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Phylogenetic Taxonomy of Wrasses and Parrotfishes (*Labridae*)

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Abstract

We present a comprehensive phylogenetic taxonomy of *Labridae* (wrasses, parrotfishes, hogfishes, and weedwhitings), one of the most species-rich lineages of marine teleost fishes, comprising 676 species distributed across tropical and temperate nearshore habitats worldwide. Using a phylogeny of 415 species inferred using genomic markers as a foundation, we create a synthetic phylogeny of 590 species of *Labridae* by including an additional 175 species based on mitochondrial DNA gene trees, other phylogenetic studies, and explicit statements of relationships in taxonomic revisions. We establish phylogenetic definitions for *Labridae* and 12 major clades: *Hypsigenyinae*, *Odacini*, *Clepticini*, *Cirrhilabrinae*, *Labrinae*, *Cheilininae*, *Scarinae*, *Scarini*, *Sparisomatini*, *Xyrichtyinae*, *Pseudolabrinae*, and *Julidinae*. Our taxonomy places parrotfishes (*Scarinae*) as a clade within *Labridae*, aligning with phylogenetic studies conducted over the past two decades. Our synthetic phylogeny highlights that several traditionally recognized genera (e.g., *Halichoeres*, *Coris*, *Thalassoma*), particularly within *Julidinae*, are polyphyletic. This finding necessitates substantial taxonomic revisions of *Labridae* including description and elevation of 11 genera, 17 new species synonyms, and more than 150 changes to genus-species combinations. This phylogenetically informed taxonomy provides a framework for understanding character evolution and adaptation in *Labridae* while preserving nomenclatural stability through the retention of well-established clade names.

Keywords

PhyloCode, *Percomorpha*, *Labriformes*, *Halichoeres*, *Thalassoma*, *Scarinae*, *Teleostei*

Introduction

Labridae (*Teleostei*: *Percomorpha*: *Eupercaria*) is one of the most species-rich and ecologically significant lineages of marine vertebrates, comprising 676 species distributed across tropical and temperate near-shore habitats worldwide (Westneat 2001; Kuiter 2010; Allen and Erdmann 2024). Wrasses exhibit remarkable diversity in morphology, life history strategies, and ecological roles, ranging from tiny, 50 mm species of *Wetmorella* that occupy shaded reef recesses to the 190 kg Humphead Wrasse *Cheilinus undulatus*. The importance of labrids in marine ecosystems, particularly coral reefs, is reflected in their varied feeding strategies, complex social behaviors, and key ecological functions, including herbivory and bioerosion, predation on a wide range of invertebrates and other fishes, cleaning behavior, and corallivory (Wainwright and Bellwood 2002; Arnal et al. 2006; Hodge et al. 2020).

Traditional taxonomic classifications of *Labridae* based primarily on morphological characters (e.g., Günther 1861; Bleeker 1862a; Gomon 1979, 1997; Russell 1988; Westneat 1993; Parenti and Randall 2000) have been challenged by molecular phylogenetic analyses conducted over the past two decades (e.g., Westneat and Alfaro 2005; Baliga and Law 2016; Hughes et al. 2023; Brownstein et al. 2025). Molecular phylogenies consistently resolve the historically recognized taxonomic families *Scaridae* (parrotfishes) and *Odacidae* (cales and weedwhitings) as clades within *Labridae*, and several species-rich genera, including *Halichoeres* and *Coris*, as polyphyletic (Barber and Bellwood 2005; Cowman et al. 2009). The phylogenetic relationships of *Labridae* inferred using DNA sequence data show that the current taxonomy fails to represent natural groups. This problem confounds both basic research on the biology of *Labridae* and applied fields such as the conservation biology and fisheries management of species in this clade.

Molecular phylogenies have been fundamental to several major insights into the evolutionary dynamics and origins of major functional novelties that characterize labrid diversity. Beak-like jaws are rare across teleost fishes, yet in wrasses there are three different origins of this adaptation for scraping algae and microbes from rocky reef substrates; two in parrotfishes and one in temperate *Hypsigenyinae* (Bellwood 1994; Evans et al. 2023). Within parrotfishes, an intramandibular joint evolved in the most recent common ancestor of the clade that includes *Scarus*, *Chlorurus*, and *Hipposcarus* (Price et al. 2010; Wainwright and Price 2018), a clade that has been shown to exhibit high rates of lineage diversification (Kazancioglu et al. 2009; Brownstein et al. 2025) and elevated rates of jaw and skull evolution (Price et al. 2010; Evans et al. 2023). Phylogenies inferred from molecular data have demonstrated that multiple transitions to morphological specialization and planktivory occurred among clades of wrasses that otherwise include largely benthic species that prey on of shelled invertebrates For example, *Clepticus* is deeply nested within *Bodianus* (Westneat and Alfaro 2005; Hughes et al. 2023; Brownstein et al. 2025), *Halichoeres pictus* is phylogenetically nested within the broader Western Atlantic *Halichoeres* (Wainwright et al. 2018), and *Pseudocoris* and *Leptojulis* are nested within the *Julidinae* (Westneat and Alfaro 2005; Brownstein et al. 2025). Cleaning behavior in *Labroides* originated from an ancestral state of coral mucus feeding, and it appears that both may have derived from the juvenile diet of fish mucus (Baliga and Law 2016).

The principles of phylogenetic nomenclature, as presented in the *PhyloCode*, offer a solution to the taxonomic challenges revealed by the phylogeny of *Labridae* by providing a framework for defining clade names based on phylogenetic relationships rather than ranked hierarchical classifications (de Queiroz and Gauthier 1994; Cantino and de Queiroz 2020). The *PhyloCode* specifies that named groups are clades, such that the name is stable even if the clade composition changes as hypotheses of phylogenetic relationships are refined. The Linnaean system is governed by the International Code of Zoological Nomenclature (ICZN), which defines family and genus group names based on ranks and types. This can lead to conflict between names if it is demonstrated that the groups do not correspond to clades in a phylogeny, as is the case in *Labridae*. However, the *PhyloCode* and the Linnaean systems are complementary in that the ICZN does not govern names above the family rank and *PhyloCode* does not cover the principles for naming species (de Queiroz and Gauthier 1994; International Commission on Zoological Nomenclature 1999; Cantino and de Queiroz 2020).

Here, we propose a phylogenetic taxonomy for *Labridae* that incorporates a wealth of information from systematic studies starting in the mid-19th century and integrates the results from molecular phylogenetic studies published over the past 20 years. Our proposed taxonomy of *Labridae* is unranked and names monophyletic groups using phylogenetic definitions, facilitating the adoption of a stable systematic nomenclature that accurately reflects evolutionary relationships while maintaining the historical usage of well-established group names where appropriate. For family and genus group names, we adopt a blended nomenclatural system that follows *PhyloCode* conventions but also respects the priority of names and follows Linnaean conventions regarding the designation and identification of types and appropriate use of family group name suffixes.

Our revision of *Labridae* is based on a synthetic phylogeny that includes 590 of 676 labrid species and identifies 17 species as synonyms of earlier described species, describes a new genus, elevates 10 genera out of synonymy, and introduces more than 150 new combinations of genus-species names. The new taxonomy of *Labridae* provides a robust framework for future comparative studies and enhances communication about labrid diversity across scientific disciplines.

Materials and Methods

As a basis for the taxonomic revision of *Labridae*, we constructed a synthetic phylogeny that includes 590 species. A phylogeny of 415 species of *Labridae* inferred from DNA sequences of 1,009 ultraconserved element (UCE) loci provided the foundation for the synthetic phylogeny (Brownstein et al. 2025, figs. S1–S7). Phylogenetic resolution in mitochondrial DNA (mtDNA) gene trees generated in this study, phylogenetic relationships presented in published studies, or explicit statements of relationships in taxonomic studies and species descriptions provided the basis to add 175 additional species of *Labridae* to the synthetic phylogeny. The comments section of the clade accounts provides the details on the evidence used to place each of these species in the synthetic phylogeny. The synthetic tree includes 83 of 85 genera of *Labridae* with only the monotypic *Frontilabrus caeruleus* and the seven species of *Novaculops* lacking any information on phylogeny.

We inferred mtDNA gene trees for the clades *Clepticini*, *Cirrhilabrinae*, *Cheilininae*, *Scarinae*, *Xyrichtyinae*, and *Julidinae* using the COI gene that systematists commonly used for phylogenetics, species delimitation, and DNA barcoding studies of *Labridae*. We expanded an alignment of COI for *Labridae*, previously used in a supermatrix phylogenetic analysis of *Actinopterygii* (Rabosky et al. 2018; Chang et al. 2019), by downloading COI gene sequences from GenBank and the Barcode of Life Data System (Ratnasingham and Hebert 2007). We added sequences to the alignment by eye. We determined the optimal data partitioning scheme, among the three codon positions of the COI gene, and molecular evolutionary models using the Bayesian information criterion in the computer program Partitionfinder v. 2.1 (Lanfear et al. 2017). We inferred the mitochondrial gene trees from the aligned COI sequences using the optimal molecular evolutionary models and partitioning scheme using the computer program MrBayes v. 3.2 (Ronquist et al. 2012), where we estimated posterior probabilities for the phylogeny and parameter values using Metropolis-couple Markov chain Monte Carlo (MC3) (Larget and Simon 1999; Huelsenbeck et al. 2001). We ran each MrBayes analysis for 10^7 generations with two simultaneous runs each with four chains. We assessed convergence of the MC3 algorithm and stationarity of the chains by monitoring the average standard deviation of the split frequencies between the two runs, which fell below 0.005 after 3×10^6 generations. Additionally, we plotted the likelihood score and all model parameter estimates against the generation number to determine when there was no increase relative to the generation number in the computer program Tracer v. 1.5 (Drummond and Rambaut 2007). We discarded the first 50% of the sampled generations as burn-in and summarized the posterior phylogeny as a 50% majority-rule consensus tree.

We develop a phylogeny-based classification of *Labridae* following in part the principles of phylogenetic nomenclature outlined in the *PhyloCode* (de Queiroz and Gauthier 1990, 1992, 1994; Cantino and de Queiroz 2020). We diverge from the *PhyloCode* in following the International Code of Zoological Nomenclature for all family, genus, and species group names. Articles (Art.), examples (Ex.) and recommendations (Rec.) are referred to as outlined in the *International Code of Phylogenetic Nomenclature (PhyloCode) ver. 6* (Cantino and de Queiroz 2020). Following Rec. 6.1A, all scientific names of clades are italicized. This differs from the common practice of only italicizing the genus and species names. All clades presented and reviewed in this monograph are defined as minimum-crown-clades that have at minimum two internal specifiers that are both extant (Arts. 9.5 and 9.9). If there is uncertainty about the early branching history of a well-established clade, more than two specifiers are used (Art. 9.5).

In following the requirements for establishing clade names (Art. 7), we provide a protologue (Art. 7.2, N. 7.2.1) for each clade name that provides everything associated with the name as it is established by the *PhyloCode*. The terms protologue and clade account are used interchangeably in this article. In this classification of *Labridae*, each protologue contains 10 or 11 sections.

The **definition** is the statement that explicitly identifies a clade as the referent of the taxon name and includes at least two specifiers (Art. 9.4). Original author citations are provided for each specifier.

Etymology is an attempt to trace the linguistic origin of clade names. Most of the *Labridae* clade names have an origin in ancient Greek and we provide the original spelling following reference texts (Thompson 1947; Liddell et al. 1968).

The **reference phylogeny** is a specific phylogenetic hypothesis that provides the basis and context for applying a clade name in the phylogenetic definition (Art. 7.2). The reference phylogenies were selected based on taxonomic coverage and only those resulting from an explicit analysis of character state changes were considered (Rec. 9.13A). The reference phylogenies come from three molecular phylogenetic studies of *Labridae* (Clements et al. 2004; Baliga and Law 2016; Brownstein et al. 2025). In the reference phylogeny section, we refer to the figure number where the phylogenetic relationships of the clade are illustrated and we highlight 86 species of *Labridae* that are not included in our synthetic phylogeny (Table 1).

In the **phylogenetics** section, we provide a brief history of the systematics of the clade. Often this is the longest section of the clade account. We attempt to review all published phylogenetic analyses for the clade, assess congruence among studies, highlighting taxonomic groups resolved as para- or polyphyletic, and illuminating groups of species in need of additional phylogenetic study.

We provide a **taxonomy** section for a clade account if there are any changes to the classification of species, including synonymization with other species, the description and elevation of genera, and new genus species combinations. Taxonomic changes to the species of *Labridae* are presented in Table 2.

The **composition** of the clade includes a statement as to the current recognized species diversity and a listing of all the named major lineages of the defined clade. We also highlight recent biodiversity discovery by listing the number of new species described over the past 25 years (2000–2025 CE).

Diagnostic apomorphies lists morphological traits that investigators have offered as diagnostic for the clade. Although not required to establish a clade name in *PhyloCode*, we acknowledge the rich history of morphological phylogenetics in ichthyology that has resulted in hypothesized morphological synapomorphies for *Labridae* and its constituent clades reviewed and defined here. In providing this information, we make no judgment on the quality of the characters but relay the specific studies that list morphological characters as diagnostic for the clades named and reviewed.

A **synonym** is a name that has a spelling that is different from another name that refers to the same taxon (Art. 14.1). We differentiate three types of synonyms. Ambiguous synonyms are two names spelled differently for the same clade with the same taxa contained in that clade. Approximate synonyms are very close to the same clade and the content may slightly differ. Partial synonyms could be names for paraphyletic groups that exclude a part of the crown or other examples where some portion of the defined clade content is not included in the group delimited by the partial synonym.

The **comments** section provides space to cite the evidence used to place 175 species among the lineages of *Labridae* in the synthetic phylogeny. In addition, we discuss aspects of the phylogenetics or biology of a clade that merit highlighting. We attempt to provide information on molecular age estimates for the clade.

The **constituent lineages** section provides a tabulation of all the major taxa comprising the defined clade. The full species binomial is given for the listing of any monotypic genus. All names that are defined as clades or listed in

TABLE 1. Species not included in phylogeny of *Labridae.*

Species	Clade
Choerodon aurulentus Gomon 2017	*Hypsigenyinae*
Choerodon cypselurus Gomon 2017	*Hypsigenyinae*
Choerodon skaiopygmaeus Gomon 2017	*Hypsigenyinae*
Bodianus macrognathos (Morris 1974)	*Hypsigenyinae: Clepticini*
Bodianus masudai Araga and Yoshino 1975	*Hypsigenyinae: Clepticini*
Bodianus nielli (Day 1867)	*Hypsigenyinae: Clepticini*
Bodianus opercularis (Guichenot 1847)	*Hypsigenyinae: Clepticini*
Decodon grandisquamis (Smith 1968)	*Hypsigenyinae: Clepticini*
Cirrhilabrus adornatus Randall and Kunzmann 1998	*Cirrhilabrinae*
Cirrhilabrus johnsoni Randall 1988	*Cirrhilabrinae*
Cirrhilabrus katherinae Randall 1992	*Cirrhilabrinae*
Cirrhilabrus marjorie Allen, Randall, and Carlson 2003	*Cirrhilabrinae*
Cirrhilabrus morrisoni Allen 1999	*Cirrhilabrinae*
Cirrhilabrus tonozukai Allen and Kuiter 1999	*Cirrhilabrinae*
Cirrhilabrus walindi Allen and Randall 1996	*Cirrhilabrinae*
Cirrhilabrus walshi Randall and Pyle 2001	*Cirrhilabrinae*
Cirrhilabrus xanthozonus Allen, Erdmann, and Utama 2024	*Cirrhilabrinae*
Paracheilinus bellae Randall 1988	*Cirrhilabrinae*
Paracheilinus togeanensis Kuiter and Allen 1999	*Cirrhilabrinae*
Pseudocheilinus citrinus Randall 1999	*Cirrhilabrinae*
Pseudocheilinus dispilus Randall 1999	*Cirrhilabrinae*
Pteragogus clarkae Randall 2013	*Cirrhilabrinae*
Pteragogus guttatus (Fowler and Bean 1928)	*Cirrhilabrinae*
Pteragogus turdus Iino and Motomura 2022	*Cirrhilabrinae*
Pteragogus variabilis Randall 2013	*Cirrhilabrinae*
Lappanella guineensis Bauchot 1969	*Labrinae*
Oxycheilinus lineatus Randall, Westneat, and Gomon 2003	*Cheilininae*
Wetmorella bifasciata Schultz and Marshall 1954	*Cheilininae*
Chlorurus troscheli (Bleeker 1853)	*Scarinae: Scarini*
Scarus chinensis (Steindachner 1867)	*Scarinae: Scarini*
Scarus fuscocaudalis Randall and Myers 2000	*Scarinae: Scarini*
Scarus gracilis (Steindachner 1869)	*Scarinae: Scarini*
Scarus maculipinna Westneat, Satapoomin, and Randall 2007	*Scarinae: Scarini*
Sparisoma griseorubrum Cervigón 1982	*Scarinae: Sparisomatini*
Cymolutes lecluse (Quoy and Gaimard 1824)	*Xyrichtyinae*
Iniistius bakunawa Sorgon, Tea, Meren, and Nañola 2023	*Xyrichtyinae*
Iniistius baldwini (Jordan and Evermann 1903)	*Xyrichtyinae*
Iniistius bimaculatus (Rüppell 1829)	*Xyrichtyinae*
Iniistius brevipinnis Randall 2013	*Xyrichtyinae*
Iniistius celebicus (Bleeker 1856)	*Xyrichtyinae*
Iniistius cyanifrons (Valenciennes 1840)	*Xyrichtyinae*
Iniistius geisha (Araga and Yoshino 1986)	*Xyrichtyinae*
Iniistius griffithsi Randall 2007	*Xyrichtyinae*
Iniistius jacksonensis (Ramsay 1981)	*Xyrichtyinae*
Iniistius naevus Allen and Erdmann 2012	*Xyrichtyinae*
Iniistius rajagopalani (Venkataramanujam, Venkataramani, and Ramanathan 1987)	*Xyrichtyinae*
Iniistius spilonotus (Bleeker 1857)	*Xyrichtyinae*
Iniistius umbrilatus (Jenkins 1901)	*Xyrichtyinae*

Continued

Table 1. continued.

Species	Clade
Novaculops alvheimi Randall 2013	*Xyrichtyinae*
Novaculops halsteadi (Randall and Lobel 2003)	*Xyrichtyinae*
Novaculops koteamea (Randall and Allen 2004)	*Xyrichtyinae*
Novaculops pastellus (Randall, Earle, and Rocha 2008)	*Xyrichtyinae*
Novaculops sciistius (Jordan and Thompson 1914)	*Xyrichtyinae*
Novaculops woodi (Jenkins 1901)	*Xyrichtyinae*
Xyrichtys incandescens Edwards and Lubbock 1981	*Xyrichtyinae*
Xyrichtys javanica (Bleeker 1862)	*Xyrichtyinae*
Xyrichtys sanctaehelenae (Günther 1868)	*Xyrichtyinae*
Dotalabrus alleni Russell 1988	*Pseudolabrinae*
Pictilabrus brauni Hutchins and Morrison 1996	*Pseudolabrinae*
Pictilabrus viridis Russell 1988	*Pseudolabrinae*
Pseudolabrus semifasciatus (Rendahl 1921)	*Pseudolabrinae*
Pseudolabrus torotai Russell and Randall 1981	*Pseudolabrinae*
Suezichthys bifurcatus Russell 1986	*Pseudolabrinae*
Suezichthys cyanolaemus Russell 1985	*Pseudolabrinae*
Suezichthys notatus (Kamohara 1958)	*Pseudolabrinae*
Suezichthys ornatus (Carmichael 1819)	*Pseudolabrinae*
Suezichthys rosenblatti Russell and Westneat 2013	*Pseudolabrinae*
Suezichthys russelli Randall 1981	*Pseudolabrinae*
Coris ballieui Vaillant and Sauvage 1875	*Julidinae*
Coris flava Fricke and Durville 2021	*Julidinae*
Coris nigrotaenia Mee and Hare 1995	*Julidinae*
Coris ocellata (Chen and Shao 1995)	*Julidinae*
Frontilabrus caeruleus Randall and Condé 1989	*Julidinae*
Hemicoris schroederii (Bleeker 1858)	*Julidinae*
Hemiulis annularis (Valenciennes 1839)	*Julidinae*
Hemiulis pardaleocephalus (Bleeker 1849)	*Julidinae*
Hemiulis signifer (Randall and Earle 1994)	*Julidinae*
Hemiulis stigmaticus (Randall and Smith 1982)	*Julidinae*
Leptojulis chrysotaenia Randall & Ferraris 1981	*Julidinae*
Leptojulis polylepis Randall 1996	*Julidinae*
Macropharyngodon moyeri Shepard & Meyer 1978	*Julidinae*
Macropharyngodon vivienae Randall 1978	*Julidinae*
Paracoris centralis (Randall 1999)	*Julidinae*
Pseudojuloides erythrops Randall and Randall 1981	*Julidinae*
Pseudojuloides proserpina Tea, Greene, Earle and Gill 2020	*Julidinae*
Stethojulis maculata Schmidt 1931	*Julidinae*
Stethojulis notialis Randall 2000	*Julidinae*
Xenojulis melas (Randall and Earle 1994)	*Julidinae*

Note: Not all species author citations are presented in the Literature Cited.

a protologue that have the suffix of -inae, or -ini are valid family-group names according to the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014).

The **registration number** is the product of the required submission of the clade name to the official registration database (Art. 8.1). All of the clade names and associated information tied to the clade definitions were submitted to the online RegNum database (https://www.phyloregnum.org/), which is the official registry of clade names in *PhyloCode*.

TABLE 2. Changes to species taxonomy in *Labridae*.

Species	Taxonomic change
Hypsigenyinae-Clepticini	
Bodianus cylindriatus (Tanaka 1930)	*Priobodianus cylindriatus* (Tanaka 1930) **new combination**
Bodianus thoracotaeniatus Yamamoto 1982	*Priobodianus thoracotaeniatus* (Yamamoto 1982) **new combination**
Cirrhilabrinae	
Cirrhilabrus beauperryi Allen, Drew, and Barber 2008	Synonym of *Cirrhilabrus punctatus* Randall and Kuiter 1989
Cirrhilabrus briangreenei Tea, Pyle, and Rocha 2020	Synonym of *Cirrhilabrus pylei* Allen and Randall 1996
Cirrhilabrus brunneus Allen 2006	Synonym of *Cirrhilabrus lunatus* Randall and Masuda 1991
Cirrhilabrus cyanogularis Tea, Frable, and Gill 2018	Synonym of *Cirrhilabrus rubripinnis* Randall and Carpenter 1980
Cirrhilabrus efatensis Walsh, Tea, and Tanaka 2017	Synonym of *Cirrhilabrus bathyphilus* Randall & Nagareda 2002
Cirrhilabrus greeni Allen and Hammer 2017	Synonym of *Cirrhilabrus rubripinnis* Randall and Carpenter 1980
Cirrhilabrus hygroxerus Allen and Hammer 2016	Synonym of *Cirrhilabrus humanni* Allen and Erdmann 2012
Cirrhilabrus isosceles Tea, Senou, and Greene 2016	Synonym of *Cirrhilabrus lunatus* Randall and Masuda 1991
Cirrhilabrus lanceolatus Randall and Masuda 1991	Synonym of *Cirrhilabrus roseafascia* Randall and Lubbock 1982
Cirrhilabrus marinda Allen, Erdmann, and Dailami 2015	Synonym of *Cirrhilabrus condei* Allen and Randall 1996
Cirrhilabrus nahackyi Walsh and Tanaka 2012	Synonym of *Cirrhilabrus bathyphilus* Randall & Nagareda 2002
Cirrhilabrus naokoae Randall & Tanaka 2009	Synonym of *Cirrhilabrus joanallenae* Allen 2000
Cirrhilabrus solorensis Bleeker 1853	Synonym of *Cirrhilabrus cyanopleura* (Bleeker 1851)
Cirrhilabrus squirei Walsh 2014	Synonym of *Cirrhilabrus lunatus* Randall and Masuda 1991
Paracheilinus nursalim Allen and Erdman 2008	Synonym of *Paracheilinus walton* Allen and Erdmann 2006
Paracheilinus paineorum Allen, Erdman, and Yusmalinda 2016	Synonym of *Paracheilinus cyaneus* Kuiter and Allen 1999
Paracheilinus xanthocirritus Allen, Erdman, and Yusmalinda 2016	Synonym of *Paracheilinus cyaneus* Kuiter and Allen 1999
Labrinae	
Symphodus melanocercus (Risso 1810)	*Centrolabrus melanocercus* (Risso 1810)
Cheilininae	
Cheilinus fasciatus (Bloch 1791)	*Concholabrus fasciatus* (Bloch 1791) **new combination**
Cheilinus quinquecinctus Rüppell 1835	*Concholabrus quinquecinctus* (Rüppell 1835) **new combination**
Cheilinus undulatus Rüppell 1835	*Crassilabrus undulatus* (Rüppell 1835)
Oxycheilinus bimaculatus (Valenciennes 1840)	*Cheilinus bimaculatus* Valenciennes 1840
Pseudolabrinae	
Notolabrus celidotus (Bloch and Schneider 1801)	*Pseudolabrus celidotus* (Bloch and Schneider 1801)
Notolabrus cinctus (Hutton 1877)	*Pseudolabrus cinctus* (Hutton 1877)
Notolabrus fucicola (Richardson 1840)	*Pseudolabrus fucicola* (Richardson 1840)
Notolabrus gymnogenis (Günther 1862)	*Pseudolabrus gymnogenis* (Günther 1862)
Notolabrus inscriptus (Richardson 1848)	*Pseudolabrus inscriptus* (Richardson 1848)
Notolabrus parilus (Richardson 1850)	*Pseudolabrus parilus* (Richardson 1850)

Continued

Table 2. continued.

Species	Taxonomic change
Notolabrus tetricus (Richardson 1840)	*Pseudolabrus tetricus* (Richardson 1840)
Julidinae	
Coris atlantica Günther 1862	*Julis atlantica* (Günther 1862)
Coris aurilineata Randall & Kuiter 1982	*Hemiulis aurilineata* (Randall and Kuiter 1982) **new combination**
Coris batuensis (Bleeker 1856)	*Hemicoris batuensis* (Bleeker 1856)
Coris caudimacula (Quoy and Gaimard 1834)	*Paracoris caudimacula* (Quoy and Gaimard 1834)
Coris centralis Randall 1999	*Paracoris centralis* (Randall 1999) **new combination**
Coris cuvieri (Bennett 1831)	*Allocoris cuvieri* (Bennett 1831)
Coris debueni Randall 1999	*Paracoris debueni* (Randall 1999) **new combination**
Coris dorsomacula Fowler 1908	*Paracoris dorsomacula* (Fowler 1908)
Coris formosa (Bennett 1830)	*Allocoris formosa* (Bennett 1830)
Coris gaimard (Quoy and Gaimard 1824)	*Allocoris gaimard* (Quoy and Gaimard 1824)
Coris hewetti Randall 1999	*Paracoris hewetti* (Randall 1999)
Coris julis (Linnaeus 1758)	*Julis julis* (Linnaeus 1758)
Coris latifasciata Randall 2013	*Hemicoris latifasciata* (Randall 2013) **new combination**
Coris marquesensis Randall 1999	*Allocoris marquesensis* (Randall 1999)
Coris melanura (Lowe 1839)	*Julis melanura* Lowe 1839
Coris pictoides Randall & Kuiter 1982	*Hemiulis pictoides* (Randall and Kuiter 1982) **new combination**
Coris roseoviridis Randall 1999	*Paracoris roseoviridis* (Randall 1999)
Coris schroederii (Bleeker 1858)	*Hemicoris schroederii* (Bleeker 1858)
Coris variegata (Rüppell 1835)	*Hemicoris variegata* (Rüppell 1835)
Coris venusta Vaillant & Sauvage 1875	*Paracoris venusta* (Vaillant and Sauvage 1875)
Diproctacanthus xanthurus (Bleeker 1856)	*Labropsis xanthurus* (Bleeker 1856) **new combination**
Halichoeres adustus (Gilbert 1890)	*Iridio adustus* (Gilbert 1890)
Halichoeres aestuaricola Bussing 1972	*Iridio aestuaricola* (Bussing 1972) **new combination**
Halichoeres annularis (Valenciennes 1839)	*Hemiulis annularis* (Valenciennes 1839) **new combination**
Halichoeres argus (Bloch and Schneider 1801)	*Hemiulis argus* (Bloch and Schneider 1801)
Halichoeres bathyphilus (Beebe and Tee-Van 1932)	*Iridio bathyphilus* Beebe and Tee-Van 1932
Halichoeres bicolor (Block and Schneider 1801)	*Hemiulis bicolor* (Block and Schneider 1801)
Halichoeres binotopsis (Bleeker 1849)	*Hemiulis binotopsis* (Bleeker 1849)
Halichoeres biocellatus Schultz 1960	*Hemicoris biocellatus* (Schultz 1960) **new combination**
Halichoeres bivittatus (Bloch 1791)	*Iridio bivittatus* (Bloch 1791)
Halichoeres bleekeri (Steindachner and Döderlein 1887)	*Hemiulis bleekeri* (Steindachner and Döderlein 1887) **new combination**
Halichoeres brasiliensis (Bloch 1791)	*Iridio brasiliensis* (Bloch 1791)
Halichoeres brownfieldi (Whitley 1945)	*Hemiulis brownfieldi* (Whitley 1945)
Halichoeres burekae Weaver and Rocha 2007	*Iridio burekae* (Weaver and Rocha 2007)
Halichoeres californicus Günther 1861	*Iridio californicus* (Günther 1861) **new combination**
Halichoeres caudalis (Poey 1860)	*Iridio caudalis* (Poey 1860)
Halichoeres chierchiae Di Caporiacco 1948	*Iridio chierchiae* (Di Caporiacco 1948)
Halichoeres chlorocephalus Kuiter & Randall 1995)	*Hemiulis chlorocephala* (Kuiter and Randall 1995)
Halichoeres chloropterus (Bloch 1791)	*Hemicoris chloropterus* (Bloch 1791)
Halichoeres chrysotaenia (Bleeker 1853)	*Hemiulis chrysotaenia* (Bleeker 1853) **new combination**
Halichoeres chrysus Randall 1981	*Hemicoris chrysus* (Randall 1981) **new combination**

Continued

Table 2. continued.

Species	Taxonomic change
Halichoeres claudia Randall & Rocha 2009	*Hemicoris claudia* (Randall and Rocha 2009) **new combination**
Halichoeres cosmetus Randall & Smith 1982	*Hemicoris cosmetus* (Randall and Smith 1982) **new combination**
Halichoeres cyanocephalus (Bloch 1791)	*Iridio cyanocephalus* (Bloch 1791)
Halichoeres dimidiatus (Agassiz 1831)	*Iridio dimidiatus* (Agassiz 1831)
Halichoeres discolor Bussing 1983	*Iridio discolor* (Bussing 1983)
Halichoeres dispilus (Günther 1864)	*Iridio dispilus* (Günther 1864)
Halichoeres dussumieri (Valenciennes 1839)	*Hemiulis dussumieri* (Valenciennes 1839)
Halichoeres erdmanni Randall & Allen 2010	*Hemiulis erdmanni* (Randall and Allen 2010) **new combination**
Halichoeres garnoti (Valenciennes 1839)	*Iridio garnoti* (Valenciennes 1839)
Halichoeres hilomeni Randall & Allen 2010	*Hemiulis hilomeni* (Randall and Allen 2010) **new combination**
Halichoeres hortulanus (Lacépède 1801)	*Hemitautoga hortulana* (Lacépède 1801)
Halichoeres inornatus (Gilbert 1890)	*Iridio inornatus* (Gilbert 1890)
Halichoeres insularis Allen and Robertson 1992	*Iridio insularis* (Allen and Robertson 1992)
Halichoeres iridis Randall & Smith 1982	*Hemicoris iridis* (Randall and Smith 1982) **new combination**
Halichoeres javanicus (Bleeker 1857)	*Hemiulis javanicus* (Bleeker 1857)
Halichoeres kallochroma (Bleeker 1853)	*Hemiulis kallochroma* (Bleeker 1853)
Halichoeres kneri Bleeker 1862	*Hemiulis kneri* (Bleeker 1862)
Halichoeres lamarii (Valenciennes 1839)	*Hemiulis lamarii* (Valenciennes 1839) **new combination**
Halichoeres lapillus Smith 1947	*Xenojulis lapillus* (Smith 1947) **new combination**
Halichoeres leucoxanthus Randall & Smith 1982	*Hemicoris leucoxanthus* (Randall and Smith 1982) **new combination**
Halichoeres leucurus (Walbaum 1792)	*Hemiulis leucurus* (Walbaum 1792)
Halichoeres maculipinna (Müller and Troschel 1848)	*Iridio maculipinna* (Müller and Troschel 1848)
Halichoeres malpelo Allen and Robertson 1992	*Iridio malpelo* (Allen and Robertson 1992)
Halichoeres margaritaceus (Valenciennes 1839)	*Hemicoris margaritaceus* (Valenciennes 1839) **new combination**
Halichoeres marginatus Rüppell 1835	*Hemiulis marginatus* (Rüppell 1835) **new combination**
Halichoeres melanochir Fowler & Bean 1928	*Hemiulis melanochir* (Fowler and Bean 1928) **new combination**
Halichoeres melanotis (Gilbert 1890)	*Iridio melanotis* (Gilbert 1890)
Halichoeres melanurus (Bleeker 1851)	*Hemiulis melanurus* (Bleeker 1851) **new combination**
Halichoeres melas Randall & Earle 1994	*Xenojulis melas* (Randall and Earle 1994) **new combination**
Halichoeres melasmapomus Randall 1981	*Hemicoris melasmapomus* (Randall 1981) **new combination**
Halichoeres miniatus (Valenciennes 1839)	*Hemicoris miniatus* (Valenciennes 1839) **new combination**
Halichoeres nebulosus (Valenciennes 1839)	*Hemicoris nebulosus* (Valenciennes 1839) **new combination**
Halichoeres nicholsi (Jordan and Gilbert 1882)	*Iridio nicholsi* (Jordan and Gilbert 1882)
Halichoeres nigrescens (Bloch and Schneider 1801)	*Hemiulis nigrescens* (Bloch and Schneider 1801)
Halichoeres notospilus (Günther 1864)	*Iridio notospilus* (Günther 1864)
Halichoeres orientalis Randall 1999	*Hemicoris orientalis* (Randall 1999) **new combination**
Halichoeres ornatissimus (Garrett 1863)	*Hemicoris ornatissimus* (Garrett 1863) **new combination**
Halichoeres pallidus Kuiter & Randall 1995	*Hemicoris pallidus* (Kuiter and Randall 1995) **new combination**

Continued

TABLE 2. CONTINUED.

