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INTRODUCTION INTO AYSEN CHILE OF PACIFIC SALMON

No. 9

**Descriptive Catalogue of Marine and Freshwater Fishes
from the Aysén Region, Southern Chile,
with Zoogeographical Notes on the Fish Fauna**

By

Akira Zama

and

Eduardo Cárdenas G.

1984

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MINISTERIO DE ECONOMIA FOMENTO Y RECONSTRUCCION
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*Dedicated to the late Dr. Yoshikazu Shiraishi, fishery biologist, who died in Coyhaique,
and my second daughter born in Puerto Aysén (A.Z.).*

Dedicado a mi madre y hermana fallecida (E.C.G.)

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Descriptive Catalogue of Marine and Freshwater Fishes from the Aysén Region,
Southern Chile, with Zoogeographical Notes on the Fish Fauna

Akira Zama and Eduardo Cárdenas G.

ABSTRACT

A total of 73 species of marine and freshwater fishes in 44 families are listed from the Aysén (XI) region, Chile. The present list includes 58 species examined in this study and 15 based on previous records from the region. Of the 58 species 16 are new to the Aysén region. The present study constitutes the second record of *Aplochiton marinus* since the original description, and a northward range extension for *Gymnoscopelus nicholsi* and *Echiodon cryomargarites* and a southward range extension for *Prionace glauca*, *Prolatilus jugularis*, *Hypsoblennius sordidus* and *Allothunnus fallai* on the west coast of South America. Most species listed are marine fishes which occur in the inland and open seas; only five species are confined to fresh water; eight are found in both marine and fresh waters. The Aysén fish fauna is composed principally of subantarctic fishes, but includes also subtropical-temperate and wide-ranging fishes. The number of families considering the rather small number of species, the sparseness of endemic species, and the simplicity of the shallow water fauna characterize the marine fish fauna. The few species of freshwater fishes reflect the impoverished freshwater fish fauna of southern South America (Patagonia). It is suggested that the Peru-Chile Undercurrent, which extends southward to 48° S, may contribute to the presence of the subtropical-temperate fishes in subantarctic waters. The affinity of the fish fauna of the Aysén region and other southern, circumpolar waters is shown.

INTRODUCTION

The Aysén (XI) region, southern Chile, is located between 43° 39' – 44° S and 48° 37' – 49° 16' S. The coastal zone of the region is marked by numerous islands, channels and fiords, exhibiting features typical of past glacial activity (Fig. 1). There are also great numbers of lakes of various sizes in islands and the continent. The West Wind Drift approaches the coast between 40° S and 44° S, near the so-called Chiloé and Chonos Archipelagos, and branches into two, the northward Humboldt (Peru) Current and the southward Cape Horn Current (Barros, 1983).

Since 1973 the introduction of Pacific salmon into the Aysén region has been conducted as a cooperative project between Chile and Japan. At present five species of *Oncorhynchus*, *O. keta*, *O. gorbuscha*, *O. masou*, *O. kisutch* and *O. tshawytscha*, have been released or are being reared in Ensenada Baja and Chacabuco Bay, the innermost part of Aysén Fiord, by the project and another authority (Fundación Chile). Fish larvae are an important food source for the released juvenile salmon, while carnivorous fishes inhabiting the Aysén region pose a problem of predation for these juveniles. When salmon are established in the region, the competition for food and space will likely arise between the exotic salmon and native fishes. Faunal and ecological changes may be caused by the introduction of salmon as Campos (1970a) and Arratia (1978) warned. However, little information is available on the fish fauna of the Aysén region. We attempt herein to clarify the Aysén fish fauna on the basis of our collection and previous records.

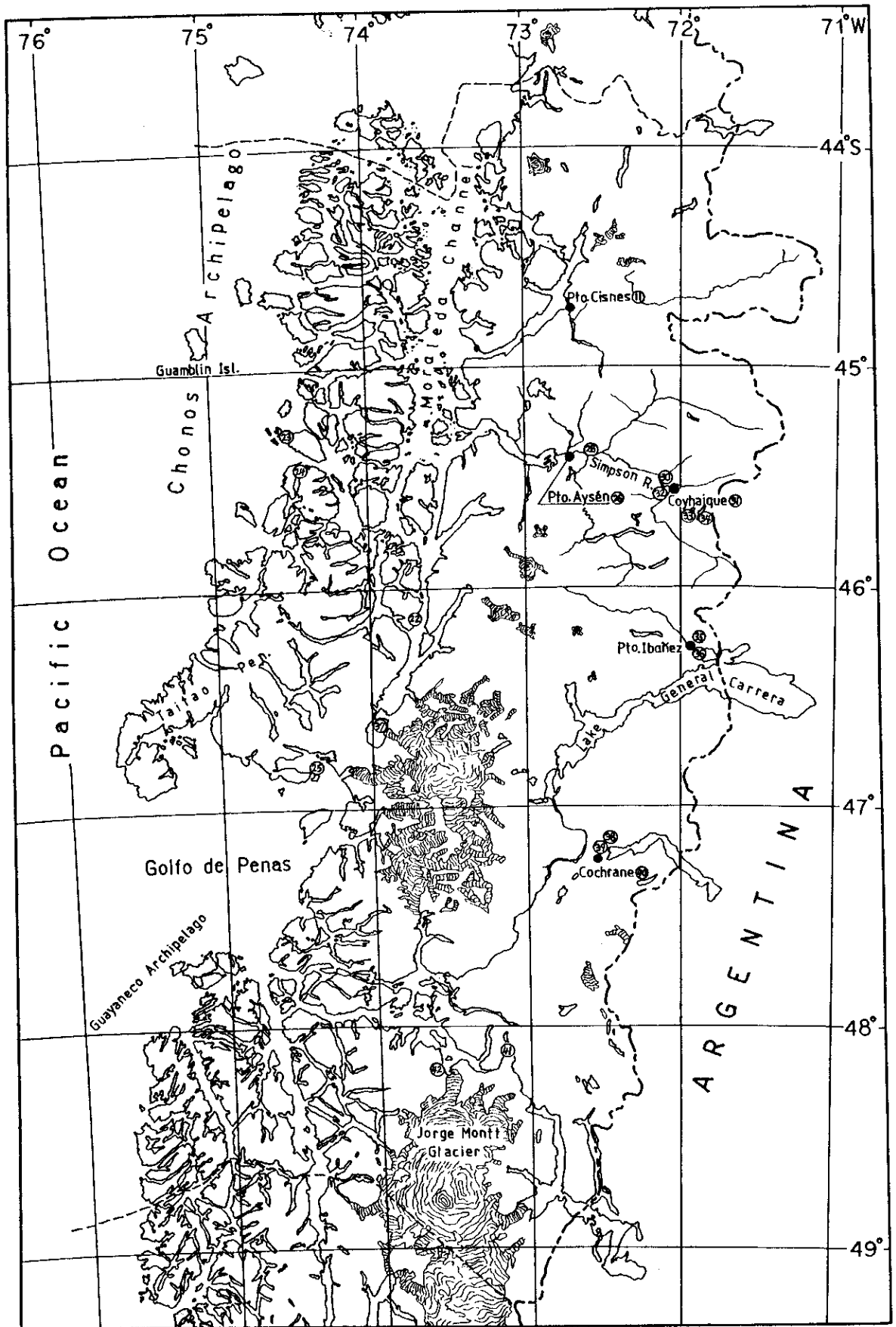


Fig. 1. Map of the Aysén (XI) region, showing some sampling localities. Circled numbers correspond with those listed in Appendix Table 1.

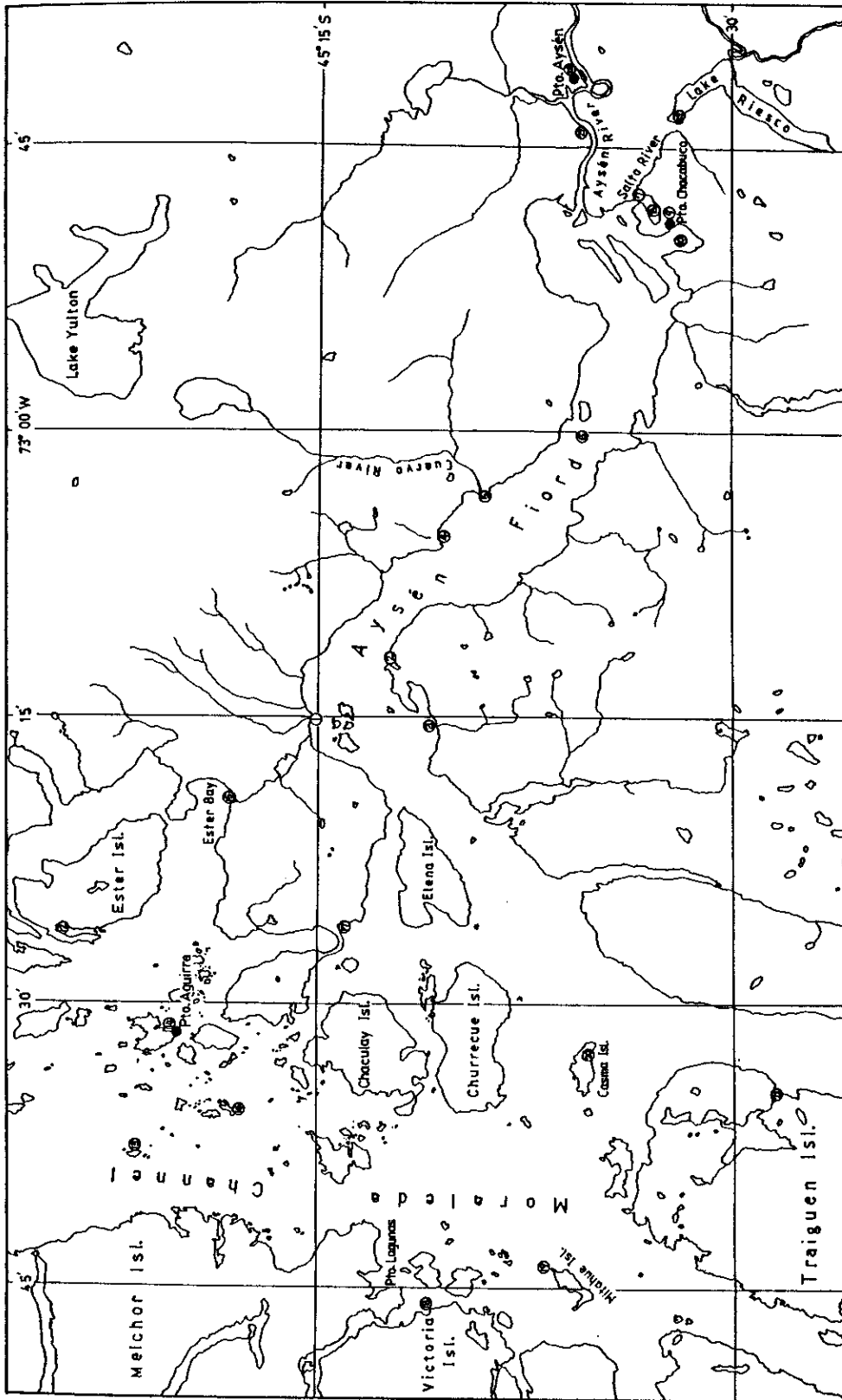


Fig. 2. Map of Aysén Fiord and Moraleda Channel, showing sampling localities. Circled numbers correspond with those listed in Appendix Table 1.

As noted by Norman (1937) and Pequeño (1975), during the period between the 1770's and the 1930's, expeditions were made to the Chile - and Argentina - Patagonian coasts by various countries, and authors such as Jenyns (1842), Cunningham (1871), Günther (1878; 1880; 1887), Lönnberg (1907), Thompson (1916), Ginsburg (1936) and Norman (1937) included some fishes obtained from the Aysén region in their reports. Although in recent years the resource surveys for demersal fishes have been carried out around the continental shelf of southern Chile (e.g. Villegas et al., 1967; Doi et al., 1971; Trujillo, 1972; Pantaja et al., 1973; Bahamonde, 1977 and 1978; Sato and Nakamura, 1978; Suzuki, 1979; Jelvez and Blanco, 1981; Ojeda, 1981), taxonomic studies of fishes are rather scarce. Except for reports on the fish resource, after Norman (1937), 18 papers referring to the fishes from the coast of Aysén are known (Ginsburg, 1952 and 1954; de Buen, 1960a, 1961a and 1962; Nybelin, 1969; Leible et al., 1974; Inada and Nakamura, 1975; Martínez, 1976; Ojeda, 1978; Navarro and Pequeño, 1979; Hubbs and Wisner, 1980; Inada, 1981a and 1981b; Leible et al., 1981; Rueda, 1981; Zama and Cárdenas, 1982 and 1983). Few fishes were recorded from this region in each study except those of Navarro and Pequeño (1979) and Rueda (1982). Navarro and Pequeño (1979) reported 29 species from the Chiloé and Chonos Archipelagos, of which 14 are included in the Aysén fish fauna, and presented a zoogeographical discussion of the fishes collected. Rueda (1982) appended a list of 17 species, which were obtained from Moraleda Channel and adjacent waters, to a biological study of a nototheniid *Eleginops maclovinus*.

Historically, studies of Chilean fishes, particularly freshwater fishes, have concentrated on the regions north of Puerto Montt ($41^{\circ} 30'S$) and the southernmost part around Punta Arenas ($53^{\circ} 10'S$) (Eigenmann, 1928; McDowall, 1971a and 1971b; Arratia et al., 1981). We have secured only four articles (Thompson, 1916; Gigoux, 1935; Arratia and Menu-Marque, 1981; Arratia, 1982), which recorded a small number of freshwater species from the Aysén region. It is easily understandable that the severe natural conditions of southern Chile have lured ichthyologists sampling inland both by sea and land. For the study of the freshwater fish fauna, the southern part of Chile between Puerto Montt and Punta Arenas remains largely untouched, even at present, as pointed out by McDowall (1971b).

We have carried out various surveys in rivers and littoral waters of the Aysén region in association with the introduction of salmon. Through these surveys and other opportunities we have exerted ourselves to collect fishes found in the region. This study presents a descriptive catalogue of all fishes collected, including those previously reported from Aysén, and a zoogeographical discussion of the fish fauna. In addition, approximate spawning seasons of 26 species in the Aysén region are shown, and a table of spawning seasons of 45 species in the region and other localities is appended (Appendix Table 4).

MATERIAL AND METHODS

Most specimens presently examined were obtained from Aysén Fiord, Moraleda Channel to Elefantas Fiord and the Simpson River system, and the remainder from oceanic and coastal waters (Chonos Archipelago to about $48^{\circ} S$) and lakes between $46^{\circ} S$ and Jorge Montt Glacier (Figs. 1 and 2). Sampling locations are given in Appendix Table 1. The lower reaches of the Simpson River to about 25 km from the estuary are known as the Aysén River. The specimens examined were collected by the following methods: Surface gill net, bottom gill net, hook and line, dip net, bottom trawl, larva net, surface long line, bottom long line, cast net and Surber net (aquatic insect sampler) as well as by hand and by examination of stomach contents of other fishes. All the specimens, except *Centroscyllium glanulosum*, *Gymnoscopelus nicholsi*, *Coelorinchus fasciatus*, *Melanostigma gelatinosum*, *Echiodon cryomargarites* and a few others for which the sampling depth was unknown, were taken from depths less than 25 m.

Counts and measurements, except in the case of clinid fish, followed Hubbs and Lagler (1967) with these limitations: Head length was measured from tip of snout to posterior end of opercular flap; interorbital width between fleshy rims of orbits. The last two dorsal and anal rays of the clinids were counted separately according to Stephens and Springer (1974). Most specimens are deposited at the laboratory of the Servicio Nacional de Pesca (Puerto Aysén), SNP (PA), and at the Coyhaique Salmon Hatchery without catalogue number. Unless the depository of specimens is noted in the present list, they were not retained for study at the laboratory.

The present catalogue includes 15 species, not found in our collection, which were previously reported by Jenyns (1842), Günther (1878; 1880; 1887), Lönnberg (1907), Thompson (1916), Ginsburg (1936; 1952), de Buen (1960a; 1961a; 1962), Leible et al. (1974), Ojeda (1978), Navarro and Pequeño (1979) and Hubbs and Wisner (1980). The arrangement of families follows Nelson (1976), and genera and species within the family appear alphabetically. For each species the scientific name is accompanied by a Chilean name or a common name for the genus or family, if known. Photographs of all the species examined are given in plates. For the species examined, synonymy (if present), material examined, description and locality confirmed are presented. The synonymy of species is confined to records from the Aysén region, and records based on the resource surveys are not included in it because some identifications seem to be tentative and require confirmation. In the material examined the total number of specimens is presented in parentheses, followed by the number of specimens in each sampling, standard length (SL) or total length (TL), locality, capture method, depth, date and catalogue number. Taxonomic or ecological notes precede the morphological description of some species. Where specimens were not available in this study, the specific accounts are based on those by other authors. In the description, fin ray counts are expressed by the fin formulae, and numbers of pored lateral line scales, scales in longitudinal series from upper end of gill opening to caudal base, transverse scale rows above and below lateral line, gill rakers, branchiostegal rays, and vertebrae are abbreviated as Ll., Sc., Tr., Gr., Br., and Vr., respectively. Rudimentary fin rays except for caudal rays were included in counts; caudal ray counts included only principal rays (usually branched rays + two unbranched ones). The urostyle was taken in the vertebral count. All the localities where we confirmed the occurrence of species are given in the locality confirmed, whether measurements of specimens were made or not.

The approximate spawning seasons of fishes in the Aysén region, shown in Fig. 4 and Appendix Table 4, were derived by examination of gonads or by observation of larvae in Aysén Fiord and Moraleda Channel. In the Appendix Table 4, the spawning seasons in other localities are also noted as far as references are available.

RESULTS AND DISCUSSION

I. Composition of the fish fauna of the Aysén region.

Seventy-three species of fishes in 44 families are listed from the Aysén region in this study. The list consists of 58 species herein examined and 15 previously reported by other authors. Of the 58 species 16 are new records for the Aysén region. Sixty-nine species are indigenous to the region; five exotic species include four salmonids and an atherinid *Odontesthes bonariensis* (de Buen, 1959a; Campos, 1973b; Arratia, 1978; Arratia et al., 1981). *Salmo trutta* and *S. gairdneri* are completely established in rivers, lakes and fiords of the Aysén region, and the former has become the most dominant species in the Simpson River system.

Of the 44 families in the present fauna, the Nototheniidae and Bothidae embrace the most species at 5, followed by the Salmonidae with 4; the remaining 41 each including only a few species. In this study *Aplochiton marinus* is recorded for the second time since the original description by Eigenmann (1928), and the ranges of *Gymnoscopelus nicholsi* and *Echiodon cryomargarites* and *Prionace glauca*, *Prolatilus jugularis*, *Hypsobleinnius sordidus* and *Allothunnus fallai* are extended northward and southward respectively on the west coast of South America.

In the catalogue fishes only five are confined to fresh water throughout their life span (type A): *Aplochiton zebra*, *Galaxias platei*, *Hatcheria macraei*, *Odontesthes bonariensis* and *Percichthys trucha*, although sea-going juveniles of *A. zebra* and *G. platei* may also exist (McDowall, 1971a and 1971b) and *O. bonariensis* occurs also in estuarine waters in its native Argentina (de Buen, 1959a; Ringuelet et al., 1967; Valette, 1972). Eight diadromous species reproduce in fresh water, but spend a certain period of their life in saline waters (type B): *Geotria australis*, *Oncorhynchus keta*, *O. kisutch*, *Salmo gairdneri*, *S. trutta*, *Aplochiton marinus*, *A. taeniatus* and *Galaxias maculatus*. Both freshwater and sea-run forms of the *Salmo* species are found in the Simpson River system. The same may be true for *A. taeniatus* and *G. maculatus* (Campos, 1969, 1970b and 1973a; McDowall, 1971a, 1971b, 1972 and 1975). The remaining 60 species are fishes usually living all of their life in the sea (type C) although *Eleginops maclovinus* sometimes penetrates fluvial waters. The family Trichomycteridae (represented by *H. macraei*) is the only element restricted to fresh water in the Aysén region.

The freshwater fish fauna of Chile (types A and B) numbers very few species, becoming increasingly impoverished farther to the south, and is completely distinct from that of other parts of South America (Eigenmann, 1928; Gery, 1969; McDowall, 1971b; Campos, 1973b; Arratia et al., 1981). The low numbers of freshwater species presently listed reflect the impoverished Patagonian freshwater fish fauna. According to Eigenmann (1928) and McDowall (1971b), the Patagonian fish fauna is characterized by the abundance of lampreys, *Aplochiton* and *Galaxias*, and the absence of *Nematogenys* (Trichomycteridae). The Trichomycteridae is the only contribution from northern South America or a fragment of the Amazonian fauna, and lampreys, *Aplochiton*, *Galaxias*, Atherinidae and *Percichthys* are immigrants from the sea (Eigenmann, 1928; McDowall, 1971b). Arratia and Menu-Marque (1981) showed that *Hatcheria* occurs along the Andean range between 29° S and 45° 30' S. McDowall (1971b) emphasized that lampreys, *Aplochiton* and *Galaxias*, which have affinities in New Zealand, Australia and also South Africa, form part of southern temperate, circumpolar radiation of diadromous fishes, while the remaining Atherinidae and *Percichthys* are derivatives from the marine faunas of immediately adjacent regions, and he (1980) regarded the present widespread distribution of families in the former group as a product of transoceanic dispersal.

The present catalogue is composed largely of marine fishes (types B and C) totaling 68 species in 43 families. All except deep sea fishes such as *Centroscyllium granulatum*, *Gymnoscopelus nicholsi*, *Physiculus marginatus*, *Coelorinchus fasciatus*, *C. patagoniae*, *Cataetys messieri*, *Echiodon cryomargarites* and *Melanostigma gelatinosum* are usually known from depths less than

100 m. Compared with the fish fauna of the coast around Concepción and Arauco (36° 30' to 38° 47'S), which consists of about 118 species in 59 families (Oliver, 1943; Leible and Alveal, 1982), the marine fish fauna of Aysén is much smaller, although a more intensive collecting effort throughout the entire coast of the Aysén region will surely increase the present list. With an average of only 1.7 species per family, the relative abundance of families may be characteristic of the marine fish fauna of this region.

In the course of fish collecting, we observed that the shallow water fish fauna (less than 20 m in depth) in Aysén Fiord and Moraleda Channel appears simple. In view of the abundance of both individuals and species, it can be said that the Nototheniidae is the only family which has most successfully adapted to the shallow water of the Aysén region. In addition, the Zoarcidae are regarded as representatives of the shallow water fishes in the Magallanes (XII) region (Norman, 1937; Briggs, 1974). In general the shore of fiords and channels is formed by a very steep slope, and is strongly influenced by freshwater inflow from rivers, e.g. the salinity range is 2 to 17‰ at the surface of Aysén Fiord and 27 to 32‰ in Moraleda Channel (Zama and Cárdenas, in press). Therefore, algal and animal communities along the shore are less developed and simple, if present. These physical and biological conditions probably prevent aggressive establishment by fish in the shallow waters of southern Chile.

II. Distributional pattern of marine fishes.

According to the distributional pattern of fish between Peru and Argentina, the marine fishes (64 species) of the Aysén fish fauna are grouped into eight components (nine introduced and freshwater fishes are excluded from this analysis) (Fig. 3). The fishes (component C) which are found between the V Region and Argentina form the greatest part of the fauna. The cyclopterid *Careproctus crassus* (E) is a single species endemic to the Aysén region. The components E to G and also H can be regarded as an element of subantarctic fauna, occupying 57.8% (37 species) of the total number of the marine fishes. Of 25 species in the component G, 12 extend their ranges northward to the coast between Chiloé (43° S) and Valdivia (40° S), 6 to around Concepción (36 to 39° S) and 7 to around Valparaíso (32 to 34° S). Subtropical and temperate fishes (23.4% of total) presenting the components B to D are much fewer than subantarctic fishes (E to H). The component A is made up of wide-ranging fishes (18.8%) known from Peru, Chile and Argentina, but four species of them, *Prionace glauca*, *Scomberesox saurus scombroides*, *Allothenus fallai* and *Scomber japonicus*, do not occur in the Magallanes region, showing two isolated Pacific and Atlantic populations. It is certain that the marine fish fauna of Aysén is principally based on the subantarctic fishes, involving some subtropical-temperate and wide-ranging ones. The fish fauna is scanty of endemic species as noted by Navarro and Pequeño (1979).

From a global point of view, Knox (1960), Briggs (1974) and Castilla (1979) discussed on the distribution of marine organisms (including fishes) in the south-eastern Pacific. The Chilean marine fish fauna has been discussed by Balech (1954), Mann (1954), López (1964) and Navarro and Pequeño (1979). According to these authors, the marine fauna of western South America is roughly divided into three provinces, the Panamanian (north of 4 - 5° S), Peru-Chilean (4 - 5° to 40 - 42° S) and Magellanic (south of 40 - 42° S) Provinces, although some subdivisions are recognized within each province. The West Wind Drift approaches the coast at 40 to 44° S (Silva and Neshyba, 1977; Neshyba and Fonseca, 1980), and forms the faunal boundary between the Peru-Chilean and Magellanic Provinces. The Magellanic Province, to which the Aysén fish fauna belongs, extends from around Valdivia south through Tierra del Fuego and north to off Río de la Plata, Argentina. The Chilean side of the province coincides with the coast along which the Cape Horn Current flows southward, and the Argentine side with the northward Falkland Current. There is little doubt that these two currents have influenced to a great extent the distribution of sub-

Table 1. Common and very closely related species (in parentheses) between the Aysén fish fauna and those of New Zealand, Australia, and South Africa. Introduced species are excluded.

Aysén region	New Zealand	Australia	South Africa
1. <i>Geotria australis</i>	<i>G. australis</i>	<i>G. australis</i>	—
2. <i>Prionace galuca</i>	<i>P. glauca</i>	<i>P. glauca</i>	<i>P. glauca</i>
3. <i>Squalus acanthias</i>	<i>S. acanthias</i> (<i>S. kirki</i> or <i>S. griffini</i>)	<i>S. acanthias</i> (<i>S. kirki</i> or <i>S. megalops</i>)	<i>S. acanthias</i>
4. <i>Callorhynchus callorhynchus</i>	<i>C. callorhynchus</i> (or <i>C. milti</i>)	<i>C. callorhynchus</i> (or <i>C. milti</i>)	(<i>C. capensis</i>)
5. <i>Sprattus fuegensis</i>	(<i>S. bassensis</i>)	(<i>S. bassensis</i>)	—
6. <i>Galaxias maculatus</i>	<i>G. maculatus</i>	<i>G. maculatus</i>	—
7. <i>Micromesistius australis</i>	<i>M. australis</i>	—	—
8. <i>Mecruronus magellanicus</i>	(<i>M. novaezealandiae</i>)	(<i>M. novaezealandiae</i>)	—
9. <i>Merluccius australis</i>	<i>M. australis</i>	—	—
10. <i>Coelorrhinus fasciatus</i>	—	<i>C. fasciatus</i>	—
11. <i>Cataetox messieri</i>	—	—	<i>C. messieri</i>
12. <i>Genypterus blacodes</i>	<i>G. blacodes</i>	<i>G. blacodes</i>	—
13. <i>Echiodon cryomargarites</i>	<i>E. cryomargarites</i>	—	—
14. <i>Melanostigma gelatinosum</i>	<i>M. gelatinosum</i>	—	—
15. <i>Scomberesox saurus scombroides</i>	<i>S. s. scombroides</i>	<i>S. s. scombroides</i>	<i>S. s. scombroides</i>
16. <i>Leptonotus blainvillleanus</i>	<i>L. blainvillleanus</i>	—	—
17. <i>Sebastes oculatus</i>	—	—	(<i>S. capensis</i>)
18. <i>Polyprion oxygeneios</i>	<i>P. oxygeneios</i>	<i>P. oxygeneios</i>	—
19. <i>Thyrssites atun</i>	<i>T. atun</i>	<i>T. atun</i>	<i>T. atun</i>
20. <i>Allothunnus fallai</i>	<i>A. fallai</i>	<i>A. fallai</i>	<i>A. fallai</i>
21. <i>Scomber japonicus</i>	—	(<i>S. australasicus</i>)	<i>S. japonicus</i>
22. <i>Serioteila porosa</i>	(<i>S. maculata</i> or <i>S. punctata</i>)	(<i>S. maculata</i> or <i>S. punctata</i>)	—
23. <i>Mancopsetta mifordii</i>	—	—	<i>M. mifordii</i>

antarctic fishes. Antezana (1981) also showed that a close relationship between distributions of euphausiid krills and water masses off western South America.

Balech (1954), Mann (1954) and Castilla (1979) pointed out that the Chilean coast between 18 - 20° S and 37 - 42° S (Central Chilean District), off which the northward Humboldt Current flows, shows an abundance of species and a mixture of both subtropical and subantarctic elements of fauna. In this study Fig. 3 shows that the subantarctic components G and H penetrate the mixed fauna of central Chile. Pequeño (1976; 1978a) also commented on examples of range extension northward from Chiloé in nototheniid fishes. Balech (1954) suggested that in summer the subtropical water mass reaches as far south as Arauco (37° S) along the coast of central Chile. Pequeño (1978a; 1979) explained the presence of boreal fishes in the zone around Valdivia as due to branches of southward countercurrent, which are influential off Chiloé, and a gradual increase of water temperature northward from about 40° S.

In this study, however, 17 species (components B, C and apart of A) which have a center of abundance in central Chile and further north occur south to the Aysén or Magellanes region (Fig. 3). Of the 17 species, 5 are surface to midwater swimmers: *Prionace glauca*, *Scomberesox saurus scombroides*, *Trachurus murphyi*, *Allothunnus fallai* and *Scomber japonicus*. It remains unknown whether these pelagic fishes are found all year round or seasonally in the southern regions. The other fishes appear to be confined to the Aysén region through life. With respect to *Lingraulis ringens*, *Merluccius gayi*, *Normanichthys crockeri*, *Prolatilus jugularis*, *Hypsoblennius sordidus* and *Paralichthys microps*, we have confirmed that reproduction of the species occurs in the region (Appendix Table 3). Ahumada and Arcos (1976) pointed out that the mass mortality of fishes in Concepción Bay from spring to summer is caused by the intensification and invasion of the Equatorial Subsurface Water. Silva and Neshyba (1979; 1979-80) recently showed that the Equatorial Subsurface Water extends southward to 48° S as the Peru-Chile Undercurrent. This subsurface flow transports high salinity and temperature, low oxygen and rich nutrient water along the coast from Peru to Chile. It is likely that the Peru-Chile Undercurrent contributes in some ways to the establishment or occurrence of boreal fishes in the subantarctic water.

As mentioned above in the case of lampreys, *Aplochiton* and *Galaxias*, there is a close relationship between marine faunas of South America and other temperate regions in southern hemisphere (Norman, 1937; Knox, 1960; Briggs, 1974). Warashina and Hisada (1972) reported that the main distributions of scombrids *Gasterochisma melanopus* Richardson and *A. fallai* coincide with the portion of the West Wind Drift. Hubbs and Wisner (1980) showed an oceanic, circum Antarctic distribution of *S. saurus scombroides*. From among the fishes in the present catalogue, we have identified 23 species which have common or very closely related species in New Zealand, Australia and South Africa (Table 1). This figure indicates not only the affinity of fish faunas in southern, circumpolar waters, but the necessity of a comparative study of the related species for specific determination. In order to advance discussion on the origin and dispersal of both marine and freshwater fishes in southern South America, a great deal of collecting in Chilean and Argentine Patagonia, particularly in the little-known areas, is highly desirable.

III. Spawning seasons of fishes in the Aysén region.

Of the 73 species listed, the approximate spawning seasons of 26 in the Aysén region are shown in Fig. 4 and Appendix Table 4. Seventeen species spawn at least in spring; 13 in summer; 5 in autumn and in winter respectively. The spawning seasons of most species (19) occur in a period between spring and summer. Zama and Cárdenas (in press) have reported that there was the peak abundance of fish eggs and larvae in late spring, while in winter no eggs and larva were collected in the surface of Aysén Fiord and Moraleda Channel.

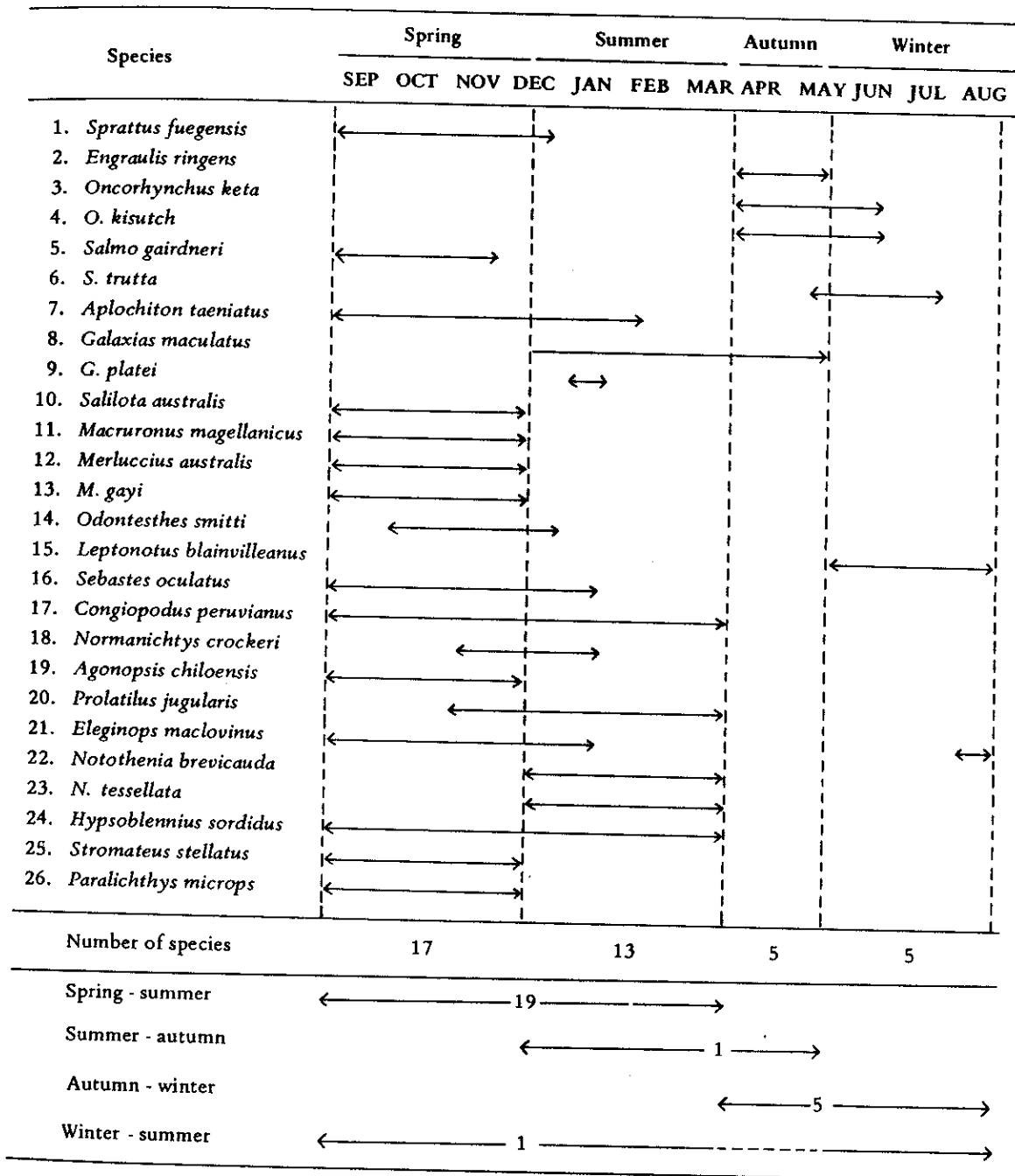


Fig. 4. Diagram of approximate spawning seasons of some fishes in the Aysén region and the number of species in each season.

