Palaeontologia Electronica
palaeo-electronica.org

What do we know about Neogene bony fishes from Chile? Diversity and biogeographic implications

Pablo Oyanadel-Urbina, Jaime A. Villafaña, Karina E. Buldrini, Héctor A. Ramos-Rojas, Yusse Hernández-Mora, Martín Chávez-Hoffmeister, Sven N. Nielsen, Jorge A. Campos-Medina, Sandra Rebolledo, and Marcelo M. Rivadeneira

ABSTRACT

Deep climatic and oceanographic transformations in the past have shaped Chile's modern marine biodiversity. However, unlike some other vertebrates and invertebrates, little is known about the past diversity of bony fishes (Osteichthytes) along this coast during the Neogene. This study aims to summarize paleontological evidence of the diversity of bony fishes in Chile, estimate the completeness of the inventories, and assess biogeographic dynamics. Our results show an inventory of 21 orders, 51 families, 67 genera, and 46 species for the Neogene. Compared to the current diversity (624 genera and 1,198 species), only 3% of the living genera and 20% of living families have fossil counterparts and a single living species has a fossil record. At a generic level, 40% are currently absent in the region, whereas 60% survived. For the genera currently absent in the region, 19% are globally extinct, and 81% are regionally extinct. The changes in the biogeographic dynamics of bony fishes from the past to the present could be related to the intense climatic and oceanographic events that took place throughout the Neogene period. The rarefaction and extrapolation analyses confirm that although the studies on the group have increased in the last years, more taxa could still be found if the sampling effort is increased. Future studies could help us to better understand the effects of climatic and oceanographic changes on the group during the Neogene of Chile.

Pablo Oyanadel-Urbina. Laboratorio de Paleobiología, Centro de Estudios Avanzados en Zonas Áridas, Av. Ossandón 877, Coquimbo, Chile and Área de Investigación y Desarrollo, Therium servicios profesionales limitada, Paleontología y Patrimonio. pablo.oyanadel@ceaza.cl
Jaime A. Villafaña. Departamento de Ecología, Facultad de Ciencias, Universidad Católica de la Santísima Concepción, Concepción 4090541, Chile (corresponding author). jaime.villafana@ceaza.cl

Final citation: Oyanadel-Urbina, Pablo, Villafaña, Jaime A., Buldrini, Karina E., Ramos-Rojas, Héctor A., Hernández-Mora, Yusse, Chávez-Hoffmeister, Martín, Nielsen, Sven N., Campos-Medina, Jorge A., Rebolledo, Sandra, and Rivadeneira, Marcelo M. 2025. What do we know about Neogene bony fishes from Chile? Diversity and biogeographic implications. Palaeontologia Electronica, 28(2):a30.
https://doi.org/10.26879/1385
palaeo-electronica.org/content/2025/5497-neogene-bony-fishes-from-chile

Karina E. Buldrini. Área de Paleontología, Museo Nacional de Historia Natural, Santiago, Chile. karina.buldrini@mnhn.gob.cl
Héctor A. Ramos-Rojas. Laboratorio de Paleobiología, Centro de Estudios Avanzados en Zonas Áridas, Av. Ossandón 877, Coquimbo, Chile and Departamento de Biología Marina, Facultad de Ciencias del Mar, Universidad Católica del Norte, Coquimbo, Chile. hector.ramos.rojas@ceaza.cl
Yusse Hernández-Mora. Laboratorio de Paleobiología, Centro de Estudios Avanzados en Zonas Áridas, Av. Ossandón 877, Coquimbo, Chile and Departamento de Biología Marina, Facultad de Ciencias del Mar, Universidad Católica del Norte, Coquimbo, Chile. yusse.hernandez@ceaza.cl
Martín Chávez-Hoffmeister. Laboratorio de Paleontología, Instituto de Ciencias de la Tierra, Universidad Austral de Chile, Valdivia, Chile and Corporación de Investigación para el Desarrollo de la Paleontología e Historia Natural, CIAHN Atacama, Caldera, Chile. martinchavez@ciahn.cl
Sven N. Nielsen. Laboratorio de Paleontología, Instituto de Ciencias de la Tierra, Universidad Austral de Chile, Valdivia, Chile. sven.nielsen@uach.cl
Jorge A. Campos-Medina. Laboratorio de Paleobiología, Centro de Estudios Avanzados en Zonas Áridas, Av. Ossandón 877, Coquimbo, Chile and Área de Investigación y Desarrollo, Therium Servicios Profesionales Limitada, Paleontología y Patrimonio. jorge.camposmedina@gmail.com
Sandra Rebolledo. Departamento de Antropología, Facultad de Ciencias Sociales, Universidad Alberto Hurtado and Centro de Estudios Históricos y Arqueológicos Aiken, Santiago, Chile. sanrebolledoc@gmail.com
Marcelo M. Rivadeneira. Laboratorio de Paleobiología, Centro de Estudios Avanzados en Zonas Áridas, Av. Ossandón 877, Coquimbo, Chile and Departamento de Biología Marina, Facultad de Ciencias del Mar, Universidad Católica del Norte, Coquimbo, Chile. marcelo.rivadeneira@ceaza.cl

Keywords: Miocene; Pliocene; fossils; extinction; bony fish

Submission: 4 March 2024. Acceptance: 18 July 2025.

INTRODUCTION

Fishes are the oldest living vertebrates on the face of the Earth, with over 500 million years of existence on our planet and more than 32,000 living species (Nelson et al., 2016), accounting for 50% of all known vertebrates (Meléndez, 2008). Their diverse physiological and morphological adaptation strategies allow them to survive in a wide range of environments (Nelson et al., 2016; Froese and Pauly, 2024). Fishes also constitute an important alimentary resource for the planet (Boyd et al., 2022), while fisheries serve as a significant source of information for scientific purposes (Fischer et al., 1995; Seijo and Defeo, 1997).

In Chile, the study of marine living fishes has a long history dating back to the 16th century. Molina (1782) was among the first to compile a list of fishes in the Chilean territory, identifying just 11 taxa. Over time, numerous researchers, including Guichenot (1848), Gay (1854), Philippi (1887a), Reed (1897), and Quijada (1913), among others, contributed to expanding this list. By the mid-twentieth century, Chile's catalog of living fish species had grown significantly, reaching 348 species, according to Fowler (1945). This count encompassed various types of fish, including lampreys, hagfishes, and bony and cartilaginous fishes. Towards the end of the twentieth century, Pequeño (1989) reported a remarkable increase, with 1,016 species being mentioned as inhabiting Chilean waters. Hüne (2019) added several species in the most recent systematic update, thus identifying 1,307 marine species.

The current biogeographical distribution of bony fishes in Chile results from intricate geological, oceanographic, and climatic processes that unfolded in the past. Certain processes that occurred during the Neogene epoch had an impact on the region's marine life. Notable events during the Neogene include phases of uplift of the Andes (Victor et al., 2004; Blisniuk et al., 2005), the onset of hyperaridity in the Atacama Desert (Hartley and Chong, 2002), the activation of coastal warm upwelling in the East Pacific during the middle Pliocene (Dekens et al., 2007), and marine cooling through the Humboldt Current System (e.g., Nielsen and Glodny, 2009; Kiel et al., 2023). These events exerted a significant influence on the diversity of marine fauna, encompassing mollusks, marine mammals, birds, and cartilaginous fishes (Rivadeneira and Marquet, 2007; Kiel and Nielsen, 2010; Valenzuela-Toro et al., 2013; Villafaña and

Rivadeneira, 2014, 2018; Rivadeneira and Nielsen, 2017; Benites-Palomino et al., 2022; Vermeij et al., 2024). Despite these advancements in understanding other marine taxa, the specific impact of climatic and oceanographic events on the diversity and biogeographic distribution of bony fishes in Chile remains unexplored and requires further investigation.

Fossil bony fishes in Chile have received less attention than their living counterparts, although their study has a long history. The first descriptions of Chilean bony fish fossils are those of Philippi (1887b). Subsequently, numerous studies have expanded our understanding of the fossil record of bony fishes in Chile, spanning from the Paleozoic to the Quaternary (Arratia and Schultze, 1999; Arratia, 2015). However, the primary focus of research within this group has centered on the Mesozoic record of teleost fishes (Arratia et al., 1975; Gasparini, 1979; Bell, 1985; Arratia, 2015; Otero and Suárez, 2022). For the Cenozoic, there are very few reports from the Paleogene (Otero, 2019) but several from the Neogene, particularly from marine environments (Long, 1993; Walsh, 2001; Nolf, 2002; Suárez et al., 2003; Báez, 2006; Gutstein et al., 2008; Carrillo-Briceño, 2011; Pérez, 2017; Oyanadel-Urbina et al., 2018, 2021; Schwarzhans and Nielsen, 2021). In the Quaternary period, research has predominantly focused on remains from archaeological shell middens (e.g., Olguín et al., 2014; Béarez et al., 2016; Morello et al., 2015; Rebolledo et al., 2016, 2021a, b; Labarca et al., 2020; Torres et al., 2022).

While substantial progress has been made in understanding the diversity of both fossil and living fishes in Chile, no studies have hitherto attempted a detailed review and analysis of the group's historical diversity and biogeographic distribution. In this study, we aim to summarize and analyze the diversity of bony fishes in Chile from the Neogene to the present. We will also explore the potential relationships between changes in diversity over time and the profound climatic and oceanographic events in the region.

MATERIAL AND METHODS

Data. Our dataset of fossil and extant records of bony fishes from Chile was compiled through an exhaustive literature review (Figure 1; Appendices 1 and 2). This review encompassed a wide range of sources, including journal articles, theses, technical reports, and conference abstracts, ensuring a comprehensive examination of the available information. The information was also complemented with online repositories and museum collection records.

Regarding fossils, our dataset comprises 218 occurrences from different taxonomic levels, sourced from Neogene (23 to 2.6 Ma) localities across Chile. The material of bony fishes examined in this study includes dentaries, skulls, pharyngeal tooth plates, opercular bones, rostra, and otoliths. To ensure data quality and specificity, we excluded fossil records that lacked stratigraphic information and those identified only at higher taxonomic levels (e.g., Teleostei indet.).

Additionally, all taxonomic names were updated in accordance with the most recent studies. The same approach was applied to the assignment of ages for localities and geological formations, specifically for those whose classifications had been revised after the publication of the referenced studies. This refinement ensures the reliability and precision of our database.

For living forms, the data are largely based on the systematic list presented by Hüne (2019). Additionally, we utilized online data as supplementary material from Eschmeyer's Catalogue of Fishes (Fricke et al., 2024) and FishBase (Froese and Pauly, 2024). Relevant data from the ichthyological collection at the Museo Nacional de Historia Natural, Chile (MNHNCL-ICT) were also incorporated. We exclude extant records reported without specific local information (i.e., those assigned only to the country level). Our compiled list of extant fishes encompasses species inhabiting marine environments and those associated with the sea at some stage of their development, including species that have been introduced into Chilean marine waters.

Analyses. To reconstruct the biogeographic distribution of Neogene fishes at the genus level spanning from the past to the present, we calculated the Lyellian percentages at genus level (Stanley et al., 1980; Pease, 1987), (i.e., the proportion of Neogene genera still living in each region today). Only marine bony fishes were thus considered in the present analyses, excluding all stenohaline freshwater species. The current distribution of genera was obtained from FishBase (Froese and Pauly, 2024) and Hüne (2019). We applied two distinct spatial scales: regional and local. The regional scale examines genera that disappeared from Chile (due to regional extirpation). On the other hand, the local scale considers genera that either contracted or expanded their southern range within Chile from the Neogene to the present. We consider a range shift to have occurred when there is a difference of at least 4º of latitude (the minimum

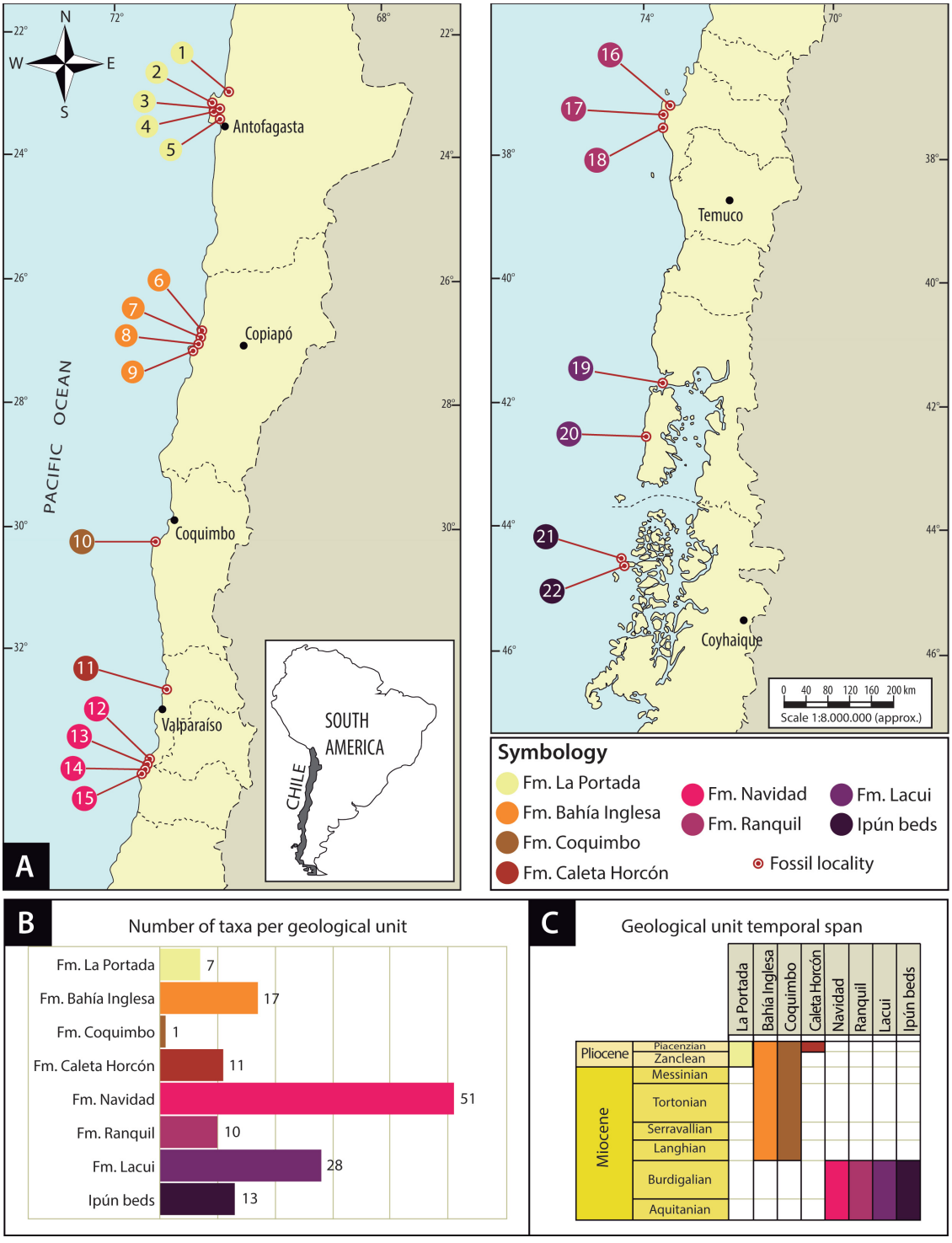

FIGURE 1. A, Fossil localities with Neogene fish record. 1) Pampa de Mejillones; 2) Caleta Herradura; 3) Cuenca del Tiburón 2; 4) Cuenca del Tiburón 1; 5) La Portada; 6) Norte Bahía Caldera; 7) Mina Fosforita; 8) Bahía Inglesa; 9) Los Dedos; 10) El Rincón; 11) Horcón-Maitencillo; 12) Río Rapel; 13) Punta Perro (PPS, PPN, PPP); 14) Punta Alta; 15) Matanzas; 16) Punta El Fraile; 17) Ranquil; 18) Lebu; 19) Punta Chocoi; 20) Cucao; 21) Isla Ipún (IPN14, IPN16; IPN18); 22) Isla Lemuy (Long, 1993; Nolf, 2002; Suárez et al., 2003; Carrillo-Briceño, 2011; Oyanadel-Urbina et al., 2018; Palacios, 2019; Oyanadel-Urbina et al., 2021; Schwarzhans and Nielsen, 2021; Pérez et al., 2021). B, number of taxa by geological formations with Neogene fish records. C, temporal distribution of geologic formations containing fish fossils in Chile.

shift observed between fossil localities included in this study) from the southernmost distribution endpoints in the Neogene period and the current distribution. This criterion helped us identify significant changes in the distribution of genera within Chile over time.

We used coverage-based estimations of the genus richness to evaluate and account for possible sampling biases (Chao and Jost, 2012), using the number of sites as a proxy of sampling effort. In addition, we used the Chao 2 extrapolation index as a measure of asymptotic diversity. Analyses were done using the library iNEXT in R (Hsieh et al., 2016).

RESULTS

The Neogene fish fauna of Chile, as documented to date, is composed of 88 different taxa. These fishes are categorized into 21 orders, 51 families, 67 genera, and 46 species (Table 1), with a total of 227 available records (Appendix 1). It is worth noting that 52% of the documented taxa have been identified down to the species level, while 35% have been classified at the genus level only. Notably, when considering the percentage of georeferenced occurrences, two species stand out as the most frequently encountered in the Chilean Neogene: *Diogenichthys aguilerai* (Myctophidae), accounting for 5% of records, and *Citharichthys parvisulcus* (Paralichthyidae), representing 4% of records. Furthermore, in terms of individual genera, *Diaphus* (Myctophidae) boasts the highest number of species at 9%, followed by *Lampanyctus* (Myctophidae) with 7%. When examining families, Myctophidae and Ophidiidae are the most frequently represented, making up 12% and 7% of the total genera, respectively. Finally, among the various orders, Perciformes and Gadiformes are the most prevalent, accounting for 16% and 13% of the total genera, respectively.

Fossil remains of fishes have been reported from 22 fossil localities, comprising eight geological units: La Portada, Bahía Inglesa, Coquimbo, Caleta Horcón, Navidad, Ranquil, and Lacui formations, and Ipún beds. These deposits are located between Antofagasta (23ºS) and Coyhaique (44ºS) (Figure 1). The Early Miocene stands out as the most well-documented time span in Chile, featuring 62 taxa, mostly identified by the study of otoliths. Following far behind is the Late Miocene, which accounts for 17 taxa, and the Pliocene, with 11 taxa (Table 1), for which only macroscopic skeletal remains are known. It is worth highlighting that the Middle Miocene has only one recorded taxon *(Thunnus).*

As the number of sites increases, the rarefaction curve rises, and there are no indications of reaching saturation with the 67 known genera (Figure 2). According to the Chao 2 index, the anticipated richness of genera is estimated to be 98, with a 95% confidence interval ranging from 78 to 142 genera. Consequently, the actual number of observed genera falls within a range of 47% to 88% of the expected richness (Figure 2).

The biogeographic distribution, from the past to the present, exhibits variations across different taxonomic levels. Only 3% of the fish genera that comprise the extant Chilean fauna have been identified in the local fossil record, while 20% of the families and 39% of the orders are also represented in the local record. Among the fossil taxa from Neogene localities that were identified at the species level, only one species still lives along the Chilean coast: *Sardinops sagax* (Table 1). The remaining species have globally gone extinct. In contrast, 60% of the genera have persisted in the region (Figure 3A and Table 2). Among the genera that have disappeared from the region, 19% did so as the likely result of global extinctions (e.g., *Karrerichthys, Labrodon, Sirembola),* while 81% have been extirpated from the region but have survived elsewhere in the world (e.g., *Chiloconger, Margrethia, Steindachneria)* (Figure 3B and Table 2). Turning our attention to the surviving genera that are still present in Chile (Figure 3C and Table 2), 5% have retained their latitudinal distribution range, including *Makaira* (Istiophoridae) and *Ophidion* (Ophidiidae). Meanwhile, 36% have experienced a contraction in their range (Figure 4), including *Diogenichthys* (Myctophidae), *Hypoplectrodes* (Serranidae), and *Vinciguerria* (Phosichthyidae); whereas the remaining 59% of surviving genera have expanded their southern latitudinal range (Figure 4), with notable examples including *Anisotremus* (Haemulidae), *Hippoglossina* (Paralichthyidae), and *Thunnus* (Scombridae).

DISCUSSION

Taxonomic Composition

The findings of this study reveal that the taxonomic composition of the fish assemblages in Chile has remained relatively stable since the Early Miocene. Percomorphs were the most diverse group during the Neogene of Chile, accounting for 16% (11 out of 67) of the known genera. This pattern continues today, with perciforms comprising an

TABLE 1. Temporal distribution of Neogene bony fishes from Chile. E-Miocene: Early Miocene, M-Miocene: Middle Miocene, L-Miocene: Late Miocene. Extinct taxa are represented by a †; 1: Schwarzhans and Nielsen, 2021; 2: Oyanadel-Urbina et al., 2021; 3: Carrillo-Briceño, 2011; 4: Long, 1993; 5: Nolf, 2002; 6: Palacios, 2019; 7: Perez, 2017; 8: Suárez et al., 2003. More detailed information on the spatial and temporal distribution of each taxon is available in Appendix 1.

