

SEA WATER TEMPERATURES, 1986 and 1987

By
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The temperature of the sea water is an important factor in determining the distribution of marine fauna and flora (Hiscock & Dymond 1973). The location of Lundy in south-west Britain leads to relatively high winter temperatures; this, together with a complicated mix of other environmental factors, causes an unusually high incidence of southern species to be found around Lundy, many of which are at their northern limit. Sea water temperatures have only previously been measured around Lundy in 1972-1973, when the temperatures ranged from 8.4°C on March 11th, 1973, to 17.5°C on August 19th, 1973 (Hiscock & Dymond 1973).

Since March 8th, 1986, sea water temperatures have been taken in the Landing Bay at approximately weekly intervals. The huge majority of readings were taken from the Divers Quay (all those since July 30th 1986), though some early readings were taken from boats within the Landing Bay and from the Landing Beach itself. The state of the tide and the weather conditions were also recorded. Daily mean air temperatures were determined from maximum and minimum readings recorded at 0900 hrs and 2100 hrs at the South Light. These were used to give 'five day means'.

Graphs 1 and 2 show the results for 1986 and 1987 respectively. Both graphs show a similar and not unexpected pattern. The sea temperature reaches its summer maximum from mid July to late September. As it drops to its winter low, the volume of the sea, together with the low rate at which it conducts heat, causes it to only dissipate its stored heat slowly and consequently it lags behind the air temperature. A winter plateau is reached from mid January to early April. The increase in sea temperature then closely follows the increase in air temperature (this is particularly the case in 1987). The air temperatures might have been expected to rise ahead of the sea temperature since the sea, for the same reasons outlined above, should only warm up slowly. Indeed during the summer, maximum sea temperatures were on a par with the air temperatures, even exceeding them on occasions.

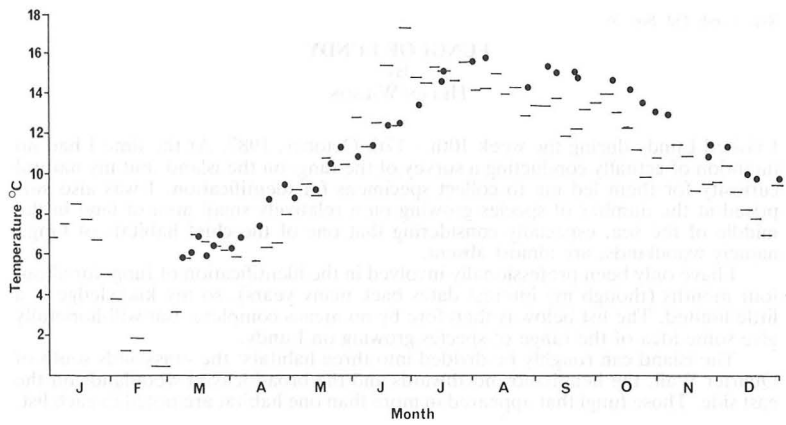
Within this general pattern there are yearly variations related to local weather conditions. Clearly wider conditions of tide, current and weather are also important in determining local sea temperatures. In 1986, after a very cold February a minimum sea temperature of 5.8°C was recorded on March 8th. An indifferent summer followed with a summer maximum of 15.8°C on August 7th. 1987 was also a cold winter, though not so sustained as that in 1986. The coldest spell came earlier in January and this is reflected in the earlier date for the minimum sea temperature, which was 6.3°C on February 18th. The summer that followed was hot, a maximum sea temperature of 16.1°C being recorded on August 22nd (though note that a month earlier the temperature was 16.0°C).

There is considerable day to day variation in the temperature of the sea recorded in the Landing Bay. For example on one day in June, 1987, a temperature of 12.7°C was recorded at low water and then, with the tide flooding, the temperature was 14.5°C inside the jetty and 14.1°C outside. The sea temperature in the Landing Bay and particularly off the Divers Quay is likely to show greater variation than temperatures taken further out to sea. Not only is it partly enclosed and sheltered but the temperature will respond to the temperature of the shore as the tide floods.

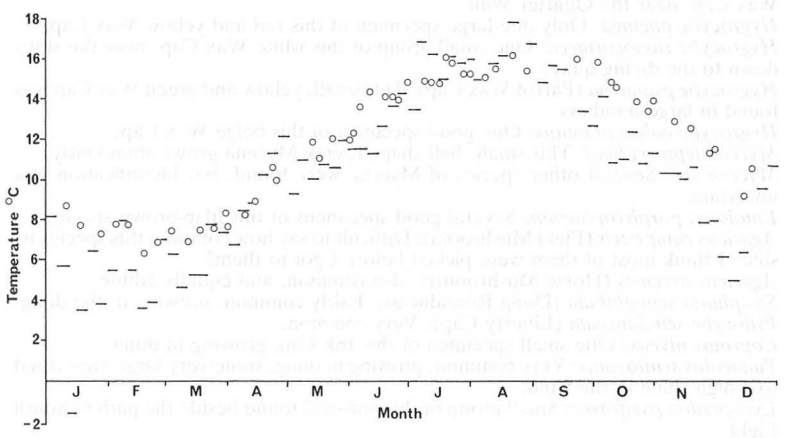
The temperature of the sea should continue to be taken. For more accurate results these would better be taken further out in the Landing Bay and, for both convenience and in order to get a fuller set of readings, consideration could be given to using an automatic recorder, located on the Divers Beach.

REFERENCE

Hiscock, K. & Dymond, J.N. (1973). *Sea Water Temperatures 1972-1973*. Rep. Lundy Field Soc. 24.



GRAPH 1 Air (—) & Sea (●) Temperatures in 1986



GRAPH 2 Air (—) & Sea (○) Temperatures in 1987