

TABLE I.

Standard Length mm	Wts of Ovaries gms	No. of Oocytes	Standard Length mm	Wts of Ovaries gms	No. of Oocytes
36	0.126	1,600	57	0.460	3,580
39	0.038	710	57	0.408	9,100
39	0.089	2,750	57	0.362	4,470
40	0.096	3,420	58	0.339	2,880
40	0.114	3,240	58	0.667	8,700
47	0.298	4,070	60	1.371	16,060
48	0.324	5,180	61	0.294	3,490
50	0.321	5,900	61	0.941	8,380
52	0.095	1,100	62	0.384	8,460
54	0.144	2,000	62	0.304	8,190
54	0.537	7,750	65	0.337	6,950
55	0.392	6,340	67	1.069	16,230
55	0.183	2,470	68	0.415	7,680
55	0.251	5,530	69	0.321	5,590
56	0.161	3,140	69	1.267	20,120
56	0.220	3,140	71	0.535	5,940

BREEDING SEASON

The duration of the breeding season of *G. huttoni* was determined from the presence of nests and the abundance of gravid adults in the streams examined. Breeding was found taking place in the late winter and spring, beginning about mid-July. Although nests were found in the Makara Stream until late in December, 1961, absence of gravid females in the breeding areas was taken to indicate that spawning had been completed by about the end of November.

BREEDING HABITAT

G. huttoni does not generally breed in the rapid water habitat it usually occupies (see McDowall, 1964). The fish leave their haunts at the heads of riffles and enter the quieter water at the sides and tails of pools. The male appears to leave the fast water habitat earlier in the season than the female. At the beginning of the breeding season there is therefore a distinct difference in the habitat each sex occupies—the females are found in the fast water habitat and the males in the breeding habitat. Numerous nests were found in the minor tributaries of the Makara Stream where there were short fast riffles and short rocky pools. These tributaries arise in narrow bush-glad gullies, receive little sun, and are usually cooler than the main stream. These streams are less subject to temperature fluctuations than the more open bed of the main stream.

In order to characterise the conditions under which *G. huttoni* breeds, two typical breeding sections of stream were studied. Contour maps of two pools were constructed and flow patterns and flow rates were applied to the contour map. The positions of nests in the pools were marked on the map. The nests were found to be distributed towards the tails of the pools, where flow rate was sufficiently great to prevent silt deposition; in general the nests were in shallow water. These results agreed with the general observation that *G. huttoni* breeds in shallow rocky stream where flow is steady but not fast. Although most breeding was found to occur in rocky stream, it was not confined to such situations. In the lower reaches of the Makara Stream where flow was sluggish and the stream bed a fine silty mud, nests were found where there were suitable solid objects with sufficient area on which to deposit eggs.