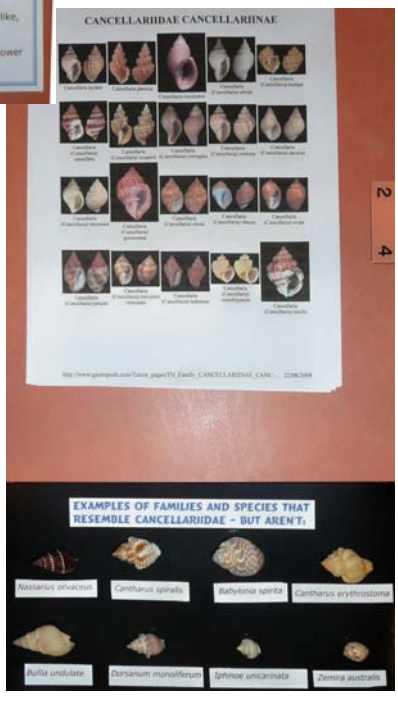

VARIATION WITHIN SPECIES


AWARD
SYDNEY SHELL SHOW



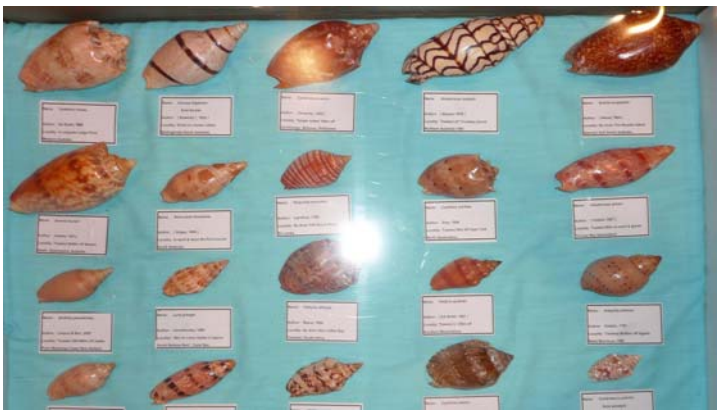
Kim Bishop's winning COA display –
This COA exhibit also includes the *Cypraea armeniaca* in the "Variations of one species" category *(picture previous page)*

Steve Dean's COA display.



Large Shells
Steve Dean's winning exhibit filled two full tables


NSW Annual Shell Show
Sydney, October 2007
First Prize




NSW Annual Shell Show
Sydney, October 2007
First Prize
Category 12
Junior

1. The roundest knight at King Arthur's round table was Sir Cumference. He acquired his size from too much pi.

2. I thought I saw an eye doctor on an Alaskan island, but it turned out to be an optical Aleutian.

3. She was only a whisky maker, but he loved her still.

4. A rubber band pistol was confiscated from algebra class because it was a weapon of math disruption.

5. The butcher backed into the meat grinder and got a little behind in his work.

6. No matter how much you push the envelope, it'll still be stationery.

7. A dog gave birth to puppies near the road and was cited for littering.

8. A grenade thrown into a kitchen in France would result in Linoleum Blownapart.

9. Two silk worms had a race. They ended up in a tie.

10. Time flies like an arrow. Fruit flies like a banana.

11. A hole has been found in the nudist camp wall. The police are looking into it.

12. Atheism is a non-prophet organization.

13. Two hats were hanging on a hat rack in the hallway. One hat said to the other, 'You stay here, I'll go on a head.'

14. I wondered why the baseball kept getting bigger. Then it hit me.

15. A sign on the lawn at a drug rehab center said: 'Keep off the Grass.'

16. A small boy swallowed some coins and was taken to a hospital.
When his grandmother telephoned to ask how he was, a nurse said, 'No change yet.'