Species	Taxonomic change
Halichoeres papilionaceus (Valenciennes 1839)	*Hemiulis papilionaceus* (Valenciennes 1839) **new combination**
Halichoeres pardaleocephalus (Bleeker 1849)	*Hemiulis pardaleocephalus* (Bleeker 1849)
Halichoeres penrosei Starks 1913	*Iridio penrosei* (Starks 1913)
Halichoeres pictus (Poey 1860)	*Iridio pictus* (Poey 1860)
Halichoeres podostigma (Bleeker 1854)	*Hemicoris podostigma* (Bleeker 1854)
Halichoeres poeyi (Steindachner 1867)	*Iridio poeyi* (Steindachner 1867)
Halichoeres prosopeion (Bleeker 1854)	*Hemiulis prosopeion* (Bleeker 1854) **new combination**
Halichoeres purpurescens (Block & Schneider 1801)	*Hemiulis purpurescens* (Block and Schneider 1801) **new combination**
Halichoeres radiatus (Linnaeus 1758)	*Iridio radiatus* (Linnaeus 1758)
Halichoeres richmondi Fowler & Bean 1928	*Hemiulis richmondi* (Fowler and Bean 1928)
Halichoeres rubricephalus Kuiter & Randall 1995	*Hemiulis rubricephala* (Kuiter and Randall 1995)
Halichoeres rubrovirens Rocha, Pinheiro, and Gasparini 2010	*Iridio rubrovirens* (Rocha, Pinheiro, and Gasparini 2010)
Halichoeres salmofasciatus Allen and Robertson 2002	*Iridio salmofasciatus* (Allen and Robertson 2002)
Halichoeres sanchezi Victor, Frable, and Ludt 2024	*Iridio sanchezi* (Victor, Frable, and Ludt 2024) **new combination**
Halichoeres sazimai Luiz, Ferreira, and Rocha 2009	*Iridio sazimai* (Luiz, Ferreira, and Rocha 2009)
Halichoeres scapularis (Bennett 1832)	*Hemitautoga scapularis* (Bennett 1832)
Halichoeres schwarzii (Bleeker 1847)	*Hemiulis schwarzii* (Bleeker 1847)
Halichoeres semicinctus (Ayres 1859)	*Iridio semicinctus* (Ayres 1859)
Halichoeres signifer Randall & Earle 1994	*Hemiulis signifer* (Randall and Earle 1994) **new combination**
Halichoeres socialis Randall and Lobel 2003	*Iridio socialis* (Randall and Lobel 2003)
Halichoeres solorensis (Bleeker 1853)	*Hemiulis solorensis* (Bleeker 1853) **new combination**
Halichoeres stigmaticus Randall & Smith 1982	*Hemiulis stigmaticus* (Randall and Smith 1982) **new combination**
Halichoeres tenuispinis (Günther 1862)	*Hemiulis tenuispinis* (Günther 1862) **new combination**
Halichoeres timorensis (Bleeker 1852)	*Hemiulis timorensis* (Bleeker 1852)
Halichoeres trimaculatus (Quoy and Gaimard 1834)	*Hemitautoga trimaculata* (Quoy and Gaimard 1834)
Halichoeres trispilus Randall & Smith 1982	*Hemicoris trispilus* (Randall and Smith 1982) **new combination**
Halichoeres vrolikii (Bleeker 1855)	*Hemiulis vrolikii* (Bleeker 1855) **new combination**
Halichoeres zulu Randall & King 2010	*Hemicoris zulu* (Randall and King 2010) **new combination**
Larabicus quadrilineatus (Rüppell 1835)	*Labroides quadrilineatus* (Rüppell 1835) **new combination**
Minilabrus striatus Randall & Dor 1981	*Hemiulis striatus* (Randall and Dor 1981) **new combination**
Parajulis poecilepterus (Temminck and Schlegel 1845)	*Leptojulis poecilepterus* (Temminck and Schlegel 1845) **new combination**
Thalassoma amblycephalum (Bleeker 1856)	*Gomphosus amblycephalum* (Bleeker 1856) **new combination**
Thalassoma ascensionis (Quoy and Gaimard 1834)	*Gomphosus ascensionis* (Quoy and Gaimard 1834) **new combination**
Thalassoma ballieui (Vaillant and Sauvage 1875)	*Gomphosus ballieui* (Vaillant and Sauvage 1875) **new combination**
Thalassoma bifasciatum (Bloch 1791)	*Gomphosus bifasciatum* (Bloch 1791) **new combination**

Continued

Table 2. continued.

Species	Taxonomic change
Thalassoma cupido (Temminck and Schlegel 1845)	*Gomphosus cupido* (Temminck and Schlegel 1845) **new combination**
Thalassoma duperrey (Quoy and Gaimard 1824)	*Gomphosus duperrey* (Quoy and Gaimard 1824) **new combination**
Thalassoma genivittatum (Valenciennes 1839)	*Gomphosus genivittatum* (Valenciennes 1839) **new combination**
Thalassoma grammaticum Gilbert 1890	*Gomphosus grammaticum* (Gilbert 1890) **new combination**
Thalassoma hardwicke (Bennett 1830)	*Gomphosus hardwicke* (Bennett 1830) **new combination**
Thalassoma hebraicum (Lacépède 1801)	*Gomphosus hebraicum* (Lacépède 1801) **new combination**
Thalassoma heiseri Randall & Edwards 1984	*Gomphosus heiseri* (Randall and Edwards 1984) **new combination**
Thalassoma jansenii (Bleeker 1856)	*Gomphosus jansenii* (Bleeker 1856) **new combination**
Thalassoma loxum Randall & Mee 1994	*Gomphosus loxum* (Randall and Mee 1994) **new combination**
Thalassoma lucasanum (Gill 1862)	*Gomphosus lucasanum* (Bleeker 1856) **new combination**
Thalassoma lunare (Linnaeus 1758)	*Gomphosus lunare* (Linnaeus 1758) **new combination**
Thalassoma lutescens (Lay and Bennett 1839)	*Gomphosus lutescens* (Lay and Bennett 1839) **new combination**
Thalassoma newtoni (Osório 1891)	*Gomphosus newtoni* (Osório 1891) **new combination**
Thalassoma nigrofasciatum Randall 2003	*Gomphosus nigrofasciatum* (Randall 2003) **new combination**
Thalassoma noronhanum (Boulenger 1890)	*Gomphosus noronhanum* (Boulenger 1890) **new combination**
Thalassoma pavo (Linnaeus 1758)	*Gomphosus pavo* (Linnaeus 1758) **new combination**
Thalassoma purpureum (Forsskål 1775)	*Gomphosus purpureum* (Forsskål 1775) **new combination**
Thalassoma quinquevittatum (Lay and Bennett 1839)	*Gomphosus quinquevittatum* (Lay & Bennett 1839) **new combination**
Thalassoma robertsoni Allen 1995	*Gomphosus robertsoni* (Allen 1995) **new combination**
Thalassoma rueppellii (Klunzinger 1871)	*Gomphosus rueppellii* (Klunzinger 1871) **new combination**
Thalassoma sanctaehelenae (Valenciennes 1839)	*Gomphosus sanctaehelenae* (Valenciennes 1839) **new combination**
Thalassoma septemfasciatum Scott 1959	*Gomphosus septemfasciatum* (Scott 1959) **new combination**
Thalassoma trilobatum (Lacépède 1801)	*Gomphosus trilobatum* (Lacépède 1801) **new combination**
Thalassoma virens Gilbert 1890	*Gomphosus virens* (Gilbert 1890) **new combination**

Note: Not all species author citations are presented in the Literature Cited.

Clade Accounts

Labridae C. L. Bonaparte 1831:159
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Lachnolaimus maximus* (Walbaum 1792) and *Julis julis* (Linnaeus 1758). This is a minimum-crown-clade definition.

Etymology. Derived from the Latin word *labrum* meaning lip.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, figs. S1–S7). Figure 1 illustrates the phylogenetic relationships of the major lineages of *Labridae*.

Phylogenetics. *Labridae*, *Scaridae*, and *Odacidae* were historically treated as separate and distinct taxonomic families (Bleeker 1859:xvii,103; Gill 1893:135; Jordan 1923:223; Berg 1940:477; Greenwood et al. 1966; Nelson et al. 2016:396). Beginning in the 2000s, multiple molecular phylogenetic analyses consistently resolved species

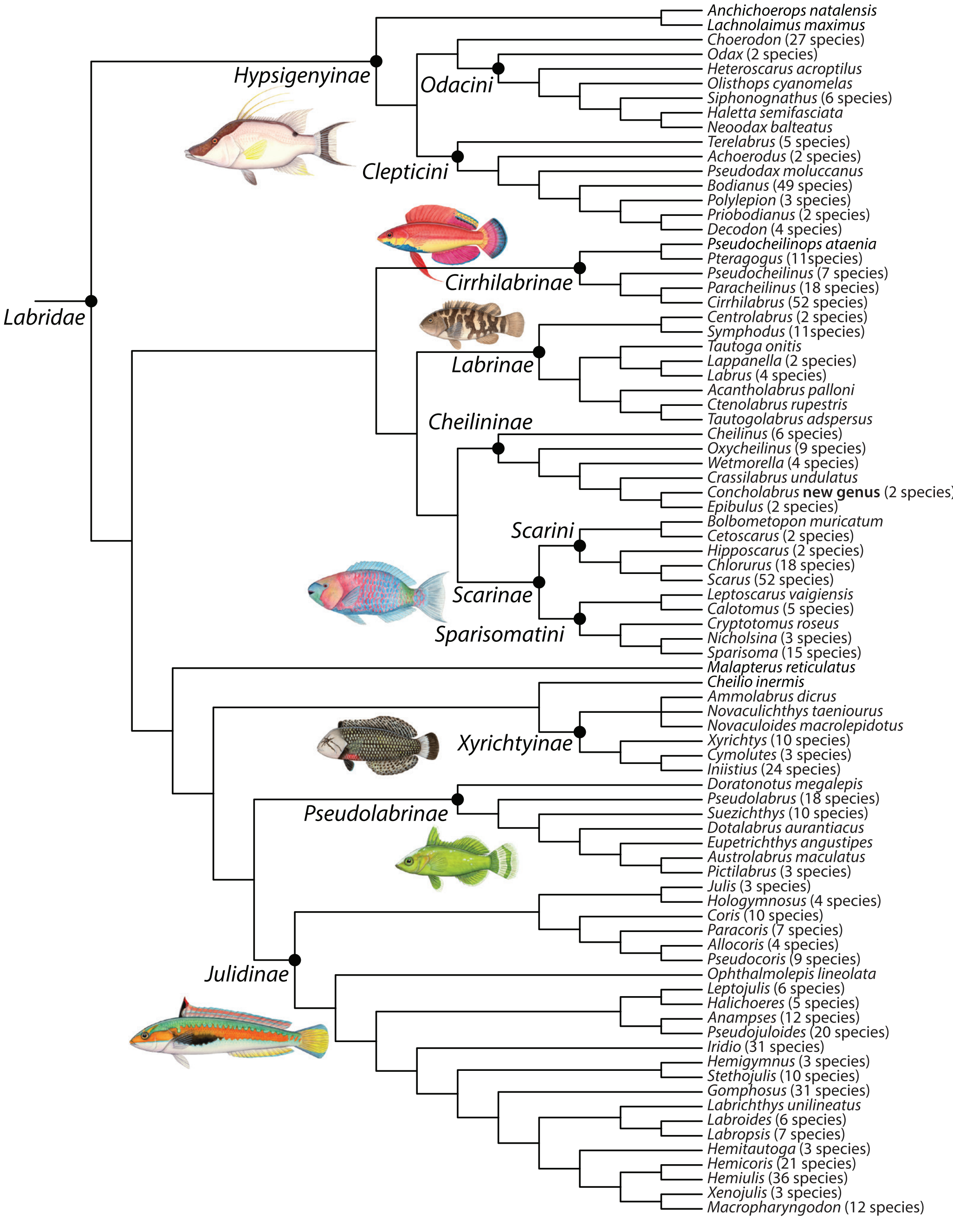

FIGURE 1. Phylogenetic relationships of the major living lineages of *Labridae*. Monotypic genera indicated with species binomial names. This phylogeny excludes *Frontilabrus caeruleus* and *Novaculops*. Filled circles identify the common ancestor of clades, with formal names defined in the clade accounts.

historically classified in *Scaridae* and *Odacidae* as nested in *Labridae* (e.g., Westneat and Alfaro 2005; Smith et al. 2008; Alfaro et al. 2009; Kazancioglu et al. 2009; Hughes et al. 2023; Brownstein et al. 2025). We treat both *Scarinae* and *Odacini* as clades in an inclusive *Labridae* (Figure 1).

Among percomorph teleosts, *Labridae sensu lato* was historically classified within

Pharyngonathi or "labroids," a group that underwent numerous taxonomic revisions but consistently included *Cichlidae*, *Embiotocidae*, and *Pomacentridae* (Müller 1846; Gill 1872; Goodrich 1909; Bertin and Arambourg 1958; Liem and Greenwood 1981; Kaufman and Liem 1982; Stiassny and Jensen 1987). The characters supporting labroid monophyly centered on modifications of the pharyngeal jaw apparatus, comprising three primary features: a tooth-bearing single lower pharyngeal jaw bone formed through fusion of the fifth ceratobranchials, a muscular sling connecting the ventral part of the neurocranium with the lower pharyngeal jaw, and a diarthrotic articulation between the upper pharyngeal jaw bones with a protuberance on the ventral surface of the neurocranium (Liem and Greenwood 1981; Kaufman and Liem 1982; Stiassny and Jensen 1987; Rosen and Patterson 1990; Wainwright et al. 2012). Molecular phylogenetic studies consistently failed to resolve the labroids as a monophyletic group (Mabuchi et al. 2007; Wainwright et al. 2012; Betancur-R et al. 2013; Near et al. 2013; Hughes et al. 2018; Ghezelayagh et al. 2022), indicating that the labroid pharyngeal jaw apparatus represents multiple instances of convergent evolution among percomorph teleosts (Wainwright et al. 2012; Larouche et al. 2020). Molecular phylogenetic studies instead resolve *Labridae* and *Centrogenys* false scorpionfishes as sister lineages in a redefined *Labriformes*, a clade that also includes *Uranoscopidae*, *Ammodytidae*, *Pinguipedidae*, *Leptoscopidae*, and *Cheimarrichthys fosteri* Torrentfish (Betancur-R et al. 2017; Ghezelayagh et al. 2022; Hughes et al. 2023; Near and Thacker 2024:170–171).

Morphological phylogenetic analyses resolve a clade containing *Pseudolabrinae* and *Julidinae* (Russell 1988) and *Cirrhilabrinae* and *Cheilininae* as sister lineages (Westneat 1993). Molecular phylogenetic analyses consistently support *Pseudolabrinae* and *Julidinae* as sister lineages but resolve the *Cirrhilabrinae* and *Cheilininae* as distantly related within *Labridae* (e.g., Westneat and Alfaro 2005; Hughes et al. 2023; Brownstein et al. 2025).

Molecular phylogenetic analyses resolve *Hypsigenyinae* as the sister lineage of all other *Labridae*, a clade containing *Labrinae* as the sister lineage of a monophyletic group consisting of *Cheilininae* and *Scarinae*, and *Malapterus reticulatus* as the sister species of a large clade containing *Cheilio inermis*, *Xyrichtyinae*, *Pseudolabrinae*, and *Julidinae* (Figure 1; Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). The phylogenetic position of *Cirrhilabrinae* remains contested. Analyses based on Sanger-sequenced mitochondrial and nuclear genes position *Cirrhilabrinae* as the sister lineage to a clade containing *Xyrichtyinae*, *Pseudolabrinae*, and *Julidinae* (Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Evans et al. 2023). However, more recent phylogenomic studies suggest an alternative placement, with *Cirrhilabrinae* as the sister lineage to a clade comprising *Labrinae*, *Cheilininae*, and *Scarinae* (Figure 1; Hughes et al. 2023; Brownstein et al. 2025).

<u>Composition.</u> There are 676 species of *Labridae* that include *Cheilio inermis* Cigar Wrasse, *Malapterus reticulatus* Juan Fernández Wrasse, and species classified in *Hypsigenyinae*, *Cirrhilabrinae*, *Labrinae*, *Cheilininae*, *Scarinae*, *Xyrichtyinae*, *Pseudolabrinae*, and *Julidinae* (Appendix 1). Over the past 10 years, 42 new living species of *Labridae* have been described (Fricke et al. 2025), comprising approximately 6.2% of the living species diversity in the clade.

<u>Diagnostic apomorphies.</u> Morphological apomorphies for *Labridae* include (1) the *M. levator posterior* forms a force couple with the *M. pharyngocleithralis* (Kaufman and Liem 1982), (2) toothplates of the fourth pharyngobranchials absent (Kaufman and Liem 1982), (3) first pharyngobranchials absent or reduced, (4) pharyngo-cleithral articulation functions as a sliding and hinge joint (Kaufman and Liem 1982), but is limited to *Scarinae* and *Odacini* (Stiassny and Jensen 1987), and (5) *M. levator externus* insertion is medial to the uncinate process of epibranchial 1 (Springer and Johnson 2004).

<u>Synonyms.</u> *Labriformes* (Regan 1913:112, 132; Nelson et al. 2016:427), *Labroidae* (Berg

1940:477), *Labroidei* (Greenwood et al. 1966:401), and *Labroidea* (Springer and Johnson 2004:194) are ambiguous synonyms of *Labridae*.

Comments. Bellwood et al. (2019) provide a thorough review of the fossil record of *Labridae*. Bayesian relaxed molecular clock analyses of *Labridae* result in an average posterior crown age estimate of 56.1 million years ago with the credible interval ranging between 42.9 and 74.3 million years ago (Brownstein et al. 2025).

Labridae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Cheilininae, 24 species
Cirrhilabrinae, 89 species
Julidinae, 246 species
Malapterus reticulatus
Scarinae, 100 species
Cheilio inermis
Hypsigenyinae, 107 species
Labrinae, 23 species
Pseudolabrinae, 38 species
Xyrichtyinae, 47 species

Registration number. 1152.

Hypsigenyinae M. F. Gomon 2017:1, 2
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Lachnolaimus maximus* (Walbaum 1792), *Odax pullus* (Forster in Bloch and Schneider 1801), and *Bodianus rufus* (Linnaeus 1758). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek ὑψηλός meaning high and γένῠς meaning chin or jaw.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S1). Figure 2 illustrates the phylogenetic relationships of the major lineages and species of *Hypsigenyinae*.

Phylogenetics. The phylogenetic relationships of *Hypsigenyinae* were first investigated using a morphological dataset of 20 characters that did not include *Lachnolaimus maximus* Hogfish, *Pseudodax moluccanus* (Valenciennes) in Cuvier and Valenciennes (1840) Chiseltooth Wrasse, *Anchichoerops natalensis* (Gilchrist and Thompson 1909) Natal Wrasse, or *Odacini* (Gomon 1997). Molecular phylogenetic analyses of *Hypsigenyinae* include studies using Sanger sequenced mtDNA and nuclear genes (Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Evans et al. 2023; Larouche et al. 2023) and phylogenomic datasets (Hughes et al. 2023; Brownstein et al. 2025).

Molecular phylogenies resolve a clade with deep time common ancestry containing *Lachnolaimus maximus* and *Anchichoerops natalensis* that is the sister lineage of all other *Hypsigenyinae* (Figure 2). The clade containing *Odacini* and *Choerodon* tuskfishes is the sister lineage of *Clepticini*. Molecular phylogenies nest *Xiphocheilus typus* Bleeker in *Choerodon* (e.g., Puckridge et al. 2015; Baliga and Law 2016; Hughes et al. 2023), reflecting a long history of taxonomic changes between the two genera. The molecular phylogeny of *Choerodon* is the basis for the delimitation of six subgenera, three of which are monotypic (Gomon 2017). Time-calibrated species-level phylogenies of *Choerodon* have provided valuable insight into the roles of peripheral isolation and ecological specialization in the speciation of marine organisms distributed in the tropical Indo-West Pacific biodiversity hotspot (Puckridge et al. 2015).

Composition. There are currently 107 species of *Hypsigenyinae* (Parenti and Randall 2000; Kuiter 2010; Parenti and Randall 2011, 2018; Fricke et al. 2025) that include *Lachnolaimus maximus*, *Anchichoerops natalensis*, and species classified in *Choerodon*, *Odacini*, and *Clepticini* (Appendix 1). Since the year 2000, 24 new species of *Hypsigenyinae* have been described (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025), comprising 22% of the living species diversity in the clade.

Diagnostic apomorphies. A single morphological apomorphy of *Hypsigenyinae* is the presence of a dental ridge separating

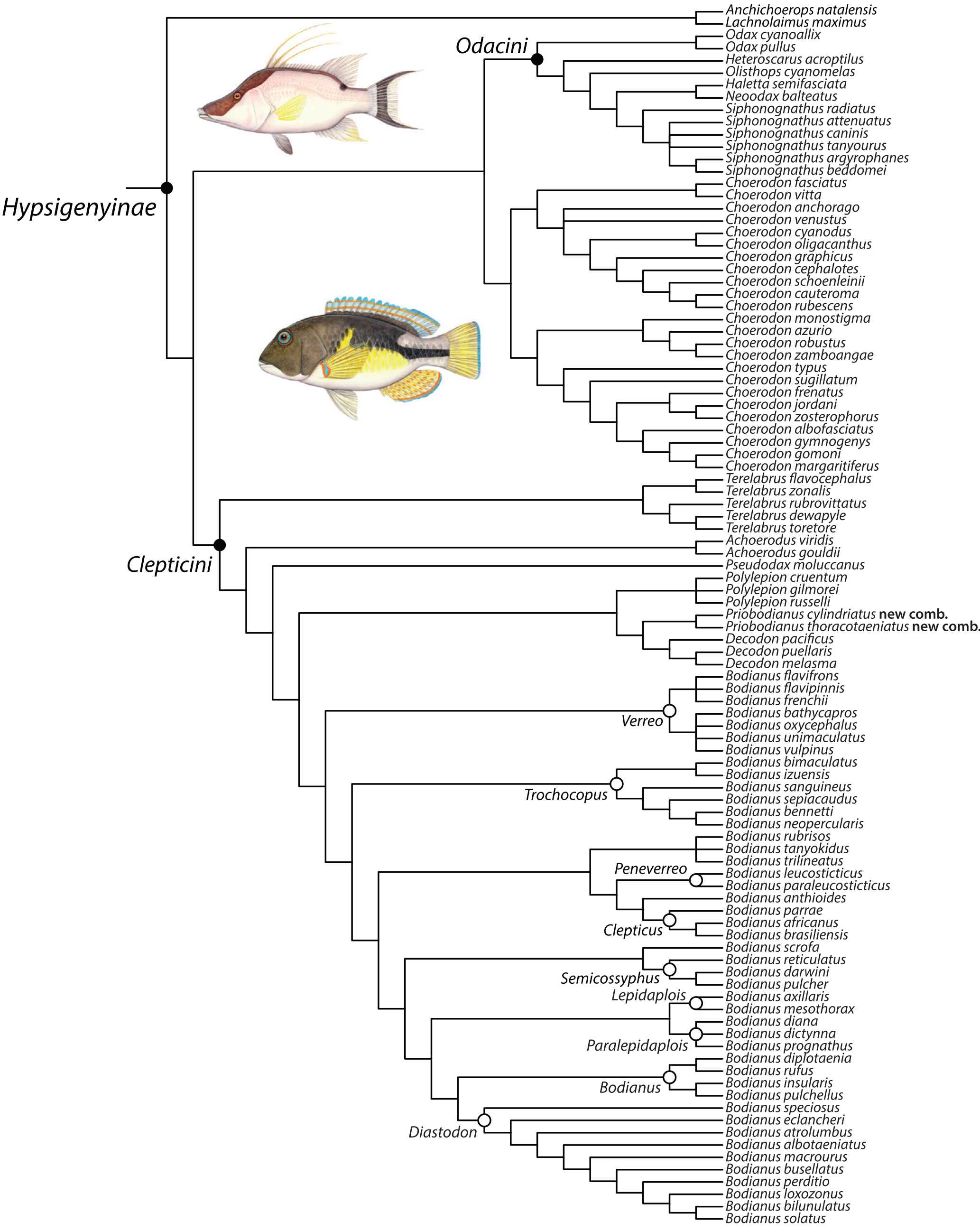

FIGURE 2. Phylogenetic relationships among the living lineages and species of *Hypsigenyinae*, *Clepticini*, and *Odacini*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts. Open circles identify group names not defined in this revision.

prominent anterior canine teeth from those laterally lining the edge of the dentary and premaxilla (Gomon 1997). Species of *Odacini* have fused teeth on the dentary and premaxilla (Gomon and Paxton 1985:fig. 4). Other possible apomorphies of *Hypsigenyinae* include (1) presence of vomerine teeth (Gomon 1997), (2) the second infrapharyngobranchials with a prominent uncinate process (Gomon 1997), (3) the ceratohyal with a beryciform foramen (Gomon 1997), (4) the hypohyal with a dorsal transverse foramen (Gomon 1997), and (5) the parhypural with a hypurapophysis (Gomon 1997).

Synonyms. *Hypsigenina* (Günther 1861:383) is an ambiguous synonym of *Hypsigenyinae*. *Hypsigenyini* is a partial (Gomon 1997:793; Clements et al. 2004, table 1) and ambiguous (Westneat and Alfaro 2005:385; Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Bellwood et al. 2019:129, fig. 2; Hughes et al. 2023:537) synonym of *Hypsigenyinae*.

Comments. The phylogenetic placements of species not included in the UCE phylogeny and presented in Figure 2 are based on several studies and include: *Anchichoerops natalensis* based on phylogenetic analysis of Sanger-sequenced mtDNA and nuclear genes (Aiello et al. 2017; Evans et al. 2023); *Choerodon albofasciatus* Gomon 2017 Whitestripe Tuskfish and *C. gymnogenys* (Günther in Playfair and Günther 1867) Zanzibar Tuskfish based on a phylogenetic analysis of morphological characters (Gomon 2017); *C. cauteroma* Gomon and Allen 1987 Bluespotted Tuskfish, *C. gomoni* Allen and Randall 2002 Gomon's Tuskfish, *C. margaritiferus* Fowler and Bean 1928 Pearlyscaled Tuskfish, *C. monostigma* Ogilby 1910 Onespot Tuskfish, *C. robustus* (Günther 1862) Robust Tuskfish, *C. typus* (Bleeker 1856b) Bluebanded Wrasse, and *C. venustus* (De Vis 1884)Venus Tuskfish based on phylogenetic analysis of Sanger sequenced mtDNA and nuclear genes, and morphological characters (Puckridge et al. 2015; Gomon 2017). See Table 1 for a list of species of *Hypsigenyinae* not included in the phylogeny of *Labridae*.

Bayesian relaxed molecular clock analyses of *Hypsigenyinae* result in an average posterior crown age estimate of 39.9 million years ago with the credible interval ranging between 26.5 and 51.7 million years ago (Brownstein et al. 2025).

Hypsigenyinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Anchichoerops natalensis	*Choerodon*, 26 species
Clepticini, 66 species	*Lachnolaimus maximus*
Odacini, 12 species	

Registration number. 1153.

Clepticini T. J. Near, C. D. Brownstein, C. E. Thacker, and P. C. Wainwright, new clade name

Definition. The least inclusive crown clade that contains *Bodianus rufus* (Linnaeus 1758), *Bodianus parrae* (Bloch and Schneider 1801), *Pseudodax moluccanus* (Valenciennes) in Cuvier and Valenciennes (1840), and *Achoerodus gouldii* (Richardson 1843). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek κλεπτικός meaning thievish or thievery.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S1). Although *Achoerodus gouldii* is not included in the reference phylogeny, it resolves as a clade with *Achoerodus viridis* in phylogenetic analysis of Sanger-sequenced mtDNA and nuclear genes and a phylogenomic analysis of DNA sequences of 1,088 exons (Evans et al. 2023; Hughes et al. 2023). Figure 2 illustrates the phylogenetic relationships of the major lineages and species of *Clepticini*.

Phylogenetics. A phylogenetic analysis of 20 morphological characters and several molecular studies do not resolve *Clepticini* as a clade (Gomon 1997; Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Aiello et al. 2017). Phylogenetic analyses of Sanger-sequenced mtDNA and nuclear genes differ on the resolution of *Terelabrus* as either the sister lineage of *Odacini* (Aiello et al. 2017) or placed as the sister lineage of a clade containing *Odacini*, *Choerodon*, and all other *Clepticini* (Evans et al. 2023). Several molecular phylogenetic studies resolve *Clepticini* as monophyletic with *Terelabrus* as the sister lineage of all other species in the clade

(Hughes et al. 2023; Brownstein et al. 2025) or with *Terelabrus* and *Achoerodus* resolved as a clade (Baldwin et al. 2023).

Pseudodax moluccanus (Valenciennes) in Cuvier and Valenciennes (1840) Chiseltooth Wrasse, previously considered the sister lineage of *Scarinae* (Gomon 1979; Bellwood 1994) is phylogenetically nested in *Clepticini* (Baliga and Law 2016; Baldwin et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). *Decodon* and *Polylepion* resolve as a clade that is the sister lineage of the species-rich *Bodianus* (Aiello et al. 2017; Baldwin et al. 2023; Hughes et al. 2023). Molecular phylogenetic analyses consistently resolve the long-recognized genera *Clepticus* creole wrasses and *Semicossyphus* sheepheads as nested in *Bodianus* (e.g., Westneat and Alfaro 2005; Santini et al. 2016; Brownstein et al. 2025). *Bodianus anthioides* (Bennett 1832) Lyretail Hogfish is resolved as the sister lineage of *Clepticus* and *B. scrofa* (Valenciennes) in Cuvier and Valenciennes (1839) Barred Hogfish is the sister lineage of *Semicossyphus* (Santini et al. 2016; Brownstein et al. 2025). Molecular phylogenetics has emerged as an important tool for the discovery and delimitation of new species of *Clepticini* (Randall and Victor 2013; Gomon and Walsh 2016; Baldwin et al. 2023), but molecular data has also been leveraged to synonymize species exhibiting little morphological or genetic differentiation (da Motta-Neto et al. 2020).

Taxonomies classify *Bodianus* into 10 or 11 subgenera, differing in the inclusion of *Semicossyphus* as a subgenus of *Bodianus* (Gomon 2006; Kuiter 2010:26). There is congruence in phylogenies of *Bodianus* inferred from morphological characters and molecular datasets (Gomon 2006; Santini et al. 2016; Brownstein et al. 2025), reflected in appreciable agreement in the subgeneric taxonomy of *Bodianus* and the inferred phylogenetic relationships. Figure 2 illustrates subgeneric groups that correspond to clades.

