

ART. XIX.—List of Fishes found round the Mokohinou Islands; their Spawning Time; and Observations regarding some of the Species.

By F. S. SANDAGER.

[Read before the Auckland Institute, 14th November, 1887.]

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Oligorus gigas</i> (a) ..	Common during the spawning season	End of May	End of August	End of May to middle of August
.. var. (or sp.) (b)				
<i>Arripis salar</i> (c) ..	Common	..	..	February, March, April
<i>Scorpius hectori</i> ("Fishes of New Zealand") (d)	Rare ..	July ..	October	From end of July to middle of October
<i>Upeneoides vlamingii</i> (e)	Rather rare	October	January	..
<i>Pagrus unicolor</i> (f) ..	Common	..	..	November and December
<i>Chironemus georgianus</i> (g)	Not common	..	..	April and May

REMARKS.

(a) Caught in from 8 to 15 fathoms during the spawning season. At other times it is not, so far as I am aware, found near the Mokohinou Islands, but abounds in from 30 to 60 fathoms some distance (about three-quarters of a mile) off.

(b) It is very easy to distinguish two distinct varieties or species, one of which is much fatter and with a larger head than the other. The Barrier Natives call the small-headed or common kind *hapuka*, and the other *maione*.

(c) Very common all the year.

(d) My first specimen was caught in July, 1884, and I observed no more till this year (1887) when others were caught in July and October. The specimens were spawning.

(e) Caught two examples with a bit of crab in 5 feet of water, but it will rarely bite. I have occasionally seen this fish in shallow water stirring up the shelly bottom with its barbels, which are darted rapidly forward with a jerky motion. This fish also applies its barbels to the bait before biting, so that the point of the hook requires to be well covered. During fine warm weather it is sometimes seen busily feeding between the tide marks.

(f) Very common all the year.

(g) Will rarely take the hook, but may be easily speared as it rests on the bottom or moves slowly amongst the Algæ upon which it feeds. It is a very fat fish, but unpalatable for food on account of its peculiar phosphorus-like odour. Its stomach is invariably crammed with large round balls of Algæ.

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Chironenus fergussoni</i> ^(a)	Common	..	..	April and May
<i>Chilodactylus macrop- terus</i> ^(b)	Rare ..	..	..	..
<i>Chilodactylus specta- bilis</i> ^(c)	Not com- mon	..	..	..
<i>Chilodactylus douglassii</i> ^(d)	Not com- mon	..	..	August
<i>Sebastes percoides</i> ^(e) ..	Rare ..	..	..	..
<i>Scorpena oznoensis</i> ^(f) ..	Common	..	.	..
<i>Thyrsites atun</i> ^(g) ..	Common	..	..	May, June, July, and part of August
<i>T. prometheoides</i> ^(h) ..	Rare ..	November	?	..
<i>Trachurus trachurus</i> , var. ⁽ⁱ⁾	Rare ^(?) ..	May ..	..	..

REMARKS.

(a) Common on stony or boulder bottom in shallow water. Rather dry eating.

(b) I have only seen one example, but the Maoris inform me that plenty used to be found a short distance south from our landing.

(c) Occasionally caught in a few feet of water during the summer

(d) I have caught about a dozen examples in four years. The largest measured 26 inches in total length. Like the preceding, it is occasionally seen in shallow water during the summer. The Barrier Natives know it by the name of *porai*.

(e) Rather scarce. Caught two examples in about 20 fathoms.

(f) Native name *rari*. Found in all depths from a few feet up to 60 fathoms. Flesh rather dry, but not badly flavoured.

(g) Found here all the year, but scarcest from December to March. The majority spawn during July and August. Most examples I have examined were more or less infested by parasites, one kind of which infest the gills to such an extent that half of them are frequently destroyed, leaving nothing but stumps where they formerly were; and the parasites are at times so numerous that the gills, when examined inside the mouth, appear quite alive. Another parasite (?) burrows through the flesh of the fish in all directions, and is sufficiently large not to escape the eye if a slice is examined. To judge from appearance, neither of these parasites seems to incommode the fish.

(h) I have only seen one example, which ran ashore. The fins did not exactly agree with the description of *T. prometheoides*, but were sufficiently near to cause me to refer it to this species, the lateral line being bifurcate.

(i) Took a considerable number three years ago, in May, when I saw large schools. The specimens were about the size of a herring.

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Caranx georgianus</i> (a) ..	Common	..	..	December to February
<i>Seriola lalandii</i> (b) ..	Common	..	..	..
<i>Ditrema violacea</i> (c) ..	Common	..	..	December to February(?)
<i>Ditrema</i> var. (or sp.) (d)	Common	..	..	..
<i>Percis colias</i> (e) ..	Not common	..	..	July and August
<i>Trypterygium varium</i> , sp. (?) (f)	Not common	..	..	July and August

REMARKS.

(a) Found all around here in countless numbers, but does not take the hook well.