17. A chicken crossing the road is poultry in motion.

18. It's not that the man did not know how to juggle, he just didn't have the balls to do it.

19. The short fortune-teller who escaped from prison was a small medium at large.

20. The man who survived mustard gas and pepper spray is now a seasoned veteran.

21. A backward poet writes inverse.

22. In democracy it's your vote that counts. In feudalism it's your count that votes.

23. When cannibals ate a missionary, they got a taste of religion.

24. Don't join dangerous cults: Practice safe sects!

Shell Club Minutes – 27th September 2008

The President, Steve Dean, opened the meeting at 2.24pm.

Attendance Steve Dean, Peter Pienaar, Ron Moylan, Sandra Montague, Steve Jones and Kim Bishop.

Apologies were received from Bob Snedic, Chris Barnes, Maureen Anderson, Keith Dean and Michael Keats
.
Minutes of Previous Meeting held 23 August 2008 published in the August-September 2008 “Sydney Sheller” were taken as read, moved by Ron Moylan and seconded by Sandra Montague.

Correspondence
Emails from 3 potential new members were tabled.
Steve Dean tabled a letter from The Sydney Shell Club to Mr Adrian Toovey, Manager Aquatic Protected Areas, Department of Environment and Climate Change, PO Box 1967, Hurstville NSW 1481 being a submission on zoning arrangements: Solitary Islands and Jervis Bay Marine Parks for consideration in the Department’s zoning reviews.
An email from Antonio S dela Cruz (Tony) a Filipino shell collector and dealer wanting to “apply as an accredited dealer of Sydney Shell Club” was tabled. Kim Bishop to respond to this enquiry and offer advertising space in “Sydney Sheller”.

Finance
Treasurer, Peter Pienaar reported there had been no change in the bank account balance this month.

Sydney Sheller
August 2008-September 2008 issue is now available and is being mailed to members who did not receive a copy at today's meeting.

Library
The new publication "Encylopedia of Marine Gastropods" by Alain Robin has been received and distributed to those who ordered a copy and one copy added to our Library.
Steve Dean reported that Tom Rice's magazine "Of Sea and Shore" Volume 27, No 4 is the final issue to be published and his "Catalogue of Dealers Prices for Shells" also known as "Rice's Prices" is to go into publication for the last time shortly. After a discussion it was agreed that the Club would purchase a DVD of all past issues of the magazine "Of Sea and Shore" for the Library.
Steve also reported on a number of new publications by Guido Poppe titled "Philippine Marine Mollusks" and after a discussion it was agreed that the Club would purchase Vol 1

Coming Events
The Twenty Eighth NSW Shell Show to be held 25th October 2008.

Acquisitions
Kim Bishop reported on the purchase of a ***Livonia roadnightae*** recently trawled off Ceduna, South Australia while on a trip to Adelaide a few weeks ago.
Steve Dean reported that he had recently found a broken ***Cymatium occidentale*** on Mona Vale Beach. A very unusual discovery this far south for this species which is usually found in the Western Atlantic and Indo-Pacific region to Angourie NSW.

General Business
Peter Pienaar discussed the approaching Fisher's Ghost Stamp Fare in November 2008 and his exhibit of stamps with shell theme which he intends to use to promote the Shell Club of Sydney.
A discussion followed regarding the categories for next months Annual Shell Show.
Harlan Bestwick, Functions Co-ordinator, Ryde-Eastwood Leagues Club Ltd provided an overview of proposed changes to the club's policy of community support that extends to the use of free meeting room facilities for community, sporting and special interest groups who operate on a not-for-profit basis that will come into effect from 1 January 2009. The President of the Ryde-Eastwood Leagues Club will be notifying us of the proposed changes in writing shortly.

Raffle
First Prize: Ron Moylan, Second Prize: Steve Dean and Third Prize: Sandra Montague.

The meeting closed at 3.45pm.

Presentation
A presentation followed by Peter Pienaar on Shells on Stamps.
A copy of Peter's presentation can be found in the August-September 2008 Sydney Sheller.