Fossil taxa	E-Miocene	M-Miocene	L-Miocene	Pliocene	Reference
Achirus australis†	X				1
Achirus chungkuz†	X				1
Agonopsis cume†	X				1
Anisotremus sp.			X		2
Argentina sp.	X				1
Bathygadus sp.	X				1
Bregmaceros prosoponus†	X				1
Capromimus undulatus†	X				1
Carapus sp.	X				1
Centrolophidae indet.	X				1
Ceratoscopelus sp.	X				1
cf. *Aplodactylus* sp.				X	3
cf. *Bovichtus* sp.				X	3
cf. *Centropomus* sp.			X		6
cf. *Cheilodactylus* sp.				X	3
cf. *Cilus* sp.				X	3
cf. *Eleginops* sp.				X	3
cf. *Girella* sp.				X	3
cf. *Hippoglossina* sp.				X	3
cf. *Paralichthys* sp.				X	3
Chiloconger chilensis†	X				1
Citharichthys parvisulcus†	X				1
Citharichthys vergens†	X				1
Citharichtys sp.	X				1
Coelorinchus fidelis†	X				1
Coelorinchus rapelanus†	X				1
Cottunculus primaevus†	X				1
Dactylagnus sp.	X				1
Diaphus audax†	X				1
Diaphus curvatus†	X				1
Diaphus excisus†	X				1
Diaphus marwicki†	X				1
Diogenichthys aguilerai†	X				1
Electrona subasperoides†	X				1
Genypterus sp.			X	X	2, 3, 6
Gnathophis quinzioi†	X				1
Gobiosoma sp.	X				1
Gymnosarda sp.			X		2
Hoplostethus sp.	X				1
Hygophum circularis†	X				1
Hypoplectrodes sp.	X				7

TABLE 1 (continued).

Fossil taxa	E-Miocene	M-Miocene	L-Miocene	Pliocene	Reference
Istiophoridae indet.			X		2
Karrerichthys latisulcatus†	X				1
Karrerichthys tenuis†	X				1
Kuhlia orientalis†	X				1
Labridae indet.			X	X	2, 6, 8
Labrodon sp.†			X		2
Lampanyctodes scopelopsoides†	X				1
Lampanyctus ipunensis†	X				1
Lampanyctus popoto†	X				1
Lampanyctus profestus†	X				1
Lepidorhynchus frosti†	X				1
Lepophidium chonorum†	X				1
Lepophidium mapucheorum†	X				1
Makaira sp.			X		2
Margrethia glareosa†	X				1
Maurolicus brevirostris†	X				1
Merluccius sp.			X		3, 6
Navidadichthys mirus†	X				1
Nezumia epuge†	X				1
Ophidion sp.	X				1
Opisthopterus sp.	X				1
Paracarapus chilensis†	X				1
Physiculus pichi†	X				1
Platycephalidae indet.	X				1
Polyipnus bandeli†	X				1
Protomyctophum ahunga†	X				1
Pseudonus humilis†	X				1
Pterothrissus transpacificus†	X				1
Pythonichthys panulus†	X				1
Rachycentridae indet.			X		6
Rhynchoconger chiloensis†	X				1
Sarda sp.			X		2
Sardinops sagax			X		2, 6
Saurida sp.	X				1
Sciaenidae indet.			X		2
Scombriformes indet.			X		2
Scorpaenidae indet.	X				1
Semicossyphus sp.			X		2
Sirembola supersa†	X				1
Sparidae indet.			X		6
Spectrunculus sparsus†	X				1
Steindachneria goederti†	X				1
Steindachneria svennielseni†	X				5

TABLE 1 (continued).

Fossil taxa	E-Miocene	M-Miocene	L-Miocene	Pliocene	Reference
Thunnus sp.		X	X		4
Trichiuridae indet.	X				1
Vinciguerria sp.	X				1
Xiphiidae indet.				X	3
Total	62	1	17	11	

even larger fraction of the genera inhabiting Chile (40%, 248 out of 624). This is consistent with the fact that the order Perciformes is currently the most diverse group of vertebrates worldwide (Fricke et al., 2024). When examining fish families in Chilean waters, lanternfishes (Myctophidae) exhibit the highest number of genera both in the past (12%, 8 out of 67) and in modern times (4%, 28 out of 624). *Diaphus* emerges as the most diverse and abundant genus, both in the Neogene and today (Appendices 1 and 2). Lanternfishes belonging to the genus *Diaphus* are represented today by 78 valid species that are globally distributed (Froese and Pauly, 2024).

From an ecological perspective, the fossil record of marine fishes from Chile reflects diverse habitats, including coastal, rocky reef, and oceanic environments, and features species that migrate across vast oceanic distances, such as oceanodromous fishes (Nelson et al., 2016). A high number of taxa represented in the fossil record corresponds to forms that are currently linked to deep habitats, like the lanternfishes and sand flounders (Pleuronectiformes: Paralichthyidae) (Froese and Pauly, 2024). However, in the Navidad, Ranquil, Lacui, and other nearby geological formations, soft-bottom fishes and aquatic animals with anadromous/diadromous behaviors have been discovered. In the case of the other geological units, such as the Bahía Inglesa, Coquimbo and La Portada formations, shoal, and pelagic fishes are abundant. In addition, amphidromous fishes associated with rocky reefs can also be found in these units, although in smaller quantities. For instance, in the Horcón Formation, pelagic and oceanodromous fishes are observed, but fishes associated with coastal rocky reefs are more abundant.

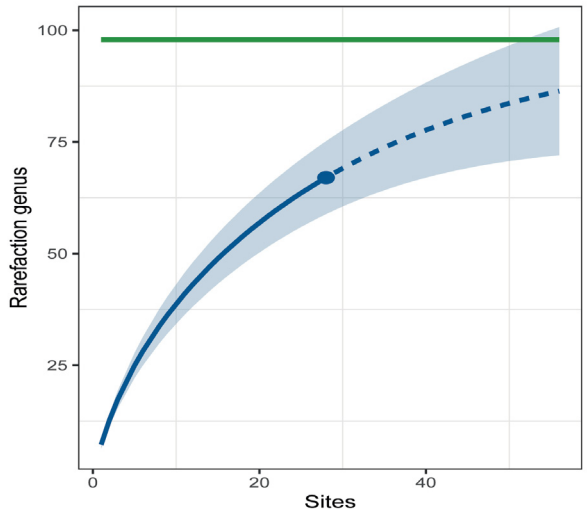

FIGURE 2. Presence-absence rarefaction curve versus sampled sites. In blue, the rarefaction curve of recorded bony fish genera for the Neogene of Chile with a 95% confidence interval (blue shading). In green, the Chao 2 index (based on presence-absence) for species extrapolation.

Compared to other Neogene localities, the faunal composition of bony fishes from Chile is different from those reported from other regions. In Perú, only seven genera of bony fishes have been reported (De Muizon and DeVries, 1985; Collareta et al., 2015; Landini et al., 2017; Bianucci et al., 2018; Di Celma et al., 2018), which do not belong to the most diverse taxonomic groups in Chile at order and family levels (i.e., perciforms and myctophids). As regards to the fossil record of other regions of the southern Pacific, while Percomorpha is the most diverse order in Chile, the order Gadiformes is the most diverse group of fishes in the Neogene of New Zealand (Schwarzhans, 1980; 2019). Although there exists this difference at the order level, Myctophidae is also the most diverse family in New Zealand as in Chile, this result being dominated by the diverse and abundant early Miocene otolith record of Schwarzhans and Nielsen (2021). This is consistent with the high similarity of faunas between Chile and New Zealand today (Froese and Pauly, 2024). The comparison between the Chilean fauna and other regions in South America is difficult due to the lack of identifications at lower taxonomic levels. For instance, most of the taxa described from nearby regions, such as Peru and Ecuador, are identified at higher

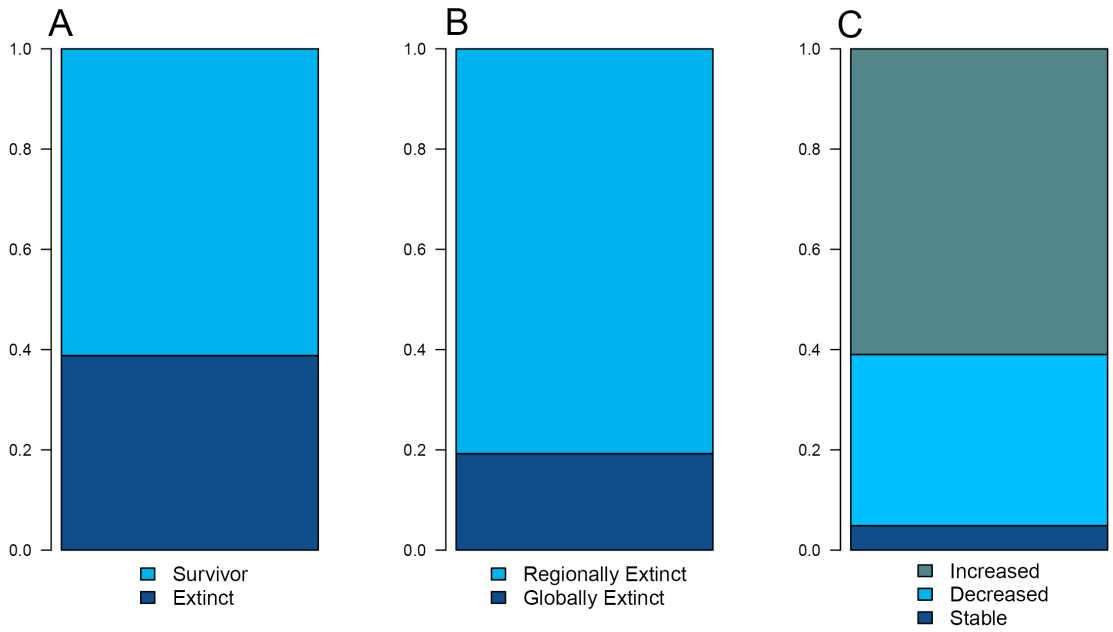

FIGURE 3. Biogeographyic dynamics of bony fishes of Chile from the Neogene to the recent. A) Frequency of extinct and survived genera, B) frequency of globally and regionally extinct genera, C) frequency of generathat maintain, increase, or decrease their latitudinal distribution ranges.

taxonomic levels, such as order and family (De Muizon and DeVries, 1985; Carnevale et al., 2011; Collareta et al., 2015) or focus on a particular family (e.g., myctophids; Schwarzhans and Aguilera, 2013). Therefore, interpretations of the differences in terms of faunal composition between the different regions would be pertinent to analyze once more specific data have been described. An increase in the sampling effort could also contribute to the understanding of similarities and differences on the taxonomic composition of bony fishes during the Neogene.

Biogeographic Changes from the Past to the Present

Only seven percent of the bony fish genera from Chile are now globally extinct, a proportion even lower than that observed for chondrichthyans from the eastern Pacific of South America (10%, Villafaña and Rivadeneira, 2018) and tropical America (13%; Carrillo-Briceño et al., 2018). In the case of the surviving genera, the proportion of regional extinction (33%) was similar to that reported for chondrichthyans from the same region (34%; Villafaña and Rivadeneira, 2018). At a local scale, the proportion of genera increasing their southern latitudinal range was higher (61%) than that reported for chondrichthyans (54%; Villafaña and Rivadeneira, 2018). In contrast, the proportion of genera with decreased range was lower (34%), compared to the 46% previously reported for cartilaginous fishes in the region (Villafaña and Rivadeneira, 2018). However, two genera of bony fishes retained their southern latitudinal range from the Neogene to the present in Chile. Overall, the biogeographic distribution did not differ significantly between bony fishes and chondrichthyans from the Neogene of the eastern Pacific.

The biogeographic dynamics of Neogene bony fishes from Chile could be related to the intense climatic and oceanographic changes that occurred in the eastern Pacific off South America (Ibaraki, 1997; Tsuchi, 2002; Dekens et al., 2007). This is consistent with what has been observed in chondrichthyans (Villafaña and Rivadeneira, 2018). For instance, the bigmouth sanddab *(Citharichthys gilberti)* and the small sanddab *(Citharichthys platophrys)* are typically found at shallow depths of tropical areas from California to northern Peru (Froese and Pauly, 2024). The presence of typical tropical species during the Neogene was also mentioned by previous studies based on the fossil record of invertebrates and vertebrates, including fishes such as chondrichthyans (Nielsen and Glodny, 2009; Villafaña and Rivadeneira, 2018; Partarrieu et al., 2018; Guicharrousse-Vargas et al., 2021). According to Villafaña and Rivadeneira (2018), the absence of tropical species at the end of the Neogene could be related to the decrease in water temperature during that time.

TABLE 2. Biogeographic dynamic of fishes from Chile. Extant distribution of the species in Chile based on Pequeño (1989)[1], Siefelg et al. (2003)[2], Reyes and Hüne (2012)[3], Hüne (2019, online supplement)[4], Ojeda (2000)[5]. Regional: genera that disappeared or persisted from the Neogene to the recent; Local: genera that increased, decreased or maintained their southern end point of distribution in Chile. Numbers, degree of latitude.

Genera	Fossil	Present	Extant species in Chile	Regional	Local
Achirus	-43	-27	*A. klunzingeri*[1, 2]	Persisted	Decreased
Agonopsis	-43	-56	*A. chiloensis*[3, 4, 5]	Persisted	Increased
Anisotremus	-27	-32	*A. scapularis*[4, 5]	Persisted	Increased
Aplodactylus	-33	-41	*A. punctatus*[3, 4]	Persisted	Increased
Argentina	-43	-	Absent	Disappeared	Regionally extinct
Bathygadus	-45	-	Absent	Disappeared	Regionally extinct
Bovichtus	-33	-56	*B. chilensis*[3, 4]	Persisted	Increased
Bregmaceros	-43	-	Absent	Disappeared	Regionally extinct
Capromimus	-34	-	Absent	Disappeared	Regionally extinct
Caranx	-23	-27	*C. lugubris*, *C. sexfasciatus*, *C. caballus*, *C. caninus* [4]	Persisted	Increased
Carapus	-43	-	Absent	Disappeared	Regionally extinct
Centropomus	-27	-	Absent	Disappeared	Regionally extinct
Ceratoscopelus	-43	-34	*C. townsendi*, *C. warmingii*[4]	Persisted	Decreased
Cheilodactylus	-33	-41	*C. variegatus*[3, 4]	Persisted	Increased
Chiloconger	-34	-	Absent	Disappeared	Regionally extinct
Cilus	-33	-56	*C. gilberti*[3, 4, 5]	Persisted	Increased
Citharichtys	-45	-	Absent	Disappeared	Regionally extinct
Coelorinchus	-43	-56	*C. aconcagua, C. chilensis, C. cookianus, C. fasciatus, C. immaculatus, C. multifasciatus, C. nazcaensis, C. spinolotus*[3, 4]	Persisted	Increased
Cottunculus	-43	-56	*C. granulosus*[3, 4]	Persisted	Increased
Dactylagnus	-43	-	Absent	Disappeared	Regionally extinct
Diaphus	-45	-30	*D. adenomus, D. aliciae, D. anderseni, D. antonbruuni, D. brachydephalus, D. confusus, D. effulgens, D. fragilis, D. fulgens, D. garmani, D. hudsoni, D. jenseni, D. knappi, D. luetkeni, D. meadi, D. ostenfeldi, D. parini, D. parri, D. problematicus, D. richardsoni`, D. splendidus, D. suborbitalis, D. theta*[4]	Persisted	Decreased
Diogenichthys	-45	-33	*D. laternatus, D. atlanticus*[4]	Persisted	Decreased
Electrona	-34	-56	*E. antarctica, E. paucirastra, E. subaspera, E. risso, E. carlsbergi*[3, 4]	Persisted	Increased
Eleginops	-33	-56	*E. maclovinus*[3, 4, 5]	Persisted	Increased
Genypterus	-33	-56	*G. blacodes, G. chilensis, G. maculatus*[3, 4, 5]	Persisted	Increased
Girella	-33	-40	*G. albostriata, G. feliciana, G. laevifrons, G. nebulosa*[4, 5]	Persisted	Increased

TABLE 2 (continued).

Genera	Fossil	Present	Extant species in Chile	Regional	Local
Gnathophis	-34	-33	*G. andriashevi, G. cinctus, G. parini, G. smithi*[4]	Persisted	Decreased
Gobiosoma	-34	-	Absent	Disappeared	Regionally extinct
Gymnosarda	-27	-	Absent	Disappeared	Regionally extinct
Hippoglossina	-33	-56	*H. macrops, H. montemaris, H. mistacium*[3, 4, 5]	Persisted	Increased
Hoplostethus	-38	-41	*H. atlanticus, H. fragilis, H. mento*[3, 4]	Persisted	Increased
Hygophum	-37	-33	*H. bruuni, H. hanseni, H. hygomii, H. proximum, H. reinhardtii*[4]	Persisted	Decreased
Hypoplectrodes	-38	-33	*H. semicinctum*[4]	Persisted	Decreased
Karrerichthys	-45	-	Absent	Disappeared	Globally extinct
Kuhlia	-43	-27	*K. nutabunda*[4]	Persisted	Decreased
Labrodon	-27	-	Absent	Disappeared	Globally extinct
Lampanyctodes	-45	-45	*L. hectoris*[3, 4]	Persisted	Equally
Lampanyctus	-45	-33	*L. australis, L. festivus, L.intricarius, L. iselinoides, L. macdonaldi, L. omostigma, L. parvicauda, L. pusillus, L. steinbecki, L. turneri*[4]	Persisted	Decreased
Lepidorhynchus	-34	-	Absent	Disappeared	Regionally extinct
Lepophidium	-43	-	Absent	Disappeared	Regionally extinct
Makaira	-27	-27	*M. nigricans*[4]	Persisted	Equally
Margrethia	-34	-	Absent	Disappeared	Regionally extinct
Maurolicus	-34	-55	*M. muelleri, M. parvipinnis, M. rudjakovi*[4, 5]	Persisted	Increased
Merluccius	-33	-56	*M. australis, M. gayi, M. hubbsi*[4, 5]	Persisted	Increased
Navidadichthys	-34	-	Absent	Disappeared	Globally extinct
Nezumia	-34	-38	*N. convergens, N. loricata, N. parini, N. propinqua, N. pudens, N. pulchella, N. stelgidolepis*[4]	Persisted	Increased
Ophidion	-34	-34	*O. exul, O. metoecus*[4]	Persisted	Decreased
Opisthopterus	-34	-	Absent	Disappeared	Regionally extinct
Paracarapus	-34	-	Absent	Disappeared	Globally extinct
Paralichthys	-33	-56	*P. adspersus, P. delfini, P. fernandezius, P. microps, P. patagonicus*[4, 5]	Persisted	Increased
Physiculus	-34	-26	*P. hexacytus, P. longicavis, P. luminosa, P. parini, P. sazonovi*[4]	Persisted	Decreased
Polyipnus	-34	-26	*P. inermis*[4]	Persisted	Decreased
Protomyctophum	-43	-56	*P. andriashevi, P. bolini, P. chilense, P. crockeri, P. mcginnisi, P. parallelum, P. subparallelum, P. tenisoni*[4]	Persisted	Increased
Pseudonus	-45	-	Absent	Disappeared	Regionally extinct

TABLE 2 (continued).

Genera	Fossil	Present	Extant species in Chile	Regional	Local
Pterothrissus	-34	-	Absent	Disappeared	Regionally extinct
Pythonichthys	-43	-	Absent	Disappeared	Regionally extinct
Rhynchoconger	-43	-	Absent	Disappeared	Regionally extinct
Sarda	-27	-40	*S. chilensis*[4, 5]	Persisted	Increased
Sardinops	-27	-40	*S. sagax*[4, 5]	Persisted	Increased
Saurida	-34	-	Absent	Disappeared	Regionally extinct
Semicossyphus	-27	-40	*S. darwini*[4, 5]	Persisted	Increased
Sirembola	-43	-	Absent	Disappeared	Globally extinct
Spectrunculus	-34	-24	*S. grandis*[4]	Persisted	Decreased
Steindachneria	-43	-	Absent	Disappeared	Regionally extinct
Trachurus	-23	-38	*T. murphyi*[4, 5]	Persisted	Increased
Thunnus	-30	-53	*T. alalunga, T. albacares, T. maccoyii, T. obesus, T. thynnus*[3, 4, 5]	Persisted	Increased
Vinciguerria	-42	-34	*V. attenuata, V. lucetia, V. nimbaria, V. poweriae*[4]	Persisted	Decreased

In addition, the loss of habitat caused by the sea level changes (Lambeck and Chappell, 2001; Van der Meer et al., 2017) is also suggested as one of the factors related to biogeographic changes in fishes from South America and Europe (Cione et al., 2007; Pimiento et al., 2017; Villafaña and Rivadeneira, 2019a; Villafaña et al., 2023).

Sampling and Taphonomic Biases

Our results show that the inventory of fossil taxa from the Neogene of Chile is far from being complete. This is reflected by the moderate completeness estimated at the genus level (68%) through the Chao 2 analysis. Also, the percentage of living families with a fossil counterpart (20%) is much lower than the ca. 60-65% estimated globally for Osteichthyes (Foote and Sepkoski 1999). At the same time, taxonomic identification at lower taxonomic levels (i.e., genera and species) is constrained by the lack of available osteological reference collections for living species or by the suboptimal or incomplete preservation of the fossils. This results in that many fossil records are only assigned at the family or genus level (Walsh, 2001; Carrillo-Briceño, 2011; Oyanadel-Urbina et al., 2021). Some remains, such as otoliths, facilitate taxonomic identification due to their diagnostic features enabling greater resolution of the available fish assemblage richness to date (Schwarzhans and Nielsen, 2021), these being the main source of species-level taxonomic identifications. Also, if preserved, otoliths are much more abundant than identifiable parts of the bony skeleton and the two record-types are thus difficult to compare. It is also important to consider the potential taphonomic biases associated with otolith preservation, which could impact the representation of recorded taxa and the composition of the analyzed assemblages (Nolf, 2013; Schwarzhans, 2019). In addition, it is necessary to mention that the results could be influenced by the high number of taxa reported for the Navidad Formation and its equivalents (Early Miocene) compared to the rest of the Neogene. Future paleontological efforts focusing on other Neogene formations in Chile (e.g., Bahía Inglesa and Horcón formations) with records of bony fishes will help to reaffirm the interpretations presented in this work. Therefore, our study indicates that, despite the recent growth of analyses focused on Neogene bony fishes from Chile (Oyanadel-Urbina et al., 2021), the number of taxa should substantially rise with further sampling efforts. Also, additional records from underrepresented stratigraphic intervals (e.g., Middle Miocene) should constrain the timing of faunal change.