(b) Very few are caught during October, November, and December. It probably spawns about this time. The largest I have caught measured 4 feet $7\frac{1}{2}$ inches in total length.

(c) This excellent fish is abundant here all the year. Its ova appear to me to be very irregularly developed and minute, and, so far, I am not quite certain regarding its spawning time. The largest specimens I have caught measure fully 15 inches, but the average fish run between 7 and 8. Countless numbers might be easily taken in nets during the summer months in shallow water, when it feeds upon small crustacea, spawn, and jelly-fish which float or swim at or near the surface, or it might be netted in a kind of bag net as it passes through some of the narrow openings between the islands, and in this way whole shoals might be secured. It often visits caves which have only a few feet of water, and I have frequently seen a whole shoal appear from or disappear into such places, and, taking up a good position above with a rod, I have caught from fifty to sixty in a couple of hours, but to do so it is necessary to use a small hook, and shell-fish or crabs for bait. During the winter, when the sea is smooth, immense numbers may be seen resting on rocky ledges as deep as the eye will penetrate, appearing as one unbroken mass of blue. Weather permitting, it may be caught any day of the year from the rocks in favourable places.

(d) Unlike the preceding it does not shoal, or feed at the surface, nor is it, as a rule, caught in shallow water. In deep water it is abundant, and may be easily caught with a hook of moderate size, baited with a bit of fish, for it bites more greedily than *D. violacea*. The largest specimen I have seen measured 14 inches in total length. I caught it during the month of July, in 18 fathoms, and it contained unripe ova. This species is bluish-grey on the back, and greyish-silvery, with a coppery tinge, on the sides. It is a more elevated form than *D. violacea*, and I know of no intermediate forms between the two fish, which differ in form, habit, and colour, although the fins of both agree, excepting a slight difference in the shape of the caudal fin.

(e) Only caught occasionally.

(f) A small species, which seems to prefer a boulder bottom.

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Trachelochismus</i> , two species ^(a)	Common	..	..	September and October
<i>Labrichthys celidota</i> ^(b)	Not common	..	..	August, September, October
<i>Labrichthys bothryocismus</i> ^(c)	Common	..	..	August, September, October
<i>Labrichthys psittacula</i> , var. ^(d)	Common	..	..	August, September, October
<i>Labrichthys latidorsus</i> ^(e)	Not common	..	..	August, September, October
<i>Cossyphus unmaculatus</i> ^(f)	Not common	..	..	May and June
<i>Cymolutes sandageri</i> ^(g)	Not common	November	April ..	February and March
<i>Coriodonax pulchus</i> ^(h) ..	Not common	..	..	July and August

REMARKS.

(a) One species is common on the boulder beach, between high and low water-marks. The other is only found below the ordinary low water-mark.

(b) This is the rarest of the four species. I have caught about half a dozen.

(c) I have never caught this fish in deep water. Common in shallow.

(d) A black-tailed variety, which is quite common. Unlike the preceding it is not common in very shallow water, but in from 7 fathoms and upwards it can be got almost anywhere.

(e) Caught occasionally in certain places at the north-east end of island, in from 1 to 7 fathoms.

(f) Occasionally caught in depths varying from a few feet up to 60 fathoms. It prefers crab to any other bait, and is not easily caught, unless fished for with a rod and small line. Very good eating.

(g) Occasionally seen during the summer months in a few feet of water when the tide is coming in. It bites well when the hook is baited with shellfish or crab; and should a fish drop off after being hooked it does not matter, for it will bite again and again till caught. Few fish are so persistent in this respect. During the colder months it is occasionally caught in from 8 to 15 fathoms.

(h) Far from common here, and it does not take the hook well, though it may at times be enticed to bite on a bit of crab. The mature ova of this fish are comparatively large, the grains measuring nearly $\frac{1}{2}$ inch in diameter.

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Pseudophycis</i> , sp. ? (a) ..	Not common	..	..	October, November
<i>Scombrox forsteri</i> (b) ..	Not common all the year	December	June	May
<i>Hemirhamphus intermedius</i> (c)	Rare ..	March ..	?	..
<i>Exocoetus speculiger</i> sp. ? (d)	Not common	March ..	?	..
<i>Monacanthus convexirostris</i> (e)	Common	..	..	End of August to beginning of November
<i>Lygæna malleus</i> (f) ..	Rare ..	..	..	..
<i>Acanthias vulgaris</i> (g) ..	Common	..	..	..
<i>Mustelus antarcticus</i>	Not common	..	..	..

REMARKS.

(a) Caught occasionally all the year round. It prefers a rough bottom where plenty of lurking-places are found. There appear to me to be two varieties, one of which averages from 10 to 12 inches and confines itself to shallow water (from four feet up to 6 or 7 fathoms). The other variety is sometimes 2 feet in length, and must be fished for in from 15 to 20 fathoms.

I find that specimens of *Pseudophycis* are very variable in respect of the number of rays found in their dorsal and anal fins, and scarcely any two I have examined counted alike.

