

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

# INTRODUCTION TO AQUATIC SCIENCES

**6. Week**

**Introduction to Marine Fish**

## Introduction to Aquatic Sciences

### WEEKLY TOPICS (CONTENT)

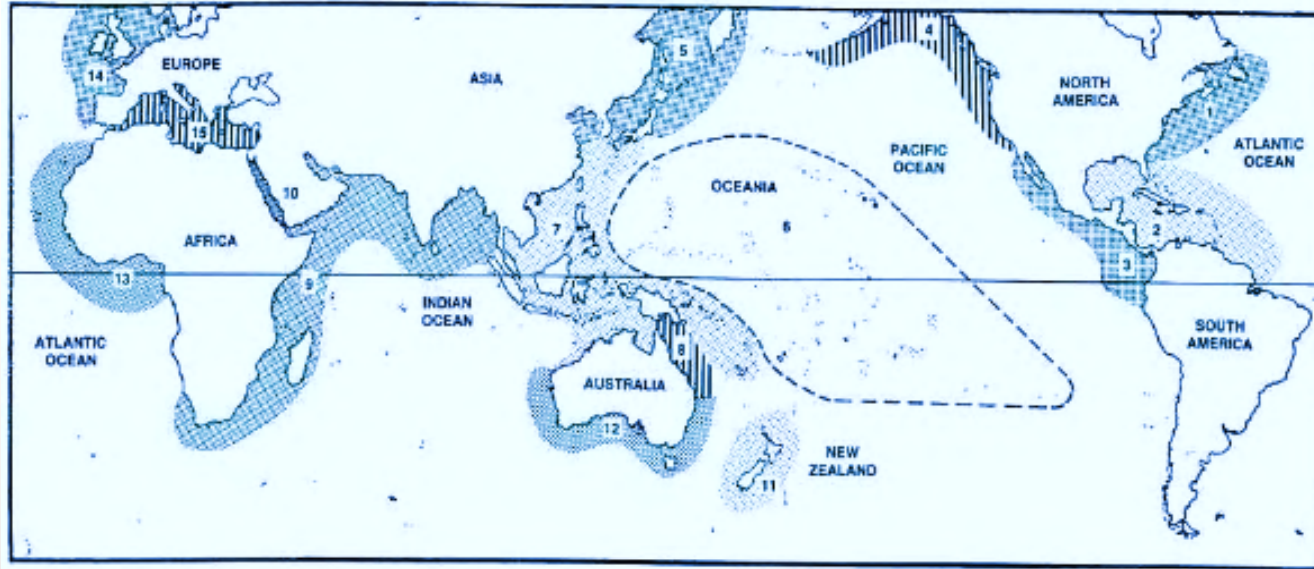
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Week	Topics
1. Week	Aquaculture in Turkey and world
2. Week	The role of fish in human consumption
3. Week	What is fish? Taxonomy of fish
4. Week	Aquatic Crustacean
5. Week	Water quality for aquaculture
6. Week	Introduction to marine fish
7. Week	Introduction to freshwater fish
8. Week	Live foods (microalgae, zooplankton and <i>Artemia</i> )
9. Week	Introduction to fishing techniques
10. Week	Fish transport
11. Week	Introduction to fish disease
12. Week	Introduction to fisheries economy
13. Week	Processing and marketing of fish
14. Week	Introduction to fisheries and aquaculture management

## 2. Adaptations of Fish

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The metabolism of marine fish is influenced by the abundance, accessibility and composition of the food, by parasites, intra- and interspecies relationships and by the nature of the surrounding medium – temperature, pressure, illumination, gas content, salts and other substances, and perhaps radiation. The fish in turn influence some of these parameters, such as the quantity of food and the composition of the water. Let us consider how fish adapt to these influences.



Geographic regions are keyed to numbers for easy species caption reference. These regions are highly arbitrary and many species do not confine themselves to these limits. Also species may inhabit only a small portion of the delimited area. But this does give a reasonable approximation of the fishes' range which should help aquarists determine the environment needed for proper maintenance of the fishes.

- |                                |                                       |
|--------------------------------|---------------------------------------|
| 1. Temperate Western Atlantic. | 9. Northern and Western Indian Ocean. |
| 2. Tropical Western Atlantic.  | 10. Red Sea.                          |
| 3. Tropical Eastern Pacific.   | 11. New Zealand.                      |
| 4. Temperate Eastern Pacific.  | 12. Temperate Australia.              |
| 5. Temperate Western Pacific.  | 13. Tropical Eastern Atlantic.        |
| 6. Oceania.                    | 14. Temperate Eastern Atlantic.       |
| 7. Tropical Western Pacific.   | 15. Mediterranean Sea.                |
| 8. Great Barrier Reef.         |                                       |

## Systematic List of the Families of Fishes of the World (after Nelson, 1984)

<b>Myxiniformes</b>	41 Mormyridae	91 Characidae
1 Myxiniidae	42 Gymnarchidae	<b>Siluriformes</b>
<b>Petromyzontiformes</b>	<b>Elopiformes</b>	92 Diplomystidae
2 Petromyzontidae	43 Elopidae	93 Ictaluridae
<b>Chimaeriformes</b>	44 Megalopidae	94 Bagridae
3 Callorhynchidae	45 Albulidae	95 Cranoglanididae
4 Chimaeridae	46 Halosauridae	96 Siluridae
5 Rhinochimaeridae	47 Nonacanthidae	97 Siliuridae
<b>Hexanchiformes</b>	48 Lipogenyidae	98 Pangasiidae
6 Chlamydoselachidae	<b>Anguilliformes</b>	99 Amblyopteriidae
7 Hexanchidae	49 Anguillidae	100 Amphiliidae
<b>Heterodontiformes</b>	50 Heterenchelyidae	101 Akyidae
8 Heterodontidae	51 Moringuidae	102 Sisoridae
<b>Lamniformes</b>	52 Xenodermidae	103 Clariidae
9 Rhinodontoidea	53 Myrocongridae	104 Heteropneustidae
10 Orectolobidae	54 Muraenidae	105 Chacidae
11 Odontaspidae	55 Nemichthyidae	106 Olyridae
12 Lamnidae	56 Cyematidae	107 Malapteruridae
13 Scyliorhinidae	57 Synaopobranchidae	108 Ariidae
14 Carcharhinidae	58 Ophichthidae	109 Plotosidae
15 Sphyrnidae	59 Nettastomatidae	110 Mochokidae
<b>Squaliformes</b>	60 Colocongridae	111 Doradidae
16 Squalidae	61 Macrocephalichthyidae	112 Auchenipteridae
17 Pristioporidae	62 Congridae	113 Pimelodidae
18 Squatinidae	63 Derichthyidae	114 Ageneiosidae
<b>Rajiformes</b>	64 Serrivomeridae	115 Helogenidae
19 Pristidae	65 Saccopharyngidae	116 Cetopidae
20 Torpedinidae	66 Euryparyngidae	117 Hypopthalmidae
21 Rhinobatidae	67 Monognathidae	118 Aspredinidae
22 Rajidae	<b>Clupeiformes</b>	119 Trichomycteridae
23 Dasyatidae	68 Denticipitidae	120 Callichthyidae
24 Potamotrygonidae	69 Clupeidae	121 Loricariidae
25 Hexatrygonidae	70 Engraulidae	122 Astroblepidae
26 Myliobatidae	71 Chirocentridae	<b>Gymnnotiformes</b>
27 Mobulidae	<b>Gonorynchiformes</b>	123 Sternopygidae
<b>Ceratodontiformes</b>	72 Chamidae	124 Rhamphichthyidae
28 Ceratodontidae	73 Gonorynchidae	125 Hypopomidae
<b>Lepidostireniformes</b>	74 Kneriidae	126 Apteronotidae
29 Lepidostirenidae	75 Phractolaemidae	127 Gymnotidae
30 Protopteriidae	<b>Cypriniformes</b>	128 Electroporidae
<b>Coelacanthiformes</b>	76 Cyprinidae	<b>Salmoniformes</b>
31 Latimeriidae	77 Psilorhynchidae	129 Esocidae
<b>Polypteriformes</b>	78 Homalopteridae	130 Umbridae
32 Polypteridae	79 Cobitidae	131 Argentinidae
<b>Acipenseriformes</b>	80 Gyriacanthidae	132 Bathylagidae
33 Acipenseridae	81 Catostomidae	133 Opisthoproctidae
34 Polyodontidae	<b>Characiformes</b>	134 Apisococephalidae
<b>Lepisosteiformes</b>	82 Citharinidae	135 Searsiidae
35 Lepisosteidae	83 Hemiodontidae	136 Lepidogalaxiidae
<b>Amliformes</b>	84 Curimatidae	137 Osmeridae
36 Amiidae	85 Anostomidae	138 Plecoglossidae
<b>Osteoglossiformes</b>	86 Erythrinidae	139 Salangidae
37 Osteoglossidae	87 Lebiasinidae	140 Sundasalangidae
38 Pantodontidae	88 Gasteropneustidae	141 Retropinnidae
39 Hiodontidae	89 Crenolucidae	142 Galaxiidae
40 Notopteridae	90 Hepsetidae	143 Salmonidae