Perspective

Understanding taxonomic richness along the current Chilean coast is an endeavor that involves considering variations in the diversity and abun-

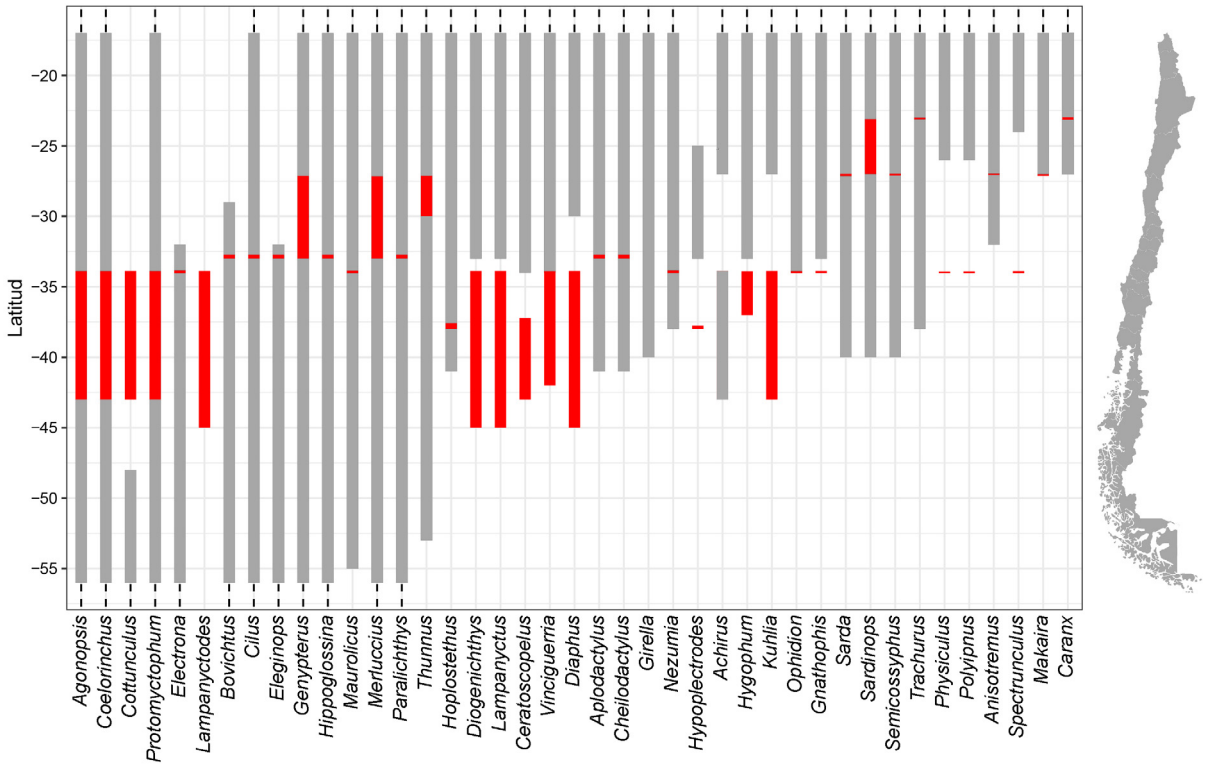

FIGURE 4. Latitudinal distribution ranges of fish genera in Chile, gray bars represent their current distribution, and red bars represent their fossil distribution.

dance of bony fishes. This need for a more comprehensive biogeographic framework implies incorporating analyses of under-investigated areas (i.e., the far north and south of Chile) and time spans, including paleontological and archaeological evidence. Once future studies contribute to an increase in fossil fish records for different types of fossils throughout Chile, detailed analyses could be developed that consider potential taphonomic and taxonomic biases in relation to the abundance of certain types of fossils (i.e., otoliths) over others (articulated skeletons). All of these additional analyses and broader spatial-temporal perspectives would greatly contribute to a better understanding of the biogeographic changes of fishes in Chile from the Neogene to the present.

The significant decrease in the abundance of certain coastal species, which has been made evident in recent decades due to human impact, highlights the necessity of comprehending the spatial distribution dynamics of fishes throughout their history, considering local and regional extinction events. Considering the current scenario of anthropogenic global climate change, reflecting upon these dynamics becomes crucial for implementing conservation plans and establishing protected areas.

ACKNOWLEDGEMENTS

This project was partially funded by the Fondo Nacional de Desarrollo Científico y Tecnológico (ANID/FONDECYT #3230610 and #1251475) and ANID/CENTROS REGIONALES (CLAP R20F0008). We thank the reviewers A. Collareta and W. Schwarzhans, as well as the editors J. Samuels and O. Kovalchuk, for their comments and suggestions, which greatly contributed to improving the manuscript.

REFERENCES

Arratia, G. 2015. Los peces osteíctios fósiles de Chile y su importancia en los contextos paleobiogeográfico y evolutivo. Publicación Ocasional del Museo Nacional de Historia Natural, Chile, 63:35--83.

Arratia, G., Chang, A. and Chong, G. 1975. *Leptolepis opercularis* n. sp. of the Upper Jurassic from Chile. Ameghiniana 12:350--358.

Arratia, G. and Schultze, H.P. 1999 Mesozoic fishes from Chile, pp. 565–593. In Arratia, G. and Schultze, H.P. (eds.), Mesozoic Fishes 2—Systematics and Fossil Record. Verlag Dr. F. Pfeil, München.

Báez, D.A.B. 2006. Estudio paleoambiental de la formación Pisco: localidad Ocucaje. Revista del Instituto de Investigación de la Facultad de Ingeniería Geológica, Minera, Metalúrgica y Geográfica, 9(18):64--69.

Béarez, P., Jackson, D., and Mollaret, N. 2015. Early Archaic fishing (12,600-9,200 cal yr BP) in the Semiarid North Coast of Chile. Journal of Island and Coastal Archaeology 10:133--148. https://doi.org/10.1080/15564894.2014.940096

Béarez, P., Fuentes-Mucherl, F., Rebolledo, S., Salazar, D., and Olguín, L., 2016. Billfish foraging along the northern coast of Chile during the Middle Holocene (7400-5900 cal BP). Journal of Anthropological Archaeology, 41:85--195. https://doi.org/10.1016/j.jaa.2016.01.002

Bell, M.C. 1985. The Chinches Formation: an Early Carboniferous lacustrine succession in the Andes northern Chile. Revista Geológica de Chile, 24:29--48.

Benites-Palomino, A., Valenzuela-Toro, A.M., Figueroa-Bravo, C., Varas-Malca, R.M., Nielsen, S.N., Gutstein, C.S., and Carrillo-Briceño, J.D. 2022. A new marine mammal assemblage from central Chile reveals the Pliocene survival of true seals in South America. Historical Biology, 34(11):2205--2217. https://doi.org/10.1080/08912963.2021.2007528

Bianucci, G., Collareta, A., Bosio, G., Landini, W., Gariboldi, K., Gioncada, A., Lambert, O., Malinverno, E., De Muizon, C., Varas-Malca, R., Villa, I.M., Coletti, G., Urbina, M., and Di Celma, C. 2018. Taphonomy and palaeoecology of the lower Miocene marine vertebrate assemblage of Ullujaya (Chilcatay Formation, East Pisco Basin, southern Peru). Palaeogeography, Palaeoclimatology, Palaeoecology, 511:256--279. https://doi.org/10.1016/j.palaeo.2018.08.013

Blisniuk, P.M., Stern, L.A., Chamberlain, C.P., Idleman, B., and Zeitler, P.K. 2005. Climatic and ecologic changes during Miocene surface uplift in the Southern Patagonian Andes. Earth and Planetary Science Letters, 230(1-2):125--142. https://doi.org/10.1016/j.epsl.2004.11.015

Boyd, C.E., McNevin, A.A., and Davis, R.P. 2022. The contribution of fisheries and aquaculture to the global protein supply. Food security, 14(3):805--827. https://doi.org/10.1007/s12571-021-01246-9

Carrillo-Briceño, J.D. 2011. Significado paleoambiental y paleoecológico de la fauna marina del Plioceno de la Fm. Horcón, Región de Valparaíso, Chile central. Unpublished thesis, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile.

Carrillo-Briceño, J.D., Carrillo, J.D., Aguilera, O.A., and Sanchez-Villagra, M.R. 2018. Shark and ray diversity in the Tropical America (Neotropics)—an examination of environmental and historical factors affecting diversity. PeerJ, 6:e5313. https://doi.org/10.7717/peerj.5313

Chao, A. and Jost, L., 2012. Coverage based rarefaction and extrapolation: standardizing samples by completeness rather than size. Ecology, 93(12):2533--2547. https://doi.org/10.1890/11-1952.1

Cione, A.L., Mennucci, J.A., Santalucita, F., and Hospitaleche, C.A. 2007. Local extinction of shark of genus *Carcharias* Rafinesque, 1810 (Elasmobranchii, Odontaspididae) in the eastern Pacific Ocean. Andean Geology, 1:139--145. https://doi.org/10.4067/s0716-02082007000100007

Collareta, A., Landini, W., Lambert, O., Post, K., Tinelli, C., Di Celma, C., Panetta, D., Tripodi, M., Salvadori, P.A., Caramella, D., Marchi, D., and Bianucci, G. 2015. Piscivory in a Miocene Cetotheriidae of Peru: first record of fossilized stomach content for an extinct baleen-bearing

whale. The Science of Nature, 102:1--12. https://doi.org/10.1007/s00114-015-1319-y
De Muizon, C. and DeVries, T.J. 1985. Geology and paleontology of late Cenozoic marine deposits in the Sacaco area (Peru). Geologische Rundschau, 74(3):547--563. https://doi.org/10.1007/bf01821211
Dekens, P.S., Ravelo, A.C., and McCarthy, M.D. 2007. Warm upwelling regions in the Pliocene warm period. Paleoceanography, 22:1--12. https://doi.org/10.1029/2006pa001394
Di Celma, C., Malinverno, E., Collareta, A., Bosio, G., Gariboldi, K., Lambert, O., Landini, W., Pierantoni, P.P., Gioncada, A., Villa, I.M., Coletti, G., Muizon de, C., Urbina, M., and Bianucci, G. 2018. Facies analysis, stratigraphy and marine vertebrate assemblage of the lower Miocene Chilcatay Formation at Ullujaya (Pisco basin, Peru). Journal of Maps, 14(2), 257--268. https://doi.org/10.1080/17445647.2018.1456490
Fischer, W., Krupp, F., Schneider, W., Sommer, C., and Carpenter, K.E. 1995. Guia FAO para la identificación de especies para los fines de la pesca: Pacifico centro-oriental. FAO.
Foote, M. and Sepkoski Jr., J.J. 1999. Absolute measures of the completeness of the fossil record. Nature, 398(6726):415--417. https://doi.org/10.1038/18872
Fowler, H.W. 1945. Fishes of Chile. Systematic catalog. Apartado de la Revista Chilena de Historia Natural, Part I and II, 1--171.
Fricke, R., Eschmeyer, W.N., and Fong, J.D. 2024. Eschmeuer's Catalogo of fishes: Genera/species by family/subfamily. http://researcharchive.calacademy.org/research/ichthyology/catalog/SpeciesByFamily.asp). Electronic version accessed 15 December 2024.
Froese R. and Pauly, D. 2024 FishBase. World Wide Web electronic publication, version (12/2024). https://www.fishbase.org.
Gasparini, Z.D. 1979. Comentarios críticos sobre los vertebrados mesozoicos de Chile. Conference Proceedings of the II Congreso Geológico Chileno, Arica, Chile. pp. 15--32.
Gay, C. 1854. Historia física y política de Chile. Zoología. Centro de Investigaciones Diego Barros Arana, Santiago, Chile.
Guicharrousse-Vargas, M., Villafaña, J.A., Carrillo-Briceño, J.D., Oyanadel-Urbina, P., Figueroa, R., Pérez-Marín, J.R., Rivadeneira, M.M., and Kriwet, J. 2021. The First Fossil Record of the Sawshark Pliotrema (Pristiophoridae) from the Neogene of the Southeastern Pacific (Chile). Ameghiniana, 58(2):122--131. https://doi.org/10.5710/amgh.01.03.2021.3389
Guichenot, A. 1848. Historia física y política de Chile (in Gay, C.). Zoología, 2:328--30.
Gutstein, C.S., Yury-Yañez, R.E., Soto-Acuña, S., Suárez, M.E., and Rubilar-Rogers, D. 2008. Fauna de vertebrados y aspectos tafonómicos del 'bonebed' (Mioceno Tardío) de la Formación Bahía Inglesa. Conference Proceedings of the I Simposio de Paleontología en Chile, Santiago, Chile, pp. 102--108.
Hartley, A.J. and Chong, G. 2002. Late Pliocene age for the Atacama Desert: Implications for the desertification of western South America. Geology, 30(1):43--46. https://doi.org/10.1130/0091-7613(2002)030<0043:lpafta>2.0.co;2
Hsieh, T., Ma, K., and Chao, A. 2016. iNEXT: an R package for rarefaction and extrapolation of species diversity (Hill numbers). Methods in Ecology and Evolution, 7(12):1451--1456. https://doi.org/10.1111/2041-210x.12613
Hüne, M. 2019. Lista sistemática actualizada de los peces de Chile. Version 1.4. Fundación Ictiológica. Checklist dataset. https://doi.org/10.15468/er28jy accessed via GBIF.org on 2024-08-19.
Ibaraki, M. 1997. Closing of the central American seaway and Neogene Coastal upwelling along the Pacific coast of America. Tectonophysics, 281:99--104. https://doi.org/10.1016/S0040-1951(97)00161-3
Kiel, S. and S.N. Nielsen. 2010. Quaternary origin of the inverse latitudinal diversity gradient among southern Chilean mollusks. Geology, 38:955--958. https://doi.org/10.1130/g31282.1
Kiel, S., Jakubowicz, M., Altamirano, A., Belka, Z., Dopieralska, J., Urbina, M., and Salas-Gismondi, R. 2023. The late Cenozoic evolution of the Humboldt Current System in coastal

Peru: Insights from neodymium isotopes. Gondwana Research, 116:104--112. https://doi.org/10.1016/j.gr.2022.12.008

Labarca, R., González-Guarda, E., Lizama-Catalán, Á., Villavicencio, N.A., Alarcón-Muñoz, J., Suazo-Lara, F., Oyanadel-Urbina P.A., Soto-Huenchuman, P., Salazar., C., Soto-Acuña, S., and Buldrini, K.E. 2020. Taguatagua 1: New insights into the late Pleistocene fauna, paleoenvironment, and human subsistence in a unique lacustrine context in central Chile. Quaternary Science Reviews, 238:106282. https://doi.org/10.1016/j.quascirev.2020.106282

Lambeck, K. and Chappell, J. 2001. Sea level change through the last glacial cycle. Science, 292(5517):679--686. https://doi.org/10.1126/science.1059549

Landini, W., Altamirano-Sierra, A., Collareta, A., Di Celma, C., Urbina, M., and Bianucci, G. (2017). The late Miocene elasmobranch assemblage from Cerro Colorado (Pisco Formation, Peru). Journal of South American Earth Sciences, 73:168--190. https://doi.org/10.1016/j.jsames.2016.12.010

Long, J.D. 1993. Late Miocene and early Pliocene fish assemblages from the north central coast of Chile. Tertiary Research, 14:117--126.

Meléndez, R. 2008. Peces Marinos, p. 292--297. In Mena, M. and Figueroa-Fernández, A. (eds.), Biodiversidad de Chile Patrimonio y Desafíos. Ocho Libros Editores, Santiago, Chile.

Molina, J.I. 1782. Saggio sulla storia naturale del Chili. Stamperia di S. Tommaso d´Aquino, Bologna.

Morello, F., Calás, E., Torres, J., Borella, F., San Román, M., Martin, F., Contreras, L., Martínez, I., Alfonso-Durruty, M., and Massone, M. 2015. Punta Baxa 7: Sitio arqueológico de la costa norte de Tierra del Fuego, Estrecho de Magallanes (Chile). Magallania, 43:167--188. https://doi.org/10.4067/s0718-22442015000200009

Nelson, J.S., Grande, T.C., and Wilson, M.V. 2016. Fishes of the World. John Wiley and Sons, Hoboken, New Jersey.

Nolf, D. 2002. Fossil record and paleobiogeography of *Steindachneria* (Pisces, Gadiformes). Courier Forschungs-Institut Senckenberg, 237:89–95.

Nielsen, S.N. and Glodny, J. 2009. Early Miocene subtropicalwater temperatures in the southeast Pacific. Palaeogeography, Palaeoclimatology, Palaeoecology, 280:480--488. https://doi.org/10.1016/j.palaeo.2009.06.035

Ojeda, F.P., Labra, F., and Muñoz, A. 2000. Biogeographic patterns of Chilean littoral fishes. Revista Chilena de Historia Natural, 73:625--641. https://doi.org/10.4067/s0716-078x2000000400007

Olguín, L., Salazar, D., Jackson, D. 2014. Early evidence for open sea navigation and fishing on the Pacific Coast of South America (Taltal, ~7,000 CAL BP). Chungará, 46: 177--192.

Otero, R.A. 2019. *Loancorhynchus catrillancai* gen. et sp. nov., a new swordfish (Xiphioidei, Blochiidae) from the Middle Eocene of central Chile. PeerJ, 7:e6671. https://doi.org/10.7717/peerj.6671

Otero, R.A. and Suárez, M.E. 2022. Ray-finned fishes (Actinopterygii) from the lower Maastrichtian of Algarrobo, central Chile. Cretaceous Research, 130:105027. https://doi.org/10.1016/j.cretres.2021.105027

Oyanadel-Urbina, P.A., Fouquet, N., Villafaña, J.A., Y Mourgues, F.A. 2018. Morphological description of fossils fishes from the Plio-Pleistoceno of the Pampa of Mejillones. Conference Proceedings of the I Congreso Chileno de Paleontología, Punta Arenas, Chile, pp. 301--307.

Oyanadel-Urbina, P., De Gracia, C., Carrillo-Briceño, J.D., Nielsen, S.N., Flores, H., Castelleto, V., Kriwet, J., Rivadeneira, M., and Villafaña, J.A. 2021. Neogene bony fishes from the Bahía Inglesa formation, northern Chile. Ameghiniana, 58(4):345--368. https://doi.org/10.5710/amgh.26.05.2021.3375

Palacios, C. 2019. Sistemática y Tafonomía de los peces óseos de la Fm. Coquimbo, en el yacimiento paleontológico Los Dedos, Región de Atacama, Chile. Unpublished Bachelor thesis, Universidad de Atacama, Chile.

Partarrieu, D., Villafaña, J.A., Pinto, L., Mourgues, F. A., Oyanadel-Urbina, P.A., Rivadeneira, M.M., and Carrillo-Briceño, J.D. 2018. Neogene 'horn sharks' *Heterodontus* (Chondrichthyes: Elasmobranchii) from the Southeastern Pacific and their paleoenvironmental significance. Ameghiniana, 55(6):651--667. https://doi.org/10.5710/amgh.19.10.2018.3202

Pease, C.M. 1987. Lyellian Curves and Mean Taxonomic Durations. Paleobiology, 13(4): 484--487.
https://doi.org/10.1017/s0094837300009064
Pequeño, G. 1989. Peces de Chile. Lista sistemática revisada y comentada. Revista de Biología Marina, 24:1--132.
Pérez, J. 2017. Nuevo serránido fósil (Actinopterygii, Perciformes) proveniente del Mioceno temprano de la Región de Arauco, Chile. Unpublished Master thesis, Universidad Austral de Chile, Valdivia, Chile.
Philippi, R.A. 1887a. Historia natural: sobre los tiburones i algunos otros peces de Chile. Anales de la Universidad de Chile, 71:3--42.
Philippi, R.A. 1887b. Los fósiles Terciarios i Cuartarios de Chile. F.A Brockhaus, Leipzig.
Pimiento, C., Griffin, J.N., Clements, C.F., Silvestro, D., Varela, S., Uhen, M.D., and, Jaramillo, C. 2017. The Pliocene marine megafauna extinction and its impact on functional diversity. Nature Ecology and Evolution 1:1100--1106.
https://doi.org/10.1038/s41559-017-0223-6
Quijada, B. 1913. Catálogo Ilustrado y Descriptivo de la Colección de Peces Chilenos y Extranjeros. Boletín del Museo Nacional de Historia Natural, Chile 5:7–130.
https://doi.org/10.54830/bmnhn.v5.1913.853
Rebolledo, S., Béarez, P., Salazar, D., Fuentes, F. 2016. Maritime fishing during the Middle Holocene in the hyperarid coast of the Atacama Desert. Quaternary International 391:3--11.
https://doi.org/10.1016/j.quaint.2015.09.051
Rebolledo, S., Béarez, P., Zurro, D., Santoro, C.M., and Latorre, C. 2021a. Big Fish or Small Fish? Differential Ichthyoarchaeological Representation Revealed by Different Recovery Methods in the Atacama Desert Coast, Northern Chile. Environmental Archaeology, 28(4):270--284.
https://doi.org/10.1080/14614103.2021.1886647
Rebolledo, S., Béarez, P., and Zurro, D. 2021b. Fishing during the early human occupations of the Atacama Desert coast: what if we standardize the data? Archaeological and Anthropological Sciences, 13:1--18.
https://doi.org/10.1007/s12520-021-01387-0
Reed, E.C. 1897. Catálogo de los peces chilenos. Anales de la Universidad de Chile, 98: 653--673.
Rivadeneira, M.M. and Marquet, P.A. 2007. Selective extinction of late Neogene bivalves on the temperate Pacific coast of South America. Paleobiology, 33(3):455--468.
https://doi.org/10.1666/06042.1
Rivadeneira, M.M. and Nielsen, S.N. 2017. Diversification dynamics, species sorting, and changes in the functional diversity of marine benthic gastropods during the Pliocene-Quaternary at temperate western South America. PLoS One, 12(10):e0187140.
https://doi.org/10.1371/journal.pone.0187140
Schwarzhans, W.W. 1980. Fish otoliths from the New Zealand Tertiary. New Zealand Geological Survey Report, 113:1--269.
Schwarzhans, W.W. 2019. Reconstruction of the fossil marine bony fish fauna (Teleostei) from the Eocene to Pleistocene of New Zealand by means of otoliths. With studies of Recent congroid, morid and trachinoid otoliths. Memorie Della Societa Italianà di Scienze Naturali e del Museo di Storia Naturale di Milano, 46:1--326
Schwarzhans, W.W and Aguilera, O. 2013. Otoliths of the Myctophidae from the Neogene of tropical America. Palaeo Ichthyologica, 13:83--150.
https://doi.org/10.1186/s13358-023-00302-5
Schwarzhans, W.W. and Nielsen, S.N. 2021. Fish otoliths from the early Miocene of Chile: a window into the evolution of marine bony fishes in the Southeast Pacific. Swiss Journal of Palaeontology, 140(1):1--62. https://doi.org/10.1186/s13358-021-00228-w
Seijo, J.C. and Defeo, O.C. 1997. Bioeconomía pesquera. Teoría, modelación y manejo FAO, Rome.
Stanley, S.M., Addicott, W.O., and Chinzei, K. 1980. Lyellian curves in paleontology: possibilities and limitations. Geology, 8(9):422–426.
https://doi.org/10.1130/0091-7613(1980)8<422:lcippa>2.0.co;2
Suárez, M.E., Marquardt, C., Lavenu, A., Marincovic, N., and Wilke, H.G. 2003. Vertebrados marinos Neógenos de la Formación la Portada, II Región, Chile. Conference Proceedings of the X Congreso Geológico Chileno, Concepción, p. 9.