IV. List of fishes from the Aysén region.

Petromyzonidae

1. *Geotria australis* Gray Lamprea de bolsa (Pl. I, A)

Geotria australis; Zama and Cárdenas, 1983: 14 (Puerto Piedra, as stomach contents).

Material examined. (2): 1, 107.0 mm TL, Ensenada Baja, attached to net of rearing cage for salmon, at 3 ~ 5 m, on Jun. 19, 1981, SNP (PA) 62; 1, 105.0 mm TL, Ensenada Baja, in the same manner as preceding, on Aug. 20, 1982, SNP(PA) 112.

The present specimens agree with the description of *G. australis* at metamorphic stage given by de Buen (1961b). We found three additional specimens (95 to 100 mm TL) in the stomach of a brown trout collected at Puerto Piedra (Zama and Cárdenas, 1983) and another one (105 mm TL) in Puerto Aysén (Aysén River), but have seen no adult of the species yet.

Description. Measurements as % of TL: Predorsal (1st) length 58.6 ~ 58.7; predorsal (2nd) length 74.8 ~ 75.7; distance from tip of snout to anus 74.0 ~ 75.2; body depth 4.2 ~ 4.3; head length (to last gill opening) 18.2 ~ 19.0; distance from snout tip to 1st gill opening 9.8 ~ 10.5; snout length 4.8 ~ 6.2; prenasal length 4.7 ~ 5.1; 1st dorsal base length 9.3 ~ 9.5; 2nd dorsal base length 11.6 ~ 12.9; interdorsal distance 7.8 ~ 9.0.

Mouth in the form of sucking disc, surrounded by numerous, fine fringes; a fleshy process laterally on mouth; a single median nostril on top of head; seven external gill openings on each side. Two dorsal fins, the second longer. Anterior lingual lamina tricuspid; supraoral lamina with four horny teeth; infraoral lamina formed by five teeth.

Color in life uniformly dark bluish dorsally and laterally; abdomen grayish. First dorsal fin transparent; anterior margins of 1st and 2nd dorsal fins greenish; distal margins of 2nd dorsal and caudal fins blackish, the rest of the fins transparent.

Locality confirmed. Ensenada Baja; Puerto Piedra; Puerto Aysén.

Scyliorhinidae

2. *Halaelurus bivius* (Smith) Pintarroja (Pl. I, B)

Scyliorhinus (Halaelurus) bivius; Norman, 1937: 8, fig. 1, A (48° 27' 30" S and 74° 23' 30" W).

Halaelurus bivius; Rueda, 1982: 39 (Moraleta Channel).

Material examined. (2): 2, 174.0 ~ 227.0 mm TL, male and female, Puerto Pérez, by bottom gill net, at 5 ~ 15 m, on Nov. 8, 1980, SNP(PA) 22-1 ~ 2.

H. bivius is closely related to *H. chilensis* (Guichenot), known from Peru to southern Chile, but is distinguished from the latter in having outer nasal flap with a projecting lobe, a somewhat longer and pointed snout, and pale spots on dorsal surface of body (Norman, 1937; Springer, 1965; Kato et al., 1967; Leible et al., 1981a). In the present specimens there are a pair of rows of denticles between nape and the first dorsal fin although Norman (1937) noted "No enlarged tubercles on the back".

Description. Measurements as % of TL: Predorsal (1st) length 35.6 ~ 37.0; predorsal (2nd) length 57.9 ~ 58.7; preanal length 48.9 ~ 50.8; prepectoral length 16.1 ~ 16.4; prepelvic length 32.5 ~ 33.0; body depth 7.7; head length (to last gill opening) 16.8 ~ 17.5; distance from snout tip to 1st gill opening 14.8 ~ 16.7; snout length 6.2 ~ 6.5; preoral length 3.7 ~ 4.0; mouth width 6.3 ~ 6.5; eye diameter 3.2 ~ 3.5; interorbital width 5.7 ~ 6.5; caudal peduncle depth 2.5; pectoral length 10.5 ~ 11.0; 1st dorsal base length 5.7 ~ 6.2; 2nd dorsal base length 7.8; interdorsal distance 13.2 ~ 14.6; anal base length 9.4 ~ 10.0.

A row of 15 to 20 enlarged denticles running from nape to 1st dorsal origin on each side of dorsal midline; tip of snout obtusely pointed; outer nasal flap with a prominent projecting lobe. First dorsal origin a little in advance of posterior end of pectoral base. Teeth in each jaw tricuspid.

Color in life dark brown above, gray below; body with seven to eight dark blotches or saddles and four pale spots anteriorly. Fins dark brown with obscure darkish blotches.

Locality confirmed. Puerto Pérez; Caleta Vidal.

3. *Halaelurus canescens* (Günther) Pintarroja.

Catulus canescens; Thompson, 1916: 420 ("Albatross" St. 2784: 48° 41' S and 74° 24' S).

H. canescens is characterized by a plain grayish body and shorter labial grooves of both jaws, and is known from the coast between Peru and Magellan Strait (Günther, 1878; de Buen, 1959b; Kato et al., 1967). The following description of the species is based on the above authors.

Description. Tip of snout obtuse; preoral length much less than mouth width; labial grooves of both jaws short, their length much less than horizontal diameter of eye; distance between nasal valves less than length of nasal opening. First dorsal origin opposite anterior fifth point of pelvic base; 2nd dorsal fin slightly longer than the 1st dorsal, its base longer than that of the later fin; 2nd dorsal origin opposite midpoint of anal base; pectoral fin not acute; anal fin terminating below middle of 2nd dorsal fin. Mouth wider, labial grooves shorter, eye larger and caudal fin longer than other species of *Halaelurus* in eastern Pacific. Teeth in each jaw small, numerous and tricuspid, not exhibiting change in form with growth.

Color plain dull grayish black on dorsal surface, a little lighter below; no well-defined spots or blotches. All fins, except the caudal, tipped with white behind.

Carcharhinidae

4. *Prionace glauca* (Linnaeus) Azulejo (Pl. I, C).

Material examined. (1): 1, 1460.0 mm TL, female, 47° 00' S and 76° 01' W. (off Taitao Peninsula), by surface long line, at 0 ~ 5 m, on Mar. 14, 1982.

Fowler (1945) noted the range of *P. glauca* in Chile as Coquimbo to Valdivia, while Mann (1954) believed that this shark occurred along the entire coast of Chile, without reference to records of the species. The present paper constitutes the first authenticated record of *P. glauca* from southern Chile.

Description. Measurements as % of TL: Predorsal (1st) length 39.7; predorsal (2nd) length 64.4; preanal length 64.0; prepectoral length 24.7; prepelvic length 53.4; head length (to last gill opening) 25.7.

Snout long, produced; labial groove short. Midpoint of 1st dorsal base nearer to pelvic origin than to posterior end of pectoral paze; pectoral fin long, with an acute tip; pits at upper and lower caudal bases. Teeth in upper jaw oblique.

Color in life uniformly dark blue above, grayish white below. Fins darkish, distal parts darker.

Locality confirmed. 47° 00' S and 76° 01' W.

Squalidae

5. *Centroscyllium granulosum* (Günther) Tollo (Pl. I, D)

Spinax granulosus Günther, 1880: 19, pl. 2, fig. C ("Challenger" St. 305A: 47° 48' 30" S and 74° 47' 00" W); Günther, 1887: 4 (reference to preceding locality).

Centroscyllium granulosum; Rueda, 1982: 39 (Moraleta Channel).

Material examined. (1): 1, 151.0 mm TL, male, 44° 30' S and 75° 20' W (Chonos Archipelago), by bottom trawl, at 300 ~ 400 m, on Nov. 25 ~ 30, 1981, SNP(PA) 67.

The present specimen, an embryo, has undeveloped teeth, which precluded a determination of tooth shape. Apart from the dental characteristics, however, *C. granulosum* is distinguishable from the related *Etmopterus paessleri* in having granules on body surface and the second dorsal spine much longer than the first (Günther, 1880; Lönnberg, 1907; de Buen, 1959b).

Description. Measurements as % of TL: Predorsal (1st) length 36.6; predorsal (2nd) length 59.9; prepectoral length 27.8; prepelvic length 53.0; body depth 13.9; head length (to last gill opening) 27.8; distance from snout tip to 1st gill opening 23.5; snout length 8.7; preoral length 12.6; mouth width 10.6; eye diameter 5.7; interorbital width 11.3; caudal peduncle depth 3.3; pectoral length 10.1; 1st dorsal spine length 4.0; 2nd dorsal spine length 6.8; 1st dorsal base length 5.3; 2nd dorsal base length 7.3; interdorsal distance 19.2.

Body and head with numerous granules, forming several horizontal rows on posterior part of body; tip of snout obtusely pointed. First dorsal spine midway between snout tip and posterior tip of 2nd dorsal fin, and a little nearer to 2nd dorsal spine than to spiracle; 2nd dorsal spine much longer than the first, reaching to upper level of the fin; pectoral fin round, not reaching below 1st dorsal spine; pelvic tip opposite 2nd dorsal spine.

Color in formalin uniformly brownish black; a pale spot between eyes. Fins dark brown with darkish tips.

Locality confirmed. 44°30' S and 75°20' W.

6. *Etmopterus paessleri* Lönnberg Tollo.

Etmopterus paessleri Lönnberg, 1907: 5, fig. 1 (Island Harbor: 47°45' S and 74°45' W, according to Thompson, 1916).

E. paessleri has been recorded only from southern Chile and Argentina (Fowler, 1945; Ringuelet and Aramburu, 1960). The following description of the species is based on Lönnberg (1907, fig. 1).

Description. Head length (HL) 20.5 ~ 21.6 % of TL. Snout length 28.6 ~ 30.0 % of HL; preoral length 59.9 ~ 75.2; eye diameter 20.7 ~ 25.0.

Body except for around mouth with minute spinules; tip of snout round; posterior margin of eye midway between snout tip and pectoral origin. Distance from snout tip to 1st dorsal spine equal to that between posterior tip of 2nd dorsal fin and caudal tip; 1st dorsal spine midway between spiracle and 2nd dorsal spine; dorsal spines short, not reaching midpoint of their fin heights; 2nd dorsal spine shorter than the first; pelvic tip opposite 2nd dorsal spine. Teeth in upper jaw tricuspid, central cusp long, but lateral ones indistinct; lower teeth smooth, broad.

Color uniformly dark.

7. *Squalus acanthias* Linnaeus Tollo de cachos (Pl. I, E).

Squalus acanthias; Rueda, 1982: 39 (Moraleda Channel).

Material examined. (1): 1, 343.0 mm TL, female, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Nov. 6, 1980, SNP(PA) 13.

Identification of the present specimen follows Kato et al. (1967), who regarded *S. fernandinus* Molina as a synonym of *S. blainvillei* Risso and stated that some reports of *S. fernandinus* from Chile actually referred to specimens of *S. acanthias*. Pale spots on the body of *S. acanthias* become indistinct with growth and disappear in most large adults (Matsubara, 1971).

Description. Measurements as % of TL: Predorsal (1st) length 34.2; predorsal (2nd) length 62.1; prepectoral length 21.3; prepelvic length 50.4; body depth 10.1; head length (to last gill opening) 23.0; distance from snout tip to 1st gill opening 17.8; snout length 7.3; preoral length 9.1; mouth width 7.0; eye diameter 3.7; interorbital width 7.9; caudal peduncle depth 2.3; pectoral length 13.1; 1st dorsal spine length 3.6; 2nd dorsal spine length 4.8; 1st dorsal base length 6.1; 2nd dorsal base length 5.8; interdorsal distance 20.8.

Tip of snout pointed; nasal flap at anterior margin of nostril pointed, without a secondary lobe; preoral length equal to distance between center of eye and 1st gill opening. Distance from snout tip to 1st dorsal spine equal to that between 2nd dorsal spine and caudal tip; 1st dorsal

spine behind inner rear corner of pectoral fin; pelvic origin nearer to caudal tip than to snout tip; midpoint of pelvic base much nearer to 2nd dorsal spine than to posterior end of 1st dorsal base. Teeth in both jaws similar in shape, each tooth with an oblique tip directed toward corner of jaw.

Color in life purplish dark gray above, grayish below; head and body with pale spots on dorsal and lateral surfaces. Fins except for gray pelvic fin dark gray; tips of 1st dorsal and caudal fins dark.

Locality confirmed. Ensenada Baja.

Rajidae

8. *Raja chilensis* Guichenot *Raja volantín* (Pl. I, F)

Raja chilensis; Rueda, 1982: 39 (Moraleda Channel).

Material examined. (1): 1, 331.0 mm TL, male, Moraleda Channel, by hook and line, depth unknown, on Mar. 29 ~ 31, 1978, deposited at the Coyhaique Salmon Hatchery.

According to de Buen (1959c), *R. oxyptera* Philippi and *R. flavirostris* Philippi represent the male and female of *R. chilensis* respectively.

Description. Measurements as % of TL: Predorsal (1st) length 82.2; predorsal (2nd) length 89.4; distance from snout tip to anus 53.5; disc width 61.3; disc length 69.8; head length (to last gill opening) 35.3; distance from snout tip to 1st gill opening 29.3; snout length 19.2; preoral length 19.0; mouth width 10.3; eye diameter 4.6; interorbital width 5.1; spiracle width 2.5.

Snout acutely pointed; anterior margin of disc a little concave at pectoral origin; two strong preocular spines and one postocular spine present; a single stronger median spine at nape; disc without other spines; a series of 14 enlarged spines on dorsal midline from opposite part of posterior pectoral angle to 1st dorsal origin; another spine between 1st and 2nd dorsal fins. Teeth in each jaw close-set, in 36 to 38 transverse rows, each tooth with a round, flattened crown.

Color in formalin dark brown without spots or blotches; ventral surface of disc dusky gray; rostral region pale; terminal parts of sensory tubes with small dark spots or streaks.

Locality confirmed. Moraleda Channel.

Callorhynchidae

9. *Callorhynchus callorhynchus* (Linnaeus) Pejegallos (Pl. I, G).

Material examined. (2): 1, 722.0 mm TL (excluding a rostral process), male, Estero Godoy, by surface gill net, at 5 m, on Nov. 20, 1980; 1, 700.0 mm TL, male, Ensenada Baja, by surface gill net, at 0 ~ 3.5 m, on Mar. 20, 1984.

Description. Measurements (excluding a rostral process) as % of TL: Predorsal (1st) length 19.3 ~ 22.9; preanal length 67.9 ~ 74.1; body depth 15.8 ~ 17.6; head length 16.1 ~ 18.7; snout length 10.6 ~ 11.1; rostral process length 8.9 ~ 9.0; eye diameter 3.0 ~ 3.2; interorbital width 5.4 ~ 5.5; pectoral length 27.7 ~ 31.2; pelvic length 12.7 ~ 13.2; clasper length 11.1 ~ 11.5; dorsal spine length 19.7 ~ 21.2; 2nd dorsal base length 17.9 ~ 18.0; anal base length 4.3 ~ 4.8.

Head with a round, steep anterior profile; tentacle on forehead; snout produced into a curious hooklike proboscis. First dorsal fin supported by a long spine, above pectoral origin; dorsal spine with fine serrations on anterior margin and on each posterior side of distal half; pectoral fin reaching pelvic origin; prepelvic clasper in a hole; anal fin with a pointed lobe, immediately in front of lower caudal lobe; upper caudal lobe elongate, sharklike. Skin smooth; lateral line somewhat wavy, running from behind eye to caudal tip; lateral line system on head branched into four below eye. Dental laminae as shown in the figure given by Norman (1937, fig. 13, D).

Color in life dark blue above, silver below; large, obscure dark blotches above gill opening, on trunk, at pectoral and pelvic bases. Fins dusky; anterior margin of 1st dorsal fin blackish.

Locality confirmed. Estero Godoy; Ensenada Baja; Ester Bay.

Clupeidae

10. *Sprattus fuegensis* (Jenyns) *Sardina austral* (Pl. I, H).

Sprattus fuegensis; Zama and Cárdenas, 1982: 8 (Ensenada Baja, as stomach contents).

Material examined. (7): 2, 119.0 ~ 125.8 mm SL, Esto Manco, by bottom gill net, at 3 ~ 25 m, on Nov. 8, 1980, SNP(PA) 23-1 ~ 2; 1, 105.0 mm SL, east coast of Victoria Isl., by surface gill net, at 0 ~ 2 m, on Nov. 19, 1980, SNP(PA) 29; 1, 126.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jun. 4, 1982, SNP(PA) 101; 3, 70.2 ~ 132.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jun. 5, 1982, SNP(PA) 102-1 ~ 3.

Generic allocation of *S. fuegensis* follows Whitehead (1964). This species bears a strong resemblance to *Clupea bentincki* Norman, but is easily distinguished from the latter in having gill rakers on lower limb of the first gill arch fewer than 42 (more than 65 in the latter) and by its slender body (Norman, 1937; de Buen, 1958a; Lorenzen et al., 1979). *S. fuegensis* is known from the southern coast of South America. Oliver (1943) stated that in summer, schools of this sardine appear along the coast of Concepción and Arauco with the current from the south. Although Mann (1954) noted the range of the species as "Valparaíso to Tierra del Fuego", we can not trace any reference recording the species from Valparaíso. On the other hand, *C. bentincki*, which is abundant in north and central Chile, occurs south to Chiloé (42°11'S) (Navarro and Pequeño, 1979). In Aysén Fiord a great number of *S. fuegensis* gather to spawn from September to December, but *C. bentincki* has not been found in Aysén Fiord and Moraleda Channel. It is likely, therefore, that the faunal change between these two clupeids takes place around Chiloé.

Description. D. 18; A. 17 ~ 18; P₁. 17 ~ 19; P₂. 8. Sc. 51 ~ 53; Tr. 13 ~ 14 (between dorsal midline and anal origin). Gr. 17 ~ 20 + 37 ~ 41 = 56 ~ 61.

Measurements as % of SL: Predorsal length 52.8 ~ 55.9; preanal length 75.6 ~ 78.3; body depth 20.4 ~ 23.8; head length 23.5 ~ 27.9; snout length 6.8 ~ 9.1; eye diameter 6.1 ~ 7.4; upper jaw length 11.9 ~ 13.8; interorbital width 4.6 ~ 5.5; caudal peduncle depth 8.7 ~ 9.5; pectoral length 15.9 ~ 18.1; pelvic length 8.9 ~ 11.0; dorsal base length 13.4 ~ 15.2; anal base length 14.3 ~ 16.7.

Lower jaw produced beyond the upper; maxillary with a round posterior margin, nearly extending to below center of eye; opercle without radiating ridges. Pelvic fin beginning a little behind dorsal origin. Ventral scutes feebly keeled, each without a sharp point. Teeth in upper jaw absent (or indistinct); a small patch of minute teeth at symphysis of lower jaw; no teeth on vomer and palatine; an elongate patch of minute teeth on tongue. Gill rakers slender, close-set.

Color in life bluish black above, silver below. Dorsal and caudal fins dark with a yellow tint; other fins transparent; upper margin of pectoral fin darkish.

Locality confirmed. Esto Manco; Victoria Isl.; Ensenada Baja; Puerto Pérez; Punta Tortuga.

Eugraulidae

11. *Engraulis ringens* Jenyns *Anchoveta* (Pl. I, I).

Engraulis ringens; Zama and Cárdenas, 1982: 8 (Ensenada Baja, as stomach contents).

Material examined. (4): 3, 95.0 ~ 138.0 mm SL, Estero Godoy, by surface gill net, at 0 ~ 2 m, on Nov. 20, 1980, SNP(PA) 30-1 ~ 3; 1, 130.0 mm SL, Puerto Pérez, from stomach of a brown trout, on Apr. 19, 1984, SNP(PA) 159.

On the basis of the specimens found in a stomach of *Trachurus murphyi*, we presented the range extension of *E. ringens* as far south as Ensenada Baja (Zama and Cárdenas, 1982), but did not give a morphological description of the species.

Description. D. 17 ~ 18; A. 22; P₁. 16 ~ 18; P₂. 8. Sc. 42 ~ 43; Tr. 8 (between dorsal midline and anal origin). Gr. 34 ~ 38 + 42 ~ 43 = 76 ~ 80.

Measurements as % of SL: Predorsal length 52.8 ~ 54.5; preanal length 67.5 ~ 69.2; body depth 18.9 ~ 20.3; head length 27.0 ~ 27.6; snout length 4.2 ~ 4.5; eye diameter 6.5 ~ 6.7; upper jaw length 19.9 ~ 20.5; interorbital width 5.1 ~ 5.9; caudal peduncle depth 7.8 ~ 8.4; pectoral length 13.2 ~ 14.6; pelvic length 8.7 ~ 9.3; dorsal base length 12.8 ~ 14.1; anal base length 17.8 ~ 19.8.

Snout pointed, projecting beyond lower jaw; maxillary extending to mandibular joint; maxillary and mandible with numerous fine serrations on lower and upper margins respectively. Pectoral axillary scale slender and pointed, extending to two-thirds length of pectoral fin; pelvic fin inserted in advance of dorsal origin; anal origin a little behind posterior end of dorsal base. Jaws toothless; no teeth on vomer and palatine. Gill rakers numerous, long and slender.

Color in life bluish black above, silver below. Dorsal fin transparent with a darkish distal half; pectoral (upper margin slightly darkish), pelvic and anal fins transparent; caudal fin blackish.

Locality confirmed. Estero Godoy; Puerto Pérez; Ensenada Baja.

Salmonidae

12. *Oncorhynchus keta* (Walbaum) Salmón keta (Pl. I, J and Pl. II, A and B).

Oncorhynchus keta; Zama and Cárdenas, 1982: 1, pl. 1, fig. A (Ensenada Baja).

Material examined. (2): 1, 433.0 mm SL, spawning female, reared in Ensenada Baja, on Apr. 30, 1982, SNP(PA) 94; 1, 428.0 mm SL, spawning male, Pajarones Stream (Ensenada Baja), by hand, on Jun. 29, 1982, SNP(PA) 95.

Juveniles of chum salmon *O. keta* have been released into Ensenada Baja every year since 1979, and a cage-rearing also has been made in the bay through the year. From April to June 1982, 68 chum salmon, which had been released after a long rearing of more than a year and half, were recaptured as spawning adults in Ensenada Baja.

Description. D. 13; A. 16 ~ 17; P₁. 15 ~ 16; P₂. 10. Ll. 130 ~ 132; Sc. 135 ~ 137. Gr. 9 + 14 ~ 15 = 23 ~ 24. Br. 14 ~ 15.

Measurements as % of SL: Predorsal length 49.1 ~ 49.2; preanal length 70.3 ~ 73.0; body depth 22.7 ~ 23.1; head length 24.7 ~ 26.2; snout length 8.8 ~ 9.0; eye diameter 3.2 ~ 3.3; upper jaw length 24.7 ~ 26.2; interorbital width 9.5 ~ 10.0; caudal peduncle depth 7.7 ~ 7.9; pectoral length 15.7 ~ 16.7; pelvic length 8.2 ~ 11.7; dorsal base length 11.0 ~ 11.2; anal base length 13.4 ~ 13.6; anal fin height 11.2 ~ 12.0

Caudal peduncle somewhat slender; maxillary extending beyond posterior margin of eye. Anal base longer than its height; caudal fin shallowly forked or emarginate. Head scaleless; lateral line slightly decurved, then straight to caudal base. Each jaw with well-developed conical teeth, those in front becoming fanglike in mature fish; teeth on vomer and palatine well-separated; head of vomer narrow with a few teeth posteriorly; a single row of weak teeth on a median shaft of vomer.

Color in life dark silver above, silver below; numerous, minute dark dots on body, head and dorsal, adipose, and caudal fins. Fins dusky. Spawning fish (Pl. II, A and B) becoming darker, with irregular transverse dark bars; tips of dorsal, pelvic, and anal fins white. Juveniles with about 10 somewhat elongate parr marks along lateral line; greater portion of the parr marks above lateral line (based on specimens reared by the project).

Locality confirmed. Ensenada Baja.

13. *Oncorhynchus kisutch* (Walbaum) Salmón coho (Pl. II, C and D).

Material examined. (1): 1, 500.0 mm SL, spawning male, mouth of Salto River, by surface gill net, at 0 ~ 2 m, on Apr. 20, 1982, SNP(PA) 90.

Fundación Chile released young coho *O. kisutch* (less than 400 fish; body weight about 450 g) into Ensenada Baja in July 1981. In April and May 1982, five coho, all male, returned to the bay to spawn although no fish had been captured in the bay after releasing. The present specimen weighed 2,060 g at capture.

Description. D. 14; A. 16; P₁. 14; P₂. 10. Ll. 125; Sc. 138. Gr. 9 + 14 = 23. Br. 9.

Measurements as % of SL: Predorsal length 51.8; preanal length 72.0; body depth 24.8; head length 25.6; snout length 7.8; eye diameter 3.1; upper jaw length 14.8; interorbital width 9.6; caudal peduncle depth 8.4; pectoral length 17.4; pelvic length 12.8; dorsal base length 11.5; anal base length 13.0; anal fin height 14.7.

Morphological features as in *O. keta*.

Color in life dark silver above, silver below; dark spots on dorsal surface of body and dorsal and caudal fins. Fins dusky. Spawning fish becoming darker and reddish; tips of dorsal, pelvic, and anal fins white. Juveniles with 9 or 10 elongate parr marks of which the middle portions are crossed by lateral line; body with a reddish tint; anterior margins of dorsal and anal fins yellowish white (based on specimens reared by Fundación Chile).

Locality confirmed. Ensenada Baja.

14. *Salmo gairdneri* Richardson Trucha arco iris (Pl. II, E and F).

Salmo gairdneri; Rueda, 1982: 40 (Moraleta Channel).

Material examined. (3): 1, 230.0 mm SL, Claro River, by hook and line, at 1.5 m, on Apr. 27, 1981, SNP(PA) 51; 1, 300.0 mm SL, Claro River, by hook and line, at 1.5 m, on Sep. 24, 1982; 1, 244.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Nov. 2, 1982 SNP(PA) 118.

In the Simpson River, rainbow trout *S. gairdneri* occur more abundantly in recent years than several years before. The sea-run form (steelhead trout: Pl. II, F) is rarely caught in Aysén Fiord. Jelvez and Blanco (1981) reported that five steelhead trout, all female, were collected in Baker Channel (48° 00'S and 74° 20'W). The steelhead and sea-run brown trout closely resemble each other, but in the former the dorsal, adipose, and caudal fins are spotted entirely with black; in the latter the caudal spots are scarce or lacking.

Description. D. 13; A. 13; P₁. 12 ~ 15; P₂. 10. Ll. 115 ~ 120; Sc. 119 ~ 125. Gr. 7 ~ 8 + 11 ~ 12 = 19. Br. 10.

Measurements as % of SL: Predorsal length 45.5 ~ 48.7; preanal length 75.4 ~ 78.0; body depth 22.8 ~ 25.7; head length 23.5 ~ 23.7; snout length 5.4 ~ 6.6; eye diameter 3.9 ~ 4.7; upper jaw length 11.5 ~ 13.2; interorbital width 7.8 ~ 8.3; caudal peduncle depth 9.1 ~ 9.9; pectoral length 14.7 ~ 17.0; pelvic length 12.5 ~ 13.8; dorsal base length 13.1 ~ 15.2; anal base length 10.8 ~ 11.3; anal fin height 12.1 ~ 13.9.

Caudal peduncle rather stout; maxillary extending beyond posterior margin of eye. Anal base shorter than its height. Head scaleless; lateral line slightly decurved, then straight. Each jaw with developed conical teeth, those in front becoming fanglike in mature large fish; teeth on vomer and palatine narrowly separated; head of vomer expanded with several teeth on posterior margin; two alternative rows of teeth on median shaft of vomer.

Color in life dark bluish-green to brown above, brownish-silver below; body with a wide, pinkish lateral band; numerous black spots on body and head, dorsal, adipose, and caudal fins. In steelhead trout body and head entirely silvery although black spots present; the lateral band absent or faint. Juveniles with 5 to 10 oval parr marks of which the middle portions are crossed by lateral line; body never spotted with red or orange (based on specimens from the Simpson River).

Locality confirmed. Claro River; Simpson River; Lake Frio; Ensenada Baja; Puerto Pérez.

15. *Salmo trutta* Linnaeus Trucha fario (Pl. II, G and H).

Salmo trutta; Zama and Cárdenas, 1982: 1, pl. 1, fig. B (bottom) (Ensenada Baja); Zama and Cárdenas, 1983: 1, pl. 1, fig. C (Aysén and Salto Rivers).

Material examined. (6): 1,184.0 mm SL, Simpson River, by cast net, at 0.5 m, on Oct. 23, 1980, SNP(PA) 9; 2, 500.0 ~ 515.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 6 m, on Nov. 8, 1980; 1, 226.0 mm SL, spawning male, Pajarones Stream (Ensenada Baja), by hand, on Mar. 10, 1981, SNP(PA) 42; 1, 356.0 mm SL, Salto River, by surface gill net, at 0 ~ 2 m, on Jun. 30, 1982; 1, 360.0 mm SL, Claro River, by hook and line, at 1.5 m, on Sep. 24, 1982, SNP(PA) 111.

Brown trout *S. trutta* occur exclusively in the Simpson River system and are the most important game fish. The sea-run brown trout (Pl. II, H) are also among the most common fishes in the Aysén Fiord. Of the trout collected in Ensenada Baja, females outnumbered males (Zama and Cárdenas, 1982). The females on spawning runs in the Aysén and Salto Rivers also exceeded males in number (Zama and Cárdenas, 1983). These data suggest that the incidence of seaward migration noted for female brown trout is higher than that for males.

Description. D. 13 ~ 15; A. 10 ~ 13; P₁. 13 ~ 15; P₂. 9 ~ 10. Ll. 111 ~ 113; Sc. 117 ~ 120. Gr. 6 ~ 7 + 10 ~ 12 = 16 ~ 19. Br. 11 ~ 12.

Measurements as % of SL: Predorsal length 43.8 ~ 50.0; preanal length 70.4 ~ 78.3; body depth 22.8 ~ 25.0; head length 22.0 ~ 28.8; snout length 6.7 ~ 8.9; eye diameter 3.0 ~ 5.4; upper jaw length 11.4 ~ 16.5; interorbital with 7.6 ~ 9.0; caudal peduncle depth 6.6 ~ 10.5; pectoral length 13.8 ~ 19.7; pelvic length 10.8 ~ 15.2; dorsal base length 12.0 ~ 14.0; anal base length 8.8 ~ 11.7; anal fin height 13.2 ~ 17.4.

Morphological feature as in *S. gairdneri*.

Color in life dark bluish-green to brown above, brownish - silver to silver below; body and head with black spots as large as pupil; reddish spots scattered on body, 8 to 12 spots on lateral line. Dorsal fin and upper caudal lobe with black spots; frequently caudal spots lacking. In the specimen SNP(PA) 111 the black spots on body and head absent, only indistinct spots on dorsal fin. Juveniles with eight to nine oval parr marks of which the middle portions are crossed by lateral line; a reddish spots on each interspace between the parr marks (based on specimens from the Simpson River).

Locality confirmed. Very common in the Simpson River system and Aysén Fiord; *Lago General Carrera*.

Aplochitonidae

16. *Aplochiton marinus* Eigenmann Peladilla (Pl. II, I).

Material examined. (1): 1, 273.0 mm SL, Lagoon Ventisquero, by surface gill net, at 0 ~ 4 m, on Jan. 1, 1982, SNP(PA) 76.

A. marinus has been recorded only from Valdivia by Eigenmann (1928). The expedition team of Hokkaido University, Japan, to the Jorge Montt Glacier collected some specimens of this species, of which one came to us through their courtesy. In addition the senior author found a preserved specimen (189.0 mm SL), which was obtained from an inlet (49° 32' S and 74° 30' W) of Wellington Island, in the Instituto de la Patagonia, Punta Arenas. *A. marinus* is distinguished from the related *A. taeniatus* in having distinct dark spots on body, pointed snout, longer maxillary, smaller eye, slender caudal peduncle and well-developed teeth in each jaw, although McDowall (1971a) regarded *A. taeniatus* as a synonym of the former species. A detailed taxonomic study will be made in a separate paper (with Dr. R. M. McDowall, Ministry of Agriculture and Fisheries, New Zealand and Dr. K. Nakaya, Hokkaido University).

Description. D. 13; A. 14; P₁. 17; P₂. 7; C. 16. Gr. 6 + 12 = 18. Br. 3.

Measurements as % of SL: Predorsal length 59.3; preanal length 76.6; body depth 18.1; head length 24.0; head depth 11.7; snout length 8.8; eye diameter 2.9; upper jaw length 12.1; interorbital width 7.7; caudal peduncle depth 5.6; pectoral length 10.2; pelvic length 9.6; dorsal base length 10.0; anal base length 10.3.

Snout very pointed, prominent; maxillary nearly reaching below posterior margin of eye; a small gap between both jaws when mouth closed; ventral view of lower jaw V-shaped. Pelvic fin inserted a little in advance of dorsal origin. Scales absent. Each jaw with a single row of caninelike teeth; a pair of rows of strong teeth on oral roof; two rows of enlarged teeth on tongue, those in front caninelike.

Color in formalin brown above, lighter below; upper half of body with dark spots as large as pupil; light brown lateral band visible along body axis. Dorsal and caudal fins darkish; pectoral fin slightly dusky, its upper margin darker; adipose, pelvic, and anal fins whitish.

Locality confirmed. Estero Ventisquero.

17. *Aplochiton taeniatus* Jenyns Peladilla (Pl. II, J).

Haplochiton taeniatus; Thompson, 1916: 422 (Island Harbor: 47° 45' S and 74° 45' W).

Aplochiton taeniatus; Zama and Cárdenas, 1983: 14 (Aysén River, as stomach contents).

Material examined. (5): 3, 92.8 ~ 94.0 mm SL, Km 10 (Aysén River), by cast net, at 0.5 m, on Oct. 28, 1980, SNP(PA) 35-1 ~ 3; 2, 135.0 ~ 153.0 mm SL, Puerto Aysén (Aysén River), by cast net, at 0.5 m, on Feb. 7, 1981, SNP(PA) 41-1 ~ 2.

Description. D. 14; A. 15 ~ 16; P₁. 17 ~ 18; P₂. 7; C. 16. Gr. 7 ~ 8 + 15 = 22 ~ 23. Br. 3.

Measurements as % of SL: Predorsal length 54.9 ~ 55.6; preanal length 73.2 ~ 74.8; body depth 16.6 ~ 21.6; head length 20.9 ~ 23.1; head depth 11.5 ~ 11.8; snout length 6.4 ~ 7.4; eye diameter 3.8 ~ 5.1; upper jaw length 7.0 ~ 7.8; interorbital width 6.7 ~ 7.5; caudal peduncle depth 6.5 ~ 6.9; pectoral length 11.0 ~ 13.2; pelvic length 10.6 ~ 11.9; dorsal base length 10.2 ~ 12.8; anal base length 11.9 ~ 14.4.

Snout moderately pointed; maxillary reaching below anterior margin of eye; jaws subequal; ventral view of lower jaw U-shaped. Pelvic fin inserted slightly in advance of dorsal origin. Scales absent. Each jaw with a single row of conical teeth; a pair of rows of distinct teeth on oral roof; two rows of enlarged teeth on tongue.

Color in life greenish-silver above, silver below; body and head with numerous, minute, black dots; in the largest specimen, SNP(PA) 41-2, body with irregular, dusky cross bands. Dorsal, anal, and caudal fins slightly dusky, with transparent margins; pectoral and pelvic fins transparent.

Locality confirmed. Common in the Aysén River, particularly in lower parts.

18. *Aplochiton zebra* Jenyns Peladilla (Pl. II, K).

Haplochiton zebra; Thompson, 1916: 422 (Port Otway: 46° 50' S and 75° 18' W); Gigoux, 1935: 63 (Aysén).