193 Thaumichthyidae	<b>Gobiesociformes</b>
194 Centrophrynidae	198 Gobiesocidae
195 Diceratiidae	199 Alabetidae
196 Himantolophidae	<b>Cyprinodontiformes</b>
197 Melanocetidae	200 Exocoetidae
<b>Gobiosociformes</b>	201 Hemiramphidae
198 Gobiesocidae	202 Belontiidae
199 Alabetidae	203 Scomberesocidae
<b>Cyprinodontiformes</b>	204 Oryziidae
200 Exocoetidae	205 Adrianchthyidae
201 Hemiramphidae	206 Horaichthyidae
202 Belontiidae	207 Aplocheilidae
203 Scomberesocidae	208 Cyprinodontidae
204 Oryziidae	209 Goodeidae
205 Adrianchthyidae	210 Anablepidae
206 Horaichthyidae	211 Jenynsiidae
207 Aplocheilidae	212 Poeciliidae
208 Cyprinodontidae	<b>Atheriniformes</b>
209 Goodeidae	213 Atherinidae
210 Anablepidae	214 Isonidae
211 Jenynsiidae	215 Melanotaeniidae
212 Poeciliidae	216 Neostethidae
<b>Atheriniformes</b>	217 Phallostethidae
213 Atherinidae	<b>Lampriformes</b>
214 Isonidae	218 Lampridae
215 Melanotaeniidae	219 Velliferidae
216 Neostethidae	220 Lophotidae
217 Phallostethidae	221 Radiacephalidae
<b>Lampriformes</b>	222 Trachipteridae
218 Lampridae	223 Regalecidae
219 Velliferidae	224 Stylophoridae
220 Lophotidae	225 Ateleopodidae
221 Radiacephalidae	226 Mirapinnidae
222 Trachipteridae	227 Eunaeniophoridae
223 Regalecidae	228 Megalomycetidae
224 Stylophoridae	<b>Perciformes</b>
225 Ateleopodidae	229 Percopsidae
226 Mirapinnidae	230 Aphredoderidae
227 Eunaeniophoridae	231 Amblyopsidae
228 Megalomycetidae	<b>Gadiformes</b>
<b>Perciformes</b>	232 Diretmidae
229 Percopsidae	233 Anoplogastridae
230 Aphredoderidae	234 Berycidae
231 Amblyopsidae	235 Holocentridae
<b>Gadiformes</b>	236 Polymixiidae
232 Diretmidae	237 Stephanoberycidae
233 Anoplogastridae	238 Melamphidae
234 Berycidae	239 Gibberichthyidae
235 Holocentridae	240 Rhyttidae
236 Polymixiidae	241 Barboursiidae
237 Stephanoberycidae	242 Cetomimidae
238 Melamphidae	<b>Batrachoidiformes</b>
239 Gibberichthyidae	243 Batrachoididae
240 Rhyttidae	244 Lophiidae
241 Barboursiidae	245 Antennariidae
242 Cetomimidae	246 Brachionichthyidae
<b>Batrachoidiformes</b>	247 Chaunacidae
243 Batrachoididae	248 Ogcoccephalidae
244 Lophiidae	249 Caulophrynidae
245 Antennariidae	250 Ceratidae
246 Brachionichthyidae	251 Gasterosteidae
247 Chaunacidae	252 Indostomidae
248 Ogcoccephalidae	
249 Caulophrynidae	
250 Ceratidae	
251 Gasterosteidae	
252 Indostomidae	

<b>Pegasiformes</b>	315 Emmelichthyidae
253 Pegasidae	316 Lutjanidae
<b>Syngnathiformes</b>	317 Caesionidae
254 Aulostomidae	318 Lobotidae
255 Fistulariidae	319 Gerreidae
256 Macrorhamphosidae	320 Haemulidae
257 Centriscidae	321 Inermiidae
258 Solenostomidae	322 Sparidae
259 Syngnathidae	323 Centrarchidae
<b>Dactylopteriformes</b>	324 Lethrinidae
260 Dactylopteridae	325 Nemipteridae
<b>Synbranchiformes</b>	326 Sciaenidae
261 Synbranchidae	327 Mullidae
<b>Scorpaeniformes</b>	328 Monodactylidae
262 Scorpaenidae	329 Pempheridae
263 Synanceiidae	330 Leptobramidae
264 Caracanthidae	331 Bathylupeiidae
265 Aploactinidae	332 Toxotidae
266 Pataecidae	333 Coracinidae
267 Congiopodidae	334 Kyphosidae
268 Triglidae	335 Ephippidae
269 Platycephalidae	336 Scatophagidae
270 Hoplichthyidae	337 Rhinoprenidae
271 Anoploporidae	338 Chaetodontidae
272 Hexagrammidae	339 Pomacanthidae
273 Zaniolepididae	340 Enoplosidae
274 Normanichthyidae	341 Pentacerotidae
275 Ereuniidae	342 Nandidae
276 Cottidae	343 Oplegnathidae
277 Cottoseomorphidae	344 Cichlidae
278 Comephoridae	345 Embiotocidae
279 Psychrolutidae	346 Pomacentridae
280 Agonidae	347 Gadopsidae
281 Cyclopteridae	348 Cirrhidae
<b>Perciformes</b>	349 Chironemidae
282 Centropomidae	350 Aplodactylidae
283 Percichthyidae	351 Cheilodactylidae
284 Serranidae	352 Latrididae
285 Grammistidae	353 Owstoniidae
286 Pseudochromidae	354 Cepolidae
287 Grammidae	355 Mugilidae
288 Plesiopidae	356 Sphyracidae
289 Acanthoclinidae	357 Polynemidae
290 Glaucosomatidae	358 Labridae
291 Teraponidae	359 Odacidae
292 Banjosidae	360 Scaridae
293 Kuhlidae	361 Bathymasteridae
294 Centracanthidae	362 Zoarcidae
295 Percidae	363 Stichaeidae
296 Pricantidae	364 Cryptacanthodidae
297 Apogonidae	365 Pholididae
298 Dinolestidae	366 Anarhichadidae
299 Sillaginidae	367 Prilichthyidae
300 Malacanthidae	368 Zapruidae
301 Labracoglossidae	369 Scytalidae
302 Lactariidae	370 Bovichthyidae
303 Pomatomidae	371 Nerotheriidae
304 Racheocentridae	372 Harpagiferidae
305 Echenoididae	373 Bathydraconidae
306 Carangidae	374 Channichthyidae
307 Nematistidae	375 Opistognathidae
308 Coryphaenidae	376 Congrogadidae
309 Apolectidae	377 Chiasmodontidae
310 Menidae	378 Champsoodontidae
311 Leiognathidae	379 Notograpidae
312 Bramidae	380 Pholidichthyidae
313 Caristiidae	381 Trichodontidae
314 Arripidae	382 Trachinidae

