same régime. It ran only 45 per cent as much during 24-hr. cycles (D–L/L–D = 63) and 37 per cent as much during 16-hr. cycles (D–L/L–D = 3·5) as did the female. Often it was not running at the beginning of dawn, so that its subsequent spurt of running was more accentuated.

These findings suggest the importance of using light régimes in the laboratory that are more nearly representative of natural changes than are simple on–off cycles.

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New Records of *Gobius forsteri*

INCREASING use of the aqualung by zoologists has led to the exploration of sublittoral areas the topography of which had previously excluded investigation by the conventional methods of trawling and dredging. One of the more sensational discoveries on British coasts has been that of the leopard spotted goby by Mr. G. R. Forster of the Plymouth Laboratory. This was a species new to the British fauna, and regarded by Corbin[1] as also new to science, being described in *Nature* under the name of *Gobius forsteri* (Teleostei-Percomorphi). In addition to southern Cornwall and Devon, records were given for St. Helier (Channel Islands) and Santander (Spain). Recent work[2] has suggested that the goby may be identical with *Gobius thori* De Buen[3], a species founded on one specimen from the Aegean Sea collected as long ago as 1910. Further examples from the Mediterranean area are needed to settle this question, but in the meantime it is of interest to record *G. forsteri* from two new localities, extending the known northern limit of distribution by more than 250 miles. These are Dale, Pembrokeshire, and Port Erin, Isle of Man.

At the former, Prof. E. W. Knight-Jones, diving in August 1960, found that *G. forsteri* was "quite common immediately to the south of Dale Point and West Blockhouse Point, near the mouth of Milford Haven, in deep gullies just below the zone of *Laminaria hyperborea*". In the Irish Sea, the species was not revealed until July 11, 1961, when one of us (R. G. H.) discovered the goby on the inner side of a ruined breakwater which extends for some distance across the mouth of Port Erin Bay. At a depth of about 30 ft. (9·2 m.), the fishes were seen in crevices of the concrete breakwater blocks or between these and a bottom of muddy sand, at the lower limit of the *Laminaria* zone. Since then, the species has been seen on the opposite side of the bay, below Bradda Head, and there is an unconfirmed record from Perwick Bay, Port St. Mary.

The finding of this hitherto unrecorded fish within a few hundred yards of the Marine Biological Station, Port Erin, directs attention to an ignorance of the bottom fauna of rocky inshore waters which only diving and, to some extent, trapping can remedy. These records provide another indication of how closely *G. forsteri* is tied to its own special habitat of rock crevices and gullies. In the course of field work on Manx gobies from 1958 to 1960, Port Erin Bay and the sea outside the ruined breakwater have been the scene of frequent trawling with a variety of gear—otter trawl, bottom young-fish trawl, and Agassiz trawl—all usually employed with a stramin cover on the cod end to retain small fishes. Within the angle of the breakwater, the bottom has been extensively *D*-netted by Naylor[4], and a fish trap was set in this area in late 1958. Apart from this recent work, the neighbourhood of Port Erin has been studied more or less intensively by marine zoologists since W. A. Herdman and the Liverpool Marine Biological Committee opened their first laboratory there in 1892. None of this work has ever suggested the presence of *G. forsteri* in the area, and the species even escaped notice during a submarine algal survey[5].

The extent to which this goby penetrates the Atlantic boreal region[6] is yet to be determined. Evidence from duration of breeding season is available only for captive specimens in the Plymouth Aquarium, where spawning took place during May–July[1]. This period is rather short for a lusitanian and possibly Mediterranean teleost[7], and suggests that the species may reach its northern limit at the British Isles like *Gobius cobitis* Pallas (= *G. capito* C. and V.)[8] and *G. paganellus* L.[9]. A shortening in duration of breeding season with approach to the northern boundary of the breeding range has been demonstrated in a number of other fishes with similar distribution, including the gobiids *G. paganellus* and *Pomatoschistus flavescens* (Fabr.)[10]. However, *G. niger* L. extends as far north as Trondheimfjord[11] in Norway, and *G. forsteri* could possibly follow suit.

The solution to this problem obviously lies in further exploration of sublittoral areas on rocky coasts of Scotland and Scandinavia. Since the fish in question is readily identified, a search of this type would provide an exercise of scientific interest for a group of amateur divers or local branches of the British Sub-Aqua Club. One of us (P. J. M.) would be pleased to give more details to anyone willing to help in such a project, or to identify any gobies collected by divers, and thanks Prof. E. W. Knight-Jones, Drs. Joanna M. Kain and N. S. Jones, and Mr. D. Eggleston for specimens and information concerning *G. forsteri*.

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