

## A SURVEY OF BLENNIIDAE, CLINIDAE, AND TRIPTERYGIIDAE (PISCES) IN MALTESE WATERS (CENTRAL MEDITERRANEAN), INCLUDING FOUR PREVIOUSLY UNRECORDED SPECIES

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### ABSTRACT

The results of field research undertaken during summer 1998 are reported. Three new species of Blenniidae and one new species of Tripterygiidae are recorded for the first time from the Maltese islands. A fourth species of Blenniidae is recorded for the first time in 150 years. Information on local status, occurrence, and previous records is given for 20 species belonging to the mentioned families of fishes.

### INTRODUCTION

This paper reports on the occurrence and status in Maltese waters of twenty species of fish belonging to the families Blenniidae, Clinidae, and Tripterygiidae. It is the result of research conducted during the period June to September 1998.

Compared to other groups, the ichthyology of the Maltese islands has been well studied, with no fewer than seven publications covering the period 1838 to 1993. All authors deal with the family Blenniidae, and all but one with the families Tripterygiidae and Clinidae. Table 1 summarises the literature, and includes only entries based on direct observation and/or examination of specimens by the respective authors. Entries listed explicitly on the authority of previous workers are not included.

The major shortcoming of most previous work was a reliance on specimens found in fishermen's catches and/or randomly taken by the researcher operating a hand net from shore. This has resulted in major omissions: *Lipophrys canevai*, for instance, is a species which tends to spend most of its time hiding in holes and is consequently difficult to take.

### METHODS

A great deal of valuable information on the behaviour, ecology, and distribution of individual fish species can be obtained by observing fishes in the wild. Numerous methods for direct observation and recording of fishes in the wild have been developed and the actual techniques used depend on the objectives of the study in question (Gibson 1999: 8).

The present work is based on direct observation. Since most species belonging to the three aforementioned families tend to occur in relatively shallow water, often in very shallow water in the mediolittoral and infralittoral zones, snorkelling was found to be a perfectly adequate means of observation. Observations were carried out at 15 sites around the Maltese coast (Fig 1) and were spread over 34 sessions of approximately one hour each. Notes on physical characteristics, habits, and habitat were taken in the field. Special care was taken in recording structure of tentacles and fins. Various identification keys were used, notably Whitehead *et al.* (eds.) (1986), Bath (1977), Lythgoe & Lythgoe (1991), and Šoljan (1968). Riedl (1991) and Miller & Loates (1997) were useful as general reference works.

### RESULTS

Information on the occurrence and status in Maltese waters of twenty species of fish is given. Unless otherwise stated, all descriptions of structure, colour, size, habitat and occurrence are based on the present author's field notes.

### BLENNIIDAE

The present work records 12 species of Blenniidae, 3 of which are new to the Maltese islands and a fourth is recorded for the first time in 150 years. A further 4 species and 1 unidentified species were recorded by previous authors and are included at the end of the list. Maltese names, except when underlined, are given as in Lanfranco (1993); the underlined names were coined by the present author.

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*Aidablennius sphynx* Valenciennes, 1836  
Malt: Budakkra lewn iz-zebbug

Common but localised, occurring exclusively in rocky (especially Globigerina limestone platforms), very shallow (generally < 0.5m) bare areas where algal growth is sparse. Observed characteristics: Characteristic steep, almost vertical, forehead, one pair of fleshy threadlike orbital tentacles, high spiny dorsal fin, and small eyes set well up in head, almost protruding. Basic colour a light yellowish-grey to a light brown, with brown vertical bars edged bluish. There is a conspicuous grey (sometimes bluish) spot edged red behind the eye. Some individual males with a pinkish-orange edge to very high spiny dorsal. Size range 35 to 65 mm.

Distribution: The species is recorded from around the Mediterranean, the Atlantic coast of Morocco, and the Black Sea (Whitehead *et al.* 1986: 1097).

*Coryphoblennius galerita* Linnaeus, 1758  
Malt: Budakkra tal-blat

This species was last recorded in Malta by Trapani in 1838. In this survey, six individuals were noted clinging to the rock face in extremely shallow water, frequently being exposed above water level by wave action. The frequency status of this species is still to be determined.

Observed characteristics: Rather steep forehead and very small eyes. One pair of fleshy orbital tentacles and a very few (compare especially to *Scartella cristata*) filamentous tentacles over nape. Basic colour a light brown with darker vertical bars on body. Conspicuous white upper lip in some specimens. Size range 40 to 70 mm.