Bodianus cylindriatus (Tanaka 1930) Slender Pigfish and *B. thoracotaeniatus* Yamamoto in Okamura et al. (1982) Deepsea Wrasse were placed in the subgenus *Priobodianus* Gomon (2006:22) and resolved as a clade that is the sister lineage to all other species of *Bodianus* in a morphological phylogeny (Gomon 2006). Molecular phylogenetic datasets have not included the species of *Priobodianus*, and museum collections contain few specimens. The two species of *Priobodianus* lack a prominent ethmoid-frontal shelf present in other species of *Bodianus* and the dentition of the lower pharyngeal of *B. cylindriatus* is the hypothesized ancestral condition for *Labridae* (Gomon 2006). In the COI mtDNA gene tree, *B. thoracotaeniatus* resolves as the sister lineage of *Decodon* (Figure 3). Species of *Priobodianus* differ from all other species of *Bodianus* in having 11 versus 12 (rarely 11 or 13) anal-fin rays and three versus four or more rows of scales above the lateral line (Gomon 2006). Similar to *Priobodianus*, species of *Decodon* have 10 anal fin rays and two to three rows of scales above the lateral line (Gomon 1997). In addition, both *B. cylindriatus* and species of *Decodon* share extensive cephalic squamation and near absence of basal scaly sheaths on the dorsal and anal fins (Gomon 1997).

Species-level molecular phylogenetic analyses of *Clepticini* offer insights into the mechanism of speciation in marine fishes. Relationships among the five species of *Terelabrus* reveal patterns of allopatry between the western and southern Pacific and between the Indian Ocean and western Pacific among closely related species (Shepherd et al. 2023). The time-calibrated phylogeny of species of *Polylepion* indicates a late Miocene origin in the western Atlantic-eastern Pacific before the closure of the Panamanian Isthmus with subsequent expansion to the western Pacific (Baldwin et al. 2023). *Bodianus* originated in the Miocene with an ancestral biogeographic reconstruction inferring an origin in the Indo-western Pacific and southwestern Pacific with several expansions throughout the Miocene, Pliocene, and Pleistocene to the current distribution in all of the world's warm oceans (Santini et al. 2016).

<u>Taxonomy.</u> Given the common ancestry of *Priobodianus* and *Decodon* relative to *Bodianus sensu stricto* (Figures 1 and 2), we elevate *Priobodianus*.

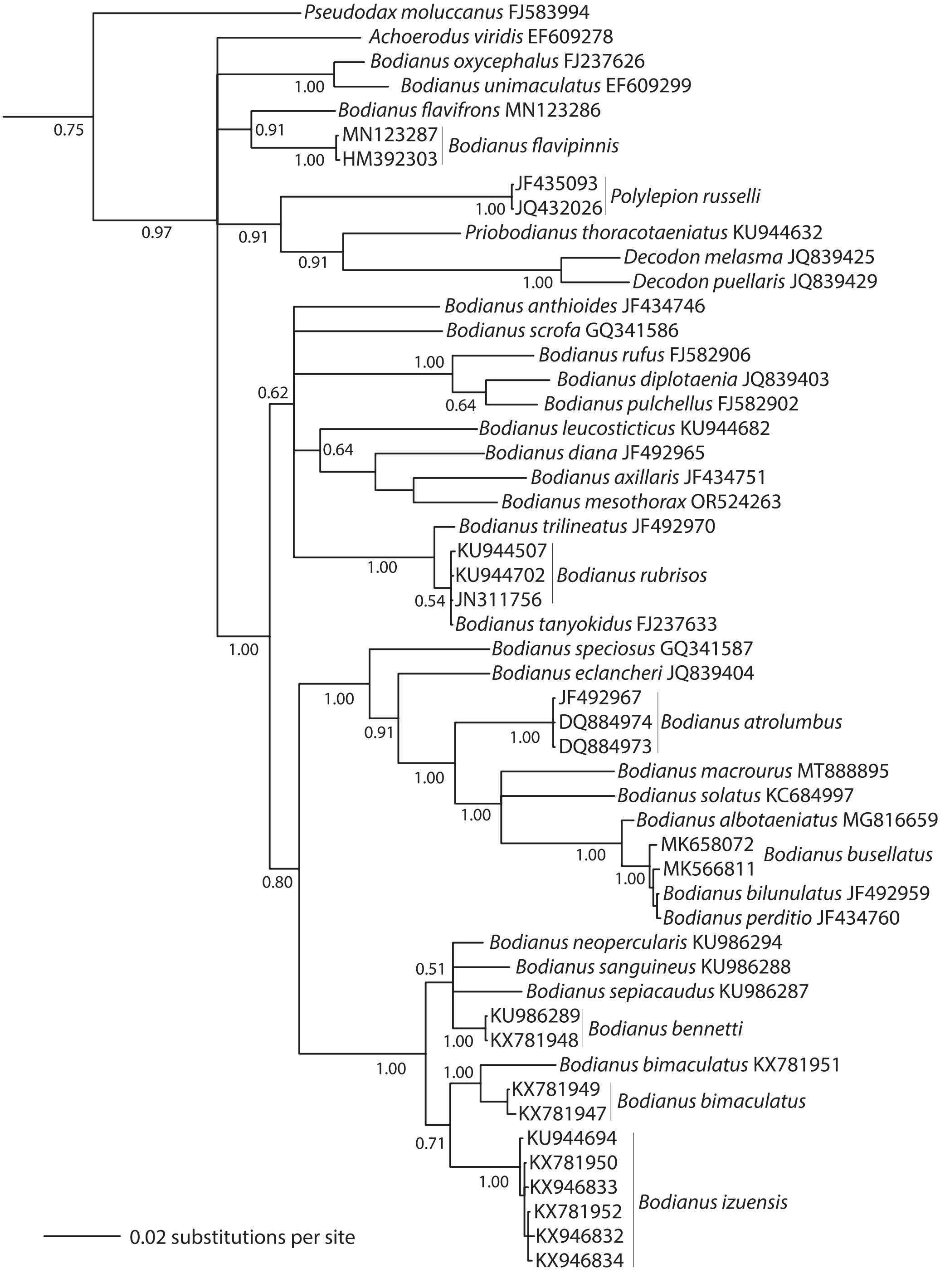

Figure 3. Mitochondrial DNA gene tree of *Clepticini* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank accession numbers appear alongside species names.

***Priobodianus* Gomon** 2006:22.

Type species. *Verero cylindriatus* (Tanaka 1930:941). Type by original designation.

Diagnosis. See Gomon (2006:22) for diagnosis.

Etymology. See Gomon (2006:22) for etymology.

Composition. There are two species classified in *Priobodianus*: *Priobodianus cylindriatus* (Tanaka 1930) **new combination** and *Priobodianus thoracotaeniatus* (Yamamoto in Okamura et al. 1982) **new combination** (Table 2).

Remarks. The summary phylogeny of *Clepticini* (Figure 2) illustrates *Priobodianus* and *Decodon* as a clade that is the sister lineage of *Polylepion*.

Composition. There are currently 66 species of *Clepticini* (Parenti and Randall 2000, 2011, 2018; Kuiter 2010; Fricke et al. 2025) that include *Pseudodax moluccanus*, and species classified in *Achoerodus*, *Bodianus*, *Decodon*, *Priobodianus Polylepion*, and *Terelabrus* (Appendix 1). Since the year 2000, 18 new species of *Clepticini* have been described (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025), comprising 27.3% of the living species diversity in the clade.

Diagnostic apomorphies. Apomorphies for *Clepticini* include (1) the anterodorsal neurocranium surface, comprising the posterior medial ethmoid and anterior frontals, presents a predominantly flat to slightly convex lateral profile in *Decodon* and *Polylepion* or the presence of a bony frontal shelf formed by an large depression of the anterior ends of the frontals with a slight depression at the posterior end of the medial ethmoid in *Achoerodus* and *Bodianus* (Gomon 1997), (2) second through sixth infraorbitals are tubular (*Decodon* and *Polylepion*) or expanded ventrally (Gomon 1997), (3) the lachrymal is rounded (Gomon 1997), and (4) presence of many rows of scales on the subopercle (Gomon 1997).

Synonyms. *Julidina* (Günther 1861:384), *Clepticiformes* (Bleeker 1862a:418), *Clepticinae* (Jordan 1890:602; Regan 1913:133), *Harpinae* (Jordan 1890:601; Regan 1913:134), *Bodianinae* (Jordan and Snyder 1902:602; Fowler and Bean 1928:188; Norman 1966:339, 348–350), and *Bodianini* (Gomon and Randall 1978:33) are partial synonyms of *Clepticini*.

Comments. The phylogenetic placements of species not included in the UCE phylogeny and presented in Figure 2 are based on several studies that include: *Bodianus albotaeniatus* (Valenciennes in Cuvier and Valenciennes 1839) Hawaiian Hogfish, *B. eclancheri* (Valenciennes 1846) Harlequin Hogfish, *B. macrourus* (Lacépède 1801) Blackbanded Hogfish, *B. neopercularis* Gomon 2006 Thickstriped Hogfish, *B. sanguineus* (Jordan and Evermann 1903) Sunrise Hogfish, *B. sepiacaudus* Gomon 2006 Crescenttail Hogfish, and *Priobodianus cylindriatus* (Tanaka 1930) **new combination** Slender Hogfish based on Bayesian inferred mtDNA gene tree (Figure 3); *Bodianus atrolumbus* (Valenciennes in Cuvier and Valenciennes 1839) Palebar Hogfish, *B. bennetti* Gomon and Walsh 2016 Lemonstriped Hogfish, *B. speciosus* (Bowdich 1825) Blackbar Hogfish, and *Polylepion cruentum* Gomon 1977 Bleeding Wrasse based on phylogenetic analyses of mtDNA (Figure 3; Randall and Victor 2013; Gomon and Walsh 2016; Britzke et al. 2021); *Bodianus bathycapros* Gomon 2006 Hawaiian Pigfish, *B. oxycephalus* (Bleeker 1862b) Japanese Pigfish, *B. unimaculatus* (Günther 1862) Eastern Pigfish, and *B. vulpinus* (Richardson 1850) Western Pigfish based on inferences from external morphology and molecular analyses (Gomon 2006:40; Santini et al. 2016; Aiello et al. 2017; Rabosky et al. 2018; Evans et al. 2023); *Bodianus brasiliensis* (Heiser, Moura, and Robertson 2000) Brazilian Creole Wrasse based on taxonomic inferences from external morphology (Heiser et al. 2000); *Bodianus reticulatus* (Valenciennes in Cuvier and Valenciennes 1839) Asian Sheephead Wrasse based on phylogenies inferred from mtDNA and nuclear gene trees (Poortvliet et al. 2013); *Bodianus flavifrons* Gomon 2001 Masked Pigfish based on phylogenetic analysis of mtDNA (Santini et al. 2016); *Terelabrus dewapyle* Fukui and Motomura 2015 Yellowstriped Hogfish, *T. flavocephalus* Fukui and Motomura 2016 Redlined Hogfish, *T. toretore* Shepherd, Pinheiro, Phelps, Siu, and Rocha 2023 Tahitian Striped Hogfish, and *T. zonalis* Fukui 2018 Philippine Striped Hogfish based on phylogenetic analysis of mtDNA (Shepherd et al. 2023); *Priobodianus thoracotaeniatus* (Yamamoto in Okamura et al. 1982), *B. paraleucosticticus* Gomon 2006 Fivestriped Hogfish, and *B. prognathus* Longnose Hogfish based on inferences from analysis of external morphology (Gomon 2006:51, 63); *Bodianus rubrisos* Gomon 2006 Morsecode Pigfish, *B. tanyokidus* Gomon and Madden 1981 Blackear Hogfish, *B. trilineatus* (Fowler 1934) Fourline Hogfish, *Decodon pacificus* (Kamohara 1952) Tentooth Wrasse, and *Polylepion gilmorei* Baldwin, Arcila, Robertson, and Tornabene 2023 Redbarred Wrasse based on phylogenetic analysis of Sanger-sequenced mtDNA and nuclear genes (Rabosky et al. 2018; Baldwin et al. 2023; Evans et al. 2023); *Decodon puellaris* (Poey 1860) Red Hogfish, and *Polylepion russelli* (Gomon and Randall 1975) Russell's Hogfish based on phylogenetic analysis of Sanger-sequenced mtDNA and nuclear genes and phylogenomic datasets (Aiello et al. 2017; Evans et al. 2023; Hughes et al. 2023). See Table 1 for a list of species of *Clepticini* not included in the phylogeny of *Labridae*.

Bayesian relaxed molecular clock analyses of *Clepticini* result in an average posterior crown age estimate of 29.5 million years ago with the credible interval ranging between 18.0 and 40.8 million years ago (Brownstein et al. 2025).

Clepticini is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112). The family-group names *Bodianinae* and *Bodianini* are not available as the names *Clepticiformes* (Bleeker 1862a:418), *Cossyphiformes* (Bleeker 1862a:415), and *Harpinae* (Jordan 1890:601) have priority. The name *Cossyphiformes* is invalid because the type genus *Cossyphus* Valenciennes in Cuvier and Valenciennes (1839) is a junior homonym.

Constituent species and lineages.

Achoerodus, 2 species
Bodianus, 49 species
Decodon, 4 species
Polylepion, 3 species
Priobodianus, 2 species
Pseudodax moluccanus
Terelabrus, 5 species

Registration number. 1154.

Odacini B. C. Russell 1988:60
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Odax pullus* (Forster in Bloch and Schneider 1801), *Heteroscarus acroptilus* (Richardson 1846), and *Neoodax balteatus* (Valenciennes in Cuvier and Valenciennes 1840). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek ὀδαξ meaning biting with teeth.

Reference phylogeny. A phylogeny of *Odacini* inferred from four Sanger-sequenced mtDNA and nuclear genes (Clements et al. 2004, fig. 3). Figure 2 illustrates the phylogenetic relationships of the major lineages and species of *Odacini*.

Phylogenetics. Molecular phylogenetic analyses consistently result in trees where *Odacini* is a monophyletic group nested in *Hypsigenyinae* and resolved as the sister lineage of *Choerodon* (e.g., Clements et al. 2004; Westneat and Alfaro 2005; Hughes et al. 2023; Brownstein et al. 2025). A phylogeny of *Odacini* inferred from 29 morphological characters led to the synonymization of *Sheardichthys* Whitley 1947 and *Parodax* Scott 1976 with *Siphonognathus* Richardson 1858 (Gomon and Paxton 1985). However, more recent taxonomies of *Labridae* continue to recognize these genera as distinct from *Siphonognathus* (Kuiter 2010:75, 76; Eschmeyer and Fricke 2025).

Molecular phylogenetic analyses using Sanger-sequenced mtDNA and nuclear genes resolve *Odax* as the sister lineage of all other *Odacini*, with *Heteroscarus acroptilus* Rainbow Cale and *Olisthops cyanomelas* Richardson 1850 Herring Cale as successive sister lineages leading to a clade containing *Siphonognathus*, *Haletta semifasciata* (Valenciennes in Cuvier and Valenciennes 1840) Blue Weedwhiting, and *Neoodax balteatus* Little Rockwhiting (Clements et al. 2004; Alfaro et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Evans et al. 2023).

Composition. There are currently 12 species of *Odacini* that include *Haletta semifasciata*, *Heteroscarus acroptilus*, *Neoodax balteatus*, *Olisthops cyanomelas*, and species classified in *Odax* and *Siphonognathus* (Appendix 1; Kuiter 2010:67–79; Fricke et al. 2025). No new species of *Odacini* have been described since 1983 (Ayling and Paxton 1983).

Diagnostic apomorphies. Apomorphies for *Odacini* include (1) medial face of palatine with an elongate lateral condyle that articulates with an opposing condyle on lateral edge of the vomer (Gomon and Paxton 1985), (2) lateral and medial extrascapulars attached to the parietals (Gomon and Paxton 1985), (3) ectopterygoid is narrow and overlapped by entopterygoid, quadrate, and palatine (Gomon and Paxton 1985), (4) oral jaw teeth fused forming a beak-like plate (Gomon and Paxton 1985), (5) urohyal with wing-like processes (Gomon and Paxton 1985), (6) predorsal bones absent (Gomon and Paxton 1985), (7) first hemal spine tip positioned between opposing tips of second and fourth anal pterygiophores (Gomon and Paxton 1985), (8) lateral ridge of the coracoid with a dorsoposteriorly directed process (Gomon and Paxton 1985), (9) a distinct curve in the lateral line below the anterior portion of the dorsal fin (Gomon and Paxton 1985), and (10) pelvic fin absent or with one spine and four segmented rays (Gomon and Paxton 1985).

Synonyms. *Odacina* (Günther 1862:240), *Odaciformes* (Bleeker 1862a:417), and *Odacidae* (e.g., Gill 1885:239; Jordan 1923:223; Berg 1940:477; Greenwood et al. 1966:401; Nelson et al. 2016:429) are ambiguous synonyms of *Odacini*.

Comments. Among the earliest post-Darwin taxonomies of teleost fishes, the *Odacini* was classified in *Labridae* (Günther 1861:388, 1862:240; Bleeker 1862a:418); however, by the close of the 19th century through the early 21st century in Linnaean rank-based classifications *Odacidae* was treated as a taxonomic family distinct from *Labridae* (Gill 1885:239; 1893:135; Jordan 1923:223; Berg 1940:477; Greenwood et al. 1966:401; Norman 1966:338; Parenti and Randall 2000:1; Wiley and Johnson 2010:164; Betancur-R et al. 2013, appendix 2; Nelson et al. 2016:429). Following the results of molecular phylogenetic analyses that consistently resolve species of *Odacini* as a clade well-nested in *Hypsigenyinae* (Clements et al. 2004; Westneat and Alfaro 2005; Hughes et al. 2023; Brownstein et al. 2025), the group is now classified in *Labridae* (Betancur-R et al. 2017; Near and Thacker 2024).

The phylogenetic placements of species not included in the UCE phylogeny and presented in Figure 2 are based on several studies and include: *Odax pullus* Butterfish (Forster in Bloch and Schneider 1801), *Odax cyanoallix* Ayling and Paxton 1983 Bluefinned Butterfish, and *Siphonognathus argyrophanes* Richardson 1858 Tubemouth based on molecular phylogenetic analyses (Clements et al. 2004; Alfaro et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Evans et al. 2023); *Siphonognathus attenuatus* (Ogilby 1897) Slender Weedwhiting, *S. beddomei* (Johnston 1885) Pencil Weedwhiting, *S. caninis* (Scott 1976) Sharpnose Weedwhiting, *S. radiatus* (Quoy and Gaimard 1834) Long-rayed Weedwhiting, and *S. tanyourus* Gomon and Paxton 1985 Longtail Weedwhiting based on a phylogenetic analysis of morphological characters (Gomon and Paxton 1985).

Bayesian relaxed molecular clock analyses of *Odacini* result in an average posterior crown age estimate of 15.4 million years ago with the credible interval ranging between 3.4 and 21.7 million years ago (Brownstein et al. 2025).

Odacini is a valid family-group name under the *International Code of Zoological Nomenclature*

Constituent species and lineages.
*Haletta semifasciat*a
Neoodax balteatus
Olisthops cyanomelas
Heteroscarus acroptilus
Odax 2 species
Siphonognathus 6 species

Registration number. 1155.

Cirrhilabrinae T. J. Near, C. D. Brownstein, C. E. Thacker, and P. C. Wainwright
new clade name

Definition. The least inclusive crown clade that contains *Cirrhilabrus temminckii* Bleeker

1853d and *Pseudocheilinops ataenia* Schultz 1960 in Schultz et al. (1960). This is a minimum-crown-clade definition.

Etymology. From the Latin *cirrus* meaning a curl, tuft of hair, arms of a polyp, or a filament of a plant and *labrum* meaning lip.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S5). Figure 4 illustrates the phylogenetic relationships of the major lineages and species of *Cirrhilabrinae*.

Phylogenetics. Phylogenies of *Labridae* inferred from morphological and molecular characters are congruent in resolving *Cirrhilabrinae* as monophyletic (Westneat 1993; Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). Morphological and molecular phylogenies agree in resolving *Pseudocheilinus* as the sister lineage of a clade containing *Cirrhilabrus* and *Paracheilinus*. A phylogeny inferred from morphology places *Pteragogus* and *Pseudocheilinops ataenia* Pinkstreaked Wrasse as successive branching lineages leading to the *Pseudocheilinus-Cirrhilabrus-Paracheilinus* clade (Westneat 1993); however, molecular phylogenies resolve *Pseudocheilinops ataenia* and *Pteragogus* as sister lineages (Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). Phylogenomic analyses of concatenated UCE loci provided strongly supported resolution of relationships among species of *Cirrhilabrus*, but summary-coalescent methods resulted in poorly resolved species trees (Tea et al. 2022b)

The first quarter of the 21st century has witnessed significant activity in the discovery of species diversity within *Cirrhilabrinae*, with 29 of the 66 species of *Cirrhilabrus* and 8 of the 21 species of *Paracheilinus* species being described as new. These new species descriptions have primarily relied on qualitative color differences observed in terminal phase males and mtDNA divergence (e.g., Allen et al. 2016; Tea et al. 2019; Tea and Walsh 2023). However, a closer examination of the genetic evidence reveals a complex and somewhat contradictory picture. Most of these newly described species lack substantial mtDNA divergence, with some of the new species sharing mtDNA haplotypes with previously described and allopatrically distributed species (Allen et al. 2015, 2016; Tea et al. 2016, 2020; Victor 2016b; Allen and Hammer 2017; Walsh et al. 2017). Phylogenomic analysis of UCE loci that included sampling of multiple individuals of several species failed to resolve many species as reciprocally monophyletic in trees inferred using concatenated datasets (Brownstein et al. 2025, fig. S5). This lack of genetic differentiation among species of *Cirrhilabrus* and *Paracheilinus* has been attributed to incomplete lineage sorting due to rapid speciation driven by sexual selection, introgression following hybridization, or a mechanism of speciation where phenotypic evolution is outpacing the mutation rate of mtDNA (Victor 2015; Allen et al. 2016; Tea et al. 2016). Although these explanations are plausible, they overlook an alternative possibility not adequately considered: these putative new species are not distinct and species diversity in *Cirrhilabrus* and *Paracheilinus* is over estimated. This raises important questions about the criteria used for species delimitation in this clade and contrasts with recent efforts in fishes that utilize a comparative assessment of both phenotypic divergence and phylogenetic distinctiveness as inferred from molecular data (Parker et al. 2022; Ghezelayagh et al. 2025). For species of *Cirrhilabrus* and *Paracheilinus*, it is likely the phenotypic traits of male coloration are not reflective of distinct phylogenetic species or metapopulations with their own unique evolutionary histories.

Our phylogenetic analysis and assessment of pairwise divergence of available COI mtDNA gene sequences substantiates three conclusions gleaned from the more than 35 descriptions of new species of *Cirrhilabrus* and *Paracheilinus* published over the past 25 years: (1) several species do not resolve as reciprocally monophyletic groups in the mtDNA gene tree (Figure 5), (2) several species share mtDNA haplotypes with other described and presumably distinct species, and (3) several species sampled with a single specimen in the mtDNA gene tree exhibit very low genetic divergence to other species. For example, specimens of

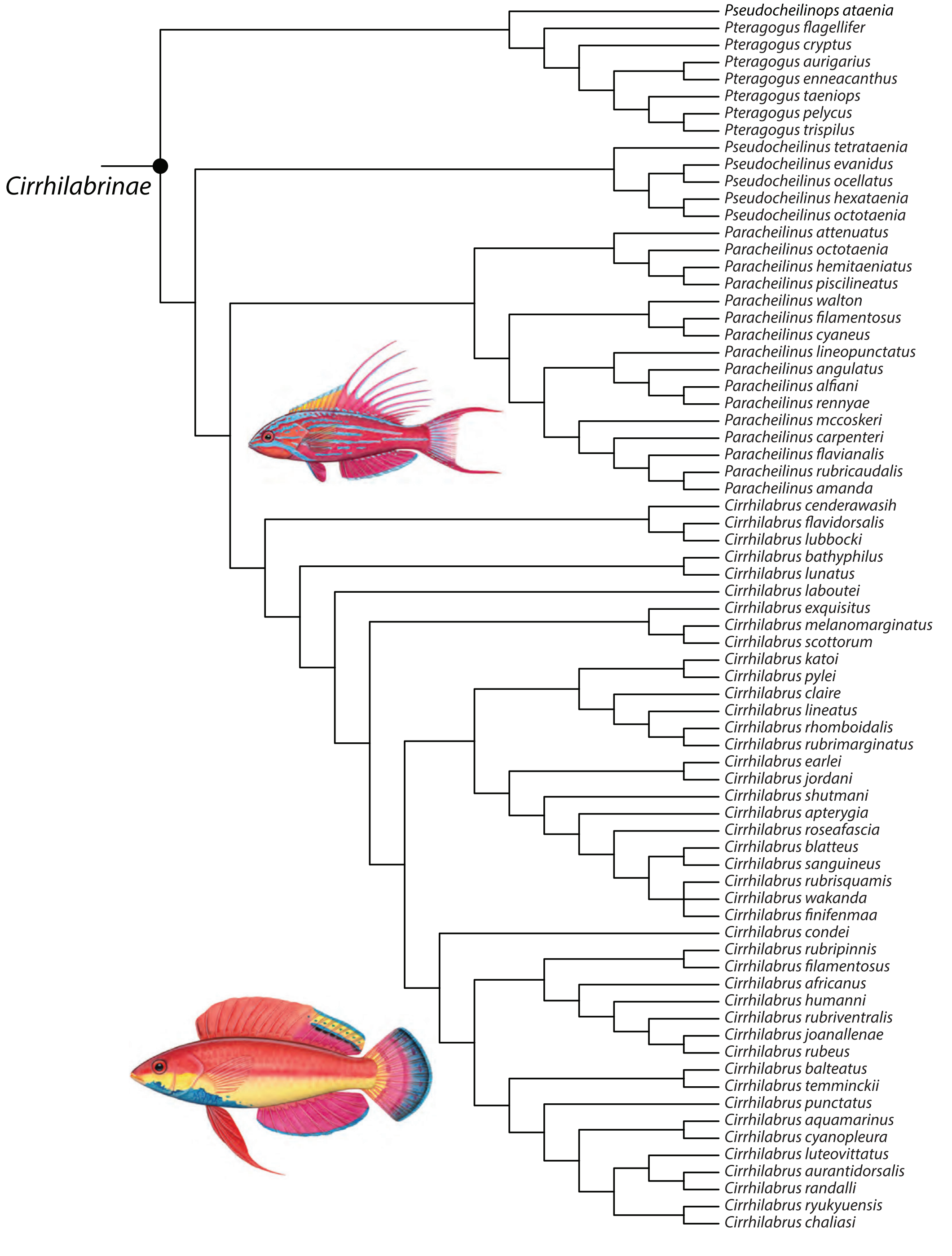

FIGURE 4. Phylogenetic relationships among the species of *Cirrhilabrinae*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts.

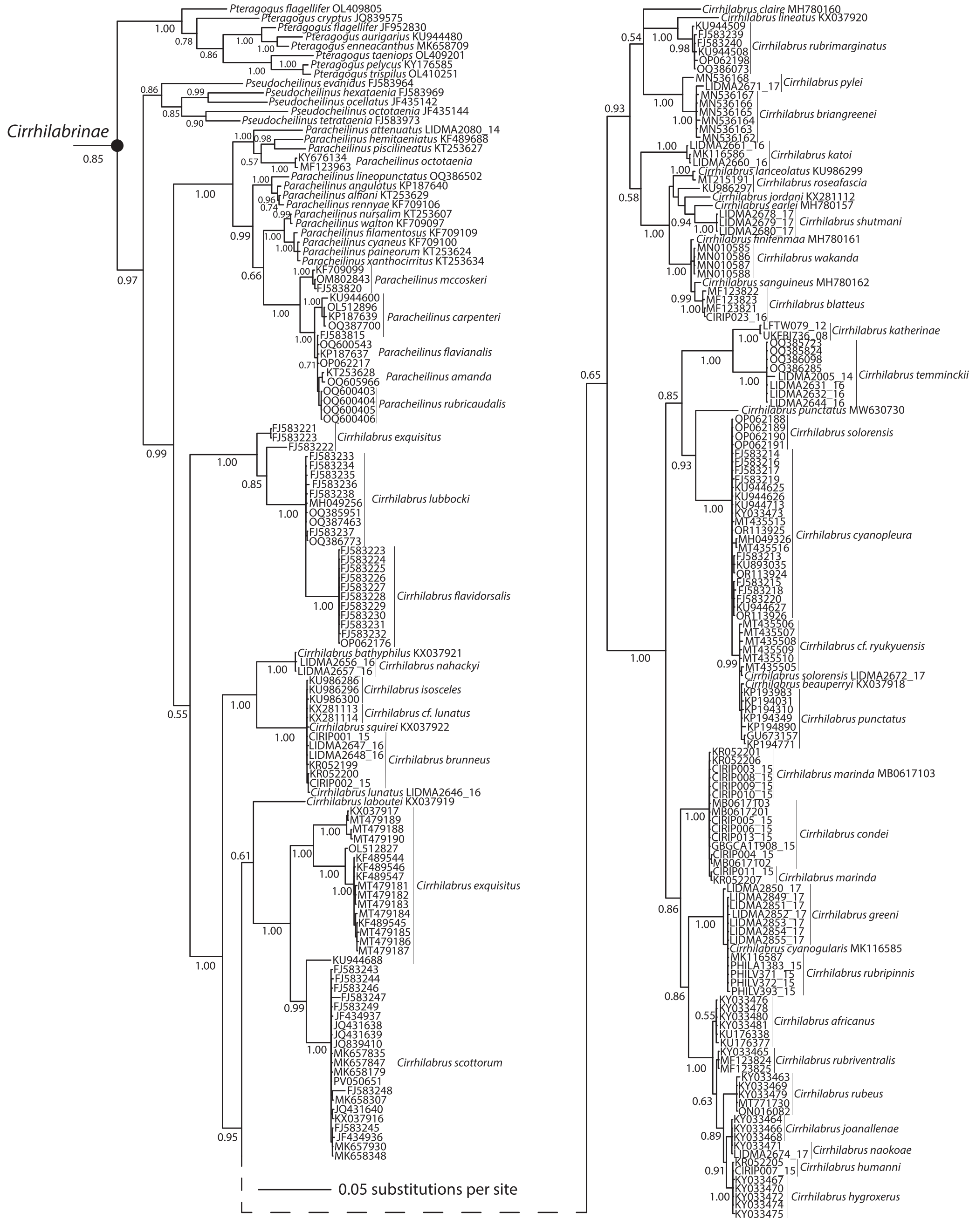

FIGURE 5. Mitochondrial DNA gene tree of *Cirrhilabrinae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

Cirrhilabrus condei Allen and Randall 1996 and *C. marinda* Allen, Erdman, and Dailami 2015 resolve as a clade in the mtDNA gene tree but neither species is reciprocally monophyletic and six specimens of each of the two species share the same mtDNA haplotype (Figure 5; Allen et al. 2015; Victor 2016b). The sister species pair *C. rubriventralis* Springer and Randall

1974 and *C. africanus* Victor 2016b are each reciprocally monophyletic in the mtDNA gene tree and the maximal pairwise sequence divergence is 0.63% (Figure 5; Victor 2016b), which is low when compared to expectations of species divergence from DNA barcode studies (Puillandre et al. 2012).