Material examined. (3): 2, 138.0 ~ 166.0 mm SL, Claro River, by hook and line, at 1.5 m, in 1978, deposited at the Coyhaique Salmon Hatchery; 1, 238.0 mm SL, Lagoon Quetro, by surface gill net, at 0 ~ 4 m, on Jan. 12, 1982, SNP(PA) 75.

A. zebra is distinguishable from *A. taeniatus* by transverse dark bands on body and lesser head depth.

Description. D. 12 ~ 14; A. 15 ~ 16; P₁. 18 ~ 19; P₂. 7; C. 16. Gr. 7 ~ 8 + 14 = 21 ~ 22. Br. 3.

Measurements as % of SL: Predorsal length 54.2 ~ 58.0; preanal length 76.1 ~ 77.1; body depth 19.3 ~ 20.1; head length 21.1 ~ 22.5; head depth 12.3 ~ 12.9; snout length 6.1 ~ 7.4; eye diameter 3.8 ~ 4.5; upper jaw length 7.5 ~ 8.2; interorbital width 6.5 ~ 8.0; caudal peduncle depth 6.3 ~ 7.1; pectoral length 11.9 ~ 12.9; pelvic length 10.6 ~ 11.7; dorsal base length 11.0 ~ 12.6; anal base length 12.0 ~ 14.0.

Snout rather blunt; maxillary reaching below anterior margin of eye; jaws subequal; ventral view of lower jaw U-shaped. Pelvic fin inserted below or slightly in advance of dorsal origin.

Scales absent. Each jaw with a single row of conical teeth; a pair of rows of distinct teeth on oral roof; two rows of enlarged teeth of tongue.

Color in formalin dark brown above, grayish below; body with irregular, transverse dark bands; body and head scattered with minute black dots. Caudal fin dusky; other fins more or less with a dusky tint.

Locality confirmed. Claro River; Lagoon Quetro.

Galaxiidae

19. *Galaxias maculatus* (Jenyns) Puyé (Pl. III, A and B).

Galaxias attenuatus; Thompson, 1916: 421 (Port Otway: 46°50' S and 75°18' W).

Galaxias maculatus; Gigoux, 1935: 62 (Aysén); Navarro and Pequeño, 1979: 258.

(Huemules Isl.: 45° 58' S and 73° 45' W); Rueda, 1982: 40 (Ensenada Baja, specimens gifted by us); Zama and Cárdenas, 1983: 14 (mouth of Salto River, as stomach contents).

Material examined. (6): 1, 83.5 mm SL, Ensenada Baja, by dip net, at surface, on Jun. 15, 1980, SNP(PA) 40; 2, 48.2 ~ 49.3 mm SL, pier of Puerto Aguirre, by dip net, at surface, on Dec. 3, 1980, SNP(PA) 1-1 ~ 2; 2, 65.8 ~ 69.8 mm SL, tide pool (like a very small lagoon) at Puerto Pérez, by dip net, at 0.2 m, on Oct. 30, 1982, SNP(PA) 120-1 ~ 2; 1, 93.0 mm SL, Puerto Aysén (Aysén River), by cast net, at 0.5 m, on Jan. 26, 1984, SNP(PA) 158.

G. attenuatus (Jenyns) is regarded as a juvenile of *G. maculatus* (McDowall, 1971b). Transparent juveniles (Pl. III, B) of the species sometimes occur in schools at the pier of Puerto Aguirre. From August to December (more abundant in September and October), the juveniles migrate to the Aysén River from Aysén Fiord, and are commercially most important in this period.

Description. D. 10 ~ 11; A. 15 ~ 18; P₁. 12 ~ 13; P₂. 7 ~ 8; C. 16. Gr. 3 + 9 ~ 11 = 12 ~ 14. Gr. 6.

Measurements as % of SL: Predorsal length 70.5 ~ 76.7; preanal length 70.5 ~ 76.9; body depth 10.5 ~ 16.9; head length 16.2 ~ 20.7; snout length 4.6 ~ 6.6; eye diameter 3.7 ~ 4.6; upper jaw length 4.8 ~ 7.2; interorbital width 6.7 ~ 8.6; caudal peduncle depth 5.2 ~ 6.6; pectoral length 8.3 ~ 12.0; pelvic length 7.7 ~ 10.2; dorsal base length 8.1 ~ 9.9; anal base length 13.4 ~ 15.6.

Snout blunt; maxillary reaching below anterior margin of eye; interorbital space broad, nearly flat. Dorsal origin opposite anal origin; pelvic origin midway between tip of snout and caudal base; caudal fin shallowly forked.

Color in life brown above, lighter below; body and head mottled dorsally and laterally with dark; infraposterior part of orbit blackish. Fins except for slightly dusky caudal fin transparent.

Locality confirmed. Common in the Aysén River and Aysén Fiord; Puerto Aguirre (in the sea).

20. *Galaxias platei* Steindachner Puyé (Pl. III, C).

Material examined. (3): 1, 295.0 mm SL, Lake Pollux, at 0.1 m, by hand, in Jan., 1975, deposited at the Coyhaique Salmon Hatchery; 1, 90.0 mm SL, Lake Riesco, from stomach of a brown trout, on Sep. 19, 1980, SNP(PA) 27; 2, 238.0 ~ 256.0 mm SL, Lake Don Poli, by surface gill net, at 0 ~ 6 m, on Jan. 6, 1984, SNP(PA) 149-1 ~ 2.

G. platei differs from *G. maculatus* in having the anal origin well behind the dorsal origin and from *G. globiceps* Eigenmann, known only from Los Alerces near Puerto Montt, in having longer pelvic fins (more than 40% of pelvic-anal interval) and gill raker much longer than basal breadth (McDowall, 1971b). The staffs of the Coyhaique Salmon Hatchery observed that spawning adults of *G. platei* were gathering near the shore of Lake Don Poli in January 1984.

Description. D. 13; A. 14; P₁. 14 ~ 16; P₂. 7; C. 16. Gr. 5 ~ 6 + 11 = 16 ~ 17. Br. 8.

Measurements as % of SL: Predorsal length 71.2 ~ 71.9; preanal length 76.6 ~ 80.2; body depth 18.0 ~ 26.3; head length 22.4 ~ 25.3; snout length 6.3 ~ 6.6; eye diameter 2.4 ~ 3.1; upper jaw length 7.4 ~ 7.8; interorbital width 7.8 ~ 8.8; caudal peduncle depth 9.3 ~ 11.6; pectoral length 13.0 ~ 14.0; pelvic length 10.2 ~ 11.8; dorsal base length 10.9 ~ 12.3; anal base length 11.3 ~ 12.5; distance between pelvic and anal origins 21.4 ~ 23.7.

In the largest specimen, body and head with numerous, minute fleshy tubercles. Head flattened dorsally; maxillary extending beyond anterior margin of eye. Pelvic fins separated at origin by one pelvic fin length, 43 to 55% of pelvic-anal interval; pelvic origin midway between snout tip and caudal tip; anal fin inserted a little in advance of posterior end of dorsal base; caudal fin truncate. Scales absent. Each jaw with a single row of somewhat recurved, conical teeth; a pair of rows of distinct teeth on oral roof; two rows of caninelike teeth on tongue, approaching anteriorly. Gill rakers pointed, each much longer than its base.

Color in life dark yellow above, light brown below; body and head covered with dark or vermicular markings. Fins blackish, their bases with the dark marking; dorsal, anal, and caudal fins with narrow transparent margins.

Locality confirmed. Lake Pollux; Lake Riesco; Lake Don Poli.

Trichomycteridae

21. *Hatcheria macraei* (Girard) Bagrecito (Pl. III, D).

Hatcheria macraei; Arratia and Menu-Marque, 1981: 109, fig. 10 (Aysén River basin).

Material examined. (4): 1, 60.0 mm SL, Coyhaique (Simpson River), by Surber net, at 0.3 m, in Aug., 1980, SNP(PA) 34; 1, 95.5 mm SL, Huichalao (Simpson River), by cast net, at 0.5 m, on Nov. 17, 1981, SNP(PA) 69; 1, 153.0 mm SL, Huichalao, by cast net, at 0.5 m, on Oct. 29, 1982, SNP(PA) 125; 1, 111.0 mm SL, Huichalao, by cast net, at 0.5 m, on Dec. 28, 1982, SNP(PA) 126.

Familial and generic allocation of *H. macraei* follows Arratia et al. (1978). Identification of the present specimens was made by Prof. G. Arratia S., University of Kansas. Arratia and Menu-Marque (1981) recognized a single species *H. macraei* in the genus, revising five nominal species of southern South America. *H. macraei* is distinguished from other trichomycterid species by its higher dorsal-ray count (more than 17), pectoral filament (sometimes absent), and concave caudal fin (Arratia et al., 1978; Arratia and Menu-Marque, 1981).

Description. D. 17 ~ 19; A. 8 ~ 10; P₁. 10; P₂. 5; C. 13.

Measurements as % of SL: Predorsal length 63.9 ~ 69.4; preanal length 69.9 ~ 72.2; prepectoral length 17.5 ~ 20.9; prepelvic length 56.1 ~ 59.7; body depth 12.6 ~ 14.7; head length 17.6 ~ 20.7; head width 14.7 ~ 17.5; head depth 7.0 ~ 9.5; snout length 8.5 ~ 9.8; eye diameter 1.8 ~ 2.2; upper jaw length 6.5 ~ 7.6; interorbital width 5.2 ~ 6.2; nasal barbel length 7.9 ~ 8.8; upper maxillary barbel length 11.2 ~ 13.8; lower maxillary barbel length 9.2 ~ 10.5; caudal peduncle depth 7.2 ~ 8.1; caudal peduncle length 20.0 ~ 22.2; pectoral length 14.4 ~ 15.7; pelvic length 9.6 ~ 11.7; dorsal base length 17.1 ~ 19.3; anal base length 6.8 ~ 8.3.

Head depressed; body also depressed anteriorly, but becoming compressed posteriorly behind pectoral tip; caudal peduncle long, thinned laterally; upper lip produced beyond lower jaw; two flat barbels on posterior margin of maxillary; upper maxillary barbel longer, reaching posterior margin of preopercle when extended; anterior nostril with a flat barbel on posterior margin; a patch of prickles on preopercle and opercle; branchiostegal membrane attached to isthmus. Dorsal origin midway between pectoral origin and caudal tip; pectoral fin with a blunt tip, not filamentous (in our specimens); pelvic origin nearly midway between eye and caudal base; anal base entirely below dorsal base; caudal fin somewhat concave. Scales absent. Each jaw with a narrow band of small teeth.

Color in formalin brownish above, lighter below; body with dark brown cross bands and blotches; head spotted with dark brown. Dorsal, pectoral, and caudal fins brown or stained with dark brown; pelvic and anal fins grayish brown.

Locality confirmed. Simpson River.

Myctophidae

22. *Gymnoscopelus nicholsi* (Gilbert) *Sardina fosforescente* (Pl. VII, A).

Material examined. (2): 2, 64.0 ~ 111.0 mm SL, 45°31' S and 75°29' W (Chonos Archipelago), by bottom trawl, at about 500 m, on Sep. 30, 1983, SNP (PA) 151-1 ~ 2.

Because of damaged body surface, the present specimens do not allow us to examine the position and number of photophores with accuracy, but are identified with *G. nicholsi* in having much higher number of gill rakers than the related species (Andriyashev, 1962). *G. nicholsi* has been recorded only from north of the Falkland Islands and the Antarctic waters (Andriyashev, 1962).

Description. D. 19 ~ 20; A. 18 ~ 19; P₁. 13; P₂. 8; procurrent caudal rays 7 (dorsal) + 8 ~ 9 (ventral). Ll. 43 ~ 44. Gr. 11 + 21 ~ 22 = 32 ~ 33.

Measurements as % of SL: Predorsal length 42.2 ~ 43.2; distance from snout tip to adipose fin 77.3 ~ 78.4; preanal length 58.6 ~ 61.3; prepectoral length 29.7 ~ 30.5; prepelvic length 42.2 ~ 45.9; body depth 15.6 ~ 18.9; head length 27.8 ~ 28.4; snout length 4.7 ~ 5.2; eye diameter 6.9 ~ 7.4; upper jaw length 21.2 ~ 21.9; interorbital width 6.7 ~ 7.2; caudal peduncle depth 8.0 ~ 9.0; caudal peduncle length 22.5 ~ 23.2; pectoral length 10.9 ~ 11.9; pelvic length 17.1 ~ 17.8; longest (5th) dorsal ray length 20.9 ~ 21.4; dorsal base length 23.6 ~ 24.2; longest (4th) anal ray length 15.6 ~ 17.3; anal base length 18.8 ~ 19.8.

Mouth very large; maxillary reaching near posterior angle of preopercle; a bony ridge on midline of snout. Dorsal origin opposite the pelvic; adipose fin above bases of 2nd and 3rd rays from the last; pectoral fin short, not reaching pelvic origin; pelvic fin reaching anal origin; procurrent caudal rays stiff, spinelike. Head scaleless; body scales deciduous; lateral line straight from upper end of gill opening to caudal base. Dorso-nasal (Dn) and ventro-nasal (Vn) organs present; two post-lateral (POL) organs, upper POL contacting with lower margin of lateral line below adipose fin; at least five precaudal (Prc) organs; supracaudal and infracaudal glands absent. Each jaw with a narrow band of villiform teeth; a few rows of villiform teeth on palatine; no teeth on vomer. Gill rakers slender, close-set.

Color in formalin dark brown above, dusky brown below. Fins more or less dusky; posterior margin of caudal fin blackish. Oral and branchial cavities blackish.

Locality confirmed. 45°31' S and 75°29' W.

Moridae

23. *Physiculus marginatus* (Günther) Brotula.

Lotella marginatus Günther, 1978: 19 ("Challenger" St. 305A: 47°48'30" S and 74°47'00" W; St. 306A: 48°27' S and 74°30' W); Günther, 1887: 86, pl. 14, fig. A (reference to preceding localities).

P. marginatus has been recorded from the Chilean coast north to Valparaíso and from Argentina (Norman, 1937; de Buen, 1959b). The following description of the species is based on Günther (1878; 1887), Norman (1937, fig. 24) and de Buen (1959b).

Description. D. 7 ~ 8 - 60 ~ 66; A. 53 ~ 63; P₁. 24 ~ 25; P₂. 5. Gr. 5+ 15 ~ 18. Br. 6.

Measurements as % of SL: Predorsal (1st) length 28.0 ~ 30.0; preanal length 39.3 ~ 42.3; prepelvic length 17.0 ~ 18.6; body depth 17.6 ~ 22.7; head length (HL) 22.2 ~ 25.0. Measurements as % of HL: snout length 25.0 ~ 26.2; eye diameter 33.3 ~ 40.0; interorbital width 16.6; postorbital length 41.6 ~ 45.2; pectoral length 52.4 ~ 66.7; pelvic length 64.3 ~ 80.5.

Maxillary reaching below center of eye; lower jaw a little shorter than the upper; a short barbel at chin; eye large. First dorsal fin originating above pectoral base; tip of pectoral fin blunt; pelvic fin with a filament, reaching anus; caudal fin round. Lateral line gently arched above pectoral fin, then straight along body axis. Each jaw with a villiform band of teeth, those in outer series larger; no teeth on vomer and palatine.

Color whitish; vertical fins with blackish margins.

24. *Salilota australis* (Günther) Brotula (Pl. III, E)

Salilota australis; Lönnberg, 1907: 14 (Island Harbor: 47°45' S and 74°45' W, according to Thompson, 1916); Norman, 1937: 52, fig. 23 (48°27'30" S and 74°23'30" W); Rueda, 1982: 40 (Moraleda Channel).

Material examined. (3): 2, 123.0 mm SL (2), Puerto Pérez, by bottom gill net, at 5 ~ 15 m, on Nov. 8, 1980, SNP(PA) 21-1 ~ 2; 1, 314.0 mm SL, Chacabuco Bay, by hook and line, depth unknown, on Oct. 22, 1982, SNP(PA) 121.

The genus *Salilota* is separable from the *Physiculus* by the presence of a patch of vomerine teeth (Norman, 1937).

Description. D. 9 ~ 12 - 49 ~ 54; A. 56 ~ 61; P₁. 23 ~ 24; P₂. 7 ~ 8. Sc. 137 ~ 140. Gr. 7 ~ 8 + 14 ~ 16 = 22 ~ 23.

Measurements as % of SL: Predorsal (1st) length 28.4 ~ 29.3; preanal length 35.8 ~ 36.6; body depth 18.7 ~ 20.3; head length 24.4 ~ 27.2; snout length 7.3 ~ 7.8; eye diameter 5.2 ~ 7.2; upper jaw length 13.3 ~ 13.8; interorbital width 6.1 ~ 7.3; barbel length 4.1 ~ 5.1; caudal peduncle depth 4.9 ~ 5.1; pectoral length 17.2 ~ 17.5; pelvic length 12.2 ~ 14.3; 2nd dorsal base length 53.8 ~ 56.5; anal base length 55.7 ~ 59.6.

Upper jaw produced beyond the lower; Maxillary reaching below posterior margin of pupil; chin with a single barbel. Outer pelvic rays elongated into a filament, extending beyond anus; a luminous organ between pelvic bases; caudal fin a little round. Body and head densely scaled; lateral line straight, running from posttemporal region to caudal base. Each jaw with a band of small teeth; a patch of teeth on vomer; palatine and tongue toothless.

Color in life dark brown above, brown below; a bluish-black area between pelvic bases, surrounding a luminous organ. First and 2nd dorsal, and anal fins grayish-dark brown, each with a narrow blackish margin; pectoral fin grayish dark brown; pelvic fin blackish, with a white tip; caudal fin dark brown, with a blackish margin.

Locality confirmed. Common in Aysén and Moraleda Channel; Ensenada Baja.

Gadidae

25. *Micromesistius australis* Norman Merluza de tres aletas (Pl. III, F).

Micromesistius australis; Inada and Nakamura, 1975: 20 (46°06.5' S and 75°25.2' W); Leible et al., 1981b: 71 (Chonos Archipelago to Golfo de Penas); Rueda, 1982: 40 (Moraleda Channel).

Material examined. (1): 1, 252.0 mm SL, Chacabuco Bay, by surface gill net, at 0 ~ 5 m, on Mar. 18, 1981, SNP(PA) 44.

Inada and Nakamura (1975) recognized two subspecies, *M. australis australis* for the Patagonian-Falkland population and *M. australis pallidus* Inada and Nakamura for the New Zealand one, but morphological differences between these subspecies are too slight to separate them clearly. Pantaja et al. (1973) reported the species from the west off Chiloé (42°44.3' S), probably the northernmost record of its range.

Description. D. 11 - 11 - 23; A. 30 - 24; P₁. 22; P₂. 6. Sc. about 150. Gr. 10 + 38 = 48.

Measurements as % of SL: Predorsal (1st) length 35.4; predorsal (2nd) length 49.2; predorsal (3rd) length 72.2; preanal (1st) length 36.3; preanal (2nd) length 70.6; body depth 18.2; head length 25.1; snout length 8.3; eye diameter 5.9; upper jaw length 10.3; interorbital width 5.0; caudal peduncle depth 4.4; pectoral length 15.1; pelvic length 6.8; 1st dorsal base length 7.5; 2nd dorsal base length 9.1; 3rd dorsal base length 16.5; 1st anal base length 35.2; 2nd anal base length 19.0.

Body compressed; tip of snout in line with a little above center of eye; maxillary reaching nearly anterior margin of pupil; lower jaw a little projecting; anterior nostril with a short flap on hind margin; posterior nostril round, just behind the anterior; interorbital space flattened. Pectoral fin reaching below middle of 1st dorsal base; pelvic fin small, inserted in advance of pectoral base. Body and head densely covered with small deciduous scales; lateral line straight from upper end of gill opening to caudal base. Each jaw with a single row of conical teeth; a row of indistinct teeth inside outer series in upper jaw; vomer with minute teeth on anterior margin and a conspicuously longer tooth on posterior end of each side; no teeth on palatine and tongue (which is pointed anteriorly). Gill rakers slender; branchiostegal membranes united across isthmus.

Color in life greenish-dark silver above, silver below. Fins brownish-gray with a more or less dusky tint; caudal fin blackish posteriorly. Branchial cavity dusky.

Locality confirmed. Chacabuco Bay.

Merlucciidae

26. *Macruronus magellanicus* Lönnberg Merluza de cola (Pl. III, G).

Macruronus magellanicus; Zama and Cárdenas, 1982: 1, pl. 1, fig. C (Ensenada Baja); Zama and Cárdenas, 1983: 14 (mouth of the Salto River, as stomach contents).

Material examined. (3): 1, 342.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Oct. 6, 1980, SNP(PA) 7; 1, 313.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Jun. 23, 1981, SNP(PA) 53; 1, 335.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Apr. 20, 1983, SNP(PA) 135.

In this study the genus *Mecruronus* is placed in the family Merlucciidae according to Norman (1937) and Nelson (1976) although it is sometimes included in the Gadidae or Macrouridae (e.g., Oliver, 1943; de Buen, 1959b; Nakamura, 1976; Bahamonde and Pequeño, 1975). Lönnberg (1907) and Norman (1937) distinguished *M. magellanicus* from *M. novaezelandiae* (Hector), known from New Zealand and Australia, by the proportional measurements of the eye, interorbital width, lower jaw length, etc., which are close or overlapping. A detailed comparative study of the two species may prove them to be conspecific.

Description. D. 11 ~ 13 - 97 ~ 100; A. 89 ~ 90; P₁. 17 ~ 20; P₂. 8. Gr. 8 + 23 ~ 26 = 31 ~ 34.

Measurements as % of SL: Predorsal (1st) length 23.1 ~ 23.6; preanal length 43.9 ~ 46.4; body depth 12.7 ~ 13.5; head length 19.4 ~ 19.8; snout length 5.8 ~ 5.9; eye diameter 4.8 ~ 5.2; upper jaw length 10.2 ~ 11.0; lower jaw (dentary) length 11.9 ~ 12.0; interorbital width 4.4 ~ 4.7; pectoral length 12.9 ~ 13.7; pelvic length 10.5; 1st dorsal base length 7.3 ~ 8.8; 2nd dorsal base length 69.8 ~ 76.0; anal base length 54.6 ~ 59.6.

Body strongly compressed and tapered posteriorly; maxillary reaching below center of eye; lower jaw produced beyond upper jaw; interorbital space flattened. Dorsal and anal fins confluent with the caudal; posterior rays of 2nd dorsal fin higher than preceding rays, hence forming a shallow notch at its margin (distal margin of the 2nd dorsal not as straight as in figures by Norman, 1937, fig. 21, Lorenzen et al., 1979, fig. 61A, and Leible and Alveal, 1982, unnumbered fig.); pectoral fin extending beyond 2nd dorsal origin; pelvic fin inserted behind pectoral base. Body and upper part of head scaled; lateral line directed downward to above anal origin, then straight along body axis. Each jaw with a single row of conical teeth; a row of indistinct teeth inside outer series in upper jaw; vomerine teeth present; no teeth on palatine and tongue.

Color in life bluish-dark silver above, silver below. First dorsal, 2nd dorsal, and pectoral fins blackish; 2nd dorsal and anal fins darker posteriorly; pelvic and anal (except for posterior part) fins slightly pigmented with black. Oral and branchial cavities blackish.

Locality confirmed. Ensenada Baja; Mitahue Isl.

27. *Merluccius australis* (Hutton) Merluza española (Pl. III, H, top)

Merluccius australis; Inada, 1981a: 35 (Chonos Archipelago); Inada, 1981b: 52, fig. 25 (Chonos to Guayaneco Archipelagos); Zama and Cárdenas, 1982: 1, pl., fig. D (Ensenada Baja).

Material examined. (8): 1, 284.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Nov. 6, 1980, SNP(PA) 14; 1, 765.0 mm SL, Esto Mnco, by bottom gill net, at 3 ~ 25 m, on Nov. 8, 1980; 3, 610.0 ~ 680.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Mar. 7, 1981; 1, 668.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Aug. 7, 1981; 2, 246.0 ~ 282.0 mm SL, Ester Bay, by surface gill net, at 0 ~ 8 m, on Mar. 27, 1982, SNP(PA) 92-1 ~ 2.

M. polylepis Ginsburg, the name frequently applied to the present hake, is a junior synonym of *M. australis* (Inada, 1981a). This species bears a strong resemblance to *M. gayi*, but differs from the latter in having smaller scales, fewer gill rakers, a shorter pectoral fin and a convex caudal fin. In Aysén Fiord and Moraleda Channel, *M. australis* occurs more frequently than *M. gayi*, and larger fish collected were always lean, probably due to the great number of parasites noted in internal organs of the fish.

Description. D. 1, 8 ~ 11 - 41 ~ 44; A. 41 ~ 43; P₁. 14 ~ 16; P₂. 7. Sc. 155 ~ 170; Tr. 13 ~ 17/25 ~ 30. Gr. 3 ~ 5 (plus 1 ~ 2 tubercles) + 9 ~ 11 (4 ~ 11) = 12 ~ 15 (6 ~ 12).

Measurements as % of SL: Predorsal (1st) length 28.7 ~ 32.3; preanal length 42.8 ~ 50.3; body depth 12.8 ~ 17.6; head length 25.4 ~ 30.0; snout length 8.9 ~ 10.8; eye diameter 3.6 ~ 5.3; upper jaw length 13.1 ~ 15.7; interorbital width 7.2 ~ 8.7; caudal peduncle depth 3.7 ~ 4.6; pectoral length 16.8 ~ 19.9; pelvic length 10.6 ~ 13.8; 1st dorsal base length 8.8 ~ 10.2; 2nd dorsal base length 42.8 ~ 46.9; anal base length 40.4 ~ 45.8.

Dorsal surface of head flattened; maxillary reaching below center of eye; lower jaw projecting beyond the upper. Second dorsal and anal fins each with a deep notch posteriorly; pectoral fin reaching above anal origin or not; caudal fin convex with longer middle rays. Body, dorsal surface of head, and gill cover with small scales; lateral line running downward from upper end of gill opening, then straight posteriorly. Each jaw with a few irregular rows of sharp conical teeth; teeth in outer series fixed, inner teeth enlarged, depressible inward; teeth on vomer; no teeth on palatine and tongue.

Color in life bluish- to brownish-dusky above, silvery white below. Dorsal, pectoral, and caudal fins dusky; pelvic and anal fins transparent, each with a blackish margin. Oral and branchial cavities blackish.

Locality confirmed. Common (but not abundant) in Aysén Fiord and Moraleda Channel. San Quintín Bay.

28. *Merluccius gayi* (Guichenot) Merluza común (Pl. III, H, bottom).

Merluccius gayi gayi; Ginsburg, 1954: 202 (Las Huinchas Isl.: 45° 10'30''S); Inada, 1981b: 44, fig. 21 (Chonos Archipelago).

Merluccius gayi; Martínez, 1976: 72 (Chonos Archipelago to Golfo de Penas); Zama and Cárdenas, 1982: 1, pl. 1, fig. E (Ensenada Baja).

Material examined. (5): 1,300.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Oct. 9, 1980, SNP(PA) 4; 1, 295.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Mar. 15, 1981, SNP(PA) 43; 1, 283.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Apr. 8, 1981, SNP(PA) 46; 2, 242.0 ~ 256.0 mm SL, Ester Bay, by surface Gill net, at 0 ~ 8 m, on Mar. 23, 1982, SNP(PA) 91-1 ~ 2.

Ginsburg (1954), Chrichigno (1974) and Inada (1981b) recognized two subspecies of *M. gayi*; *M. gayi peruanus* Ginsburg for the Peruvian population and *M. gayi gayi* for the Chilean one, while Leible (1979) found no significant difference to separate them. We follow Leible's (1979) identification in this study. In northern and central Chile, *M. gayi* is one of the most important fishes for commercial fisheries (Lorenzen et al., 1979; Boré et al., 1980). Between latitudes 42°S and 44°S there is a rapid faunal change in abundance southward from *M. gayi* to *M. australis* (Doi et al., 1971; Trujillo, 1972; Bahamonde, 1977 and 1978; Inada, 1981b). We collected both merlucciids of similar size in Ester Bay and Puerto Pérez between March 23 and 26, 1982 (*M. gayi*, 21 fish: 253.0 to 453.0 mm SL; *M. australis*, 46: 225.0 to 758.0 mm SL). They preyed mainly on fishes and krills; no clear difference in stomach contents between the two species.

Description. D. I, 10 ~ 11 - 39 ~ 42; A. 40 ~ 43; P₁. 14 ~ 16; P₂. 7. Sc. 115 ~ 127; Tr. 10 ~ 11/20 ~ 23. Gr. 4 ~ 6 (plus 2 tubercles) + 16 ~ 17 (3 ~ 4) = 21 ~ 22 (3 ~ 6).

Measurements as % of SL: Predorsal (1st) length 30.8 ~ 33.9; preanal length 47.3 ~ 49.8; body depth 14.3 ~ 18.6; head length 29.1 ~ 31.2; snout length 9.0 ~ 10.4; eye diameter 5.1 ~ 6.6; upper jaw length 13.9 ~ 14.7; interorbital width 7.8 ~ 8.8; caudal peduncle depth 3.6 ~ 4.1; pectoral length 21.2 ~ 23.4; pelvic length 13.9 ~ 15.2; 1st dorsal base length 10.8 ~ 11.5; 2nd dorsal length 44.3 ~ 46.1; anal base length 42.8 ~ 43.8.

Morphological features are similar to those of *M. australis*. The following distinguish *M. gayi*: Pectoral fin extending beyond anal origin; caudal fin shallowly concave.

Color in life as in *M. australis*, except for a somewhat darker body.

Locality confirmed. Ensenada Baja; Ester Bay; Puerto Pérez; Punta Tortuga.

Macrouridae

29. *Coelorinchus fasciatus* Günther Peje-rata (Pl. III, 1)

Macrurus fasciatus Günther, 1878: 24 ("Challenger" St. 305A: 47°48'30"S and 74°47'00"W); Günther, 1887: 129, pl. 28, fig. A (reference to preceding locality).

Coelorrhynchus fasciatus; Thompson, 1916: 473 ("Albatross St. 2784: 48°41'S and 74°24'W).

Material examined. (2): 1, 133.0 mm TL, 44°50'S and 75°30'W. (Chonos Archipelago), by bottom trawl, at 410 ~ 440 m, on Nov. 16, 1981, SNP(PA) 68; 1, 285.0 mm TL, off Aysén region, by bottom trawl, depth unknown, in Sep. ~ Oct., 1983, SNP (PA) 152.

C. fasciatus is characterized by vertical dark bands on body, snout shorter than orbit diameter, and the second dorsal spine without serrations (Pequeño, 1971).

Description. D. II, 8 ~ 9 - 100(?) ~ 115; A 95(?) ~ 108; P₁. 17; P₂. 7. Tr. 4 ~ 5 / 11 ~ 12. Gr. (inner side) 0 ~ 2 + 6 ~ 9 = 6 ~ 11. Br. 6.

Measurements as % of head length (28.0 ~ 59.3 mm): Predorsal (1st) length 107.1 ~ 107.9; preanal length 132.7 ~ 141.1; body depth 59.0 ~ 61.4; postorbital length 32.1 ~ 34.1; snout length 27.8 ~ 33.6; preoral length 29.5 ~ 31.1; eye diameter 35.7 ~ 37.4; orbit diameter 41.8 ~ 42.2; upper jaw length 26.1 ~ 34.1; interorbital width 20.7 ~ 21.4; barbel length 10.7 ~ 11.0; pectoral length 47.1 ~ 64.1; pelvic length 46.4 ~ 60.0; 2nd dorsal spine length 45.7 ~ 55.1; 1st dorsal soft ray length 67.5 ~ 71.4; 1st dorsal base length 23.6 ~ 28.6.

Head wider than its depth; maxillary reaching below posterior margin of pupil; a short barbel at chin; interorbital space concave; suborbital ridge evident, running from snout to preopercular angle; branchiostegal membranes attached to isthmus; anterior margin of 1st gill arch united to gill cover by membrane, narrowing a gill cleft. Second dorsal spine smooth; 1st dorsal origin above pectoral base; pelvic fin inserted below posterior end of pectoral base; outer pelvic ray filamentous, reaching 7th anal ray. Scales very rough to the touch, each with several rows of spinules; lateral line parallel with dorsal contour of body. Each jaw with a narrow band of villiform teeth; no teeth on vomer, palatine, and tongue.

Color in formalin brown above, lighter below; body with 12 vertical dark bands; abdomen dark bluish. Fins slightly dusky. Oral and branchial cavities and anus black.

Locality confirmed. 44°50' S and 75°30' W.

30. *Coelorinchus patagoniae* Gilbert and Thompson Peje-rata.

Coelorhynchus patagoniae Gilbert and Thompson in Thompson, 1916: 475, pl. 6, fig. 2 "Albatross" St. 2784: 48°41' S and 74°24' W).

C. patagoniae is distinguishable from the related *C. fasciatus* in not having vertical bands on body, and has been recorded from the Chilean coast between latitudes 30°06' S and 48°41' S (Pequeño, 1971; Ojeda and Camus, 1977). The following description of the species is based on Gilbert and Thompson in Thompson (1916) and Ojeda and Camus (1977).

Description. D. II, 8 ~ 10 - 63; A. 71; P₁. 15 ~ 19; P₂. 7. Br. 6.

Measurements as % of head length: Predorsal (1st) length 108.3; body depth 66.6; snout length 30.6 ~ 31.3; preoral length 33.3; orbit diameter 40.0 ~ 40.3; upper jaw length 27.2 ~ 27.8; interorbital width 20.8 ~ 21.1.

Snout not much produced, equal to two-thirds of orbit diameter; a strong suborbital ridge from tip of snout to produced sharp angle of preopercle, which covers the interopercle. Dorsal and pelvic fins inserted just behind pectoral base; 2nd dorsal spine smooth; pelvic filament reaching 7th or 8th anal ray; anus just before anal insertion. Four to six divergent rows of spinules on each scale; lower surface of head and jaws naked and unarmed except for spur on mandible at articulation.

Color (in preserved specimen) completely faded except for dark inside mouth, gill cavity, and body cavity.

Ophidiidae

31. *Cataetyx messieri* (Günther)

Sirembo messieri Günther, 1878: 19 ("Challenger" St. 306A: 48°27' S and 74°30' W);

Günther, 1887: 104, pl. 23, fig. B (reference to preceding locality).

C. messieri is known from Chilean and Argentine Patagonia and South Africa (Norman, 1937; Smith, 1975). The following description of the species is based on Günther (1878; 1887) and Norman (1937, fig. 61).

Description. D. 105; A. 75; P₁. 24; C. 12

Head oblong, deeper than its width; snout round, overlapping shorter lower jaw; maxillary extending much beyond posterior margin of eye; eye moderate in size, one-sixth of head length, two-thirds of snout length, and less than width of flat interorbital space; opercle with a spine. Dorsal fin beginning above posterior part of pectoral fin; pectoral fin round; pelvic fins inserted behind preopercular angle, very close together, reduced to a pair of fine simple filaments, and not extending so far backward as pectoral fin; anus nearly equidistant from snout tip and from caudal base; distance between pelvic origin and anus much more than head length; dorsal and anal fins confluent with caudal fin, which is not much attenuated. Scales minute, leaving snout naked; lateral line bent behind pectoral fin, then straight from above anal origin. Each jaw with a villiform band of teeth; a series of larger teeth along side of lower jaw; teeth on vomer and palatine; vomerine teeth forming an open V-shaped band, and stronger than those of maxillary.

Color uniformly brown, with black fins.

32. *Genypterus blacodes* (Schneider) Congrio dorado (Pl. III, J)

Genypterus blacodes; Rueda, 1982: 40 (Moraleda Channel).