Distribution: Mediterranean, Black Sea and from southern Ireland, Cornwall and Brittany southwards to Guinea; also occurs off the Azores and the Canaries (Whitehead *et al.* 1986: 1099).

*Lipophrys canevai* (Vinciguerra, 1880)  
Malt: Budakkra tat-tikki

Recorded for the first time for the Maltese islands. The fact that previous authors fail to record this species is probably due to the lack of direct observation. It is one of the commoner Blenniidae species, occurring in shallow water (generally < 1m) in a variety of rocky habitats, usually to be found hiding in holes (sometimes upside down) with only the head protruding.

Observed characteristics: Body relatively laterally flattened. No observable tentacles. Soft dorsal fin noticeably higher than spiny dorsal fin. Squarish head with very steep forehead and small eyes set high up in head. Colour variable, generally a chocolate brown with darker spots and ill-defined vertical streaks. Sometimes a row of ill-defined white spots along back, just below dorsal fin. Males much darker, with almost black head and yellow red-spotted cheeks and reddish-brown opercula. Size range 55 to 85 mm.

Distribution: Mediterranean and off southern Portugal (Whitehead *et al.* 1986: 1102).

*Lipophrys pavo* (Risso, 1810)  
Malt: Budakkra tal-ghalla

The species is very common but limited to rock pools on the shore.

Observed characteristics: Body laterally flattened. No observable tentacles. Colour a light yellowish-brown with light brown vertical bars edged blue. A dark spot with bluish margin behind eye. Males with rounded, high crest. Size range 40 to 100 mm.

Distribution: The species is recorded in the Mediterranean, Black Sea and Atlantic coasts, from Morocco to mouth of Loire, France. It is also present in the Suez canal (Whitehead *et al.* 1986: 1104).

*Lipophrys trigloides* (Valenciennes, 1836)  
Malt: Buzullieqa

Regular but not common, in very shallow water (< 0.5 m), generally clinging motionless to vertical rock faces in the zone immediately below the waterline.

Observed characteristics: Angular indented head somewhat recalling a Gurnard (family Triglididae). Large eye and well-defined, rounded orbital. No observable orbital tentacles. Basic colour a light olive with dark vertical bars. Size range 40 to 100 mm.

Distribution: Mediterranean, Sea of Marmara and from Brittany southwards to Senegal. Also off Madeira and the Canaries (Whitehead *et al.* 1986: 1105).

*Lipophrys basilicus* (Valenciennes, 1836)  
Malt: Budakkra tal-fond

Not found in the present study. Recorded as common in Maltese waters by Jennings (1979), and considered doubtful by Cilia (1990) and Lanfranco (1993).

Distribution: Western Mediterranean, Adriatic Sea and Izmir (Whitehead *et al.* 1986: 1102).

*Parablennius gattorugine* (Brünnich, 1768)  
Malt: Budakkra tal-qawwi

Regular but not common, generally in shallow water around 0.5 m, but often at greater depths of up to 2.5 m. Tends to prefer rocky areas with substantial algal growth, preferably brown algae such as *Cystoseira* spp. against which the species is well camouflaged.

Observed characteristics: Single pair of orbital tentacles, featherlike in structure, and up to 15 mm in length. Large eyes. Colour a chocolate brown or olive-brownish, with darker vertical bars on body. Size range 50 to 150 mm.

Distribution: To be found in the Mediterranean, Sea of Marmara, and the Atlantic coast from Ireland to Morocco (Whitehead *et al.* 1986: 1107).

*Parablennius incognitus* (Bath, 1968)  
Malt: Budakkra tal-faxxi

Regular but not common, inhabiting rocky areas, generally in shallow water up to 1 m deep.

TABLE 1. Blenniidae, Clinidae and Tripterygiidae species from Maltese waters hitherto recorded in the literature.

Species	Trapani 1838	Gulia 1861	Despott 1919	Baldacchin o 1935	Lanfranco 1958	Jennings 1979	Cilia 1990
<i>Aidablennius sphynx</i>					•		•
<i>Blennius ocellaris</i>	•	•	•		•		•
<i>Coryphoblennius galerita</i>	•						
<i>Lipophrys basilicus</i>						•	
<i>Lipophrys pavo</i>		•	•		•		•
<i>Lipophrys pholis</i>	•	•			(1)		
<i>Lipophrys trigloides</i>					•		•
<i>Parablennius gattorugine</i>		•	•		•		•
<i>Parablennius incognitus</i>							•
<i>Parablennius sanguinolentus</i>				•	•		
<i>Parablennius tentacularis</i>	•		•		•		
<i>Parablennius zvonimiri</i>						•	
<i>Scartella cristata</i>							•
<i>Blennius sp.</i>						•	
<i>Clinitrachus argentatus</i>		•	•		•		(2)
<i>Tripterygion tripteronotus</i>		•			•		(2)

(1) Included in 1958 edition but corrected (omitted) in 1993 edition.