Taxonomy. In Table 2, we list 17 currently recognized species of *Cirrhilabrus* and *Paracheilinus* that are likely synonyms of other species based on the lack of reciprocal monophyly in the mtDNA gene tree (Figure 5), phylogenomic analysis of UCE loci (Brownstein et al. 2025, fig. S5), shared mtDNA haplotypes among putative species with allopatric distributions, and subtle morphological differences that are phylogenetically uninformative and show appreciable intraspecific variation (Tea et al. 2016, 2020, 2022b). Specifically, *Cirrhilabrus solorensis* Bleeker 1853 is likely a synonym of *Cirrhilabrus cyanopleura* (Bleeker 1851b) Bluescaled Fairywrasse based on shared mtDNA haplotypes (Figure 5); *Cirrhilabrus lanceolatus* Randall and Masuda 1991 is likely a synonym of *Cirrhilabrus roseafascia* Randall and Lubbock 1982 Pinkbanded Fairywrasse based on paraphyly of C. *roseafascia* in the mtDNA gene tree (Figure 5); *Cirrhilabrus beauperryi* Allen, Drew, and Barber 2008 is likely a synonym of *Cirrhilabrus punctatus* Randall and Kuiter 1989 Dotted Wrasse based on paraphyly of *C. punctatus* in mtDNA gene tree and shallow genetic divergence (Figure 5); *Cirrhilabrus brunneus* Allen 2006, *Cirrhilabrus squirei* Walsh 2014, and *Cirrhilabrus isosceles* Tea, Senou, and Greene 2016 are each likely synonyms of *Cirrhilabrus lunatus* Randall and Masuda 1991 Crescenttail Fairywrasse based on the resolution of a clade that does not resolve any of the three species as reciprocally monophyletic and there is very shallow genetic divergence among these species (Figure 5; Tea et al. 2016); *Cirrhilabrus naokoae* Randall & Tanaka 2009 is likely a synonym of *Cirrhilabrus joanallenae* Allen 2000 Pulauweh Fairywrasse based on the fact a single mtDNA haplotype is shared among the sampled specimens of both species (Figure 5); *Cirrhilabrus nahackyi* Walsh and Tanaka 2012 and *Cirrhilabrus efatensis* Walsh, Tea, and Tanaka 2017 are each likely a synonyms of *Cirrhilabrus bathyphilus* Randall & Nagareda 2002 Rosefin Fairywrasse based on the observation that all three species share the same mtDNA haplotype (Figure 5; Walsh et al. 2017); *Cirrhilabrus marinda* Allen, Erdmann, and Dailami 2015 is likely a synonym of *Cirrhilabrus condei* Allen and Randall 1996 Conde's Fairywrasse based on shared mtDNA haplotypes between the two species (Figure 5; Allen et al. 2015); *Cirrhilabrus hygroxerus* Allen and Hammer 2016 is likely a synonym of *Cirrhilabrus humanni* Allen and Erdmann 2012:1138 Humann's Fairywrasse based on the mtDNA gene tree that resolves haplotypes of *C. hygroxerus* nested in a paraphyletic *C. humanni* with little genetic divergence (Victor 2016b); *Cirrhilabrus greeni* Allen and Hammer 2017 and *Cirrhilabrus cyanogularis* Tea, Frable, and Gill 2018 are each likely synonyms of *Cirrhilabrus rubripinnis* Randall and Carpenter 1980 Redfinned Fairywrasse based on sharing of mtDNA haplotypes among all three of the species (Figure 5); *Cirrhilabrus briangreenei* Tea, Pyle, and Rocha 2020 is likely a synonym of *Cirrhilabrus pylei* Allen and Randall 1996 Pyle's Wrasse based on the mtDNA gene tree where haplotypes of *C. briangreenei* are nested in a clade that includes haplotypes sampled from *C. pylei* (Figure 5); *Paracheilinus nursalim* Allen and Erdman 2008 is likely a synonym of *Paracheilinus walton* Allen and Erdmann 2006 Walton's Flasherwrasse based on shared mtDNA haplotypes (Allen et al. 2016); and *Paracheilinus paineorum* Allen, Erdman, and Yusmalinda 2016 and *Paracheilinus xanthocirritus* Allen, Erdman, and Yusmalinda 2016 are each likely synonyms of *Paracheilinus cyaneus* Kuiter and Allen 1999 Blue Flasherwrasse based on shared mtDNA haplotypes among all three species (Allen et al. 2016).

Composition. There are currently 89 species of *Cirrhilabrinae* that include *Pseudocheilinops ataenia* Pinkstreaked Wrasse and species classified in *Cirrhilabrus*, *Paracheilinus*, *Pseudocheilinus*, and *Pteragogus* (Appendix 1). Since the year 2000, 41 species of *Cirrhilabrinae* have been described, comprising 38.7% of the living species diversity in the clade. More than half (56.6%) of the living diversity of *Cirrhilabrinae* has been described since 1990 (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

The total number of species does not include the 17 species of *Cirrhilabrinae* that are likely synonyms of other species.

Diagnostic apomorphies. Apomorphies for *Cirrhilabrinae* include (1) the scleral cornea of the eye with two foci (Springer and Randall 1974; Westneat 1993), (2) an elongated third premaxillary canine (Westneat 1993), (3) hook shaped anteroventral end of the hypohyal (Westneat 1993), and (4) posterior flange present on nasal bone (Westneat 1993).

Synonyms. *Cirrhilabrini* (Randall 1999c:2; Parenti and Randall 2000:2; Tea et al. 2021b:494) and *Pseudocheilini* (Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Almeida et al. 2017, table 1; Bellwood et al. 2019, fig. 2) are ambiguous synonyms of *Cirrhilabrinae*.

Comments. The phylogenetic placements of species not included in the UCE phylogeny and illustrated in Figure 4 are based on resolution in the mtDNA gene tree (Figure 5) and include: *Cirrhilabrus africanus* Victor 2016 African Fairywrasse, *C. condei* Allen and Randall 1996, *C. earlei* Randall and Pyle 2001 Earle's Fairywrasse, *C. flavidorsalis* Randall and Carpenter 1980 Yellowfin Fairywrasse, *C. humanni* Allen and Erdmann 2012:1138, *Paracheilinus alfiani* Allen, Erdmann, and Yusmalinda 2016 Alfian's Flasherwrasse, *P. amanda* Tea and Walsh 2023 Amanda's Flasherwrasse, *P. angulatus* Randall and Lubbock 1981 Royal Flasherwrasse, *P. cyaneus* Kuiter and Allen 1999, *P. filamentosus* Allen 1974 Filamented Flasherwrasse, *P. flavianalis* Kuiter and Allen 1999 Yellowfin Flasherwrasse, *P. octotaenia* Fourmanoir in Roux-Estève and Fourmanoir 1955 Eightline Flasherwrasse, *P. piscilineatus* (Cornic 1987) Fairy Flasherwrasse, *P. rennyae* Allen, Erdmann, and Yusmalinda 2013 Renny's Flasherwrasse, *P. rubricaudalis* Randall and Allen 2003 Fijian Flasherwrasse, *P. walton* Allen and Erdmann 2006, *Pteragogus aurigarius* (Richardson 1845) Malachite Wrasse, *P. flagellifer* (Valenciennes in Cuvier and Valenciennes 1839) Pacific Cocktail Wrasse, *P. pelycus* Randall 1981b Sideburn Wrasse, *P. taeniops* (Peters 1855) Cheekbar Wrasse, and *P. trispilus* Randall 2013 Threedot Wrasse. *Cirrhilabrus aquamarinus* Tea, Allen, and Dailami 2021 Chinstrap Fairywrasse, *C. chaliasi* Tea, Allen, and Dailami 2021 Rubyhead Fairywrasse, and *C. wakanda* Tea, Pinheiro, Shepherd, & Rocha 2019 Vibranium Fairywrasse are placed in the synthetic tree (Figure 4) based on resolutions in a phylogenomic analysis of UCEs (Tea et al. 2021a, 2022b). *Cirrhilabrus finifenmaa* Tea, Najeeb, Rowlett, and Rocha 2022 Roseveiled Fairywrasse is placed in the phylogeny (Figure 4) based on hypothesized relationships outlined in the species description (Tea et al. 2022a). See Table 1 for a list of species of *Cirrhilabrinae* not included in the phylogeny of *Labridae*.

Bayesian relaxed molecular clock analyses of *Cirrhilabrinae* result in an average posterior crown age estimate of 27.4 million years ago with the credible interval ranging between 0.9 and 37.6 million years ago (Brownstein et al. 2025).

Cirrhilabrinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Randall 1999c; Tea et al. 2021b).

Constituent species and lineages.

Cirrhilabrus, 52 species	*Paracheilinus*, 18 species
Pseudocheilinops ataenia	*Pseudocheilinus* 7 species
Pteragogus, 11 species	

Registration number. 1156.

Labrinae T. Gill 1893:135

[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Labrus mixtus* Linnaeus 1758 and *Symphodus rostratus* (Bloch 1791). This is a minimum-crown-clade definition.

Etymology. Derived from the Latin word *labrum* meaning lip.

Reference phylogeny. A time-calibrated phylogeny inferred from Bayesian analysis of Sanger-sequenced mtDNA and nuclear genes (Baliga and Law 2016, fig. 1). Figure 6 illustrates the phylogenetic relationships of the major lineages and species of *Labrinae*.

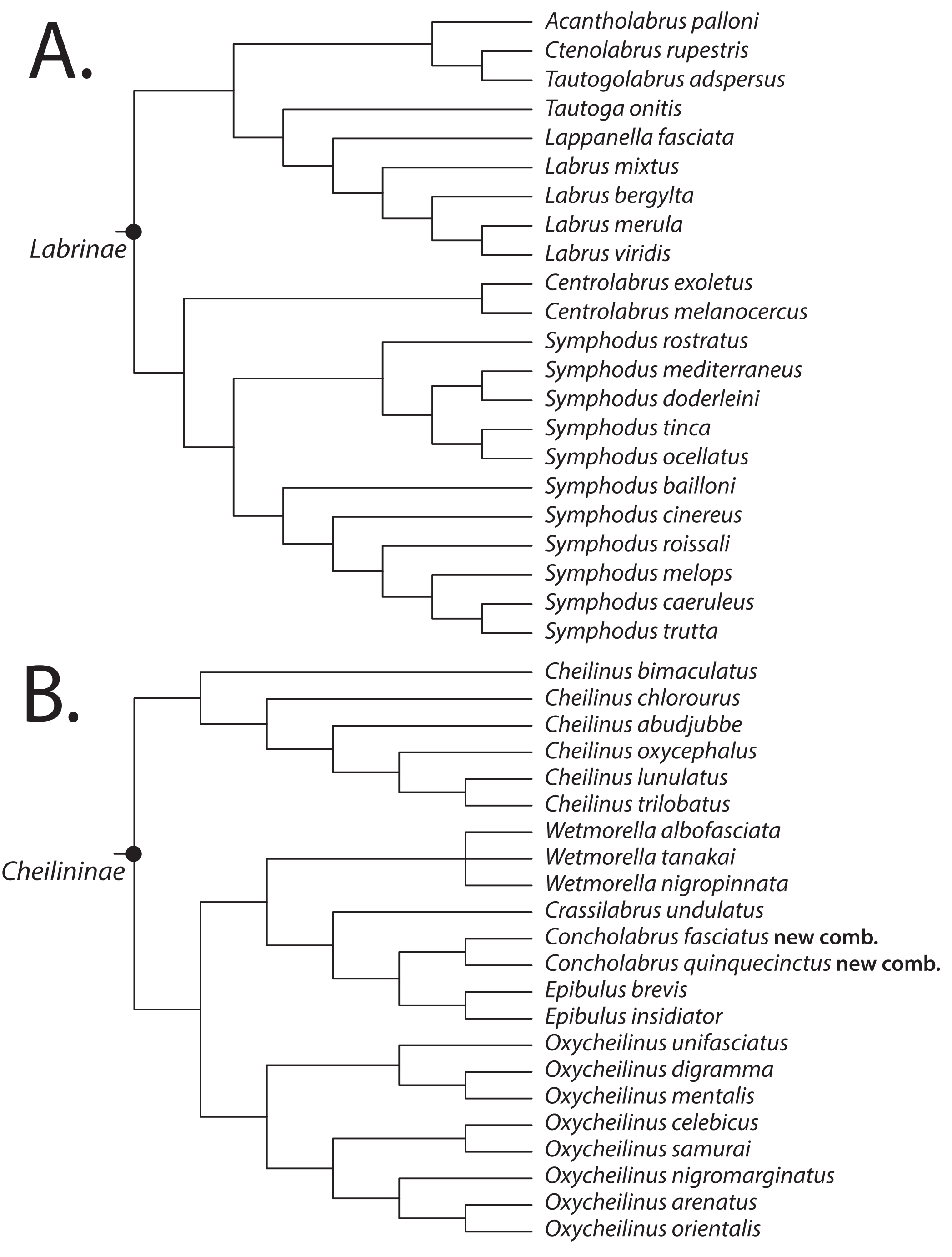

Figure 6. **A.** Phylogenetic relationships among the species of *Labrinae*. **B.** Phylogenetic relationships among the species of *Cheilininae*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts.

Phylogenetics. Phylogenetic analyses of morphology and several molecular datasets resolve *Labrinae* as a monophyletic group (e.g., Westneat 1993; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Brownstein et al. 2025). Within *Labrinae*, molecular phylogenetic analyses consistently resolve three monophyletic groups: (1) species of *Symphodus* and *Centrolabrus*, (2) *Lappanella fasciata* (Cocco 1833) Redspotted Wrasse and species of *Labrus*, and (3) a clade containing *Acantholabrus palloni* (Risso 1810) Scalyrayed Wrasse, *Ctenolabrus rupestris* (Linnaeus 1758) Goldsinny, and *Tautogolabrus adspersus* (Walbaum 1792) Cunner. The phylogenetic resolution of *Tautoga onitis* (Linnaeus 1758) Tautog within *Labrinae* is incongruent among these molecular studies (Hanel et al. 2002; Kazancioglu et al. 2009; Aiello et al. 2017; Rabosky et al. 2018; Fark et al. 2022; Evans et al. 2023).

Traditional delimitations of the genera *Centrolabrus* and *Symphodus* are not monophyletic in phylogenies inferred from molecular data (Hanel et al. 2002; Kazancioglu et al. 2009; Fark et al. 2022). The taxonomy of *Symphodus caeruleus* (Azevedo 1999) Blue Atlantic Wrasse and *S. trutta* (Lowe 1834) Green Atlantic Wrasse were changed from *Centrolabrus* (Almada et al. 2002), as they are phylogenetically well nested in *Symphodus* and exhibit similar meristic traits to other species in the clade. In addition, both *Symphodus caeruleus* and *S. trutta* exhibit sexual dichromatism, nest building, and paternal egg guarding as present in most other species of *Symphodus*, but these traits are absent in *Centrolabrus exoletus* and *Centrolabrus melanocercus* (Azevedo et al. 1999; Almada et al. 2002; Hanel et al. 2002; Fark et al. 2022). Molecular phylogenies consistently resolve a clade containing *Centrolabrus exoletus* (Linnaeus 1758) Rock Cook and *Centrolabrus melanocercus* (Risso 1810) Blacktailed Wrasse as a clade that is the sister linage of all other species of *Symphodus*, which is consistent with the two species having nearly identical body pigmentation and cleaning behaviors (Potts 1974).

Taxonomy. Based on the consistent results from molecular phylogenetics we delimit *Centrolabrus* to include two species: *Centrolabrus exoletus* (Linnaeus 1758) and *Centrolabrus melanocercus* (Risso 1810) (Table 2).

Composition. There are currently 23 species of *Labrinae* that include *Acantholabrus palloni*, *Ctenolabrus rupestris*, *Tautoga onitis*, *Tautogolabrus adspersus*, and species classified in *Centrolabrus*, *Labrus*, *Lappanella*, and *Symphodus* (Appendix 1; Parenti and Randall 2000; Almada et al. 2002; Kuiter 2010; Parenti and Randall 2011, 2018; Fricke et al. 2025). No new species of *Labrinae* have been described over the past 25 years.

Diagnostic apomorphies. A Y- or T-shaped lower pharyngeal jaw with wings is a morphological apomorphy for *Labrinae* (Westneat 1993:fig. 14).

Synonyms. *Labrini* (Westneat 1993, appendix 1; Hanel et al. 2002; Westneat and Alfaro 2005:383; Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Bellwood et al. 2019, fig. 2, 129; Hughes et al. 2023:537) is an ambiguous synonym of *Labrinae*.

Comments. The phylogenetic relationships of *Labrinae* illustrated in Figure 6A are based on a phylogenomic analysis of RAD loci (Fark et al. 2022) and the placement of *Lappanella fasciata* is based on several phylogenetic analyses of Sanger-sequenced mtDNA and nuclear genes (Hanel et al. 2002; Baliga and Law 2016). There is no molecular data available for *Lappanella guineensis* Bauchot 1969 Guinea Wrasse and it is not included in the phylogeny of *Labridae* (Table 1).

Bayesian relaxed molecular clock analyses of *Labrinae* result in an average posterior crown age estimate of 16.4 million years ago with the credible interval ranging between 13.0 and 19.9 million years ago (Brownstein et al. 2025).

Labrinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Acantholabrus palloni
Ctenolabrus rupestris
Lappanella, 2 species
Tautoga onitis
Centrolabrus, 2 species
Labrus, 4 species
Symphodus, 11 species
Tautogolabrus adspersus

Registration number. 1157.

Cheilininae C.T. Regan 1913:133
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Cheilinus trilobatus* Lacépède 1801, *Epibulus insidiator* (Pallas 1770), and *Oxycheilinus arenatus* (Valenciennes in Cuvier and Valenciennes 1840). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek χεῖλος meaning lip.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S6). Figure 6B illustrates the phylogenetic relationships of the major lineages and species of *Cheilininae*.

Phylogenetics. Both morphological and molecular phylogenetic analyses resolve *Cheilininae* as monophyletic (Westneat 1993; Westneat and Alfaro 2005; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Hughes et al. 2023; Brownstein et al. 2025). A phylogenetic analysis of 86 morphological characters led to the elevation of the genus *Oxycheilinus* to accommodate the non-monophyly of species traditionally classified as *Cheilinus,* resolved *Epibulus* and *Wetmorella* as sister lineages, and included *Doratonotus megalepis* in *Cheilininae* as the sister lineage to all other species in the clade (Westneat 1993).

Molecular phylogenies significantly diverge from those inferred using morphological characters, revealing both *Cheilinus* and *Oxycheilinus* as polyphyletic. Additionally, these studies show that *Epibulus* and *Wetmorella* are not sister lineages (Westneat and Alfaro 2005; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Limmon et al. 2020; Hughes et al. 2023; Brownstein et al. 2025). The Twospot Wrasse, *Oxycheilinus bimaculatus* (Valenciennes in Cuvier and Valenciennes 1840), is the sister species to a clade containing five species of *Cheilinus*, including the type species *Cheilinus trilobatus* Tripletail Wrasse (Figure 6B; e.g., Westneat and Alfaro 2005; Kazancioglu et al. 2009; Hughes et al. 2023; Brownstein et al. 2025). Furthermore, three species traditionally classified as *Cheilinus* form a paraphyletic group relative to the two species of *Epibulus*. Specifically, *Crassilabrus undulatus* is the sister lineage to a clade containing the sister species pair *Concholabrus fasciatus* **new genus**, **new combination**, and *C. quinquecinctus* **new genus**, **new combination**, and the sister species pair *Epibulus insidiator* (Pallas 1770) Slingjaw Wrasse and *E. brevis* Carlson, Randall, and Dawson 2008 Latent Slingjaw Wrasse.

Taxonomy. Based on the consistent resolution in molecular phylogenetic studies (e.g., Kazancioglu et al. 2009; Hughes et al. 2023; Brownstein et al. 2025), *Oxycheilinus bimaculatus* is treated as *Cheilinus bimaculatus* Valenciennes in Cuvier and Valenciennes (1840) (Table 2).

Crassilabrus Swainson 1839:172, 225.

Type species. *Cheilinus undulatus* Rüppell 1835:20. Type by monotypy.

Diagnosis. Dorsal rays IX, 10; anal spines III, anal rays 8; pectoral rays 12; pored lateral line scales 14–16 + 7–8. Body deep, forehead of large adults with fleshy hump protruding anterior to the eyes.

Etymology. From the Latin *crassus* meaning thick and *labrum* meaning lip.

Composition. *Crassilabrus undulatus* (Rüppell 1835) **new combination** Humphead Wrasse is the only species in the genus (Table 2).

Remarks. The genus *Crassilabrus* (Swainson 1839) is elevated out of synonymy with *Cheilinus* (Lacépède 1801).

Concholabrus Near, Brownstein, Thacker, and Wainwright, **new genus**.

Type species. *Sparus fasciatus* Bloch 1791:18; here designated.

Zoobank registration. LSIDurn:lsid:zoobank.org:act:9C93FA7D-4F9B-487F-A444-2A8CE-8FA8A6C

Diagnosis. Dorsal rays IX, 10; anal spines III, anal rays 8; pectoral rays 12, upper two rays unbranched; lateral line interrupted, pored scales 14–16 + 7–10; relatively deep body, 2.3–2.6 times that of standard length. The body of juveniles is predominantly brown with five pale vertical stripes. The first stripe is the widest and most prominent, while the fifth is less noticeable. A short, diagonal pale or yellowish band extends from the eye across the preopercle. A thin pale stripe is present at the caudal fin base. The anterior part of the dorsal fin features a large blue spot encircled by orange on its upper edge. Subadults and females retain a similar striped pattern to juveniles, but the second stripe becomes more pronounced, nearly reaching the dorsal fin base. Males with vibrant reddish-orange coloration that covers the area behind the eyes, the front portion of the body, and extends backward to the first or second pale stripe (Bogorodsky et al. 2016; Allen and Erdmann 2024).

Etymology. From the Latin *concha* meaning a bivalve, shellfish, or mussel and *labrum* meaning lip.

Composition. There are two species classified in *Concholabrus*: *Concholabrus fasciatus* (Bloch 1791) **new combination** Redbreasted Wrasse and *Concholabrus quinquecinctus* (Rüppell 1835) **new combination** Fiveband Wrasse (Table 2).

Remarks. *Concholabrus fasciatus* is the most molluscivorous member of the *Cheilininae* with almost 50% of its diet made up by gastropods and bivalves (Westneat 1994) and has unusually large pharyngeal jaw crushing musculature (Wainwright et al. 2004).

Composition. There are currently 24 species of *Cheilininae* that include *Crassilabrus undulatus* and species classified in *Cheilinus*, *Concholabrus* **new genus**, *Epibulus*, *Oxycheilinus*, and *Wetmorella* (Appendix 1; Parenti and Randall 2000, 2011, 2018; Kuiter 2010; Bogorodsky et al. 2016; Fricke et al. 2025). Since the year 2000, five species of *Cheilininae* have been described, comprising 20.8% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. Apomorphies for *Cheilininae* include (1) presence of 23 vertebrae (Westneat 1993), (2) presence of an asymmetrical supraoccipital crest (Westneat 1993), and (3) a lateral ridge formed by the epiotic, parietal, and frontal bones extends above the center of or anterior to the front of the orbit (Westneat 1993).

Synonyms. *Chilininae* (Gill 1893:135) is an ambiguous synonym of *Cheilininae*. *Cheilinini* is a partial (Westneat 1993:351; Clements et al. 2004:table 1; Bannikov and Carnevale 2010:table 1) and ambiguous (Cowman et al. 2009:624, fig. 1; Bellwood et al. 2019:fig. 2; Hughes et al. 2023:532, 535, 537, 538) synonym of *Cheilininae*.

Comments. Species not included the UCE phylogeny that are placed in the phylogeny illustrated in Figure 6B include: *Oxycheilinus samurai* and *Concholabrus quinquecinctus* based on resolution in the mtDNA gene tree (Figure 7; Bogorodsky et al. 2016; DiBattista et al. 2016), and *Wetmorella tanakai* based on a phylogenomic analysis of exons (Hughes et al. 2023). There is no molecular data available for *Oxycheilinus lineatus* Randall, Westneat, and Gomon 2003 and is not included in the phylogeny of *Labridae* (Table 1).

Bayesian relaxed molecular clock analyses of *Cheilininae* result in an average posterior crown age estimate of 11.8 million years ago with the credible interval ranging between 3.4 and 16.5 million years ago (Brownstein et al. 2025).

Cheilininae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Cheilinus, 6 species
Crassilabrus undulatus
Oxycheilinus, 9 species
Concholabrus **new genus**, 2 species
Epibulus, 2 species
Wetmorella, 3 species

Registration number. 1158.

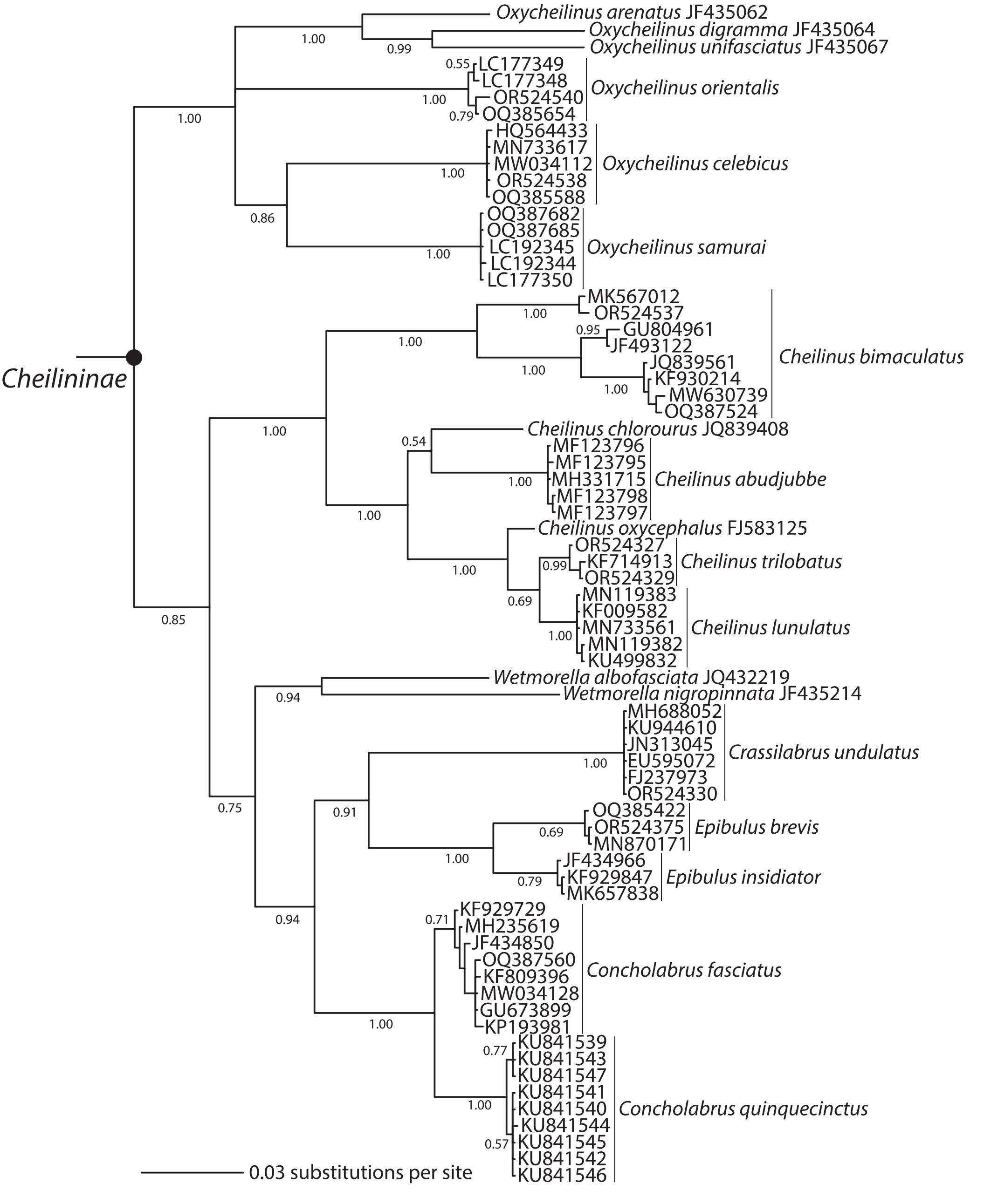

FIGURE 7. Mitochondrial DNA gene tree of *Cheilininae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

Scarinae T. Gill 1893:135
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Scarus psittacus* Forsskål in Niebuhr (1775), *Cryptotomus roseus* Cope 1871, and *Sparisoma chrysopterum* (Bloch and Schneider 1801). This is a minimum-crown-clade definition.

Etymology. From σκάρος the ancient Greek name for *Sparisoma cretense* (Linnaeus

1758) Mediterranean Parrotfish (Thompson 1947:238–241).

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, figs. S6 and S7). Figure 8 illustrates the phylogenetic relationships of the major lineages and species of *Scarinae*.

Phylogenetics. A pre-Hennigian classification based primarily on morphology and patterns of pharyngeal dentition attempted to integrate the taxonomy of *Scarinae* with a hypothesis of phylogeny (Schultz 1958, fig. 1), resulting in the delimitation of *Scarini* and *Sparisomatini*. A phylogenetic analysis of 143 morphological characters resulted in a paraphyletic *Sparisomatini*, with *Cryptotomus roseus* Bluelip Parrotfish, *Nicholsina*, *Calotomus*, *Leptoscarus vaigiensis* Marbled Parrotfish, and *Sparisoma* as successive pectinate branching lineages leading to a monophyletic *Scarini* (*Bolbometopon muricatum* Green Humphead Parrotfish, *Cetoscarus*, *Hipposcarus*, *Chlorurus*, and *Scarus*) (Bellwood 1994). *Cryptotomus roseus* and *Nicholsina* were highlighted as "more labridlike" than other species of *Scarinae*, due to the presence of incisor-like oral teeth at the front of the jaws that slant forward and an angled head shape (Schultz 1958:6). Molecular phylogenetic analyses consistently resolve *Scarinae*, *Scarini*, and *Sparisomatini* as monophyletic groups (Streelman et al. 2002; Westneat and Alfaro 2005; Smith et al. 2008; Alfaro et al. 2009; Kazancioglu et al. 2009; Near et al. 2013; Aiello et al. 2017; Rabosky et al. 2018; Siqueira et al. 2019; Ghezelayagh et al. 2022; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). The inferred relationships among the 10 genera of *Scarinae* are completely congruent across molecular phylogenetic analyses using Sanger sequenced mtDNA and nuclear genes, and genomic-scale datasets (e.g., Alfaro et al. 2009; Aiello et al. 2017; Brownstein et al. 2025).

Composition. There are currently 100 species of *Scarinae* classified in *Scarini* and *Sparisomatini* (Appendix 1; Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025). Since the year 2000, six species of *Scarinae* have been described, comprising 6.0% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. Apomorphies for *Scarinae* include (1) presence of lateral flanges on the supraoccipital crest (Bellwood 1994), (2) a posterior flange of the epioccipital is an arch-shaped extension that is the site of the origin of the *M. levator posterior* (Bellwood 1994), (3) presence of a deep subtemporal fossae that forms the site of origin for the *M. levator externus* IV (Bellwood 1994), (4) pharyngeal articulation facets are elongate (Bellwood 1994), (5) pharyngeal with strongly concave articulation facets (Bellwood 1994), (6) presence of regular pharyngeal tooth rows (Bellwood 1994), (7) presence of a conveyer-like progression of pharyngeal tooth replacement (Bellwood 1994), (8) fourth epibranchial with greatly expanded lateral flange (Bellwood 1994), (9) presence of a pharyngeal valve (Bellwood 1994), (10) the lower pharyngeal with even rows of teeth (Bellwood 1994), (11) keel of branchial arch is elongate, deep, rounded, and flattened distally (Bellwood 1994), (12) the posttemporal with a long posterior extension that extends along dorsal margin of the supracleithrum (Bellwood 1994), (13) the anterior extremities of the basipterygium with lateral flanges (Bellwood 1994), (14) the hemal postzygopophyses on the first two vertebrae with marked posterolateral expansions, (15) vertebrae three to five with expanded flanges on the parapophyses (Bellwood 1994), (16) presence of one neural spine before the first dorsal pterygiophore (Bellwood 1994), (17) parhypural is shortened (Bellwood 1994), and (18) intestinal coiling with a dextral loop (Bellwood 1994).

Synonyms. *Scaridi* (Rafinesque 1810:18), *Scarini* (Bonaparte 1831:178; Clements et al. 2004, table 1; Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Bellwood et al. 2019:119, fig. 2; Hughes et al. 2023:537), *Scaroidei* (Bleeker 1859:xvii), *Scarina* (Günther 1861:388), *Callyodontidae* (Fowler and Bean 1922:51; Smith 1956) and *Scaridae* (Gill 1872:6; Regan 1913:135; Jordan 1923:223; Berg 1940:477; Greenwood et al. 1966; Bellwood 1994:60; Nelson 2006:396; Nelson et al. 2016:429–430) are ambiguous synonyms of *Scarinae*.