Global warming and shells – a layman's guide

Steve Dean

When global warming and the green house effect are discussed in the media, or by "greens" the information has been over simplified and so does not make sense from a scientific point of view. I have prepared this article to provide a little more information, without getting too technical. The bottom line for shell collectors is – will there still be shells to collect in 20 to 50 years time, and what will become rare or extinct. (I am not going to attempt to guess at an answer, just explain the causes)

For marine collectors there are three changes to our environment to consider. Higher ocean **temperatures**, higher ocean **acidity** (due to carbon dioxide absorption), and changes to **ocean levels**.

For the last 50 years humans have been pumping carbon dioxide into the atmosphere at 50 times the rate that occurs naturally. (Industry, cars, and burning in general). Prior to this, the excess carbon was stored around the earth as coal and oil which we have dug up and burnt with oxygen, turning it into the over abundance of carbon dioxide gas released into the atmosphere.

Normally quite a lot of the suns heat escapes back into outer space to keep a balance, and the earth does not overheat. The increased carbon dioxide and other gases in the atmosphere trap more of this heat in and the Earth gradually gets hotter. This is exactly the same effect of the glass in a glass house letting the sun's heat in, but not letting as much of it escape, hence the term "green house effect". Water conducts heat fairly well, so as the air and the land heat up so do the oceans.

The above summarises how global warming effects are presented to the public, but there is a lot more going on.

Poorly explained effect number 1:
If there is so much carbon dioxide (CO_2) being released into the atmosphere why is the Earth not heating up much faster? Answer - there nowhere near the amount of carbon dioxide in the atmosphere that we would expect. Why – most of the excess is being absorbed, some by plants on the land, but most into the oceans. (Is it better in the oceans than in the air?)

Poorly explained effect number 2:
Does increased carbon dioxide getting absorbed into the oceans cause any problems? When carbon dioxide gets absorbed in water it instantly forms carbonic acid (H_2CO_3). At one time the media talked about “acid rain” where faolling rain absorbs carbon dixide as if falls through the atmospeher. When water evaporates from the oceans the vapour is pure water (The carbon dioxide acids stay in the ocean). When it rains it picks up more carbon dioxide from the air making a very mild acid. When this gets to the ocean the cycle repeats and the oceans gradually get more and more acidic. Also the carbon dioxide is directly absorbed across the surface of the oceans. On our field trips to Long Bay have you ever wondered why the live ***Cypraea caputserpentis*** that live on the rock platform near the storm water outlet are worn and pitted across the top of their shells and do not have the shine normally associated with cowries? This is caused by acid and other chemicals in the stormwater from the surrounding suburbs. In the extreme the acid in the ocean may interfere with the calcium (shell) formation by marine animals, initially small ones, then corals and even molluscs.

Reducing carbon emissions.
Governments are talking about gradually winding back the rate at which human activity releases carbon dioxide - over the next 30-50 years, and have based the timing on the rate of increase of carbon dioxide in the atmosphere to keep average earth temperatures in a sensible range. This is for very sensible reasons – if temperature and climate are stopped from changing too much, then crops and farming can continue in the same regions fo the world it is currently in. Changes in rainfall patterns could partly be addressed with more irrigation. This planning is not for the purpose of addressing the bulk of the carbon release and its effects on ocean acidity. The oceans acting as a carbon “sink” has been considered as a saving factor for green house, not the growth of another more far reaching problem.

Poorly explained effect number 3:
Have you ever owned a fresh water fish tank? If you get the acidity wrong many species of your fish will die. Go the other way and all your plants will die. Neither is a big problem, because you just choose a group of species that are hardier or all like the same level of acidity and keep it controlled. If the plants die, not a problem because you feed the fish from a packet. (Of course all your snails die.
Have you ever tried to breed fish? The acidity is critical. If it is the sperm cannot swim properly and the eggs do not survive in the water and breeding is impossible. Recently there has been a lot more research into acidity and breeding and over the last two years the media is starting to pick up on it. The limited studies so far are for commercial species. They suggest that only tiny changes to the oceans acidity completely stop breeding ability for many species of marine animal.