Material examined. (3): 1, 348.0 mm SL, North-east coast of Traiguen Isl., by hook and line, at 5 m, on Dec. 1, 1980, SNP(PA) 32; 1, 341.0 mm SL, pier of Puerto Chacabuco, by hook and line, at 8 ~ 10 m, on May. 2, 1982, SNP(PA) 96; 1, 654.0 mm SL, Moraleda Channel, by bottom long line, depth unknown, on May 28, 1982.

Two species of the genus *Genypterus* are found in Moraleda Channel and probably in Aysén Fiord: *G. blacodes* has a more slender, lighter-colored body with dark brown cloudy markings and *G. chilensis* has brown or light brown vermicular markings on a deeper, darker colored body. *G. blacodes* is one of the most important food fishes in the Aysén region.

Description. D. 137 ~ 142; A. 104 ~ 108; P₁. 23 ~ 26; P₂. 2. Gr. 3 ~ 4 + 4 (plus 7 ~ 12 tubercles) = 7 ~ 8 (7 ~ 12). Br. 7.

Measurements as % of SL: Predorsal length 25.8 ~ 29.0; preanal length 46.9 ~ 50.2; body depth 11.7 ~ 12.4; head length 21.8 ~ 24.7; snout length 5.1 ~ 5.5; eye diameter 2.9 ~ 3.6; upper jaw length 9.6 ~ 11.0; interorbital width 3.3; pectoral length 9.5 ~ 10.8; pelvic length 8.8 ~ 10.0; dorsal base length 71.3 ~ 74.2; anal base length 49.8 ~ 53.1.

Body slender and compressed posteriorly; dorsal profile of head nearly straight; maxillary extending beyond posterior margin of eye; lower jaw shorter than the upper; opercular membrane extending to upper end of pectoral base. Dorsal and anal fins confluent with the caudal; dorsal origin above middle of pectoral fin; pelvic fins like barbels, situated just behind chin. Scales absent; lateral line running from above gill cover along upper part of body. Each jaw with a band of teeth; vomer and palatine with teeth; no teeth on tongue.

Color in life brownish above, lighter below; body with irregular, dark brown cloudy markings; ventral surface (ground color) of body and head brownish— to pinkish-gray. Dorsal and anal fins brownish, darker posteriorly; pectoral fin grayish-brown; pelvic fin pinkish - gray.

Locality confirmed. Common in Aysén Fiord and Moraleda Channel.

33. *Genypterus chilensis* (Guichenot) Congrio colorado (Pl. III, K).

Material examined. (1): 1, 697.0 mm SL, Ester Bay, by surface gill net, at 0 ~ 8 m, on Mar. 22, 1982.

Description. Dorsal and anal rays not counted; P₁. 24; P₂. 2. Gr. 4 + 4 (plus 5 tubercles) = 8 (5). Br. 7.

Measurements as % of SL: Predorsal length 28.7; preanal length 50.2, body depth 16.2; head length 25.4; snout length 6.0; eye diameter 2.7; upper jaw length 11.6; interorbital width 4.0; pectoral length 11.6; pelvic length 9.6; dorsal base length 71.3; anal base length 49.8.

Morphological features as in *G. blacodes*, except for a somewhat deeper body.

Color in life blackish— to deep brown above, brownish below; body and anal fin with brown or light brown, vermicular markings, varying in number and shape; ventral surfaces (ground color) of body and head dusky ornage. Dorsal, pectoral, and anal fins blackish-brown; pelvic fin grayish-pink.

Locality confirmed. Ester Bay; Caleta Vidal.

Carapidae

34. *Echiodon cryomargarites* Markle, Williams and Olney (Pl. IV, A).

Material examined. (1): 1, 276.0 mm TL, 44° 44' S and 75° 26' W (Chonos Archipelago), by bottom trawl, at 440 m, on Nov. 16, 1981, SNP(PA) 66.

Dr. D.F. Markle, Huntsman Marine Laboratory, Canada, kindly examined the present specimen and informed us that specimen is conspecific with *E. cryomargarites*, which was recently described as new in their paper (Markle et al., 1983). Ojeda (1981) recorded for the first time from Chilean waters a carpid fish referable to *Echiodon*, collected at 56° 03' S and 69° 56' W from 357 m deep.

Description. P_1 . 22. Gr. (3 tubercles) + 3 (plus 5 tubercles) = 3 (8). Br. 7.

Measurements as % of head length (24.0 mm): Predorsal length 170.8; preanal length 127.1; prepectoral length 104.2; body depth 58.3; body width 33.3; head width 45.8; head depth 54.2; snout length 25.8; eye diameter 20.8; orbit diameter 22.9; upper jaw length 51.7; interorbital width 15.8; pectoral length 56.3(?) (tip of each side broken).

Body elongate, compressed and tapering posteriorly; head covered with a single skin, hence not forming free rims of orbit and preopercle; a median ridge from snout tip to interorbital space, dorsal profile of the ridge round; maxillary extending to behind eye, not concealed by skin; lower jaw somewhat shorter than the upper. Dorsal fin originating above(?) pectoral tip; pelvic fin absent; anus just before anal origin. Scales absent; lateral line not evident. Each jaw with a narrow band of conical teeth, depressible backward; a pair of canines at front of upper jaw; three (two on left side) front canines in lower jaw, separated from lateral band of teeth; vomer with a row of caninelike teeth anteriorly, flanked by small teeth; a patch of vomerine teeth rounded posteriorly; palatine with a band of villiform teeth; bands of vomerine and palatine teeth separated from each other. Three gill rakers on lower limb slender, conspicuously much longer than other tubercular ones.

Color in formalin uniformly light brown except for transparent occipital region; body with a great number of dark dots along myocommata; head also covered with the same dots. Fins transparent. Gill cavity blackish; inside of stomach black.

Locality confirmed. 44°44' S and 75°26' W

Zoarcidae

35. *Austrolycus depressiceps* Regan (Pl. VII, B).

Austrolycus depressiceps; Norman, 1937: 102, fig. 52 (Chonos Archipelago); Nybelin, 1969:119 (Puerto Lagunas: 45°17' S and 73°45' W).

Material examined. (3): 2, 200.0 ~ 203.0 mm SL, south-east coast of Nalcayec Isl., found under a stone in a tide pool at ebb tide (collected with *Notothenia cornucola*), by hand, on Nov. 25, 1983, SNP(PA) 139-1 ~ 2; 1, 130.0 mm SL, Lagoon San Rafael, found under an exposed stone at ebb tide, by hand, on Nov. 26, 1983, SNP(PA) 140.

A. depressiceps occurs in the Pacific coast of southern South America (north to Chiloé), and differs from the closely related *A. laticinctus* (Berg), which is known from the Atlantic side, in having smaller numbers of dorsal rays and vertebrae and pelvic fin not extending beyond pectoral base (Gosztonyi, 1977; Navarro and Pequeño, 1979).

Description. D. 105 ~ 108; A 78 ~ 80; P_1 . 17 ~ 18; P_2 . 3; C. 8. Gr. 2 + 11 = 13. Br. 6.

Measurements as % of SL: Predorsal length 17.5 ~ 18.1; preanal length 43.5 ~ 45.8; prepectoral length 17.1 ~ 18.0; prepelvic length 13.6 ~ 14.0; body depth 9.0 ~ 10.5; head length 16.5 ~ 17.4; postorbital length 10.5 ~ 10.6; snout length 4.5 ~ 4.6; eye diameter 1.5 ~ 2.0; upper jaw length 6.7 ~ 7.2; interorbital width 2.7 ~ 2.8; pectoral length 10.4 ~ 12.3; pelvic length 3.7 ~ 4.4.

Body elongate and eel-like; head depressed; maxillary reaching below posterior margin of eye; lower jaw shorter than the upper; both lips delimited by deep grooves; a short tube on nostril; gill opening small, downward to middle of pectoral base. Dorsal fin originating just above pectoral base; pelvic fin short, not or just reaching below pectoral base; dorsal and anal fins confluent with the caudal. Scales embedded in skin (not evident). Each jaw with conical teeth in a few rows, reducing laterally to one row; teeth in lower jaw stronger than upper teeth; a patch of teeth on vomer and a single row of stronger teeth on palatine; no teeth on tongue. Gill rakers very short, rudimentary.

Color in life blackish-brown above, grayish brown below; pale areas from above upper jaw to cheek and on nape; two to three pale blotches on anterodorsal part of body, extending onto dorsal fin; anus in a pale spot. Fins blackish-brown; six to seven pale blotches on posterior part of dorsal fin; a pale spot at upper pectoral base; pectoral fin with a whitish margin. In the specimen SNP(PA) 139-1, the pale blotches on body and fins indistinct.

Locality confirmed. Nalcayec Isl.; Lagoon San Rafael.

36. *Melanostigma gelatinosum* Günther (Pl. VII, C).

Material examined. (3): 2, 97.0 ~ 112.0 mm SL, 44°44' S and 75°25' W (Chonos Archipelago), by bottom trawl, at 200 ~ 300 m, on Sep. 21, 1983, SNP(PA) 150-1 ~ 2; 1, 168.0 mm SL, 48°02' S and 75°53' W, by bottom trawl, at 300 m, on Oct. 13, 1983, SNP(PA) 154.

Two *Melanostigma* species, *M. gelatinosum* and *M. bathium* Bussing, are known from Chilean waters (Günther, 1881; Tominaga, 1971; Bahamonde and Pequeño, 1975). *M. gelatinosum* is separable from the latter in having lower caudal vertebra, dorsal-ray, and anal-ray counts and the presence of temporal pore (Tominaga, 1971). Craddock and Mead (1970) reported small specimens (46 and 62 mm SL) of *M. gelatinosum* from two stations (33°42' S and 34°12' S) off San Antonio, probably the northernmost record of its range.

Description. D. 76 ~ 80; A. 63 ~ 64; P₁. 7 ~ 8; C. 8. Gr. 0 + 10 ~ 11. Br. 6. In the SNP(PA) 154 (other specimens damaged), suborbital pores 5; preoperculo-mandibular pores 4; temporal pore 1.

Measurements as % of SL: Predorsal length 18.8 ~ 19.6; preanal length 38.8 ~ 39.9; prepectoral length 16.9 ~ 17.5; body depth 11.6 ~ 13.4; head length 17.9 ~ 18.0; snout length 4.1 ~ 5.1; eye diameter 3.9 ~ 4.2; upper jaw length 7.9 ~ 8.9; interorbital width 3.7 ~ 4.5; gill opening length 2.9 ~ 3.6; pectoral length 9.1 ~ 10.1.

Body elongate and compressed; snout obtuse; nostril with a fleshy external tube; maxillary reaching below center of eye; lower jaw a little shorter than the upper; gill opening reduced to a vertical slit immediately above pectoral base; upper limb of 1st gill arch united to gill membrane. Dorsal fin originating above middle of pectoral fin; dorsal and anal fins confluent with the caudal; pelvic fin absent. Body enveloped entirely in a loose delicate skin, supported by gelatinous tissue. Each jaw with a few rows of sharp conical teeth, reducing laterally to one row; a patch of enlarged teeth on vomer; a single row of teeth on palatine; tongue very large without teeth. Gill rakers short, but pointed.

Color in formalin grayish-light brown above, grayish below; body marbled with dusky gray; tip of snout, nasal tube, lips, gill opening and anus black. Vertical fins dusky; posterior part of tail blackish; pectoral fin light gray. Oral and branchial cavities black.

Locality confirmed. 44°44' S and 75°25' W; 48°02' S and 75°53' W.

Scomberesocidae

37. *Scomberesox saurus scombroides* (Richardson) Agujilla

Scomberesox saurus scombroides; Hubbs and Wisner, 1980: 553, fig. 10 - 1 ~ 2 (47° S and 81°W).

Application of the specific name follows Hubbs and Wisner (1980), who recognized two subspecies in the genus *Scomberesox*, the North Atlantic *S. saurus saurus* (Walbaum) and the southern hemisphere population *S. saurus scombroides* which show a circumantarctic distribution in the latitudes lower than 50°S. The following description of *S. saurus scombroides* is based on de Buen (1959d, as *S. stolatus*) and Hubbs and Wisner (1980).

Description. D. 10 ~ 11 + 5 finlets; A. 11 ~ 12 + 7 finlets; P₁. 12 ~ 13; P₂. 6. Ll. 78 ~ 86 (to pelvic origin) + 79 ~ 85. Gr. 8 + 41 = 49. Br. 13.

Measurements as % of SL: Preanal length 74.0 ~ 75.0; prepelvic length 60.0 ~ 60.8; body depth 10.3 ~ 11.2; body width 5.7 ~ 6.3; head length (HL) 27.5 ~ 28.6; dorsal base length 7.5 ~ 7.9. Measurements as % of HL: Snout length 57.5 ~ 61.2; orbit diameter 9.4 ~ 10.3; interorbital width 12.9 ~ 16.0; postorbital length 26.7 ~ 29.7; caudal peduncle depth 7.1 ~ 7.5; pectoral length 22.5 ~ 23.2; pelvic length 18.7 ~ 19.8; anal base length 31.1 ~ 31.2.

Jaws greatly produced (in adult) and pointed; lower jaw longer and broader than upper beak; preopercle with a right angle, mucous pores on its margin. Pectoral fin with a pointed tip; caudal fin forked. Teeth in each jaw biserial on beak and uniserial posteriorly. Scales deciduous; lateral line running on lower part of body. Gill rakers on upper limb tubercular, those on lower limb longer than half of gill filaments.

Color in formalin dark bluish above, silvery below; body with a wide blackish lateral band. Dorsal and caudal fins blackish; pectoral and pelvic fins transparent, margined with black; anal fin transparent.

Atherinidae

~~Austromeniidae~~ sp.

38. ~~*Odontesthes bonariensis*~~ (Valenciennes) Pejerrey ~~argentino~~ (Pl. IV, B).

Material examined. (1): 1, 298.0 mm SL, Lake Esmeralda, by hook and line, at 2 ~ 5 m, on Jan 8, 1983, SNP(PA) 127.

O. banariensis was introduced into Chilean lakes from Argentina, so it is called "pejerrey argentino" in Chile. This fish is carnivorous and grows to a larger size (about 70 cm TL and 3 kg) than other atherinids (Barros, 1961; Valette, 1972; Division de Protección Pesquero, 1977; Arratia, 1978; Vila and Soto, 1981).

Description. D. VII - I, 10; A. I, 16; P₁. 14; P₂. I, 5. Sc. 74; Tr. 16 (between dorsal midline and anal origin). Gr. 8 + 24 = 32.

Measurements as % of SL: Predorsal (1st) length 54.0; predorsal (2nd) length 69.8; preanal length 61.7; prepectoral length 21.5; prepelvic length 44.6; body depth 19.8; head length 19.8; snout length 6.4; eye diameter 3.7; upper jaw length 6.3; interorbital width 7.0; caudal peduncle depth 6.7; caudal peduncle length 19.9; pectoral length 17.0; pelvic length 11.7; longest (3rd) dorsal spine length 6.3; 1st dorsal base length 6.7; 2nd dorsal base length 11.7; anal base length 19.5; greatest width of lateral band 3.2; longest gill raker length 1.6.

Jaws subequal; premaxillary protractile; maxillary reaching below anterior margin of eye. First dorsal origin nearer to caudal base than to snout tip and above a point two-thirds the length of pelvic fin; posterior end of anal base behind that of 2nd dorsal base. Body and head densely scaled; margin of each scale entirely smooth. Each jaw with a narrow band of minute teeth; vomerine teeth present; no teeth on palatine and tongue.

Color in formalin dark above, whitish below; body with a reticulated pattern due to dark margins of scale pockets; a dark lateral band from upper end of gill opening to caudal base. Fins more or less dusky; 2nd dorsal and anal fins with pale margins.

Locality confirmed. Lake Esmeralda.

~~Austromeniidae~~

39. ~~*Odontesthes smitti*~~ (Lahille) Pejerrey (Pl. IV, C)

?*Atherinichthys laticlavia*; Gioux, 1935: 63 (Aysén).

?*Odontesthes cf. regia*; Navarro and Pequeño, 1979: 264 (Estero Pillán: 43° 43' S and 72° 50' W; Huemules Isl.: 45° 58' S and 73° 45' W).

Odontesthes sp.; Rueda, 1982: 40 (Ensenada Baja, specimens gifted by us).

Odontesthes smitti; Zama and Cárdenas, 1982: 1, pl. 1, fig. B (top) (Ensenada Baja); Zama and Cárdenas, 1983: 14 (Aysén River and mouth of Salto River, as stomach contents).

Material examined. (28): 1, 206.0 mm SL, Ensenada Baja, by hook and line, at 4 m, on Sep. 14, 1980; 1, 338.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Oct. 7, 1980, SNP(P) 2; 2, 112.0 ~ 113.0 mm SL, Estero Godoy, by surface gill net, at 0 ~ 2 m, on Nov. 20, 1980, SNP(PA) 31-1 ~ 2; 3, 227.0 ~ 271.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Mar. 27, 1981, SNP(PA) 45-1 ~ 3; 5, 39.5 ~ 53.0 mm SL, Puerto Aguirre, by cast net, at surface, on Feb. 23, 1982, SNP(PA) 78-1 ~ 5; 3, 78.0 ~ 80.0 mm SL, Puerto Aguirre, by dip net, at surface, on Mar. 22, 1982, SNP(PA) 89-1 ~ 3; 3, 246.0 ~ 279.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jun. 3, 1982, SNP(PA) 99 - 1 ~ 3; 1, 210.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jun. 5, 1982 SNP(PA) 103; 3, 246.0 ~ 284.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jun. 7, 1982, SNP(PA) 104-1 ~ 3; 2, 303.0 ~ 310.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Jul. 11, 1982, SNP(PA) 107-1 ~ 2; 5, 175.0 ~ 210.0 mm SL, mouth of Cuervo River, by surface gill net, at 0 ~ 3 m, on Jul. 23, 1982, SNP(PA) 109 - 1 ~ 5; 7, 192.0 ~ 207.0 mm SL, same data as preceding, only for vertebral count; 3, 175.0 ~ 208.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 2 m, on Oct. 24, 1982, SNP(PA) 113 - 1 ~ 3; 2, 130.0 ~ 175.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 2 m, on Oct. 25, 1982, SNP(PA) 114-1 ~ 2; 1, 128.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 2 m, on Oct. 27, 1982. SNP(PA) 115; 1, 185.0 mm SL, Punta Tortuga, by purse seine, at 0 ~ 10 m, on Oct. 11, 1983, SNP(PA) 148.

The classification of Chilean atherinid fishes needs to be revised (de Buen, 1955; Campos, 1973b; Navarro and Pequeño, 1979; Lorenzen et al., 1979). We compared specimens of four supposed species from three Chilean localities and Puerto Madryn (42° 47' S and 65° 03' W), Argentina. As shown in Table 2, *O. nigricans* (Richardson) has much fewer gill rakers, while there are no differences in counts and measurements among the three remaining species except the proportion of head length to lateral band width. The specimens from the Aysén region and Punta Arenas, which agree well with the description of *O. smitti* by Norman (1937), are characterized by a deeper lateral band (entirely dark when preserved in formalin) and darker body and fins. In the Valdivia and Puerto Madryn specimens preserved in formalin, the lateral bands are dark only on the upper border, the rest brownish. The Valdivia specimens seem conspecific with those reported as *O. regia* (Humboldt) from the Concepción Province by Leible and Alveal (1982). Although de Buen (1955), Navarro and Pequeño (1979), Lorenzen et al. (1979) and Leible and Alveal (1982) gave the range of *O. regia* or *O. regia laticlavia* (Valenciennes) as far south as Tierra del Fuego, we have obtained no other atherinid than *O. smitti* in the Aysén region. *O. smitti* attains a much larger size than the other Chilean atherinid, of which the maximum is 260 to 336 mm (Lorenzen et al., 1979; Leible and Alveal, 1982), and is one of the most important food fishes in the Aysén región.

Description. Counts and measurements are shown in Table 2.

Jaws subequal; premaxillary protractile; maxillary not or reaching just below anterior margin of eye. First dorsal origin nearer to caudal base than to snout tip, and situated above (a little before or behind in a few specimens) pelvic tip. Body and head densely scaled; margin of each scale entirely smooth. Each jaw with two rows of minute teeth; teeth on vomer, sometimes indistinct; no teeth on palatine and tongue.

Color in life bluish- to greenish-dark above, silver below; body with a distinct longitudinal band, of which upper fourth to third is dark blue and the lower rest darkish silver. First dorsal, pectoral, pelvic, and anal fins transparent; upper end of pectoral base blackish; 2nd dorsal and caudal fins dusky or yellowish dusky; caudal fin with a blackish posterior margin.

Locality confirmed. Common in Aysén Fiord and Moraleda Channel, particular in inlets and near mouth of rivers.

Table 2. Counts and measurements for specimens of *Odontesthes* from four localities in southern South America. Vertebral counts were made only in seven additional specimens (192.0 to 207.0 mm SL) of *O. smitti*. Bars indicate no data. The specimens of *O. nigricans* are deposited at the Instituto de la Patagonia, Punta Arenas.

Species	<i>O. smitti</i>		<i>?O. regia</i> Valdivia	<i>Odontesthes</i> sp.		<i>O. nigricans</i> Pta. Arenas
	Aysén region	Pta. Arenas		Pto. Madryn	Pta. Arenas	
Locality	27	4	4	10	3	
Number of specimens	131.0 ~ 395.0	282.0 ~ 427.0	233.0 ~ 237.0	169.0 ~ 234.0	125.0 ~ 138.0	
Total length (mm)	112.0 ~ 338.0	245.0 ~ 370.0	196.0 ~ 202.0	145.0 ~ 200.0	107.0 ~ 118.0	
Standard length (mm)						
Counts:						
Dorsal fin rays	V~IX-1, 9~11	VII~VIII-1, 9~10	VI~VIII-1, 10~12	VI~VIII-1, 9~11	VI~VIII-1, 12	
Anal fin rays	I, 15~19	I, 16~18	I, 15~18	I, 16~19	I, 17~18	
Pectoral fin rays	14~16	14~15	14~15	15	14~15	
Scales in longitudinal series	85~99	98~108	79~95	96~104	97~105	
Scales between anal origin and dorsal midline	16~18	17~18	16~17	17~18	17~19	
Gill rakers	8~10 + 25~30 = 33~39	9~10 + 30~31 = 39~40	8~10 + 26~28 = 36~37	8~10 + 27~31 = 35~40	4~5 + 13~16 = 18~20	
Vertebrae	27~28 + 25~27 = 52~54					
As % of SL:						
Predorsal (1st) length	50.0 ~ 55.4	49.8 ~ 52.2	52.8 ~ 54.6	50.0 ~ 53.0	44.9 ~ 46.7	
Predorsal (2nd) length	66.9 ~ 72.6	68.3 ~ 69.8	69.8 ~ 71.0	69.7 ~ 71.1	64.4 ~ 65.4	
Preal length	60.9 ~ 67.9	63.2 ~ 63.7	64.4 ~ 65.8	62.4 ~ 65.3	60.2 ~ 60.3	
Prepectoral length	20.3 ~ 23.4	20.8 ~ 21.7	22.8 ~ 23.7	22.6 ~ 24.4	22.8 ~ 23.6	
Prepelvic length	42.5 ~ 48.0	42.5 ~ 44.3	45.0 ~ 45.9	42.6 ~ 45.7	44.5 ~ 45.7	
Body depth	14.5 ~ 18.5	17.4 ~ 18.4	15.8 ~ 16.6	15.9 ~ 18.2	14.7 ~ 15.9	
Head length	19.7 ~ 22.8	19.6 ~ 20.7	21.4 ~ 23.1	21.8 ~ 23.6	21.6 ~ 22.9	
Snout length	5.9 ~ 7.7	6.8 ~ 7.2	6.4 ~ 7.7	7.0 ~ 7.8	6.5 ~ 7.3	
Eye diameter	3.7 ~ 4.8	3.4 ~ 3.7	3.9 ~ 4.7	4.3 ~ 4.7	4.2 ~ 4.3	
Upper jaw length	6.3 ~ 7.4	6.4 ~ 7.1	7.0 ~ 7.4	7.0 ~ 7.8	7.3 ~ 7.8	
Interorbital width	6.4 ~ 8.5	6.3 ~ 6.8	6.9 ~ 7.7	6.6 ~ 7.4	7.5 ~ 7.6	
Caudal peduncle depth	5.6 ~ 6.9	5.7 ~ 6.1	6.3 ~ 6.9	6.1 ~ 6.7	6.1 ~ 6.5	
Caudal peduncle length	19.7 ~ 23.3	22.5 ~ 23.2	19.8 ~ 22.4	21.7 ~ 23.6		
Pectoral length	14.2 ~ 16.9	13.3 ~ 14.6	15.5 ~ 17.3	15.1 ~ 16.4	16.4 ~ 17.8	
Pelvic length	8.3 ~ 10.3	8.4 ~ 9.3	9.4 ~ 10.4	9.1 ~ 10.3	7.2 ~ 9.8	
Longest (3rd ~ 4th) dorsal spine length	5.2 ~ 7.0	5.3 ~ 6.5	5.9 ~ 7.0	5.5 ~ 6.9	7.9 ~ 8.3	
1st dorsal base length	4.6 ~ 7.0	5.7 ~ 6.7	5.8 ~ 6.4	4.8 ~ 7.0	5.9 ~ 7.6	
2nd dorsal base length	8.2 ~ 10.2	7.8 ~ 9.4	9.4 ~ 11.2	7.7 ~ 9.6	11.2 ~ 13.3	
Anal base length	14.2 ~ 17.7	16.0 ~ 17.0	14.5 ~ 17.8	15.7 ~ 17.1	18.5 ~ 19.7	
Deepest lateral band width	3.5 ~ 4.5	4.0 ~ 4.3	3.1 ~ 3.5	3.6 ~ 4.3	2.5 ~ 3.3	
Longest gill raker length	2.6 ~ 3.3	2.4 ~ 2.9	2.8 ~ 3.0	2.6 ~ 3.1	2.4 ~ 2.5	
Head length / lateral band width	4.68 ~ 5.86	4.56 ~ 4.97	6.39 ~ 7.00	5.14 ~ 6.28	6.42 ~ 6.66	

Syngnatyidae

40. *Leptonotus blainvillianus* (Eydoux and gervais) Aguja de mar grande (Pl. IV, D).

Syngnathus blainvillianus; Thompson, 1916: 423 (Port Otway: 46°50' S and 75°18' W).

Leptonotus blainvillianus; de Buen, 1960a: 89 (Puerto Lagunas: 45°17' S and 73°43' W);

Navarro and Pequeño, 1979: 265 (Nalcayec Channel: 46°03' S and 73°48' W).

Material examined. (1): 1, 69.3 mm SL, La Mentirosa Isl., by larva net, at surface, on May 13, 1981, SNP(PA) 106.

According to Mann (1954), males of *L. blainvillianus* attain 40 cm long, while females do not usually exceed 30 cm. Juveniles (20.5 to 72.3 mm TL) of this species were frequently collected by larva net at the surface of Aysén Fiord and Moraleda Channel from spring to autumn, but we have obtained no adults in these waters.

Description. D. 36; A. 3; P₁. 12; C. 10. Trunk rings (anterior to anus) 19; tail rings 50.

Measurements as % of SL: Predorsal length 34.8; preanal length 36.5; body depth 3.2; head length 12.8; snout length 6.8; eye diameter 1.9; upper jaw length 1.2; interorbital width 1.4; caudal peduncle depth 0.7; pectoral length 2.7; dorsal base length 11.3.

Trunk a little compressed; cross-section of body polygonal due to osseous plates; each plate without a spine, but several vertical ridges on surface; superior trunk ridge interrupted below posterior end of dorsal base; lateral trunk ridge bent smoothly upward below posterior part of dorsal base and continuous with superior tail ridge; snout very long, with small upward-directed mouth at its tip; a keel on midline of snout; gill opening reduced to a small hole above opercle. Dorsal origin much in advance of anus; anal fin minute, just behind anus; caudal fin with a round margin.

Color in formalin light brown; body with about 17 dark brown cross bands; upper surface of head and snout brownish. Fins transparent except for a dusky caudal fin.

Locality confirmed. La Mentirosa Isl.; Moraleda Channel (44°57' to 45°47' S).

Scorpaenidae

41. *Sebastes oculatus* (Cuvier) Chancharro (Pl. IV, E).

Sebastes Darwini; Lönnberg, 1907: 8 (Island Harbor: 47°45' S and 74°45' W, according to Thompson, 1916).

Sebastes oculatus; Navarro and Pequeño, 1979: 265 (Estero Pillán: 43°43' S and 72°50' W); Rueda, 1982: 40 (Moraleda Channel).

Material examined. (3): 1, 192.0 mm SL, north-east coast of Traiguen Isl., by hook and line, at 5 m, on Dec. 1, 1980, SNP(PA) 33; 1, 275.0 mm SL, Puerto Aguirre, by surface gill net, at 0 ~ 3 m, on Jul. 16, 1982, SNP(PA) 108; 1, 260.0 mm SL, same data as preceding, not retained.

De Buen (1960b) distinguished three subspecies in *Sebastes oculatus* from Chilean waters: *S. oculatus darwini* (Cramer) from north Chile, *S. oculatus oculatus* from central Chile and *S. oculatus chilensis* Steindachner from south Chile. According to his key for the *oculatus* complex, however, the present specimens do not fall definitely into any one of them because of overlap in the key-characters. On the other hand, *S. oculatus* is closely related to the South Atlantic *S. capensis* (Gmelin), known from South Africa to Magellan Strait, showing only a slight difference in dorsal spine length (Norman, 1937; Eschmeyer, 1969).

Description. D. XIII, 13; A. III, 6; B₁. 18 (lower 9 unbranched); P₂. I, 5. Ll. 38 ~ 40; Sc. 60 ~ 62; Tr. 10 ~ 11 / 20 ~ 21. Gr. 9 + 20 ~ 21 = 29 ~ 30.

Measurements as % of SL: Predorsal length 34.5 ~ 36.7; preanal length 71.6 ~ 73.5; body depth 33.5 ~ 36.5; head length 37.5 ~ 40.6; snout length 9.5 ~ 10.2; eye diameter 8.5 ~ 9.4; upper jaw length 18.5 ~ 19.5; interorbital width 6.5 ~ 6.9; postorbital length 19.4 ~ 20.3; caudal peduncle depth 9.5 ~ 11.1; pectoral length 28.4 ~ 30.7; pectoral base length 9.9 ~ 10.0; pelvic length 22.9 ~ 24.4; longest (4th ~ 5th) dorsal spine length 11.6 ~ 13.7; dorsal base length 57.8 ~ 62.7; 2nd anal spine length 13.8 ~ 16.8; anal base length 13.6 ~ 15.0.

Upper part of head with nasal, preocular, postocular, tympanic, parietal, upper posttemporal and supracleithral spines (see Eschmeyer, 1969, fig. 1); interorbital space concave, with a pair of low inner ridges; a pair of parietal ridges prominent and long; nasal spine strong, curved backward; symphysis of upper jaw a little concave; maxillary nearly reaching below posterior margin of eye; lower jaw projecting, with a developed knob at tip; preorbital bone with a retrorse spine suborbital ridge undeveloped; five spines on preopercular margin, the lowermost one very small. Pelvic fin inserted a little behind pectoral base, not reaching anus; caudal fin slightly concave or truncate. Scales on body and head with small auxiliary scales; lateral line parallel with dorsal contour of body. Each jaw with a band of conical teeth; vomerine teeth forming a V-shaped band; palatine with teeth in band; no teeth on tongue. Gill rakers with round tips.

Color in life dark brown above, grayish-brown with an orange tint below; back with five dark saddles extending downward to lateral line; two round pale blotches below origin and end of dorsal base, sometimes a few others along lateral line, but these blotches disappear with fixation in formalin; three dark brown bars extending backward from eye; a dark brown bar on maxillary. Spinous dorsal fin dark brown; other fins dark brown to orangish-dark brown or grayish-brown.

Locality confirmed. Common in the rocky shore of Aysén Fiord and Moraleda Channel.

Congiopodidae

42. *Congiopodus peruvianus* (Cuvier) Chanchito (Pl. IV, F).

Agriopus hispidus; Cunningham 1871: 469 (Port Otway: 46°50' S and 75°18' W).

Congiopodus peruvianus; Navarro and Pequeño, 1979: 266 (Quitralco Fiord: 45°43' S and 73°21' W).

Material examined. (1): 1, 171.0 mm SL, Caleta Vidal, by surface gill net, at 0 ~ 8 m, on Mar. 24, 1982, SNP(PA) 93.

Agriopus hispidus Jeanys, which has horny tubercles on body, represents young fish of *C. peruvianus* (Norman, 1937)

Description. D. XVIII, 13; A. 9; P₁ 9; P₂ . I, 5.

Measurements as % of SL: Predorsal length 19.9; preanal length 65.5; body depth 40.4; head length 30.4; snout length 11.1; eye diameter 5.6; upper jaw length 6.3; suborbital width 8.5; interorbital width 4.4; caudal peduncle depth 7.6; pectoral length 26.3; pelvic length 27.5; 3rd dorsal spine length 22.2; longest (5th) dorsal spine length 22.8; dorsal base length 81.3; anal base length 14.6.

Body deep anteriorly and strongly compressed; dorsal profile of head very steep and concave at forehead; a pair of spines in front of eye; interorbital space narrow, deeply concave; granular, osseous plates around eye; other osseous plates on temporal and above opercle; preopercle without a free margin, granular radiating ridges on its surface; gill opening reduced to a slit, not reaching pectoral origin. Dorsal fin beginning above center of eye; pelvic fin inserted behind pectoral base; caudal fin slightly concave. Body scaleless, with numerous vertical crinkles. Each jaw with a few rows of small teeth; no teeth on vomer, palatine, and tongue.

Color in life orangish-brown dorsally and laterally, yellowish-orange ventrally; body and head with numerous dark brown spots and broken bars; a dark bar from anteroinfra rim of orbit toward maxillary. Dorsal fin with dark brown oblique streaks on spinous portion and spots on soft portion; membrane between 1st and 2nd dorsal spines blackish; a large black blotch on upper part between 5th and 9th dorsal spines and another on posterior part of spinous dorsal fin; an oblique dark blotch on soft dorsal fin with orange margin; pectoral fin spotted with dark brown; dusky areas on posterior parts of pectoral and pelvic fins and on anterior part of anal fin; caudal fin with a broad dark cross-band followed by and orange margin.

Locality confirmed. Caleta Vidal.

Normanichthyidae

43. *Normanichthys crockeri* Clark Mote (Pl. IV, G).

Normanichtys crockeri; Zama and Cárdenas, 1982: 8 (Ensenada Baja, as stomach contents);

Zama and Cárdenas, 1983: 14 (mouth of Salto River, as stomach contents).

Material examined. (5): 1, 45.3 mm SL, Ensenada Baja, from stomach of *Merluccius gayi*, on Mar. 15, 1981, SNP(PA) 47; 1, 71.5 mm SL, Ensenada Baja, from stomach of *Salmo trutta*, on Nov. 17, 1981, SNP(PA) 64; 3, 67.7 ~ 70.0 mm SL, Ensenada Baja, enmeshed in net of salmon rearing cage, on Nov. 20, 1981, SNP(PA) 65-1 ~ 3.

Based on specimens found in stomachs of a merlucciid fish and a brown trout, the presence of *N. crockeri* in Ensenada Baja was already established by Zama and Cárdenas (1982) who gave no description of the species.

Description. D. X - I, 10 ~ 11; A. I, 13 ~ 15; P₁. 16 ~ 18; P₂. I, 5; C. 12 ~ 13. Ll. 43 ~ 45; Tr. 5 / 8. Gr. 6 ~ 8 + 16 ~ 18 = 22 ~ 26. Br. 5.