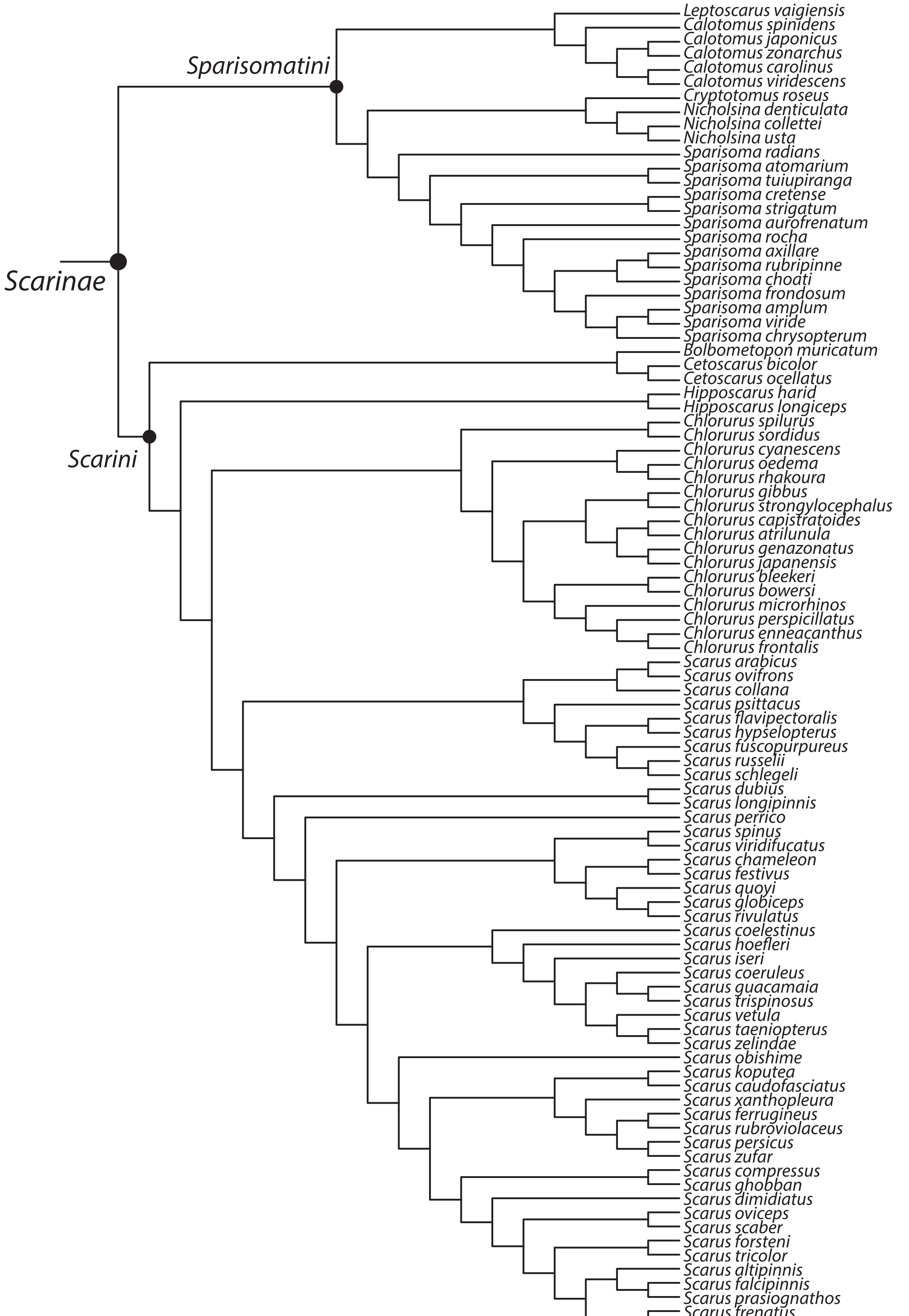

Figure 8. Phylogenetic relationships among the living lineages and species of *Scarinae*, *Scarini*, and *Sparisomatini*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts.

Comments. Two competing classifications of *Scarinae* emerged in the mid-19th century: *Scaridae* as a distinct family separate from *Labridae* (Bleeker 1859:xvii,103; Gill 1872:6; 1885:239; 1893:135) or as a subfamily within *Labridae* (Günther 1861; 1862:208). The classifications of *Teleostei* by Theodore Gill (e.g., 1893) had an influential and lasting impact as *Scaridae* was treated as a taxonomic family distinct from *Labridae* throughout the 20th century (Jordan 1923:223; Berg 1940:477; Greenwood et al. 1966; Nelson 2006:396).

Beginning in the 2000s, multiple molecular phylogenetic analyses consistently resolved *Scarinae* nested in *Labridae* (Westneat and Alfaro 2005; Smith et al. 2008; Alfaro et al. 2009; Kazancioglu et al. 2009). However, traditionalists strongly resisted this reclassification, arguing against what they saw as an overemphasis on "genetic aspects in classification, at the expense of observable morphological characteristics" (Randall and Parenti 2014:16). They further defended the family-level status of *Scarinae* by citing its long taxonomic tradition dating to 1810 (i.e., Rafinesque 1810), distinct ecological differences between wrasses and parrotfishes, deep divergence times, and the substantial species diversity of parrotfishes (Randall and Parenti 2014).

Yet this resistance ignores an incontrovertible fact: every phylogenetic analysis shows that maintaining *Scarinae* as a separate family renders *Labridae* paraphyletic (Figure 1). This has become "one of the most contentious issues in the field of systematic ichthyology" (Bellwood 2022), though the evidence clearly supports the position of *Scarinae* as a subclade within *Labridae* (e.g., Hughes et al. 2023; Brownstein et al. 2025). Despite this unambiguous phylogenetic evidence, several major ichthyological references continue to maintain the outdated classification (Nelson et al. 2016:429–430; Randall 2022; Allen and Erdmann 2024:795–820).

Bayesian relaxed molecular clock analyses of *Scarinae* result in an average posterior crown age estimate of 23.7 million years ago with the credible interval ranging between 19.1 and 28.5 million years ago (Brownstein et al. 2025).

Scarinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:113).

Constituent species and lineages.

Scarini, 75 species	*Sparisomatini*, 25 species

Registration number. 1159.

Scarini C. L. Bonaparte 1831:178
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Scarus psittacus* Forsskål in Niebuhr (1775) and *Bolbometopon muricatum* (Valenciennes in Cuvier and Valenciennes 1840). This is a minimum-crown-clade definition.

Etymology. From σκάρος the ancient Greek name for *Sparisoma cretense* (Linnaeus 1758) Mediterranean Parrotfish (Thompson 1947:238–241).

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S7). Figure 8 illustrates the phylogenetic relationships of the major lineages and species of *Scarini*.

Phylogenetics. Cheek squamation and the morphology of oral teeth and vertebrae provided evidence for the delimitation of *Scarini* (Smith 1956; Schultz 1958), which was resolved as a clade in a phylogenetic analysis of 143 morphological characters (Bellwood 1994). Molecular phylogenetic analyses consistently resolve *Scarini* as monophyletic (Westneat and Alfaro 2005; Smith et al. 2008; Alfaro et al. 2009; Kazancioglu et al. 2009; Aiello et al. 2017; Rabosky et al. 2018; Siqueira et al. 2019; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). In the phylogenies, *Bolbometopon muricatum* Green Humphead Parrotfish and *Cetoscarus* resolve as a clade that is the sister lineage to a clade containing *Hipposcarus*, *Chlorurus*, and *Scarus* (Figure 8).

Composition. There are currently 75 species of *Scarini* that include *Bolbometopon muricatum* and species classified in *Cetoscarus*, *Chlorurus*, *Hipposcarus*, and *Scarus* (Appendix 1; Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025). Since the year 2000, three species of *Scarini* have been described, comprising

0.4% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. Apomorphies for *Scarini* include (1) oral teeth fully coalesced into plates with a median suture (Schultz 1958; Bellwood 1994), (2) the premaxilla overhangs the dentary, the tip of the lower jaw enclosed in upper jaw when mouth is closed (Schultz 1958; Bellwood 1994), (3) 10 to 12 abdominal and 13 to 15 caudal vertebrae (Schultz 1958), (4) three to eight median predorsal scales (Schultz 1958), (5) two to four rows of large cheek scales (Schultz 1958; Bellwood 1994), (6) presence of an enlarged deep coronoid process (Bellwood 1994), (7) presence of a medial spine in the articular (Bellwood 1994), and (8) a reduction in the protrusion that closes the gap between hypurals 1+2 and the hemal spine of the penultimate vertebrae (Bellwood 1994).

Synonyms. *Scarina* (Bellwood et al. 2019:129) and *Scarinae* (Schultz 1958:18; Randall and Bruce 1983; Nelson 1994:388) are unambiguous synonyms of *Scarini*.

Comments. Species not included the UCE phylogeny that are placed in the phylogeny illustrated in Figure 8 include: *Chlorurus atrilunula*, *C. rhakoura*, *C. perspicillatus*, *C. strongylocephalus Hipposcarus longiceps*, *Scarus caudofasciatus*, *S. dimidiatus*, *S. falcipinnis*, and *S. arabicus* based on the mtDNA gene tree (Figure 9), and *Chlorurus sordidus* based phylogenetic analysis of DNA sequences of mtDNA and nuclear genes (Rabosky et al. 2018; Siqueira et al. 2019). There is little or no molecular data available for *Chlorurus troscheli* (Bleeker 1853b), *Scarus chinensis* (Steindachner 1867b), *Scarus fuscocaudalis* Randall and Myers 2000, *Scarus gracilis* (Steindachner 1869), and *Scarus maculipinna* Westneat, Satapoomin, and Randall 2007 and these species are not included in the phylogeny of *Labridae* (Table 1).

Bayesian relaxed molecular clock analyses of *Scarini* result in an average posterior crown age estimate of 17.8 million years ago with the credible interval ranging between 12.7 and 25.1 million years ago (Brownstein et al. 2025).

Scarini is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:113).

Constituent species and lineages:
Bolbometopon muricatum
Chlorurus, 18 species
Scarus, 52 species
Cetoscarus, 2 species
Hipposcarus, 2 species

Registration number. 1160.

Sparisomatini T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright, new clade name

Definition. The least inclusive crown clade that contains *Cryptotomus roseus* Cope 1871, *Leptoscarus vaigiensis* (Quoy and Gaimard 1824), and *Sparisoma chrysopterum* (Bloch and Schneider 1801). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek words σπάρος the name for Mediterranean species of *Sparidae* (Thompson 1947:248) and σῶμα meaning the body of a human or animal.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S6). Figure 8 illustrates the phylogenetic relationships of the major lineages and species of *Sparisomatini*.

Phylogenetics. Cheek squamation and the morphology of oral teeth and vertebrae provided evidence for the delimitation of *Sparisomatini* (Smith 1956; Schultz 1958), which was resolved as paraphyletic in a phylogenetic analysis of 143 morphological characters (Bellwood 1994). Molecular phylogenetic analyses consistently resolve *Sparisomatini* as monophyletic with *Leptoscarus vaigiensis* and *Calotomus* as a clade that is sister to a monophyletic group containing *Sparisoma*, *Cryptotomus roseus*, and *Nicholsina* (Figure 8; Smith et al. 2008; Alfaro et al. 2009; Kazancioglu et al. 2009; Aiello et al. 2017; Evans et al. 2023; Brownstein et al. 2025).

Composition. There are currently 25 species of *Sparisomatini* that include *Cryptotomus roseus*,

FIGURE 9. Mitochondrial DNA gene tree of *Scarinae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

Leptoscarus vaigiensis, and species classified in *Calotomus*, *Nicholsina*, and *Sparisoma* (Appendix 1; Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025). Since the year 2000, three species of *Sparisomatini* have been described, comprising 12.0% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. Apomorphies for *Sparisomatini* include (1) oral teeth incompletely coalesced into four plates (Schultz 1958), (2) upper pharyngeal jaw with three rows of teeth (Schultz 1958), 11 branched pectoral fin rays (Schultz 1958), (3) nine abdominal and 16 caudal vertebrae (Schultz 1958), (4) four or five median predorsal scales (Schultz 1958), and (5) one row cheek scales (Schultz 1958).

Synonyms. *Sparisominae* (Gill 1893:135), *Sparisomatinae* (Jordan and Evermann 1898:1621; Schultz 1958:109; Bruce and Randall 1985:5; Nelson 1994:388), *Scarichthyidae* (Jordan and Seale 1905:789), and *Sparisomatina* (Bellwood et al. 2019:129) are unambiguous synonyms of *Sparisomatini*.

Comments. Species not included in the UCE phylogeny that are placed in the phylogeny illustrated in Figure 8 include: *Calotomus japonicus* and *Nicholsina denticulata* based on the mtDNA gene tree (Figure 9), and *Calotomus zonarchus*, *Nicholsina collettei*, *Sparisoma rubripinne*, and *S. strigatum* based on phylogenetic analysis of DNA sequences of mtDNA and nuclear genes (Robertson et al. 2006; DiBattista et al. 2016; Rabosky et al. 2018; Siqueira et al. 2019). There is no molecular data available for *Sparisoma griseorubrum* Cervigón 1982 and the species is not included in the phylogeny of *Labridae* (Table 1).

Bayesian relaxed molecular clock analyses of *Sparisomatini* result in an average posterior crown age estimate of 18.6 million years ago with the credible interval ranging between 14.6 and 23.1 million years ago (Brownstein et al. 2025).

Sparisomatini is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:113).

Constituent species and lineages.
Calotomus, 5 species
Cryptotomus roseus
Leptoscarus vaigiensis
Nicholsina, 3 species
Sparisoma, 15 species

Registration number. 1161.

Xyrichtyinae J. E. Randall and P. S. Lobel 2003:971 [T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Xyrichtys novacula* (Linnaeus 1758), *Novaculichthys taeniourus* (Lacépède 1801), and *Iniistius pavo* (Valenciennes in Cuvier and Valenciennes 1840). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek words ξῠρόν and ιχθύς meaning razor and fish.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S2). Figure 10A illustrates the phylogenetic relationships of the major lineages and species of *Xyrichtyinae*.

Phylogenetics. Molecular phylogenies consistently resolve *Xyrichtyinae* as monophyletic with *Novaculichthys taeniourus* Rockmover Wrasse and *Novaculoides macrolepidotus* (Bloch 1791) Seagrass Wrasse resolved as a clade that is the sister lineage to all other *Xyrichtyinae*, and *Xyrichtys* is monophyletic and sister to a clade containing *Cymolutes* and a monophyletic *Iniistius* (Westneat and Alfaro 2005; Cowman et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). *Ammolabrus dicrus* Randall and Carlson 1997 Forktail Sandwrasse has never been included in a phylogenic analysis but is hypothesized to be most closely related to *Novaculichthys taeniourus*, *Novaculoides macrolepidotus*, or *Novaculops woodi* (Jenkins 1901) Wood's Razorfish. There is no molecular data or phylogenetic analysis that includes any of the seven species of *Novaculops*, which has been confused with *Novaculichthys* and *Xyrichtys* (Schultz 1960; Randall and Carlson 1997; Randall and Earle 2002, 2004; Fukui 2020; Sorgon et al. 2023).

Composition. There are currently 47 species of *Xyrichtyinae* that include *Ammolabrus dicrus*, *Novaculichthys taeniourus*, *Novaculoides macrolepidotus*, and species classified in *Cymolutes*, *Iniistius*, *Novaculops*, and *Xyrichtys* (Appendix 1; Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025). Since the year 2000, 12 species of *Xyrichtyinae* have been described, comprising 25.5% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

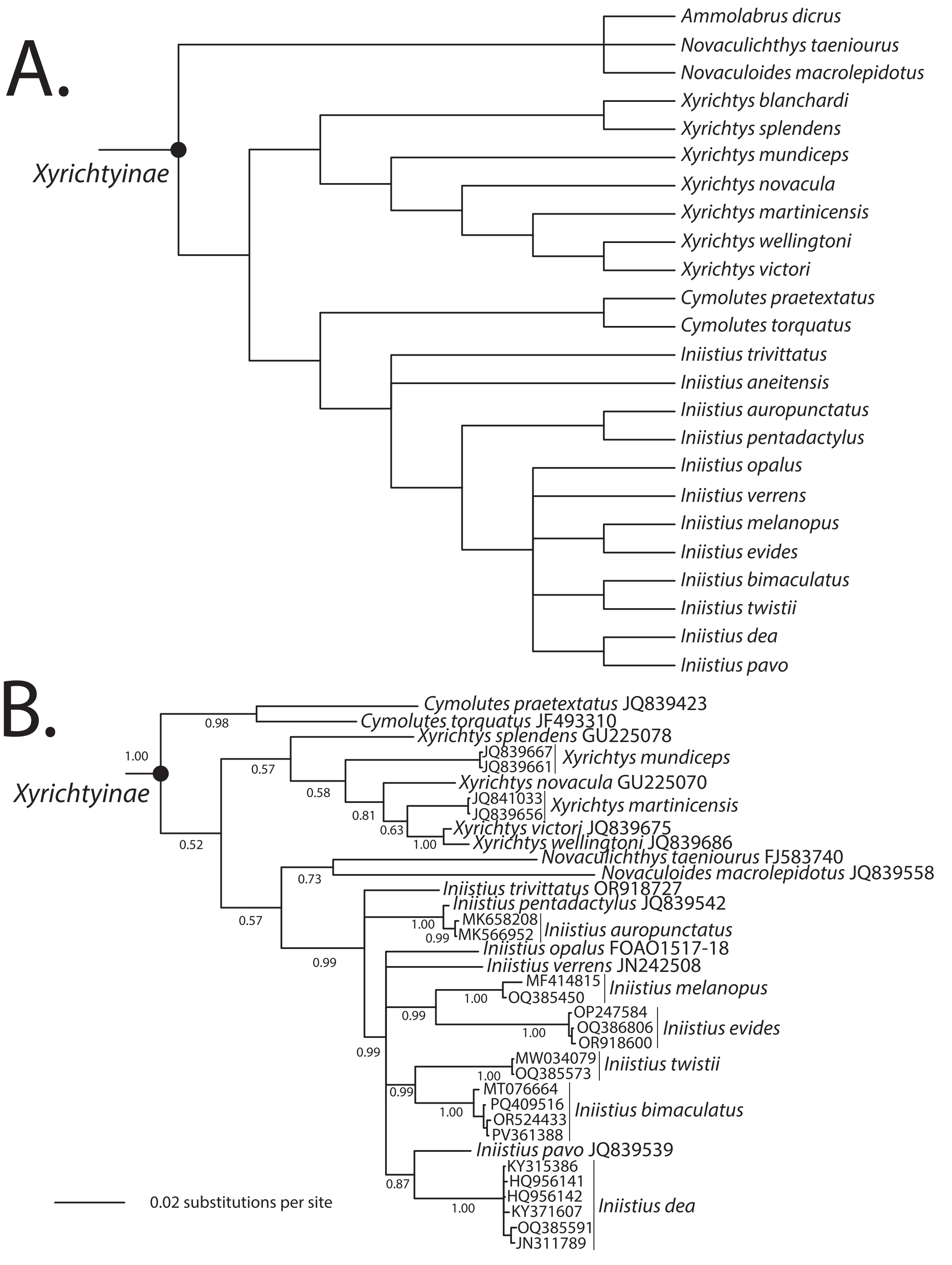

Figure 10. **A.** Phylogenetic relationships among the species of *Xyrichtyinae*. **B.** Mitochondrial DNA gene tree of *Xyrichtyinae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

Diagnostic apomorphies. Apomorphies for *Xyrichtyinae* include (1) extreme lateral compression of the head and body (Victor et al. 2001), (2) presence of a firm ridge on the skull (Randall and Earle 2004), (3) a disjunct lateral line canal shared with some species of *Cheilininae* and *Doratonotus* (Webb 1990; Randall and Earle 2004), and (4) fewer than 26 short gill rakers (Randall and Earle 2004).

Synonyms. *Xirichthyinae* (Gill 1862:143), *Novaculaeiformes* (Bleeker 1862a:414), *Xyrichthyinae* (Gill 1893:135; Regan 1913:133), and *Novaculini* (Webb 1990:139; Westneat 1993:352; Hanel et al. 2002:776; Westneat and Alfaro 2005:371, 380, 385; Westneat et al. 2005:995; Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Bellwood et al. 2019, fig. 2; Hughes et al. 2023:537; Sorgon et al. 2023:511) are ambiguous synonyms of *Xyrichtyinae*.

Comments: The family-group name *Novaculini* had been in use for the *Xyrichtyinae* from the early 1990s through 2023; however, *Xyrichthini* (Bonaparte 1841) has priority over *Novaculaeiformes* (Bleeker 1862a:414) with Xyrichty- as the correct stem (Sheiko 2013:101).

More than 48% of the living species of *Xyrichtyinae* are absent from the phylogeny (Table 1; Figure 10A). There is no molecular data for *Ammolabrus dicrus* or any species of *Novaculops*. Species not included the UCE phylogeny that are placed in the phylogeny illustrated in Figure 10A include: *Ammolabrus dicrus* based on statements of relationships in the species description (Randall and Carlson 1997); *Iniistius bimaculatus* Twospot Razorfish, *I. dea* Blackspot Razorfish, *I. evides* Taiwanese Razorfish, *I. melanopus* Yellowpatch Razorfish, *I. opalus* Opaline Razorfish, *I. pentadactylus* Fivefinger Razorfish, *I. trivittatus* Threebanded Razorfish, *I. twistii* Redblotch Razorfish, *I. verrens* Threebanded Razorfish, *Xyrichtys mundiceps* Cape Razorfish, *X. victori* Galapagos Razorfish, and *X. wellingtoni* Clipperton Razorfish based on the mtDNA gene tree (Figure 10B).

Bayesian relaxed molecular clock analyses of *Xyrichtyinae* result in an average posterior crown age estimate of 15.6 million years ago with the credible interval ranging between 4.2 and 22.4 million years ago (Brownstein et al. 2025).

Xyrichtyinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Ammolabrus dicrus
Cymolutes, 3 species
Iniistius, 24 species
Novaculichthys taeniourus
Novaculoides macrolepidotus
Novaculops, 7 species
Xyrichtys, 10 species

Registration number. 1162.

Pseudolabrinae T. Gill 1893:135
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Pseudolabrus luculentus* (Richardson 1848), *Pictilabrus laticlavius* (Richardson 1840), and *Doratonotus megalepis* (Günther 1862). This is a minimum-crown-clade definition.

Etymology. From the ancient Greek word ψευδής meaning false and Latin word *labrum* meaning lip.

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, fig. S2). Figure 11A illustrates the phylogenetic relationships of the major lineages and species of *Pseudolabrinae*.

Phylogenetics. A phylogeny inferred from 33 morphological characters resolved *Pseudolabrinae*, *Malapterus reticulatus* Valenciennes 1839 in Cuvier and Valenciennes (1839) Vieja, and *Julidinae* as a monophyletic group. *Pseudolabrinae* was paraphyletic as *Suezichthys* was placed as the sister lineage to a clade containing *M. reticulatus* and *Julidinae* (Russell 1988). Within *Pseudolabrinae*, species traditionally classified in *Pseudolabrus* resolved in two distinct clades leading to the description of *Notolabrus* (Russell 1988). *Doratonotus megalepis* (Günther 1862) Dwarf Wrasse was not included in the morphological phylogeny.

Molecular phylogenies resolve *Pseudolabrinae* as a monophyletic group with *Doratonotus*

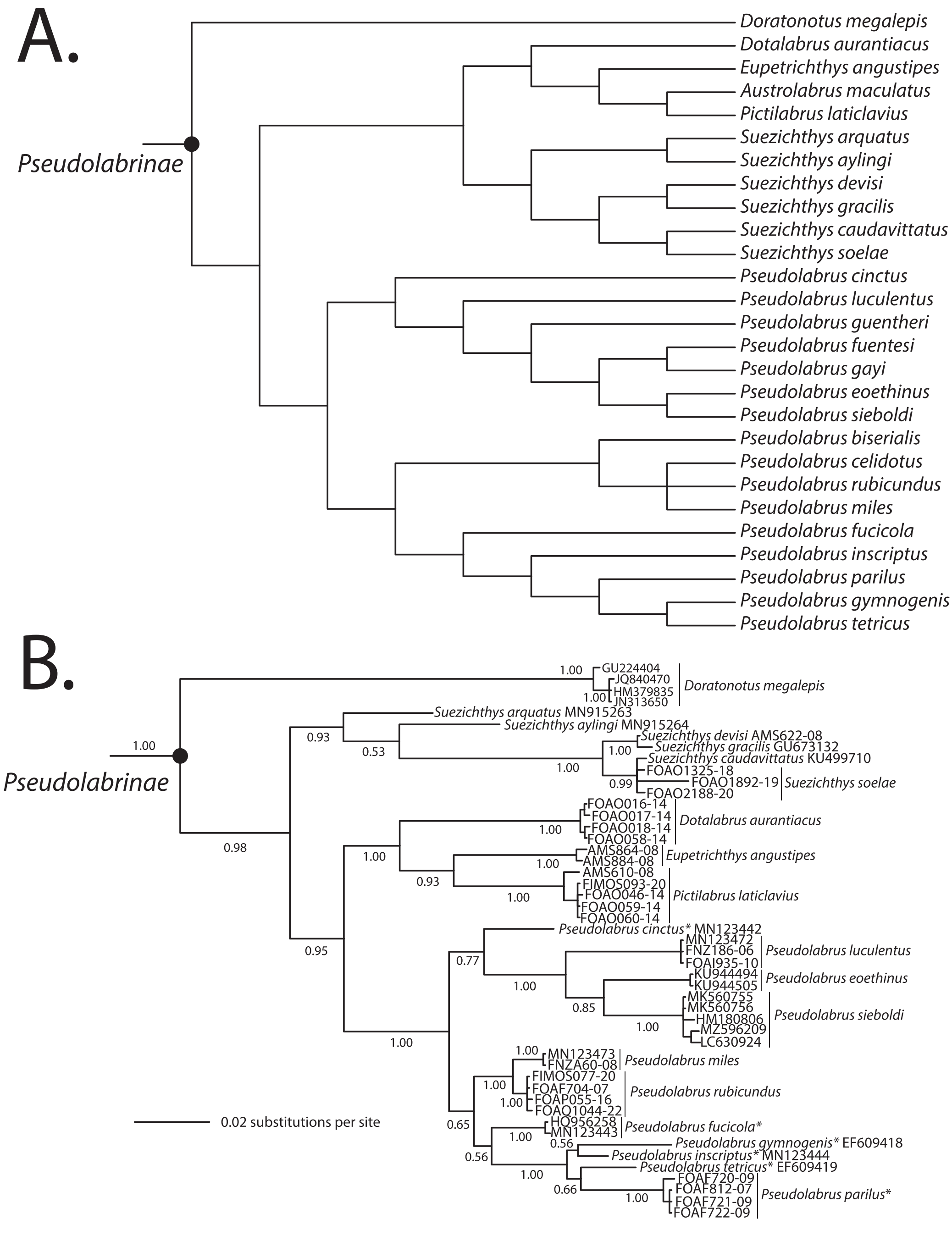

Figure 11. **A.** Phylogenetic relationships among the species of *Pseudolabrinae*. **B.** Mitochondrial DNA gene tree of *Pseudolabrinae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

megalepis as the sister lineage to all other species in the clade (Baliga and Law 2016; Evans et al. 2023; Brownstein et al. 2025). In the molecular phylogenies *Suezichthys* is resolved as the sister lineage to a clade containing species of *Dotalabrus*, *Eupetrichthys angustipes* Ramsay and Ogilby 1888 Snakeskin Wrasse, *Austrolabrus maculatus* (Macleay 1881) Blackspotted

Wrasse, and species of *Pictilabrus*. Molecular phylogenies of *Pseudolabrinae* are incongruent with the tree inferred from morphological characters in resolving species of *Notolabrus* nested in a paraphyletic *Pseudolabrus* (Figure 11B; Mabuchi et al. 2004; Kazancioglu et al. 2009; Scott 2010; Baliga and Law 2016; Rabosky et al. 2018; Evans et al. 2023).

Taxonomy. Based on the consistent resolution in molecular systematic studies, species of *Notolabrus* are now classified as species of *Pseudolabrus*: *Pseudolabrus celidotus* (Bloch and Schneider 1801) Spotty, *Pseudolabrus cinctus* (Hutton 1877) Girdled Wrasse, *Pseudolabrus fucicola* (Richardson 1840) Yellowsaddled Wrasse, *Pseudolabrus gymnogenis* (Günther 1862) Crimsonbanded Wrasse, *Pseudolabrus inscriptus* (Richardson 1848) Inscribed Wrasse, *Pseudolabrus parilus* (Richardson 1850) Orangespotted Wrasse, and *Pseudolabrus tetricus* (Richardson 1840) Bluethroat Wrasse (Table 2).

Composition. There are currently 38 species of *Pseudolabrinae* that include *Austrolabrus maculatus*, *Doratonotus megalepis*, *Eupetrichthys angustipes*, and species classified in *Dotalabrus*, *Pictilabrus*, *Pseudolabrus*, and *Suezichthys* (Appendix 1; Russell 1985; Mabuchi and Nakabo 1997; Parenti and Randall 2000, 2011; Russell and Westneat 2013; Parenti and Randall 2018; Fricke et al. 2025). Since the year 2000, one species of *Pseudolabrinae* has been described, comprising 2.6% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. There are no known morphological apomorphies for *Pseudolabrinae*.

Synonyms. *Pseudolabrini* (Clements et al. 2004, table 1; Westneat and Alfaro 2005:385; Cowman et al. 2009:624; Bannikov and Carnevale 2010, table 1; Bellwood et al. 2019, fig. 2; Hughes et al. 2023:537) is an ambiguous synonym of *Pseudolabrinae*.

Comments. More than 28% of the living species of *Pseudolabrinae* are absent from the phylogeny (Table 1; Figure 11A). Species absent in the UCE phylogeny that are placed in the synthetic phylogeny illustrated in Figure 11A include: *Dotalabrus aurantiacus*, *Pseudolabrus biserialis*, *P. cinctus*, *P. eoethinus*, *P. miles*, *P. rubicundus*, *P. sieboldi*, *Suezichthys caudavittatus*, *S. gracilis*, and *S. soelae* guided by resolution in the mtDNA gene tree (Figure 11B). Phylogenetic analyses of Sanger-sequenced mtDNA and nuclear genes were the basis for placing *Pseudolabrus celidotus* and *P. gayi* in the summary phylogeny illustrated in Figure 11A (Kazancioglu et al. 2009; Scott 2010; Evans et al. 2023).

Bayesian relaxed molecular clock analyses of *Pseudolabrinae* result in an average posterior crown age estimate of 12.3 million years ago with the credible interval ranging between 3.9 and 20.0 million years ago (Brownstein et al. 2025).

Pseudolabrinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Austrolabrus maculatus	*Doratonotus megalepis*
Dotalabrus, 2 species	*Eupetrichthys angustipes*
Pictilabrus, 3 species	*Pseudolabrus*, 16 species
Suezichthys, 12 species	

Registration number. 1163.

Julidinae T. Gill 1863:223
[T. J. Near, C. D. Brownstein, C. E. Thacker, and P.C. Wainwright], converted clade name

Definition. The least inclusive crown clade that contains *Julis julis* (Linnaeus 1758) and *Gomphosus caeruleus* Lacépède 1801. This is a minimum-crown-clade definition.

Etymology. From the ancient Greek word ἰουλίς applied as the name to a number of species of *Labridae* (Thompson 1947:91).

Reference phylogeny. A phylogeny inferred from 1,009 UCE loci (Brownstein et al. 2025, figs. S3 and S4). Figures 12, 13, and 14 illustrates the phylogenetic relationships among the species and major lineages of *Julidinae*.

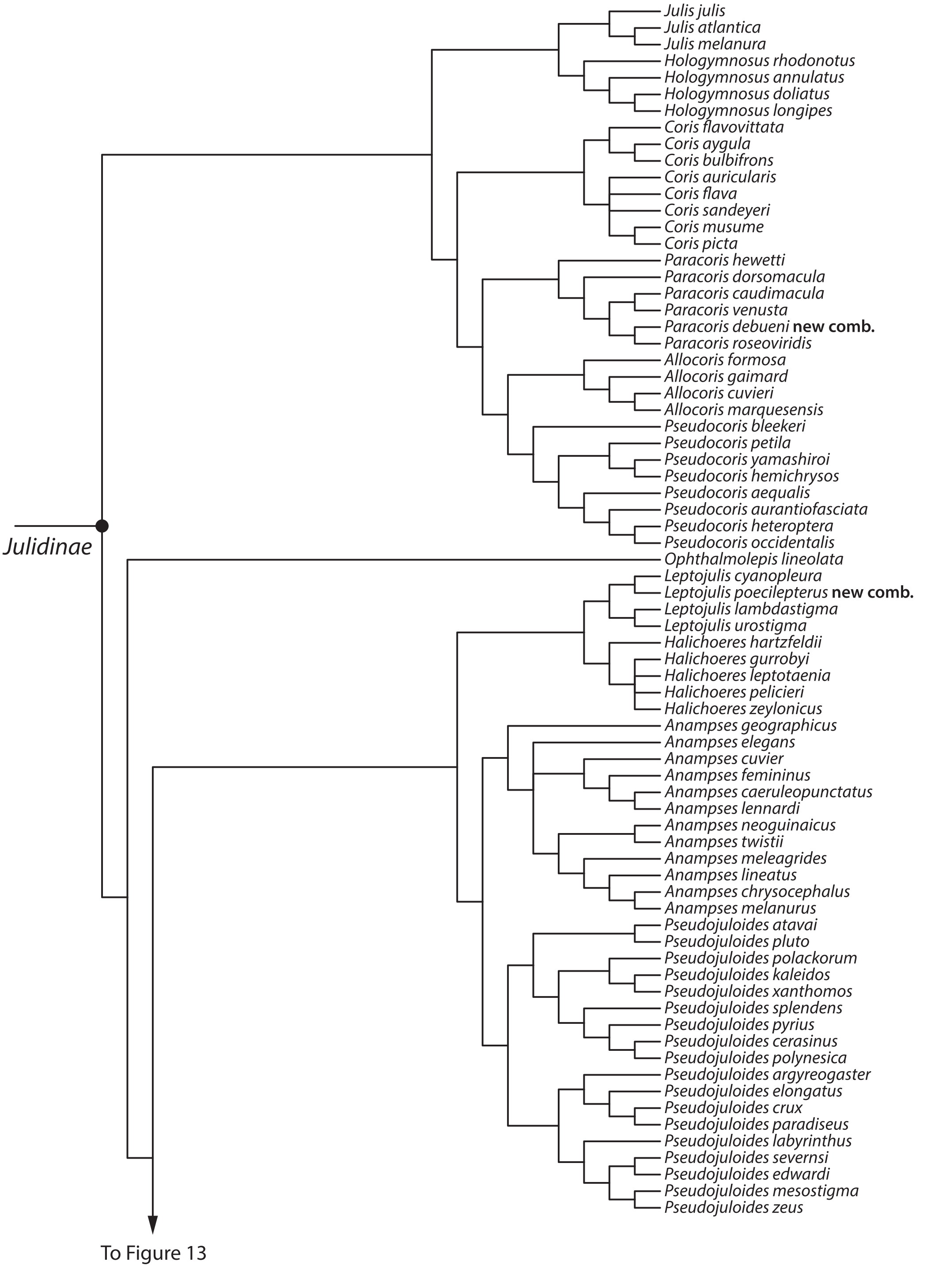

FIGURE 12. First of three figures illustrating the phylogenetic relationships among the species of *Julidinae*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts.