Torres, J., Mahé, K., Dufour, J.L., Béarez P., and San Román, M. 2022. Characterizing seasonal fishing patterns and growth dynamics during the Middle and Late Holocene in the Strait of Magellan (Chilean Patagonia): Sclerochronological analysis of tadpole codling (*Salilota australis*) vertebrae. The Journal of Island and Coastal Archaeology, 17:1--20. https://doi.org/10.1080/15564894.2020.1755393

Tsuchi, R. 2002. Neogene evolution of surface marine climate in Pacific and notes on related events. Revista Mexicana de Ciencias Geológicas, 19:260--270.

Valenzuela-Toro, A.M., Gutstein, C.S., Varas-Malca, R.M., Suárez, M.E., and Pyenson, N.D. 2013. Pinniped turnover in the South Pacific Ocean: new evidence from the Plio-Pleistocene of the Atacama Desert, Chile. Journal of Vertebrate Paleontology, 33(1):216--223. https://doi.org/10.1080/02724634.2012.710282

Van Der Meer, D.G., Van Saparoea, A.V.D.B., Van Hinserbengen, D.J.J., Van De Weg, R.M.B., Godderis, Y., Le Hir, G., and Donnadieu, Y. 2017. Reconstructing first-order changes in sea level during the Phanerozoic and Neoproterozoic using strontium isotopes. Gondwana Research, 44:22--34. https://doi.org/10.1016/j.gr.2016.11.002

Vermeij, G.J., DeVries, T.J., Griffin, M., Nielsen, S.N., Ochoa, D., Rivadeneira, M.M., Salas-Gismondi, R., and Valdovinos, F. 2024. The temperate marine Peruvian Province: How history accounts for its unusual biota. Ecology and Evolution, 14(7):e70048. https://doi.org/10.1002/ece3.70048

Victor, P., Oncken, O., and Glodny, J. 2004. Uplift of the western Altiplano plateau: Evidence from the Precordillera between 20 and 21 S (northern Chile). Tectonics, 23(4):TC4004. https://doi.org/10.1029/2003tc001519

Villafaña, J.A. and Rivadeneira, M.M. 2014. Rise and fall in diversity of Neogene marine vertebrates on the temperate Pacific coast of South America. Paleobiology, 40(4):659--674. https://doi.org/10.1666/13069

Villafaña, J.A. and Rivadeneira, M.M. 2018. The modulating role of traits on the biogeographic dynamics of chondrichthyans from the Neogene to the present. Paleobiology, 44(2):251--262. https://doi.org/10.1017/pab.2018.7

Villafaña, J.A., Nielsen, S.N., Klug, S., and Kriwet, J. 2019a. Early Miocene cartilaginous fishes (Chondrichthyes: Holocephali, Elasmobranchii) from Chile: diversity and paleobiogeographic implications. Journal of South American Earth Sciences, 96:102317. https://doi.org/10.1016/j.jsames.2019.102317

Villafaña, J.A., Marramà, G., Hernandez, S., Carrillo-Briceño, J.D., Hovestadt, D., Kindlimann, R., and Kriwet, J. 2019b. The Neogene fossil record of Aetomylaeus (Elasmobranchii, Myliobatidae) from the southeastern Pacific. Journal of Vertebrate Paleontology, 39(1):e1577251. https://doi.org/10.1080/02724634.2019.1577251

Villafaña, J.A., Rivadeneira, M.M., Pimiento, C., and Kriwet, J. 2023. Diversification trajectories and paleobiogeography of Neogene chondrichthyans from Europe. Paleobiology, 49(2):329--341. https://doi.org/10.1017/pab.2022.40

Walsh, A.A. 2001. The Bahía Inglesa Formation Bonebed: Genesis and palaeontology of a Neogene konzentrat lagerstätte. Unpublished PhD thesis, University of Portsmouth, United Kingdom.

APPENDIX 1.

Dataset of fossil records of bony fishes from Chile during the Neogene.

Order	Family	Genus	Species	Locality	Lon	Lat	Formation/ Unit	Max	Min	Reference
Albuliformes	Albulidae	*Pterothrissus*	*Pterothrissus transpacificus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Chiloconger*	*Chiloconger chilensis*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Chiloconger*	*Chiloconger chilensis*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis quinzioi*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Heterenchelyidae	*Pythonichthys*	*Pythonichthys panulus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Heterenchelyidae	*Pythonichthys*	*Pythonichthys panulus*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Heterenchelyidae	*Pythonichthys*	*Pythonichthys panulus*	Lebu	-73.64	-37.59	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Rhynchoconger*	*Rhynchoconger chiloensis*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Rhynchoconger*	*Rhynchoconger chiloensis*	Lebu	-73.64	-37.59	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Rhynchoconger*	*Rhynchoconger chiloensis*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Rhynchoconger*	*Rhynchoconger chiloensis*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Anguilliformes	Congridae	*Rhynchoconger*	*Rhynchoconger chiloensis*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Argentiniformes	Argentinidae	*Argentina*	-	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Argentiniformes	Argentinidae	*Argentina*	-	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Aulopiformes	Synodontidae	*Saurida*	-	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Aulopiformes	Synodontidae	*Saurida*	-	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Aulopiformes	Synodontidae	*Saurida*	-	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Bleniformes	Dactyloscopidae	*Dactylagnus*	-	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Carangiformes	Istiophoridae	-	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Carangiformes	Rachycentridae	-	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Carangiformes	Centropomidae	*Centropomus*	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Carangiformes	Istiophoridae	*Makaira*	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Clupeiformes	Clupeidae	-	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Clupeiformes	Pristigasteridae	*Opisthopterus*	-	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Clupeiformes	Clupeidae	*Sardinops*	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Clupeiformes	Clupeidae	*Sardinops*	*Sardinops sagax*	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Clupeiformes	Clupeidae	*Sardinops*	*Sardinops sagax*	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Clupeiformes	Clupeidae	*Sardinops*	*Sardinops sagax*	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Clupeiformes	Clupeidae	*Sardinops*	*Sardinops sagax*	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Eupercaria	Sparidae	-	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Gadiformes	Bathygadidae	*Bathygadus*	-	IPN 16	-74.74	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Bregmacerotidae	*Bregmaceros*	*Bregmaceros prosoponus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus fidelis*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus fidelis*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus fidelis*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus fidelis*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus rapelanus*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus rapelanus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus rapelanus*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Melalonidae	*Karrerichthys*	*Karrerichthys latisulcatus*	IPN 16	-74.74	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Melalonidae	*Karrerichthys*	*Karrerichthys tenuis*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Melalonidae	*Karrerichthys*	*Karrerichthys tenuis*	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Melalonidae	*Karrerichthys*	*Karrerichthys tenuis*	Lemo Island	-73.49	-44.64	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Lepidorhynchus*	*Lepidorhynchus frosti*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Lepidorhynchus*	*Lepidorhynchus frosti*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Lepidorhynchus*	*Lepidorhynchus frosti*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Merluccidae	*Merluccius*	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Gadiformes	Merluccidae	*Merluccius*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Gadiformes	Macrouridae	*Nezumia*	*Nezumia epuge*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Nezumia*	*Nezumia epuge*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Macrouridae	*Nezumia*	*Nezumia epuge*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Moridae	*Physiculus*	*Physiculus pichi*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Steindachneridae	*Steindachneria*	*Steindachneria goederti*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Steindachneridae	*Steindachneria*	*Steindachneria goederti*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Steindachneridae	*Steindachneria*	*Steindachneria goederti*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Steindachneridae	*Steindachneria*	*Steindachneria goederti*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gadiformes	Steindachneridae	*Steindachneria*	*Steindachneria svennielseni*	Matanzas	-71.87	-33.96	Fm. Navidad	23.03	15.97	Nolf, 2002
Galaxiiformes	Prototroctidae	*Navidadichthys*	*Navidadichthys mirus*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Galaxiiformes	Prototroctidae	*Navidadichthys*	*Navidadichthys mirus*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Gobiiformes	Gobidae	*Gobiosoma*	-	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Labriformes	Labridae	-	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021

Labriformes	Labridae	-	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019
Labriformes	Labridae	-	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Labriformes	Labridae	-	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Labriformes	Labridae	-	-	La Portada	-70.462179575	-23.4715245298	Fm. La Portada	5.3	2.6	Suárez et al., 2003
Labriformes	Labridae	-	-	Cuenca del Tiburon 1	-70.5703530153	-23.2968669754	Fm. La Portada	5.3	2.6	Suárez et al., 2003
Labriformes	Labridae	-	-	Cuenca del Tiburon 2	-70.4912546022	-23.3009987255	Fm. La Portada	5.3	2.6	Suárez et al., 2003
Labriformes	Labridae	-	-	Caleta Herradura	-70.5757881674	-23.2061613606	Fm. La Portada	11.6	5.3	Suárez et al., 2003
Labriformes	Labridae	*Labrodon*	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Labriformes	Labridae	*Labrodon*	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Labriformes	Labridae	*Semicossyphus*	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Myctophiformes	Myctophidae	*Ceratoscopelus*	-	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Ceratoscopelus*	-	Punta El Fraile	-73.49	-37.20	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus audax*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus audax*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus audax*	IPN 18	-74.71	-44.59	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus curvatus*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus curvatus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	Punta El Fraile	-73.49	-37.20	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus excisus*	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus marwicki*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus marwicki*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus marwicki*	Lemo Island	-73.49	-44.64	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Punta El Fraile	-73.49	-37.20	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	Ranquil	-73.59	-37.51	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys aguilerai*	IPN 16	-74.74	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Electrona*	*Electrona subasperoides*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Electrona*	*Electrona subasperoides*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum circularis*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum circularis*	Punta El Fraile	-73.49	-37.20	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021

Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	Ranquil	-73.59	-37.51	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes scopelopsoides*	IPN 16	-74.74	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus ipunensis*	IPN16	-74.74	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus popoto*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus popoto*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus popoto*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus popoto*	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus profestus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus profestus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus profestus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum ahunga*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum ahunga*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum ahunga*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Carapidae	*Carapus*	-	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Genypterus*	-	Los Dedos	-70.88	-27.16	Fm. Bahía Inglesa	15.97	2.58	Palacio, 2019

Ophidiiformes	Ophidiidae	*Genypterus*	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Ophidiiformes	Ophidiidae	*Genypterus*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium chonorum*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium chonorum*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium chonorum*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium chonorum*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium mapucheorum*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium mapucheorum*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium mapucheorum*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Ophidion*	-	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Carapidae	*Paracarapus*	*Paracarapus chilensis*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Bythitidae	*Pseudonus*	*Pseudonus humilis*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Bythitidae	*Pseudonus*	*Pseudonus humilis*	Lemo Island	-73.49	-44.64	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Sirembola*	*Sirembola supersa*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Sirembola*	*Sirembola supersa*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Ophidiiformes	Ophidiidae	*Spectrunculus*	*Spectrunculus sparsus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Carangidae	-	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Perciformes	Sciaenidae	-	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Perciformes	Sciaenidae	-	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Perciformes	Xiphiidae	-	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Xiphiidae	-	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Perciformes	Haemulidae	*Anisotremus*	-	Norte Bahía Caldera	-70.81	-27.04	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021

Perciformes	Aplodactylidae	*Aplodactylus*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Bovichthydae	*Bovichtus*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Carangidae	*Caranx*	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Perciformes	Kiphosidae	*cf. Girella*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Cheilodactylidae	*Cheilodactylus*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Sciaenidae	*Cilus*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Eleginopsidae	*Eleginops*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Perciformes	Serranidae	*Hypoplectrodes*	-	Punta del Fraile	-73.33	-37.77	Fm. Ranquil	23.03	15.97	Perez et al., 2021
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia orientalis*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia orientalis*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia orientalis*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia orientalis*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia orientalis*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Perciformes	Carangidae	*Trachurus*	-	Pampa de Mejillones	-70.3659148934	-23.1079229448	Fm. La Portada	5.3	2.6	Oyanadel-Urbina et al. 2018
Pleuronectiformes	Achiridae	*Achirus*	*Achirus australis*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus australis*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus australis*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus australis*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus australis*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Achiridae	*Achirus*	*Achirus chungkuz*	Ranquil	-73.59	-37.51	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	-	IPN 14	-74.78	-44.55	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Punta Perro (PPS)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Lebu	-73.64	-37.59	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Ranquil	-73.59	-37.51	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys parvisulcus*	Lemo Island	-73.49	-44.64	Ipún Beds	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys vergens*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys vergens*	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Pleuronectiformes	Paralichthyidae	*Citharichtys*	*Citharichthys vergens*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Pleuronectiformes	Paralichthyidae	*Hippoglossina*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Pleuronectiformes	Paralichthyidae	*Paralichthys*	-	Horcón-Maitencillo	-71.48	-32.72	Fm. Caleta Horcón	3.6	2.58	Carrillo, 2011
Scombriformes	-	-	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Scombriformes	Centrolophidae	-	-	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scombriformes	Trichiuridae	-	-	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scombriformes	Trichiuridae	-	-	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scombriformes	Scombridae	*Gymnosarda*	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Scombriformes	Scombridae	*Sarda*	-	Mina Fosforita	-70.85	-27.14	Fm. Bahía Inglesa	15.97	2.58	Oyanadel-Urbina, et al., 2021
Scombriformes	Scombridae	*Thunnus*	-	Bahía Inglesa	-70.83	-27.13	Fm. Bahía Inglesa	15.97	2.58	Long, 1993
Scombriformes	Scombridae	*Thunnus*	-	El Rincón (Bahía Tongoy)	-71.60	-30.30	Fm. Coquimbo	15.97	2.58	Long, 1993
Scorpaeniformes	Platycephalidae	-	-	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Platycephalidae	-	-	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Scorpaenidae	-	-	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Scorpaenidae	-	-	Punta Alta	-71.85	-33.94	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Agonidae	*Agonopsis*	*Agonopsis cume*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Agonidae	*Agonopsis*	*Agonopsis cume*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Agonidae	*Agonopsis*	*Agonopsis cume*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Agonidae	*Agonopsis*	*Agonopsis cume*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Psychrolutidae	*Cottunculus*	*Cottunculus primaevus*	Cucao	-74.14	-42.71	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Scorpaeniformes	Psychrolutidae	*Cottunculus*	*Cottunculus primaevus*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Gonostomatidae	*Margrethia*	*Margrethia glareosa*	Matanzas	-71.87	-33.95	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Gonostomatidae	*Margrethia*	*Margrethia glareosa*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

Stomiiformes	Sternoptychidae	*Maurolicus*	*Maurolicus brevirostris*	Rio Rapel	-71.83	-33.89	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Sternoptychidae	*Polyipnus*	*Polyipnus bandeli*	Punta Perro (PPN)	-71.84	-33.91	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Sternoptychidae	*Polyipnus*	*Polyipnus bandeli*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Phosichthyidae	*Vinciguerria*	-	Punta Chocoi	-73.84	-41.75	Fm. Lacui	23	15.97	Schwarzhans and Nielsen, 2021
Stomiiformes	Phosichthyidae	*Vinciguerria*	-	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021
Trachichthyiformes	Trachichtyidae	*Hoplostethus*	-	Lebu	-73.64	-37.59	Fm. Ranquil	23	15.97	Schwarzhans and Nielsen, 2021
Zeiformes	Zeniontidae	*Capromimus*	*Capromimus undulatus*	Punta Perro (PPP)	-71.84	-33.90	Fm. Navidad	23	15.97	Schwarzhans and Nielsen, 2021

APPENDIX 2.

List of extant bony fish species along the Chilean coast.

Order	Family	Genus	Species
Acipenseriformes	Acipenseridae	*Acipenser*	*Acipenser baerii*
Acipenseriformes	Acipenseridae	*Acipenser*	*Acipenser transmontanus*
Albuliformes	Albulidae	*Albula*	*Albula vulpes*
Anguilliformes	Muraenidae	*Anarchias*	*Anarchias seychellensis*
Anguilliformes	Ophichthidae	*Apterichtus*	*Apterichtus australis*
Anguilliformes	Nemichthyidae	*Avocettina*	*Avocettina bowersi*
Anguilliformes	Nemichthyidae	*Avocettina*	*Avocettina paucipora*
Anguilliformes	Congridae	*Bassanago*	*Bassanago albescens*
Anguilliformes	Congridae	*Bassanago*	*Bassanago nielseni*
Anguilliformes	Congridae	*Conger*	*Conger cinereus*
Anguilliformes	Derichthyidae	*Derichthys*	*Derichthys serpentinus*
Anguilliformes	Synaphobranchidae	*Diastobranchus*	*Diastobranchus capensis*
Anguilliformes	Muraenidae	*Enchelycore*	*Enchelycore ramosa*
Anguilliformes	Serrivomeridae	*Facciolella*	*Facciolella castlei*
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis andriashevi*
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis cinctus*
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis parini*
Anguilliformes	Congridae	*Gnathophis*	*Gnathophis smithi*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax australicola*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax bathyphylus*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax castaneus*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax equatorialis*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax eurostus*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax nasuta*

Order	Family	Genus	Species
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax porphyreus*
Anguilliformes	Muraenidae	*Gymnothorax*	*Gymnothorax richardsonii*
Anguilliformes	Ophichthidae	*Ichthyapus*	*Ichthyapus acutirostris*
Anguilliformes	Synaphobranchidae	*Ilyophis*	*Ilyophis blachei*
Anguilliformes	Moringuidae	*Moringua*	*Moringua ferrugine*
Anguilliformes	Nemichthyidae	*Nemichthys*	*Nemichthys scolopaceus*
Anguilliformes	Nettastomatidae	*Nettastoma*	*Nettastoma falcinaris*
Anguilliformes	Nettastomatidae	*Nettastoma*	*Nettastoma parviceps*
Anguilliformes	Ophichthidae	*Opichthus*	*Ophichthus remiger*
Anguilliformes	Ophichthidae	*Opichthus*	*Opichthus remiger*
Anguilliformes	Ophichthidae	*Opichthus*	*Opichthus tetratrema*
Anguilliformes	Ophichthidae	*Opichthus*	*Opichthus zophochir*
Anguilliformes	Ophichthidae	*Schismorhynchus*	*Schismorhynchus labialis*
Anguilliformes	Ophichthidae	*Scolecenchelys*	*Scolecenchelys chilensis*
Anguilliformes	Ophichthidae	*Scolecenchelys*	*Scolecenchelys profundorum*
Anguilliformes	Serrivomeridae	*Serrivomer*	*Serrivomer bertini*
Anguilliformes	Serrivomeridae	*Serrivomer*	*Serrivomer jesperseni*
Anguilliformes	Serrivomeridae	*Serrivomer*	*Serrivomer schmidti*
Anguilliformes	Serrivomeridae	*Serrivomer*	*Serrivomer sector*
Anguilliformes	Synaphobranchidae	*Synaphobranchus*	*Synaphobranchus affinis*
Anguilliformes	Synaphobranchidae	*Synaphobranchus*	*Synaphobranchus brevidorsalis*
Anguilliformes	Synaphobranchidae	*Synaphobranchus*	*Synaphobranchus kaupii*
Anguilliformes	Congridae	*Xenomystax*	*Xenomystax atrarius*
Argentiniformes	Bathylagidae	*Bathylagichthys*	*Bathylagichthys greyae*
Argentiniformes	Bathylagidae	*Bathylagichthys*	*Bathylagichthys parini*
Argentiniformes	Bathylagidae	*Bathylagoides*	*Bathylagoides nigrigenys*
Argentiniformes	Bathylagidae	*Bathylagus*	*Bathylagus antarcticus*
Argentiniformes	Opisthoproctidae	*Dolichopteryx*	*Dolichopteryx longipes*
Argentiniformes	Opisthoproctidae	*Dolichopteryx*	*Dolichopteryx trunovi*
Argentiniformes	Argentinidae	*Glossanodon*	*Glossanodon danieli*
Argentiniformes	Argentinidae	*Glossanodon*	*Glossanodon nazca*
Argentiniformes	Opisthoproctidae	*Macropinna*	*Macropinna microstoma*
Argentiniformes	Bathylagidae	*Melanolagus*	*Melanolagus bericoides*
Argentiniformes	Microstomatidae	*Nansenia*	*Nansenia antarctica*
Argentiniformes	Microstomatidae	*Nansenia*	*Nansenia groenlandica*
Argentiniformes	Opisthoproctidae	*Opisthoproctus*	*Opisthoproctus soleatus*
Argentiniformes	Opisthoproctidae	*Rhynchohyalus*	*Rhynchohyalus natalensis*
Argentiniformes	Opisthoproctidae	*Winteria*	*Winteria telescopa*
Atheriniformes	Atherinopsidae	*Atherinella*	*Atherinella nocturna*
Atheriniformes	Atherinidae	*Basilichthys*	*Basilichthys australis*
Atheriniformes	Atherinidae	*Basilichthys*	*Basilichthys microlepidotus*
Atheriniformes	Atherinidae	*Basilichthys*	*Basilichthys semotilus*