It is expected that by 2100 rising water temperatures will allow enough carbon dioxide to be absorbed to increase ocean acidity to 7.7 This would mean the end for lobster, abalone, octopus, sea urchins, mussels, oysters other molluscs and many fish species, and even for shells that survive, at this level the acid attacks the shells directly, even stopping calcium formation. Unfortunately the acidity is increasing rapidly, and plans to reduce carbon emissions are at a rate to control sea levels, not to protect the ocean acidity levels, so it may already be too late to save many marine plant and animal species. Shell collectors should expect many of their desired species to become extinct in the future. This means say over the next few decades there may be an abundance of dead shells available, then for many species no more at all, other than from old collections.

Poorly explained effect number 4 - Rising water levels.
The explanation given for this is the one that annoys me the most. The end result is correct water rises, but the reasons as explained in popular media is not what is actually happening.

When the earth warms the ice caps melt and the oceans rise – wrong!

Ice floats because its crystal structure makes it less dense than water. An iceberg, or even the whole of the arctic floating region, displaces an amount of water equal to its own weight. Therefore if you melt it, it takes the same space in the water as what it was displacing when floating, and the water level does not change at all!

In simpler terms, if you have a glass of water (representing the oceans) with an ice cube floating in it (representing the worlds floating ice) and then mark the water height on the side of the glass (representing where the ocean meets the land) and then melt the ice, the water level stays the same after the ice melts. Provided the water is kept at roughly the same temperature.

If all the land ice and Antarctic ice also melts then you would then expect more water in the oceans and an ever so slight increase in ocean level - except there is another effect.

When the oceans are warmer more water evaporates into clouds and rain – a lot more water. (Which by the way accelerates the rate of increase in ocean acidity both from increased direct absorption and rain absorption) Towards the poles the air is still below zero so the precipitation falls as more snow or ice. This results in an increase in snow and ice, especially over land. This

increase has the effect of lowering ocean levels. Of course the edges of ice caps, glaciers, and land ice do melt faster and return much of this water to the sea. The accelerated water cycle means significantly more rain and snow, and increased river flows, although not necessarily in the same regions as now. (More droughts for some, and a lot more rain and snow for others) If rain/snow and melting were the only effect, then the ocean levels would DROP not rise, because on average there is then more of the oceans water in the air as vapour, in the rivers and on the land as ice or water on its way back to the sea.

If this still does not make sense lets take global warming to the extreme. In primordial times when the earth was much hotter, more of the Earths water was vapour and the oceans very small. Go back far enough, and hot enough, and all the water was in the atmosphere and there were no oceans at all.

The real explanation for rising water levels.
In the glass of water example above, after the ice cube melts, if you keep heating the water it expands and the water level rises. However if the glass also expands at the same rate then the mark on the side will still be at the water level, so to an observer at the mark “the coast line” the ocean has not risen. In practice the oceans will heat much sooner than all of the earth’s crust (which is the container that holds the oceans) so heating the water in the oceans does raise its level relative to the land simply because the water expands – like in a thermometer.

But – if you heat a pot of water the level does not change much at all, unless it boils. The only reason a thermometer works is that a large blub of coloured water is heated but the tube it goes up is very narrow, so a small change in the large bulb makes a big change in the narrow part of the thermometer. The ocean is the reverse the depths are narrower than the surface, so why would a small change in temperature raise the ocean level by a significant amount?

Here are some hypothetical numbers to show the effect - if the average ocean depth is say 4km and the whole ocean temperature goes up by a few degrees (from whatever the average is now) and lets say this temperature rise causes only one tenth of one percent expansion of the water, then with the water being a 4km high column from the bottom to the surface this still means a 4m rise in surface level. Then subtract off the water lowering effect due to more evaporation into the water cycle. Say this equated to a reduction by 2m worth of ocean surface water, then the NETT increase would be 2m.

Of course ocean currents and depths are such that the whole ocean cannot be heated evenly at once. This would take many thousands of years. So the real calculations are far more complex and relate to less depth of ocean water heated to a higher temperature. Most scientists attempting the calculations conclude that the upcoming short term effect will be one of increased ocean levels. But as you would expect the exact height or even the rate of increase cannot be calculated accurately.