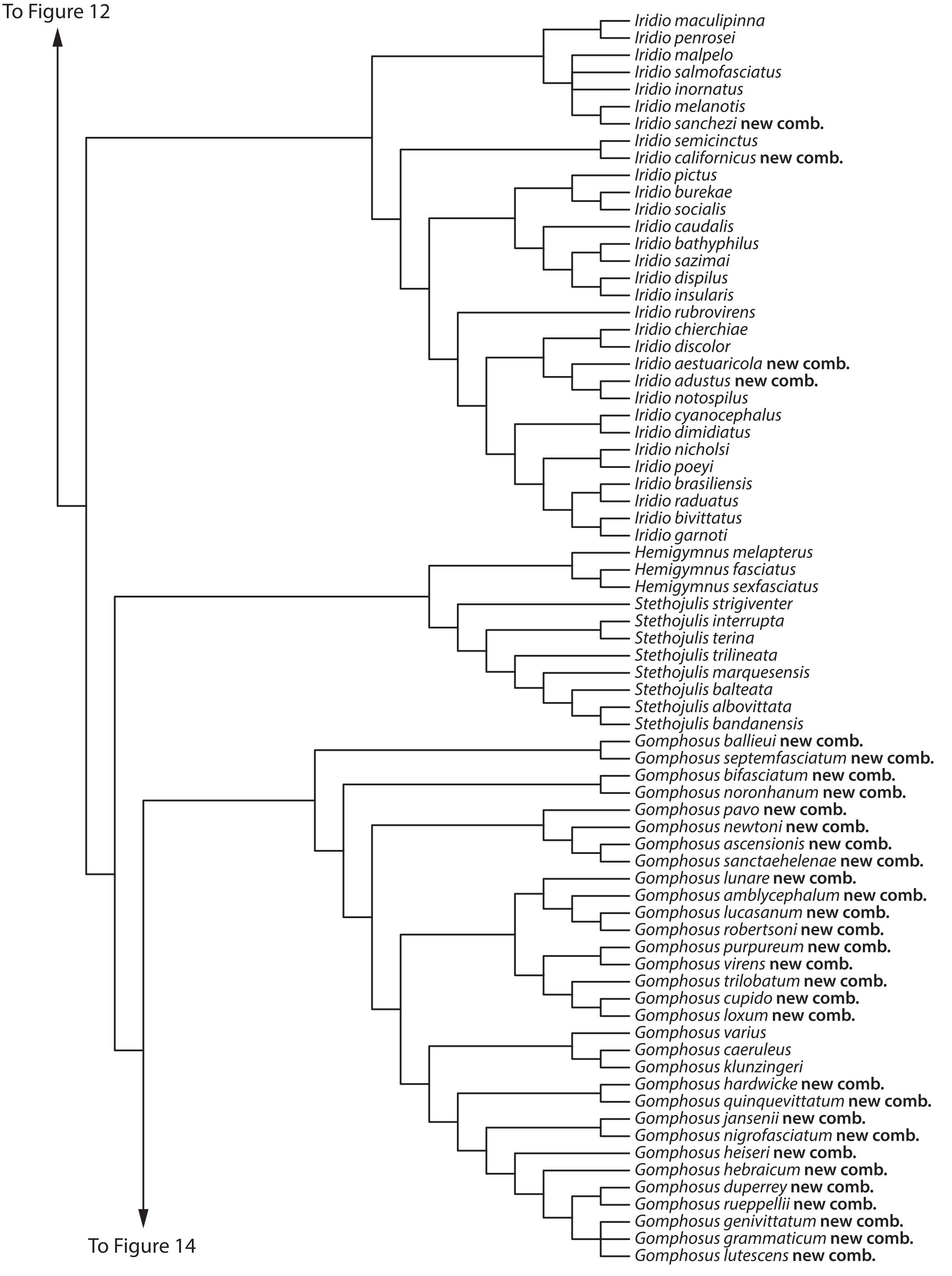

Figure 13. Second of three figures illustrating the phylogenetic relationships among the species of *Julidinae*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts.

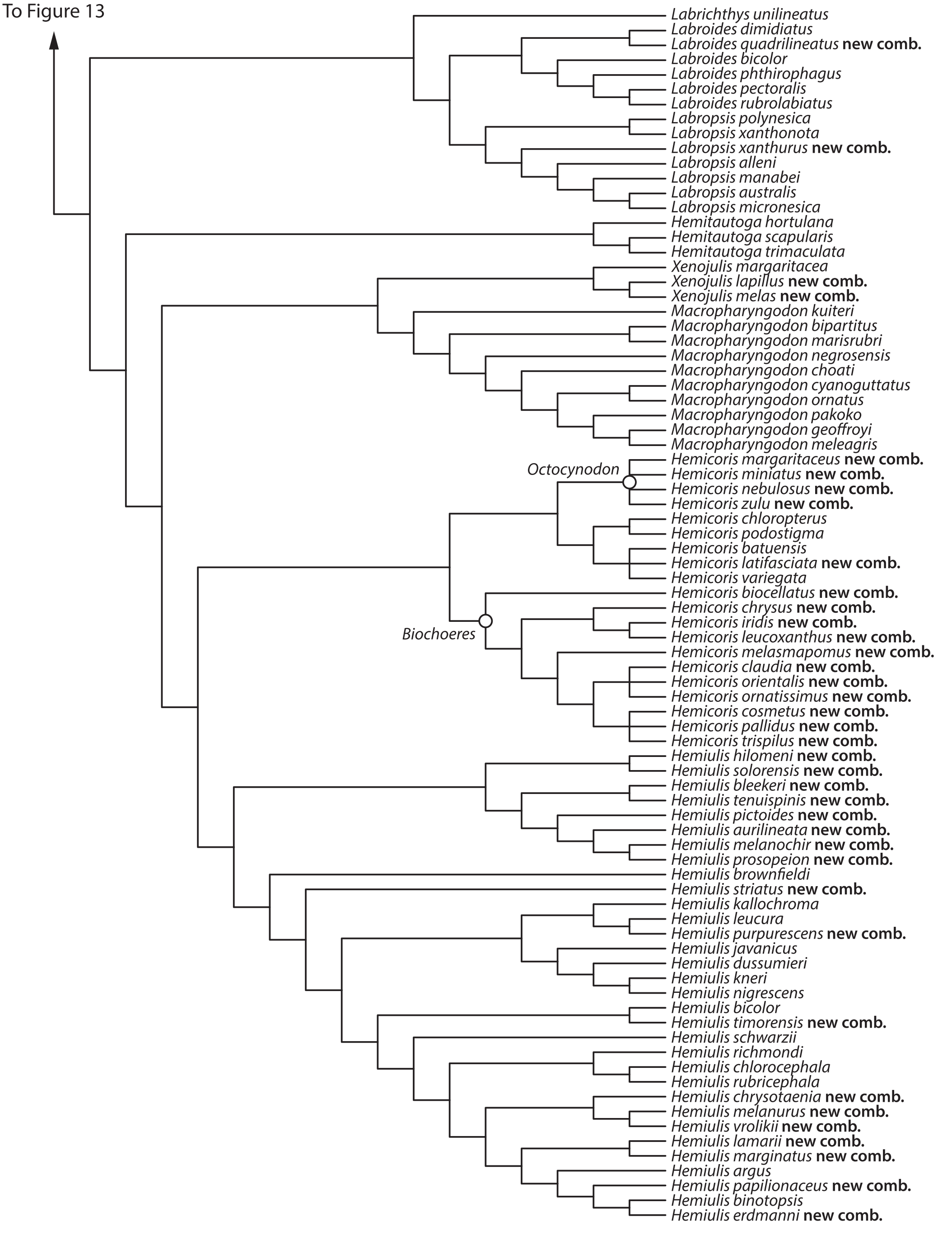

Figure 14. Third of three figures illustrating the phylogenetic relationships among the species of *Julidinae*. Filled circles identify common ancestor of clades, with formal names defined in the clade accounts. Open circles identify group names not defined in this revision.

Phylogenetics. In a phylogenetic analysis of morphology, the optimization of a single character state change—specifically, the squamation of cheeks and opercles—supported the monophyly of *Julidinae* (Russell 1988). Molecular analyses resolve *Julidinae* as a monophyletic group, but the traditional delimitations of the genera *Halichoeres* and *Coris* are polyphyletic and *Thalassoma*, *Labropsis*, and *Labroides* are paraphyletic (Bernardi et al. 2004; Barber and Bellwood 2005; Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025).

Molecular phylogenetic analyses resolve 23 major clades and lineages of *Julidinae* (Figures 1, 12, 13, 14, and 15). The sister lineage of all other *Julidinae* is a clade that contains *Hologymnosus*, *Julis* (Cuvier 1814:90), *Coris*, *Paracoris* (Kuiter 2010:307), *Allocoris* (Kuiter 2010:319), and *Pseudocoris* (Figures 1 and 12; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). *Ophthalmolepis lineolata* (Valenciennes in Cuvier and Valenciennes 1839) Australian Wrasse is a deeply branching, long naked branch in *Julidinae* (Figures 1 and 12; Westneat and Alfaro 2005; Victor et al. 2013; Baliga and Law 2016; Brownstein et al. 2025). *Parajulis poecilepterus* (Temminck and Schlegel 1845:169) China Rainbow Wrasse is nested in *Leptojulis* (Figure 15; Evans et al. 2023) and this clade is the sister lineage to *Halichoeres sensu stricto* that contains the type species *H. zeylonicus* (Bennett 1833) Goldstripe Wrasse and four other species traditionally classified in *Halichoeres* (Figure 12; Barber and Bellwood 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Victor et al. 2013; Baliga and Law 2016; Victor 2016a; Aiello et al. 2017; Rabosky et al. 2018; Wainwright et al. 2018; Brownstein et al. 2025). Species of *Pseudojuloides* and *Anampses* are monophyletic groups resolved as sister lineages in phylogenomic studies (Figures 1 and 12; Hughes et al. 2023; Brownstein et al. 2025). *Oxyjulis californicus* (Günther 1861) is nested in a clade containing all Western Hemisphere—East Pacific and Western Atlantic—species of *Halichoeres* (Figure 13; Barber and Bellwood 2005; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Wainwright et al. 2018; Evans et al. 2023; Victor et al. 2024; Brownstein et al. 2025), which we classify in a resurrected *Iridio* (Jordan and Evermann 1896:412; Kuiter 2010:211). Species of *Hemigymnus* and *Stethojulis* are each monophyletic groups and resolved as sister lineages in phylogenomic studies (Figures 1 and 13; Hughes et al. 2023; Brownstein et al. 2025). Species of *Gomphosus* resolve as a clade that is nested in a paraphyletic *Thalassoma* (Figure 13; Westneat and Alfaro 2005; Alfaro et al. 2009; Cowman et al. 2009; Kazancioglu et al. 2009; Victor et al. 2013; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025), prompting the reclassification of species of *Thalassoma* (Swainson 1839) into *Gomphosus* (Lacépède 1801).

The cleaner wrasses resolve as a monophyletic group with *Labrichthys unilineatus* (Guichenot 1847) Tubemouth Wrasse placed as the sister lineage of all other species in the clade, *Larabicus quadrilineatus* (Rüppell 1835) Blue Fourline Wrasse is nested in a paraphyletic *Labroides*, and *Diproctacanthus xanthurus* (Bleeker 1856a) Yellowtail Wrasse is nested in a paraphyletic *Labropsis* (Figure 14; Alfaro et al. 2009; Kazancioglu et al. 2009; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Wainwright et al. 2018; Evans et al. 2023; Hughes et al. 2023; Brownstein et al. 2025). *Halichoeres hortulanus* (Lacépède 1801) Checkerboard Wrasse, *H. scapularis* (Bennett 1832) Zigzag Wrasse, and *H. trimaculatus* (Quoy and Gaimard 1834) Threespot Wrasse resolve as a clade that we classify in a resurrected *Hemitautoga* (Bleeker 1862a:413; Kuiter 2010:300) that is placed as the sister lineage to an inclusive clade containing species of *Xenojulis*, *Macropharyngodon*, *Hemicoris* (Bleeker 1862a:411; Kuiter 2010:304) and *Hemiulis* (Swainson 1839:173, 208; Kuiter 2010:259) (Figures 1 and 14; Barber and Bellwood 2005; Westneat and Alfaro 2005; Cowman et al. 2009; Kazancioglu et al. 2009; Victor et al. 2013; Baliga and Law 2016; Aiello et al. 2017; Rabosky et al. 2018; Wainwright et al. 2018; Evans et al. 2023;

Hughes et al. 2023; Brownstein et al. 2025). The species *Halichoeres lapillus* Smith 1947 Jeweled Wrasse and *H. melas* Randall and Earle 1994 Midnight Wrasse resolve in a clade with *Xenojulis margaritacea* (Macleay 1883) Pearlyweed Wrasse that is the sister lineage to a clade containing species of *Macropharyngodon* (Figure 14; Aiello et al. 2017; Evans et al. 2023; Hughes et al. 2023). An inclusive clade containing 51 species currently classified as *Halichoeres* and six species of *Coris* is here classified in the resurrected genera *Hemicoris* and *Hemiulis* (Figures 1 and 14).

Taxonomy. Based on molecular phylogenetic analyses, we delimit 23 major clades and lineages of *Julidinae* and propose several changes to the generic taxonomy of *Labridae* based on the consistent non-monophyly of *Halichoeres*, *Coris*, *Thalassoma*, *Labroides*, and *Labropsis* (Table 2; Appendix 1). Specifically, all species of *Thalassoma* are transferred to *Gomphosus* (Table 2), *Parajulis poecilepterus* (Temminck and Schlegel 1845) is now *Leptojulis poecilepterus* (Temminck and Schlegel 1845) **new combination** (Table 2), *Minilabrus striatus* Randall & Dor 1981 is now *Hemiulis striatus* (Randall and Dor 1981) **new combination**, *Diproctacanthus xanthurus* (Bleeker 1856) is now *Labropsis xanthurus* (Bleeker 1856) **new combination** (Table 2), *Halichoeres lapillus* Smith 1947 and *Halichoeres melas* Randall & Earle 1994 are now *Xenojulis lapillus* (Smith 1947) **new combination** and *Xenojulis melas* (Randall and Earle 1994) **new combination**, respectively (Table 2). All other changes involving the recognition of new genera are outlined below, presented in Table 2, and listed in Appendix 1.

Allocoris Kuiter 2010:319.

Type species. *Julis gaimard Quoy & Gaimard* 1824:265. Type by original designation.

Diagnosis. Dorsal fin IX,12; anal fin III, 12; caudal-fin rays 12; pectoral-fin rays 13; lateral line-scales 70–80. Body elongate, head length and body depth near equal. Mouth not reaching past the eye. Small scales covering nape. Head and fin bases scaleless. Small scales on base of caudal fin (Kuiter 2010).

Etymology. From the ancient Greek ἄλλος meaning another or the other and κόρῠς meaning helmet.

Composition. There are four species classified in *Allocoris*: *Allocoris gaimard* (Quoy and Gaimard 1834) Yellowtail Wrasse, *Allocoris formosa* (Bennett 1830) Formosa Wrasse, *Allocoris cuvieri* (Bennett 1831) African Wrasse, and *Allocoris marquesensis* (Randall 1999b) Marquesan Wrasse (Table 2).

Remarks. Species classified here in *Allocoris* were historically placed in *Coris* (e.g., Randall 1999b; Westneat 2001; Kuiter 2010). *Allocoris* was first presented as a new genus by Kuiter (2010:319) based on consistent polyphyly of *Coris s.l.* in molecular phylogenies. However, subsequent taxonomies have inexplicitly treated *Allocoris* as a synonym of *Coris* (Parenti and Randall 2011; Eschmeyer and Fricke 2025).

Hemicoris Bleeker 1862a:411.

Type species. *Halichoeres variegatus* Rüppell 1835:14. Type by original designation.

Diagnosis. Dorsal fin IX, 11–12; anal fin III, 11–12; caudal-fin rays 12; pectoral-fin rays 13–14; lateral line-scales 27–53. Body depth 30%–40% of standard length, head length approximately equal to body depth. Mouth not reaching below the eye. Conical teeth with anterior two pairs enlarged and directed forward. Head and fin-bases free of scales, but nape with small scales (Kuiter 2010).

Etymology. From the ancient Greek ἡμί- a prefix meaning half and κόρῠς meaning helmet.

Composition. There are 21 species of *Hemicoris*: *Hemicoris variegata* (Rüppell 1835) Variegated Wrasse, *Hemicoris batuensis* (Bleeker 1856c) Batu Rainbow Wrasse, *Hemicoris biocellatus* (Schultz in Schultz et al. 1960) **new combination** Redline Wrasse, *Hemicoris chloropterus* (Bloch 1791) Green Wrasse, *Hemicoris chrysus* (Randall 1981a) **new combination** Yellow Wrasse, *Hemicoris claudia* (Randall and Rocha 2009) **new combination** Claudia's Wrasse, *Hemicoris cosmetus* (Randall and Smith 1982) **new combination** Adorned Wrasse, *Hemicoris iridis* (Randall and Smith 1982) **new combination** Radiant Wrasse, *Hemicoris latifasciata* (Randall 2013) **new combination** Whitestriped Wrasse, *Hemicoris leucoxanthus* (Randall and Smith 1982) **new combination** Canarytop Wrasse, *Hemicoris margaritaceus* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Pinkbelly Wrasse, *Hemicoris melasmapomus* (Randall 1981a) **new combination** Earmuff Wrasse, *Hemicoris miniatus* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Cheekring Wrasse, *Hemicoris nebulosus* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Nebulous Wrasse, *Hemicoris orientalis* (Randall 1999a) **new combination** Greencheek Wrasse, *Hemicoris ornatissimus* (Garrett 1863) **new combination** Ornate Wrasse, *Hemicoris pallidus* (Kuiter and Randall 1995) **new combination** Babi Wrasse, *Hemicoris podostigma* (Bleeker 1854a) Greentail Wrasse, *Hemicoris schroederii* (Bleeker 1858) Schroeder's Wrasse, *Hemicoris trispilus* (Randall and Smith 1982) **new combination** Triplespot Wrasse, *Hemicoris zulu* (Randall and King 2010) **new combination** KwaZulu Natal Wrasse (Table 2).

<u>Remarks.</u> Taxonomists traditionally classified species of *Hemicoris* within *Coris* and *Halichoeres*. Kuiter (2010) placed some species of *Hemicoris* in *Octocynodon* (Fowler 1904:535) and *Biochoeres* (Kuiter 2010:285), which are monophyletic groups nested in our inclusive delimitation of *Hemicoris* (Figure 14).

Hemitautoga Bleeker 1862a:413.

<u>Type species.</u> *Labrus centiquadrus* Lacepède 1801 [=*Hemitautoga hortulanus* (Lacépède 1801)]. Type by original designation.

<u>Diagnosis.</u> Dorsal fin IX, 11–12; anal fin III, 11–12; caudal-fin rays 12; pectoral-fin rays 14; lateral line-scales 26–28. Elongate body, with body depth 32%–37% of standard length. Mouth is small and does not reach below the eye. Conical teeth with anterior two pairs elongate and oriented forward. A large canine tooth is present at the rear of each side of upper jaw in adults. A patch of small scales present on the opercle (Kuiter 2010).

<u>Etymology.</u> From the ancient Greek ἡμί- a prefix meaning half and *Tautoga* a Latinization of the Native American name for *T. onitis* in New York, USA (Scharpf 2025).

<u>Composition.</u> There are three species of *Hemitautoga*: *Hemitautoga hortulana* (Lacépède 1801) Checkerboard Wrasse, *Hemitautoga scapularis* (Bennett 1832) Zigzag Wrasse, and *Hemitautoga trimaculata* (Quoy and Gaimard 1834) **new combination** Threespot Wrasse.

<u>Remarks.</u> *Hemitautoga* was treated as a genus by Kuiter (2010:300) based on the consistent resolution of the clade and polyphyly of *Halichoeres s.l.* in molecular phylogenies, but has been inexplicitly treated as a synonym of *Halichoeres* (Parenti and Randall 2011; Eschmeyer and Fricke 2025).

Hemiulis Swainson 1839:173, 228.

<u>Type species.</u> *Labrus guttatus* Bloch 1791 [=*Hemiulis argus* (Bloch and Schneider 1801)]. Type by subsequent designation (Bonaparte 1841).

<u>Diagnosis.</u> Dorsal fin IX, 11–12; anal fin III, 11–12; caudal-fin rays 14; pectoral-fin rays 14–15; lateral line-scales 25 (Kuiter 2010).

<u>Etymology.</u> From the ancient Greek ἡμί- a prefix meaning half and a misspelling of *Julis* (Eschmeyer and Fricke 2025).

<u>Composition.</u> There are 36 species of *Hemiulis*: *Hemiulis argus* (Bloch and Schneider 1801) Argus Wrasse, *Hemiulis annularis* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Dusky Wrasse, *Hemiulis aurilineata* (Randall and Kuiter 1982) **new combination** Goldlined Wrasse, *Hemiulis bicolor* (Bloch and Schneider 1801) Pearlyspotted Wrasse, *Hemiulis binotopsis* (Bleeker 1849) Saowisata Wrasse, *Hemiulis bleekeri* (Steindachner and Döderlein 1887) **new combination** Mottlestripe Wrasse, *Hemiulis brownfieldi* (Whitley 1945) Brownfield's Wrasse, *Hemiulis chlorocephala* (Kuiter and Randall 1995) Greenhead Wrasse, *Hemiulis chrysotaenia* (Bleeker 1853b) **new combination** Indian Ocean Pinstriped Wrasse, *Hemiulis dussumieri* (Valenciennes in

Cuvier and Valenciennes 1839) Dussumier's Wrasse, *Hemiulis erdmanni* (Randall and Allen 2010) **new combination** Erdmann's Wrasse, *Hemiulis hilomeni* (Randall and Allen 2010) **new combination** Hilomen's Wrasse, *Hemiulis javanicus* (Bleeker 1857) Java Wrasse, *Hemiulis kallochroma* (Bleeker 1853c) Pinksnout Wrasse, *Hemiulis kneri* (Bleeker 1862c) Kner's Wrasse, *Hemiulis lamarii* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Western Dusky Wrasse, *Hemiulis leucura* (Walbaum 1792) Greyhead Wrasse, *Hemiulis marginatus* (Rüppell 1835) **new combination** Marginated Wrasse, *Hemiulis melanochir* (Fowler and Bean 1928) **new combination** Orangefin Wrasse, *Hemiulis melanurus* (Bleeker 1851a) **new combination** Hoeven's Wrasse, *Hemiulis nigrescens* (Bloch and Schneider 1801) Bubblefin Wrasse, *Hemiulis papilionaceus* (Valenciennes in Cuvier and Valenciennes 1839) **new combination** Weed Wrasse, *Hemiulis pardaleocephalus* (Bleeker 1849) Lineblotch Wrasse, *Hemiulis pictoides* (Randall and Kuiter 1982) **new combination** Pixy Wrasse, *Hemiulis prosopeion* (Bleeker 1854b) **new combination** Twotone Wrasse, *Hemiulis purpurescens* (Bloch and Schneider 1801) **new combination** Silty Wrasse, *Hemiulis richmondi* (Fowler and Bean 1928) Chainlined Wrasse, *Hemiulis rubricephala* (Kuiter and Randall 1995) Redhead Wrasse, *Hemiulis schwarzii* (Bleeker 1847) Schwarz's Wrasse, *Hemiulis signifer* (Randall and Earle 1994) **new combination** Flag Wrasse, *Hemiulis solorensis* (Bleeker 1853a) **new combination** Solor Wrasse, *Hemiulis stigmaticus* (Randall and Smith 1982) **new combination** U-Spot Wrasse, *Hemiulis striatus* (Randall and Dor 1980) **new combination** Minute Wrasse, *Hemiulis tenuispinis* (Günther 1862) **new combination** Slenderspine Wrasse, *Hemiulis timorensis* (Bleeker 1852) Timor Wrasse, and *Hemiulis vrolikii* (Bleeker 1855) **new combination** Pinstriped Wrasse (Table 2).

Remarks. Historically taxonomists classified species of *Hemiulis* into several genera including *Coris*, *Halichoeres*, and *Minilabrus*. More recently, Kuiter (2010) proposed classifying some species of *Hemiulis* to the genera: *Corichoeres* (Kuiter 2010:293), *Julichoeres* (Kuiter 2010:295), *Platyglossus* (Bleeker 1862a:411), and *Whitelychoeres* (Kuiter 2010:292). However, these proposed genera are problematic from a phylogenetic perspective. *Corichoeres*, *Julichoeres*, and *Platyglossus* are all paraphyletic relative to *Hemiulis*. Additionally, *Whitelychoeres* is monotypic and phylogenetically nested within *Hemiulis*.

Iridio Jordan and Evermann 1896:412.

Type species. *Labrus radiatus* Linnaeus 1758. Type by original designation.

Diagnosis. Dorsal fin IX, 11–12; anal fin III, 12–14; caudal-fin rays 14–16; pectoral-fin rays 12; lateral line-scales 26–28. Body elongate or oblong in shape, depth ranging between 22%–36% standard length. Short snout and small mouth. Presence of one or two pairs of curved canine teeth at front of oral jaws that are not bent backwards. Gill rakers short. Gill membranes slightly joined on narrow isthmus. Smooth margin of preopercle (Jordan and Evermann 1898:1587; Kuiter 2010).

Etymology. From the ancient Greek ἶρις meaning the rainbow.

Composition. There are 31 species of *Iridio*: *Iridio radiatus* (Linnaeus 1758) Puddingwife, *Iridio adustus* (Jordan and Evermann 1896) Black Wrasse, *Iridio aestuaricola* (Bussing 1972) **new combination** Mangrove Wrasse, *Iridio bathyphilus* Beebe and Tee-Van 1932 Greenband Wrasse, *Iridio bivittatus* (Bloch 1791) Slippery Dick, *Iridio brasiliensis* (Bloch 1791) Brazilian Wrasse, *Iridio burekae* (Weaver and Rocha 2007) Mardi Gras Wrasse, *Iridio californicus* (Günther 1861) **new combination** Señorita, *Iridio caudalis* (Poey 1860) Painted Wrasse, *Iridio chierchiae* (Di Caporiacco 1947) Wounded Wrasse, *Iridio cyanocephalus* (Bloch 1791) Yellowcheek Wrasse, *Iridio dimidiatus* (Agassiz in Spix and Agassiz 1831) Brazilian Blue Wrasse, *Iridio discolor* (Bussing 1983) Cocos Wrasse, *Iridio dispilus* (Günther 1864) Chameleon Wrasse, *Iridio garnoti* (Valenciennes in Cuvier and Valenciennes 1839) Yellowhead Wrasse, *Iridio inornatus* (Gilbert 1890) Cape Wrasse, *Iridio insularis* (Allen and Robertson 1992) Socorro Wrasse, *Iridio maculipinna* (Müller and Troschel in Schomburgk 1848) Clown

Wrasse, *Iridio malpelo* (Allen and Robertson 1992) Malpelo Wrasse, *Iridio melanotis* (Gilbert 1890) Golden Wrasse, *Iridio nicholsi* (Jordan and Gilbert 1882) Spinster Wrasse, *Iridio notospilus* (Günther 1864) Banded Wrasse, *Iridio penrosei* (Starks 1913) Brazilian Clown Wrasse, *Iridio pictus* (Poey 1860) Rainbow Wrasse, *Iridio poeyi* (Steindachner 1867a) Blackear Wrasse, *Iridio rubrovirens* (Rocha et al. 2010) Trindade Wrasse, *Iridio salmofasciatus* (Allen and Robertson 2002) Redstriped Wrasse, *Iridio sanchezi* (Victor, Frable, and Ludt 2024) **new combination** Tailspot Wrasse, *Iridio sazimai* (Luiz, Ferreira, and Rocha 2009) Midstripe Wrasse, *Iridio semicinctus* (Ayres 1859) Rock Wrasse, and *Iridio socialis* (Randall and Lobel 2003a) Social Wrasse (Table 2).

Remarks. Taxonomists traditionally classified species of *Iridio* in *Halichoeres*. Kuiter (2010:2011) resurrected the genus *Iridio* due to the polyphyly of *Halichores s.l.* in molecular phylogenies, but *Iridio* has been inexplicitly treated as a synonym of *Halichoeres* (Parenti and Randall 2011; Eschmeyer and Fricke 2025).

Julis Cuvier 1814:90.

Type species. *Labrus julis* Linnaeus 1758. Type by absolute tautonymy.

Diagnosis. Dorsal fin VIII-IX, 11–12; anal fin III, 12–14; caudal-fin rays 12; pectoral-fin rays 13; lateral line-scales 70–82.

Etymology. From the ancient Greek word ἰουλίς applied as the name to a number of species of *Labridae* (Thompson 1947:91).

Composition. There are three species of *Julis*: *Julis julis* (Linnaeus 1758) Rainbow Wrasse, *Julis atlantica* (Günther 1862) Atlantic Rainbow Wrasse, and *Julis melanura* Lowe 1839 Blacktail Rainbow Wrasse (Table 2).

Remarks. Kuiter (2010:310) elevated *Julis* to contain three species historically classified as *Coris*.

Paracoris Kuiter 2010:307.

Type species. *Julis caudimacula* Quoy & Gaimard 1834. Type by original designation.

Diagnosis. Dorsal fin IX, 11–12; anal fin III, 11–12; caudal-fin rays 12; pectoral-fin rays 13; lateral line-scales 48–55. Elongate body with body depth ranging between 24%–32% of standard length. Length of head approximately equal to body depth. Mouth is small and does not reach the eye (Kuiter 2010).

Etymology. From the ancient Greek παρά meaning beside or alongside of and κόρυ̃ς meaning helmet.

Composition. There are seven species of *Paracoris*: *Paracoris caudimacula* (Quoy and Gaimard 1834) Spottail Wrasse, *Paracoris centralis* (Randall 1999b) **new combination** Kiribati Wrasse, *Paracoris debueni* (Randall 1999b) **new combination** De Buen's Wrasse, *Paracoris dorsomacula* (Fowler 1908) Pinklined Wrasse, *Paracoris hewetti* (Randall 1999b) Hewett's Wrasse, *Paracoris roseoviridis* (Randall 1999b) Rapa Wrasse, and *Paracoris venusta* (Vaillant and Sauvage 1875) Elegant Wrasse (Table 2).

Remarks. Species classified here in *Paracoris* were historically placed in *Coris* (e.g., Randall 1999b; Westneat 2001; Kuiter 2010). *Paracoris* was first presented as a new genus by Kuiter (2010:309) based on consistent polyphyly of *Coris s.l.* in molecular phylogenies. However, subsequent taxonomies have inexplicitly treated *Paracoris* as a synonym of *Coris* (Parenti and Randall 2011; Eschmeyer and Fricke 2025).

Composition. There are currently 246 species of *Julidinae* that include *Frontilabrus caeruleus*, *Labrichthys unilineatus*, *Ophthalmolepis lineolata*, and species classified *Allocoris*, *Anampses*, *Coris*, *Gomphosus*, *Halichoeres*, *Hemicoris*, *Hemigymnus*, *Hemitautoga*, *Hemiulis*, *Hologymnosus*, *Iridio*, *Julis*, *Labroides*, *Labropsis*, *Leptojulis*, *Macropharyngodon*, *Paracoris*, *Pseudocoris*, *Pseudojuloides*, *Stethojulis*, and *Xenojulis* (Appendix 1). Since the year 2000, 31 species of *Julidinae* have been described, comprising 12.6% of the living species diversity in the clade (Parenti and Randall 2000, 2011, 2018; Fricke et al. 2025).