Order	Family	Genus	Species
Atheriniformes	Notocheiridae	*Notocheirus*	*Notocheirus hubbsi*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes bonariensis*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes brevianalis*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes gracilis*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes hatcheri*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes mauleanum*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes molinae*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes nigricans*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes regia*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes smitti*
Atheriniformes	Atherinidae	*Odontesthes*	*Odontesthes wiebrichi*
Aulopiformes	Alepisauridae	*Alepisaurus*	*Alepisaurus brevirostris*
Aulopiformes	Alepisauridae	*Alepisaurus*	*Alepisaurus ferox*
Aulopiformes	Anotopteridae	*Anotopterus*	*Anotopterus pharao*
Aulopiformes	Paralepididae	*Arctozenus*	*Arctozenus risso*
Aulopiformes	Ipnopidae	*Bathypterois*	*Bathypterois atricolor*
Aulopiformes	Ipnopidae	*Bathypterois*	*Bathypterois pectinatus*
Aulopiformes	Ipnopidae	*Bathypterois*	*Bathypterois ventralis*
Aulopiformes	Ipnopidae	*Bathysauropsis*	*Bathysauropsis gracilis*
Aulopiformes	Bathysauridae	*Bathysaurus*	*Bathysaurus ferox*
Aulopiformes	Ipnopidae	*Bathytyphlops*	*Bathytyphlops marionae*
Aulopiformes	Scopelarchidae	*Benthalbella*	*Benthalbella elongata*
Aulopiformes	Scopelarchidae	*Benthalbella*	*Benthalbella infans*
Aulopiformes	Scopelarchidae	*Benthalbella*	*Benthalbella macropinna*
Aulopiformes	Chlorophthalmidae	*Chlorophthalmus*	*Chlorophthalmus ichthyandri*
Aulopiformes	Chlorophthalmidae	*Chlorophthalmus*	*Chlorophthalmus proridens*
Aulopiformes	Chlorophthalmidae	*Chlorophthalmus*	*Chlorophthalmus svezdae*
Aulopiformes	Evermannellidae	*Coccorella*	*Coccorella atlantica*
Aulopiformes	Evermannellidae	*Coccorella*	*Coccorella atrata*
Aulopiformes	Evermannellidae	*Evermannella*	*Evermannella balbo*
Aulopiformes	Evermannellidae	*Evermannella*	*Evermannella indica*
Aulopiformes	Evermannellidae	*Evermannella*	*Evermannella megalops*
Aulopiformes	Aulopidae	*Hime*	*Hime microps*
Aulopiformes	Ipnopidae	*Ipnops*	*Ipnops agassizi*
Aulopiformes	Paralepididae	*Lestidiops*	*Lestidiops pacificus*
Aulopiformes	Paralepididae	*Macroparalepis*	*Macroparalepis macrogeneion*
Aulopiformes	Paralepididae	*Magnisudis*	*Magnisudis atlantica*
Aulopiformes	Evermannellidae	*Odontostomops*	*Odontostomops normalops*
Aulopiformes	Scopelarchidae	*Rosenblattichthys*	*Rosenblattichthys volucris*
Aulopiformes	Scopelarchidae	*Scopelarchoides*	*Scopelarchoides nicholsi*
Aulopiformes	Scopelarchidae	*Scopelarchus*	*Scopelarchus guentheri*
Aulopiformes	Scopelarchidae	*Scopelarchus*	*Scopelarchus analis*

Order	Family	Genus	Species
Aulopiformes	Notosudidae	*Scopelosaurus*	*Scopelosaurus hamiltoni*
Aulopiformes	Notosudidae	*Scopelosaurus*	*Scopelosaurus lepidus*
Aulopiformes	Paralepididae	*Stemonosudis*	*Stemonosudis macrura*
Aulopiformes	Paralepididae	*Stemonosudis*	*Stemonosudis molesta*
Aulopiformes	Paralepididae	*Sudis*	*Sudis atrox*
Aulopiformes	Synodontidae	*Synodus*	*Synodus capricornis*
Aulopiformes	Synodontidae	*Synodus*	*Synodus isolatus*
Aulopiformes	Synodontidae	*Synodus*	*Synodus lacertinus*
Aulopiformes	Synodontidae	*Synodus*	*Synodus scituliceps*
Batrachoidiformes	Batrachoididae	*Aphos*	*Aphos porosus*
Beloniformes	Exocoetidae	*Cheilopogon*	*Cheilopogon heterurus*
Beloniformes	Exocoetidae	*Cheilopogon*	*Cheilopogon pinnatibarbatus pinnatibarbatus*
Beloniformes	Exocoetidae	*Cheilopogon*	*Cheilopogon rapanouiensis*
Beloniformes	Exocoetidae	*Cheilopogon*	*Cheilopogon spilonotopterus*
Beloniformes	Exocoetidae	*Cheilopogon*	*Cheilopogon pitcairnensis*
Beloniformes	Exocoetidae	*Cypselurus*	*Cypselurus simus*
Beloniformes	Exocoetidae	*Euleptorhamphus*	*Euleptorhamphus viridis*
Beloniformes	Exocoetidae	*Exocoetus*	*Exocoetus gibbosus*
Beloniformes	Exocoetidae	*Exocoetus*	*Exocoetus obtusirostris*
Beloniformes	Exocoetidae	*Exocoetus*	*Exocoetus peruvianus*
Beloniformes	Exocoetidae	*Exocoetus*	*Exocoetus volitans*
Beloniformes	Exocoetidae	*Fodiator*	*Fodiator acutus*
Beloniformes	Exocoetidae	*Fodiator*	*Fodiator rostratus*
Beloniformes	Hemiramphidae	*Hemiramphus*	*Hemiramphus saltator*
Beloniformes	Exocoetidae	*Hirundichthys*	*Hirundichthys rondeletti*
Beloniformes	Hemiramphidae	*Hyporhamphus*	*Hyporhamphus acutus*
Beloniformes	Belonidae	*Platybelone*	*Platybelone argalus*
Beloniformes	Scomberesocidae	*Scomberesox*	*Scomberesox saurus*
Beloniformes	Scomberesocidae	*Scomberesox*	*Scomberesox scombroides*
Beloniformes	Belonidae	*Strongylura*	*Strongylura exilis*
Beryciformes	Anoplogastridae	*Anoplogaster*	*Anoplogaster cornuta*
Beryciformes	Berycidae	*Beryx*	*Beryx splendens*
Beryciformes	Diretmidae	*Diretmichthys*	*Diretmichthys parini*
Beryciformes	Diretmidae	*Diretmus*	*Diretmus argenteus*
Beryciformes	Trachichthyidae	*Hoplostethus*	*Hoplostethus atlanticus*
Beryciformes	Trachichthyidae	*Hoplostethus*	*Hoplostethus fragilis*
Beryciformes	Trachichthyidae	*Hoplostethus*	*Hoplostethus mediterraneus*
Beryciformes	Trachichthyidae	*Hoplostethus*	*Hoplostethus mento*
Beryciformes	Monocentridae	*Monocentris*	*Monocentris reedi*
Beryciformes	Holocentridae	*Myripristis*	*Myripristis tiki*
Beryciformes	Trachichthyidae	*Paratrachichthys*	*Paratrachichthys fernandezianus*
Beryciformes	Holocentridae	*Plectrypops*	*Plectrypops lima*

Order	Family	Genus	Species
Beryciformes	Holocentridae	*Pristilepis*	*Pristilepis oligolepis*
Beryciformes	Holocentridae	*Sargocentron*	*Sargocentron punctatissimum*
Beryciformes	Holocentridae	*Sargocentron*	*Sargocentron wilhelmi*
Carangiformes	Istiophoridae	*Istiompax*	*Istiompax indica*
Carangiformes	Istiophoridae	*Istiophorus*	*Istiophorus platypterus*
Carangiformes	Istiophoridae	*Kajikia*	*Kajikia audax*
Carangiformes	Istiophoridae	*Makaira*	*Makaira nigricans*
Carangiformes	Istiophoridae	*Tetrapturus*	*Tetrapturus angustirostris*
Cetomimiformes	Barbourisiidae	*Barbourisia*	*Barbourisia rufa*
Cetomimiformes	Cetomimidae	*Cetomimoides*	*Cetomimoides parri*
Cetomimiformes	Cetomimidae	*Cetomimus*	*Cetomimus gilli*
Cetomimiformes	Cetomimidae	*Ditropichthys*	*Ditropichthys storeri*
Cetomimiformes	Cetomimidae	*Eutaeniophorus*	*Eutaeniophorus festivus*
Cetomimiformes	Cetomimidae	*Gyrinomimus*	*Gyrinomimus grahami*
Characiformes	Characidae	*Cheirodon*	*Cheirodon australe*
Characiformes	Characidae	*Cheirodon*	*Cheirodon galusdae*
Characiformes	Characidae	*Cheirodon*	*Cheirodon interruptus*
Characiformes	Characidae	*Cheirodon*	*Cheirodon kiliani*
Characiformes	Characidae	*Cheirodon*	*Cheirodon pisciculus*
Clupeiformes	Engraulidae	*Anchoa*	*Anchoa nasus*
Clupeiformes	Engraulidae	*Engraulis*	*Engraulis ringens*
Clupeiformes	Clupeidae	*Ethmidium*	*Ethmidium maculatum*
Clupeiformes	Dussumieriidae	*Etrumeus*	*Etrumeus acuminatus*
Clupeiformes	Clupeidae	*Opisthonema*	*Opisthonema libertate*
Clupeiformes	Clupeidae	*Ramnogaster*	*Ramnogaster arcuata*
Clupeiformes	Clupeidae	*Sardinops*	*Sardinops sagax*
Clupeiformes	Clupeidae	*Sprattus*	*Sprattus fuegensis*
Clupeiformes	Clupeidae	*Strangomera*	*Strangomera bentincki*
Cypriniformes	Cyprinidae	*Carassius*	*Carassius auratus*
Cypriniformes	Cyprinidae	*Carassius*	*Carassius carassius*
Cypriniformes	Cyprinidae	*Ctenopharyngodon*	*Ctenopharyngodon idella*
Cypriniformes	Cyprinidae	*Cyprinus*	*Cyprinus carpio*
Cypriniformes	Cyprinidae	*Tinca*	*Tinca tinca*
Cyprinodontiformes	Poeciliidae	*Cnesterodon*	*Cnesterodon decemmaculatus*
Cyprinodontiformes	Poeciliidae	*Gambusia*	*Gambusia affinis*
Cyprinodontiformes	Poeciliidae	*Gambusia*	*Gambusia holbrooki*
Cyprinodontiformes	Anablepidae	*Jenynsia*	*Jenynsia multidentata*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias agassizii*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias ascotanensis*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias chungarensis*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias gloriae*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias laucaensis*

Order	Family	Genus	Species
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias parinacotensis*
Cyprinodontiformes	Cyprinodontidae	*Orestias*	*Orestias piacotensis*
Cyprinodontiformes	Cyprinodontidae	*Pseudorestias*	*Pseudorestias lirimensis*
Gadiformes	Moridae	*Antimora*	*Antimora meadi*
Gadiformes	Moridae	*Antimora*	*Antimora microlepis*
Gadiformes	Moridae	*Antimora*	*Antimora rostrata*
Gadiformes	Macrouridae	*Cetonurus*	*Cetonurus crassiceps*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorhinchus chilensis*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorhinchus fasciatus*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus aconcagua*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus immaculatus*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus innotabilis*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus matamua*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus multifasciatus*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus nazcaensis*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus spilonotus*
Gadiformes	Macrouridae	*Coelorinchus*	*Coelorinchus cookianus*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides ariommus*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides armatus*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides carminifer*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides delsolari*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides fernandezianus*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides filicauda*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides anguliceps*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides rudis*
Gadiformes	Macrouridae	*Coryphaenoides*	*Coryphaenoides subserrulatus*
Gadiformes	Moridae	*Gadella*	*Gadella obscurus*
Gadiformes	Macrouridae	*Gadomus*	*Gadomus melanopterus*
Gadiformes	Lotidae	*Gaidropsarus*	*Gaidropsarus parini*
Gadiformes	Moridae	*Guttigadus*	*Guttigadus globiceps*
Gadiformes	Moridae	*Guttigadus*	*Guttigadus kongi*
Gadiformes	Moridae	*Halargyreus*	*Halargyreus johnsonii*
Gadiformes	Macrouridae	*Hymenocephalus*	*Hymenocephalus aterrimus*
Gadiformes	Macrouridae	*Hymenocephalus*	*Hymenocephalus neglectissimus*
Gadiformes	Macrouridae	*Hymenocephalus*	*Hymenocephalus semipellucidus*
Gadiformes	Macrouridae	*Hymenocephalus*	*Hymenocephalus striatulus*
Gadiformes	Macrouridae	*Hymenocephalus*	*Hymenogadus gracilis*
Gadiformes	Macrouridae	*Kuronezumia*	*Kuronezumia pallida*
Gadiformes	Moridae	*Laemonema*	*Laemonema rhodochir*
Gadiformes	Moridae	*Laemonema*	*Laemonema yuvto*
Gadiformes	Moridae	*Lepidion*	*Lepidion ensiferus*
Gadiformes	Moridae	*Lotella*	*Lotella fernandeziana*

Order	Family	Genus	Species
Gadiformes	Macrouridae	*Lucigadus*	*Lucigadus nigromaculatus*
Gadiformes	Macrouridae	*Lucigadus*	*Lucigadus potronus*
Gadiformes	Macrouridae	*Macrouroides*	*Macrouroides inflaticeps*
Gadiformes	Macrouridae	*Macrourus*	*Macrourus carinatus*
Gadiformes	Macrouridae	*Macrourus*	*Macrourus holotrachys*
Gadiformes	Merlucciidae	*Macruronus*	*Macruronus magellanicus*
Gadiformes	Macrouridae	*Malacocephalus*	*Malacocephalus laevis*
Gadiformes	Macrouridae	*Mataeocephalus*	*Mataeocephalus acipenserinus*
Gadiformes	Melanonidae	*Melanonus*	*Melanonus gracilis*
Gadiformes	Melanonidae	*Melanonus*	*Melanonus zugmayeri*
Gadiformes	Merlucciidae	*Merluccius*	*Merluccius australis*
Gadiformes	Merlucciidae	*Merluccius*	*Merluccius gayi gayi*
Gadiformes	Merlucciidae	*Merluccius*	*Merluccius hubbsi*
Gadiformes	Merlucciidae	*Merluccius*	*Merluccius polylepis*
Gadiformes	Gadidae	*Micromesistius*	*Micromesistius australis*
Gadiformes	Moridae	*Mora*	*Mora moro*
Gadiformes	Muraenolepididae	*Muraenolepis*	*Muraenolepis marmorata*
Gadiformes	Muraenolepididae	*Muraenolepis*	*Muraenolepis orangiensis*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia convergens*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia loricata*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia parini*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia propinqua*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia pudens*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia pulchella*
Gadiformes	Macrouridae	*Nezumia*	*Nezumia stelgidolepis*
Gadiformes	Muraenolepididae	*Notomuraenobathys*	*Notomuraenobathys microcephalus*
Gadiformes	Moridae	*Notophycis*	*Notophycis fitchi*
Gadiformes	Moridae	*Notophycis*	*Notophycis marginata*
Gadiformes	Moridae	*Physiculus*	*Physiculus hexacytus*
Gadiformes	Moridae	*Physiculus*	*Physiculus longicavis*
Gadiformes	Moridae	*Physiculus*	*Physiculus parini*
Gadiformes	Moridae	*Physiculus*	*Physiculus sazonovi*
Gadiformes	Moridae	*Physiculus*	*Physiculus luminosa*
Gadiformes	Macrouridae	*Pseudocetonurus*	*Pseudocetonurus septifer*
Gadiformes	Moridae	*Salilota*	*Salilota australis*
Gadiformes	Macrouridae	*Squalogadus*	*Squalogadus modificatus*
Gadiformes	Macrouridae	*Trachonurus*	*Trachonurus villosus*
Gadiformes	Macrouridae	*Trachyrincus*	*Trachyrincus helolepis*
Gadiformes	Macrouridae	*Trachyrincus*	*Trachyrincus villegai*
Gadiformes	Moridae	*Tripterophycis*	*Tripterophycis svetovidovi*
Gadiformes	Moridae	*Tripterophycis*	*Tripterophycis gilchristi*
Gadiformes	Macrouridae	*Ventrifossa*	*Ventrifossa johnboborum*

Order	Family	Genus	Species
Gadiformes	Macrouridae	*Ventrifossa*	*Ventrifossa macrodon*
Gadiformes	Macrouridae	*Ventrifossa*	*Ventrifossa obtusirostris*
Gadiformes	Macrouridae	*Ventrifossa*	*Ventrifossa teres*
Gobiesociformes	Gobiesocidae	*Gobiesox*	*Gobiesox marmoratus*
Gobiesociformes	Gobiesocidae	*Sicyases*	*Sicyases brevirostris*
Gobiesociformes	Gobiesocidae	*Sicyases*	*Sicyases sanguineus*
Gobiesociformes	Gobiesocidae	*Tomicodon*	*Tomicodon chilensis*
Gonorynchiformes	Gonorynchidae	*Gonorynchus*	*Gonorynchus greyi*
Lampriformes	Regalecidae	*Agrostichthys*	*Agrostichthys parkeri*
Lampriformes	Trachipteridae	*Desmodema*	*Desmodema polystictum*
Lampriformes	Lampridae	*Lampris*	*Lampris guttatus*
Lampriformes	Lampridae	*Lampris*	*Lampris immaculatus*
Lampriformes	Regalecidae	*Regalecus*	*Regalecus glesne*
Lampriformes	Stylephoridae	*Stylephorus*	*Stylephorus chordatus*
Lampriformes	Trachipteridae	*Trachipterus*	*Trachipterus altivelis*
Lampriformes	Trachipteridae	*Trachipterus*	*Trachipterus fukuzakii*
Lampriformes	Trachipteridae	*Trachipterus*	*Trachipterus trachypterus*
Lampriformes	Trachipteridae	*Zu*	*Zu cristatus*
Lophiiformes	Antennariidae	*Antennarius*	*Antennarius randalli*
Lophiiformes	Antennariidae	*Antennatus*	*Antennatus coccineus*
Lophiiformes	Antennariidae	*Antennatus*	*Antennatus sanguineus*
Lophiiformes	Ceratiidae	*Ceratias*	*Ceratias holboelli*
Lophiiformes	Oneirodidae	*Chaenophryne*	*Chaenophryne quasiramifera*
Lophiiformes	Chaunacidae	*Chaunax*	*Chaunax latipunctatus*
Lophiiformes	Oneirodidae	*Ctenochirichthys*	*Ctenochirichthys longimanus*
Lophiiformes	Ogcocephalidae	*Dibranchus*	*Dibranchus spinosus*
Lophiiformes	Oneirodidae	*Dolopichthys*	*Dolopichthys allector*
Lophiiformes	Oneirodidae	*Dolopichthys*	*Dolopichthys jubatus*
Lophiiformes	Oneirodidae	*Dolopichthys*	*Dolopichthys longicornis*
Lophiiformes	Oneirodidae	*Dolopichthys*	*Dolopichthys pullatus*
Lophiiformes	Antennariidae	*Fowlerichthys*	*Fowlerichthys avalonis*
Lophiiformes	Gigantactinidae	*Gigantactis*	*Gigantactis gibbsi*
Lophiiformes	Gigantactinidae	*Gigantactis*	*Gigantactis meadi*
Lophiiformes	Gigantactinidae	*Gigantactis*	*Gigantactis microdontis*
Lophiiformes	Gigantactinidae	*Gigantactis*	*Gigantactis perlatus*
Lophiiformes	Gigantactinidae	*Gigantactis*	*Gigantactis vanhoeffeni*
Lophiiformes	Linophrynidae	*Haplophryne*	*Haplophryne mollis*
Lophiiformes	Himantolophidae	*Himantolophus*	*Himantolophus appelii*
Lophiiformes	Himantolophidae	*Himantolophus*	*Himantolophus groenlandicus*
Lophiiformes	Himantolophidae	*Himantolophus*	*Himantolophus sagamius*
Lophiiformes	Himantolophidae	*Himantolophus*	*Himantolophus stewarti*
Lophiiformes	Linophrynidae	*Linophryne*	*Linophryne densiramus*

Order	Family	Genus	Species
Lophiiformes	Lophiidae	*Lophiodes*	*Lophiodes mutilus*
Lophiiformes	Lophiidae	*Lophiodes*	*Lophiodes spilurus*
Lophiiformes	Melanocetidae	*Melanocetus*	*Melanocetus johnsonii*
Lophiiformes	Melanocetidae	*Melanocetus*	*Melanocetus niger*
Lophiiformes	Oneirodidae	*Oneirodes*	*Oneirodes eschrichtii*
Lophiiformes	Oneirodidae	*Oneirodes*	*Oneirodes heteronema*
Myctophiformes	Myctophidae	*Benthosema*	*Benthosema suborbitale*
Myctophiformes	Myctophidae	*Bolinichthys*	*Bolinichthys photothorax*
Myctophiformes	Myctophidae	*Centrobranchus*	*Centrobranchus choerocephalus*
Myctophiformes	Myctophidae	*Centrobranchus*	*Centrobranchus nigroocellatus*
Myctophiformes	Myctophidae	*Ceratoscopelus*	*Ceratoscopelus townsendi*
Myctophiformes	Myctophidae	*Ceratoscopelus*	*Ceratoscopelus warmingi*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus adenomus*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus aliciae*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus anderseni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus antonbruuni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus brachycephalus*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus confusus*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus effulgens*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus fragilis*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus fulgens*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus garmani*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus hudsoni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus jenseni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus knappi*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus luetkeni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus meadi*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus ostenfeldi*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus parini*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus parri*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus problematicus*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus richardsoni*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus splendidus*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus suborbitalis*
Myctophiformes	Myctophidae	*Diaphus*	*Diaphus theta*
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys atlanticus*
Myctophiformes	Myctophidae	*Diogenichthys*	*Diogenichthys laternatus*
Myctophiformes	Myctophidae	*Electrona*	*Electrona antarctica*
Myctophiformes	Myctophidae	*Electrona*	*Electrona carlsbergi*
Myctophiformes	Myctophidae	*Electrona*	*Electrona paucirastra*
Myctophiformes	Myctophidae	*Electrona*	*Electrona risso*
Myctophiformes	Myctophidae	*Electrona*	*Electrona subaspera*