Measurements as % of SL: Predorsal (1st) length 34.0 ~ 37.5; preanal length 55.6 ~ 60.7; body depth 15.4 ~ 17.7; head length 29.9 ~ 32.0; snout length 6.7 ~ 7.9; eye diameter 7.1 ~ 8.1; upper jaw length 9.2 ~ 9.9; interorbital width 5.8 ~ 6.6; caudal peduncle depth 6.0 ~ 7.1; pectoral length 25.3 ~ 26.9; pelvic length 17.7 ~ 19.4; longest (3rd) dorsal spine length 16.1 ~ 18.3; 2nd dorsal base length 15.7 ~ 18.1; anal base length 21.4 ~ 23.2.

Premaxillary protractile; maxillary extending beyond anterior margin of eye; lower jaw produced; tip of snout at level of center of eye; dorsal surface of head flattened; opercular flap pointed; branchiostegal membrane attached to isthmus. First dorsal origin well behind pectoral base; pectoral fin long, extending a little beyond posterior end of 1st dorsal base; pelvic fin inserted behind vertical pectoral base; anal origin opposite midpoint between dorsal fins. Body entirely scaled; dorsal surface of head naked; cheek and gill cover scaled; lateral line parallel with dorsal contour of body. Each jaw with a narrow band of minute teeth; vomer prominent, without teeth; no teeth on palatine and tongue.

Color in life grayish-brown above, lighter below; body with an obscure, dark brown lateral band; a heart-shaped (or round) dark brown area with a pale central spot on occiput. First dorsal, 2nd dorsal, and caudal fins somewhat dusky; pectoral fin yellowish; pelvic and anal fins transparent.

Locality confirmed. Ensenada Baja; Puerto Pérez; Ester Bay; Puerto Aguirre.

Agonidae

44. *Agonopsis chiloensis* (Jenyns) Acorazado (Pl. IV, H).

Agonus chiloensis; Cunningham, 1871: 469 (Port Otway: 46° 50' S and 75° 18' W, according to Thompson, 1916).

Material examined. (4): 4, 66.8 ~ 125.0 mm SL, Esto Manco, by bottom gill net, at 3 ~ 25 m, on Nov. 8, 1980, SNP(PA) 17 - 1 ~ 4.

Description. D. VI ~ VII - 7 ~ 8; A. 7 ~ 9; P₁. 13; P₂. I (rudimentary), 2; C 11. Ll. 38 ~ 39; Sc. 37 ~ 38; Tr. 4 between 2nd dorsal and anal origins). Gr. 0 + 5 ~ 6. Br. 6.

Measurements (excluding snout spine) as % of SL: Predorsal (1st) length 34.2 ~ 36.8; preanal length 53.2 ~ 57.3; body depth 12.6 ~ 12.7; head length 24.3 ~ 25.9; snout length 6.3 ~ 6.7; eye diameter 5.8 ~ 7.0; upper jaw length 8.1 ~ 9.0; interorbital width 3.1 ~ 4.0; caudal peduncle depth 3.7 ~ 4.3; caudal peduncle length 28.5 ~ 30.8; pectoral length 18.7 ~ 20.1; pelvic length 12.4 ~ 13.0; longest (3rd) dorsal spine length 8.9 ~ 10.6; 2nd dorsal base length 13.8 ~ 15.0; anal base length 13.9 ~ 18.4.

Head and anterior part of body depressed; two pairs of strong spines at tip of snout, anterior pair antrorse, posterior retrorse; maxillary with two barbels, extending beyond anterior margin of eye; lower jaw shorter than the upper; a row of four to five spines on upper surface of eye ball; two preocular spines, posterior one larger; a strong retrorse postocular spine; a deep concavity at nape; five series of spines on occipital region, a median row low; preorbital with three blunt spines on lower margin; preopercle with three spines, lower two blunt; a low horizontal ridge on opercle; four small barbels on lower margin of mandible and another five on branchiostegal membrane, which is united to isthmus. First dorsal origin above a point two-thirds the length of pectoral fin; 2nd dorsal origin in advance of anal origin; pelvic fin inserted behind pectoral base; anus at midpoint pelvic fin; caudal fin round. Body and head covered with stout, osseous plates; each plate on dorsal and lateral surfaces of body with a strong retrorse spine; lateral line decurved anteriorly, then straight to caudal base. Each jaw with a band of villiform teeth; small patches of teeth on vomer and palatine; no teeth on tongue. Gill rakers tubercular.

Color in life dark brown above, grayish below; body with five dark cross-bands, extending below lateral line. Dorsal fins with blackish rays and transparent membranes; pectoral and caudal fins each with dark bands on basal and distal parts; pelvic fin pinkish-white; anal rays blackish distally and membranes whitish; caudal fin with a narrow yellowish margin.

Locality confirmed. Esto Manco.

Cyclopteridae

45. *Careproctus crassus* de Buen

Careproctus crassus de Buen, 1961a: 37, fig. 10 (Puerto Lagunas: 45°17' S and 73°13' W).

de Buen (1961a) described *C. crassus* as a new species, differing from its relatives in having a caudal fin united halfway with dorsal and anal fins, and pectoral fin not notched. There is no record of this species from anywhere except the type locality. The following description of the species is based on de Buen (1961a).

Description. D. 20; A. 21; P₁. 37.

Measurements as % of SL: Predorsal length 63.0; preanal length 60.0; body depth 34.5; body width 32.0; head length (HL) 25.5; dorsal base length 38.5; anal base length 42.0 Measurements as % of HL: Snout length 35.0; mouth width 35.0; orbit diameter 15.0; interorbital width 45.0; postorbital length 50.0; pectoral length 65.0; sucking disc width 55.0; caudal length 60.0.

Body elongated ovally, tapering posteriorly; skin smooth, without scales; head depressed; snout round; mouth small and horizontal, with festooned upper lip; mucus pores surrounding mouth; gill opening small, as long as orbit diameter, with a short opercular flap. Dorsal and anal fins confluent with caudal fin near to midpoint of outer caudal rays; pectoral margin with a right angle or smoothly rounded, not notched; lower five pectoral rays surrounding a sucking disc, which is formed by pelvic fins; anus behind a transverse fold following the sucking disc.

Color in formalin light brown.

Percichthyidae

46. *Percichthys trucha* (Valenciennes) *Perca trucha* (Pl. IV, I).

Percichthys trucha; Arratia, 1982: 8, fig. 2 (Aysén region).

Material examined. (7): 1, 325.0 mm SL, Puerto Ibañez (Lake General Carrera), by hook and line, depth unknown, on Jan. 10, 1982, SNP(PA) 70; 6, 149.5 ~ 265.0 mm SL, Lake Maldonado, by hook and line, depth unknown, on Jan. 7, 1983, SNP(PA) 128-1 ~ 6.

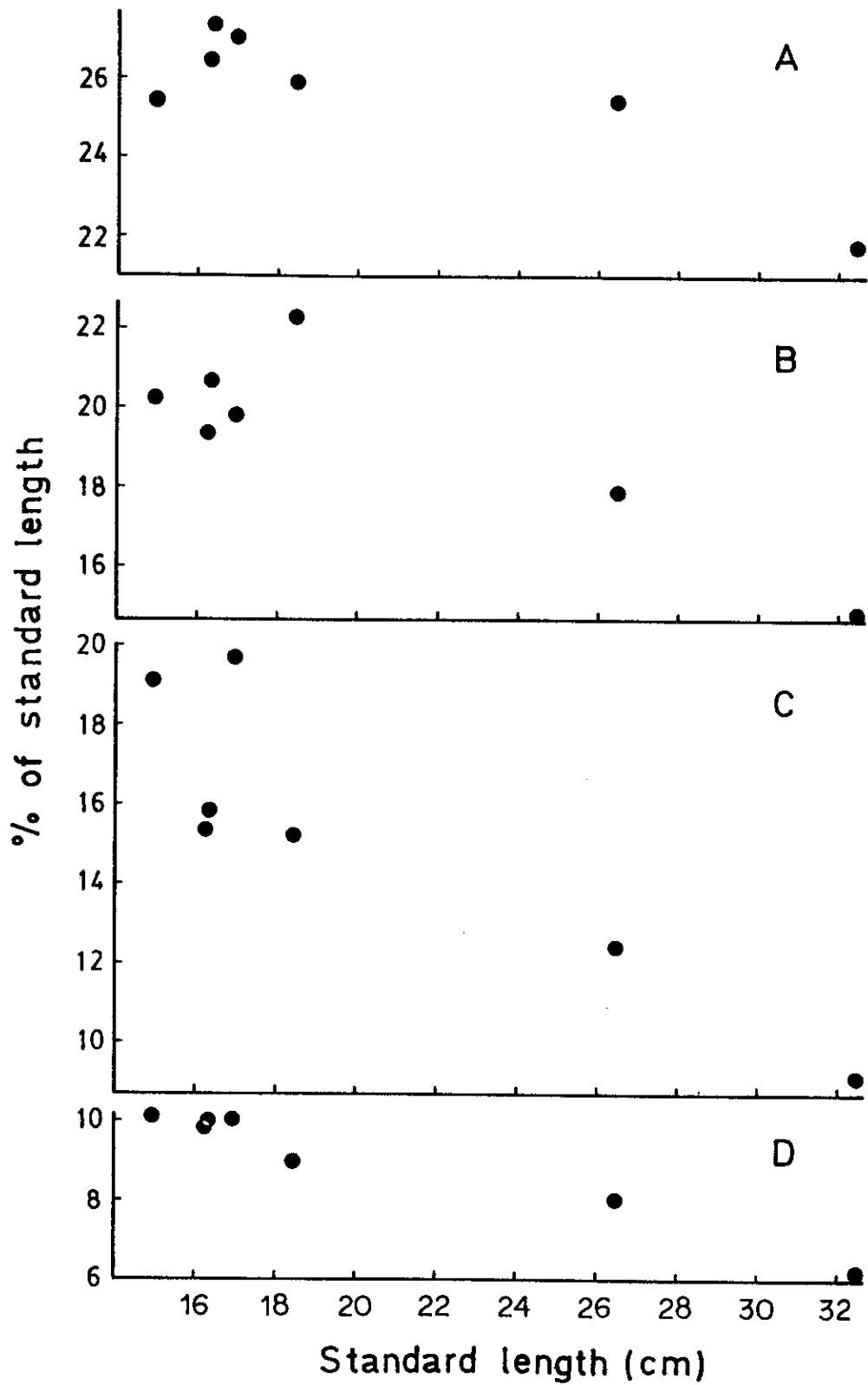


Fig. 5. Proportional measurements of body parts of *Percichthys trucha*. A, body depth; B, pelvic length; C, longest (3rd - 4th) dorsal spine length; D, longest (3rd) anal spine length.

P. trucha is different from the related *P. melanops* Girard from central Chile in having a more slender body, more pointed snout, pelvic fin without filament (in adult), concave caudal fin and higher number of lateral line scales (Eigenmann, 1928, pl. 16, figs. 2 and 3; Arratia, 1982, figs. 2 and 92). In *P. trucha* there seems to be a trend toward decrease in the proportion of standard length to body depth, pelvic length, dorsal spine length, and anal spine length with growth (Fig. 5).

Description. D. X ~ XI, 11 ~ 12; A. III, 7 ~ 9; P₁. 15 ~ 16; P₂. I, 5; C. 17. Ll. 62 ~ 67; Tr. 8 ~ 10 / 18 ~ 19. Gr. 6 + 13 ~ 15 = 19 ~ 21. Br. 6 ~ 7.

Measurements as % of SL: Predorsal length 34.8 ~ 41.0; preanal length 63.7 ~ 67.8; body depth 21.8 ~ 27.5; head length 28.8 ~ 33.4; snout length 8.4 ~ 10.7; eye diameter 4.0 ~ 5.4; upper jaw length 9.8 ~ 11.0; suborbital width 2.6 ~ 3.7; interorbital width 6.5 ~ 8.0; caudal peduncle depth 9.7 ~ 11.9; pectoral length 16.6 ~ 20.6; pelvic length 14.8 ~ 22.3; longest (3rd ~ 4th) dorsal spine length 9.1 ~ 19.7; dorsal base length 39.3 ~ 41.0 (spinous portion 24.8 ~ 27.5); 3rd anal spine length 6.2 ~ 10.1; anal base length 12.0 ~ 15.1.

Body slender (deeper in smaller fish); maxillary extending beyond anterior margin of eye; lower margin of preorbital finely serrated; preopercular margin with serrations, larger at angle and on lower margin (with about 10 lower serrae); a flat, triangular spine on opercle. Dorsal and anal spines stout, relatively reduce with increasing standard length; pelvic fin inserted below or slightly behind posterior end of pectoral base; in smaller specimens outer pelvic ray filamentous, extending beyond pectoral tip; caudal fin a little concave. Body and head (except for rostral region and ventral surface) densely scaled; lateral line parallel with dorsal contour of body. Each jaw with a band of conical teeth; vomer and palatine with teeth in bands; no teeth on tongue.

Color in life yellowish-brown above, grayish-brown below; margins of scales darkish, forming reticulate markings on body and head. Fins with dark spots or streaks; dorsal, anal, and caudal fins grayish-yellow to dusky yellow; pectoral fin dusky; pelvic fin yellowish-white.

Locality confirmed. Lake General Carrera; Lake Maldonado.

47. *Polyprion oxygeneios* (Schneider) Mero (Pl. IV, J)

Material examined. (3): 1, 690.0 mm SL, Moraleda Channel, by bottom long line, depth unknown, on Sep. 28, 1980; 1, 405.0 mm SL, 47° 00' S and 76° 01' W (off Taitao Peninsula), by surface long line, at 0 ~ 5 m, on Mar. 14, 1982; 1, 658.0 mm SL, Moraleda Channel, by bottom long line, depth unknown, on Apr. 14, 1983.

On the basis of young specimens of 150 and 194 mm TL, de Buen (1959c) described a new species *P. yañezi* and ascribed the fish known as *P. oxygeneios* to the genus *Hectoria*. However, the distinctive features of *Polyprion* from *Hectoria* which were recognized by de Buen (1959c) seem not to be generic in character, but merely peculiar to a juvenile or young stage of the fish, showing floating mechanisms as Uchida (1937) explained. *P. yañezi*, therefore, is regarded as conspecific with *P. oxygeneios*. The Taitao specimen examined in this study was caught at the surface above a bottom of 3,000 m, 20 miles from the nearest land. It is presumed that the fish had lived a pelagic life.

Description. D. XI, 11 ~ 12; A. III, 9; P₁. 18 ~ 19; P₂. I, 5. Ll. 77 (only a specimen of 658.0 mm SL). Gr. 1 (plus 6 ~ 9 tubercles) + 7 ~ 8 = 8 ~ 9 (14 ~ 16).

Measurements as % of SL: Predorsal length 34.0 ~ 36.5; preanal length 73.3 ~ 76.5; body depth 26.1 ~ 29.6; head length 35.4 ~ 36.3; snout length 10.9 ~ 13.0; eye diameter 5.1 ~ 6.2; upper jaw length 16.7 ~ 17.2; interorbital width 9.0 ~ 9.4; caudal peduncle depth 9.9 ~ 11.1; pectoral length 15.9 ~ 16.6; pelvic length 15.2 ~ 20.7; longest (6th ~ 7th) dorsal spine length 6.2 ~ 9.9; dorsal base length 44.1 (only the 658.0-mm specimen); 3rd anal spine length 6.2 ~ 9.9; anal base length 12.8 (only the 658.0-mm specimen).

Maxillary reaching below anterior margin of pupil; lower jaw projecting; inner preopercular ridge present; margin of preopercle with serrations; free margins of subopercle and interopercle finely serrated; opercle with a horizontal ridge, extending to a strong spine; another spine on upper opercle. Dorsal fin beginning above pectoral origin; pelvic fin inserted a little in advance of posterior end of pectoral base; in larger specimens pelvic fin as long as pectoral fin, but much longer in the smallest Taitao specimen maxillary scaled; auxiliary scales present; lateral line parallel with dorsal contour of body. Each jaw with a band of small conical teeth; triangular band of teeth on vomer; band of teeth on palatine; tongue with an elliptical band of teeth.

Color in life dark bluish above, grayish below; darker area on upper half of body clearly separated from the paler lower half; two dark bars running downward from posterior rim of orbit. Spinous dorsal fin blackish; soft dorsal, anal, and caudal fins grayish-dark; pectoral and pelvic fins grayish-dusky; in the smallest specimen anterior margin of pelvic fin and tips of caudal lobes white.

Locality confirmed. Moraleda Channel; 47°00' S and 76°01' W.

Branchiostegidae

48. *Prolatilus jugularis* (Valenciennes) Blanquillo (Pl. V, A)

Prolatilus jugularis; Navarro and Pequeño, 1979: 267 (Estero Pillán: 43° 43' S and 72° 50' W); Rueda, 1982: 39 (Moraleda Channel).

Material examined. (1): 1, 221.0 mm SL, Esto Manco, by bottom gill net, at 5 ~15m, on Nov. 8, 1980, SNP(PA) 24.

P. jugularis has already been reported from Moraleda Channel by Navarro and Pequeño (1979) and Rueda (1982) as shown in the synonymy. We confirmed the presence of this species southward to Mitahue Island (45° 23.5' S).

Description. D. IV, 28; A. II, 21; P₁. 20; P₂. I. 5. Ll. 73; Tr. 12 / 21. Gr. 2 + 9 = 11.

Measurements as % of SL: Predorsal length 31.7; preanal length 52.3; body depth 21.3; head length 31.4; snout length 10.9; eye diameter 7.1; upper jaw length 10.5; suborbital width 5.4; interorbital width 7.2; caudal peduncle depth 7.7; pectoral length 27.4; pelvic length 24.3; longest (4th) dorsal spine length 8.2; dorsal base length 62.6; anal base length 38.5.

Dorsal profile of head abruptly curved downward at interorbital space; maxillary reaching below anterior margin of eye; lower jaw a little shorter than the upper; eye large, as long as flat interorbital space; opercle with a sharp, flat spine; opercular flap pointed; branchiostegal membrane attached to isthmus. Dorsal fin beginning above pectoral origin, with a smoothly arched margin; pectoral and pelvic fins extending beyond anal origin; pelvic fin inserted slightly before posterior end of pectoral base; caudal fin a little concave, with pointed, short lobes. Body and head (except for rostral region) entirely scaled; lateral line parallel with dorsal contour of body. Each jaw with a band of conical teeth, those in outer series larger; no teeth on vomer, palatine, and tongue. Gill rakers very short, tubercular.

Color in life reddish-brown to grayish-dark above (with reddish horizontal stripes in smaller fish), dusky gray below; body with obscure, transverse dark bands. Dorsal fin dusky; pectoral fin dark gray above, transparent below, with darkish base; pelvic fin dusky gray, with whitish anterior margin; anal fin light yellow to dusky white; caudal fin blackish.

Locality confirmed. Esto Manco; Punta Angosta; Estero Godoy; Puerto Aguirre; Mitahue Isl.

Carangidae

49. *Trachurus murphyi* Nichols Jurel (Pl. V, B)

Trachurus murphyi; Zama and Cárdenas, 1982: 1, pl. 1, fig. F. (Ensenada Baja).

Material examined. (2): 1, 390.0 mm SL, Puerto Yates, by hook and line, at 5 ~ 10 m, on Mar. 18, 1982; 1, 360.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 2 m, on Apr. 20, 1983, SNP(PA) 134.

It has been noted that since about 1978 *T. murphyi* appeared in Moraleda Channel and Aysén Fiord, replacing the gempylid *Thyrssites atun*. The carangid migrate to Ensenada Baja in late summer to autumn when the salinity of the bay begins to increase (Zama and Cárdenas, 1982).

Description. D. VIII - I, 34; A. II - I, 29; P₁. 23; P₂. I, 5. Scutes 91 ~ 94 (41 ~ 43 on posterior straight portion). Gr. 18 + 42 ~ 43 = 60 ~ 61.

Measurements as % of SL: Predorsal (1st) length 35.9 ~ 36.4; preanal length 55.8 ~ 56.4; body depth 20.3 ~ 20.8; head length 28.2 ~ 28.9; snout length 8.4 ~ 8.5; eye diameter 6.2 ~ 6.4; upper jaw length 10.8; interorbital width 6.4 ~ 6.5; caudal peduncle depth 2.9; pectoral length 31.3 ~ 32.2; pelvic length 12.8 ~ 13.6; longest (3rd) dorsal spine length 14.2 ~ 14.9; 2nd dorsal base length 40.5 ~ 41.4; anal base length 33.3 ~ 34.1.

Premaxillary protractile; maxillary expanded posteriorly, reaching below anterior margin of eye; lower jaw projecting; adipose tissue around eye well-developed. Last dorsal and anal rays prolonged; pectoral fin long, reaching to above 1st anal ray; pelvic fin inserted below lower end of pectoral base. Entire lateral line armed by bony scutes; each scute on posterior portion with a strong retrorse spine. Each jaw with uniserial feeble teeth; teeth on vomer and palatine and in a long narrow band on tongue.

Color in life greenish-dark blue above, silver below; a black spot above posterior angle of opercle; branchial cavity black. Dorsal and caudal fins darkish; pectoral and anal fins more or less dusky; pectoral axil black; pelvic fin transparent; caudal fin margined with black.

Locality confirmed. Ensenada Baja; Puerto Yates; Chacabuco Bay; Puerto Pérez; Ester Bay; Puerto Aguirre; Tres Dedos Isl.; San Quintín Bay.

Mugiloididae

50. *Mugiloides chilensis* (Molina) Rollizo (Pl. V, C)

Mugiloides chilensis; Navarro and Pequeño, 1979: 267 (Estero Pillán: 43° 43' S and 72° 50' W); Rueda, 1982: 41 (Moraleda Channel).

Material examined. (1): 1, 372.0 mm SL, Ester Bay, by surface gill net, at 0 ~ 8 m, on Mar. 23, 1982, SNP(PA) 97.

Description. D. VI, 28; A. 25 (or I, 24); P₁. 17; P₂. I, 5. Ll. 80; Tr. 25 / 33. Gr. 5 + 11 = 16. Br. 6.

Measurements as % of SL: Predorsal length 31.5; preanal length 56.2; body depth 21.2; head length 31.2; snout length 14.0; eye diameter 4.4; upper jaw length 15.3; suborbital width 6.7; interorbital width 9.4; caudal peduncle depth 10.0; pectoral length 22.3; pelvic length 20.4; 3rd dorsal spine length 5.5; longest (6th) dorsal spine length 8.5; dorsal base length 60.8; anal base length 38.8.

Dorsal profile of head curved downward at forehead; lips fleshy, thick, upper one very broad; maxillary reaching below anterior margin of eye; lower jaw a little shorter than the upper; a large flat spine on opercle, with another small spine above. Dorsal fin beginning above pectoral origin; pelvic fin inserted in advance of pectoral origin, nearly reaching anus; caudal fin truncate, with somewhat acute lobes. Body covered with small scales; head scaleless except cheek, gill cover and occiput; lateral line straight along body axis. Each jaw with a band of conical teeth, those in outer series enlarged, strong; two rows of blunt teeth on vomer and palatine; no teeth on tongue. Gill rakers short, tubercular.

Color in life uniformly dark brown except for grayish-brown abdomen; two rows of pale spots along and above lateral line, extending to below posterior end of dorsal base; lower lip yellowish-gray. Each scale of body with a grayish posterior margin. Fins blackish or dusky brown; membranes of spinous dorsal fin gray; outer margin of pelvic fin dusky pink.

Locality confirmed. Ester Bay; Viel Isl.

Bovichthyidae

51. *Cottoperca gobio* (Günther) Toro de los canales (Pl. V, D and E)

Cottoperca gobio; Nybelin, 1969: 112 (Puerto Ballena: 44°10' S and 73°29' W); Rueda, 1982: 41 (Moraleda Channel).

Material examined. (2): 2, 330.0 ~ 365.0 mm SL, Punta Angosta, by hook and line, at 5 ~ 8 m, on Oct. 13, 1981, SNP(PA) 63 - 1 ~ 2.

Description. D. VII - 22; A. 21; P₁. 17 (lower 6 unbranched); P₂. 1, 5. Ll. 62 ~ 63; Tr. 7 / 18 ~ 20. Gr. 4 + 9 = 13.

Measurements as % of SL: Predorsal (1st) length 32.1 ~ 33.4; preanal length 56.2 ~ 56.7; body depth 20.3 ~ 21.9; head length 42.5 ~ 42.7; snout length 13.0 ~ 13.2; eye diameter 5.8 ~ 6.1; ocular flap length 3.2 ~ 4.0; upper jaw length 22.1 ~ 22.2; suborbital width 6.8 ~ 6.9; interorbital width 3.2 ~ 3.4; caudal peduncle depth 7.3; pectoral length 20.8 ~ 23.5; pelvic length 19.5 ~ 20.3; longest (3rd ~ 4th) dorsal spine length 21.9 ~ 23.8; 2nd dorsal base length 39.3 ~ 40.9; anal base length 34.9 ~ 35.1.

Lower side of body with a few dermal flaps; head large, depressed anteriorly; premaxillary a little protractile; maxillary extending beyond posterior margin of eye; a tentacle on dorsoposterior surface of eye, with a subbranch; interorbital space deeply concave; opercle with a spine. First dorsal fin beginning in advance of upper end of gill opening; pectoral fin large, reaching to above anal origin; pelvic origin well in advance of pectoral base; pelvic spine and outer rays much-thickened; caudal fin truncate. Body and head scaled; each head scale with a thickened margin and a granulated surface; a few rows of scales on upper surface of eye ball; lateral line parallel with dorsal contour of body, curved downward before caudal base. Each jaw with a broad band of conical teeth; teeth in a V-shaped band on vomer; a patch of teeth on palatine; no teeth on tongue. Gill rakers short, tubercular.

Color in life dark brown above, grayish-brown (with an orange tint) below; body with five or six obscure transverse dark bands; three oblique dusky bars behind eye; each head scale with an orange margin. Dorsal and caudal fins blackish; 2nd dorsal and anal fins with oblique orange bands; pectoral fin with four vertical orange bands; distal half of pelvic fin blackish; anal fin gray; upper and lower margins of caudal fin darker. In the specimen collected in Ester Bay, body, head and fins entirely with a reddish tint (Pl. V, E).

Locality confirmed. Punta Angosta; Ester Bay; Tres Dedos Isl.

Nototheniidae

52. *Eleginops maclovinus* (Valenciennes) Robalo (Pl. V, F)

Aphritis undulatus Jenyns, 1842: 160, pl. 29, fig. 1 (Chonos Archipelago).

Eleginops maclovinus; Norman, 1937: 92, fig. 45 (48°27.5' S and 74°23.5' W); Navarro and Pequeño, 1979: 269 (Estero Pillán: 43°43' S and 72°50' W; Huemules Isl.: 45°58' S and 73°45' W); Rueda, 1982: 41 (Moraleda Channel); Zama and Cárdenas, 1982: 1, pl. 1, fig. G. (Ensenada Baja); Zama and Cárdenas, 1983: 14 (Aysén River and mouth of Salto River, as stomach contents).

Material examined. (3): 1, 238.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 8 m, on Oct. 8, 1980, SNP(PA) 3; 1, 311.0 mm SL, Ensenada Baja, invaded salmon rearing cage, at 4 m, on Jun. 4, 1982, SNP-(PA) 100; 1, 435.0 mm SL, Casma Isl., by surface gill net, at 0 ~ 3 m, Jul. 17, 1982.

There is little doubt that *Aphritis undulatus* and *A. porosus*, both described by Jenyns (1842), are juveniles of *E. maclovinus* according to the original descriptions. This nototheniid is the most common fish in the Aysén region, and is popular as a food. On the basis of specimens obtained from Moraleda Channel, Rueda (1982) suggested that the fish spawn in the sandy bottom near a continental river from late August to September. We observed that juveniles (30 to 70 mm TL) appeared in schools along the shore of Ensenada Baja in October 1980 and 1981, and also from May to June (fish size: 40 to 135 mm TL) 1982 and 1983. It is likely that the spawning season of the species is long, from late winter to summer.

Description. D. VII ~ VIII - 25 ~ 27; A. 23 ~ 24; P₁. 22 ~ 23; P₂. I, 5. Ll. 63 ~ 67; Sc. 66 ~ 72; Tr. 8 ~ 9 / 20 ~ 23. Gr. 9 ~ 10 + 16 = 25 ~ 26.

Measurements as % of SL: Predorsal (1st) length 29.4 ~ 32.6; preanal length 50.1 ~ 52.5; body depth 19.7 ~ 24.4; head length 26.2 ~ 29.1; snout length 8.3 ~ 9.0; eye diameter 3.2 ~ 4.4; upper jaw length 7.8 ~ 8.2; suborbital width 3.9 ~ 4.2; interorbital width 8.2 ~ 8.8; caudal peduncle depth 7.6 ~ 8.4; pectoral length 26.2 ~ 26.9; pelvic length 13.8 ~ 17.2; longest (2nd ~ 3rd) dorsal spine length 9.0 ~ 10.7; 2nd dorsal base length 45.1 ~ 45.5; anal base length 38.6 ~ 38.7.

Maxillary failing to reach below anterior margin of eye; lower jaw shorter than the upper; a single nostril midway between snout tip and center of eye; branchiostegal membrane attached to isthmus. First dorsal fin beginning slightly behind pectoral origin; pelvic fin inserted in advance of pectoral origin, not reaching far anus; caudal fin truncate or slightly concave. Head fully scaled except for rostral region; lateral line single, gently arched, then straight to upper part of caudal base. Each jaw with a narrow band of small teeth; no teeth on vomer, palatine, and tongue.

Color in life dark greenish to grayish above, pale below. Dorsal and caudal fins dusky; pectoral fin dusky with a narrow transparent margin; a dark wedge at upper pectoral base; upper half of pectoral axil dusky; pelvic and anal fins transparent; outer margin of pelvic fin and tips of anal rays white; caudal fin with a narrow blackish margin. In juvenile and young fish body with irregular dark cross-bands as in the figure of *A. undulatus* given by Jenyns (1842, pl. 29, fig. 1).

Locality confirmed. Most common in Aysén Fiord and Moraleda Channel; lower Aysén River; Lagoon San Rafael.

53. *Notothenia brevicauda* Lönnberg (Pl. V, G and H)

Notothenia longicauda Thompson, 1916: 445, pl. 4, fig. 1 (Island Harbor: 47° 45' S and 74° 45' W).

Notothenia cf. brevicauda; Navarro and Pequeño, 1979: 270 (Refugio Channel: 43° 58' S and 73° 07' W).

Material examined. (8): 3. 78.0 ~ 114.0 mm SL, Puerto Aguirre, by hook and line, at 6 m, on Nov. 17, 1980, SNP(PA) 28-1 ~ 3; 1, 78.5 mm SL, Puerto Cisnes, by hook and line, at 5 m, on Feb. 20, 1982, SNP(PA) 77; 4, 65.7 ~ 86.5 mm SL, pier of Puerto Chacabuco, by hook and line, at 5 m, on Nov. 20, 1982, SNP(PA) 122-1 ~ 4.

The present specimens agree with the descriptions of *N. brevicauda* given by Lönnberg (1905), Thompson (1916, as *N. longicauda*), Norman (1937), Nybelin (1969) and Navarro and Pequeño (1979) except for the presence of a black blotch on the first dorsal fin, which was not noted by any of the above authors. The specimens (Pl. V, H) obtained Puerto Aguirre (PA) have a deeper and darker (when alive) body than others.

Description. D. V ~ VI - 34 ~ 36; A 31 ~ 33; P₁. 22 ~ 23; P₂. I. 5. Ll. 46 ~ 53 (upper) + 0 ~ 6 (lower); Sc. 64 ~ 70; ; Tr. 6 ~ 7 / 16 ~ 18. Gr. 8 ~ 10 + 14 ~ 16 = 22 ~ 23.

Measurements as % of SL: Predorsal (1st) length 26.5 ~ 29.8; preanal length 45.1 ~ 47.1 and 47.4 ~ 49.1 (PA); body depth 17.3 ~ 18.6 and 18.9 ~ 20.3 (PA); head length 26.9 ~ 29.7; snout length 6.4 ~ 7.9; eye diameter 5.9 ~ 7.5; upper jaw length 8.8 ~ 10.0; suborbital width 2.2 ~ 2.6; interorbital width 3.7 ~ 4.9; caudal peduncle depth 9.0 ~ 9.7 and 8.5 ~ 9.1 (PA); pectoral length 19.6 ~ 21.8; pelvic length 19.1 ~ 24.4; longest (3rd) dorsal spine length 8.8 ~ 11.6; 2nd dorsal base length 56.4 ~ 58.8; anal base length 48.4 ~ 51.3.

Dorsal profile of head curved downward at forehead; snout blunt, as long as or longer than eye diameter; jaws equal; maxillary extending a little beyond anterior margin of eye. First dorsal fin beginning nearly above pectoral origin; pelvic fin inserted well in advance of pectoral origin, usually reaching anus; caudal fin round. Head fully scaled except for preorbital and interorbital regions; two lateral lines, upper one usually reaching midway between 2nd dorsal and caudal bases. Each jaw with a band of small teeth, those in outer series enlarged; no teeth on vomer, palatine, and tongue.

Color in life dusky brown above, light orange below; body with about seven dark cross-bands, extending onto soft dorsal base, and two longitudinal orange stripes on lower side; two oblique orange bars across cheek and another one backward from corner of mouth. A black blotch (with an orange tint) between 3rd and 5th dorsal spines; 2nd dorsal fin light yellow, with irregular dark orange markings and narrowly margined with white; pectoral fin light orange; pelvic fin dark orange with a lighter margin; anal fin dusky with white-tipped rays; caudal fin orangish, sometimes with a few vertical orange bands or a narrow white margin.

Locality confirmed. Puerto Aguirre; Pto. Cisnes; Chacabuco Bay (very common).

54. *Notothenia cornucola* Richardson (Pl. VII, D)

Notothenia sima; Navarro and Pequeño, 1979: 273 (Nalcayec Channel: 46° 03' S and 73° 48' W).

Material examined. (4): 3, 63.0 ~ 70.0 mm SL, south-east coast of Nalcayec Isl., found under a stone in a tide pool at ebb tide, by hand, on Nov. 25, 1983, SNP(PA) 138-1 ~ 3; 1, 81.0 mm SL, Lagoon San Rafael, found under an exposed stone at ebb tide, by hand, on Nov. 26, 1983, SNP(PA) 141.

N. cornucola is closely related to *N. sima* Richardson, but differs from the latter in having head scales confined to upper parts of cheek and opercle (upper surface and side of head scaled in the latter) and more than 47 scales (less than 47) in lateral series (Thompson, 1916; Norman, 1937). The senior author examined the specimen (IZUA-PM = 314) reported as *N. sima* from Nalcayec Channel by Navarro and Pequeño (1979, and found no difference between it and our Nalcayec specimens of *N. cornucola*.

Description. D. IV ~ V - 30 ~ 31; A. 27 ~ 28; P₁. 19 ~ 20; P₂. I. 5. Ll. 34 ~ 36 (upper) + 1 ~ 6 (lower); Sc. 47 ~ 51; Tr. 6 / 14 ~ 15. Gr. 7 + 11 ~ 14 = 18 ~ 21.

Measurements as % of SL: Predorsal (1st) length 28.3 ~ 29.4; preanal length 47.6 ~ 50.0; body depth 21.0 ~ 22.7; head length 28.4 ~ 28.6; snout length 7.2 ~ 7.9; eye diameter 6.6 ~ 6.8; upper jaw length 9.7 ~ 11.3; suborbital width 2.5 ~ 2.7; interorbital width 4.4 ~ 4.9; caudal peduncle depth 9.4 ~ 10.3; pectoral length 21.9 ~ 25.9; pelvic length 21.3 ~ 23.0; longest (3rd) dorsal spine length 8.6 ~ 10.6; 2nd dorsal base length 53.1 ~ 57.1; anal base length 46.9 ~ 49.6.

Maxillary not or reaching below center of eye; jaws subequal; caudal peduncle deeper than long. First dorsal fin beginning above pectoral origin; pelvic fin not or reaching anus; caudal fin truncate or slightly round. Head scaleless except upper parts of cheek and opercle; upper lateral line ending before base of last dorsal ray. Teeth as in *N. brevicauda*. Gill rakers short, not sharply pointed.

