

December 1966

With the end of the year almost upon us the President extends to all members and their families his very best wishes for Christmas and the New Year.

Along with the President's good wishes go those of the committee, plus this one request: consider this - ours is not an overly large Group so when you celebrate, remember beer and benzine don't mix, nor does compressed air, and when you drink don't drive or DIVE!

Hon. Editor

NIGHT DIVE AT SHIPROCK - 25.11.66

C. J. Lawler

All but one of our divers were equipped with torches and entered the water at Shiprock at about 7.45 p.m. The tide was just turning from high but there was no noticeable run as yet, Visibility seemed reasonable and there was not much suspended matter in the water to diffuse the torch beams. The first impression to be gained was the smaller amount of fish to be seen about. Generally the fish were much more easily approached than during daylight, box fish and Porcupine fish being easily caught by hand. The Chaetodon 'Talma' (*Chelmonops truncatus*), Red Morwong, Goat fish and White ears were able to be touched before the 'spell' was broken. The only fish that seemed to be carrying on as usual were Mado and Sweep which continuously darted about in the beams of light.

Very little, if any, *Telesto smithi* polyps were out. Feather worms did not retract their feathery tentacles nearly as readily as they do by day. About the only animals that appeared new to the area were large numbers of a very large, apricot-orange, shell-less mollusc possibly a *Pleurobranch*.

The most interesting observation was that of a pair of cleaner shrimps *Stenopus hispidus* dancing attendance to a large spotted cod deep in a rock crevice. Whether these dhrimps had been actually cleaning this fish is not certain.

Another unusual sight was a Knight fish *Cleidopus gloriamaris* swimming in the open water (not lurking in caves as in the day) with the light organs under the mouth flashing brightly.

SHIPROCK 12 HOUR SURVEY (CONT) - SALINITIES

C. J. Lawler

The results of the salinity analysis of the 26 water samples taken during the 12 hour survey at Shiprock in early November have now been received. These salinities were determined at the C.S.I.R.O., Cronulla, through the kind offices of Dr. John MacIntyre and Mr. David Rochford.

The figures have been set out in the graph form on the opposite page. The graph for the surface water samples show an almost too perfect rise from the least salt content at low tide to the greatest at high tide. Bottom water samples show a smaller variation but still indicate a tidal phase. Around the time of high tide surface and bottom salinities were almost identical as were the water temperatires (see last month's Bulletin), greatest divergence being shown at low tide.

During the survey the highest salinities recorded were around the 35.50 mark whereas an average of readings taken at high tides during the preceding months were 35.25 (surface) and 35.32 (bottom). A low tide reading of 35.16 made in October is consistant with the survey's low tide reading of 35.10.

on this page is a salinity graph

On the basis of the salinity of normal ocean water offshore in the Sydney area being about 35.5, it seems that in the vicinity of Shiprock the salinity of the water at high tide closely approaches that of the outside ocean while at low tide, the surface waters at least, show a significant increase in fresh water. This is partly borne out by the more estuarine nature of the shallow water fauna.

In addition to these figures a surface water sample was taken at Shiprock on Thursday 10th November, while there was a huge increase in fresh water in Port Hacking due to very rain falling during the preceding few days. River water several feet deep was pouring in torrents over the Audley Weir 5 miles upstream from Shiprock. The appearance of the water was brown and very turbid and the salinity was found to be a very low 30.07. Another sample taken at the same time at Glaisher Point at the mouth of Port Hacking where virtual oceanic conditions prevail was found to be of 33.93 salinity.

So even with the addition of great amounts of fresh water the water at Shiprock still has a measurable salt content, but probably not enough to ensure the survival of the attached marine life if these conditions continued over several weeks.

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SALINITY

C. J. Lawler

The salinity of the sea is expressed in grams per kilogram or more simply as parts per thousand. The greater part (85%) of this salinity or saltiness is made up of common salt (sodium chloride) but there are many other salts dissolved in sea water such as magnesium chloride, calcium sulphate and calcium carbonate. In addition to salts, minerals and gases are also present in varying amounts, oxygen being the most plentiful with over 4 million tons being dissolved in a cubic mile of seawater compared

on this page is a map of the world showing
mean annual surface water salinity

to 0.0003 lb of radium. Salinity varies in different parts of the sea, the most salty parts being in areas of high evaporation such as the western Mediterranean, Persian Gulf and the Red sea where salinity approaches 40.0 and the least salty in the Arctic and Antarctic Oceans where melting ice and low evaporation reduce the salinity to somewhat less than 33.0.

Some exceptionally unsalty areas are present where large rivers empty into cool basins: an example of this is found in the Black and Baltic Seas where salinity is as low as 7.0. By far the greater part of the sea, including most of the Pacific, is made up of water which has salinity ranging between 34.0 and 36.0. The average off the South Eastern Australian coast being about 35.5

The accompanying map shows the mean annual surface salinity of the world's oceans.

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On the back cover is a hand written list of names, and \$ figures;

Frank Davis @ \$1.40	\$0.40	owes \$1
Clarrie Lawler	\$1.40	
Les Graham	\$1	owes 40c
Fran Graham	\$1	owes 40c
Nev Coleman	\$1.40	
Wally Deas	\$1.40	
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