Order	Family	Genus	Species
Myctophiformes	Myctophidae	*Gonichthys*	*Gonichthys barnesi*
Myctophiformes	Myctophidae	*Gonichthys*	*Gonichthys tenuiculus*
Myctophiformes	Myctophidae	*Gonichthys*	*Gonichthys venetus*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus bolini*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus braueri*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus fraseri*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus nicholsi*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus opisthopterus*
Myctophiformes	Myctophidae	*Gymnoscopelus*	*Gymnoscopelus piabilis*
Myctophiformes	Myctophidae	*Hintonia*	*Hintonia candens*
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum bruuni*
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum hanseni*
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum hygomii*
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum proximum*
Myctophiformes	Myctophidae	*Hygophum*	*Hygophum reinhardtii*
Myctophiformes	Myctophidae	*Idiolychnus*	*Idiolychnus urolampus*
Myctophiformes	Myctophidae	*Krefftichthys*	*Krefftichthys anderssoni*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena chavesi*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena dea*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena luminosa*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena notialis*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena speculigera*
Myctophiformes	Myctophidae	*Lampadena*	*Lampadena urophaos*
Myctophiformes	Myctophidae	*Lampanyctodes*	*Lampanyctodes hectoris*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus australis*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus festivus*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus intricarius*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus iselinoides*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus macdonaldi*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus omostigma*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus parvicauda*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus pusillus*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus steinbecki*
Myctophiformes	Myctophidae	*Lampanyctus*	*Lampanyctus turneri*
Myctophiformes	Myctophidae	*Lampichthys*	*Lampichthys procerus*
Myctophiformes	Myctophidae	*Lobianchia*	*Lobianchia dofleini*
Myctophiformes	Myctophidae	*Lobianchia*	*Lobianchia gemellari*
Myctophiformes	Myctophidae	*Loweina*	*Loweina interrupta*
Myctophiformes	Myctophidae	*Loweina*	*Loweina rara*
Myctophiformes	Myctophidae	*Metelectrona*	*Metelectrona ahlstromi*
Myctophiformes	Myctophidae	*Metelectrona*	*Metelectrona herwigi*
Myctophiformes	Myctophidae	*Metelectrona*	*Metelectrona ventralis*

Order	Family	Genus	Species
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum affine*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum asperum*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum aurolaternatum*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum nitidulum*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum obtusirostre*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum phengodes*
Myctophiformes	Myctophidae	*Myctophum*	*Myctophum spinosum*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium achirus*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium gibbsi*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium idostigma*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium lineatum*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium nigrum*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium phyllisae*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium ritteri*
Myctophiformes	Myctophidae	*Nannobrachium*	*Nannobrachium wisneri*
Myctophiformes	Neoscopelidae	*Neoscopelus*	*Neoscopelus macrolepidotus*
Myctophiformes	Myctophidae	*Notolychnus*	*Notolychnus valdiviae*
Myctophiformes	Myctophidae	*Notoscopelus*	*Notoscopelus resplendens*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum andriashevi*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum bolini*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum chilense*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum crockeri*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum mcginnisi*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum parallelum*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum subparallelum*
Myctophiformes	Myctophidae	*Protomyctophum*	*Protomyctophum tenisoni*
Myctophiformes	Neoscopelidae	*Scopelengys*	*Scopelengys tristis*
Myctophiformes	Myctophidae	*Scopelopsis*	*Scopelopsis multipunctatus*
Myctophiformes	Myctophidae	*Symbolophorus*	*Symbolophorus boops*
Myctophiformes	Myctophidae	*Symbolophorus*	*Symbolophorus evermanni*
Myctophiformes	Myctophidae	*Symbolophorus*	*Symbolophorus reversus*
Myctophiformes	Myctophidae	*Triphoturus*	*Triphoturus nigrescens*
Myctophiformes	Myctophidae	*Triphoturus*	*Triphoturus mexicanus*
Myctophiformes	Myctophidae	*Triphoturus*	*Triphoturus oculeum*
Notacanthiformes	Halosauridae	*Aldrovandia*	*Aldrovandia affinis*
Notacanthiformes	Halosauridae	*Aldrovandia*	*Aldrovandia oleosa*
Notacanthiformes	Halosauridae	*Aldrovandia*	*Aldrovandia phalacra*
Notacanthiformes	Halosauridae	*Halosaurus*	*Halosaurus radiatus*
Notacanthiformes	Notacanthidae	*Notacanthus*	*Notacanthus chemnitzi*
Notacanthiformes	Notacanthidae	*Notacanthus*	*Notacanthus sexspinis*
Ophidiiformes	Ophidiidae	*Brotula*	*Brotula multibarbata*
Ophidiiformes	Bythitidae	*Cataetyx*	*Cataetyx messieri*

Order	Family	Genus	Species
Ophidiiformes	Bythitidae	*Cataetyx*	*Cataetyx rubrirostris*
Ophidiiformes	Bythitidae	*Cataetyx*	*Cataetyx simus*
Ophidiiformes	Ophidiidae	*Cherublemma*	*Cherublemma emmelas*
Ophidiiformes	Ophidiidae	*Dicrolene*	*Dicrolene nigra*
Ophidiiformes	Bythitidae	*Diplacanthopoma*	*Diplacanthopoma jordani*
Ophidiiformes	Carapidae	*Echiodon*	*Echiodon cryomargarites*
Ophidiiformes	Carapidae	*Eurypleuron*	*Eurypleuron owasianum*
Ophidiiformes	Ophidiidae	*Genypterus*	*Genypterus blacodes*
Ophidiiformes	Ophidiidae	*Genypterus*	*Genypterus chilensis*
Ophidiiformes	Ophidiidae	*Genypterus*	*Genypterus maculatus*
Ophidiiformes	Ophidiidae	*Lamprogrammus*	*Lamprogrammus shcherbachevi*
Ophidiiformes	Ophidiidae	*Lepophidium*	*Lepophidium negropinna*
Ophidiiformes	Ophidiidae	*Monomitopus*	*Monomitopus torvus*
Ophidiiformes	Ophidiidae	*Ophidion*	*Ophidion exsul*
Ophidiiformes	Ophidiidae	*Ophidion*	*Ophidion metoecus*
Ophidiiformes	Carapidae	*Pyramodon*	*Pyramodon parini*
Ophidiiformes	Carapidae	*Pyramodon*	*Pyramodon ventralis*
Ophidiiformes	Aphyonidae	*Sciadonus*	*Sciadonus pedicellaris*
Ophidiiformes	Ophidiidae	*Spectrunculus*	*Spectrunculus grandis*
Ophidiiformes	Ophidiidae	*Thalassobathia*	*Thalassobathia nelsoni*
Osmeriformes	Alepocephalidae	*Alepocephalus*	*Alepocephalus melas*
Osmeriformes	Galaxiidae	*Aplochiton*	*Aplochiton marinus*
Osmeriformes	Galaxiidae	*Aplochiton*	*Aplochiton taeniatus*
Osmeriformes	Galaxiidae	*Aplochiton*	*Aplochiton zebra*
Osmeriformes	Alepocephalidae	*Bajacalifornia*	*Bajacalifornia burragei*
Osmeriformes	Alepocephalidae	*Bajacalifornia*	*Bajacalifornia megalops*
Osmeriformes	Platytroctidae	*Barbantus*	*Barbantus curvifrons*
Osmeriformes	Alepocephalidae	*Bathytroctes*	*Bathytroctes oligolepis*
Osmeriformes	Galaxiidae	*Brachygalaxias*	*Brachygalaxias bullocki*
Osmeriformes	Galaxiidae	*Brachygalaxias*	*Brachygalaxias gothei*
Osmeriformes	Alepocephalidae	*Conocara*	*Conocara fiolenti*
Osmeriformes	Alepocephalidae	*Einara*	*Einara edentula*
Osmeriformes	Galaxiidae	*Galaxias*	*Galaxias globiceps*
Osmeriformes	Galaxiidae	*Galaxias*	*Galaxias maculatus*
Osmeriformes	Galaxiidae	*Galaxias*	*Galaxias platei*
Osmeriformes	Platytroctidae	*Holtbyrnia*	*Holtbyrnia intermedia*
Osmeriformes	Platytroctidae	*Holtbyrnia*	*Holtbyrnia latifrons*
Osmeriformes	Platytroctidae	*Holtbyrnia*	*Holtbyrnia macrops*
Osmeriformes	Platytroctidae	*Maulisia*	*Maulisia argipalla*
Osmeriformes	Platytroctidae	*Maulisia*	*Maulisia mauli*
Osmeriformes	Platytroctidae	*Mentodus*	*Mentodus facilis*
Osmeriformes	Platytroctidae	*Normichthys*	*Normichthys yahganorum*

Order	Family	Genus	Species
Osmeriformes	Alepocephalidae	*Photostylus*	*Photostylus pycnopterus*
Osmeriformes	Platytroctidae	*Platytroctes*	*Platytroctes apus*
Osmeriformes	Alepocephalidae	*Rouleina*	*Rouleina attrita*
Osmeriformes	Alepocephalidae	*Rouleina*	*Rouleina maderensis*
Osmeriformes	Platytroctidae	*Sagamichthys*	*Sagamichthys abei*
Osmeriformes	Platytroctidae	*Searsia*	*Searsia koefoedi*
Osmeriformes	Alepocephalidae	*Talismania*	*Talismania antillarum*
Osmeriformes	Alepocephalidae	*Talismania*	*Talismania aphos*
Osmeriformes	Alepocephalidae	*Talismania*	*Talismania bifurcata*
Osmeriformes	Alepocephalidae	*Talismania*	*Talismania bussingi*
Perciformes	Serranidae	*Acanthistius*	*Acanthistius fuscus*
Perciformes	Serranidae	*Acanthistius*	*Acanthistius pictus*
Perciformes	Scombridae	*Acanthocybium*	*Acanthocybium solandri*
Perciformes	Bathydraconidae	*Acanthodraco*	*Acanthodraco dewitti*
Perciformes	Acanthuridae	*Acanthurus*	*Acanthurus leucopareius*
Perciformes	Acanthuridae	*Acanthurus*	*Acanthurus triostegus*
Perciformes	Bathydraconidae	*Akarotaxis*	*Akarotaxis nudiceps*
Perciformes	Carangidae	*Alectis*	*Alectis ciliaris*
Perciformes	Scombridae	*Allothunnus*	*Allothunnus fallai*
Perciformes	Kyphosidae	*Amphichaetodon*	*Amphichaetodon melbae*
Perciformes	Labridae	*Anampses*	*Anampses caeruleopunctatus*
Perciformes	Labridae	*Anampses*	*Anampses femininus*
Perciformes	Serranidae	*Anatolanthias*	*Anatolanthias apiomycter*
Perciformes	Haemulidae	*Anisotremus*	*Anisotremus scapularis*
Perciformes	Caproidae	*Antigonia*	*Antigonia aurorosea*
Perciformes	Caproidae	*Antigonia*	*Antigonia capros*
Perciformes	Trichiuridae	*Aphanopus*	*Aphanopus carbo*
Perciformes	Aplodactylidae	*Aplodactylus*	*Aplodactylus punctatus*
Perciformes	Apogonidae	*Apogon*	*Apogon chalcius*
Perciformes	Apogonidae	*Apogon*	*Apogon kautamea**
Perciformes	Apogonidae	*Apogon*	*Apogon rubrifuscus*
Perciformes	Zoarcidae	*Argentinolycus*	*Argentinolycus elongatus*
Perciformes	Ariommatidae	*Ariomma*	*Ariomma luridum*
Perciformes	Artedidraconidae	*Artedidraco*	*Artedidraco lonnbergi*
Perciformes	Artedidraconidae	*Artedidraco*	*Artedidraco skottsbergi*
Perciformes	Trichiuridae	*Assurger*	*Assurger anzac*
Perciformes	Labrisomidae	*Auchionchus*	*Auchenionchus crinitus*
Perciformes	Labrisomidae	*Auchionchus*	*Auchenionchus microcirrhis*
Perciformes	Labrisomidae	*Auchionchus*	*Auchenionchus variolosus*
Perciformes	Cichlidae	*Australoheros*	*Australoheros facetus*
Perciformes	Zoarcidae	*Austrolycus*	*Austrolycus deprecisseps*
Perciformes	Zoarcidae	*Austrolycus*	*Austrolycus laticinctus*

Order	Family	Genus	Species
Perciformes	Scombridae	*Auxis*	*Auxis rochei*
Perciformes	Scombridae	*Auxis*	*Auxis thazard*
Perciformes	Bathydraconidae	*Bathydraco*	*Bathydraco marri*
Perciformes	Bathydraconidae	*Bathydraco*	*Bathydraco scotiae*
Perciformes	Kyphosidae	*Bathystethus*	*Bathystethus orientale*
Perciformes	Zoarcidae	*Bentartia*	*Bentartia elongata*
Perciformes	Trichiuridae	*Benthodesmus*	*Benthodesmus elongatus*
Perciformes	Labridae	*Bodianus*	*Bodianus diplotaenia*
Perciformes	Labridae	*Bodianus*	*Bodianus eclancheri*
Perciformes	Labridae	*Bodianus*	*Bodianus unimaculatus*
Perciformes	Labridae	*Bodianus*	*Bodianus vulpinus*
Perciformes	Zoarcidae	*Bothrocara*	*Bothrocara molle*
Perciformes	Bovichtydae	*Bovichtus*	*Bovichtus chilensis*
Perciformes	Bovichtydae	*Bovichtus*	*Bovichtus elongatus*
Perciformes	Bramidae	*Brama*	*Brama australis*
Perciformes	Bramidae	*Brama*	*Brama brama*
Perciformes	Bramidae	*Brama*	*Brama dussumieri*
Perciformes	Sparidae	*Calamus*	*Calamus brachysomus*
Perciformes	Callanthiidae	*Callanthias*	*Callanthias parini*
Perciformes	Callanthiidae	*Callanthias*	*Callanthias platei*
Perciformes	Labrisomidae	*Calliclinus*	*Calliclinus geniguttatus*
Perciformes	Labrisomidae	*Calliclinus*	*Calliclinus nudiventris*
Perciformes	Serranidae	*Caprodon*	*Caprodon longimanus*
Perciformes	Carangidae	*Carangoides*	*Carangoides equula*
Perciformes	Carangidae	*Caranx*	*Caranx caballus*
Perciformes	Carangidae	*Caranx*	*Caranx caninus*
Perciformes	Carangidae	*Caranx*	*Caranx lugubris*
Perciformes	Carangidae	*Caranx*	*Caranx sexfasciatus*
Perciformes	Caristiidae	*Caristius*	*Caristius japonicus*
Perciformes	Caristiidae	*Caristius*	*Caristius macropus*
Perciformes	Draconettidae	*Centrodraco*	*Centrodraco gegonipus*
Perciformes	Draconettidae	*Centrodraco*	*Centrodraco nakaboi*
Perciformes	Draconettidae	*Centrodraco*	*Centrodraco striatus*
Perciformes	Centrolophidae	*Centrolophus*	*Centrolophus niger*
Perciformes	Pomacanthidae	*Centropyge*	*Centropyge flavissima*
Perciformes	Pomacanthidae	*Centropyge*	*Centropyge hotumatua*
Perciformes	Channichthyidae	*Chaenocephalus*	*Chaenocephalus aceratus*
Perciformes	Channichthyidae	*Chaenodraco*	*Chaenodraco wilsoni*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon flavirostris*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon humeralis*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon litus*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon mertensii*

Order	Family	Genus	Species
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon pelewensis*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon smithi*
Perciformes	Chaetodontidae	*Chaetodon*	*Chaetodon unimaculatus*
Perciformes	Channichthyidae	*Champsocephalus*	*Champsocephalus esox*
Perciformes	Channichthyidae	*Champsocephalus*	*Champsocephalus gunnari*
Perciformes	Labridae	*Cheilio*	*Cheilio inermis*
Perciformes	Cheilodactylidae	*Cheilodactylus*	*Cheilodactylus plessisi*
Perciformes	Cheilodactylidae	*Cheilodactylus*	*Cheilodactylus variegatus*
Perciformes	Sciaenidae	*Cheilotrema*	*Cheilotrema fasciatum*
Perciformes	Chiasmodontidae	*Chiasmodon*	*Chiasmodon niger*
Perciformes	Chiasmodontidae	*Chiasmodon*	*Chiasmodon subniger*
Perciformes	Channichthyidae	*Chionobathyscus*	*Chionobathyscus dewitti*
Perciformes	Channichthyidae	*Chionodraco*	*Chionodraco hamatus*
Perciformes	Channichthyidae	*Chionodraco*	*Chionodraco rastrospinosus*
Perciformes	Chironemidae	*Chironemus*	*Chironemus bicornis*
Perciformes	Chironemidae	*Chironemus*	*Chironemus delfini*
Perciformes	Percophidae	*Chrionema*	*Chrionema chryseres*
Perciformes	Percophidae	*Chrionema*	*Chrionema pallidum*
Perciformes	Pomacentridae	*Chromis*	*Chromis crusma*
Perciformes	Pomacentridae	*Chromis*	*Chromis intercrusma*
Perciformes	Pomacentridae	*Chromis*	*Chromis meridiana*
Perciformes	Pomacentridae	*Chromis*	*Chromis randalli*
Perciformes	Pomacentridae	*Chrysiptera*	*Chrysiptera rapanui*
Perciformes	Sciaenidae	*Cilus*	*Cilus gilberti*
Perciformes	Blenniidae	*Cirripectes*	*Cirripectes alboapicalis*
Perciformes	Priacanthidae	*Cookeolus*	*Cookeolus japonicus*
Perciformes	Labridae	*Coris*	*Coris debueni*
Perciformes	Coryphaenidae	*Coryphaena*	*Coryphaena equiselis*
Perciformes	Coryphaenidae	*Coryphaena*	*Coryphaena hippurus*
Perciformes	Bovichtidae	*Cottoperca*	*Cottoperca gobio*
Perciformes	Bovichtidae	*Cottoperca*	*Cottoperca trigloides*
Perciformes	Zoarcidae	*Crossostomus*	*Crossostomus chilensis*
Perciformes	Zoarcidae	*Crossostomus*	*Crossostomus fasciatus*
Perciformes	Channichthyidae	*Cryodraco*	*Cryodraco antarcticus*
Perciformes	Notothenidae	*Cryothenia*	*Cryothenia peninsulae*
Perciformes	Crediidae	*Crystallodytes*	*Crystallodytes pauciradiatus*
Perciformes	Nomeidae	*Cubiceps*	*Cubiceps baxteri*
Perciformes	Nomeidae	*Cubiceps*	*Cubiceps caeruleus*
Perciformes	Nomeidae	*Cubiceps*	*Cubiceps pauciradiatus*
Perciformes	Sciaenidae	*Cynoscion*	*Cynoscion analis*
Perciformes	Percophidae	*Dactylopsaron*	*Dactylopsaron dimorphicum*
Perciformes	Zoarcidae	*Dadyanos*	*Dadyanos insignis*

Order	Family	Genus	Species
Perciformes	Carangidae	*Decapterus*	*Decapterus macarellus*
Perciformes	Carangidae	*Decapterus*	*Decapterus macrosoma*
Perciformes	Carangidae	*Decapterus*	*Decapterus muroadsi*
Perciformes	Zoarcidae	*Dieidolycus*	*Dieidolycus gosztonyii*
Perciformes	Serranidae	*Diplectrum*	*Diplectrum conceptione*
Perciformes	Gempylidae	*Diplospinus*	*Diplospinus multistriatus*
Perciformes	Nototheniidae	*Dissostichus*	*Dissostichus eleginoides*
Perciformes	Nototheniidae	*Dissostichus*	*Dissostichus mawsoni*
Perciformes	Artedidraconidae	*Dolloidraco*	*Dolloidraco longedorsalis*
Perciformes	Echeneidae	*Echeneis*	*Echeneis naucrates*
Perciformes	Carangidae	*Elagatis*	*Elagatis bipinnulata*
Perciformes	Eleginopsidae	*Eleginops*	*Eleginops maclovinus*
Perciformes	Emmelichthyidae	*Emmelichthys*	*Emmelichthys elongatus*
Perciformes	Emmelichthyidae	*Emmelichthys*	*Emmelichthys karnella*
Perciformes	Emmelichthyidae	*Emmelichthys*	*Emmelichthys nitidus nitidus*
Perciformes	Percophidae	*Enigmapercis*	*Enigmapercis acutirostris*
Perciformes	Blenniidae	*Entomacrodus*	*Entomacrodus chapmani*
Perciformes	Epigonidae	*Epigonus*	*Epigonus atherinoides*
Perciformes	Epigonidae	*Epigonus*	*Epigonus chilensis*
Perciformes	Epigonidae	*Epigonus*	*Epigonus crassicaudus*
Perciformes	Epigonidae	*Epigonus*	*Epigonus denticulatus*
Perciformes	Epigonidae	*Epigonus*	*Epigonus elegans*
Perciformes	Epigonidae	*Epigonus*	*Epigonus notacanthus*
Perciformes	Epigonidae	*Epigonus*	*Epigonus parini*
Perciformes	Epigonidae	*Epigonus*	*Epigonus occidentalis*
Perciformes	Epigonidae	*Epigonus*	*Epigonus robustus*
Perciformes	Serranidae	*Epinephelus*	*Epinephelus quinquefascitus*
Perciformes	Emmelichthyidae	*Erythrocles*	*Erythrocles scintillans*
Perciformes	Lutjanidae	*Etelis*	*Etelis carbunculus*
Perciformes	Gerreidae	*Eucinostomus*	*Eucinostomus dowii*
Perciformes	Chaetodontidae	*Forcipiger*	*Forcipiger flavissimus*
Perciformes	Scombridae	*Gasterochisma*	*Gasterochisma melampus*
Perciformes	Gempylidae	*Gempylus*	*Gempylus serpens*
Perciformes	Bathydraconidae	*Gerlachea*	*Gerlachea australis*
Perciformes	Kyphosidae	*Girella*	*Girella albostriata*
Perciformes	Kyphosidae	*Girella*	*Girella feliciana*
Perciformes	Kyphosidae	*Girella*	*Girella laevifrons*
Perciformes	Kyphosidae	*Girella*	*Girella nebulosa*
Perciformes	Kyphosidae	*Girella*	*Girella nigricans*
Perciformes	Carangidae	*Gnathanodon*	*Gnathanodon speciosus*
Perciformes	Gobiidae	*Gnatholepis*	*Gnatholepis pascuensis*
Perciformes	Nototheniidae	*Gobionotothen*	*Gobionotothen gibberifrons*