383 Uranoscopidae	<b>Pleuronectiformes</b>
384 Trichonotidae	432 Psettoidea
385 Creodidae	433 Cirraridae
386 Leptoscopidae	434 Bothidae
387 Percophidae	435 Pleuronectidae
388 Mugiloidae	436 Cynoglossidae
389 Cheimarrichthyidae	437 Soleidae
390 Tripterygiidae	<b>Tetraodontiformes</b>
391 Dactyloscopidae	438 Triacanthoidae
392 Labrisomidae	439 Triacanthidae
393 Clinidae	440 Balistidae
394 Chaenopsidae	441 Ostraciidae
395 Blenniidae	442 Triodontidae
396 Icostidae	443 Tetraodontidae
397 Schindleriidae	444 Diodontidae
398 Ammodytidae	445 Molidae
399 Callionymidae	
400 Draconettidae	
401 Rhyacichthyidae	
402 Eleotridae	
403 Gobiidae	
404 Gobioidae	
405 Trypauchenidae	
406 Kraemeriidae	
407 Microlesmidae	
408 Kurtidae	
409 Acanthuridae	
410 Siganidae	
411 Scombrobrachidae	
412 Gempylidae	
413 Trichiuridae	
414 Scombridae	
415 Xiphiidae	
416 Luvuidae	
417 Istiophoridae	
418 Amarsipidae	
419 Centrolophidae	
420 Nomeidae	
421 Ariommatidae	
422 Tetragonuridae	
423 Stromateidae	
424 Anabantidae	
425 Belontiidae	
426 Helostomatidae	
427 Osphronemidae	
428 Luciocephalidae	
429 Channidae	
430 Mastacembelidae	
431 Chaudhuriidae	

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Tucker Jr, J. W. (2000). Marine fish culture. Springer Science & Business Media.

## *Oncorhynchus tshawytscha* (Walbaum, 1792)

Chinook salmon

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*Oncorhynchus tshawytscha*  
Male picture by McDowall, R.M.

Add your observation in Fish Watcher

[Native range](#) | [All suitable habitat](#) | [Point map](#) | [Year 2100](#)



This map was computer-generated and has not yet been reviewed.  
*Oncorhynchus tshawytscha* AquaMaps Data sources: GBIF OBIS

**Classification / Names** [Common names](#) | [Synonyms](#) | [Catalog of Fishes \(gen., sp.\)](#) | [ITIS](#) | [CoL](#) | [WoRMS](#) | [Cloffa](#)

Actinopterygii (ray-finned fishes) > Salmoniformes (Salmons) > Salmonidae (Salmonids) > Salmoninae  
Etymology: *Oncorhynchus*: Greek, onyx, -ychos = nail + Greek, rhyngchos = snout (Ref. 45335); *tshawytscha*: *tshawytscha* which is the vernacular name of this species in Kamchatka (Ref. 1998).

**Environment / Climate / Range** [Ecology](#)

Marine; freshwater; brackish; benthopelagic; anadromous (Ref. 51243); depth range 0 - 375 m (Ref. 58426).  
Temperature: 0°C - 25°C (Ref. 35682); 72°N - 27°N, 136°E - 109°W (Ref. 54251)

**Distribution** [Countries](#) | [FAO areas](#) | [Ecosystems](#) | [Occurrences](#) | [Point map](#) | [Introductions](#) | [Faunafri](#)

Arctic, Northwest to Northeast Pacific: drainages from Point Hope, Alaska to Ventura River, California, USA; occasionally strays south to San Diego in California, USA. Also in Honshu, Japan (Ref. 6793), Sea of Japan (Ref. 1998), Bering Sea (Ref. 2850) and Sea of Okhotsk (Ref. 1998). Found in Coppermine River in the Arctic. Several countries report adverse ecological impact after introduction.

**Length at first maturity / Size / Weight / Age**

Maturity: L<sub>m</sub> 82.2 range ? - ? cm  
Max length : 150 cm TL male/unsexed; (Ref. 40637); common length : 70.0 cm TL male/unsexed; (Ref. 9258);  
max. published weight: 61.4 kg (Ref. 27547); max. reported age: 9 years (Ref. 12193)

### Short description

[Morphology](#) | [Morphometrics](#)

Dorsal spines (total): 0; Dorsal soft rays (total): 10-14; Anal spines: 0; Anal soft rays: 13 - 19; Vertebrae: 67 - 75. Distinguished by the small black spots on the back and on the upper and lower lobes of the caudal fin, and the black gums of the lower jaw (Ref. 27547). Body fusiform, streamlined, noticeably laterally compressed in large adults, somewhat deeper than other species (Ref. 6885). Gill rakers wide-spaced and rough; pelvic fins with axillary process (Ref. 27547). Fish in the sea are dark greenish to blue black on top of head and back, silvery to white on the lower sides and belly; numerous small, dark spots along back and upper sides and on both lobes of caudal; gum line of lower jaw black (Ref. 27547). In fresh water, with the approach of the breeding condition, the fish change to olive brown, red or purplish, the color change being more marked in males than in females (Ref. 27547).

### Biology

**Glossary**   (e.g. epibenthic)

Adults return to natal streams from the sea to spawn (Ref. 27547). Fry may migrate to the sea after only 3 months in fresh water, some may stay for as long as 3 years, but generally most stay a year in the stream before migrating (Ref. 27547). Some individuals remain close inshore throughout their lives, but some make extensive migrations (Ref. 27547, 44894). Also found in lakes (Ref. 1998). Possibly up to 375 m depth (Ref. 6793). Epipelagic (Ref. 58426). Food in streams is mainly terrestrial insects and small crustaceans; in the sea, major food items include fishes, crustaceans, and other invertebrates (Ref. 27547). Young are preyed upon by fishes and birds (such as mergansers and kingfishers); adults are prey of large mammals and large birds (Ref. 1998). Highly regarded game fish (Ref. 27547). Flesh is usually red, but some are white; the red meat commands a higher price (Ref. 27547). Marketed fresh, smoked, frozen, and canned. Eaten steamed, fried, broiled, boiled, microwaved, and baked (Ref. 9988). Viscera said to contain high vitamin A content and used successfully as food for hatchery fish (Ref. 28971, 28977).