Color in life greenish-brown above, grayish below; body with about six dark cross-bands; two oblique gray bars, one from suborbital region and the other from corner of mouth. Fins except for the pectoral and pelvic dusky; 1st dorsal fin with a black blotch; pectoral fin greenish-light brown, with a dark vertical bar across its base; pelvic fin dark green; tips of anal rays white; caudal fin with a narrow white margin.

Locality confirmed. Nalcayec Isl.; Lagoon San Rafael.

55. *Notothenia longipes* Steindachner (Pl. V, I)

Notothenia longipes; Navarro and Pequeño, 1979: 273 (Estero Pillán: 43° 43' S and 72° 50' W; Punta Muñoz: 44° 28' S and 72° 46' W; Calera Lobato: 45° 53' S and 74° 47' W; Nalcayec Channel: 46° 03' S and 73° 48' W).

Material examined. (5): 4, 83.0 ~ 167.0 mm SL, Esto Manco, by bottom gill net, at 3 ~ 25 m, on Nov. 8, 1980, SNP(PA) 15-1 ~ 4; 1, 157.0 mm SL, Lagoon San Rafael, by surface gill net, at 0 ~ 2 m, on Nov. 28, 1983, SNP(PA) 145.

N. longipes resembles *N. tessellata*, but is easily distinguishable by the second dorsal and caudal fins without dark bars and longer pelvic fin reaching anal origin.

Description. D. VI - 34 ~ 35; A. 32 ~ 34; P₁. 25 ~ 26; P₂. I, 5. Ll. 49 ~ 52 (upper) + 5 ~ 11 (lower); Sc. 72 ~ 78; Tr. 6 ~ 7 / 15 ~ 17. Gr. 8 ~ 10 + 16 ~ 19 = 25 ~ 29.

Measurements as % of SL: Predorsal (1st) length 28.7 ~ 29.2; preanal length 44.6 ~ 48.5; body depth 16.9 ~ 19.8; head length 29.4 ~ 31.0; snout length 7.2 ~ 8.2; eye diameter 7.4 ~ 8.6; upper jaw length 9.6 ~ 11.1; suborbital width 1.9 ~ 2.4; interorbital width 3.2 ~ 4.6; caudal peduncle depth 7.0 ~ 8.3; pectoral length 20.8 ~ 22.9; pelvic length 19.9 ~ 24.2; longest (3rd) dorsal spine length 11.1 ~ 12.5; 2nd dorsal base length 52.4 ~ 56.2; anal base length 49.6 ~ 50.6.

Maxillary reaching below center of eye; eye comparatively large, longer than blunt snout; in larger specimens lower jaw a little longer than the upper. First dorsal origin in advance of the pectoral; pelvic fin usually extending a little beyond anal origin; caudal fin truncate or slightly round. Head fully scaled except for rostral region; upper lateral line extending nearly to caudal base. Teeth as in *N. brevicauda*.

Color in life grayish-brown above, gray below; body with about eight dark cross-bands, extending onto soft dorsal base; head with three to four oblique brown bars, upper two to three from eye and lower one from maxillary. First dorsal fin dusky, paler at base; 2nd dorsal fin with orange spots on membranes; pectoral and pelvic fins light yellow; pectoral base blackish; anal fin dusky gray with white-tipped rays; caudal fin greenish-brown, darker distally, and narrowly margined with white.

Locality confirmed. Esto Manco; Estero Godoy; Caleta Vidal; Lagoon San Rafael.

56. *Notothenia tessellata* Richardson Robalo negro (Pl. V, J)

Notothenia tessellata; Navarro and Pequeño, 1979: 274 (Puerto Melinka: 43° 54' S and 73° 45' W; Caleta Lobato: 45° 53' S and 74° 74' W; Nalcayec Channel: 46° 03' S and 73° 48' W); Zama and Cárdenas, 1982: 8 (Ensenada Baja, as stomach contents).

Notothenia wiltoni; Rueda, 1982: 41 (Moraleta Channel).

Material examined. (10): 4, 78.0 ~ 140.0 mm SL, Esto Manco, by bottom gill net, at 3 ~ 25 m, on Nov. 8, 1980, SNP(PA) 16-1 ~ 4; 1, 102.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 6 m, on Sep. 16, 1981, SNP(PA) 82; 1, 131.5 mm SL, Caleta Vidal, by surface gill net, at 0 ~ 8 m, on Mar. 24, 1982, SNP(PA) 88; 1, 136.0 mm SL, pier of Puerto Chacabuco, by hook and line, at 5 ~ 8 m, on Mar. 27, 1982, SNP(PA) 87; 1, 116.0 mm SL, Puerto Aguirre, found under an exposed stone at ebb tide, by hand, on Sep. 16, 1982, SNP(PA) 110; 1, 160.0 mm SL, Lagoon San Rafael, by surface gill net, at 0 ~ 2 m, on Nov. 24, 1983, SNP(PA) 143; 1, 205.0 mm SL, Lagoon San Rafael, by surface gill net, at 0 ~ 2 m, on Nov. 28, 1983, SNP(PA) 144.

The senior author examined the specimens which were reported as *N. wiltoni* Regan from Chiloé by Navarro and Pequeño (1979) and from Moraleda Channel by Rueda (1982). These specimens are hereby reidentified as *N. tessellata* by the upper lateral line not extending to near the caudal base and the second dorsal and caudal fins with rows of dark spots.

Description. D. VI ~ VII - 31 ~ 32; A. 31; P₁. 22 ~ 23; P₂. I, 5. Ll. 44 ~ 47 (upper) + 5 ~ 9 (lower); Sc. 66 ~ 75; Tr. 6 ~ 8 / 17 ~ 20. Gr. 5 ~ 9 + 12 ~ 14 = 18 ~ 23.

Measurements as % of SL: Predorsal (1st) length 29.6 ~ 32.1; preanal length 42.3 ~ 50.0; body depth 16.3 ~ 21.3; head length 28.4 ~ 32.1; snout length 7.1 ~ 9.0; eye diameter 5.5 ~ 7.1; upper jaw length 10.3 ~ 15.6; suborbital width 1.7 ~ 2.6; interorbital width 3.8 ~ 5.1; caudal peduncle depth 7.1 ~ 8.3; pectoral length 21.9 ~ 25.2; pelvic length 17.6 ~ 20.9; longest (3rd) dorsal spine length 9.4 ~ 12.2; 2nd dorsal base length 49.1 ~ 54.5; anal base length 46.6 ~ 50.6.

Head more depressed in larger specimens; snout comparatively pointed; maxillary reaching below center of eye; lower jaw longer than the upper; occiput somewhat concave. First dorsal fin beginning above pectoral origin; pelvic fin not or just reaching anus; caudal fin truncate or slightly round. Head fully scaled except for preorbital region, sometimes scales on inorbital space scarce; upper lateral line extending beyond posterior end of 2nd dorsal base, but not to near caudal base. Teeth as in *N. brevicauda*.

Color in life dark brown to blackish above, gray to dark grayish below; body with six to eight irregular dark cross-bands; two oblique dark bars below eye. A large black blotch on 1st dorsal fin; 2nd dorsal variagated with dark spots, forming oblique bands; pectoral fin yellowish, with indistinct dark spots in vertical rows; pectoral base blackish; anal fin transparent, sometimes dusky, with white-tipped rays; caudal fin with five to six dark vertical bands in rows of spots.

Locality confirmed. Esto Manco; Puerto Pérez; Caleta Vidal; Chacabuco Bay; Puerto Aguirre; Ensenada Baja; Estero Godoy; Viel Isl.; Lagoon San Rafael.

Harpagiferidae

57. *Harpagifer bispinis* (Schneider) (Pl. VII, E and F)

Harpagifer bispinis; Delfin, 1901: 87 (Baker Channel: 48° 00' S and 74° 20' W; Martínez Channel: 47° 50' S and 74° 20' W).

Material examined. (3): 3, 64.0 ~ 64.5 mm SL, Lagoon San Rafael, found under exposed stones at ebb tide, by hand, on Nov. 26, 1983, SNP(PA) 142-1 ~ 3.

H. bispinis shows a circumantarctic distribution (Regan, 1913; Norman, 1937 and 1938), but Nybelin (1969) suggested that specimens from various localities may be regarded as at least four distinct species. Oliver (1943) noted that in autumn *H. bispinis* appears occasionally on the coast of Concepción and Arauco. In the shore of Lagoon San Rafael, two to four fish of the species and sometimes a zoarcid *A. depressiceps* were found together under an exposed stone at the ebb tide.

Description. D. III ~ IV - 21 ~ 22; A. 15 ~ 16; P₁. 15 ~ 16; P₂. I, 5. Lateral plates 16 ~ 17. Gr. 1 + 2 = 3. Br. 6.

Measurements as % of SL: Predorsal (1st) length 32.0 ~ 35.0; preanal length 55.9 ~ 57.8; body depth 21.9 ~ 26.4; head length 34.4 ~ 36.7; snout length 9.4 ~ 10.4; eye diameter 6.2 ~ 7.0; upper jaw length 14.4 ~ 15.6; interorbital width 7.8 ~ 10.1; caudal peduncle depth 7.8 ~ 9.0; pectoral length 25.0 ~ 27.3; pelvic length 22.7 ~ 24.2; longest (2nd) dorsal spine length 5.9 ~ 10.4; 2nd dorsal base length 50.0 ~ 56.6; anal base length 38.3 ~ 40.6.

Head and trunk strongly depressed and broad, but tail compressed, tapering abruptly; maxillary reaching posterior margin of pupil; lower jaw a little longer than the upper; interorbital space concave; occipital region flat, with a low ridge on each side; opercle and subopercle each with a prominent spine; opercular spine bifurcate, directed innerward; branchiostegal membrane broadly attached to isthmus; a prominent genital papilla present in cloaca. First dorsal origin in

advance of vertical pectoral base; pectoral fin just reaching above anal base; pelvic fin inserted well in advance of pectoral base, reaching below middle of pectoral fin; fleshy fold across 1st anal ray; caudal fin truncate or slightly round. Body and head naked; horny plates in upper lateral line, bending upward above pectoral fin and ending immediately below bases of 12th to 14th dorsal soft rays; lower lateral line formed by a series of pores along body axis. Each jaw with a band of villiform teeth; no teeth on vomer, palatine, and tongue. Gill rakers reduced to a few rudimentary knobs near angle of arch.

Color in life greenish-brown above, greenish-gray below; body with three dark cross-bands; sometimes body and head entirely reddish. First dorsal fin dusky yellow; 2nd dorsal fin with oblique dark bands; pectoral and pelvic fins grayish-yellow, with dark bands; anal rays yellowish; caudal fin brownish-orange, with about three dark brown bands.

Locality confirmed. Lagoon San Rafael.

Clinidae

58. *Calliclinus geniguttatus* Valenciennes Vieja (Pl. VI, A to D)

Calliclinus geniguttatus; Rueda, 1982: 41 (Moraleda Channel).

Material examined. (4): 1, 40.5 mm SL, Puerto Aguirre, in tide pool, by hand, at 0.1 m, on Feb. 23, 1982, SNP(PA) 79; 1, 268.0 mm SL, same data as preceding, SNP(PA) 80; 1, 110.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 2 m, on Oct. 29, 1982, SNP(PA) 116; 1, 67.2 mm SL, pier of Puerto Chacabuco, by hook and line, at 5 ~ 8 m, on Nov. 20, 1982, SNP(PA) 123.

Identification of the present specimens follows Stephens and Springer (1974) who synonymized *Pennaclinus racemarius* de Buen, 1962, from near Valparaíso and Chiloé with *C. geniguttatus*. The specimen (Pl. VI, C) collected at Puerto Chacabuco differs from the others in having a more slender body, lower pectoral - and pelvic-ray, gill-raker, and cirrus counts although there is no difference in color pattern between them. This specimen is identifiable with those reported as *C. cf. geniguttatus* by Stephens and Springer (1974) and Navarro and Pequeño (1979). Stephens and Springer (1974) noted "It is either an extremely aberrant *C. geniguttatus* or a new species". In this study we treat the Chacabuco specimen, of which counts and measurements are shown below in parentheses, as *C. geniguttatus*.

Description. D. XXV ~ XXVI, 12 ~ 13 (XXVI, 12); A. II, 22 ~ 23 (II, 24); P₁. 15 ~ 16 (14); P₂. I, 4 (I, 3); C. 3 ~ 4 unbranched + 9 ~ 10 branched = 13 ~ 14 (13 rays: no visible branching due to damage). Ll. 46 ~ 48 (46); Sc. 60 ~ 62 (58). Gr. 3 ~ 4 + 8 ~ 9 = 11 ~ 13 (12 + 7 = 9). Br. 6 (6). Nasal cirri 2 ~ 20 (3); orbital cirri 4 ~ 18 (3); nape cirri (left - median) 4 ~ 12 - 3 ~ 20 (3 - 1).

Measurements as % of SL: predorsal length 21.7 ~ 23.3 (21.7); preanal length 49.9 ~ 61.6 (48.5); body depth 23.7 ~ 26.1 (19.3); head length 28.6 ~ 31.0 (28.3); head depth 18.2 ~ 22.8 (16.7); head width 17.3 ~ 24.3 (17.3); snout length 7.2 ~ 9.3 (6.7); eye diameter 4.6 ~ 8.1 (6.4); upper jaw length 12.3 ~ 17.5 (14.1); suborbital width 2.7 ~ 3.5 (2.2); interorbital width 3.5 ~ 4.9 (3.1); caudal peduncle depth 8.2 ~ 9.4 (7.1); caudal peduncle length 8.4 ~ 9.1 (6.7); pectoral length 22.4 ~ 24.7 (22.9); pelvic length 14.5 ~ 19.0 (15.2); 1st dorsal spine length 6.9 ~ 9.9 (6.8); 3rd dorsal spine length 9.3 ~ 9.6 (7.7); longest (6th ~ 13th) dorsal spine length 10.7 ~ 10.8 (10.1); dorsal base length 73.1 ~ 77.8 (76.6); 2nd anal spine length 4.6 ~ 7.9 (6.0); anal base length 40.3 ~ 46.4 (46.1).

Body compressed; jaws equal; lips rather thick; maxillary reaching below center of eye; a patch of cirri on hind margin of anterior nostril; another patch of cirri on upper surface of eye ball; three cirrus patches at nape; interorbital space narrow, flat or somewhat concave in the largest specimen; branchiostegal membranes united across isthmus, forming a skin fold; in the largest specimen head with many fleshy tubercles, especially on upper surface, and cirri all tubercular.

Dorsal fin originating a little behind nape-cirrus patches; pectoral fin round, reaching above anal origin; lower eight pectoral rays somewhat thickened; pelvic fin well in advance of pectoral base; caudal fin round. Head scaleless; lateral line broadly arched above and behind pectoral fin, then straight along body axis. Each jaw with a band of conical teeth, those in outer series enlarged, caninelike; teeth in V-shaped band on vomer; teeth in band on palatine; no teeth on tongue.

Color in life grayish-brown to greenish-dark brown above, grayish below; body with five to six dark transverse bands, extending onto dorsal fin and downward to anal fin; small black spots covering cheek and suborbital region; lower surface of head yellowish. Dorsal fin dark gray; pectoral fin dusky brown or orangish-brown; pectoral base grayish; pelvic fin yellowish-gray; anal fin dusky yellow to brown, with a dark brown margin; caudal fin dark brown. In the smaller two specimens (Pl. VI, C and D), an ocellus between 2nd and 4th dorsal spines; a round dark blotch behind eye; an oblique blackish bar extending posteroventrally from lower rim of orbit.

Locality confirmed. Puerto Aguirre; Puerto Pérez; Puerto Chacabuco.

59. *Myxodes cristatus* Valenciennes Doncella

Myxodes cristatus; de Buen, 1962: 87 (Puerto Lagunas: 45°17' S and 73°43' W).

M. cristatus is closely related to *M. viridis*, but the two species differ from each other in color pattern, number of dorsal spines, segmented dorsal and anal rays, orbital-cirrus length, first dorsal spine length, caudal peduncle length, and interorbital width (Stephens and Springer, 1974). *M. cristatus* has been recorded from the coast between Valparaíso and Puerto Lagunas, Moraleda Channel (de Buen, 1962; Stephens and Springer, 1974). The following description of the species is based on the above authors.

Description. D. XXXVI ~ XXXVIII, 3 ~ 4; A. II, 25 ~ 26; P₁. 12 ~ 13; P₂. I, 3; C. 11 ~ 12. Vr. 16 ~ 17 + 32 = 48 ~ 49.

Measurements as % of SL: Predorsal length 13.0 ~ 14.7; preanal length 39.4 ~ 44.6; head length 20.8 ~ 22.5; head depth 14.3 ~ 15.6; head width 10.4 ~ 11.5; snout length 4.4 ~ 5.8; eye diameter 4.0 ~ 4.9; upper jaw length 6.5 ~ 7.8; interorbital width 2.1 ~ 2.5; nasal-cirrus length 0.6 ~ 1.5; orbital-cirrus length 1.7 ~ 2.5; caudal peduncle depth 5.2 ~ 6.2; caudal peduncle length 6.3 ~ 8.3; pectoral length 13.5 ~ 18.9; pelvic length 9.0 ~ 11.4; 1st dorsal spine length 8.1 ~ 10.4; 4th dorsal spine length 5.8 ~ 6.4.

Lips thick; maxillary reaching below center of eye; orbital cirrus round, its length 1.5 ~ 2.2 in eye diameter, longer than nasal cirrus. Dorsal fin immediately originating from nape; tip of depressed longest anal ray reaching almost to caudal base. Lateral line arched above pectoral fin, then straight along body axis.

Color in preserved specimens uniformly dark brown; a dark bar extending downward from lower rim of eye; other two vertical bars behind eye.

60. *Myxodes viridis* Valenciennes Doncella

Myxodes viridis; de Buen, 1962: 85 (Puerto Lagunas: 45°17' S and 73°43' W).

M. viridis occurs in the coast from Peru to Puerto Lagunas (de Buen, 1962; Stephens and Springer, 1974; Navarro and Pequeño, 1979). The following description of the species is based on de Buen (1962) and Stephens and Springer (1974, fig. 3).

Description. D. XXXIV ~ XXXVI, 6 ~ 7; A. II, 24 ~ 25; P₁. 11 ~ 12; P₂. I, 3; C. 11 ~ 13. Vr. 16. ~ 18 + 31 ~ 34 = 48 ~ 51.

Measurements as % of SL: Predorsal length 12.5 ~ 16.6; preanal length 39.7 ~ 45.0; body depth 19.1 ~ 20.9; head length 18.0 ~ 22.2; head depth 14.2 ~ 15.7; head width 10.9 ~ 12.6; snout length 4.7 ~ 6.9; eye diameter 4.6 ~ 5.7; upper jaw length 6.7 ~ 8.1; interorbital width 2.7 ~ 3.4; nasal-cirrus length 0.9 ~ 1.3; orbital-cirrus length 1.0 ~ 1.6; caudal peduncle depth 5.7 ~ 6.6; caudal peduncle length 9.1 ~ 12.9; pectoral length 12.3 ~ 17.0; pelvic length 9.5 ~ 11.6; 1st dorsal spine length 4.6 ~ 7.3; 4th dorsal spine length 4.6 ~ 6.0.

Lips thick, can be expanded forward; premaxillary protractile; maxillary nearly reaching below center of eye; orbital cirrus expanded, its length 3.0 ~ 4.0 in eye diameter, usually almost equal in length to nasal cirrus; branchiostegal membranes united across isthmus. Dorsal fin immediately originating from nape; distance from tip of depressed longest anal ray to caudal base almost equal to half caudal peduncle length. Body covered with small scales; head scaleless; lateral line curved above pectoral fin, then straight along body axis. Each jaw with uniserial short conical teeth.

Color in preserved specimens pale or tan to colorless, scattered with minute black spots on upper half of body; three black bars radiating from eye.

Blenniidae

61. *Hypsoblennius sordidus* Bennett Trito (Pl. VI, E).

Material examined. (1): 1, 43.7 mm SL, Puerto Aguirre, pulled up together with mussels (*Mytilus* sp.) attached to a rope, from 5 ~ 10 m, on Nov. 16, 1982, SNP(PA) 124.

Identification of the present specimen follows Springer (1967), who gave the detailed accounts of generic allocation of *H. sordidus* and its synonyms. According to Springer (1967), *Blennechis biocellatus* Valenciennes, *B. fasciatus* Jenyns, *B. ornatus* Jenyns, *Blennius nigrescens* Sauvage, *Salarias chilensis* Clark, and *Blennius riverosi* Fowler, which were all recorded from Chile (or Peru), are synonymous with *H. sordidus*. This species has been recorded from Peru southward to Talcán Island (42°45' S and 72°58' W), Chiloé (Jenyns, 1842, as *B. fasciatus* and *B. ornatus*; Clark, 1938, as *S. chilensis*; Springer, 1967; Chirichigno, 1974; Navarro and Pequeño, 1979). The present paper extends the range as far south as Puerto Aguirre.

Description. D. XII, 17; A. II, 18; P₁. 14; P₂. 1, 4; C. 11 (two unbranched). Teeth (upper lower on left side) 12 - 13.

Measurements as % of SL: Predorsal length 25.2; preanal length 56.3; body depth 25.2; head length 29.1; snout length 8.0; eye diameter 7.3; upper jaw length 8.7; suborbital width 3.9; interorbital width 3.9; orbital-cirrus length 3.4; gill opening length 5.6; caudal peduncle depth 9.7; pectoral length 25.2; pelvic length 14.9; dorsal base length 73.2; anal base length 43.5.

Lips entire, not fringed; maxillary reaching below anterior margin of pupil; a single short cirrus on hind rim of anterior nostril; orbital cirrus single or with a minute branch, as long as pupil diameter; interorbital space narrow, somewhat concave; preopercle with a few spines (under skin); gill opening small, ending at the level of lower pectoral base; branchiostegal membranes broadly united with isthmus. Dorsal origin in advance of upper end of gill opening; pelvic fin inserted in advance of pectoral base; caudal fin truncate. Scales absent; lateral line formed by a pair of pores on anterior straight portion, bent down above pectoral tip; posterior straight portion of lateral line incomplete, traced by tubes to below middle of soft dorsal base. Each jaw with a single row of fixed, inclined-forward, close-set teeth; each tooth very long, spatular; no canines in both jaw.

Color in formalin dark brown above, grayish below; body mottled with dark brown, with six dark saddles; many blackish small spots on gill cover; ventral surface of head with three V-shaped markings formed by dark dots, alternating with pale interspaces. A distinct black blotch between 1st and 3rd dorsal spines; a spinous dorsal fin with dusky spots in two rows; soft dorsal fin with oblique rows of smaller spots; a dark vertical bar at pectoral base; pectoral fin with three dusky vertical bands; pelvic fin grayish; anal fin transparent, with a dark longitudinal stripe on middle part; caudal fin with about four dusky vertical bands.

Locality confirmed. Puerto Aguirre.

Gobiidae

62. *Ophiogobius jenynsi* Hoese Gobio.

Gobius ophicephalus Jenyns, 1842: 97, pl. 19, fig. 3 (Chonos Archipelago).

Ophiogobius ophicephalus; de Buen, 1960a: 93 (Puerto Cisne, James Isl.: 44° 59' S and 79° 02' W).

The specific name *O. ophicephalus* (Jenyns) was replaced by *O. jenynsi* Hoese by Hoese (1976). This species is known from Iquique (about 20° S) to Beagle Channel, the southernmost part of South America (de Buen, 1960a; Hoese, 1976; Navarro and Pequeño, 1979). The following description of the species is based on Jenyns (1842), de Buen (1960a) and Hoese (1976).

Description. D. VIII - I, 14 ~ 16; A. I, 11 ~ 14; P₁. 18 ~ 21; C. 13 ~ 17 (branched). Gr. 11 ~ 14 (total). Vr. 13 + 18 ~ 19 = 31 ~ 32.

Measurements as % of SL: Predorsal (1st) 36.0; preanal length 60.0; body depth 17.0; head length (HL) 27.5; 1st dorsal base length 32.0; 2nd dorsal base length 32.0. Measurements as % of HL: Snout length 27.0; orbit diameter 27.0; interorbital width 19.0; caudal peduncle depth 38.5; pectoral length 85.0; pelvic length 100.0.

Body elongate, compressed posteriorly; head broader than body, very much flattened behind eye; snout obtuse; upper jaw not reaching center of eye; interorbital space a little concave. Pectoral fin oval, not extending beyond posterior end of 1st dorsal base; pelvic fins united, lanceolate in shape; caudal fin round. Scales absent; lateral line running along body axis. Each jaw with a band of teeth in five rows on upper jaw and in four on lower one; teeth in outer series larger on both jaws. Tongue bilobed.

Color in formalin darker above, paler below; body and head covered with small faint white spots, forming a reticulated color pattern; the reticulations of head finer, but distinct. Fins with minute black dots.

Gempylidae

63. *Thyrsites atun* (Euphrasen) Sierra.

Thyrsites atun; Thompson, 1916: 424 (Port Otway: 46° 50' S and 75° 18' W).

T. atun occurs from Peru throughout Chile to Argentina (de Buen, 1959c; Chirichigno, 1974). This gempylid used to migrate in Moraleda Channel from late summer to autumn and was a favorite food fish of the local people, but has been seldom or never caught in recent years. The following description of the species is based on Movillo and Bahamonde (1971, fig. 1) and Scott et al. (1974, unnumbered fig.).

Description. D. XVIII ~ XX - 10 ~ 12 + 6 ~ 7 finlets; A. III, 8 ~ 10 + 6 ~ 7 finlets; P₁. 14; P₂. I, 5.

Body elongate, greatly compressed; snout pointed; maxillary extending beyond anterior margin of eye; lower jaw well-produced. First dorsal origin in advance of pectoral base; 1st dorsal fin very long, continuous with the 2nd dorsal at base; pelvic fin small, inserted below or behind pectoral base; anal origin a little behind 2nd dorsal origin; 2nd dorsal and anal fins with acute anterior lobes; caudal fin deeply forked. Body covered with small, deciduous scales; lateral line running anteriorly on dorsal surface of body, abruptly bent down below posterior part of 1st dorsal base, then somewhat wavy along body axis. Each jaw with uniserial sharp, flat teeth; three enlarged teeth at symphysis of upper jaw.

Color in life steel blue above, silvery below. First dorsal fin black; margins of 2nd dorsal and pectoral fins black.

Scombridae

64. *Allothunnus fallai* Serventy Atún (pl. VI, F)

Material examined. (2): 2, 660.0 ~ 725.0 mm SL, Puerto Pérez, by surface gill net, at 0 ~ 8 m, on Mar. 25, 1982.

A. fallai is distinguished from *Thunnus* and *Euthynnus* species by a much higher number of gill rakers (Nakamura and Mori, 1966). This tuna has been recorded from the open seas around Easter Island and off Valparaíso in Chilean waters (Watanabe et al., 1966; Mori, 1967b; Warashina and Hisada, 1972; Bahamonde and Pequeño, 1975; Ichikawa and Shirasawa, 1980). In this study *A. fallai* is reported for the first time not only from the inland water of the Chilean continent, but from southern Chile. A detailed discussion on the specimens collected will be made in a separate paper (with Dr. Nakamura, Kyoto University, Japan).

Description. D. XV - 12 + 7 finlets; A. 14 + 7 finlets; P₁. 26; P₂. 1, 5. Gr. 24 ~ 25 + 51 ~ 52 = 76.

Measurements as % of SL: Predorsal (1st) length 31.2 ~ 32.3; preanal length 68.3 ~ 68.6; body depth 22.9 ~ 24.2; head length 27.7 ~ 28.7; snout length 8.0 ~ 8.2; eye diameter 4.7; upper jaw length 9.8 ~ 10.2; interorbital width 7.9 ~ 8.2; postorbital length 15.5 ~ 17.2; pectoral length 13.9 ~ 14.2; pelvic length 7.7 ~ 8.1; longest (1st ~ 2nd) dorsal spine length 10.3 ~ 10.5; 1st dorsal base length 30.8 ~ 32.1; height of 2nd dorsal fin 9.5 ~ 9.7; anal base length 7.3 ~ 7.6; height of anal fin 8.8.

Body comparatively slender; maxillary extending beyond anterior margin of eye; preopercular margin broadly round. First dorsal origin behind the pectoral; 2nd dorsal and anal fins with acute lobes; pelvic fin inserted a little in advance of posterior end of pectoral base; anal origin below posterior part of 2nd dorsal base. Gill rakers long, slender and closely spaced.

Color in life greenish-dark blue above, silvery below. Fins except for anal fin blackish; distal margin of pelvic fin white; anterior margin and basal part of anal fin dusky, the rest whitish.

Locality confirmed. Puerto Pérez.

65. *Scomber japonicus* Houttuyn Caballa (Pl. VI, G).

Material examined. (11): 1, 356.0 mm SL, Ensenada Baja, drifted onto beach, on Jan. 19, 1982, SNP(PA) 73; 10, 362.0 ~ 409.0 mm SL, Ensenada Baja, drifting along shore, by dip net, on Jan. 15, 1983, vertebral count included; 50, 352.0 ~ 395.0 mm SL, Ensenada Baja, in the same manner as preceding, on Jan. 15 ~ 16, 1983, only for gill raker count.

Pequeño (1979) placed the Chilean *Scomber* population in the subspecies *S. japonicus peruanus* (Jordan and Hubbs) on the basis of smaller gill-raker counts on lower limb (25 to 27) than that of the northern Pacific population (25 to 29). However, the present specimens show the lower-limb gill rakers ranging in number from 25 to 29 with a mode at 27. We are in favor of Matsui (1967) who regarded *S. peruanus* as a synonym of *S. japonicus*. This scombrid has rarely been caught in southern Chile south of Valdivia (Pequeño, 1979; Boré et al., 1980), but in mid January 1983 a great number of the fish arrived at Ensenada Baja and Chacabuco Bay and died due to a probable influence of low salinity and dissolved oxygen (Zama et al., in press).

Description. D. IX ~ X - I, 10 ~ 11 + 5 finlets; A. I, 11 + 5 finlets; P₁. 19 ~ 21; P₂. 1, 5. Ll. 221 ~ 219. Gr. 12 ~ 15 + 25 ~ 29 = 38 ~ 43. Vr. 14 + 17 = 31 (10 specimens).

Measurements as % of SL: Predorsal (1st) length 34.9 ~ 37.0; predorsal (2nd) length 64.9 ~ 67.4; preanal length 68.3 ~ 72.8; body depth 18.4 ~ 27.2; head length 26.5 ~ 31.6; snout length 8.6 ~ 9.5; eye diameter 5.1 ~ 5.9; upper jaw length 12.4 ~ 13.8; interorbital width 7.4 ~ 8.0; caudal peduncle depth 2.9 ~ 3.3; pectoral length 10.9 ~ 12.9; pelvic length 10.3 ~ 11.4; longest (2nd ~ 3rd) dorsal spine length 8.8 ~ 13.0; 1st dorsal base length 13.0 ~ 15.6; 2nd dorsal base length 10.2 ~ 11.6; anal base length 8.8 ~ 10.3.

Dorsal surface of head somewhat flattened; maxillary reaching below posterior margin of pupil; eye with developed adipose tissue. First dorsal fin beginning a little behind middle of pectoral fin; pelvic fin inserted behind pectoral base. Body covered with minute scales; head scaleless; lateral line rippled from upper end of gill opening to caudal base. Each jaw with a row of minute teeth; vomer with rudimentary teeth in a band on each side; a few rows of teeth on palatine; no teeth on tongue.

Color in life greenish-dark blue above, silver below; upper surface of body with hook-shaped or rippled dark bands extending a little below lateral line; some dark spots below lateral line. Distal halves of dorsal fins blackish; pelvic and anal fins transparent; caudal fin blackish.

Locality confirmed. Ensenada Baja; Chacabuco Bay.

Centrolophidae

66. *Seriolella porosa* Guichenot Cojinova (Pl. VI, H).

Material examined. (1): 1, 209.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on May 15, 1981, SNP(PA) 52.

S. porosa is distinguished from the related *S. violacea* Guichenot, known from Peru to Valdivia, by higher dorsal-ray, anal-ray, and gill-raker counts and preopercular angle produced backward (Fowler, 1951; Haedrich, 1967; Chirichigno, 1974; Pequeño, 1978b; Leible and Alveal, 1982).

Description. D. VIII, 40; A. III, 23; P₁. 21; P₂. I, 5. Ll 138; Tr. 16 / 35. Gr. 6 + 13 = 19.

Measurements as % of SL: Predorsal length 32.4; preanal length 63.0; body depth 27.0; head length 27.8; snout length 8.3; eye diameter 5.3; upper jaw length 8.8; suborbital width 2.5; interorbital width 8.0; caudal peduncle depth 5.2; pectoral length 23.2; pelvic length 10.2; soft dorsal base length 61.6; anal base length 28.6.

Anterior tip of upper jaw united to snout by skin; jaws subequal; maxillary reaching just below anterior margin of eye; adipose tissue around eye indistinct; preopercular angle produced backward, roughly denticulated. Spinous dorsal fin low, beginning behind pectoral origin; pectoral fin with a pointed tip, extending well beyond soft dorsal origin; pelvic fin small, inserted a little behind pectoral base; pelvic innermost ray attached to abdomen by a membrane. Scales of body small, very deciduous; head scaleless except gill cover; lateral line somewhat rippled, parallel with dorsal contour of body. Each jaw with uniserial, small teeth; no teeth on vomer, palatine, and tongue; oral roof with a pair of long fleshy ridges converging posteriorly, then narrowly parallel.

Color in life dark greenish above, dusky silver below; a large black blotch on shoulder at beginning of lateral line; dusky spots below lateral line. Spinous dorsal fin and distal halves of soft dorsal and anal fins black; pectoral and caudal fins blackish; lower part of pectoral fin paler; pelvic fin whitish, with a slightly dusky tint.

Locality confirmed. Ensenada Baja.

Stromateidae

67. *Stromateus stellatus* Cuvier Pampanito (Pl. VI, I).

Stromateus stellatus; Navarro and Pequeño, 1979: 281 (Estero Pillán: 43° 43' S and 72° 50' W; Bajo Palena: 43° 46' S and 72° 58' W); Zama and Cárdenas, 1982: 1, pl. 1, fig. H (Ensenada Baja).

Material examined. (2): 1, 194.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Oct. 22, 1980, SNP(PA) 8; 1, 208.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Jul. 6, 1981, SNP(PA) 55.

Stromateid fish from both the Pacific and Atlantic sides of South America were generally identified as either *S. maculatus* Cuvier or *S. brasiliensis* Fowler (Norman, 1937; Fowler, 1945; Hildebrand, 1946; Mann, 1954; Ringuelet and Aramburu, 1960, etc.). The name *S. stellatus*, a senior synonym of *S. maculatus*, is applied to the Pacific form and *S. brasiliensis* to the Atlantic one (Haedrich, 1967).

Description. D. IV, 41; A. II, 38; P₁. 19 ~ 20. Gr. 6 + 12 = 18.

Measurements as % of SL: Predorsal length 39.6 ~ 39.7; preanal length 44.1 ~ 45.7; body depth 37.2 ~ 37.6; head length 23.1 ~ 24.2; snout length 7.7 ~ 8.0; eye diameter 3.8 ~ 4.1; upper jaw length 6.3 ~ 6.9; suborbital width 2.5 ~ 2.6; interorbital width 9.5 ~ 9.8; caudal peduncle depth 6.1 ~ 6.4; pectoral length 23.4 ~ 26.2; dorsal base length 56.2 ~ 57.0; anal base length 53.1 ~ 54.1.