Order	Family	Genus	Species
Perciformes	Callanthiidae	*Grammatonotus*	*Grammatonotus laysanus*
Perciformes	Kyphosidae	*Graus*	*Graus nigra*
Perciformes	Bathydraconidae	*Gymnodraco*	*Gymnodraco acuticeps*
Perciformes	Labridae	*Halichoeres*	*Halichoeres dispilus*
Perciformes	Harpagiferidae	*Harpagifer*	*Harpagifer bispinis*
Perciformes	Harpagiferidae	*Harpagifer*	*Harpagifer antarticus*
Perciformes	Tripterygiidae	*Helcogrammoides*	*Helcogrammoides antarcticus*
Perciformes	Tripterygiidae	*Helcogrammoides*	*Helcogrammoides chilensis*
Perciformes	Tripterygiidae	*Helcogrammoides*	*Helcogrammoides cunninghami*
Perciformes	Serranidae	*Hemanthias*	*Hemanthias peruanus*
Perciformes	Serranidae	*Hemilutjanus*	*Hemilutjanus macrophthalmos*
Perciformes	Chaetodontidae	*Hemitaurichthys*	*Hemitaurichthys multispinosus*
Perciformes	Gobiidae	*Heterogobius*	*Heterogobius chiloensis*
Perciformes	Priacanthidae	*Heteropriacanthus*	*Heteropriacanthus cruentatus*
Perciformes	Howelidae	*Howella*	*Howella brodiei*
Perciformes	Serranidae	*Hypoplectrodes*	*Hypoplectrodes semicinctum*
Perciformes	Blenniidae	*Hypsoblennius*	*Hypsoblennius sordidus*
Perciformes	Centrolophidae	*Icichthys*	*Icichthys australis*
Perciformes	Zoarcidae	*Ilucoetes*	*Iluocoetes facali*
Perciformes	Zoarcidae	*Ilucoetes*	*Iluocoetes fimbriatus*
Perciformes	Haemulidae	*Isacia*	*Isacia conceptionis*
Perciformes	Sciaenidae	*Isopisthus*	*Isopisthus remifer*
Perciformes	Cirrhitidae	*Itycirrhtus wilhelmi*	*Itycirrhitus wilhelmi*
Perciformes	Chiasmodontidae	*Kali*	*Kali kerberti*
Perciformes	Scombridae	*Katsuwonus*	*Katsuwonus pelamis*
Perciformes	Gobiidae	*Kelloggella*	*Kelloggella disalvoi*
Perciformes	Gobiidae	*Kelloggella*	*Kelloggella oligolepis*
Perciformes	Kuhliidae	*Kuhlia*	*Kuhlia nutabunda*
Perciformes	Kyphosidae	*Kyphosus*	*Kyphosus bigibbus*
Perciformes	Kyphosidae	*Kyphosus*	*Kyphosus cinerascens*
Perciformes	Kyphosidae	*Kyphosus*	*Kyphosus elegans*
Perciformes	Kyphosidae	*Kyphosus*	*Kyphosus vaigiensis*
Perciformes	Labrisomidae	*Labrisomus*	*Labrisomus philippii*
Perciformes	Labrisomidae	*Labrisomus*	*Labrisomus fernandezianus*
Perciformes	Sciaenidae	*Larimus*	*Larimus gulosus*
Perciformes	Sciaenidae	*Larimus*	*Larimus pacificus*
Perciformes	Latridae	*Latris*	*Latris lineata*
Perciformes	Gempylidae	*Lepidocybium*	*Lepidocybium flavobrunneum*
Perciformes	Nototheniidae	*Lepidonotothen*	*Lepidonotothen squamifrons*
Perciformes	Scaridae	*Leptoscarus*	*Leptoscarus vaigiensis*
Perciformes	Carangidae	*Lichia*	*Lichia albacora*
Perciformes	Luvaridae	*Luvarus*	*Luvarus imperialis*

Order	Family	Genus	Species
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys antarctica*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys aratrirostris*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys atacamensis*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys incisa*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys nigripalatum*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys pequenoi*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys scaurus*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys tristichodon*
Perciformes	Zoarcidae	*Lycenchelys*	*Lycenchelys wilkesi*
Perciformes	Zoarcidae	*Lycodapus*	*Lycodapus australis*
Perciformes	Zoarcidae	*Lycodichthys*	*Lycodichthys antarcticus*
Perciformes	Labridae	*Malapterus*	*Malapterus reticulatus*
Perciformes	Zoarcidae	*Maynea*	*Maynea puncta*
Perciformes	Zoarcidae	*Melanostigma*	*Melanostigma bathium*
Perciformes	Zoarcidae	*Melanostigma*	*Melanostigma gelatinosum*
Perciformes	Latridae	*Mendosoma*	*Mendosoma caerulescens*
Perciformes	Latridae	*Mendosoma*	*Mendosoma fernandezianum*
Perciformes	Latridae	*Mendosoma*	*Mendosoma lineatum*
Perciformes	Sciaenidae	*Menticirrhus*	*Menticirrhus ophicephalus*
Perciformes	Sciaenidae	*Menticirrhus*	*Menticirrhus panamensis*
Perciformes	Sciaenidae	*Menticirrhus*	*Menticirrhus undulatus*
Perciformes	Sciaenidae	*Micropogonias*	*Micropogonias fasciatus*
Perciformes	Sciaenidae	*Micropogonias*	*Micropogonias furnieri*
Perciformes	Mugilidae	*Mugil*	*Mugil cephalus*
Perciformes	Mugilidae	*Mugil*	*Mugil curema*
Perciformes	Mullidae	*Mulloidichthys*	*Mulloidichthys dentatus*
Perciformes	Mullidae	*Mulloidichthys*	*Mulloidichthys flavolineatus*
Perciformes	Mullidae	*Mulloidichthys*	*Mulloidichthys vanicolensis*
Perciformes	Clinidae	*Myxodes*	*Myxodes cristatus*
Perciformes	Clinidae	*Myxodes*	*Myxodes ornatus*
Perciformes	Clinidae	*Myxodes*	*Myxodes viridis*
Perciformes	Acanthuridae	*Naso*	*Naso brevirostris*
Perciformes	Acanthuridae	*Naso*	*Naso unicornis*
Perciformes	Carangidae	*Naucrates*	*Naucrates ductor*
Perciformes	Gempylidae	*Nealotus*	*Nealotus tripes*
Perciformes	Cheilodactylidae	*Nemadactylus*	*Nemadactylus bergi*
Perciformes	Cheilodactylidae	*Nemadactylus*	*Nemadactylus gayi*
Perciformes	Nematistiidae	*Nematistius*	*Nematistius pectoralis*
Perciformes	Channichthyidae	*Neopagetopsis*	*Neopagetopsis ionah*
Perciformes	Gempylidae	*Nesiarchus*	*Nesiarchus nasutus*
Perciformes	Pomacentridae	*Nexilosus*	*Nexilosus latifrons*
Perciformes	Scaridae	*Nicholsina*	*Nicholsina denticulata*

Order	Family	Genus	Species
Perciformes	Nototheniidae	*Notothenia*	*Notothenia angustata*
Perciformes	Nototheniidae	*Notothenia*	*Notothenia coriiceps*
Perciformes	Nototheniidae	*Notothenia*	*Notothenia neglecta*
Perciformes	Nototheniidae	*Notothenia*	*Notothenia nudifrons*
Perciformes	Nototheniidae	*Notothenia*	*Notothenia rossii*
Perciformes	Nototheniidae	*Notothenia*	*Notothenia trigramma*
Perciformes	Nototheniidae	*Nototheniops*	*Nototheniops larseni*
Perciformes	Nototheniidae	*Nototheniops*	*Nototheniops nybelini*
Perciformes	Labridae	*Novaculops*	*Novaculops koteamea*
Perciformes	Carangidae	*Oligoplites*	*Oligoplites refulgens*
Perciformes	Gobiidae	*Ophiogobius*	*Ophiogobius jenynsi*
Perciformes	Zoarcidae	*Ophthalmolycus*	*Ophthalmolycus amberensis*
Perciformes	Zoarcidae	*Ophthalmolycus*	*Ophthalmolycus chilensis*
Perciformes	Zoarcidae	*Ophthalmolycus*	*Ophthalmolycus macrops*
Perciformes	Oplegnathidae	*Oplegnathus*	*Oplegnathus insignis*
Perciformes	Percophidae	*Osopsaron*	*Osopsaron karlik*
Perciformes	Apogonidae	*Ostorhinchus*	*Ostorhinchus chalcius*
Perciformes	Zoarcidae	*Pachycara*	*Pachycara brachycephalum*
Perciformes	Zoarcidae	*Pachycara*	*Pachycara mesoporum*
Perciformes	Zoarcidae	*Pachycara*	*Pachycara pammelas*
Perciformes	Zoarcidae	*Pachycara*	*Pachycara suspectum*
Perciformes	Channichthyidae	*Pagetopsis*	*Pagetopsis macropterus*
Perciformes	Nototheniidae	*Pagothenia*	*Pagothenia borchgrevinki*
Perciformes	Nototheniidae	*Pagothenia*	*Pagothenia brachysoma*
Perciformes	Bathydraconidae	*Parachaenichthys*	*Parachaenichthys charcoti*
Perciformes	Gempylidae	*Paradiplospinus*	*Paradiplospinus antarcticus*
Perciformes	Serranidae	*Paralabrax*	*Paralabrax humeralis*
Perciformes	Sciaenidae	*Paralonchurus*	*Paralonchurus dumerilii*
Perciformes	Sciaenidae	*Paralonchurus*	*Paralonchurus peruanus*
Perciformes	Nototheniidae	*Paranotothenia*	*Paranotothenia magellanica*
Perciformes	Pinguipedidae	*Parapercis*	*Parapercis dockinsi*
Perciformes	Lutjanidae	*Parapristipomoides*	*Parapristipomoides squamimaxillaris*
Perciformes	Gobiidae	*Paratrimma*	*Paratrimma nigrimenta*
Perciformes	Gobiidae	*Paratrimma*	*Paratrimma urospila*
Perciformes	Carangidae	*Parona*	*Parona signata*
Perciformes	Mullidae	*Parupeneus*	*Parupeneus orientalis*
Perciformes	Gobiidae	*Pascua*	*Pascua caudilinea*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen brevicauda*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen canina*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen cornucola*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen elegans*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen guntheri*

Order	Family	Genus	Species
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen jordani*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen kreffti*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen longipes*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen ramsayi*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen sima*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen squamicpes*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen tessellata*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen thompsoni*
Perciformes	Nototheniidae	*Patagonotothen*	*Patagonotothen wiltoni*
Perciformes	Pentacerotidae	*Pentaceros*	*Pentaceros capensis*
Perciformes	Pentacerotidae	*Pentaceros*	*Pentaceros decacanthus*
Perciformes	Pentacerotidae	*Pentaceros*	*Pentaceros japonicus*
Perciformes	Pentacerotidae	*Pentaceros*	*Pentaceros quinquespinis*
Perciformes	Pentacerotidae	*Pentaceros*	*Pentaceros richardsoni*
Perciformes	Stromateidae	*Peprilus*	*Peprilus medius*
Perciformes	Percichthydae	*Percichthys*	*Percichthys melanops*
Perciformes	Percichthydae	*Percichthys*	*Percichthys trucha*
Perciformes	Perciliidae	*Percilia*	*Percilia gillissi*
Perciformes	Perciliidae	*Percilia*	*Percilia irwini*
Perciformes	Zoarcidae	*Phucocoetes*	*Phucocoetes latitans*
Perciformes	Zoarcidae	*Piedrabuenia*	*Piedrabuenia ringueleti*
Perciformes	Pinguipedidae	*Pinguipes*	*Pinguipes chilensis*
Perciformes	Emmelichthyidae	*Plagiogeneion*	*Plagiogeneion geminatum*
Perciformes	Emmelichthyidae	*Plagiogeneion*	*Plagiogeneion unispina*
Perciformes	Serranidae	*Plectranthias*	*Plectranthias ahiahiata*
Perciformes	Serranidae	*Plectranthias*	*Plectranthias exsul*
Perciformes	Serranidae	*Plectranthias*	*Plectranthias nazcae*
Perciformes	Serranidae	*Plectranthias*	*Plectranthias parini*
Perciformes	Nototheniidae	*Pleuragramma*	*Pleuragramma antarctica*
Perciformes	Zoarcidae	*Pogonolycus*	*Pogonolycus elegans*
Perciformes	Zoarcidae	*Pogonolycus*	*Pogonolycus marinae*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne barsukovi*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne lanceobarbata*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne marmorata*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne permitini*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne scotti*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne ventrimaculata*
Perciformes	Artedidraconidae	*Pogonophryne*	*Pogonophryne skorai*
Perciformes	Polynemidae	*Polydactylus*	*Polydactylus approximans*
Perciformes	Polynemidae	*Polydactylus*	*Polydactylus opercularis*
Perciformes	Polyprionidae	*Polyprion*	*Polyprion oxygeneios*
Perciformes	Polyprionidae	*Polyprion*	*Polyprion yañezi*

Order	Family	Genus	Species
Perciformes	Haemulidae	*Pomadasys*	*Pomadasys bipunctatus*
Perciformes	Pomatomidae	*Pomatomus*	*Pomatomus saltatrix*
Perciformes	Priacanthidae	*Priacanthus*	*Priacanthus nasca*
Perciformes	Gobiidae	*Priolepis*	*Priolepis psygmophilia*
Perciformes	Gobiidae	*Priolepis*	*Priolepis squamogena*
Perciformes	Bathydraconidae	*Prionodraco*	*Prionodraco evansii*
Perciformes	Priacanthidae	*Pristigenys*	*Pristigenys serrula*
Perciformes	Pinguipedidae	*Prolatilus*	*Prolatilus jugularis*
Perciformes	Gempylidae	*Promethichthys*	*Promethichthys prometeus*
Perciformes	Nomeidae	*Psenes*	*Psenes pellucidus*
Perciformes	Nomeidae	*Psenes*	*Psenes sio*
Perciformes	Carangidae	*Pseudocaranx*	*Pseudocaranx cheilio*
Perciformes	Carangidae	*Pseudocaranx*	*Pseudocaranx chilensis*
Perciformes	Carangidae	*Pseudocaranx*	*Pseudocaranx dentex*
Perciformes	Carangidae	*Pseudocaranx*	*Pseudocaranx georgianus*
Perciformes	Channichthyidae	*Pseudochaenichthys*	*Pseudochaenichthys georgianus*
Perciformes	Serranidae	*Pseudogramma*	*Pseudogramma australis*
Perciformes	Labridae	*Pseudolabrus*	*Pseudolabrus fuentesi*
Perciformes	Labridae	*Pseudolabrus*	*Pseudolabrus gayi*
Perciformes	Labridae	*Pseudolabrus*	*Pseudolabrus semifasciatus*
Perciformes	Chiasmodontidae	*Pseudoscopelus*	*Pseudoscopelus altipinnis*
Perciformes	Mullidae	*Pseudupeneus*	*Pseudupeneus grandisquamis*
Perciformes	Bramidae	*Pteraclis*	*Pteraclis aesticola*
Perciformes	Rachycentridae	*Rachycentron*	*Rachycentron canadum*
Perciformes	Bathydraconidae	*Racovitzia*	*Racovitzia glacialis*
Perciformes	Bathydraconidae	*Racovitzia*	*Racovitzia harrisoni*
Perciformes	Echeneidae	*Remora*	*Remora albescens*
Perciformes	Echeneidae	*Remora*	*Remora australis*
Perciformes	Echeneidae	*Remora*	*Remora brachyptera*
Perciformes	Echeneidae	*Remora*	*Remora remora*
Perciformes	Gempylidae	*Rexea*	*Rexea antefurcata*
Perciformes	Gempylidae	*Rexea*	*Rexea brevilineata*
Perciformes	Gempylidae	*Rexea*	*Rexea solandri*
Perciformes	Sciaenidae	*Robaloscion*	*Robaloscion wieneri*
Perciformes	Epigonidae	*Rosenblattia*	*Rosenblattia robusta*
Perciformes	Gempylidae	*Ruvettus*	*Ruvettus pretiosus*
Perciformes	Scombridae	*Sarda*	*Sarda chiliensis*
Perciformes	Scombridae	*Sarda*	*Sarda Sarda chilensis*
Perciformes	Blenniidae	*Scartichthys*	*Scartichthys crapulatus*
Perciformes	Blenniidae	*Scartichthys*	*Scartichthys gigas*
Perciformes	Blenniidae	*Scartichthys*	*Scartichthys variolatus*
Perciformes	Blenniidae	*Scartichthys*	*Scartichthys viridis*

Order	Family	Genus	Species
Perciformes	Centrolophidae	*Schedophilus*	*Schedophilus huttoni*
Perciformes	Centrolophidae	*Schedophilus*	*Schedophilus velaini*
Perciformes	Centrolophidae	*Schedophilus*	*Schedophilus medusophagus*
Perciformes	Centrolophidae	*Schedophilus*	*Schedophilus velaini*
Perciformes	Schindleriidae	*Schindleria*	*Schindleria praematura*
Perciformes	Sciaenidae	*Sciaena*	*Sciaena deliciosa*
Perciformes	Scombridae	*Scomber*	*Scomber japonicus*
Perciformes	Scombridae	*Scomberomorus*	*Scomberomorus maculatus*
Perciformes	Scombridae	*Scomberomorus*	*Scomberomorus sierra*
Perciformes	Scombrolabracidae	*Scombrolabrax*	*Scombrolabrax heterolepis*
Perciformes	Kyphosidae	*Scorpis*	*Scorpis chilensis*
Perciformes	Carangidae	*Selene*	*Selene brevoorti*
Perciformes	Carangidae	*Selene*	*Selene peruviana*
Perciformes	Zoarcidae	*Seleniolycus*	*Seleniolycus laevifasciatus*
Perciformes	Labridae	*Semicossyphus*	*Semicossyphus darwini*
Perciformes	Carangidae	*Seriola*	*Seriola lalandi*
Perciformes	Carangidae	*Seriola*	*Seriola peruana*
Perciformes	Centrolophidae	*Seriolella*	*Seriolella caerulea*
Perciformes	Centrolophidae	*Seriolella*	*Seriolella porosa*
Perciformes	Centrolophidae	*Seriolella*	*Seriolella punctata*
Perciformes	Centrolophidae	*Seriolella*	*Seriolella violacea*
Perciformes	Serranidae	*Serranus*	*Serranus huascarii*
Perciformes	Dactyloscopidae	*Sindoscopus*	*Sindoscopus australis*
Perciformes	Sphyraenidae	*Sphyraena*	*Sphyraena ensis*
Perciformes	Sphyraenidae	*Sphyraena*	*Sphyraena helleri*
Perciformes	Sphyraenidae	*Sphyraena*	*Sphyraena idiastes*
Perciformes	Epigonidae	*Sphyraenops*	*Sphyraenops bairdianus*
Perciformes	Pomacentridae	*Stegastes*	*Stegastes fasciolatus*
Perciformes	Pomacentridae	*Stegastes*	*Stegastes rectifraenum*
Perciformes	Sciaenidae	*Stellifer*	*Stellifer ericymba*
Perciformes	Sciaenidae	*Stellifer*	*Stellifer minor*
Perciformes	Stromateidae	*Stromateus*	*Stromateus stellatus*
Perciformes	Labridae	*Suezichthys*	*Suezichthys rosenblatti*
Perciformes	Symphysanodontidae	*Symphysanodon*	*Symphysanodon maunaloae*
Perciformes	Symphysanodontidae	*Symphysanodon*	*Symphysanodon parini*
Perciformes	Callionymidae	*Synchiropus*	*Synchiropus randalli*
Perciformes	Bramidae	*Taractes*	*Taractes asper*
Perciformes	Bramidae	*Taractes*	*Taractes rubescens*
Perciformes	Tetragonuridae	*Tetragonurus*	*Tetragonurus atlanticus*
Perciformes	Tetragonuridae	*Tetragonurus*	*Tetragonurus cuvieri*
Perciformes	Labridae	*Thalassoma*	*Thalassoma lutescens*