### Life cycle and mating behavior

[Maturity](#) | [Reproduction](#) | [Spawning](#) | [Eggs](#) | [Fecundity](#) | [Larvae](#)

Adults migrate up to 4,827 km upstream to spawn (Ref. 6850). Migration from the sea begins in December so that the first fish are near river mouths by spring (Ref. 27547). Once a female selects a spot, she begins to dig a nest, driving away other females during the period of nest building. The female is attended by a larger, dominant male and several smaller males who drive away other males. While the female digs the nest, the male courts her by coming to rest beside her and quivering; by swimming about over her, touching her dorsal fin with his body and fins; and occasionally nudging her side gently with his snout (Ref. 28978). Upon completion of the nest, the female drops into it and is immediately joined by the dominant male. The fish open their mouths, vibrate, and eggs and sperm are released. At this point smaller males may dart into the nest and release sperm. The female then quickly moves to the upstream edge of the nest and begins to dig. The eggs are covered and a new nest is made. The whole process is repeated until the female releases all her eggs, which may take several days. The male then leaves the female and may mate with another female. The female guards the nest for as long as she can. Spent adults usually die a few days after spawning. (Ref. 1998, 27547). Reproductive strategy: synchronous ovarian organization, determinate fecundity (Ref. 51846).

### Main reference

[Upload your references](#) | [References](#) | [Coordinator](#) | [Collaborators](#)

Page, L.M. and B.M. Burr, 1991. A field guide to freshwater fishes of North America north of Mexico. Houghton Mifflin Company, Boston. 432 p. (Ref. 5723)

### IUCN Red List Status (Ref. 115185)

Not Evaluated

**CITES (Ref. 115941)**

Not Evaluated

**CMS (Ref. 116361)**

Not Evaluated

**Threat to humans**

Potential pest (Ref. 12257)

**Human uses**

Fisheries: highly commercial; aquaculture: commercial; gamefish: yes; aquarium: public aquariums

FAO(Aquaculture: production; fisheries: production, species profile; publication : search) | [FishSource](#) | [Sea Around Us](#)

### More information

Countries	Common names	Age/Size	References	Collaborators
<a href="#">FAO areas</a>	<a href="#">Synonyms</a>	<a href="#">Growth</a>	<a href="#">Aquaculture</a>	<a href="#">Pictures</a>
<a href="#">Ecosystems</a>	<a href="#">Metabolism</a>	<a href="#">Length-weight</a>	<a href="#">Aquaculture profile</a>	<a href="#">Stamps, Coins Misc.</a>
<a href="#">Occurrences</a>	<a href="#">Predators</a>	<a href="#">Length-length</a>	<a href="#">Strains</a>	<a href="#">Sounds</a>
<a href="#">Introductions</a>	<a href="#">Ecotoxicology</a>	<a href="#">Length-frequencies</a>	<a href="#">Genetics</a>	<a href="#">Ciguatera</a>
<a href="#">Stocks</a>	<a href="#">Reproduction</a>	<a href="#">Morphometrics</a>	<a href="#">Allele frequencies</a>	<a href="#">Speed</a>
<a href="#">Ecology</a>	<a href="#">Maturity</a>	<a href="#">Morphology</a>	<a href="#">Heritability</a>	<a href="#">Swim. type</a>
<a href="#">Diet</a>	<a href="#">Spawning</a>	<a href="#">Larvae</a>	<a href="#">Diseases</a>	<a href="#">Gill area</a>
<a href="#">Food items</a>	<a href="#">Fecundity</a>	<a href="#">Larval dynamics</a>	<a href="#">Processing</a>	<a href="#">Otoliths</a>
<a href="#">Food consumption</a>	<a href="#">Eggs</a>	<a href="#">Recruitment</a>	<a href="#">Mass conversion</a>	<a href="#">Brains</a>
<a href="#">Ration</a>	<a href="#">Egg development</a>	<a href="#">Abundance</a>	<a href="#">Vision</a>	

### Tools

[Bio-Quiz](#) | [E-book](#) | [Field guide](#) | [Identification keys](#) | [Length-frequency wizard](#) | [Life-history tool](#) | [Point map](#) | [Classification Tree](#) | [Catch-MSY](#) |

### Special reports

[Check for Aquarium maintenance](#) | [Check for Species Fact Sheets](#) | [Check for Aquaculture Fact Sheets](#)

### Download XML

[Summary page](#) | [Point data](#) | [Common names](#) | [Photos](#)

### Internet sources

[Alien/Invasive Species database](#) | [Aquatic Commons](#) | [BHL](#) | [Cloffa](#) | [BOLDSystems](#) | [Websites from users](#) | [Check FishWatcher](#) | [CISTI](#) | [Catalog of Fishes \(gen., sp.\)](#) | [DiscoverLife](#) | [ECOTOX](#) | [Faunafri](#) | [Fishtrace](#) | [GenBank \(genome, nucleotide\)](#) | [GloBI](#) | [GOBASE](#) | [Google Books](#) | [Google Scholar](#) | [Google](#) | [IGFA World Record](#) | [MitoFish](#) | [National databases](#) | [Otolith Atlas of Taiwan Fishes](#) | [Public aquariums](#) | [PubMed](#) | [Reef Life Survey](#) | [RFE Identification](#) | [Scirus](#) | [SeaLifeBase](#) | [Tree of Life](#) | [Wikipedia\(Go, Search\)](#) | [World Records Freshwater Fishing](#) | [Zoological Record](#)

### Estimates of some properties based on models

Preferred temperature (Ref. 115969): 0.7 - 8, mean 3.5 (based on 561 cells).  
Phylogenetic diversity index (Ref. 82805): PD<sub>50</sub> = 0.5000 [Uniqueness, from 0.5 = low to 2.0 = high].  
Trophic Level (Ref. 69278): 4.4 ±0.7 se; Based on diet studies.  
Resilience (Ref. 69278): Medium, minimum population doubling time 1.4 - 4.4 years (tm=4; tmax=9; Fec=4,000).  
Prior r = 0.38, 2 SD range = 0.14 - 0.99, log(r) = -0.97, SD log(r) = 0.48, Based on: 5 tgen, 1 tmax, 7 Fec records  
Vulnerability (Ref. 59153): High to very high vulnerability (68 of 100) .  
Price category (Ref. 80766): **Very high.**

**Carcharhinus melanopterus** (Quoy & Gaimard, 1824)  
Blacktip reef shark

Upload your photos and videos  
Pictures | Videos | Stamps, Coins Misc. | Google image



*Carcharhinus melanopterus*  
Picture by Randall, J.E.