(b) This fish is not always seen here in December, but during the last four years I have observed large shoals in May and June, and secured many live specimens, as they were driven ashore by large fish. The fish seen in December are smaller than those which visit us in May and June, the largest measuring about 15 inches. Ova of this fish are very large (nearly $\frac{1}{16}$ in. in diameter) and transparent when shed. This is one of the best eating fishes that is got here. Bones sometimes green. Could at times be netted in great numbers.

(c) Rarely seen here. A few occasionally visit the island in March.

(d) Large numbers visit the Hauraki Gulf in March, but do not come very near this island, although abundant between it and the Little Barrier.

(e) A most troublesome fish when crab is used for bait.

(f) I have only observed one specimen.

(g) Abundant on sandy bottom three-fourths of a mile south from Mokohinou.

Name.	Whether Rare or Common.	Visitors.		Spawning Time.
		Arrive.	Depart.	
<i>Scyllium</i> , sp. ? (a) ..	Not very rare	End of May	End of August	May to (?)
<i>Galeus canis</i> ..	Common	..	..	..
<i>Trygon thalassia</i> ..	Common	..	..	..
<i>Myliobatis aquila</i> (b) ..	Not common	..	..	..
<i>Bdellostoma cirrhatum</i> (c)	Rare ..	..	..	..

REMARKS.

(a) Follows the *hapuka* in its time of arrival and departure, and it is occasionally got when fishing for *hapuka* in deep water. Excepting during the spawning time of the *hapuka* I have never caught the *Scyllium* in shallow water. It has a most disagreeable odour.

(b) Speared a large specimen two years ago. Could be got occasionally if wanted.

(c) I have only observed five or six individuals in the course of four years.

In addition to the species above enumerated as occurring here, twelve others, as yet unidentified, have been sent to Sir James Hector, Mr. T. F. Cheeseman, F.L.S., or remain in my own collection. Very little is known to me regarding the species which confine themselves to deep water, most of my captures having been made fishing from the rocks in depths varying from a couple of feet up to 15 fathoms; but I have sufficient grounds for believing that many of the deep-sea fishes visit shallow water to spawn, and in the case of some summer visitors, because the feed, such as shrimps, medusæ, different kinds of spawn, etc., is most abundant there and nearer the surface during the warmer months, the smaller fish being of course followed by predaceous species. Observations extending over a period of four years and a half convince me that visiting fishes are almost as punctual in their arrival and departure, after accomplishing their purpose, as some of the birds of passage; but few, if any, of the species enumerated leave the neighbourhood of the island, the change being merely from deep water to shallow water, or *vice versa*, according to the season. Possibly *Scombrox forsteri*, *Trachurus trachurus* (the small variety), *Thyrsites prometheoides* and *Exocætus* sp., are exceptions, for regarding these I cannot speak with any certainty, because I have never observed them during the winter.

Some species of fish are very local in their habitat, as shown by the fact that species are found in certain places round some of the Mokohinou Islands, whilst, so far as I have been able to discover, absent from others; the nature of the bottom, whether it affords suitable food and hiding-places, being no doubt a great factor in the distribution of species. One species, for instance, known to the Barrier Natives by the name of *koro-koro punamu*, is only found in two of the islands, in places where overlapping boulders abound, or rocky overhanging reefs occur; the depth, however, is of no importance, for though this fish reaches a considerable size (upwards of 2 feet), I have in such places seen as many as thirty or forty in a hole, cut off from access to the sea at low water. It feeds upon the small green Algae so common between tide-marks. It is a very shy fish, and will very rarely bite in the open water—that is, where it can be seen. As a food fish it ranks far before the *maomao* (*Ditrema violacea*), a fact which is quite recognised by the Natives, who inform me that they have never seen it elsewhere, excepting on one occasion when one was found at the Great Barrier Island. Although not a fish, it may not be out of place if I mention that crayfish (*Palinurus edwardsii*) are very abundant here. During the spawning season (from middle of May to the end of July) large numbers visit shallow water in rocky sheltered places, and the males (which do not cast their shell at the same time as the females) may be easily caught or speared. It is perhaps unnecessary to say that the casting of the shell, in the case of the females, immediately precedes the spawning.

ART. XX.—*Descriptions of new Species of New Zealand Araneæ.*

By P. GOYEN.

[Read before the Otago Institute, 8th November, 1887.]

§ CITIGRADÆ.

Fam. LYCOSOIDÆ.

Genus *Dolomedes*, Latr.

Dolomedes aquaticus, sp. nov.

Female.—Length, 18 mm.; length of cephalothorax, 8 mm. Legs 4, 2, 1, 3 (1 and 2 being almost equal) = 26, 22, 22 (about), 21 mm.

Cephalothorax chocolate brown, with a supra-marginal band of yellow extending from the posterior slope to the anterior angle of the pars cephalica: falces, maxillæ, labium, and sternum,