Order	Family	Genus	Species
Perciformes	Labridae	*Thalassoma*	*Thalassoma purpureum*
Perciformes	Scombridae	*Thunnus*	*Thunnus alalunga*
Perciformes	Scombridae	*Thunnus*	*Thunnus albacares*
Perciformes	Scombridae	*Thunnus*	*Thunnus obesus*
Perciformes	Scombridae	*Thunnus*	*Thunnus thynnus*
Perciformes	Gempylidae	*Thyrsites*	*Thyrsites atun*
Perciformes	Gempylidae	*Thyrsitops*	*Thyrsitops lepidopoides*
Perciformes	Carangidae	*Trachinotus*	*Trachinotus paitensis*
Perciformes	Trachinidae	*Trachinus*	*Trachinus cornutus*
Perciformes	Carangidae	*Trachurus murphyi*	*Trachurus murphyi*
Perciformes	Serranidae	*Trachypoma*	*Trachypoma macracanthus*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus hansoni*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus loennbergii*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus pennellii*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus scotti*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus bernacchii*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus eulepidotus*
Perciformes	Nototheniidae	*Trematomus*	*Trematomus newnesi*
Perciformes	Gobiidae	*Trimma*	*Trimma unisquamis*
Perciformes	Sciaenidae	*Umbrina*	*Umbrina imberbis*
Perciformes	Sciaenidae	*Umbrina*	*Umbrina reedi*
Perciformes	Sciaenidae	*Umbrina*	*Umbrina xanti*
Perciformes	Bathydraconidae	*Vomeridens*	*Vomeridens infuscipinnis*
Perciformes	Xiphiidae	*Xiphias*	*Xiphias gladius*
Perciformes	Zanclidae	*Zanclus*	*Zanclus cornutus*
Pleuronectiformes	Achiropsettidae	*Achiropsetta*	*Achiropsetta tricholepis*
Pleuronectiformes	Achiridae	*Achirus*	*Achirus klunzingeri*
Pleuronectiformes	Achiridae	*Achirus*	*Achirus scutum*
Pleuronectiformes	Bothidae	*Arnoglossus*	*Arnoglossus coeruleosticta*
Pleuronectiformes	Bothidae	*Arnoglossus*	*Arnoglossus multirastris*
Pleuronectiformes	Soleidae	*Aseraggodes*	*Aseraggodes bahamondei*
Pleuronectiformes	Bothidae	*Bothus*	*Bothus constellatus*
Pleuronectiformes	Bothidae	*Bothus*	*Bothus mancus*
Pleuronectiformes	Bothidae	*Chascanopsetta*	*Chascanopsetta megagnatha*
Pleuronectiformes	Bothidae	*Engyprosopon*	*Engyprosopon arenicola*
Pleuronectiformes	Bothidae	*Engyprosopon*	*Engyprosopon regani*
Pleuronectiformes	Paralichthyidae	*Etropus*	*Etropus ectenes*
Pleuronectiformes	Paralichthyidae	*Hippoglossina*	*Hippoglossina macrops*
Pleuronectiformes	Paralichthyidae	*Hippoglossina*	*Hippoglossina montemaris*
Pleuronectiformes	Paralichthyidae	*Hippoglossina*	*Hippoglossina mystacium*
Pleuronectiformes	Achiropsettidae	*Mancopsetta*	*Mancopsetta maculata*
Pleuronectiformes	Achiropsettidae	*Neoachiropsetta*	*Neoachiropsetta milfordi*

Order	Family	Genus	Species
Pleuronectiformes	Bothidae	*Parabothus*	*Parabothus amaokai*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys adspersus*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys delfini*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys fernandezianus*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys microps*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys patagonicus*
Pleuronectiformes	Paralichthyidae	*Paralichthys*	*Paralichthys schmitti*
Pleuronectiformes	Bothidae	*Pelecanichthys*	*Pelecanichthys crumenalis*
Pleuronectiformes	Achiropsettidae	*Pseudomancopsetta*	*Pseudomancopsetta andriashevi*
Pleuronectiformes	Cynoglossidae	*Symphurus*	*Symphurus elongatus*
Pleuronectiformes	Paralichthyidae	*Thysanopsetta*	*Thysanopsetta naresi*
Polymixiiformes	Polymixiidae	*Polymixia*	*Polymixia salagomeziensis*
Polymixiiformes	Polymixiidae	*Polymixia*	*Polymixia yuri*
Saccopharingyformes	Cyematidae	*Cyema*	*Cyema atrum*
Saccopharingyformes	Eupharyngidae	*Eurypharynx*	*Eurypharynx pelecanoides*
Salmoniformes	Salmonidae	*Coregonus*	*Coregonus clupeaformis*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus gorbuscha*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus keta*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus kisutch*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus masou masou*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus mykiss*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus nerka*
Salmoniformes	Salmonidae	*Oncorhynchus*	*Oncorhynchus tshawytscha*
Salmoniformes	Salmonidae	*Salmo*	*Salmo salar*
Salmoniformes	Salmonidae	*Salmo*	*Salmo trutta*
Salmoniformes	Salmonidae	*Salmo*	*Salmo trutta fario*
Salmoniformes	Salmonidae	*Salmo*	*Salmo trutta trutta*
Salmoniformes	Salmonidae	*Salvelinus*	*Salvelinus fontinalis*
Salmoniformes	Salmonidae	*Salvelinus*	*Salvelinus namaycush*
Scorpaeniformes	Agonidae	*Agonopsis*	*Agonopsis chiloensis*
Scorpaeniformes	Bembridae	*Bembradium*	*Bembradium roseum*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus atakamensis*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus falklandicus*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus magellanicus*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus pallidus*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus patagonicus*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus steini*
Scorpaeniformes	Liparidae	*Careproctus*	*Careproctus tricapitidens*
Scorpaeniformes	Congiopodidae	*Congiopodus*	*Congiopodus kieneri*
Scorpaeniformes	Congiopodidae	*Congiopodus*	*Congiopodus peruvianus*
Scorpaeniformes	Psychrolutidae	*Cottunculus*	*Cottunculus granulosus*
Scorpaeniformes	Psychrolutidae	*Cyclopterichthys*	*Cyclopterichthys amissus*

Order	Family	Genus	Species
Scorpaeniformes	Liparidae	*Eknomoliparis*	*Eknomoliparis chirichignoae*
Scorpaeniformes	Liparidae	*Eknomoliparis*	*Eknomoliparis chirichignoae*
Scorpaeniformes	Liparidae	*Genioliparis*	*Genioliparis lindbergi*
Scorpaeniformes	Sebastidae	*Helicolenus*	*Helicolenus lengerichi*
Scorpaeniformes	Hoplichthyidae	*Hoplichthys*	*Hoplichthys citrinus*
Scorpaeniformes	Liparidae	*Liparis*	*Liparis antarcticus*
Scorpaeniformes	Neosebastidae	*Maxillicosta*	*Maxillicosta reticulata*
Scorpaeniformes	Normanichthyidae	*Normanichthys*	*Normanichthys crockeri*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis acutidens*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis debueni*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis eltanini*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis kocki*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis leucogaster*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis meganchus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis membranaceus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis merodontus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis molinai*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis monoporus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis porcus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis skeliphrus*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis somovi*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis tompkinsae*
Scorpaeniformes	Liparidae	*Paraliparis*	*Paraliparis trilobodon*
Scorpaeniformes	Scorpaenidae	*Phenacoscorpius*	*Phenacoscorpius eschmeyeri*
Scorpaeniformes	Plectrogeniidae	*Plectrogenium*	*Plectrogenium barsukovi*
Scorpaeniformes	Liparidae	*Praematoliparis*	*Praematoliparis anarthractae*
Scorpaeniformes	Triglidae	*Prionotus*	*Prionotus stephanophrys*
Scorpaeniformes	Triglidae	*Prionotus*	*Prionotus ruscarius*
Scorpaeniformes	Liparidae	*Psednos*	*Psednos dentatus*
Scorpaeniformes	Psychrolutidae	*Psychrolutes*	*Psychrolutes marmoratus*
Scorpaeniformes	Psychrolutidae	*Psychrolutes*	*Psychrolutes sio*
Scorpaeniformes	Triglidae	*Pterygotrigla*	*Pterygotrigla picta*
Scorpaeniformes	Scorpaenidae	*Rhinopias*	*Rhinopias cea*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena englerti*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena fernandeziana*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena histrio*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena mystes*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena orgila*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena pascuensis*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena thomsoni*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena tierrae*
Scorpaeniformes	Scorpaenidae	*Scorpaena*	*Scorpaena uncinata*

Order	Family	Genus	Species
Scorpaeniformes	Scorpaenidae	*Scorpaenodes*	*Scorpaenodes englerti*
Scorpaeniformes	Sebastidae	*Sebastes*	*Sebastes capensis*
Scorpaeniformes	Sebastidae	*Sebastes*	*Sebastes oculatus*
Scorpaeniformes	Setarchidae	*Setarches*	*Setarches guentheri*
Scorpaeniformes	Sebastidae	*Trachyscorpia*	*Trachyscorpia cristulata*
Scorpaeniformes	Liparidae	*Volodichthys*	*Volodichthys parini*
Siluriformes	Ictaluridae	*Ameirurus*	*Ameiurus melas*
Siluriformes	Ictaluridae	*Ameiurus*	*Ameiurus nebulosus*
Siluriformes	Loricariidae	*Ancistrus*	*Ancistrus erinaceus*
Siluriformes	Trichomycteridae	*Bullockia*	*Bullockia maldonadoi*
Siluriformes	Diplomystidae	*Diplomystes*	*Diplomystes camposensis*
Siluriformes	Diplomystidae	*Diplomystes*	*Diplomystes chilensis*
Siluriformes	Diplomystidae	*Diplomystes*	*Diplomystes nahuelbutaensis*
Siluriformes	Ariidae	*Galeichthys*	*Galeichthys peruvianus*
Siluriformes	Ariidae	*Genidens*	*Genidens barbus*
Siluriformes	Trichomycteridae	*Hatcheria*	*Hatcheria macraei*
Siluriformes	Ictaluridae	*Ictalurus*	*Ictalurus punctatus*
Siluriformes	Nematogenyidae	*Nematogenys*	*Nematogenys inermis*
Siluriformes	Trichomycteridae	*Silvinichthys*	*Silvinichthys mendozensis*
Siluriformes	Trichomycteridae	*Trichomycterus*	*Trichomycterus areolatus*
Siluriformes	Trichomycteridae	*Trichomycterus*	*Trichomycterus chiltoni*
Siluriformes	Trichomycteridae	*Trichomycterus*	*Trichomycterus chungaraensis*
Siluriformes	Trichomycteridae	*Trichomycterus*	*Trichomycterus laucaensis*
Siluriformes	Trichomycteridae	*Trichomycterus*	*Trichomycterus rivulatus*
Stephanoberyciformes	Stephanoberycidae	*Acanthochaenus*	*Acanthochaenus luetkenii*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes acanthomus*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes indicus*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes laeviceps*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes longivelis*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes macrocephalus*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes microps*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes polylepis*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes simus*
Stephanoberyciformes	Melamphaidae	*Melamphaes*	*Melamphaes spinifer*
Stephanoberyciformes	Melamphaidae	*Poromitra*	*Poromitra crassiceps*
Stephanoberyciformes	Melamphaidae	*Poromitra*	*Poromitra gibbsi*
Stephanoberyciformes	Melamphaidae	*Poromitra*	*Poromitra jucunda*
Stephanoberyciformes	Melamphaidae	*Poromitra*	*Poromitra megalops*
Stephanoberyciformes	Melamphaidae	*Scopeloberyx*	*Scopeloberyx maxillaris*
Stephanoberyciformes	Melamphaidae	*Scopeloberyx*	*Scopeloberyx microlepis*
Stephanoberyciformes	Melamphaidae	*Scopeloberyx*	*Scopeloberyx opisthopterus*
Stephanoberyciformes	Melamphaidae	*Scopeloberyx*	*Scopeloberyx pequenoi*

Order	Family	Genus	Species
Stephanoberyciformes	Melamphaidae	*Scopeloberyx*	*Scopeloberyx robustus*
Stephanoberyciformes	Melamphaidae	*Scopelogadus*	*Scopelogadus beani*
Stephanoberyciformes	Melamphaidae	*Scopelogadus*	*Scopelogadus mizolepis*
Stephanoberyciformes	Melamphaidae	*Sio*	*Sio nordenskjoeldii*
Stomiiformes	Sternoptychidae	*Argyripnus*	*Argyripnus electronus*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus aculeatus*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus affinis*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus gigas*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus hemigymnus*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus lychnus*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus olfersii*
Stomiiformes	Sternoptychidae	*Argyropelecus*	*Argyropelecus sladeni*
Stomiiformes	Stomiidae	*Aristostomias*	*Aristostomias tittmanni*
Stomiiformes	Stomiidae	*Astronesthes*	*Astronesthes boulengeri*
Stomiiformes	Stomiidae	*Astronesthes*	*Astronesthes indicus*
Stomiiformes	Stomiidae	*Astronesthes*	*Astronesthes luetkeni*
Stomiiformes	Stomiidae	*Astronesthes*	*Astronesthes zetgibbsi*
Stomiiformes	Stomiidae	*Bathophilus*	*Bathophilus ater*
Stomiiformes	Stomiidae	*Bathophilus*	*Bathophilus brevis*
Stomiiformes	Stomiidae	*Bathophilus*	*Bathophilus filifer*
Stomiiformes	Stomiidae	*Bathophilus*	*Bathophilus kingi*
Stomiiformes	Stomiidae	*Bathophilus*	*Bathophilus longipinnis*
Stomiiformes	Stomiidae	*Borostomias*	*Borostomias antarcticus*
Stomiiformes	Stomiidae	*Borostomias*	*Borostomias panamensis*
Stomiiformes	Stomiidae	*Chauliodus*	*Chauliodus barbatus*
Stomiiformes	Stomiidae	*Chauliodus*	*Chauliodus danae*
Stomiiformes	Stomiidae	*Chauliodus*	*Chauliodus sloani*
Stomiiformes	Stomiidae	*Chauliodus*	*Chauliodus vasnetzovi*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone acclinidens*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone alba*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone braueri*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone kobayashii*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone microdon*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone pallida*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone pseudopallida*
Stomiiformes	Gonostomatidae	*Cyclothone*	*Cyclothone signata*
Stomiiformes	Sternoptychidae	*Danaphos*	*Danaphos oculatus*
Stomiiformes	Gonostomatidae	*Diplophos*	*Diplophos australis*
Stomiiformes	Gonostomatidae	*Diplophos*	*Diplophos rebainsi*
Stomiiformes	Gonostomatidae	*Diplophos*	*Diplophos taenia*
Stomiiformes	Stomiidae	*Eustomias*	*Eustomias crucis*
Stomiiformes	Stomiidae	*Eustomias*	*Eustomias trewavasae*

Order	Family	Genus	Species
Stomiiformes	Phosichthyidae	*Ichthyococcus*	*Ichthyococcus ovatus*
Stomiiformes	Stomiidae	*Idiacanthus*	*Idiacanthus antrostomus*
Stomiiformes	Stomiidae	*Idiacanthus*	*Idiacanthus atlanticus*
Stomiiformes	Stomiidae	*Idiacanthus*	*Idiacanthus fasciola*
Stomiiformes	Stomiidae	*Leptostomias*	*Leptostomias gracilis*
Stomiiformes	Stomiidae	*Malacosteus*	*Malacosteus niger*
Stomiiformes	Sternoptychidae	*Maurolicus*	*Maurolicus muelleri*
Stomiiformes	Sternoptychidae	*Maurolicus*	*Maurolicus parvipinnis*
Stomiiformes	Sternoptychidae	*Maurolicus*	*Maurolicus rudjakovi*
Stomiiformes	Stomiidae	*Opostomias*	*Opostomias micripnus*
Stomiiformes	Stomiidae	*Pachystomias*	*Pachystomias microdon*
Stomiiformes	Stomiidae	*Photonectes*	*Photonectes munificus*
Stomiiformes	Stomiidae	*Photostomias*	*Photostomias guernei*
Stomiiformes	Sternoptychidae	*Polyipnus*	*Polyipnus inermis*
Stomiiformes	Phosichthyidae	*Polymetme*	*Polymetme andriashevi*
Stomiiformes	Phosichthyidae	*Polymetme*	*Polymetme corythaeola*
Stomiiformes	Gonostomatidae	*Sigmops*	*Sigmops bathyphilus*
Stomiiformes	Gonostomatidae	*Sigmops*	*Sigmops ebelingi*
Stomiiformes	Gonostomatidae	*Sigmops*	*Sigmops elongatum*
Stomiiformes	Gonostomatidae	*Sigmops*	*Sigmops longipinnis*
Stomiiformes	Sternoptychidae	*Sternoptyx*	*Sternoptyx diaphana*
Stomiiformes	Sternoptychidae	*Sternoptyx*	*Sternoptyx obscura*
Stomiiformes	Sternoptychidae	*Sternoptyx*	*Sternoptyx pseudodiaphana*
Stomiiformes	Stomiidae	*Stomias*	*Stomias atriventer*
Stomiiformes	Stomiidae	*Stomias*	*Stomias boa*
Stomiiformes	Stomiidae	*Stomias*	*Stomias colubrinus*
Stomiiformes	Stomiidae	*Stomias*	*Stomias gracilis*
Stomiiformes	Stomiidae	*Stomias*	*Stomias longibarbatus*
Stomiiformes	Stomiidae	*Tactostoma*	*Tactostoma macropus*
Stomiiformes	Stomiidae	*Trigonolampa*	*Trigonolampa miriceps*
Stomiiformes	Phosichthyidae	*Vinciguerria*	*Vinciguerria attenuata*
Stomiiformes	Phosichthyidae	*Vinciguerria*	*Vinciguerria lucetia*
Stomiiformes	Phosichthyidae	*Vinciguerria*	*Vinciguerria nimbaria*
Stomiiformes	Phosichthyidae	*Vinciguerria*	*Vinciguerria poweriae*
Syngnathiformes	Aulostomidae	*Aulostomus*	*Aulostomus chinensis*
Syngnathiformes	Centriscidae	*Centriscops*	*Centriscops humerosus*
Syngnathiformes	Syngnathidae	*Cosmocampus*	*Cosmocampus arctus*
Syngnathiformes	Syngnathidae	*Cosmocampus*	*Cosmocampus howensis*
Syngnathiformes	Syngnathidae	*Cosmocampus*	*Cosmocampus heraldi*
Syngnathiformes	Fistulariidae	*Fistularia*	*Fistularia commersoni*
Syngnathiformes	Syngnathidae	*Hippocampus*	*Hippocampus ingens*
Syngnathiformes	Syngnathidae	*Leptonotus*	*Leptonotus blainvilleanus*

Order	Family	Genus	Species
Syngnathiformes	Syngnathidae	*Leptonotus*	*Leptonotus vincentae*
Syngnathiformes	Centriscidae	*Macroramphosus*	*Macroramphosus gracilis*
Syngnathiformes	Centriscidae	*Macroramphosus*	*Macroramphosus scolopax*
Syngnathiformes	Centriscidae	*Notopogon*	*Notopogon fernandezianus*
Syngnathiformes	Syngnathidae	*Syngnathus*	*Syngnathus macrobrachium*
Tetraodontiformes	Monacanthidae	*Aluterus*	*Aluterus monoceros*
Tetraodontiformes	Monacanthidae	*Aluterus*	*Aluterus scriptus*
Tetraodontiformes	Tetraodontidae	*Arothron*	*Arothron meleagris*
Tetraodontiformes	Balistidae	*Balistes*	*Balistes polylepis*
Tetraodontiformes	Monacanthidae	*Cantherhines*	*Cantherhines dumerilii*
Tetraodontiformes	Monacanthidae	*Cantherhines*	*Cantherhines rapanui*
Tetraodontiformes	Tetraodontidae	*Canthigaster*	*Canthigaster cyanetron*
Tetraodontiformes	Diodontidae	*Chilomycterus*	*Chilomycterus reticulatus*
Tetraodontiformes	Diodontidae	*Diodon*	*Diodon holocanthus*
Tetraodontiformes	Diodontidae	*Diodon*	*Diodon hystrix*
Tetraodontiformes	Ostraciidae	*Lactoria*	*Lactoria diaphana*
Tetraodontiformes	Ostraciidae	*Lactoria*	*Lactoria fornasini*
Tetraodontiformes	Ostraciidae	*Lactoria*	*Lactoria paschae*
Tetraodontiformes	Molidae	*Masturus*	*Masturus lanceolatus*
Tetraodontiformes	Molidae	*Mola*	*Mola alexandrini*
Tetraodontiformes	Molidae	*Mola*	*Mola mola*
Tetraodontiformes	Balistidae	*Pseudobalistes*	*Pseudobalistes naufragium*
Tetraodontiformes	Molidae	*Ranzania*	*Ranzania laevis*
Tetraodontiformes	Tetraodontidae	*Sphoeroides*	*Sphoeroides angusticeps*
Tetraodontiformes	Tetraodontidae	*Sphoeroides*	*Sphoeroides lobatus*
Tetraodontiformes	Tetraodontidae	*Sphoeroides*	*Sphoeroides pachygaster*
Tetraodontiformes	Tetraodontidae	*Sphoeroides*	*Sphoeroides trichocephalus*
Tetraodontiformes	Monacanthidae	*Thamnaconus*	*Thamnaconus paschalis*
Tetraodontiformes	Balistidae	*Xanthichthys*	*Xanthichthys lineopunctatus*
Tetraodontiformes	Balistidae	*Xanthichthys*	*Xanthichthys mento*
Zeiformes	Zeniontidae	*Cyttomimus*	*Cyttomimus stelgis*
Zeiformes	Grammicolepididae	*Grammicolepis*	*Grammicolepis brachiusculus*
Zeiformes	Oreosomatidae	*Neocyttus*	*Neocyttus psilorhynchus*
Zeiformes	Oreosomatidae	*Neocyttus*	*Neocyttus rhomboidalis*
Zeiformes	Oreosomatidae	*Pseudocyttus*	*Pseudocyttus maculatus*
Zeiformes	Parazenidae	*Stethopristes*	*Stethopristes eos*
Zeiformes	Zeniontidae	*Zenion*	*Zenion hololepis*
Zeiformes	Zeniontidae	*Zenion*	*Zenion japonicum*
Zeiformes	Zeidae	*Zenopsis*	*Zenopsis conchifer*
Zeiformes	Zeidae	*Zenopsis*	*Zenopsis nebulosa*
Zeiformes	Zeidae	*Zenopsis*	*Zenopsis oblonga*