Body deep, greatly compressed; snout blunt; jaws subequal; anterior part of upper jaw broadly united to snout by skin; maxillary failing to reach below anterior margin of eye; adipose tissue around eye well-developed; preopercular margin broadly round. Dorsal origin behind pectoral base; predorsal midline sharply keeled; pectoral fin pointed, extending beyond anal origin. Scales of body very minute, buried in skin; head scaleless except gill cover; lateral line gently arched, ending below posterior part of dorsal base. Each jaw with uniserial, minute teeth; no teeth on vomer, palatine, and tongue.

Color in life dark bluish above, silver below; upper surfaces of body and head with numerous round dark spots; a large dusky shade on chest; opercle with a black spot on upper margin. Fins blackish; dorsal lobe darker; an oval black blotch on lowermost part of pectoral fin; inside of pectoral fin blackish.

Locality confirmed. Ensenada Baja.

Gobiesocidae

68. *Gobiesox marmoratus* Jenyns Peje-sapo

Gobiesox marmoratus; Thompson, 1916: 425 (Port Otway: 46° 50' S and 75° 18' W); Navarro and Pequeño, 1979: 261 (Estero Pillán: 43° 43' S and 72° 50' W; Bajo Palena: 43° 46' S and 72° 58' W).

G. marmoratus is known from Peru through Chile to Argentina (Ringuelet and Aramburu, 1960; Chrichigno, 1974; Navarro and Pequeño, 1979), but seems to be more common along the coast north of Chiloé according to previous records of the species (Fowler, 1945; de Buen, 1960c). The following description of the species is based on Jenyns (1842), Hildebrand (1946) and de Buen (1960c).

Description. D. 11 ~ 13; A. 9 ~ 11; P₁. 20 ~ 23.

Measurements as % of SL: Predorsal length 60.0 ~ 66.0; preanal length 69.0 ~ 72.0; body depth 18.5 ~ 19.2; head length (HL) (to tip of preopercular spine) 33.3 ~ 41.5; head width 32.3 ~ 43.5; dorsal base length 30.0 ~ 32.5. Measurements as % of HL: Prepelvic length 60.5; snout length 32.0 ~ 37.0; orbit diameter 16.0 ~ 18.5; interorbital width 18.0 ~ 35.7; postorbital length 55.5 ~ 59.0; caudal peduncle depth 16.0 ~ 23.5; pelvic disc length 84.5; pelvic disc width 68.5; anal base length 58.0 ~ 66.7.

Body and head greatly depressed, tapering to a compressed caudal peduncle; head nearly as broad as long; anterior margin of head broadly convex, formed by upper lip; anterior nostril with a bifid tentacle on hind rim and posterior one forming a raised short tube; preopercle with a short spine. Dorsal origin nearer to tip of preopercular spine than to caudal base; pectoral fin broad; lower three-fourths of pectoral margin nearly straight, preceded by a dermal flap, with a free margin attached above to bases of 7th to 9th rays; pelvic fins modified into a broad sucking disc; anal origin opposite 3rd dorsal ray; caudal fin truncate or moderately convex. Skin smooth, without scales. Teeth on upper jaw blunt, not distinctly incisorlike, irregularly in two rows anteriorly; anterior teeth on lower jaw definitely compressed, with smooth convex cutting edges, becoming smaller and more pointed laterally.

Color in formalin brownish above, olivaceous below; back with three or four irregular, broad cross-bands; a pale line between and under eyes; an indefinite dark circle just below dorsal fin. Fins dusky.

Bothyidae

69. *Hippoglossina macrops* Steindachner Lenguado de ojos grandes (Pl. VI, J).

Material examined. (3); 2, 74.1 ~ 75.4 mm SL, Puerto Pérez, by bottom gill net, at 5 ~ 15 m, on Nov. 8, 1980, SNP(PA) 19-1 ~ 2; 1, 87.3 mm SL, same data as preceding, SNP(PA) 20.

Two bothid fishes *H. macrops* and *Paralichthys microps* occur in Aysén Fiord. These species resemble each other, but maxillary not extending beyond posterior margin of eye, smaller number of gill rakers and absence of caninelike teeth are characteristic of *H. macrops*.

Description. D. 64 ~ 67; A. 48 ~ 52; P₁. 10 ~ 11; P₂. 5 ~ 6. Ll. 80 ~ 84. Gr. 5 ~ 6 + 10 ~ 11 = 16 ~ 17.

Measurements as % of SL: Predorsal length 10.6 ~ 11.7; preanal length 31.8 ~ 35.1; body depth 35.3 ~ 38.2; head length 30.9 ~ 31.7; snout length 5.6 ~ 6.1; eye diameter 8.4 ~ 9.7; upper jaw length 12.6; deepest maxillary width 2.7 ~ 2.9; interorbital width 0.9 ~ 1.3; caudal peduncle depth 9.2 ~ 9.9; pectoral length 16.9 (ocular side) and 11.5 ~ 12.5 (blind side); pelvic length 6.2 ~ 9.2; dorsal base length 80.2 ~ 83.6; anal base length 61.4 ~ 63.9.

Dorsal profile of head nearly straight; maxillary reaching below center of eye; upper margin of upper eye in dorsal contour of head; interorbital space very narrow, formed by a distinct bony ridge. Dorsal fin originating above center of eye; pectoral fin sharply pointed; pelvic fins small, subequal; anal fin preceded by a short strong spine below posterior end of pectoral base; caudal fin convex, with longer middle rays. Scales on ocular side ctenoid, those on blind side cycloid on anterior three-fourths part and ctenoid only on the posterior fourth; body and head densely scaled except for rostral region; upper surface of each eye without or with a few scales; three small scales on dorsoposterior part of maxillary (ocular side); lateral line on each side strongly arched above pectoral fin, then straight along body axis; supratemporal branch of lateral line, not distinct, extending to upper eye. Each jaw with a single row of small conical teeth, without caninelike ones; no teeth on vomer, palatine, and tongue.

Color in life dark brown on ocular side, white on blind side; three pairs of dark spots facing each other across lateral line on posterior half of body, the last pair on caudal peduncle; body and head with irregular blackish small spots. Fins dark brown.

Locality confirmed. Puerto Pérez.

70 *Hippoglossina mystacium* Ginsburg Lenguado

Hippoglossina macrops; Thompson, 1916: 424 ("Albatross" St. 2787: 46° 47' 30" S and 75° 15' 00" W).

Hippoglossina mystacium Ginsburg, 1936: 130, fig. 1, based on the same specimen as reported by Thompson, 1916); Ginsburg, 1952: 289 (reference to the preceding).

As compared with the original description of *H. macrops*, according to Ginsburg (1936, 1952), *H. mystacium* has a more slender body, a shorter head, and the ctenoid scales on the blind side extending more forward (from the posterior third of body). However, these differences seem not to be sufficient to separate the two species. Unfortunately, we have not obtained specimens of the former of size comparable with the type (146.5 mm SL) of the latter. Additional specimens are desirable to clarify a relationship between these bothids. *H. mystacium* is recorded from southern Chile south of Concepción to Argentina (Norman, 1937; Oliver, 1943; Ginsburg, 1952; Ringuelet and Aramburu, 1960). The following description of the species is based on Ginsburg (1936, fig. 1).

Description. D. 66; A. 55; P₁. 11. Ll. 78. Gr. 5 + 12 = 17.

Measurements as % of SL: Body depth 39.8 head length 30.7; snout length 6.5; eye diameter 8.5; orbit diameter 10.4; upper jaw length 13.6; caudal peduncle depth 9.5; pectoral length 17.9 (ocular side) and 13.1 (blind side); pelvic length 9.1 (ocular side) and 8.8 (blind side).

Maxillary extending beyond posterior margin of pupil; eye notably large; interorbital space being a mere ridge. Dorsal origin nearly above center of eye; anal fin beginning below pectoral origin; caudal fin convex with longer middle rays. Scales on ocular side ctenoid; ctenoid scales on blind side extending forward to about middle of body, those on head and anterior half of body cycloid; auxiliary scales absent; three cycloid, embedded scales on maxillary; lateral line strongly arched above pectoral fin, then straight. Anterior teeth only slightly enlarged.

Color (in preserved specimen) nearly faded; traces of six spots in two longitudinal rows on body; traces of smaller spots on caudal peduncle, one each near upper and lower posterior angles at base of caudal rays.

71. *Mancopsetta milfordi* (Penrith) Lenguado.

Apterygopectus avilesi Ojeda, 1978: 5, figs. 1 ~ 3 (44°57' S and 75°16' W).

Apterygopectus avilesi Ojeda, 1978, from Chilean waters, agrees well with the description of *M. milfordi* originally reported from South Africa by Penrith (1965), and is regarded as a synonym of the latter. Although Kotlyar (1978) and Ojeda (1978) established the genus *Neoachirosetta* and *Apterygopectus* respectively for this species, *Mancopsetta* is still used in this study. *M. milfordi* is characterized by absence of pectoral fins, left pelvic base twisted posteriorly to ocular side, ctenoid scales (on both sides) without vertically protruding spinules, snout with a small boss and interorbital crest, and has been recorded from southern Chile (40°26' to 52°28' S), Falkland Islands and South Africa (Penrith, 1965; Kotlyar, 1978; Ojeda, 1978 and 1981). The following description of the species is based on the above three authors.

Description. D. 124 ~ 145; A. 103 ~ 124; P₂. 7 (ocular side) and 5~7 (blind side); C. 16 ~ 18. Ll. 164 ~ 202. Gr. 0 ~ 5 + 6 ~ 10 = 6~14. Br. 7. Vr. 16~17 + 47~49 = 63 ~ 65.

Measurements as % of SL: Predorsal length 5.8 ~ 10.9; preanal length 22.5 ~ 31.5; prepelvic length 17.5 ~ 23.3; body depth 30.0 ~ 47.3; head length 23.4 ~ 31.8; snout length 5.0 ~ 6.3; orbit diameter 6.0 ~ 10.1; upper jaw length 9.0 ~ 15.3; interorbital width 1.5~3.2; caudal peduncle depth 6.9 ~ 9.3; gill-filament length 1.8 ~ 2.3; pelvic length 5.5 ~ 7.1 (ocular side) and 1.7 ~ 2.3 (blind side); dorsal base length 92.1 ~ 98.3; anal base length 72.7 ~ 83.8; pelvic base (left) length 4.8 ~ 7.3.

Dorsal profile of head concave in front of interorbital space; snout with a small boss; maxillary extending to below or a little behind center of lower eye; anterior margins of eyes nearly opposite; upper eye oblique, very near to dorsal margin of head; interorbital space with a distinct ridge extending from anterior margin of lower eye to posterior one of upper eye. Dorsal origin in advance of upper eye; pectoral fins absent; left pelvic base longer than the other, twisted posteriorly to ocular side; caudal fin round. Scales on both sides of body ctenoid, each without vertically protruding spinules; body and head entirely scaled; upper parts of eyes with small scales; lateral line slightly decurved anteriorly, then straight to caudal base. Each jaw with a band of villiform teeth; no teeth on vomer and palatine. Gill rakers on upper limb of 1st gill arch located on near angle of arch; gill filaments very short, 3.0 to 4.5 times in orbit diameter.

Color in formalin brown to grayish-brown on ocular side, brownish to white on blind side; sometimes, small spots scattered over entire body; lateral line on ocular side dark.

72. *Paralichthys microps* (Günther) Lenguado de ojos chicos (Pl. VI, K).

Paralichthys microps; Navarro and Pequeño, 1979: 282 (Estero Pillán: 43°43' S and 72°50' W).

Material examined. (2): 1, 238.0 mm SL, Estero Godoy, by surface gill net, at 0 ~ 6 m, on Nov. 20, 1980, SNP(PA) 26; 1, 197.0 mm SL, Ensenada Baja, by surface gill net, at 0 ~ 6 m, on Jul. 9, 1983.

P. microps is closely related to the northern *P. adspersus* (Steindachner), known from Peru to Arauco (about 37° S), but the latter is barely separable by more anterior origin of dorsal fin, fewer gill rakers on lower limb (15 to 19) and more lateral-line scales (95 to 120) (Thompson, 1916; Norman, 1937; Ginsburg, 1952; Leible and Alveal, 1982).

Description. D. 71; A. 55 ~ 58; P₁. 12; P₂. 6. Ll. 96 ~ 98 (difficult to count). Gr. 9 + 20 = 29.

Measurements as % of SL: Predorsal length 8.2 ~ 9.3; preanal length 33.5 ~ 33.9; body depth 46.0 ~ 49.2; head length 30.1 ~ 31.0; snout length 6.6 ~ 7.0; eye diameter 3.8 ~ 3.9; upper jaw length 13.2 ~ 13.6; interorbital width 2.6; caudal peduncle depth 12.0 ~ 13.4; pectoral length 14.5 ~ 16.1 (ocular side) and 12.2 ~ 12.7 (blind side); pelvic length 9.2 ~ 9.3; dorsal base length 84.5 ~ 85.9; anal base length 66.8 ~ 69.0.

Dorsal profile of head a little concave; maxillary extending beyond posterior margin of eye; upper margin of upper eye nearly in dorsal contour of head; interorbital space flat, without a ridge. Dorsal fin beginning above anterior part of eye; pectoral fin bluntly pointed; pelvic fins short, subequal; no spine at anal origin; caudal fin convex, with longer middle rays. Scales on ocular side ctenoid, those on blind side cycloid; body and head (except for rostral region) covered with small scales accompanied by minute auxiliary scales; interorbital space and maxillary scaled; lateral line strongly arched above pectoral fin, then straight along body axis; lateral line extending two supratemporal branches, one reaching upper eye and the other with a short backward limb, directed forward to base of 5th dorsal ray. Each jaw with uniserial conical teeth, those in anterior part enlarged, caninelike; no teeth on vomer, palatine, and tongue.

Color in life dark brown on ocular side, white on blind side; body with some traces of dark ocelli on ocular side; five grayish spots below dorsal base and four above anal base (these ocelli and spots disappeared upon fixation in formalin); dorsal, anal, and caudal fins darker; pectoral and pelvic fins with small black spots.

Locality confirmed. Estero Godoy; Ensenada Baja; Punta Tortuga; Puerto Pérez.

73. *Thysanopetta naresi* Günther Lenguado

Thysanopetta naresi; Leible et al., 1974: 17, fig. 1 (10 stations between Chonos Archipelago and Golfo de Penas: 44° 42'05" S to 46° 46' 05" S).

The monotypic genus *Thysanopetta* is characterized by a nearly straight lateral line, teeth in bands in each jaw, and dorsal and anal rays without scales (Thompson, 1916, Fowler, 1951; Leible et al., 1974). *T. naresi* has been recorded from Mocha Island (38° 22' S) to Argentina (Norman, 1937; Leible et al., 1974). The following description of the species is based on Günther (1880), Thompson (1916) and Leible et al. (1974, fig. 1).

Description. D. 78 ~ 87; A. 54 ~ 64; P₁. 7 ~ 10; P₂. 5 ~ 7. Ll. 64 ~ 78. Gr. 10 ~ 12 + 19 ~ 25 = 29 ~ 36. Vr. 12 + 26 ~ 29 = 38 ~ 41.

Measurements as % of SL: Body depth 40.0; head length (HL) 22.2 ~ 25.0. Measurements as % of HL: Snout length 23.5; eye (upper) diameter 27.2 ~ 28.6; upper jaw length 41.7; interorbital width 36.4; caudal peduncle depth 50.0; pectoral length (ocular side) 50.0.

Body elliptical; dorsal profile of head with a small concavity; maxillary not reaching below center of lower eye; eyes oblong, separated by a narrow, flat interorbital space as wide as pupil; posterior margin of preopercle and opercle fringed. Dorsal fin beginning above anterior part of upper eye; pectoral fins nearly equal in length; pelvic fins symmetric, equal in length; a fleshy lanceolate lobe before anal origin on ocular side; caudal fin round. Scales on both sides ctenoid, small; interorbital space scaled; fins without scales; lateral line on each side gently decurved above pectoral fin, then straight. Each jaw with a band of small conical teeth; the band of upper jaw confined to anterior part, but that of the lower extending much more laterally; no teeth on vomer and palatine.

Color in alcohol dark brown, usually with darker spots of various size. Fins spotted with dark brown or black.

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Appendix Table 1. Coordinates of fish sampling localities and cities in the Aysén region.

Locality	Lat. (S) and long. (W)
Aysén Fiord:	
1. Puerto Pérez	45° 15.0' and 73° 15.0'
2. Puerto Angosta (Gato)	45° 17.5' and 73° 12.0'
3. Esto Manco	45° 19.0' and 73° 15.0'
4. Punta Tortuga	45° 19.5' and 73° 05.5'
5. Mouth of Cuervo River	45° 21.0' and 73° 03.5'
6. La Mentirosa Island	45° 24.5' and 73° 01.0'
7. Mouth of Salto River	45° 26.5' and 72° 48.0'
8. Ensenada Baja (Bay)	45° 27.0' and 72° 48.5'
9. Puerto Chacabuco	45° 27.5' and 72° 49.5'
10. Chacabuco Bay	45° 28.0' and 72° 50.0'
Moraleda Channel to Elefantes Fiord:	
11. Puerto Cisnes	44° 44.5' and 72° 42.0'
12. Estero Godoy (Ester Island)	45° 06.0' and 73° 26.0'
13. Morro Island	45° 08.5' and 73° 37.5'
14. Puerto Aguirre (Las Huichas Island)	45° 10.0' and 73° 31.5'
15. Ester Bay	45° 11.5' and 73° 19.0'
16. Viel Island	45° 12.0' and 73° 35.5'
17. Caleta Vidal	45° 16.0' and 73° 26.0'
18. East coast of Victoria Island	45° 19.0' and 73° 45.5'
19. Mitahue Island	45° 23.4' and 73° 44.0'
20. Casma Island	45° 24.5' and 73° 33.0'
21. North-west coast of Traiguen Island	45° 31.0' and 73° 35.0'
22. South-east coast of Nalcayec Island	46° 09.5' and 73° 41.5'
Chonos Archipelago to Golfo de Penas:	
23. Tres Dedos Island	45° 18.0' and 74° 33.0'
24. Puerto Yates (Rivero Island)	45° 28.5' and 74° 26.0'
25. San Quintín Bay	46° 51.0' and 74° 23.0'
Inland:	
26. Puerto Aysén	45° 25.0' and 72° 42.0'
27. Puerto Piedra (Aysén River)	45° 24.0' and 72° 43.5'
28. Km 10 (Aysén River)	45° 23.0' and 72° 35.0'
29. Lake Riesco	45° 28.0' and 72° 43.0'
30. Huichalao (Simpson River)	45° 29.5' and 72° 08.0'
31. Coyhaique	45° 34.0' and 72° 03.5'
32. Claro River	45° 34.0' and 72° 04.5'
33. Lake Frío	45° 40.0' and 71° 56.0'
34. Lake Pollux	45° 40.0' and 71° 51.0'
35. Lake Don Poli	46° 14.0' and 71° 57.0'
36. Puerto Ibañez (Lake General Carrera)	46° 16.5' and 71° 56.0'
37. Lagoon San Rafael	46° 39.0' and 73° 53.0'
38. Lake Esmeralda	47° 10.0' and 72° 30.0'
39. Lake Maldonado	47° 14.0' and 72° 31.0'
40. Cochrane	47° 16.0' and 72° 34.0'
41. Lagoon Quetro	48° 10.0' and 73° 10.0'
42. Lagoon Ventisquero	48° 15.0' and 73° 35.5'

Appendix Table 2. Distribution of the marine fishes forming the Aysén fish fauna from Peru through Chile to Argentina. Four introduced salmonids are excluded. The Chilean coast is divided into four regions for convenience on the basis of administrative regional divisions. Parentheses indicate that no reference is available, but species probably occurs in the region.

Country	Perú	Chile				Argentina
		I - IV region	V - X region	XI (Aysén) region	XII region	
Latitude (S)	North of 18° 21'	18° 21'-32° 12'	32° 12'-43° 40'	43° 40'-48° 50'	48° 50'-56° 30'	North of 55° 30'
<i>Geotria australis</i>			+	+	+	+
<i>Halaelurus bivius</i>			+	+	+	+
<i>H. canescens</i>	+	(+)	+	+	+	
<i>Prionace glauca</i>	+	+	+	+		+
<i>Centroscyllium granulatum</i>	+	(+)	+	+	+	+
<i>Etmopterus paessleri</i>				+	(+)	+
<i>Squalus acanthias</i>			+	+	+	+
<i>Raja chilensis</i>		+	+	+	+	+
<i>Callorhynchus callorhynchus</i>	+	+	+	+	+	+
<i>Sprattus fuegensis</i>			+	+	+	+
<i>Engraulis ringens</i>	+	+	+	+		
<i>Aplocheilichthys marinus</i>			+	+	+	
<i>A. taeniatus</i>			+	+	+	+
<i>Galaxias maculatus</i>		+	+	+	+	+
<i>Gymnoscopelus nicholsi</i>				+	(+)	+
<i>Physiculus marginatus</i>			+	+	+	+
<i>Salilota australis</i>			+	+	+	+
<i>Micromesistius australis</i>			+	+	+	+
<i>Macruronus magellanicus</i>			+	+	+	+
<i>Merluccius australis</i>			+	+	+	+
<i>M. gayi</i>	+	+	+	+	+	+
<i>Coelorrhinus fasciatus</i>			+	+	+	+
<i>C. patagoniensis</i>		+	+	+		
<i>Cataetyx messieri</i>				+	+	+
<i>Genypterus blacodes</i>		+	+	+	+	+
<i>G. chilensis</i>	+	+	+	+		
<i>Echiodon cryomargarites</i>				+	(+)	+
<i>Austrolycus depressiceps</i>			+	+	+	+
<i>Melanostigma gelatinosum</i>			+	+	+	+
<i>Scomberesox saurus scombroides</i>	+	+	+	+		+

(continued)

Country	Perú	Chile				Argentina
		I - IV region	V - X region	XI (Aysén) region	XII region	
Latitude (S)	North of 18° 21'	18° 21'- 32° 12'	32° 12'- 43° 40'	43° 40'- 48° 50'	48° 50'- 56° 30'	North of 55° 30'
<i>Odontesthes smitti</i>				+	+	+
<i>Leptonotus blainvillanus</i>	+	+	+	+	+	+
<i>Sebastes oculatus</i>		+	+	+	+	+
<i>Congiopodus peruvianus</i>	+	+	+	+	+	+
<i>Normanichthys crockeri</i>	+	(+)	+	+		
<i>Agonopsis chiloensis</i>		+		+	+	+
<i>Careproctus crassus</i>				+		
<i>Polyprion oxygeneios</i>			+	+	+	
<i>Prolatilus jugularis</i>	+	+	+	+		
<i>Trachurus murphyi</i>	+	+	+	+	+	
<i>Mugiloides chilensis</i>	+	+	+	+	+	
<i>Cottoperca gobio</i>			+	+	+	+
<i>Eleginops maclovinus</i>			+	+	+	+
<i>Notothenia brevicauda</i>			+	+	+	+
<i>N. cornucola</i>				+	+	+
<i>N. longipes</i>				+	+	+
<i>N. tessellata</i>			+	+	+	+
<i>Harpagifer bispinis</i>			+	+	+	+
<i>Calliclinus geniguttatus</i>			+	+	+	+
<i>Myxodes cristatus</i>			+	+		
<i>M. viridis</i>	+	(+)	+	+		
<i>Hypsoblennius sordidus</i>	+	+	+	+		
<i>Ophiogobius jenynsi</i>		+	+	+	+	
<i>Thyrsites atun</i>	+	+	+	+	+	+
<i>Allothunnus fallai</i>	+	+	+	+		+
<i>Scomber japonicus</i>	+	+	+	+		+
<i>Seriolella porosa</i>	+	+	+	+	+	+
<i>Stromateus stellatus</i>	+	+	+	+	+	+
<i>Gobiesox marmoratus</i>	+	+	+	+	+	+
<i>Hippoglossina macrops</i>	+	(+)	+	+	+	
<i>H. mystacium</i>			+	+	+	+
<i>Mancopsetta milfordi</i>			+	+	+	+
<i>Paralichthys microps</i>	+	+	+	+	+	
<i>Thysanopsetta naresi</i>			+	+	+	+

Appendix Table 3. Occurrence of the species forming the Aysén fish fauna in different localities of the Aysén region. Data are based on the present records and those shown in the synonymy in the text. The mouth of the Salto River is included in the category of Aysén Fiord; Baker and Martínez Channels in the Mesier Channel. AF, Aysén Fiord; M-E, Moraleda Channel to Elefantes Fiord; MC, Mesier Channel; OC, oceanic and coastal waters; SR, Simpson River system; LS, Lagoon San Rafael; OS, others (south of 46° S).

Species	Inland and open seas				River and lake		
	AF	M-E	MC	OC	SR	LS	OS
1. <i>Geotria australis</i>	+				+		
2. <i>Halaelurus bivius</i>	+	+	+				
3. <i>H. canescens</i>			+				
4. <i>Prionace glauca</i>				+			
5. <i>Centroscyllium granulatum</i>		+	+	+			
6. <i>Etmopterus paessleri</i>			+				
7. <i>Squalus acanthias</i>	+	+					
8. <i>Raja chilensis</i>		+					
9. <i>Callorhynchus callorhynchus</i>	+	+					
10. <i>Sprattus fuegensis</i>	+	+					
11. <i>Engraulis ringens</i>	+	+					
12. <i>Oncorhynchus keta</i>	+						
13. <i>O. kisutch</i>	+						
14. <i>Salmo gairdneri</i>	+	+			+		
15. <i>S. trutta</i>	+				+		
16. <i>Aplochiton marinus</i>							+
17. <i>A. taeniatus</i>			+		+		
18. <i>A. zebra</i>				+	+		+
19. <i>Galaxias maculatus</i>	+	+	+	+	+		
20. <i>G. platei</i>					+		+
21. <i>Hatcheria macraei</i>					+		
22. <i>Gymnoscopelus nicholsi</i>				+			
23. <i>Physiculus marginatus</i>			+				
24. <i>Salilota australis</i>	+	+	+				
25. <i>Micromesistius australis</i>	+	+		+			
26. <i>Macruronus magellanicus</i>	+	+					
27. <i>Merluccius australis</i>	+	+		+			
28. <i>M. gayi</i>	+	+		+			
29. <i>Coelorrhinus fasciatus</i>			+	+			
30. <i>C. patagoniae</i>			+	+			
31. <i>Cataetyx messieri</i>			+				
32. <i>Genypterus blacodes</i>	+	+					
33. <i>G. chilensis</i>		+					
34. <i>Echiodon cryomargarites</i>				+			
35. <i>Austrolycus depressiceps</i>		+		+		+	
36. <i>Melanostigma gelatinosum</i>				+			

(continued)

* From Port Otway according to Thompson (1916), who did not note whether specimens were obtained from the fresh water or from the sea.

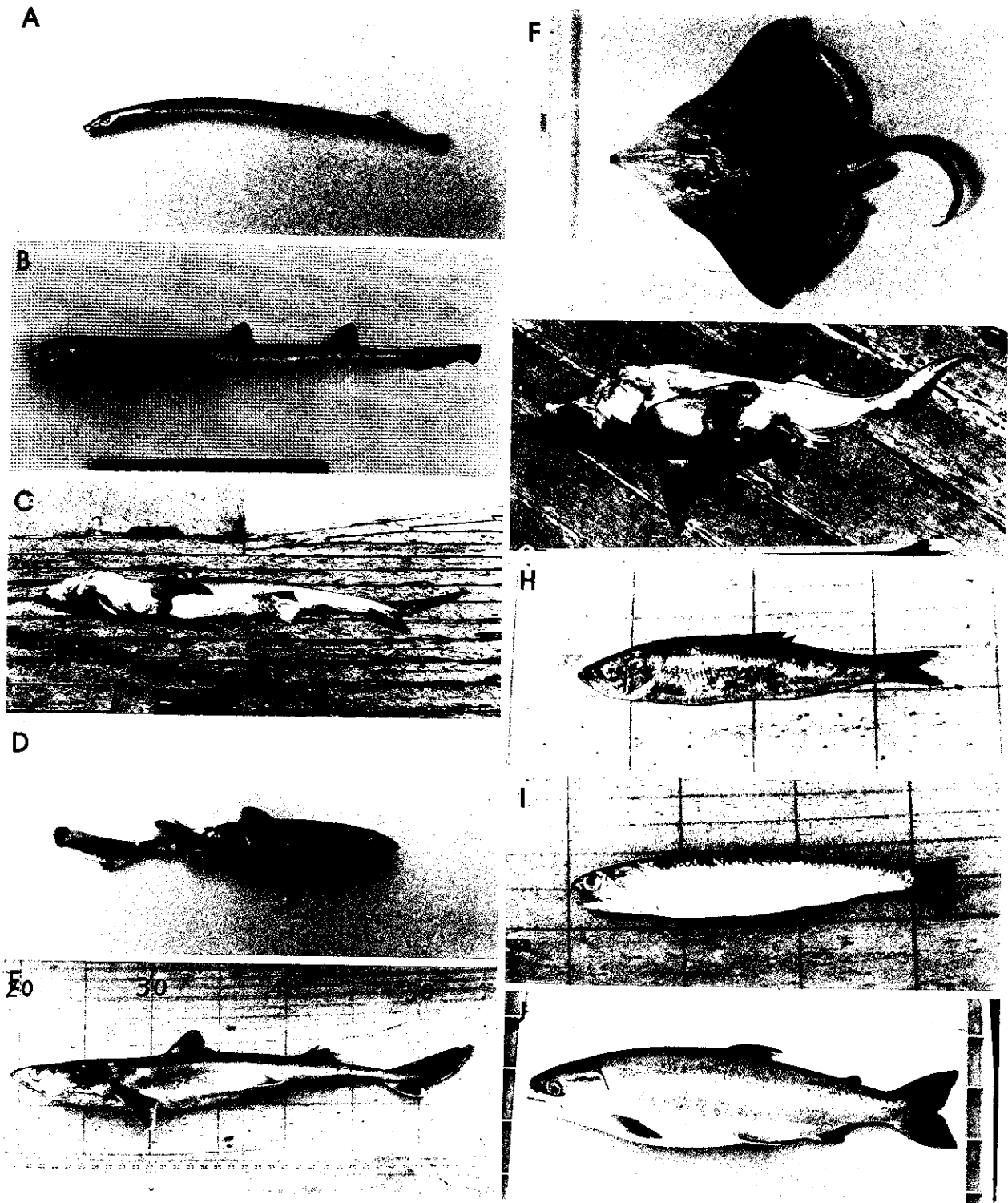
Species	Inland and open seas				River and lake		
	AF	M-E	MC	OC	SR	LS	OS
37. <i>Scomberesox saurus scombroides</i>				+			+
38. <i>Odontesthes bonariensis</i>							
39. <i>O. smitti</i>	+	+					
40. <i>Leptonotus blainvillanus</i>	+	+		+			
41. <i>Sebastes oculatus</i>	+	+	+				
42. <i>Congiopodus peruvianus</i>		+		+			
43. <i>Normanichtys crockeri</i>	+	+					
44. <i>Agonopsis chiloensis</i>	+			+			
45. <i>Careproctus crassus</i>		+					
46. <i>Percichthys trucha</i>							+
47. <i>Polyprion oxygeneios</i>		+		+			
48. <i>Prolatilus jugularis</i>	+	+					
49. <i>Trachurus murphyi</i>	+	+		+			
50. <i>Mugiloides chilensis</i>		+					
51. <i>Cottoperca gobio</i>	+	+		+			
52. <i>Eleginops maclovinus</i>	+	+	+		+	+	
53. <i>Notothenia brevicauda</i>	+	+	+				
54. <i>N. cornucola</i>		+					+
55. <i>N. longipes</i>	+	+					+
56. <i>N. tessellata</i>	+	+					+
57. <i>Harpagifer bispinis</i>			+				+
58. <i>Calliclinus geniguttatus</i>	+	+					
59. <i>Myxodes cristatus</i>		+					
60. <i>M. viridis</i>		+					
61. <i>Hypsoblennius sordidus</i>		+					
62. <i>Ophiogobius jenynsi</i>		+		+			
63. <i>Thyrsites atun</i>				+			
64. <i>Allothunnus fallai</i>	+						
65. <i>Scomber japonicus</i>	+						
66. <i>Seriolella porosa</i>	+						
67. <i>Stromateus stellatus</i>	+	+					
68. <i>Gobiesox marmoratus</i>		+		+			
69. <i>Hippoglossina macrops</i>	+						
70. <i>H. mystacium</i>				+			
71. <i>Mancopsetta milfordi</i>				+			
72. <i>Paralichthys microps</i>	+	+					
73. <i>Thysanopsetta naresi</i>				+			

Appendix Table 4. List of spawning seasons of some fishes in the Aysén region and other localities. In southern Chile four seasons are recognizable: Spring (September to mid December); summer (mid December to March); autumn (April to mid May); winter (mid May to August). Periods of abundance are indicated in parentheses.