(2) Cilia (1990) does not consider Clinidae and Tripterygiidae.

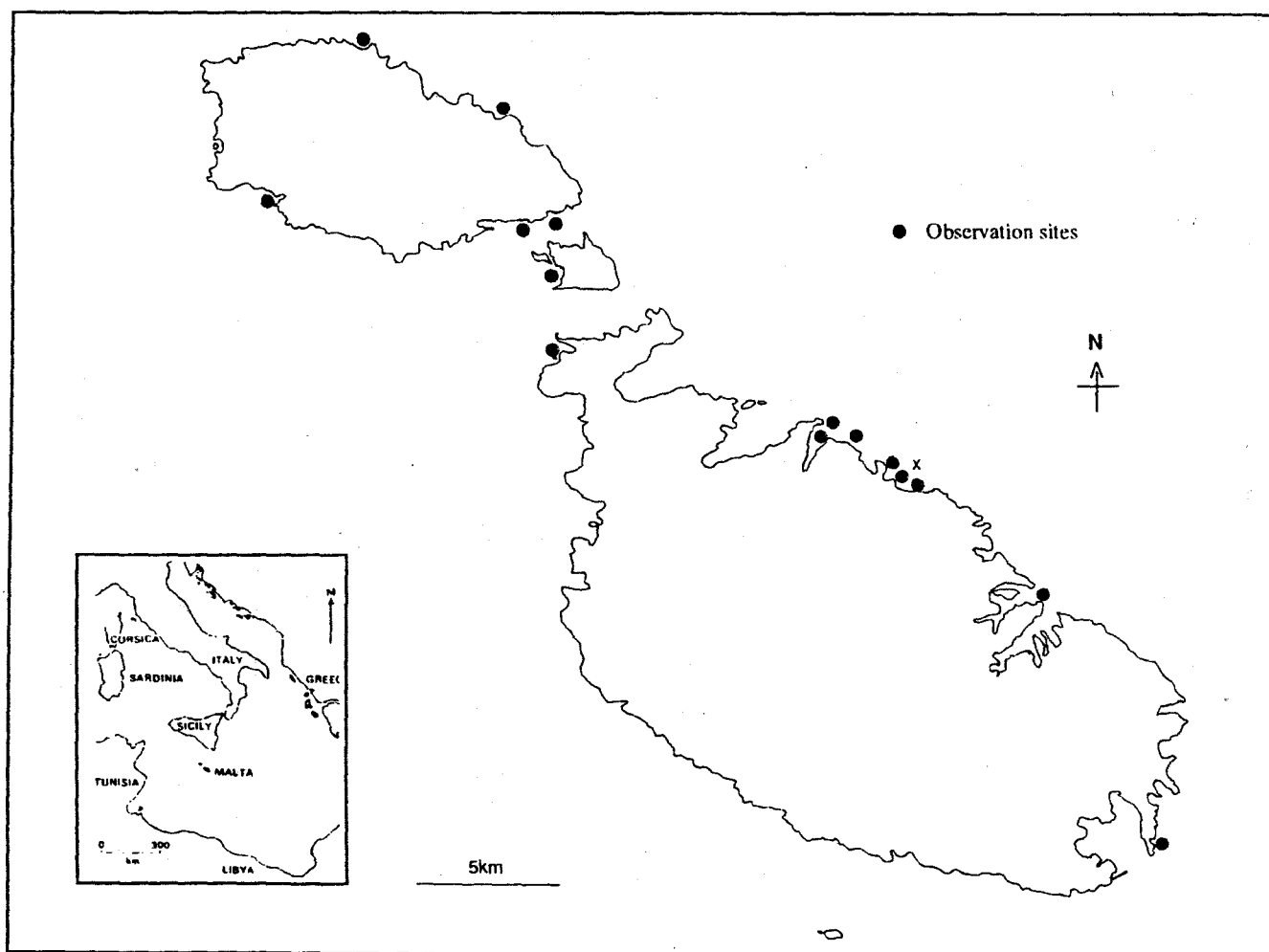


Fig. 1 Sites where observations were carried out.