What might rising ocean levels do to mollusc habitats and food sources?
You would expect rising water to cause the biggest problems in intertidal areas – rock platforms – coral reef – mud and mangrove flats – beaches, as these areas are drowned or shrink in area.

- Many beaches would still exist with the sand and rocks adjusting themselves through wave and human action, but the intertidal area would be narrower.
- If the rate of change is slow enough most surface coral reefs and associated lagoons will be able to grow their reef edges and rise up with the water, so may not suffer too badly due to rising oceans. (However they may not exist at all because of increased acidity)
- Rock platforms are usually formed by wave action and would in general disappear, as new cliff could not be cut away by the waves quick enough down to the new intertidal height, to replace the old, now submerged platforms.
- Mud and sand flats and mangroves would be flooded, but increased rain and erosion should provide new silt areas. It then depends how well various species of plant and animal can migrate to the newly formed flats. While the coastal mangroves around northern Australia may just migrate inland with rising water, places like the everglades in Florida may be lost completely.

Many land shells live in very restricted micro environments and do not have the ability to move elsewhere. Significant climate changes would result in their extinction.

The worst of the effects on fresh water molluscs would result from changes to climate patterns, as well as increased rainfall and water flow.

What about warming?
If warming was the only issue, then provided change was slow enough, species populations could just migrate to different environments (latitude or depth) where both they and their food sources could survive. Unfortunately many species do not float around in the currents after birth (floating veligers) or have no mechanism to migrate or walk to other regions. E.G. many species unique to coral cays cannot traverse the depths between reefs so will need to rely on them and their food sources being able to survive all three effects (acid, water level, and temperature). Obviously a lot of species will not make it.

Conclusion
The public and governments understand the effects of rising oceans as it claims expensive coastal low lying populated and farming land, and so is starting to try to address the effect. However there is little or no effort to address the looming species annihilation resulting from two other major effects of too much carbon dioxide - changes to ocean acidity, and changes to weather resulting from increased water cycle with temperature.

For shell collectors: Keep plenty of spare swap specimens of even the common species as a legacy for you children and grand children. They may not be common for very long, and may become quite valuable – sooner than we think.

Umbilia armeniaca – educational information

Kim Bishop

This article was prepared from the text Kim used in his winning COA exhibit at our annual show. ***Pictures are on pages 4 & 5 of this Sheller.*** *Photographs reproduced from Australia's Spectacular Cowries with kind permission of Peter Clarkson.*

INTRODUCTION

Umbilia armeniaca are an endemic Australian cowry species that evolved in the temperate waters of the Southern Ocean.

This cowry was discovered by Sir Joseph Verco, a natural scientist and medical practitioner of Adelaide when he was a guest on the fisheries vessel "Endeavour" during a trawling survey in the Great Australian Bight in March 1912.

Living specimens can be found in both shallow and deep water. They range from Investigator Straight off the north coast of Kangaroo Island in South Australia to Rottnest Island off the coast of Perth in Western Australia.

A number of populations have been discovered by divers in relative shallow water off Esperance WA and Port Lincoln SA and others have been discovered by fishing and research vessels trawling the outer part of the continental shelf. It is likely that more populations exist but are yet to be discovered in other inner-mid shelf areas off Western Australia and South Australia.

DESCRIPTION OF THE SPECIES

This shell is easily identified as a member of the family Cypraeidae typically with a very smooth, thick glossy nacre and striking patterning and coloration. The shell is usually swollen and sometimes globose; the base of the body whorl is rounded without marginal ridges except for short anterior flanges. The anterior rostrum is short with weakly developed lateral flanges and the posterior canal very short and twisted to the left. The colour and pattern are quite variable; typically the whole shell is apricot or golden and slightly darker around the ends and basal periphery with an indistinct network pattern and freckles on the dorsum, usually with darker spots around the side. As can be seen in the display, some specimens have distinct mantle lines.