Species	Present study (Aysén region)	Other studies		
		Spawning season	Locality	Author
<i>Prionace glauca</i>		Summer	Japan	Matsubara and Ochiai (1977)
<i>Squalus acanthias</i>		Sep. - Dec.	Japan	Matsubara and Ochiai (1977)
<i>Raja chilensis</i>		Feb.	Concepción-Arauco	Oliver (1943)
<i>Callorhynchus callorhynchus</i>		Oct. - Jan.	Chile	Mann (1954); Boré et al. (1980)
<i>Sprattus fuegiensis</i>	Sep. - Dec. (Oct. - Nov.)	Sep. - Oct. Oct. - Nov. Jul. - Jan. Aug. - Nov. Spring	Concepción-Arauco Argentina Argentina Argentina Argentina	Oliver (1943) Ciechowski (1971a) Ciechowski (1971c) Ciechowski (1975) Ciechowski (1981)
<i>Engraulis ringens</i>	Autumn	Almost all months (May - Jul.) All months (Jul. and Dec.) Jul. - Feb. Aug. - Mar. (Sep. - Feb.)	Valparaíso Arica-Valparaíso Ilo (Peru)-Antofagasta Peru	Fischer (1958a) Boré et al. (1980) Chirinos and Alegre (1969) Chirinos and Alegre (1969)
<i>Oncorhynchus keta</i>	Apr. - Jun. (mid Apr.-May.)	Autumn-Winter	North Pacific countries	Clemens and Wilby (1961); Matsubara and Ochiai (1977)
<i>O. kisutch</i>	Apr. - Jun.	Autumn-winter (Oct. - Feb.)	North Pacific countries	Matsubara and Ochiai (1977)
<i>Salmo gairdneri</i>	Sep. - Nov. (Oct.)	Autumn-spring	North Pacific countries	Clemens and Wilby (1961); Matsubara and Ochiai (1977)
<i>S. trutta</i>	May - Jul. (May - Jun.)	Autumn-winter	European and North Pacific countries	Clemens and Wilby (1961); Matsubara and Ochiai (1977)
<i>Aplochiton taeniatus</i>	Spring-mid summer	Juvenile: Mar. May. - Jul. Mar.	Lake Villarica (39°S) Lake Llanquihue (41°S) Lake Rinihue (40°S)	McDowall (1969) Campos (1969) Eigenmann (1928)
<i>A. zebra</i>		Mar.	Lake Rinihue (40°S)	Eigenmann (1928)
<i>Galaxias maculatus</i>	Summer-autumn	Sep. - Apr. Nov. - Dec. Feb. - May.	Valdivia Los Estados Isl. (Argentina) New Zwaland	Campos (1970b) Gosztonyi (1970, as <i>G. variegatus</i>) McDowall (1971b)
<i>G. platei</i>	Jan.	Late summer early autumn	Southern South America	McDowall (1971b)
<i>Salilota australis</i>	Spring	Late winter spring Oct. - Nov. Oct. - early Nov. Winter-spring Early spring	Southern Chile Argentina Argentina Argentina Southern South America	Boré et al. (1980) Ciechowski (1975) Ciechowski and Booman (1981) Ciechowski et al. (1981). Nakamura (1976)
<i>Macruronus megalanicus</i>	Spring	Early spring	Southern South America	Nakamura (1976)
<i>Merluccius australis</i>	Spring	Jul. - Aug.	Southern South America and New Zealand	Inada (1980; 1981b)
		Larvae: Oct - Jan. Oct. - Nov.	Argentina Argentina	Ciechowski and Weiss (1974) Ciechowski et al. (1975)
<i>M. gayi</i>	Spring	Oct. - Nov. and Apr. - May. Aug. - Jan. Mar. - Dec. Aug. - Dec.	Chile Valparaíso Valparaíso Los Vilos-Lebu (32° - 38° S) Coquimbo - San Vicente (30° - 37°S) Chile	Delfin (1903a) de Buen (1954; 1958b) Fischer (1959) Boré et al. (1980) Balbontín and Fischer (1981) Inada (1980; 1981b)
		All months (Jul. - Nov.) Late winter-early autumn (Aug. - Nov.) Aug. - Dec. Mid Aug. - late Oct.	Peru Argentina Argentina	Santander and Castillo (1969) Ciechowski and Booman (1981) Ciechowski et al. (1981)
<i>Coelorrinchus fasciatus</i>		Winter-spring	Argentina	Ciechowski et al. (1981)
<i>Genypterus blacodes</i>		Apr. - May and Oct. - Nov. Apr. and Oct. Apr. - May. and Oct. - Nov.	Chile Chile Chile	Delfin (1903b) Oliver (1943) Delfin (1903b)
<i>G. chilensis</i>		Aug. Feb.	Central Chile Concepción - Arauco	Oliver (1943) Oliver (1943)

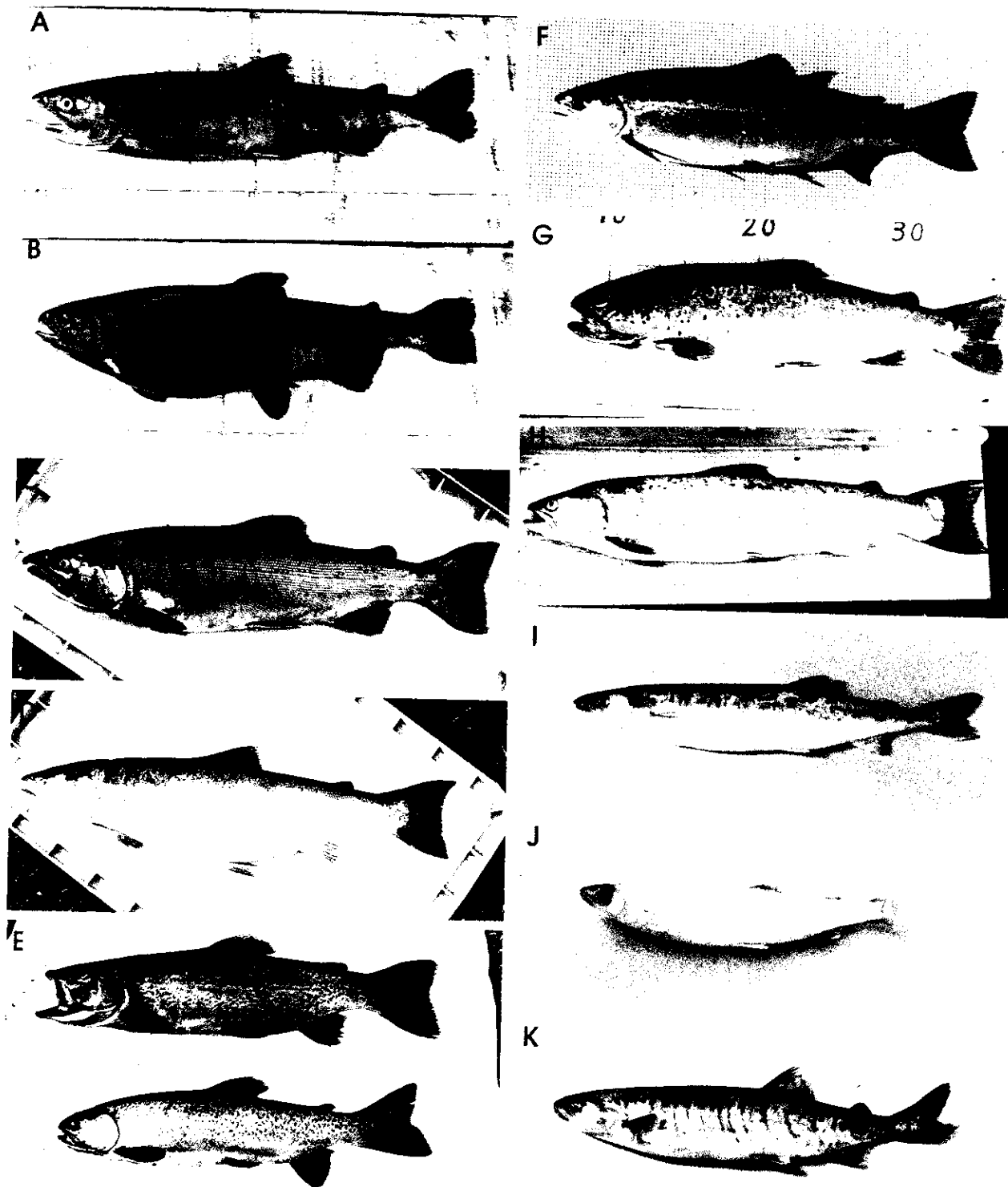
(continued)

Species	Present study (Aysén region)	Other studies		
		Spawning season	Locality	Author
<i>Scomberesox saurus scombroides</i>		Summer	South Africa	Brownell (1979)
<i>Colontesthes bonariensis</i>		Sep. - Nov.	Argentina	Ringuélet et al. (1967)
<i>O. smitti</i>	Oct. - Dec.			
<i>Leptonotus blainvillanus</i>	Winter			
<i>Sebastes oculatus</i>	Spring-early summer			
<i>Congiopodus peruvianus</i>	Spring-summer	Summer	Argentina	Ciechomski et al. (1981).
<i>Normanichthys crockeri</i>	Late spring early summer	Juveniles: Sep. - Oct.	Valparaíso Bay	Balbontín and Pérez (1980)
<i>Agonopsis chiloensis</i>	Spring	Oct. - Feb. Spring-early summer	Argentina Argentina	Ciechomski (1975) Ciechomski et al. (1981)
<i>Polyprion oxygenicos</i>		Jun. - Jul.	New Zealand	Graham (1953)
<i>Prolatilus jugularis</i>	Late spring- summer	Feb. - Nov. (Aug. - Oct.)	Valparaíso	Fischer (1958b)
<i>Trachurus murphyi</i>		Spring	Northern and central Chile	Mann (1954)
		Summer	Antofagasta	de Buen (1959c)
		Feb. - Mar.	Antofagasta-Valparaíso	Boré et al. (1980)
		Dec.	Antofagasta	Kaiser (1973)
		Feb. - Mar.	Coquimbo and Valparaíso	Kaiser (1973)
		Aug. - Feb. (Aug. - Sep.)	Peru	Santander and Castillo (1971)
<i>Mugiloides chilensis</i>		Spring	Concepción-Arauco	Oliver (1943)
<i>Eleginops maclovinus</i>	Late winter- early summer	Spring	Concepción-Arauco	Oliver (1943)
		Spring	Chiloé	Mann (1954)
		Late spring early summer	Puerto Edén (49°S)	Boré et al. (1980)
		Late Aug. - Sep. Larvae: Nov. - Dec.	Moraleda Channel Argentina	Rueda (1982) Ciechomski and Weiss (1976)
<i>Notothenia brevicauda</i>	Summer			
<i>N. cornucola</i>		Sep. May. May.	Magellan Strait Tierra del Fuego Magellan Strait	Lönnberg (1907) Hussakof (1914) Nybelin (1969)
<i>N. tessellata</i>	Summer			
<i>Harpagifer bispinis</i>		Mar. May.	Tierra del Fuego Tierra del Fuego	Hussakof (1914) Nybelin (1969)
<i>Hypsoblemnus sordidus</i>	Spring-summer	All months	Valparaíso Bay	Balbontín and Pérez (1979)
<i>Thysites atun</i>		Jul. - Oct. Spring-autumn	New Zealand New Zealand	Graham (1953) Robertson (1975); Robertson and Mito (1979)
<i>Allothunnus fallai</i>		Larvae: Aug. - Dec. Larvae: Nov. - Dec.	Southern Indo-Pacific South Atlantic	Watanabe et al. (1966) Mori (1967a)
<i>Scomber japonicus</i>		Summer Mar. - Oct. Spring-early summer Spring-early summer	Chile California Argentina Japan	Zama et al. (in press) Kramer (1969) Ciechomski (1971a; 1971b) Matsubara and Ochiai (1977); Kuroda et al. (1982)
		Winter-spring Spring-summer Winter-spring (Jan.)	Massachusetts-Florida Peru Brazil	Berrien (1978) Boré et al. (1980) Matsuura and Sato (1981)
<i>Stromateus stellatus</i>	Spring			
<i>Hippoglossina macrops</i>		All months (Aug. - Nov.)	Valparaíso	Voigth and Balbontín (1981)
<i>Paralichthys microps</i>	Spring	Oct.	Concepción-Arauco	Oliver (1943)



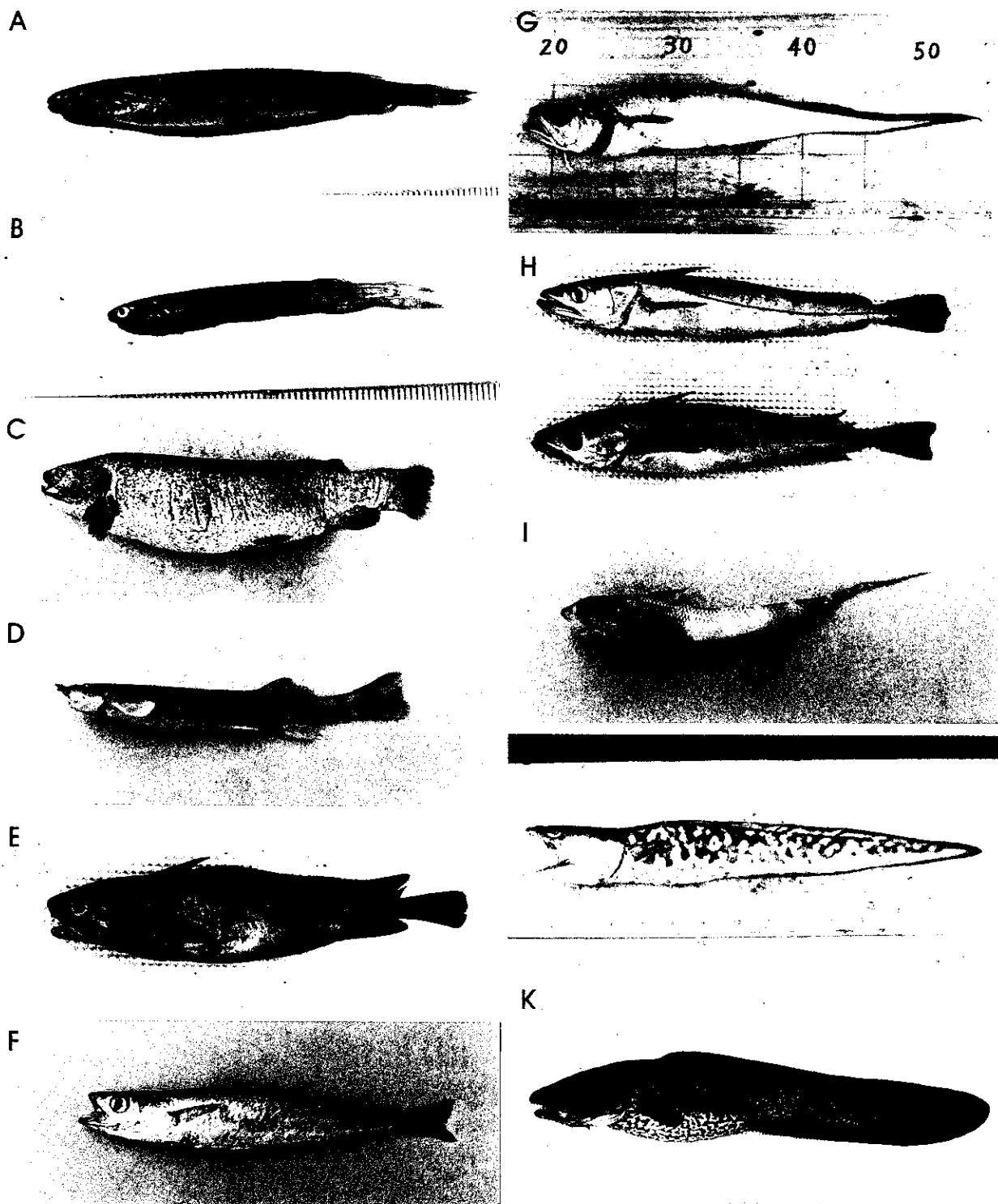
Explanation of Pl. I:

A, *Geotria australis*, 105.0 mm TL, from Ensenada Baja, SNP(PA) 112; B, *Halaelurus bivius*, 645.0 mm TL, male, from Caleta Vidal; C, *Prionace glauca*, 1460.0 mm TL, female, from 47° 00'S and 76° 01' W; D, *Centroscyllium granulatum*, 151.0 mm TL (preserved specimen), male, from 44° 30'S and 75° 20' W, SNP(PA) 67; E, *Squalus acanthias*, 343.0 mm TL, female, from Ensenada Baja, SNP(PA) 13; F, *Raja chilensis*, 331.0 mm TL (preserved specimen), male, from Moraleda Channel; G, *Callorhynchus callorhynchus*, 722.0 mm TL, male, from Estero Godoy; H, *Sprattus fuegensis*, 119.0 mm SL, from Esto Manco, SNP(PA) 23-2; I, *Ingraulis ringens*, 138.0 mm SL, from Estero Godoy, SNP(PA) 30-1; J, *Oncorhynchus keta*, 420.0 mm SL, immature phase (reared), from Ensenada Baja.



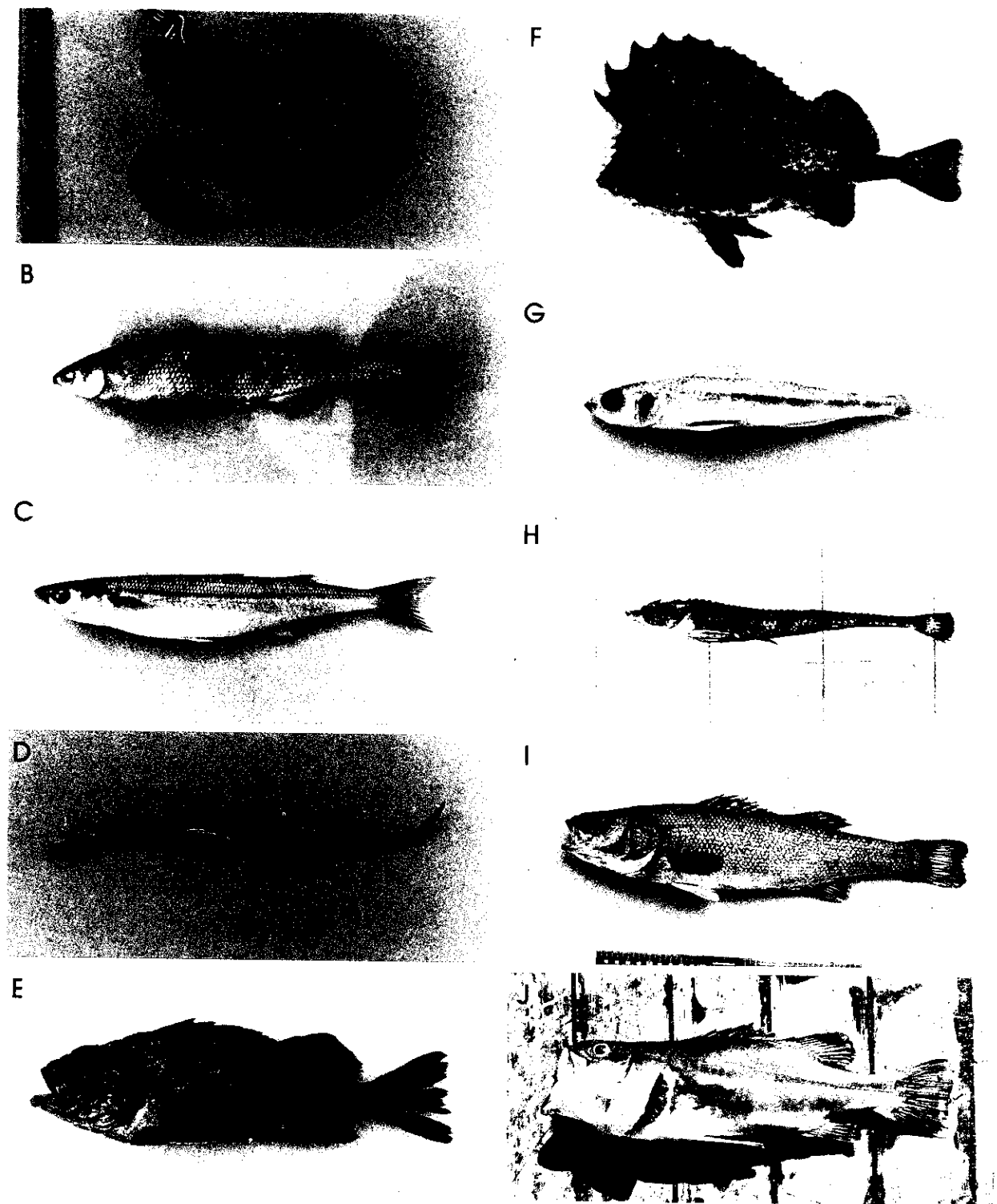
Explanation of Pl. II:

A, *Oncorhynchus keta*, 428.0 mm SL, spawning male, from Ensenada Baja, SNP(PA) 95; B, *O. keta*, 405.0 mm SL, spawning female, from Ensenada Baja; C, *O. kisutch*, 445.0 mm SL, spawning male, from Ensenada Baja; D, *O. kisutch*, 454.0 mm SL, spawning female, from Ensenada Baja; E (top), *Salmo gairdneri*, 367.0 mm SL, lake-living form (spawning male), from Lake Frío; E (bottom), *S. gairdneri*, 335.0 mm SL, lake-living form (spawning female), from Lake Frío; F, *S. gairdneri*, 477.0 mm SL, sea-run form, from Pto. Pérez; G, *S. trutta*, 245.0 mm SL, river-living form, from Pajarones Stream (Ensenada Baja); H, *S. trutta*, 515.0 mm SL, sea-run form, from Pto. Pérez; I, *Aplochiton marinus*, 273.0 mm SL (preserved specimen), from Estero Ventisquero, SNP(PA) 76; J, *A. taeniatus*, 135.0 mm SL (preserved specimen), from Aysén River, SNP(PA) 41 1; K, *A. zebra*, 238.0 mm SL (preserved specimen), from Lagoon Quetro, SNP(PA) 75.



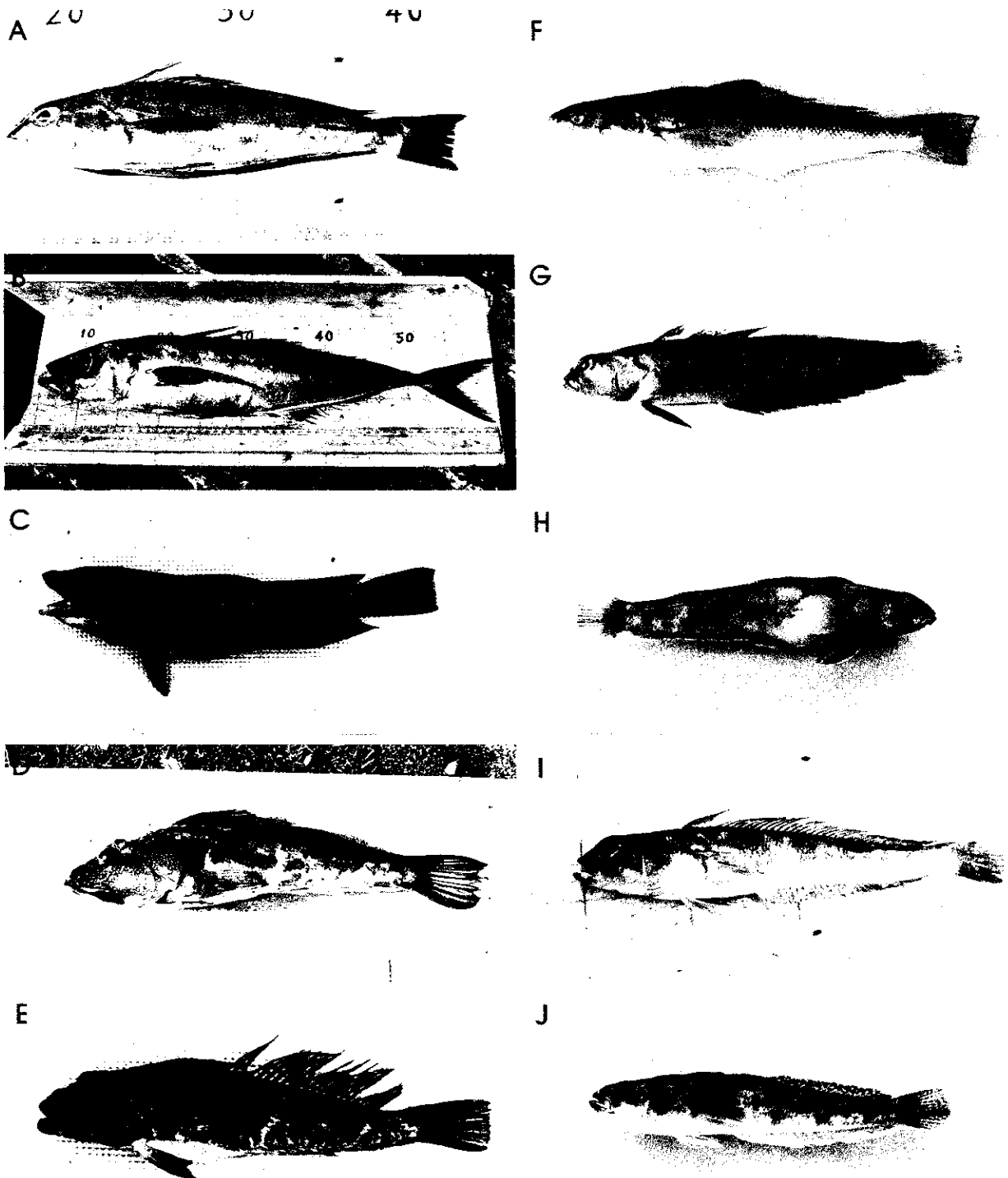
Explanation of Pl. III:

A, *Galaxias maculatus*, 65.0 mm SL, adult, from Ensenada Baja; B, *G. maculatus*, 45.0 mm SL, juvenile, from Ensenada Baja; C, *G. platei*, 295.0 mm SL (preserved specimen), from Lake Pollux; D, *Hatcheria macraei*, 95.5 mm SL (preserved specimen), from Simpson River, SNP(PA) 34; E, *Salilota australis*, 263.0 mm SL, from Pto. Pérez; F, *Micromesistius australis*, 252.0 mm SL, from Chacabuco Bay, SNP(PA) 44; G, *Macruronus magellanicus*, 342.0 mm SL, from Ensenada Baja, SNP(PA) 7; H (top), *Merluccius australis*, 282.0 mm SL, from Ester Bay, SNP(PA) 92-2; H (bottom), *M. gayi*, 275.0 mm SL, from Ester Bay; I, *Coelorinchus fasciatus*, 133.0 mm TL (preserved specimen), from 44° 50'S and 75° 30'W, SNP(PA) 68; J, *Genypterus blacodes*, 348.0 mm SL, from Traiguén Isl., SNP(PA) 32; K, *G. chilensis*, 697.0 mm SL, from Ester Bay.



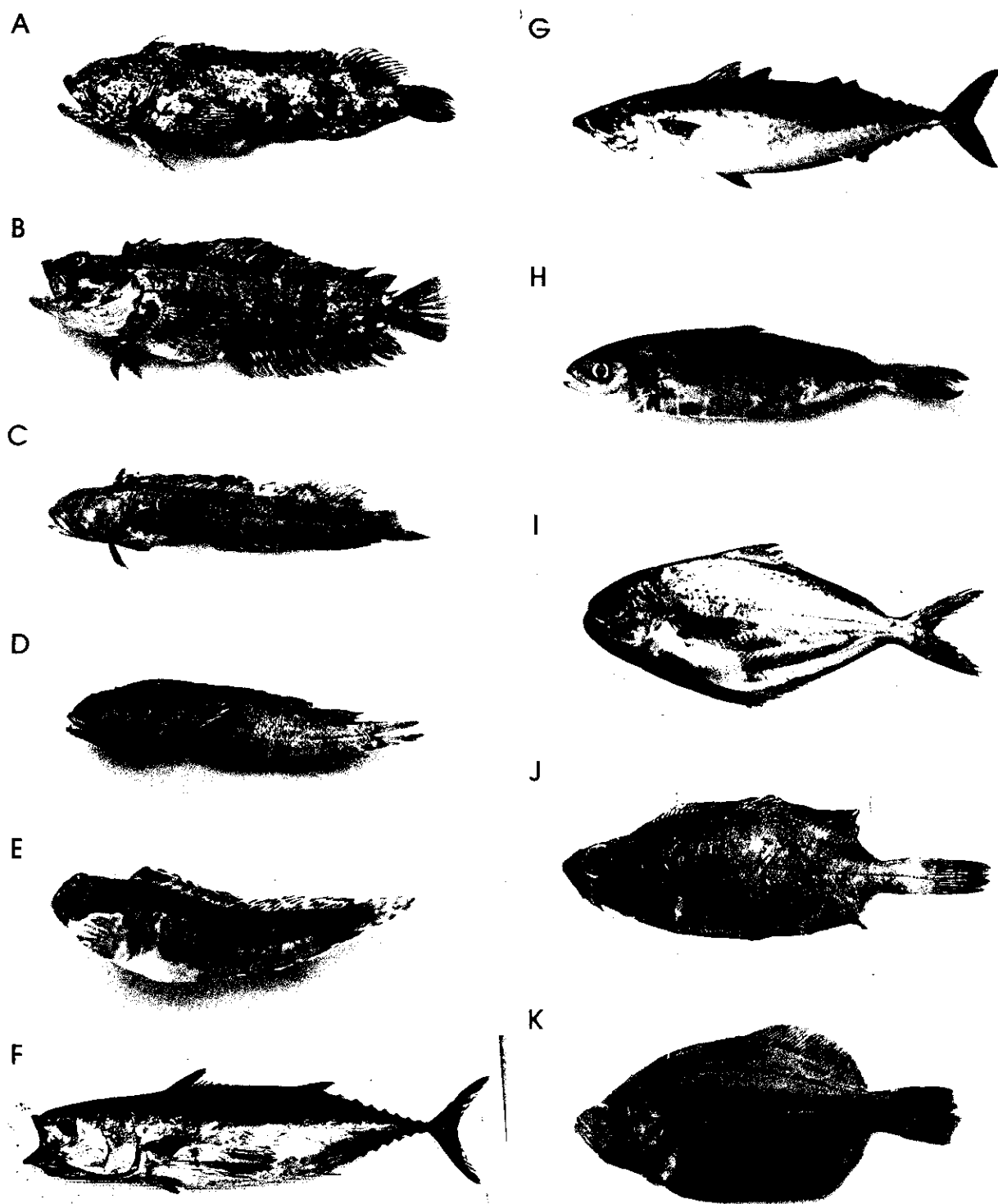
Explanation of Pl. IV:

A, *Echiodon cryomargarites*, 276.0 mm TL. (preserved specimen), from 44° 44'S and 75° 26'W, SNP(PA) 66; B, *Odontesthes bonariensis*, 298.0 mm SL (preserved specimen), from Lake Esmeralda, SNP(PA) 127; C, *O. smitti*, 259.0 mm SL (preserved specimen), from Ensenada Baja, SNP(PA) 104-3; D, *Leptonotus blainvillleanus*, 69.3 mm SL (preserved specimen), from La Mentiroso Isl., SNP(PA) 106; E, *Sebastes oculatus*, 275.0 mm SL, from Pto. Aguirre, SNP(PA) 108; F, *Congiopodus peruvianus*, 171.0 mm SL, from Caleta Vidal, SNP(PA) 93; G, *Normanichthys crockeri*, 68.8 mm SL (preserved specimen), from Ensenada Baja, SNP(PA) 65-3; H, *Agonopsis chilensis*, 123.0 mm SL, from Esto Manco, SNP(PA) 17 2; I, *Percichthys trucha*, 325.0 mm SL, from Pto. Ibañez, SNP(PA) 70; J, *Polyprion oxygeneios*, 405.0 mm SL, from 47°00'S and 76° 01'W.



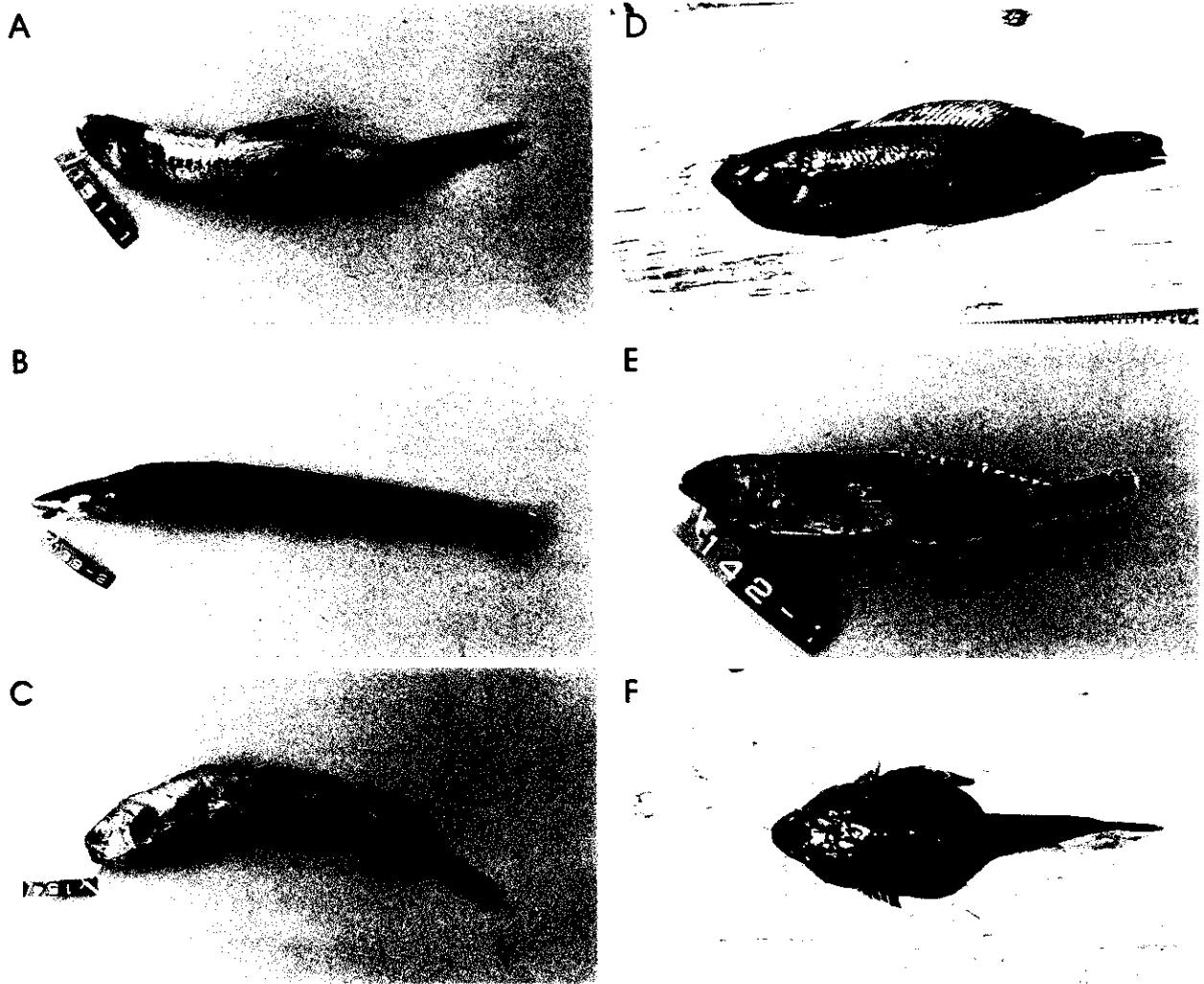
Explanation of Pl. V:

A, *Prolatilus jugularis*, 221.0 mm SL, from Esto Manco, SNP(PA) 24; B, *Trachurus murphyi*, 465.0 mm SL, from Pto. Pérez; C, *Mugiloides chilensis*, 372.0 mm SL, from Ester Bay, SNP(PA) 97; D, *Cottoperca gobio*, 365.0 mm SL, from Pta. Angosta, SNP(PA) 63-1; E, *C. gobio*, 332.0 mm SL, reddish phase, from Caleta Vidal; F, *Eleginops maclovinus*, 311.0 mm SL (preserved specimen), from Ensenada Baja, SNP(PA) 100; G, *Notothenia brevicauda*, 86.5 mm SL (preserved specimen), from Chacabuco Bay, SNP(PA) 122-1; H, *N. brevicauda*, 82.8 mm SL (preserved specimen), from Pto. Aguirre, SNP(PA) 28-2; I, *N. longipes*, 167.0 mm SL, from Esto Manco, SNP(PA) 15-1; J, *N. tessellata*, 135.0 mm SL (preserved specimen), from Viel Isl.



Explanation of Pl. VI:

A, *Calliclinus geniguttatus*, 268.0 mm SL, grown adult, from Pto. Aguirre, SNP(PA) 80; B, *C. geniguttatus*, 110.0 mm SL, adult, from Pto. Pérez, SNP(PA) 116; C, *C. geniguttatus*, 67.2 mm SL, young, from Chacabuco Bay, SNP(PA) 123; D, *C. geniguttatus*, 40.5 mm SL, juvenile, from Pto. Aguirre, SNP(PA) 79; E, *Hypsoblennius sordidus*, 43.7 mm SL, from Pto. Aguirre, SNP(PA) 124; F, *Allothunnus fallai*, 660.0 mm SL, from Pto. Pérez; G, *Scomber japonicus*, 410.0 mm SL, from Ensenada Baja; H, *Seriotelella porosa*, 209.0 mm SL (preserved specimen), from Ensenada Baja, SNP(PA) 52; I, *Stromateus stellatus*, 194.0 mm SL, from Ensenada Baja, SNP(PA) 8; J, *Hippoglossina macrops*, 87.3 mm SL, from Pto. Pérez, SNP(PA) 20; K, *Paralichthys microps*, 238.0 mm SL (preserved specimen), from Estero Godoy, SNP(PA) 26.



Explanation of Pl. VII:

A, *Gymnoscopelus nicholsi*, 111.0 mm SL (preserved specimen), from 45°31' S and 75° 29' W, SNP(PA) 151-1; B, *Austrolycus depressiceps*, 203.0 mm SL (preserved specimen), from Nalcayec Isl., SNP(PA) 139-2; C, *Melanostigma gelatinosum*, 168.0 mm SL (preserved specimen), from 48°02' S and 75°53' W, SNP(PA) 154; D, *Nothothenia cornucola*, 81.0 mm SL from Lagoon San Rafael, SNP(PA) 141; E, *Harpagifer bispinis*, 64.0 mm SL (preserved specimen), from Lagoon San Rafael, SNP(PA) 142-1; F, dorsal view of *H. bispinis*, 64.0 mm SL, from Lagoon San Rafael, SNP(PA) 142-3.