Diagnostic apomorphies. Apomorphies for *Julidinae* include (1) absence of scales on the cheek and opercle (Russell 1988), and (2) gill membranes united and joined broadly to the isthmus, but the plesiomorphic state is present in *Ophthalmolepis lineolata* (Russell 1988).

Synonyms. *Julidina* (Günther 1861:384) is a partial synonym of *Julidinae*. *Julidini* is an approximate (Russell 1988:64; Hanel et al. 2002:776; Read et al. 2006:809) and an ambiguous (Westneat and Alfaro 2005:386; Arnal et al. 2006:759; Cowman et al. 2009:624; Bannikov and Carnevale 2010:table 1; Hughes et al. 2023:532) synonym of *Julidinae*.

Comments. For more than 20 years, molecular phylogenetic studies have consistently resolved the polyphyly and paraphyly of several genera of *Julidinae* (Westneat and Alfaro 2005; Wainwright et al. 2018; Hughes et al. 2023; Brownstein et al. 2025). Our approach at creating a synthetic phylogeny (Figure 1) based on previous phylogenetic studies and informed by the mtDNA gene tree (Figure 15), provides the basis for a taxonomy of *Julidinae* where all genera are monophyletic (Figures 12, 13, and 14).

Approximately 8% of the living species of *Julidinae* are absent from the phylogeny (Table 1; Figures 12, 13, and 14). Species not included the UCE phylogeny but placed in the phylogeny illustrated in Figures 12, 13, and 14 include *Anampses elegans*, *Coris auricularis*, *Gomphosus grammaticum*, *G. heiseri*, *G. loxum*, *G. lutescens*, *G. nigrofasciatum*, *G. noronhanum*, *G. robertsoni*, *G. virens*, *Halichoeres gurrobyi*, *Hemicoris claudia*, *H. trispilus*, *H. zulu*, *Hemigymnus sexfasciatus*, *Hemiulis erdmanni*, *H. hilomeni*, *H. lamarii*, *H. tenuispinis*, *H. timorensis*, *H. vrolikii*, *Hologymnosus rhodonotus*, *Iridio inornatus*, *I. insularis*, *I. sanchezi*, *I. sazimai*, *Julis melanura*, *Leptojulis lambdastigma*, *L. poecilepterus*, *L. urostigma*, *Macropharyngodon pakoko*, *Paracoris debueni*, *P. dorsomacula*, *Pseudocoris aequalis*, *P. aurantiofasciata*, *P. hemichrysos*, *P. occidentalis*, *P. petila*, *Pseudojuloides argyreogaster*, *P. crux*, *P. edwardi*, *P. elongatus*, *P. kaleidos*, *P. labyrinthus*, *P. mesostigma*, *P. paradiseus*, *P. pluto*, *P. polackorum*, *P. polynesica*, *P. pyrius*, *P. splendens*, *P. xanthomos*, *P. zeus*, *Stethojulis marquesensis*, *S. terina*, and *Xenojulis margaritacea* based on resolution in the mtDNA gene tree (Figure 15). The species *Gomphosus ascensionis*, *G. pavo*, *G. sanctaehelenae*, *G. septemfasciatum*, *Hemicoris biocellatus*, *Hemiulis binotopsis*, *H. kallochroma*, *Labropsis micronesica*, and *Pseudocoris bleekeri* are placed in the phylogeny based on mtDNA gene trees inferred from genes other than COI and concatenated datasets of Sanger-sequenced mtDNA and nuclear genes (Bernardi et al. 2004; Victor et al. 2013; Randall et al. 2015; Aiello et al. 2017; Wainwright et al. 2018; Evans et al. 2023). *Coris flava*, *C. musume*, *Gomphosus klunzingeri*, *Halichoeres leptotaenia*, *Hemicoris latifasciata*, *H. orientalis*, *H. pallidus*, *Hemiulis bleekeri*, *H. kneri*, *Iridio sazimai*, and *Xenojulis melas* are placed in the phylogeny based on statements of relationships stemming from taxonomic studies and species descriptions, and a zoogeographic review (Randall and Araga 1978; Randall and Earle 1994; Randall 1998, 1999a; Parenti and Randall 2000; Luiz et al. 2009; Kuiter 2010:210; Randall 2013; Victor 2016a; Golani and Fricke 2018:124; Fricke and Durville 2021; Allen and Erdmann 2024:738).

Bayesian relaxed molecular clock analyses of *Julidinae* result in an average posterior crown age estimate of 20.2 million years ago with the credible interval ranging between 13.9 and 34.0 million years ago (Brownstein et al. 2025).

Julidinae is a valid family-group name under the *International Code of Zoological Nomenclature* (Van der Laan et al. 2014:112).

Constituent species and lineages.

Allocoris, 4 species	*Anampses*, 12 species
Coris, 9 species	*Frontilabrus caeruleus*
Gomphosus, 31 species	*Halichoeres*, 5 species
Hemicoris, 21 species	*Hemigymnus*, 3 species
Hemitautoga, 3 species	*Hemiulis*, 36
Hologymnosus, 4 species	*Iridio*, 31 species
Julis, 3 species	*Labrichthys unilineatus*
Labroides, 6 species	*Labropsis*, 7 species
Leptojulis, 6 species	*Macropharyngodon*, 12 species
Ophthalmolepis lineolata	*Paracoris*, 7 species
Pseudocoris, 9 species	*Pseudojuloides*, 20 species
Stethojulis, 10 species	*Xenojulis*, 3 species

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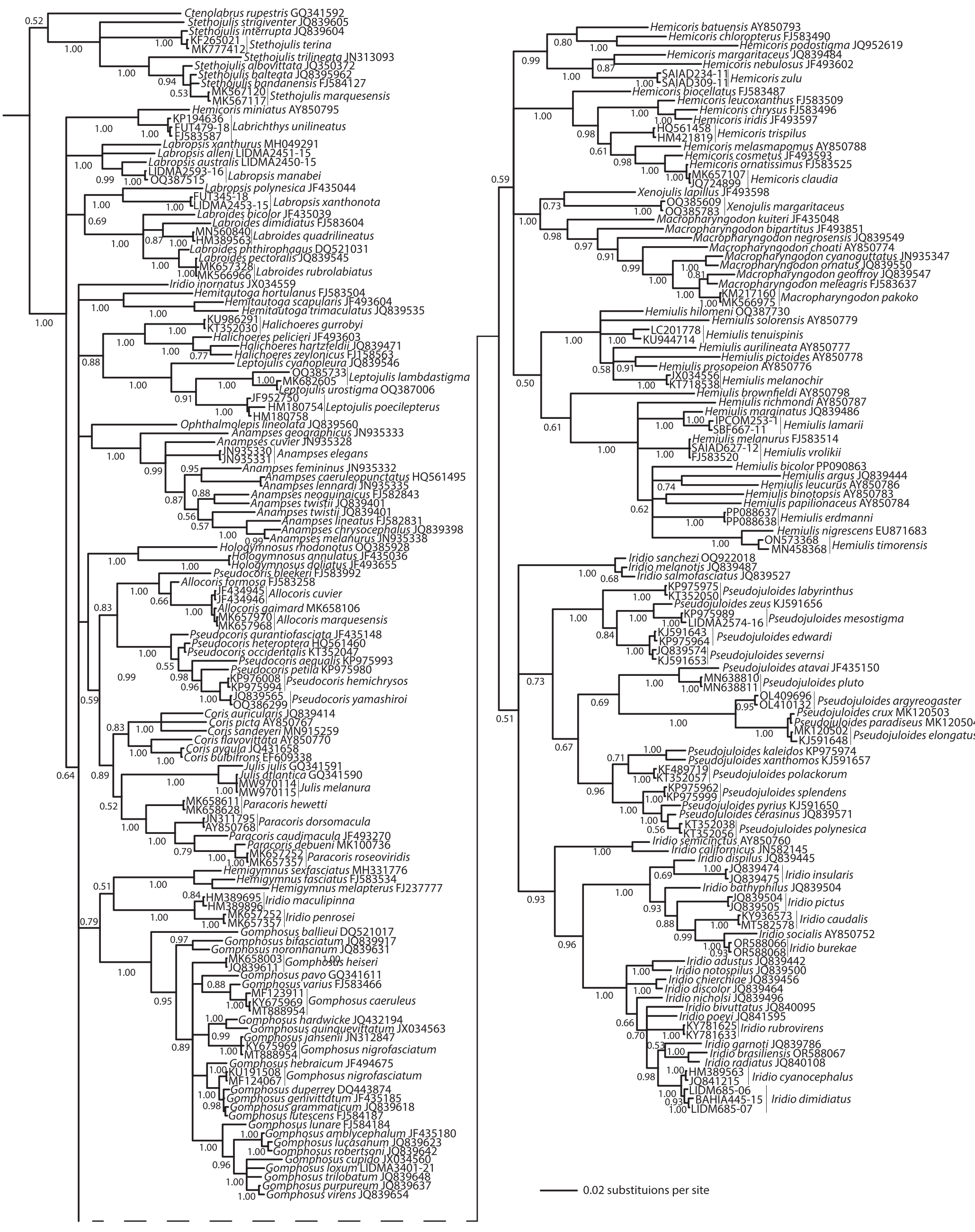

Figure 15. Mitochondrial DNA gene tree of *Julidinae* inferred using the COI gene. Numbers at nodes are Bayesian posterior probabilities. Genbank and BOLD accession numbers appear alongside species names.

Discussion

Our phylogenetic revision of *Labridae* provides a robust taxonomic framework that reflects the evolutionary relationships among the 676 species in this ecologically diverse lineage of marine percomorph teleosts. Based on a synthetic phylogeny incorporating genomic data from 415 species and additional taxonomic information for 175 species, we define

13 clades using phylogenetic nomenclature: *Labridae*, *Hypsigenyinae*, *Odacini*, *Clepticini*, *Cirrhilabrinae*, *Labrinae*, *Cheilininae*, *Scarinae*, *Scarini*, *Sparisomatini*, *Xyrichtyinae*, *Pseudolabrinae*, and *Julidinae*. Our analysis definitively resolves the long-debated taxonomic status of parrotfishes *Scarinae* as deeply nested within *Labridae* based on unambiguous phylogenetic evidence.

The extensive non-monophyly revealed in traditional genera such as *Halichoeres*, *Coris*, and *Thalassoma* has necessitated substantial taxonomic revisions, including the description or elevation of 11 genera, 17 new species synonyms, and more than 150 changes to genus-species combinations (Table 2). Our analysis of phylogenetic relationships in *Cirrhilabrinae* inferred from mtDNA sequences suggests that recent descriptions of new species based primarily on male color patterns may overestimate the true species diversity in this clade. These revisions create a stable nomenclature for *Labridae* that accurately reflects evolutionary history while preserving well-established clade names where possible. The classification system presented here will facilitate future comparative studies of adaptation, diversification, and biogeography in one of the most species-rich and ecologically important lineages of marine vertebrates.

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Appendix 1

Taxonomy of Species of *Labridae*

Names in bold italic are formal names defined in the clade accounts. Taxonomic changes involving new combinations are indicated in bold text. Not all species author citations are presented in the Literature Cited.

Labridae

Cheilio inermis (Forsskål 1775) Cigar Wrasse
Malapterus reticulatus Valenciennes 1839 Juan Fernández Wrasse

Hypsigenyinae

Anchichoerops natalensis (Gilchrist and Thompson 1909) Natal Wrasse
Choerodon albofasciatus Gomon 2017 Whitestripe Tuskfish
Choerodon anchorago (Bloch 1791) Orangedotted Tuskfish
Choerodon aurulentus Gomon 2017 Gilded Tuskfish
Choerodon azurio (Jordan and Snyder 1901) Azurio Tuskfish
Choerodon cauteroma Gomon & Allen 1987 Bluespotted Tuskfish
Choerodon cephalotes (Castelnau 1875) Purple Tuskfish
Choerodon cyanodus (Richardson 1843) Blue Tuskfish
Choerodon cypselurus Gomon 2017 Swallowtail Tuskfish
Choerodon fasciatus (Günther 1867) Harlequin Tuskfish
Choerodon frenatus Ogilby 1910 Bridled Tuskfish
Choerodon gomoni Allen & Erdmann 2002 Gomon's Tuskfish
Choerodon graphicus (De Vis 1885) Graphic Tuskfish
Choerodon gymnogenys (Günther 1867) Zanzibar Tuskfish
Choerodon jordani (Snyder 1908) Dagger Tuskfish
Choerodon margaritiferus Fowler & Bean 1928 Pearlyscaled Tuskfish
Choerodon monostigma Ogilby 1910 Onespot Tuskfish
Choerodon oligacanthus (Bleeker 1851) Whitepatch Tuskfish
Choerodon robustus (Günther 1862) Robust Tuskfish
Choerodon rubescens (Günther 1862) Baldchin Groper
Choerodon schoenleinii (Valenciennes 1839) Blackspot Tuskfish
Choerodon skaiopygmaeus Gomon 2017 Western Pygmy Tuskfish
Choerodon sugillatum Gomon 1987 Wedgetail Tuskfish
Choerodon typus (Bleeker 1856) Bluebanded Wrasse
Choerodon venustus (De Vis 1884) Venus Tuskfish
Choerodon vitta Ogilby 1910 Redstripe Tuskfish
Choerodon zamboangae (Seale and Bean 1907) Zamboangan Tuskfish
Choerodon zosterophorus (Bleeker 1868) Blackblotch Tuskfish
Lachnolaimus maximus (Walbaum 1792) Hogfish

Clepticini

Achoerodus gouldii (Richardson 1843) Western Bluegroper
Achoerodus viridis (Steindachner 1866) Eastern Bluegroper
Bodianus africanus (Heiser, Moura, and Robertson 2000) African Creole Wrasse
Bodianus albotaeniatus (Valenciennes 1839) Hawaiian Hogfish
Bodianus anthioides (Bennett 1832) Lyretail Hogfish
Bodianus atrolumbus (Valenciennes 1839) Palebar Hogfish
Bodianus axillaris (Bennett 1832) Axilspot Hogfish
Bodianus bathycapros Gomon 2006 Hawaiian Pigfish
Bodianus bennetti Gomon & Walsh 2016 Lemonstriped Hogfish
Bodianus bilunulatus (Lacépède 1801) Saddleback Hogfish

Bodianus bimaculatus Allen 1973 Twospot Hogfish
Bodianus brasiliensis Heiser, Moura, and Robertson 2000 Brazilian Creole Wrasse
Bodianus busellatus Gomon 2006 Bigsaddle Hogfish
Bodianus darwini (Jenyns 1842) Galapagos Sheephead
Bodianus diana (Lacépède 1801) Diana's Hogfish
Bodianus dictynna Gomon 2006 Redfin Hogfish
Bodianus diplotaenia (Gill 1862) Mexican Hogfish
Bodianus eclancheri (Valenciennes 1846) Harlequin Hogfish
Bodianus flavifrons Gomon 2001 Masked Pigfish
Bodianus flavipinnis Gomon 2001 Yellowfin Pigfish
Bodianus frenchii (Klunzinger 1879) Foxfish
Bodianus insularis Gomon & Lubbock 1980 Island Hogfish
Bodianus izuensis Araga & Yoshino 1975 Striped Pigfish
Bodianus leucosticticus (Bennett 1832) Lined Hogfish
Bodianus loxozonus (Snyder 1908) Blackfin Hogfish
Bodianus macrognathos (Morris 1974) Giant Hogfish
Bodianus macrourus (Lacépède 1801) Blackbanded Hogfish
Bodianus masudai Araga & Yoshino 1975 Masuda's Hogfish
Bodianus mesothorax (Bloch and Schneider 1801) Eclipse Pigfish
Bodianus neilli (Day 1867) Bengal Hogfish
Bodianus neopercularis Gomon 2006 Thickstriped Hogfish
Bodianus opercularis (Guichenot 1847) Blackspot Hogfish
Bodianus oxycephalus (Bleeker 1862) Japanese Pigfish
Bodianus paraleucosticticus Gomon 2006 Fivestriped Hogfish
Bodianus parrae (Bloch and Schneider 1801) Creole Wrasse
Bodianus perditio (Quoy and Gaimard 1834) Goldspot Pigfish
Bodianus prognathus Lobel 1981 Longnose Hogfish
Bodianus pulchellus (Poey 1860) Spotfin Hogfish
Bodianus pulcher (Ayres 1854) California Sheephead
Bodianus reticulatus (Valenciennes 1839) Asian Sheepshead Wrasse
Bodianus rubrisos Gomon 2006 Morsecode Pigfish
Bodianus rufus (Linnaeus 1758) Spanish Hogfish
Bodianus sanguineus (Jordan and Evermann 1903) Sunrise Hogfish
Bodianus scrofa (Valenciennes 1839) Barred Hogfish
Bodianus sepiacaudus Gomon 2006 Crescenttail Hogfish
Bodianus solatus Gomon 2006 Sunburnt Pigfish
Bodianus speciosus (Bowdich 1825) Blackbar Hogfish
Bodianus tanyokidus Gomon & Madden 1981 Blackear Hogfish
Bodianus trilineatus (Fowler 1934) Fourline Hogfish
Bodianus unimaculatus (Günther 1862) Eastern Pigfish
Bodianus vulpinus (Richardson 1850) Western Pigfish
Decodon grandisquamis (Smith 1968) Largescale Wrasse
Decodon melasma Gomon 1974 Blackspot Wrasse
Decodon pacificus (Kamohara 1952) Tentooth Wrasse
Decodon puellaris (Poey 1860) Red Hogfish
Polylepion cruentum Gomon 1977 Bleeding Wrasse
Polylepion gilmorei Baldwin, Arcila, Robertson, and Tornabene 2023 Redbarred *Wrasse*
Polylepion russelli (Gomon and Randall 1975) Russell's Hogfish
Priobodianus cylindriatus (Tanaka 1930) **new combination** Slender Hogfish
Priobodianus thoracotaeniatus (Yamamoto 1982) **new combination** Deepsea Wrasse
Pseudodax moluccanus (Valenciennes 1840) Chiseltooth Wrasse

Terelabrus dewapyle Fukui and Motomura 2015 Yellowstriped Hogfish
Terelabrus flavocephalus Fukui and Motomura 2016 Redlined Hogfish
Terelabrus rubrovittatus Randall & Fourmanoir 1998 Whitestriped Hogfish
Terelabrus toretore Shepherd, Pinheiro, Phelps, Siu, and Rocha 2023 Tahitian Striped Hogfish
Terelabrus zonalis Fukui 2018 Philippine Striped Hogfish

Odacini

Haletta semifasciata (Valenciennes 1840) Blue Weedwhiting
Heteroscarus acroptilus (Richardson 1846) Rainbow Cale
Neoodax balteatus (Valenciennes 1840) Little Weedwhiting
Odax cyanoallix Ayling and Paxton 1983 Bluefinned Butterfish
Odax pullus (Forster 1801) Butterfish
Olisthops cyanomelas Richardson 1850 Herring Cale
Siphonognathus argyrophanes (Richardson 1858) Tubemouth
Siphonognathus attenuatus (Ogilby 1897) Slender Weedwhiting
Siphonognathus beddomei (Johnston 1885) Pencil Weedwhiting
Siphonognathus caninis (Scott 1976) Sharpnose Weedwhiting
Siphonognathus radiatus (Quoy and Gaimard 1834) Longrayed Weedwhiting
Siphonognathus tanyourus (Gomon and Paxton 1985) Longtail Weedwhiting

Cirrhilabrinae

Cirrhilabrus adornatus Randall & Kunzmann 1998 Redfin Fairywrasse
Cirrhilabrus africanus Victor 2016 African Fairywrasse
Cirrhilabrus apterygia Allen 1983 Mutant Wrasse
Cirrhilabrus aquamarinus Tea, Allen, and Dailami 2021 Chinstrap Fairywrasse
Cirrhilabrus aurantidorsalis 1999-Allen & Kuiter 1999 Orangeback Fairywrasse
Cirrhilabrus balteatus Randall 1988 Girdled Fairywrasse
Cirrhilabrus bathyphilus Randall & Nagareda 2002 Rosefin Fairywrasse
Cirrhilabrus blatteus Springer & Randall 1974 Purpleboned Fairywrasse
Cirrhilabrus cenderawasih Allen & Erdmann 2006 Cenderawasih Fairywrasse
Cirrhilabrus chaliasi Tea, Allen, and Dailami 2021 Rubyhead Fairywrasse
Cirrhilabrus claire Randall & Pyle 2001 Claire's Fairywrasse
Cirrhilabrus condei Allen & Randall 1996 Conde's Fairywrasse
Cirrhilabrus cyanopleura (Bleeker 1851) Bluescaled Fairywrasse
Cirrhilabrus earlei Randall & Pyle 2001 Earle's Fairywrasse
Cirrhilabrus exquisitus Smith 1957 Exquisite Fairywrasse
Cirrhilabrus filamentosus (Klausewitz 1976) Whipfin Fairywrasse
Cirrhilabrus finifenmaa Tea, Najeeb, Rowlett, & Rocha 2022 Roseveiled Fairywrasse
Cirrhilabrus flavidorsalis Randall & Carpenter 1980 Yellowfin Fairywrasse
Cirrhilabrus humanni Allen & Erdmann 2012 Human Fairywrasse
Cirrhilabrus joanallenae Allen 2000 Pulauweh Fairywrasse
Cirrhilabrus johnsoni Randall 1988 Johnson's Fairywrasse
Cirrhilabrus jordani Snyder 1904 Flame Fairywrasse
Cirrhilabrus katherinae Randall 1992 Katherine's Fairywrasse
Cirrhilabrus katoi Senou & Hirata 2000 Kato's Fairywrasse
Cirrhilabrus laboutei Randall & Lubbock 1982 Labout's Fairywrasse
Cirrhilabrus lineatus Randall & Lubbock 1982 Purplelined Fairywrasse
Cirrhilabrus lubbocki Randall & Carpenter 1980 Lubbock's Fairywrasse
Cirrhilabrus lunatus Randall & Masuda 1991 Crescenttail Fairywrasse
Cirrhilabrus luteovittatus Randall 1988 Yellowband Fairywrasse
Cirrhilabrus marjorie Allen, Randall, and Carlson 2003 Marjorie's Fairywrasse
Cirrhilabrus melanomarginatus Randall & Shen 1978 Blackfin Fairywrasse

Cirrhilabrus morrisoni Allen 1999 Morrison's Fairywrasse
Cirrhilabrus punctatus Randall & Kuiter 1989 Dotted Fairywrasse
Cirrhilabrus pylei Allen & Randall 1996 Pyle's Fairywrasse
Cirrhilabrus randalli Allen 1995 Randall's Fairywrasse
Cirrhilabrus rhomboidalis Randall 1988 Rhomboid Fairywrasse
Cirrhilabrus roseafascia Randall & Lubbock 1982 Pinkbanded Fairywrasse
Cirrhilabrus rubeus Victor 2016 Ruby Longfin Fairywrasse
Cirrhilabrus rubrimarginatus 1992-Randall 1992 Redmargin Fairywrasse
Cirrhilabrus rubripinnis Randall & Carpenter 1980 Redfinned Fairywrasse
Cirrhilabrus rubrisquamis Randall & Emery 1983 Redvelvet Fairywrasse
Cirrhilabrus rubriventralis Springer & Randall 1974 Longfin Fairywrasse
Cirrhilabrus ryukyuensis Ishikawa 1904 Yellowflanked Fairywrasse
Cirrhilabrus sanguineus Cornic 1987 Redblotched Fairywrasse
Cirrhilabrus scottorum Randall & Pyle 1989 Scott's Fairywrasse
Cirrhilabrus shutmani Tea & Gill 2017 Magma Fairywrasse
Cirrhilabrus temminckii Bleeker 1853 Threadfin Fairywrasse
Cirrhilabrus tonozukai Allen & Kuiter 1999 Tono's Fairywrasse
Cirrhilabrus wakanda Tea, Pinheiro, Shepherd, & Rocha 2019 Vibranium Fairywrasse
Cirrhilabrus walindi Allen & Randall 1996 Walindi Fairywrasse
Cirrhilabrus walshi Randall & Pyle 2001 Samoan Fairywrasse
Cirrhilabrus xanthozonus Allen, Erdmann, & Utama 2024 Orangezone Fairywrasse
Paracheilinus alfiani Allen, Erdmann, and Yusmalinda 2016 Alfian's Flasherwrasse
Paracheilinus amanda Tea and Walsh 2023 Amanda's Flasherwrasse
Paracheilinus angulatus Randall and Lubbock 1981 Royal Flasherwrasse
Paracheilinus attenuatus Randall 1999 Diamondtail Flasherwrasse
Paracheilinus bellae Randall 1988 Bell's Flasherwrasse
Paracheilinus carpenteri Randall & Lubbock 1981 Pink Flasherwrasse
Paracheilinus cyaneus Kuiter and Allen 1999 Blue Flasherwrasse
Paracheilinus filamentosus Allen 1974 Filamented Flasherwrasse
Paracheilinus flavianalis Kuiter and Allen 1999 Yellowfin Flasherwrasse
Paracheilinus hemitaeniatus Randall & Harmelin-Vivien 1977 Madagascar Flasherwrasse
Paracheilinus lineopunctatus Randall & Lubbock 1981 Linespot Flasherwrasse
Paracheilinus mccoskeri Randall & Harmelin-Vivien 1977 McCosker's Flasherwrasse
Paracheilinus octotaenia Fourmanoir 1955 Eightline Flasherwrasse
Paracheilinus piscilineatus (Cornic 1987) Fairy Flasherwrasse
Paracheilinus rennyae Allen, Erdmann, and Yusmalinda 2013 Renny's Flasherwrasse
Paracheilinus rubricaudalis Randall and Allen 2003 Fijian Flasherwrasse
Paracheilinus togeanensis 1999-Kuiter & Allen 1999 Togean Flasherwrasse
Paracheilinus walton Allen and Erdmann 2006 Walton's Flasherwrasse
Pseudocheilinops ataenia Schultz 1960 Pinkstreaked Wrasse
Pseudocheilinus citrinus Randall 1999 Citrus Wrasse
Pseudocheilinus dispilus Randall 1999 Indian Eightline Wrasse
Pseudocheilinus evanidus Jordan & Evermann 1903 Striated Wrasse
Pseudocheilinus hexataenia (Bleeker 1857) Sixline Wrasse
Pseudocheilinus ocellatus Randall 1999 Whitebarred Wrasse
Pseudocheilinus octotaenia Jenkins 1901 Eightlined Wrasse
Pseudocheilinus tetrataenia Schultz 1960 Fourlined Wrasse
Pteragogus aurigarius (Richardson 1845) Malachite Wrasse
Pteragogus clarkae Randall 2013 Clark's Wrasse
Pteragogus cryptus Randall 1981 Cryptic Wrasse
Pteragogus enneacanthus (Bleeker 1853) Cockerel Wrasse

Pteragogus flagellifer (Valenciennes 1839) Pacific Cocktail Wrasse
Pteragogus guttatus (Fowler and Bean 1928) Sneaky Wrasse
Pteragogus pelycus Randall 1981 Sideburn Wrasse
Pteragogus taeniops (Peters 1855) Cheekbar Wrasse
Pteragogus trispilus Randall 2013 Threedot Wrasse
Pteragogus turdus Iino & Motomura 2022 Pacific Cryptic Wrasse
Pteragogus variabilis Randall 2013 Cargados Wrasse

Labrinae

Acantholabrus palloni (Risso 1810) Scalyrayed Wrasse
Centrolabrus exoletus (Linnaeus 1758) Rock Cook
Centrolabrus melanocercus (Risso 1810) Blacktailed Wrasse
Ctenolabrus rupestris (Linnaeus 1758) Goldsinny
Labrus bergylta Ascanius 1767 Ballan Wrasse
Labrus merula Linnaeus 1758 Brown Wrasse
Labrus mixtus Linnaeus 1758 Cuckoo Wrasse
Labrus viridis Linnaeus 1758 Green Wrasse
Lappanella fasciata (Cocco 1833) Redspotted Wrasse
Lappanella guineensis Bauchot 1969 Guinea Wrasse
Symphodus bailloni (Valenciennes 1839) Baillon's Wrasse
Symphodus caeruleus (Azevedo 1999) Blue Atlantic Wrasse
Symphodus cinereus (Bonnaterre 1788) Grey Wrasse
Symphodus doderleini Jordan 1890 Doderlein's Wrasse
Symphodus mediterraneus (Linnaeus 1758) Axillary wrasse
Symphodus melops (Linnaeus 1758) Corkwing Wrasse
Symphodus ocellatus (Linnaeus 1758) Ocellated Wrasse
Symphodus roissali (Risso 1810) Fivespotted Wrasse
Symphodus rostratus (Bloch 1791) Pointedsnout Wrasse
Symphodus tinca (Linnaeus 1758) Peacock Wrasse
Symphodus trutta (Lowe 1834) Green Atlantic Wrasse
Tautoga onitis (Linnaeus 1758) Tautog
Tautogolabrus adspersus (Walbaum 1792) Cunner

Cheilininae

Cheilinus abudjubbe Rüppell 1835 Abudjubbe Wrasse
Cheilinus bimaculatus (Valenciennes 1840) Twospot Wrasse
Cheilinus chlorourus (Bloch 1791) Floral Wrasse
Cheilinus lunulatus (Forsskål 1775) Broomtail Wrasse
Cheilinus oxycephalus Bleeker 1854 Snooty Wrasse
Cheilinus trilobatus Lacépède 1801 Tripletail Wrasse
Concholabrus fasciatus (Bloch 1791) **new combination** Redbreasted Wrasse
Concholabrus quinquecinctus (Rüppell 1835) **new combination** Fiveband Wrasse
Crassilabrus undulatus (Rüppell 1835) Humphead Wrasse
Epibulus brevis Carlson, Randall, & Dawson 2008 Latent Slingjaw Wrasse
Epibulus insidiator (Pallas 1770) Slingjaw Wrasse
Oxycheilinus arenatus (Valenciennes 1840) Speckled Wrasse
Oxycheilinus celebicus (Bleeker 1853) Celebes Wrasse
Oxycheilinus digramma (Lacépède 1801) Cheeklined Wrasse
Oxycheilinus lineatus Randall, Westneat, & Gomon 2003 Lined Wrasse
Oxycheilinus mentalis (Rüppell 1828) Chin Wrasse
Oxycheilinus nigromarginatus Randall, Westneat & Gomon 2003 Blackmargin Wrasse
Oxycheilinus orientalis (Günther 1862) Oriental Wrasse
Oxycheilinus samurai Fukui & Motomura 2016 Blacktip Wrasse

Oxycheilinus unifasciatus (Streets 1877) Ringtail Wrasse
Wetmorella albofasciata Schultz & Marshall 1954 Whitebanded Possum Wrasse
Wetmorella bifasciata Schultz & Marshall 1954 Philippine Possum Wrasse
Wetmorella nigropinnata (Seale 1901) Yellowbanded Possum Wrasse
Wetmorella tanakai Randall & Kuiter 2007 Tanaka's Wrasse

Scarinae

Scarini

Bolbometopon muricatum (Valenciennes 1840) Green Humphead Parrotfish
Cetoscarus bicolor (Rüppell 1829) Bicolor Parrotfish
Cetoscarus ocellatus (Valenciennes 1840) Spotted Parrotfish
Chlorurus atrilunula (Randall and Bruce 1983) Bluemoon Parrotfish
Chlorurus bleekeri (de Beaufort 1940) Bleeker's Parrotfish
Chlorurus bowersi (Snyder 1909) Bower's Parrotfish
Chlorurus capistratoides (Bleeker 1847) Indian Parrotfish
Chlorurus cyanescens (Valenciennes 1840) Blue Humphead Parrotfish
Chlorurus enneacanthus (Lacépède 1802) Captain Parrotfish
Chlorurus frontalis (Valenciennes 1840) Pacific Slopehead Parrotfish
Chlorurus genazonatus (Randall and Bruce 1983) Sinai Parrotfish
Chlorurus gibbus (Rüppell 1829) Heavybeak Parrotfish
Chlorurus japanensis (Bloch 1789) Japanese Parrotfish
Chlorurus microrhinos (Bleeker 1854) Blunthead Parrotfish
Chlorurus oedema (Snyder 1909) Knothead Parrotfish
Chlorurus perspicillatus (Steindachner 1879) Spectacled Parrotfish
Chlorurus rhakoura Randall & Anderson 1997 Raggedfish Parrotfish
Chlorurus sordidus (Forsskål 1775) Daisy Parrotfish
Chlorurus spilurus (Valenciennes 1840) Pacific Bullethead Parrotfish
Chlorurus strongylocephalus (Bleeker 1855) Steephead Parrotfish
Chlorurus troschelii (Bleeker 1853) Troschel's Parrotfish
Hipposcarus harid (Forsskål 1775) Candelamoa Parrotfish
Hipposcarus longiceps (Valenciennes 1840) Pacific Longnose Parrotfish
Scarus altipinnis (Steindachner 1879) Minifin Parrotfish
Scarus arabicus (Steindachner 1902) Arabian Parrotfish
Scarus caudofasciatus (Günther 1862) Redbarred Parrotfish
Scarus chameleon Choat & Randall 1986 Chameleon Parrotfish
Scarus chinensis (Steindachner 1867) Chinese Parrotfish
Scarus coelestinus Valenciennes 1840 Midnight Parrotfish
Scarus coeruleus (Edwards 1771) Blue Parrotfish
Scarus collana Rüppell 1835 Red Sea Parrotfish
Scarus compressus (Osburn and Nichols 1916) Azure Parrotfish
Scarus dimidiatus Bleeker 1859 Yellowbarred Parrotfish
Scarus dubius Bennett 1828 Regal Parrotfish
Scarus falcipinnis (Playfair 1868) Sicklefin Parrotfish
Scarus ferrugineus Forsskål 1775 Rusty Parrotfish
Scarus festivus Valenciennes 1840 Festive Parrotfish
Scarus flavipectoralis Schultz 1958 Yellowfin Parrotfish
Scarus forsteni (Bleeker 1861) Forsten's Parrotfish
Scarus frenatus Lacépède 1802 Bridled Parrotfish
Scarus fuscocaudalis Randall & Myers 2000 Darktail Parrotfish
Scarus fuscopurpureus (Klunzinger 1871) Purplebrown Parrotfish
Scarus ghobban Fabricius 1775 Bluechin Parrotfish
Scarus globiceps Valenciennes 1840 Bluebarred Parrotfish