Photographs on display show that the living animal is quite beautiful, the body being orange-red with irregular splotches of cream, black or dark brown across the mantle. The mantle is opaque with relatively long papillae with variable colour usually matching the part of the mantle from which they extend. The foot is orange-red and the tentacles very long and similar colour to the rest of the foot.

The smallest adult shell I am aware of is 62.8mm in a collection in USA and the largest 124.5mm in a collection in South Australia. There is significant variation in average size within populations. Shells from the relative shallow waters (approx 35m) off Esperance are generally smaller than shallow water specimens from Port Lincoln which usually exceed 110mm. Trawled specimens from deeper water (145-160m) in the eastern part of the Great Australian Bight are generally smaller than those taken by divers. Shells trawled from the western part of the Great Australia Bight (160-190m) depths tend to be larger and can commonly be in the 100-110mm range.

Study of the Port Lincoln population has shown that males on average are larger, more inflated, and have a more developed anterior rostrum than the females. The Port Lincoln specimen in this exhibit is female.

HABITAT

This shell is known to exist on relative level seabeds at depths from 25m to at least 200m. Little is known about the deep water habitat in the Great Australian Bight but since divers discovered populations in moderately shallow water off Port Lincoln and Esperance, information about their habitat became available.

South of Port Lincoln a large colony of ***Umbilia armeniaca*** occurred at a depth between 25m and 35m on a sandy, flat limestone terrain. It is estimated that around 300 specimens have been taken from this colony since the first shallow-water shell was discovered in the mid 1980's by abalone diver John Kroezen, at an undisclosed location in Thorny Passage. It was not until 1992 that the existence of a colony of large dark shells in Thorny Passage was confirmed by divers, Tony Kingdon, Peter Clarkson and Steve Beckwith. This colony was found when the divers were exploring on sandy, low profile limestone reef.

Scallop trawlers working out of Esperance have occasionally collected dark-shelled specimens at a depth of 35-55m for some years but it wasn't until 1993 that a colony of this form was discovered by Peter Clarkson and Andrew Edinger while diving on flat, rubble and sand substrates for ***Austroharpa punctata*** and ***Austroharpa loisae***. Only approximately 20 specimens are known to have been collected by divers off Esperance.

Divers have observed that breeding takes place in the Port Lincoln population during summer and autumn, the females usually depositing egg masses beneath raised portions of the pink sponge Phoriospongia which provides some protection. The young cowries do not disperse from this refuge until just prior to adulthood and the male shell usually remains within a few metres of the female even outside the breeding season. For this reason ***Umbilia armeniaca*** shells from the Port Lincoln area have often been found in pairs.

VARIATIONS

Following the discovery of the Port Lincoln and Esperance colonies and the availability of large numbers of specimens trawled from the outer part of the continental shelf it is well established that ***Umbilia armeniaca*** live in fairly well defined colonies, each with their own morphological characteristics.

Minor variations occur in shell shape, with trawled specimens from the Great Australian Bight being the most globose while shells from Thorny Passage, Port Lincoln tend to have a less inflated body whorl. Shells taken by divers off Esperance are generally more slender without a prominent dorsal hump which is quite noticeable in the two dark specimens on show.

There is also variability in shell colour and pattern from one population to another and within populations. Commonly the shell is wholly apricot or golden, slightly darker around the base and ends with indistinct pattern and many freckles on the dorsum with large spots around the sides. Many specimens have a large dorsal blotch and some having a distinct mantle line. Very dark shells have been found at Port Lincoln and Esperance. Shells from the Port Lincoln population are often referred to as the "***brunnea***" form by collectors. Peter Clarkson has recently confirmed that the Esperance shells are the subject of a manuscript to be published shortly by Marty Beals in Los Angeles to name the Esperance form as a subspecies.

Almost colourless "albino" colour morphs of armeniaca similar in some respect to the "***howelli***" form of ***Umbilia hesitata*** have been collected by trawlers from several locations in the Great Australian Bight but very few specimens of this colour are known. I was fortunate enough to photograph of one of these specimens recently.

Umbilia armeniaca are an interesting gastropod to collect due to the many variations.