The species was previously known locally from a single specimen taken in 1972 (Cilia 1990: 6).

Observed characteristics: Single pair of branched (but not featherlike) orbital tentacles. Noticeable notch between spiny and soft dorsal fins. Basic colour a darkish olive-greyish, with darker vertical bars on body. Some specimens (territorial males?) are more colourful, having reddish orbits and a bluish fringe to dorsal fins. Size range 40 to 65 mm.

Distribution: Recorded in the Mediterranean, Black Sea and off Iberian Peninsula to Morocco and the Canaries (Whitehead *et al.* 1986: 1107).

*Parablennius pilicornis* (Cuvier, 1829)

Malt: Budakkra safra

Recorded for the first time for the Maltese islands. A single record. One individual fish was observed several times in exactly the same spot (Site X on Fig 1, White Rocks, l/o Bahar ic-Caghaq) in August and September 1998. Algal growth in the area, which was rocky, was relatively sparse, and the depth was 1.5 m. The species was noted to be very approachable and was photographed on one occasion.

Observed characteristics: Conspicuous single pair of antler-like orbital tentacles and filiform appendages around nostrils visible at very close range. Large eyes set high in head within well-defined orbitals. Body slim but not laterally compressed, very slightly pot-bellied. No noticeable notch between spiny and soft dorsal fins. Colour a dull golden, making the fish very conspicuous at any distance and unlike any other species of Blenniidae. At very close range, a scattering of reddish-brown small blotches is apparent on lower half of body. Size 85 mm.

Distribution: The species is recorded from the Western Mediterranean, namely southern Spain, Morocco, Algeria. Also occurs in the eastern Atlantic from Portugal to South Africa and off Brazil (Whitehead *et al.* 1986: 1109).

*Parablennius rouxi* (Cocco, 1833)

Malt: Budakkra tar-rig

Recorded for the first time for the Maltese islands. Two individual fish were observed at White Rocks on one occasion in August 1998. Both were observed at a depth of ca. 5 m, over a sand and soft residue bottom interspersed with outcrops of rock and *Posidonia*.

Observed characteristics: Two sets of orbital and nasal tentacles. Colour unmistakable, white with dark brown (jet black at distance) stripe from base of caudal fin to eye. Size 70 mm.

Distribution: Northern Mediterranean and off Portugal (Whitehead *et al.* 1986: 1109).

*Parablennius sanguinolentus* (Pallas, 1811)

Malt: Budakkra hamra

Common. Rather localised, occurring in significantly larger numbers in shallow (< 1 m), completely bare, rocky areas with pebbles and/or medium-sized stones. Often in deeper water, up to ca. 3m. The species is sometimes taken by anglers.

Characteristics: Rudimentary pair of orbital tentacles. No noticeable notch between spiny and soft dorsal fins. Body

shape diagnostically pot-bellied. Colour a light greyish-brown with small darker spots on body. Behaviour characteristic, swimming away with a swaying motion rather than hiding when approached. A ca. 170 mm individual (probably a breeding male) with dark purple coloration, dark bluish iridescent pectorals, whitish fleshy tips to anal finrays and a single pair of red orbital tentacles was observed on one occasion in September 1998. Size up to 200 mm.

Distribution: Occurs throughout the Mediterranean, Black Sea, and Atlantic coast from Morocco to Loire, France (Whitehead *et al.* 1986: 1110).

*Parablennius zvonimiri* (Kolombatovic, 1892)

Malt: Budakkra tal-qroll

Common. Occurs in several types of habitats, but mostly in rocky, shallow areas (ca. 1 m) with short brown algae. Rock faces with red encrusting algae are also favoured. The species is recorded locally to be frequent by Jennings (1979), and of doubtful occurrence by Cilia (1990).

Observed characteristics: Complex orbital and nasal tentacles; most tentacles thin and filamentous, but conspicuous branching set over orbits. Pronounced notch between spiny and soft dorsal fins. Colour variable from a light brown to a chocolate-brown, generally with a row of 5 - 7 yellowish-white spots along back, at base of dorsal fins. Size range 50 to 70 mm.

Distribution: Recorded from several areas around the Mediterranean and Black Sea (Whitehead *et al.* 1986: 1111).

*Parablennius tentacularis* (Brünnich, 1768)

Malt: Budakkra kannella

Not found in the present study. Recorded by Trapani (1838), noted to be very scarce by Despott (1919), and recorded again by Lanfranco (1958). An unconfirmed sighting was made by the present author in 1995; a single specimen was observed over boulders and sand at a depth of ca. 3 m.