Scarus gracilis (Steindachner 1869) Slender Parrotfish
Scarus guacamaia Cuvier 1829 Rainbow Parrotfish
Scarus hoefleri (Steindachner 1881) Guinean Parrotfish
Scarus hypselopterus Bleeker 1853 Yellowtail Parrotfish
Scarus iseri (Bloch 1789) Striped Parrotfish
Scarus koputea Randall & Choat 1980 Marquesan Parrotfish
Scarus longipinnis Randall & Choat 1980 Highfin Parrotfish
Scarus maculipinna Westneat, Satapoomin & Randall 2007 Spotfin Parrotfish
Scarus niger Forsskål 1775 Dusky Parrotfish
Scarus obishime Randall & Earle 1993 Ogasawara Parrotfish
Scarus oviceps Valenciennes 1840 Darkcap Parrotfish
Scarus ovifrons Temminck & Schlegel 1846 Knobsnout Parrotfish
Scarus perrico Jordan & Gilbert 1882 Bumphead Parrotfish
Scarus persicus Randall & Bruce 1983 Gulf Parrotfish
Scarus prasiognathos Valenciennes 1840 Singapore Parrotfish
Scarus psittacus Forsskål 1775 Common Parrotfish
Scarus quoyi Valenciennes 1840 Greenblotch Parrotfish
Scarus rivulatus Valenciennes 1840 Rivulated Parrotfish
Scarus rubroviolaceus Bleeker 1847 Ember Parrotfish
Scarus russelii Valenciennes 1840 Eclipse Parrotfish
Scarus scaber Valenciennes 1840 Fivesaddle Parrotfish
Scarus schlegeli (Bleeker 1861) Yellowband Parrotfish
Scarus spinus (Kner 1868) Greensnout Parrotfish
Scarus taeniopterus Lesson 1829 Princess Parrotfish
Scarus tricolor Bleeker 1847 Tricolor Parrotfish
Scarus trispinosus Valenciennes 1840 Greenbeak Parrotfish
Scarus vetula Bloch & Schneider 1801 Queen Parrotfish
Scarus viridifucatus (Smith 1956) Roundhead Parrotfish
Scarus xanthopleura Bleeker 1853 Red Parrotfish
Scarus zelindae Moura, Figueiredo & Sazima 2001 Zelinda's Parrotfish
Scarus zufar Randall & Hoover 1995 Dhofar Parrotfish

Sparisomatini

Calotomus carolinus (Valenciennes 1840) Stareye Parrotfish
Calotomus japonicus (Valenciennes 1840) Japanese Parrotfish
Calotomus spinidens (Quoy & Gaimard 1824) Spinytooth Parrotfish
Calotomus viridescens (Rüppell 1835) Viridescent Parrotfish
Calotomus zonarchus (Jenkins 1903) Yellowbar Parrotfish
Cryptotomus roseus Cope 1871 Bluelip Parrotfish
Leptoscarus vaigiensis (Quoy and Gaimard 1824) Marbled Parrotfish
Nicholsina collettei Schultz 1968 Collette's Parotfish
Nicholsina denticulata (Valenciennes 1840) Loosetooth Parrotfish
Nicholsina usta (Valenciennes 1840) Emerald Parrotfish
Sparisoma amplum (Ranzani 1841) Reef Parrotfish
Sparisoma atomarium (Poey 1861) Greenblotch Parrotfish
Sparisoma aurofrenatum (Valenciennes 1840) Redband Parrotfish
Sparisoma axillare (Steindachner 1878) Gray Parrotfish
Sparisoma choati Rocha, Brito & Robertson 2012 West African Parrotfish
Sparisoma chrysopterum (Bloch and Schneider 1801) Redtail Parrotfish
Sparisoma cretense (Linnaeus 1758) Mediterranean Parrotfish
Sparisoma frondosum (Agassiz 1831) Brazilian Parrotfish
Sparisoma griseorubrum Cervigón 1982 Caribbean Reef Parrotfish

Sparisoma radians (Valenciennes 1840) Bucktooth Parrotfish
Sparisoma rocha Pinheiro, Gasparini & Sazima 2010 Trindade Parrotfish
Sparisoma rubripinne (Valenciennes 1840) Redfin Parrotfish
Sparisoma strigatum (Günther 1862) Strigate Parrotfish
Sparisoma tuiupiranga Gasparini, Joyeux & Floeter 2003 Tuiupiranga Parrotfish
Sparisoma viride (Bonnaterre 1788) Stoplight Parrotfish

Xyrichtyinae

Ammolabrus dicrus Randall & Carlson 1997 Sand Wrasse
Cymolutes lecluse (Quoy and Gaimard 1824) Sharpheaded Wrasse
Cymolutes praetextatus (Quoy and Gaimard 1824) Knife Razorfish
Cymolutes torquatus (Valenciennes 1840) Finescale Razorfish
Iniistius aneitensis (Günther 1862) Yellowblotch Razorfish
Iniistius auropunctatus Randall, Earle & Robertson 2002 Insular Razorfish
Iniistius bakunawa Sorgon, Tea, Meren & Nañola 2023 Eclipsespot Razorfish
Iniistius baldwini (Jordan and Evermann 1903) Baldwin's Razorfish
Iniistius bimaculatus (Rüppell 1829) Twospot Razorfish
Iniistius brevipinnis Randall 2013 Razor Wrasse
Iniistius celebicus (Bleeker 1856) Celebes Razorfish
Iniistius cyanifrons (Valenciennes 1840) Bluefronted Razorfish
Iniistius dea (Temminck and Schlegel 1845) Blackspot Razorfish
Iniistius evides (Jordan and Richardson 1909) Taiwanese Razorfish
Iniistius geisha (Araga and Yoshino 1986) Geisha Razorfish
Iniistius griffithsi Randall 2007 Griffiths' Razorfish
Iniistius jacksonensis (Ramsay 1881) Keelhead Razorfish
Iniistius melanopus (Bleeker 1857) Yellowpatch Razorfish
Iniistius naevus Allen & Erdmann 2012 Blemished Razorfish
Iniistius opalus Fukui 2018 Opaline Razorfish
Iniistius pavo (Valenciennes 1840) Peacock Razorfish
Iniistius pentadactylus (Linnaeus 1758) Fivefinger Razorfish
Iniistius rajagopalani (Venkataramanujam, Venkataramani, and Ramanathan 1987) Tuticorin Razorfish
Iniistius spilonotus (Bleeker 1857) Finspot Razorfish
Iniistius trivittatus (Randall and Cornish 2000) Threebanded Razorfish
Iniistius twistii (Bleeker 1856) Redblotch Razorfish
Iniistius umbrilatus (Jenkins 1901) Blackside Razorfish
Iniistius verrens (Jordan and Evermann 1902) Threebanded Razorfish
Novaculichthys taeniourus (Lacépède 1801) Rockmover Wrasse
Novaculoides macrolepidotus (Bloch 1791) Seagrass Wrasse
Novaculops alvheimi Randall 2013 St. Brandon's Sandy
Novaculops compressus Fukui 2020 Garnet Sandy
Novaculops halsteadi (Randall and Lobel 2003) Halstead's Sandy
Novaculops koteamea (Randall and Allen 2004) Rapanui Sandy
Novaculops pastellus (Randall, Earle, and Rocha 2008) Lord Howe Sandy
Novaculops sciistius (Jordan and Thompson 1914) Eastern Sandy
Novaculops woodi (Jenkins 1901) Wood's Razorfish
Xyrichtys blanchardi (Cadenat and Marchal 1963) Marmalade Razorfish
Xyrichtys incandescens Edwards & Lubbock 1981 Noronha Razorfish
Xyrichtys javanica (Bleeker 1862) Java Razorfish
Xyrichtys martinicensis Valenciennes 1840 Rosy Razorfish
Xyrichtys mundiceps Gill 1862 Cape Razorfish
Xyrichtys novacula (Linnaeus 1758) Pearly Razorfish

Xyrichtys sanctaehelenae (Günther 1868) Yellow Razorfish
Xyrichtys splendens Castelnau 1855 Green Razorfish
Xyrichtys victori Wellington 1992 Galapagos Razorfish
Xyrichtys wellingtoni Allen & Robertson 1995 Clipperton Razorfish

Pseudolabrinae

Austrolabrus maculatus (Macleay 1881) Blackspotted Wrasse
Doratonotus megalepis Günther 1862 Dwarf Wrasse
Dotalabrus alleni Russell 1988 Little Rainbow Wrasse
Dotalabrus aurantiacus (Castelnau 1872) Castelnau's Wrasse
Eupetrichthys angustipes Ramsay and Ogilby 1888 Snakeskin Wrasse
Pictilabrus brauni Hutchins & Morrison 1996 Braun's Wrasse
Pictilabrus laticlavius (Richardson 1840) Senator Wrasse
Pictilabrus viridis Russell 1988 False Senator Wrasse
Pseudolabrus biserialis (Klunzinger 1880) Redband Wrasse
Pseudolabrus celidotus (Bloch and Schneider 1801) Spotty
Pseudolabrus cinctus (Hutton 1877) Girdled Wrasse
Pseudolabrus eoethinus (Richardson 1846) Rednaped Wrasse
Pseudolabrus fucicola (Richardson 1840) Yellowsaddled Wrasse
Pseudolabrus fuentesi (Regan 1913) Fuentesi's Wrasse
Pseudolabrus gayi (Valenciennes 1839) Gay's Wrasse
Pseudolabrus guentheri Bleeker 1862 Günther's Wrasse
Pseudolabrus gymnogenis (Günther 1862) Crimsonbanded Wrasse
Pseudolabrus inscriptus (Richardson 1848) Inscribed Wrasse
Pseudolabrus luculentus (Richardson 1848) Orange Wrasse
Pseudolabrus miles (Schneider and Forster 1801) Scarlet Wrasse
Pseudolabrus parilus (Richardson 1850) Orangespotted Wrasse
Pseudolabrus rubicundus (Macleay 1881) Rosy Wrasse
Pseudolabrus semifasciatus (Rendahl 1921) Halfbarred Wrasse
Pseudolabrus sieboldi Mabuchi & Nakabo 1997 Bambooleaf Wrasse
Pseudolabrus tetricus (Richardson 1840) Bluethroat Wrasse
Pseudolabrus torotai Russell & Randall 1981 Rapa Wrasse
Suezichthys arquatus Russell 1985 Painted Rainbow Wrasse
Suezichthys aylingi Russell 1985 Crimson Cleaner
Suezichthys bifurcatus Russell 1986 Striped Rainbow Wrasse
Suezichthys caudavittatus (Steindachner 1898) Spottail Wrasse
Suezichthys cyanolaemus Russell 1985 Bluethroat Rainbow Wrasse
Suezichthys devisi (Whitley 1941) De Vis's Rainbowfish
Suezichthys gracilis (Steindachner and Döderlein 1887) Slender Rainbow Wrasse
Suezichthys notatus (Kamohara 1958) Japanese Rainbow Wrasse
Suezichthys ornatus (Carmichael 1819) Tristan Rainbow Wrasse
Suezichthys rosenblatti Russell & Westneat 2013 Spotted Rainbow Wrasse
Suezichthys russelli Randall 1981 Russell's Wrasse
Suezichthys soelae Russell 1985 Soela Wrasse

Julidinae

Allocoris cuvieri (Bennett 1831) African Wrasse
Allocoris formosa (Bennett 1830) Formosa Wrasse
Allocoris gaimard (Quoy and Gaimard 1824) Yellowtail Wrasse
Allocoris marquesensis (Randall 1999) Marquesan Wrasse
Anampses caeruleopunctatus Rüppell 1829 Diamond Wrasse
Anampses chrysocephalus Randall 1958 Psychedelic Wrasse
Anampses cuvier Quoy & Gaimard 1824 Pearl Wrasse

Anampses elegans Ogilby 1889 Elegant Wrasse
Anampses femininus Randall 1972 Bluetail Wrasse
Anampses geographicus Valenciennes 1840 Geographic Wrasse
Anampses lennardi Scott 1959 Lennard's Wrasse
Anampses lineatus Randall 1972 Lined Wrasse
Anampses melanurus Bleeker 1857 Whitespotted Wrasse
Anampses meleagrides Valenciennes 1840 Speckled Wrasse
Anampses neoguinaicus Bleeker 1877 Blackbacked Wrasse
Anampses twistii Bleeker 1856 Twister Wrasse
Coris auricularis (Valenciennes 1839) Western King Wrasse
Coris aygula Lacépède 1801 Clown Coris
Coris ballieui Vaillant & Sauvage 1875 Lined Coris
Coris bulbifrons Randall & Kuiter 1982 Doubleheader
Coris flava Fricke & Durville 2021 Yellow Coris
Coris flavovittata (Bennett 1828) Yellowstripe Coris
Coris musume (Jordan & Snyder 1904) Japanese Coris
Coris nigrotaenia Mee & Hare 1995 Blackbar Coris
Coris picta (Bloch and Schneider 1801) Comb Wrasse
Coris sandeyeri (Hector 1884) Sandager's Wrasse
Frontilabrus caeruleus Randall & Condé 1989 Blueflasher Wrasse
Gomphosus amblycephalum (Bleeker 1856) **new combination** Blunthead Wrasse
Gomphosus ascensionis (Quoy and Gaimard 1834) **new combination** Greenfish
Gomphosus ballieui (Vaillant and Sauvage 1875) **new combination** Blacktail Wrasse
Gomphosus bifasciatum (Bloch 1791) **new combination** Bluehead
Gomphosus caeruleus Lacepède 1801 Green Birdmouth Wrasse
Gomphosus cupido (Temminck and Schlegel 1845) **new combination** Cupido Wrasse
Gomphosus duperrey (Quoy and Gaimard 1824) **new combination** Saddle Wrasse
Gomphosus genivittatum (Valenciennes 1839) **new combination** Redcheek Wrasse
Gomphosus grammaticum Gilbert 1890 **new combination** Sunset Wrasse
Gomphosus hardwicke (Bennett 1830) **new combination** Sixbar Wrasse
Gomphosus hebraicum (Lacépède 1801) **new combination** Goldbar Wrasse
Gomphosus heiseri (Randall and Edwards 1984) **new combination** Pitcairn Rainbow Wrasse
Gomphosus jansenii (Bleeker 1856) **new combination** Jansen's Wrasse
Gomphosus klunzingeri Klausewitz 1962 Red Sea Bird Wrasse
Gomphosus loxum (Randall and Mee 1994) **new combination** Oman Wrasse
Gomphosus lucasanum (Gill 1862) **new combination** Cortez Rainbow Wrasse
Gomphosus lunare (Linnaeus 1758) **new combination** Moon Wrasse
Gomphosus lutescens (Lay and Bennett 1839) **new combination** Yellowbrown Wrasse
Gomphosus newtoni (Osório 1891) **new combination** Newton's Wrasse
Gomphosus nigrofasciatum (Randall 2003) **new combination** Blackbarred Wrasse
Gomphosus noronhanum (Boulenger 1890) **new combination** Noronha Wrasse
Gomphosus pavo (Linnaeus 1758) **new combination** Circus Wrasse
Gomphosus purpureum (Forsskål 1775) **new combination** Surge Wrasse
Gomphosus quinquevittatum (Lay and Bennett 1839) **new combination** Fivestripe Wrasse
Gomphosus robertsoni (Allen 1995) **new combination** Clipperton Wrasse
Gomphosus rueppellii (Klunzinger 1871) **new combination** Klunzinger's Wrasse
Gomphosus sanctaehelenae (Valenciennes 1839) **new combination** St. Helena Wrasse
Gomphosus septemfasciatum Scott 1959 **new combination** Sevenbanded Wrasse
Gomphosus trilobatum (Lacépède 1801) **new combination** Christmas Wrasse
Gomphosus varius Lacépède 1801 Bird Wrasse

Gomphosus virens (Gilbert 1890) **new combination** Emerald Wrasse
Halichoeres gurrobyi (Victor 2016) Blacksaddle Wrasse
Halichoeres hartzfeldii (Bleeker 1852) Hartzfeld's Wrasse
Halichoeres leptotaenia (Randall and Earle 1994) Oman Rainbow Wrasse
Halichoeres pelicieri (Randall and Smith 1982) Pelicier's Wrasse
Halichoeres zeylonicus (Bennett 1833) Goldstripe Wrasse
Hemicoris batuensis (Bleeker 1856) Batu Rainbow Wrasse
Hemicoris biocellatus (Schultz 1960) **new combination** Redline Wrasse
Hemicoris chloropterus (Bloch 1791) Green Wrasse
Hemicoris chrysus (Randall 1981) **new combination** Yellow Wrasse
Hemicoris claudia (Randall and Rocha 2009) **new combination** Claudia's Wrasse
Hemicoris cosmetus (Randall and Smith 1982) **new combination** Adorned Wrasse
Hemicoris iridis (Randall and Smith 1982) **new combination** Radiant Wrasse
Hemicoris latifasciata (Randall 2013) **new combination** Whitestriped Wrasse
Hemicoris leucoxanthus (Randall and Smith 1982) **new combination** Canarytop Wrasse
Hemicoris margaritaceus (Valenciennes 1839) **new combination** Pinkbelly Wrasse
Hemicoris melasmapomus (Randall 1981) **new combination** Earmuff Wrasse
Hemicoris miniatus (Valenciennes 1839) **new combination** Cheekring Wrasse
Hemicoris nebulosus (Valenciennes 1839) **new combination** Nebulous Wrasse
Hemicoris orientalis (Randall 1999) **new combination** Greencheek Wrasse
Hemicoris ornatissimus (Garrett 1863) **new combination** Ornate Wrasse
Hemicoris pallidus (Kuiter and Randall 1995) **new combination** Babi Wrasse
Hemicoris podostigma (Bleeker 1854) Greentail Wrasse
Hemicoris schroederii (Bleeker 1858) Schroeder's Wrasse
Hemicoris trispilus (Randall and Smith 1982) **new combination** Triplespot Wrasse
Hemicoris variegata (Rüppell 1835) Variegated Wrasse
Hemicoris zulu (Randall and King 2010) **new combination** KwaZulu Natal Wrasse
Hemigymnus fasciatus (Bloch 1792) Barred Thicklip
Hemigymnus melapterus (Bloch 1791) Blackeye Thicklip
Hemigymnus sexfasciatus (Rüppell 1835) Red Sea Thicklip
Hemitautoga hortulana (Lacépède 1801) Checkerboard Wrasse
Hemitautoga scapularis (Bennett 1832) Zigzag Wrasse
Hemitautoga trimaculata (Quoy and Gaimard 1834) Threespot Wrasse
Hemiulis annularis (Valenciennes 1839) **new combination** Dusky Wrasse
Hemiulis argus (Bloch and Schneider 1801) Argus Wrasse
Hemiulis aurilineata (Randall and Kuiter 1982) **new combination** Goldlined Wrasse
Hemiulis bicolor (Bloch and Schneider 1801) Pearlyspotted Wrasse
Hemiulis binotopsis (Bleeker 1849) Saowisata Wrasse
Hemiulis bleekeri (Steindachner and Döderlein 1887) **new combination** Mottlestripe Wrasse
Hemiulis brownfieldi (Whitley 1945) Brownfield's Wrasse
Hemiulis chlorocephala (Kuiter and Randall 1995) Greenhead Wrasse
Hemiulis chrysotaenia Bleeker 1853 **new combination** Indian Ocean Pinstriped Wrasse
Hemiulis dussumieri (Valenciennes 1839) Dussumier's Wrasse
Hemiulis erdmanni (Randall and Allen 2010) **new combination** Erdmann's Wrasse
Hemiulis hilomeni (Randall and Allen 2010) **new combination** Hilomen's Wrasse
Hemiulis javanicus (Bleeker 1857) Java Wrasse
Hemiulis kallochroma (Bleeker 1853) Pinksnout Wrasse
Hemiulis kneri (Bleeker 1862) Kner's Wrasse
Hemiulis lamarii (Valenciennes 1839) **new combination** Western Dusky Wrasse
Hemiulis leucura (Walbaum 1792) Greyhead Wrasse
Hemiulis marginatus (Rüppell 1835) **new combination** Marginated Wrasse

Hemiulis melanochir (Fowler and Bean 1928) **new combination** Orangefin Wrasse
Hemiulis melanurus (Bleeker 1851) **new combination** Hoeven's Wrasse
Hemiulis nigrescens (Bloch and Schneider 1801) Bubblefin Wrasse
Hemiulis papilionaceus (Valenciennes 1839) **new combination** Weed Wrasse
Hemiulis pardaleocephalus (Bleeker 1849) Lineblotch Wrasse
Hemiulis pictoides (Randall and Kuiter 1982) **new combination** Pixy Wrasse
Hemiulis prosopeion (Bleeker 1854) **new combination** Twotone Wrasse
Hemiulis purpurescens (Block and Schneider 1801) **new combination** Silty Wrasse
Hemiulis richmondi Fowler & Bean 1928 Chainlined Wrasse
Hemiulis rubricephala (Kuiter and Randall 1995) Redhead Wrasse
Hemiulis schwarzii (Bleeker 1847) Schwarz's Wrasse
Hemiulis signifer (Randall and Earle 1994) **new combination** Flag Wrasse
Hemiulis solorensis (Bleeker 1853) **new combination** Solor Wrasse
Hemiulis stigmaticus (Randall and Smith 1982) **new combination** U-Spot Wrasse
Hemiulis striatus (Randall and Dor 1981) **new combination** Minute Wrasse
Hemiulis tenuispinis (Günther 1862) **new combination** Slenderspine Wrasse
Hemiulis timorensis (Bleeker 1852) **new combination** Timor Wrasse
Hemiulis vrolikii (Bleeker 1855) **new combination** Pinstriped Wrasse
Hologymnosus annulatus (Lacépède 1801) Ring Wrasse
Hologymnosus doliatus (Lacepède 1801) Pastel Wringwrasse
Hologymnosus longipes Günther 1862 Sidespot Longface Wrasse
Hologymnosus rhodonotus Randall & Yamakawa 1988 Redback Longface Wrasse
Iridio adustus (Gilbert 1890) Black Wrasse
Iridio aestuaricola (Bussing 1972) **new combination** Mangrove Wrasse
Iridio bathyphilus Beebe and Tee-Van 1932 Greenband Wrasse
Iridio bivittatus (Bloch 1791) Slippery Dick
Iridio brasiliensis (Bloch 1791) Brazilian Wrasse
Iridio burekae (Weaver and Rocha 2007) Mardi Gras Wrasse
Iridio californicus (Günther 1861) **new combination** Señorita
Iridio caudalis (Poey 1860) Painted Wrasse
Iridio chierchiae (Di Caporiacco 1948) Wounded Wrasse
Iridio cyanocephalus (Bloch 1791) Yellowcheek Wrasse
Iridio dimidiatus (Agassiz 1831) Brazilian Blue Wrasse
Iridio discolor (Bussing 1983) Cocos Wrasse
Iridio dispilus (Günther 1864) Chameleon Wrasse
Iridio garnoti (Valenciennes 1839) Yellowhead Wrasse
Iridio inornatus (Gilbert 1890) Cape Wrasse
Iridio insularis (Allen and Robertson 1992) Socorro Wrasse
Iridio maculipinna (Müller and Troschel 1848) Clown Wrasse
Iridio malpelo (Allen and Robertson 1992) Malpelo Wrasse
Iridio melanotis (Gilbert 1890) Golden Wrasse
Iridio nicholsi (Jordan and Gilbert 1882) Spinster Wrasse
Iridio notospilus (Günther 1864) Banded Wrasse
Iridio penrosei (Starks 1913) Brazilian Clown Wrasse
Iridio pictus (Poey 1860) Rainbow Wrasse
Iridio poeyi (Steindachner 1867) Blackear Wrasse
Iridio radiatus (Linnaeus 1758) Puddingwife
Iridio rubrovirens (Rocha, Pinheiro, and Gasparini 2010) Trindade Wrasse
Iridio salmofasciatus (Allen and Robertson 2002) Redstriped Wrasse
Iridio sanchezi (Victor, Frable, and Ludt 2024) **new combination** Tailspot Wrasse
Iridio sazimai (Luiz, Ferreira, and Rocha 2009) Midstripe Wrasse

Iridio semicinctus (Ayres 1859) Rock Wrasse
Iridio socialis (Randall and Lobel 2003) Social Wrasse
Julis atlantica (Günther 1862) Atlantic Rainbow Wrasse
Julis julis (Linnaeus 1758) Rainbow Wrasse
Julis melanura Lowe 1839 Blacktail Rainbow Wrasse
Labrichthys unilineatus (Guichenot 1847) Tubemouth Wrasse
Labroides bicolor Fowler & Bean 1928 Bicolor Cleaner Wrasse
Labroides dimidiatus (Valenciennes 1839) Bluestreak Cleaner Wrasse
Labroides pectoralis Randall & Springer 1975 Blackspot Cleaner Wrasse
Labroides phthirophagus Randall 1958 Hawaiian Cleaner Wrasse
Labroides quadrilineatus (Rüppell 1835) **new combination** Blue Fourline Wrasse
Labroides rubrolabiatus Randall 1958 Redlip Cleaner Wrasse
Labropsis alleni Randall 1981 Allen's Tubelip
Labropsis australis Randall 1981 Southern Tubelip
Labropsis manabei Schmidt 1931 Tailblotch Tubelip
Labropsis micronesica Randall 1981 Micronesian Wrasse
Labropsis polynesica Randall 1981 Polynesian Tubelip
Labropsis xanthonota Randall 1981 Yellowback Tubelip
Labropsis xanthurus (Bleeker 1856) **new combination** Yellowtail Wrasse
Leptojulis chrysotaenia Randall & Ferraris 1981 Ochreband Wrasse
Leptojulis cyanopleura (Bleeker 1853) Shoulderspot Wrasse
Leptojulis lambdastigma Randall & Ferraris 1981 Samar Wrasse
Leptojulis poecilepterus (Temminck and Schlegel 1845) **new combination** China Rainbow Wrasse
Leptojulis polylepis Randall 1996 Smallscale Wrasse
Leptojulis urostigma Randall 1996 Tailmark Wrasse
Macropharyngodon bipartitus Smith 1957 Vermiculate Lepoard Wrasse
Macropharyngodon choati Randall 1978 Choat's Wrasse
Macropharyngodon cyanoguttatus Randall 1978 Leopard Wrasse
Macropharyngodon geoffroyi (Quoy and Gaimard 1824) Geoffroy's Wrasse
Macropharyngodon kuiteri Randall 1978 Kuiter's Leopard Wrasse
Macropharyngodon marisrubri Randall 1978 Red Sea Leopard Wrasse
Macropharyngodon meleagris (Valenciennes 1839) Blackspotted Wrasse
Macropharyngodon moyeri Shepard & Meyer 1978 Japanese Leopard Wrasse
Macropharyngodon negrosensis Herre 1932 Black Leopard Wrasse
Macropharyngodon ornatus Randall 1978 Ornate Leopard Wrasse
Macropharyngodon pakoko Delrieu-Trottin, Williams & Planes 2014 Pakoko Wrasse
Macropharyngodon vivienae Randall 1978 Madagascar Wrasse
Ophthalmolepis lineolata (Valenciennes 1839) Australian Wrasse
Paracoris caudimacula (Quoy and Gaimard 1834) Spottail Wrasse
Paracoris centralis (Randall 1999) Kiribati Wrasse
Paracoris debueni (Randall 1999) **new combination** De Buen's Wrasse
Paracoris dorsomacula (Fowler 1908) Pinklined Wrasse
Paracoris hewetti (Randall 1999) Hewett's Wrasse
Paracoris roseoviridis (Randall 1999) Rapa Wrasse
Paracoris venusta (Vaillant and Sauvage 1875) Elegant Rainbow Wrasse
Pseudocoris aequalis Randall & Walsh 2008 Clearwater Wrasse
Pseudocoris aurantiofasciata Fourmanoir 1971 Rustbanded Wrasse
Pseudocoris bleekeri (Hubrecht 1876) Philippine Wrasse
Pseudocoris hemichrysos Randall, Connell & Victor 2015 Yellowfin Wrasse
Pseudocoris heteroptera (Bleeker 1857) Torpedo Wrasse

Pseudocoris occidentalis Randall, Connell & Victor 2015 African Torpedo Wrasse
Pseudocoris ocellata Chen & Shao 1995 Eyedspot Wrasse
Pseudocoris petila Allen & Erdmann 2012 Redspot Torpedo Wrasse
Pseudocoris yamashiroi (Schmidt 1931) Japanese Wrasse
Pseudojuloides argyreogaster (Günther 1867) Rightcheek Wrasse
Pseudojuloides atavai Randall & Randall 1981 Polynesian Wrasse
Pseudojuloides cerasinus (Snyder 1904) Pencil Wrasse
Pseudojuloides crux Tea, Gill & Senou 2020 Stellate Pencil Wrasse
Pseudojuloides edwardi Victor & Randall 2014 Mombasa Pencil Wrasse
Pseudojuloides elongatus Ayling & Russell 1977 Long Green Wrasse
Pseudojuloides erythrops Randall & Randall 1981 Redeye Wrasse
Pseudojuloides kaleidos Kuiter & Randall 1995 Kaleido's Wrasse
Pseudojuloides labyrinthus Victor & Edward 2016 Labyrinth Pencil Wrasse
Pseudojuloides mesostigma Randall & Randall 1981 Sidespot Pencil Wrasse
Pseudojuloides paradiseus Tea, Gill & Senou 2020 Paradise Pencil Wrasse
Pseudojuloides pluto Tea, Greene, Earle & Gill 2020 Narcissus Pencil Wrasse
Pseudojuloides polackorum Connell, Victor & Randall 2015 Smalltail Pencil Wrasse
Pseudojuloides polynesica Victor 2017 Polynesian Pencil Wrasse
Pseudojuloides proserpina Tea, Greene, Earle & Gill 2020 Pomegranate Pencil Wrasse
Pseudojuloides pyrius Randall & Randall 1981 Marquesas Pencil Wrasse
Pseudojuloides severnsi Bellwood & Randall 2000 Royal Pencil Wrasse
Pseudojuloides splendens Victor 2017 Splendid Pencil Wrasse
Pseudojuloides xanthomos Randall & Randall 1981 Mauritian Pencil Wrasse
Pseudojuloides zeus Victor & Edward 2015 Zeus Pencil Wrasse
Stethojulis albovittata (Bonnaterre 1788) Bluelined Wrasse
Stethojulis balteata (Quoy and Gaimard 1824) Belted Wrasse
Stethojulis bandanensis (Bleeker 1851) Red-shoulder Wrasse
Stethojulis interrupta (Bleeker 1851) Cutribbon Wrasse
Stethojulis maculata Schmidt 1931 Purplebreast Wrasse
Stethojulis marquesensis Randall 2000 Motu Takatai Wrasse
Stethojulis notialis Randall 2000 Driver Wrasse
Stethojulis strigiventer (Bennett 1833) Threeribbon Wrasse
Stethojulis terina Jordan & Snyder 1902 Asian Rainbow Wrasse
Stethojulis trilineata (Bloch and Schneider 1801) Blueribbon Wrasse
Xenojulis lapillus Smith 1947 **new combination** Jeweled Wrasse
Xenojulis margaritacea (Macleay 1883) Pearlyweed Wrasse
Xenojulis melas (Randall and Earle 1994) **new combination** Midnight Wrasse