Add your observation in Fish Watcher  
Native range | All suitable habitat | Year 2100



Targeted map  
*Carcharhinus melanopterus* AquaMaps Data sources: GBIF OBIS

**Classification / Names** Common names | Synonyms | Catalog of Fishes (gen., sp.) | ITIS | Col. | WoRMS | Cloffa  
Elasmobranchii (sharks and rays) > Carcharhiniformes (Ground sharks) > Carcharhinidae (Requiem sharks)  
Etymology: *Carcharhinus*: Greek, karcharos = sharpen + Greek, rhinos = nose (Ref. 45335).

**Environment / Climate / Range** Ecology  
Marine; brackish; reef-associated; amphidromous (Ref. 51243); depth range 20 - 75 m (Ref. 37816). Subtropical; 35°N - 25°S, 7°E - 134°W

**Distribution** Countries | FAO areas | Ecosystems | Occurrences | Point map | Introductions | Faunafri  
Indo-Pacific: Persian Gulf (Ref. 68964), Red Sea and East Africa to the Hawaiian Islands and the Tuamotu Archipelago. North to Japan and south to Australia. Apparently rare or absent in the more easterly groups. Also eastern Mediterranean (through the Suez Canal).

**Length at first maturity / Size / Weight / Age**  
Maturity: L<sub>m</sub> ?, range 91 - 120 cm  
Max length : 200 cm TL male/unsexed; (Ref. 5578)

**Short description**

Morphology | Morphometrics

Dorsal spines (total): 0; Dorsal soft rays (total): 0; Anal spines: 0; Anal soft rays: 0. A small shark with a short, bluntly rounded snout, oval eyes, and narrow-cusped teeth; 2nd dorsal fin large; no interdorsal ridge (Ref. 5578). Yellow-brown above, white below; all fins conspicuous with black or dark brown tips also anterior and posterior dark edging on pectoral fins and upper lobe of caudal fin; a prominent black tip of first dorsal fin set off abruptly by a light band below it; a conspicuous dark band on flanks, extending rearward to pelvic fins (Ref. 9997).

**Biology**

Glossary  Search (e.g. epibenthic)

Inhabits shallow water close inshore on coral reefs and in the intertidal zone (reef flats), near reef drop-offs and close offshore (Ref. 244, 58302). Also found in mangrove areas, moving in and out with the tide (Ref. 6871) and even in fresh water, but not in tropical lakes and rivers far from the sea (Ref. 9997). Occurs singly or in small groups (Ref. 244, 54301). Prefers fishes but also feeds on crustaceans, cephalopods and other mollusks (Ref. 6871). Viviparous (Ref. 50449). May become aggressive to spear fishers and has been reported to bite people wading in shallow water (Ref. 6871). Reported to cause poisoning (Ref. 4690). 2 to 4 young of 46 to 52 cm are born per litter (Ref. 1602). Generally marketed fresh (as fillet), may be dried, salted, smoked (Ref. 5284) or frozen (Ref. 9987). Fins are valued for shark-fin soup (Ref. 9987); liver as source of oil (Ref. 9997). This species is commonly seen in public aquaria (Ref. 54301). Maximum reported weight from IGFA was 13.550 kg (Ref. 40637).

**Life cycle and mating behavior**

Maturity | Reproduction | Spawning | Eggs | Fecundity | Larvae

Viviparous, placental (Ref. 50449). Litter size 2-4 pups (Ref. 244) after an 8-9 months gestation period (up to 16 months in some localities) (Ref.58048). Size at birth ranges from 33-52 cm (Ref. 244); 48-50 cm TL (Ref.58048). Distinct pairing with embrace (Ref. 205). Precopulatory and courtship involve the male closely following near the female's vent which could possibly be guided by their sense of smell (Ref. 49562, 47987).

**Main reference** Upload your references | References | Coordinator : Compagno, Leonard J.V. | Collaborators

Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO. (Ref. 244)

**IUCN Red List Status (Ref. 115185)**

■ Near Threatened (NT)

**CITES (Ref. 115941)**

Not Evaluated

**CMS (Ref. 116361)**

Not Evaluated

**Threat to humans**

■ Traumatogenic (Ref. 4690)

**Human uses**

Fisheries: commercial; aquarium: public aquariums

FAO(Publication : search) | FishSource | Sea Around Us

**More information**

Countries	Common names	Age/Size	References	Collaborators
FAO areas	Synonyms	Growth	Aquaculture	Pictures
Ecosystems	Metabolism	Length-weight	Aquaculture profile	Stamps, Coins Misc.
Occurrences	Predators	Length-length	Strains	Sounds
Introductions	Ecotoxicology	Length-frequencies	Genetics	Ciguatera
Stocks	Reproduction	Morphometrics	Allele frequencies	Speed
Ecology	Maturity	Morphology	Heritability	Swim. type
Diet	Spawning	Larvae	Diseases	Gill area
Food items	Fecundity	Larval dynamics	Processing	Otoliths
Food consumption	Eggs	Recruitment	Mass conversion	Brains
Ration	Egg development	Abundance	Vision	

**Tools**

Bio-Quiz | E-book | Field guide | Identification keys | Length-frequency wizard | Life-history tool | Point map | Classification Tree | Catch-MSY |

**Special reports**

Check for Aquarium maintenance | Check for Species Fact Sheets | Check for Aquaculture Fact Sheets

**Download XML**

Summary page | Point data | Common names | Photos

**Internet sources**

Aquatic Commons | BHL | Cloffa | BOLDSystems | Websites from users | Check FishWatcher | CISTI | Catalog of Fishes (gen., sp.) | DiscoverLife | DORIS | ECOTOX | Faunafri | Fishtrace | GenBank(genome, nucleotide) | GloBI | GOBASE | Google Books | Google Scholar | Google | IGFA World Record | MitoFish | National databases | Otolith Atlas of Taiwan Fishes | Public aquariums | PubMed | Reef Life Survey | Scirus | SeaLifeBase | Tree of Life | Wikipedia(Go, Search) | World Records Freshwater Fishing | Zoological Record

**Estimates of some properties based on models**

Preferred temperature (Ref. 115969): 23.8 - 28.4, mean 27.4 (based on 397 cells).  
Phylogenetic diversity index (Ref. 82805): PD<sub>50</sub> = 0.5000 [Uniqueness, from 0.5 = low to 2.0 = high].  
Trophic Level (Ref. 69278): 3.9 ±0.4 se; Based on diet studies.  
Resilience (Ref. 69278): Very Low, minimum population doubling time more than 14 years (Fec=2).  
Vulnerability (Ref. 59153): High to very high vulnerability (69 of 100) .  
Price category (Ref. 80766): Medium.



## *Coris julis* (Linnaeus, 1758)

### Mediterranean rainbow wrasse

Upload your photos and videos

[Pictures](#) | [Videos](#) | [Stamps](#), [Coins](#) Misc. | [Google image](#)



*Coris julis*  
Male picture by [Patzner, R.](#)

Add your observation in Fish Watcher

[Native range](#) | [All suitable habitat](#) | [Point map](#) | [Year 2100](#)



This map was computer-generated and has not yet been reviewed.  
*Coris julis* AquaMaps Data sources: GBIF GBIS

#### Classification / Names

[Common names](#) | [Synonyms](#) | [Catalog of Fishes \(gen., sp.\)](#) | [ITIS](#) | [CoL](#) | [WoRMS](#) | [Cloffa](#)

Actinopterygii (ray-finned fishes) > Perciformes (Perch-likes) > Labridae (Wrasses) > Corinae  
Etymology: *Coris*: Greek, kore, -es = pupil and also with themenaing of "maid" (Ref. 45335).