Distribution: Occurs in the Mediterranean, Black Sea, and Atlantic coast from Spain to Senegal and the Canaries (Whitehead *et al.* 1986: 1111).

*Scartella cristata* (Linnaeus, 1758)

Malt: Budakkra tal-frenza

The commonest species of Blenniidae found in Maltese waters. Occurs in rocky areas and tends to hide in holes, occasionally two fish (male and female?) to a hole, in shallow water, (< 0.75 m). In the Honduras and Belize, out of 7 specimens taken in one study, all were taken in less than 3m and 5 were taken in less than 1.5m (Greenfield and Johnson 1981: 72-3). Previously known locally from one specimen taken in 1982 and another in 1987 (Cilia, 1990: 5).

Observed characteristics: Tentacle structure diagnostic - a row of several (>10, often around 20) thin, short, filamentous tentacles on nape from top of orbits to base of dorsal, often somewhat longer in orbital region. Eyes small. Highly variable in colour, from a light olive-brown

to a dark greyish-purple in larger specimens. Darker thin diagonal bars and blotches often present. Size range 60 to 130 mm, generally around 75 mm.

Distribution: Widespread. Occurs in the southern and eastern Mediterranean and from Biscay southward to Congo. Also off the Canaries, Bermuda, Florida, Cuba and Brazil (Whitehead *et al.* 1986: 1112), and from the Honduras and Belize (Greenfield and Johnson 1981: 72-3).

***Blennius ocellaris* Linnaeus, 1758**

Malt: Budakkra tal-Ghajjn

Not found in the present study. Recorded by Trapani (1838), Gulia (1861), Despott (1919), Lanfranco (1958), and Cilia (1990). Most authors record it as common. The species is known to occur at moderate depths from 30 m (Whitehead *et al.* 1986: 1098); this presumably explains its absence in the present study.

Distribution: Mediterranean, Black Sea and the Atlantic coast from Morocco to the English Channel (Whitehead *et al.* 1986).

***Blennius pholis* Linnaeus, 1758**

Malt: Buzullieqa

Not recorded in the present study. Recorded by Trapani (1838), Gulia (1831) and Lanfranco (1958). Cilia (1990) attributes these records to *Lipophrys trigloides*, a somewhat similar species; in his 1993 revised edition, Lanfranco adopts this view. Note that in Maltese usage, 'Buzullieqa' often refers to Blenniidae in general and *Parablennius sanguinolentus* in particular.

Distribution: Restricted to the western Mediterranean where it occurs off Southern Spain and the Balearics; found along Atlantic coasts from southern Norway to Morocco and Madeira (Whitehead *et al.*: 1990). Recorded in the Adriatic, but Šoljan (1963) attributes these records to *Parablennius sanguinolentus*, a somewhat similar species.

***Blennius* sp.**

Not recorded in the present study. Jennings (1979) describes a *Blennius* sp. closely resembling *Lipophrys pavo*, with similar body shape and fin structure, no orbital tentacles, no black spot behind eye characteristic of *L. pavo*, and a less pronounced or absent body hump. It is reported to be common in southeastern Maltese waters. Cilia (1990) proposes that this description possibly refers to *Lipophrys fluviatilis* Asso, 1881.

**CLINIDAE**

One species is recorded.

***Clinitrachus argentatus* (Risso, 1810)**

Malt: Budakkra tal-fidda

This species was observed twice, in very shallow water among dense *Cystoseira* spp. growth. Difficult to observe,

and as such frequency status still undetermined.

Observed characteristics: Dorsal fin with very pronounced incision after first few anterior spines. Colour grey-brown with silvery white patches along sides of body. Behaviour diagnostic, 'walking' on ventral fins and clinging to rocks and algae in very shallow water. Size around 85 mm.

Distribution: Mediterranean, Sea of Marmara, Bosphorus and Atlantic coast of Morocco and Portugal (Whitehead *et al.* 1986: 1117).

**TRIPTERYGIDAE**

***Tripterygion melanurus melanurus* (Guichenot, 1845)**

Malt: Bzaru sekond

First records for the Maltese islands. The nominate race occurs, as evident from the black spot edged white on the caudal peduncle. Frequent. Generally over rocky / hard substrate areas. Occurs on the vertical sides of boulders at 2 to 5 m depth, favouring dimly lit situations. Encrusting red algae favoured; this species in fact often associates with *Parablennius zvonimiri*.