#### Environment / Climate / Range

[Ecology](#)

Marine; reef-associated; depth range 0 - 120 m (Ref. 27115), usually 1 - 60 m (Ref. 4742). Temperate; 18°C - 22°C (Ref. 27115); 59°N - 1°S, 32°W - 36°E

#### Distribution

[Countries](#) | [FAO areas](#) | [Ecosystems](#) | [Occurrences](#) | [Point map](#) | [Introductions](#) | [Faunafri](#)

Eastern Atlantic: Sweden to south of Cape Lopez, Gabon. Also known from the Mediterranean Sea. Specimen of *Coris* from Cape Verde and Senegal southward are probably *Coris atlantica* (Ref. 33411), here still treated as a junior synonym pending a definite publication of validity.

#### Size / Weight / Age

Maturity: L<sub>m</sub>? range ? - ? cm

Max length : 30.0 cm SL male/unsexed; (Ref. 2683); common length : 20.0 cm SL male/unsexed; (Ref. 4742); max. reported age: 7 years (Ref. 72479)

#### Short description

[Morphology](#) | [Morphometrics](#)

Dorsal spines (total): 8 - 10; Dorsal soft rays (total): 11-12; Anal spines: 3; Anal soft rays: 11 - 12. Snout with 4-6 cephalic pores. Spiny rays flexible. No scales on head and on base of dorsal and anal fins. Vertebrae 25-26. Males: first 3 dorsal rays elongated, with an orange or red and black spot. Along the flanks, a longitudinal zigzag orange or red stripe. Females and juveniles: a longitudinal large whitish stripe along flanks, a mid-longitudinal zigzag, dark brown stripe.

#### Biology

**Glossary**

(e.g. epibenthic)

Occurs in the littoral zone, near rocks and eelgrass beds. Usually found between 1-60 m, but old males stay in deeper water. Found in deeper waters during winter. Sometimes solitary, among rocks, often with numerous specimens in its immediate vicinity. Buries itself in sand at night or when frightened. Feeds on small gastropods, sea urchins, shrimps, worms, isopods and amphipods. Sexually mature when 1 year old. Protogynous species; females change sex to become males; specimen above 18 cm length are all males (Ref. 35388). Pelagic eggs (Ref. 4742).

#### Life cycle and mating behavior

[Maturity](#) | [Reproduction](#) | [Spawning](#) | [Eggs](#) | [Fecundity](#) | [Larvae](#)

Females change sex to males before 18 cm TL. Sex reversal is completed in several weeks up to 5.5 months (Ref. 34185, 34255, 35388). Also Ref. 103751.

#### IUCN Red List Status (Ref. 115185)

■ Least Concern (LC)

**CITES** (Ref. 115941)

Not Evaluated

**CMS** (Ref. 116361)

Not Evaluated

**Threat to humans**

■ Harmless

**Human uses**

Fisheries: minor commercial; gamefish: yes; aquarium: commercial

FAO(Publication : [search](#)) | [FishSource](#) | [Sea Around Us](#)

#### More information

Countries	Common names	Age/Size	References	Collaborators
<a href="#">FAO areas</a>	<a href="#">Synonyms</a>	<a href="#">Growth</a>	<a href="#">Aquaculture</a>	<a href="#">Pictures</a>
<a href="#">Ecosystems</a>	<a href="#">Metabolism</a>	<a href="#">Length-weight</a>	<a href="#">Aquaculture profile</a>	<a href="#">Stamps</a> , <a href="#">Coins</a> Misc.
<a href="#">Occurrences</a>	<a href="#">Predators</a>	<a href="#">Length-length</a>	<a href="#">Strains</a>	<a href="#">Sounds</a>
<a href="#">Introductions</a>	<a href="#">Ecotoxicology</a>	<a href="#">Length-frequencies</a>	<a href="#">Genetics</a>	<a href="#">Ciguatera</a>
<a href="#">Stocks</a>	<a href="#">Reproduction</a>	<a href="#">Morphometrics</a>	<a href="#">Allele frequencies</a>	<a href="#">Speed</a>
<a href="#">Ecology</a>	<a href="#">Maturity</a>	<a href="#">Morphology</a>	<a href="#">Heritability</a>	<a href="#">Swim. type</a>
<a href="#">Diet</a>	<a href="#">Spawning</a>	<a href="#">Larvae</a>	<a href="#">Diseases</a>	<a href="#">Gill area</a>
<a href="#">Food items</a>	<a href="#">Fecundity</a>	<a href="#">Larval dynamics</a>	<a href="#">Processing</a>	<a href="#">Otoliths</a>
<a href="#">Food consumption</a>	<a href="#">Eggs</a>	<a href="#">Recruitment</a>	<a href="#">Mass conversion</a>	<a href="#">Brains</a>
<a href="#">Ration</a>	<a href="#">Egg development</a>	<a href="#">Abundance</a>	<a href="#">Vision</a>	

#### Tools

[Bio-Quiz](#) | [E-book](#) | [Field guide](#) | [Identification keys](#) | [Length-frequency wizard](#) | [Life-history tool](#) | [Point map](#) | [Classification Tree](#) | [Catch-MSY](#) |

#### Special reports

[Check for Aquarium maintenance](#) | [Check for Species Fact Sheets](#) | [Check for Aquaculture Fact Sheets](#)

#### Download XML

[Summary page](#) | [Point data](#) | [Common names](#) | [Photos](#)

#### Internet sources

[Aquatic Commons](#) | [BHL](#) | [Cloffa](#) | [Websites from users](#) | [Check FishWatcher](#) | [CISTI](#) | [Catalog of Fishes \(gen., sp.\)](#) | [DiscoverLife](#) | [DORIS](#) | [ECOTOX](#) | [Faunafri](#) | [Fishtrace](#) | [GenBank\(genome, nucleotide\)](#) | [GloBI](#) | [GOBASE](#) | [Google Books](#) | [Google Scholar](#) | [Google](#) | [IGFA World Record](#) | [MitoFish](#) | [National databases](#) | [Otolith Atlas of Taiwan Fishes](#) | [Public aquariums](#) | [PubMed](#) | [Reef Life Survey](#) | [Scirus](#) | [SeaLifeBase](#) | [Tree of Life](#) | [Wikipedia \(Go, Search\)](#) | [World Records Freshwater Fishing](#) | [Zoological Record](#)

#### Estimates of some properties based on models

Preferred temperature (Ref. 115969): 13.3 - 27.7, mean 19 (based on 636 cells).

Phylogenetic diversity index (Ref. 82805): PD<sub>50</sub> = 0.5000 [Uniqueness, from 0.5 = low to 2.0 = high].

Bayesian length-weight: a=0.00933 (0.00775 - 0.01124), b=3.06 (3.01 - 3.11), in cm Total Length, based on LWR estimates for this species (Ref. 93245).

Trophic Level (Ref. 69278): 3.4 ±0.1 se; Based on diet studies.

Resilience (Ref. 69278): Medium, minimum population doubling time 1.4 - 4.4 years (K=0.11; tm=1).

Prior r = 0.99, 2 SD range = 0.7 - 1.41, log(r) = -0.01, SD log(r) = 0.17, Based on: 1 K, 1 tgen, 2 tmax, records

Vulnerability (Ref. 59153): Moderate vulnerability (39 of 100).

Price category (Ref. 80766): Very high.

Entered by [Luna, Susan M.](#)

Modified by [Ortañez, Auda Kareen](#)



# Epinephelus marginatus (Lowe, 1834) Dusky grouper

Upload your photos and videos  
Pictures | Stamps, Coins Misc. | Google image



Epinephelus marginatus  
Picture by Randall, J.E.

Add your observation in Fish Watcher  
Native range | All suitable habitat | Point map | Year 2100



Reviewed map  
Epinephelus marginatus AquaMaps Data sources: GBIF OBIS  
Catalog of Fishes (gen., sp.) | ITIS | CoL | WoRMS | Cioffa

## Classification / Names

Actinopterygii (ray-finned fishes) > Perciformes (Perch-like) > Serranidae (Sea basses: groupers and fairy basslets) > Epinephelinae  
Etymology: *Epinephelus*: Greek, epinephelos = cloudy (Ref. 45335).

## Environment / Climate / Range

Marine; reef-associated; depth range 8 - 300 m (Ref. 27000), usually ? - 50 m (Ref. 5222). Subtropical; 54°N - 43°S, 65°W - 58°E (Ref. 5222)

## Distribution

East and Southwest Atlantic and Western Indian Ocean: East Atlantic: throughout the Mediterranean Sea, and from the southern Bay of Biscay to southern tip of Africa. Stray specimens reported from the British Isles, and eastern English Channel (Normandy, France; Ref. 92236). Southwest Atlantic: southeastern Brazil, Uruguay, and Argentina. Western Indian Ocean: from tip of Africa to southern Mozambique and southern Madagascar. Reported from Oman and La Reunion I.

## Length at first maturity / Size / Weight / Age

Maturity: L<sub>m</sub> 49.2, range 37 - 54 cm  
Max length : 150 cm TL male/unsexed; (Ref. 12382); max. published weight: 60.0 kg (Ref. 5222); max. reported age: 60 years (Ref. 94520)

## Short description

Dorsal spines (total): 11; Dorsal soft rays (total): 14-16; Anal spines: 3; Anal soft rays: 8 - 9. Diagnosis: head and body dark reddish brown or greyish dorsally, usually yellowish gold ventrally; irregular white, pale greenish yellow or silvery grey blotches usually visible on the body and head and mostly arranged in vertical series; more or less distinct black maxillary streak; dark brown median fins; distal edge of anal and caudal fins, often also pectoral fins, narrowly white; pelvic fins blackish distally; pectoral fins dark reddish brown or grey; margin of spinous dorsal fin and basal part of the paired fins often golden yellow; head length 2.3-2.5 in SL; convex interorbital area; rounded preopercle, finely serrate, serrae at angle slightly enlarged; smooth subopercle and interopercle; eye diameter greater than or subequal to interorbital width in fish 10-30 cm SL, less than interorbital in fish over 40 cm SL; posterior and anterior nostrils subequal or posterior nostril slightly larger; maxilla naked, reaching to or slightly past vertical at rear edge of eye; 2-4 rows of subequal teeth on midlateral part of lower jaw (Ref. 89707).

## Biology

Adults prefer rocky bottoms (Ref. 5222), are solitary and territorial (Ref. 12382). Juveniles are found closer to shore (Ref. 48605) in rocky tidal pools (Ref. 48609). Enters brackish environments (Ref. 57293). Mainly feed on crabs and octopi; larger individuals feed on a greater proportion of fishes, the majority of which are reef-associated species (Ref. 6842). A protogynous hermaphrodite (Ref. 55367). Mature individuals form spawning aggregations (Ref. 55367). Utilized as a food fish (Ref. 171). Readily caught by anglers (Ref. 5222). Not adapted well in an aquarium (Ref. 12382).

## Life cycle and mating behavior

A monandric species (Ref. 55367). In Europe, sex reversal occurs when females are about 14-17 years of age and between 80 to 90 cm TL (Ref. 51466). From another study, sex change occurs at 88 cm TL and 12 years of age (Ref. 55367), between 52-77 cm TL and 7-17 years (Ref. 94520). Protogynous hermaphrodite species, reaching its first sexual maturity as female at 5 years and becoming male after 10 years (some females remain so for some more years). Spawning happens during summer.

## Main reference

Heemstra, P.C. and J.E. Randall, 1993. FAO Species Catalogue. Vol. 16. Groupers of the world (family Serranidae, subfamily Epinephelinae). An annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. Rome: FAO. FAO Fish. Synop. 125(16):382 p. (Ref. 5222)

## IUCN Red List Status (Ref. 115185)

Endangered (EN) (A2d), IUCN Grouper and Wrasse Specialist Group  
CITES (Ref. 115941)

Not Evaluated  
CMS (Ref. 116361)

Not Evaluated  
Threat to humans

Harmless  
Human uses

Fisheries: highly commercial; gamefish: yes  
FAO (fisheries: production; publication : search) | FishSource | Sea Around Us

## More information

	Common names	Age/Size	References	Collaborators
Countries	Synonyms	Growth	Aquaculture	Pictures
FAO areas	Metabolism	Length-weight	Aquaculture profile	Stamps, Coins Misc.
Ecosystems	Predators	Length-length	Strains	Sounds
Occurrences	Ecotoxicology	Length-frequencies	Genetics	Ciguatera
Introductions	Reproduction	Morphometrics	Allele frequencies	Speed
Stocks	Maturity	Morphology	Heritability	Swim. type
Ecology	Spawning	Larvae	Diseases	Gill area
Diet	Fecundity	Larval dynamics	Processing	Otoliths
Food items	Eggs	Recruitment	Mass conversion	Brains
Food consumption	Egg development	Abundance	Vision	
Ration				

## Tools

Bio-Quiz | E-book | Field guide | Identification keys | Length-frequency wizard | Life-history tool | Point map | Classification Tree | Catch-MSY |

## Special reports

Check for Aquarium maintenance | Check for Species Fact Sheets | Check for Aquaculture Fact Sheets

## Download XML

Summary page | Point data | Common names | Photos

## Internet sources

Aquatic Commons | BHL | Cioffa | Websites from users | Check FishWatcher | CISTI | Catalog of Fishes (gen., sp.) | DiscoverLife | DORIS | ECOTOX | Faunafri | Fishtace | GenBank (genome, nucleotide) | GloBI | GOBASE | Google Books | Google Scholar | Google | IGFA World Record | MitoFish | National databases | Otolith Atlas of Taiwan Fishes | Public aquariums | PubMed | Reef Life Survey | Scirus | SeaLifeBase | Tree of Life | Wikipedia (Go, Search) | World Records Freshwater Fishing | Zoological Record

<http://www.fishbase.org/search.php>

Mirrors : [fishbase.org](http://fishbase.org) | [fishbase.us](http://fishbase.us) | [fishbase.de](http://fishbase.de) | [fishbase.se](http://fishbase.se) | [fishbase.tw](http://fishbase.tw) | [中國語](#) | [fishbase.ca](#)