Observed characteristics: Dorsal fin in three parts. Anterior spiny part dark and conspicuous, often 'flicked' when fish is approached. Eyes large and set in well-defined orbits. Colour red of varying intensity, with dark head appearing marbled at close range. Variable presence of small white spots along back, just below dorsal fin. Easily confused with *Lipophrys nigriceps portmahonsis* Castanos 1933, but fin structure diagnostic. Size generally < 40 mm. Distribution: The nominate race occurs in the Balearic islands, southern Sardinia, Algeria, Tunisia, Israel, Lebanon, Cyprus, and southern Turkey. *Tripterygion melanurus minor* occurs in France, Tyrrhenian Sea, eastern Sicily, Adriatic Sea, and Aegean Sea. Hybrid populations are known off northern Sicily, Marmaris and Rhodes (Whitehead *et al.* 1986: 1120).

***Tripterygion tripteronotus* (Risso, 1810)**

Malt: Budakkra rasha sewda

Common. Young fish inhabit very shallow areas (< 1 m) over rocky bottoms where algal growth is relatively sparse. Adults generally in deeper water (1.5 - 4 m), near stones and boulders over rocky bottoms. Adult males with black and red coloration rarely recorded after July; colour is probably linked to territoriality, but this needs further investigation.

Observed characteristics: Dorsal fin in three parts. Anterior spiny part dark. More sturdy appearance than *T. melanurus melanurus*. Colour: red body and solid (not marbled) black head in some (territorial?) males and otherwise greenish-brown with ill-defined darker vertical bars. Young specimens greenish with lighter bars, sometimes appearing almost translucent; reddish orbits frequent.

Distribution: Mediterranean and Black Sea (Whitehead *et al.* 1986: 1121).

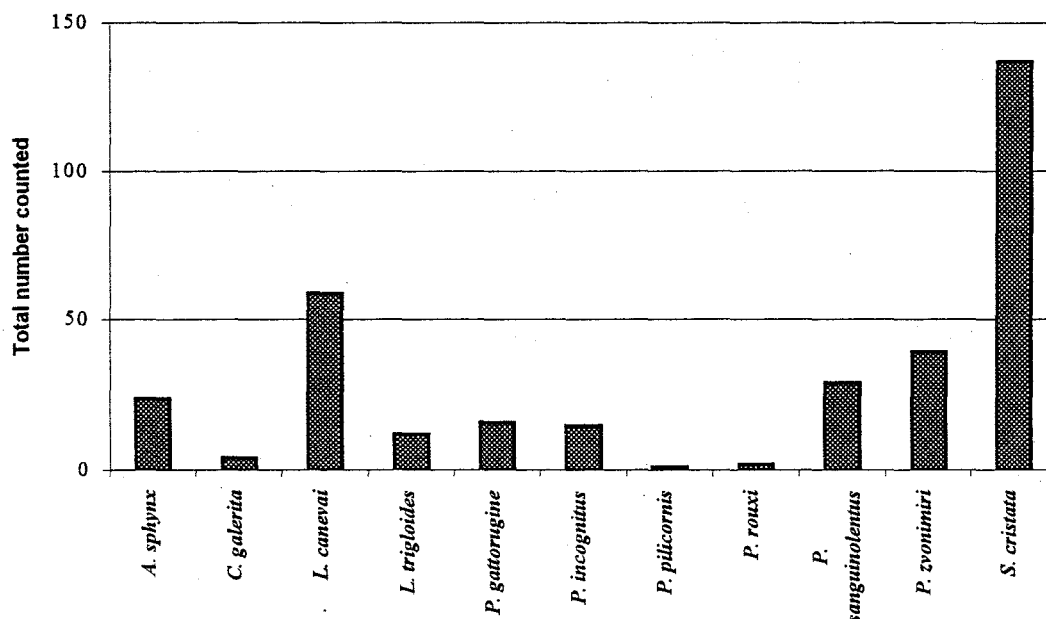


Fig. 2 Frequency of 11 species of Blennidae in a selected area.

## DISCUSSION

The relative frequency of species depends to a large extent on the type of habitat where observations are carried out. Site X, the coastal area known as 'White Rocks' on the East coast of Malta (Fig. 1) consists of a variety of microhabitats concentrated in a small area. Data gathered over 8 observation sessions at this site in August 1998 were combined in order to illustrate the relative frequency of

species. The results, shown in Fig. 2, are only a rough indication of the status of each species.

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