English | [Español](#) | [Português \(Br, Pt\)](#) | [Français](#) | [Deutsch](#) | [Italiano](#) | [Nederlands](#) | [简体中文](#) | [繁體中文](#) | [日本語](#) | [More...](#)



(33900 Species, 323100 Common names, 58600 Pictures,  
54700 References, 2300 Collaborators, 700000  
Visits/Month)



FishBase consortium



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[FishWatcher](#) | [Ichthyology Course](#) | [LarvalBase](#) | [Team](#) | [Collaborators](#) | [Quick Identification](#) | [Services](#)

## Common Name

(e.g. rainbow trout)

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

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## Scientific Name

[Advanced Match](#)

Genus   (e.g. Rhincodon)

Species   (e.g. typus)  Random Species

Genus + Species  Sp. ID

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

[Why name assessments may be different](#) between FishBase and the independent [Catalog of Fishes](#) (Eschmeyer, 2014)

## Glossary

(e.g.oophagy)

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

### Information by Family

Family info.       Identification by pictures       References (FishBase)       Graphs  
 All fishes       List of pictures       Missing photos       Species Ecology Matrix  
 Nominal species       Identification keys       Stamps, Coins, Misc.

Note: Lists may be incomplete. Some lists may be very long and will take time to load

### Information by Country / Island

<b>Biodiversity</b>	<b>Uses</b>	<b>Tools</b>	<b>Miscellaneous</b>
<input type="radio"/> All fishes	<input type="radio"/> Commercial	<input type="radio"/> Identification by pictures	<input type="radio"/> Country info
<input type="radio"/> Freshwater	<input type="radio"/> Aquaculture	<input type="radio"/> Identification keys	<input type="radio"/> FAO profile
<input type="radio"/> Marine	<input type="radio"/> Aquarium trade	<input type="radio"/> Field guide	<input type="radio"/> ReefBase profile
<input type="radio"/> Introduced	<input type="radio"/> Invasiveness	<input type="radio"/> Occurrences	<input type="radio"/> Treaties & Conv.
<input type="radio"/> Endemic	<input type="radio"/> Game fishes	<input type="radio"/> References	<input type="radio"/> Collaborators
<input type="radio"/> Threatened	<input type="radio"/> FAO aquaculture	<input type="radio"/> Missing data	<input type="radio"/> Stamps, Coins, Misc.
<input type="radio"/> Dangerous	<input type="radio"/> FAO catches	<input type="radio"/> Missing photos	<input type="radio"/> Common names
<input type="radio"/> Reef-associated	<input type="radio"/> ICES catch	<input type="radio"/> Ecopath parameter	<input type="radio"/> Public aquariums
<input type="radio"/> Pelagic	<input type="radio"/> Sea Around Us catch	<input type="radio"/> Species Ecology Matrix	<input type="radio"/> MPA database
<input type="radio"/> Deep-water	<input type="radio"/> Fish Loss	<input type="radio"/> Checklist (extended)	<input type="radio"/> Spawning aggregation
		<input type="radio"/> by Large Marine Ecosystem	

Note: Lists may be incomplete. Some lists may be very long and will take time to load

Note: A new dropdown list will appear if a country has a sub-country (ex. Canada, USA, etc.)

### Information by Ecosystem

<b>Biodiversity</b>	<b>Tools</b>	<b>Miscellaneous</b>
<input type="radio"/> All fishes	<input type="radio"/> Trophic pyramids	<input type="radio"/> Ecosystem info
<input type="radio"/> Deep-water	<input type="radio"/> Species Ecology Matrix	
<input type="radio"/> Point data	<input type="radio"/> Ecopath parameters	
	<input type="radio"/> Identification by pictures	
	<input type="radio"/> Identification keys	
	<input type="radio"/> Resilience of fishes	

Note: Lists may be incomplete. Some lists may be very long and will take time to load

### Regional Interfaces

FishBase for Americas       FishBase for the Red Sea  
 FishBase for Africa (Search)       FishBase for HighARCS  
 FishBase for Africa (Home)       FishBase for Europe

Note: Tools without radio button are available from the Species Summary page.

## Information by Topic

### Trophic ecology

- Diet
- Food items
- Food consumption
- Ration
- Predators

### Physiology/Behavior

- Metabolism
- Gill area
- Brains
- Vision
- Fish sounds
- Swim. speed

### Life history

- Growth
- L-W relationship
- Length frequencies
- Recruitment
- Reproduction
- Maturity
- Spawning
- Fecundity
- Eggs
- Egg dev.
- Larvae
- Larval dynamics
- Abundance

### Uses

- Aquaculture
- Aquaculture profiles
- Introductions
- Diseases
- Ciguatera
- Processing
- Ecotoxicology
- Genetics
- Allele frequencies
- Heritability
- Otoliths
- Mass conversion

### Miscellaneous

- Treaties & Conv.
- CITES
- CMS
- National databases
- Names by Language
- Collaborators
- Public aquariums
- Expeditions
- Video
- Stamps, Coins, Misc.
- Uploaded photos online
- Editor messages

Note: Lists may be incomplete. Some lists may be very long and will take time to load

## Tools

- Quick Identification
- Identification keys
- Identification by morphometrics
- Adverse introductions
- Global introductions
- Invasiveness
- Species by ecosystem
- Graphs
- SeaFood Advisory
- Shifting Baselines WP2 - Online Toolset
- Preferred algae/plants of herbivorous fishes
- Match names
- Disease diagnosis
- My Fish Page
- Life-history tool
- L-F Analysis
- Information gaps
- Sea Around Us
- ISSCAAP Troph
- FAO aquaculture
- FAO catches
- Catch analysis
- ICES catch
- Catch-MSY
- Classification List
- Classification Tree
- Fish statistics
- World records
- Country codes
- Catalogue of Life
- Fish collections
- Collection History
- Trophic pyramids
- Ecopath parameters
- OSMOSE parameters
- Species in GoMexSi
- New species in FishBase
- New species in Welt der Fische
- New photos
- Web Stats
- Top 100
- Coastal Transects Analysis Model (CTAM)
- Mobile Apps
- rfishbase: R interface to FishBase
- AquaMaps

Note: Tools without radio button are available from the Species Summary page.

<http://www.fishbase.org/search.php>

## References

Author  (e.g. Randall)   
[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

Year

Title  (e.g. Gilbert Islands)

Source

RefNo  (e.g. 32 or 32, 123, 2700)

[Fish Journals](#) [ICES papers](#)

List of publications on fishes in [Zootaxa](#).

You can search references also in the independent [Catalog of Fishes](#).

## Associated Journal

Publish in our journal partner [Acta Ichthyologica et Piscatoria](#) the results of your primary research on fishes about growth, weight-length relationships, reproduction (maturity, fecundity, spawning), food and diet composition, introductions and range extensions for faster subsequent entry in (2016 impact factor: 0.670).

## Indexed Journal

[Cybium \(publisher: SFI, Société Française d'Ichtyologie\)](#)

For journal editors: Would you wish that your journal were indexed in FishBase, please contact our [librarian](#)

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Froese, R. and D. Pauly. Editors. 2018. FishBase.  
World Wide Web electronic publication.  
www.fishbase.org, version (02/2018).

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