

Status and management of California's freshwater fishes
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APPENDIX A. Freshwater fishes of California and their status using IUCN criteria (modified from Moyle et al. 2011 and Moyle et al. 2013) Status codes: EX- Extinct; CR- Critically Endangered; EN- Endangered; VU- Vulnerable; NT- Near threatened; LC- Least concern

NATIVE SPECIES	STATUS
Petromyzontidae	
Pacific lamprey, <i>Entosphenus tridentata</i>	NT
Goose Lake lamprey, <i>Entosphenus sp.</i>	VU
Klamath River lamprey, <i>E. similis</i>	NT
River lamprey, <i>Lampetra ayersi</i>	NT
Kern brook lamprey, <i>L. hubbsi</i>	VU
Western brook lamprey, <i>L. richardsoni</i>	NT
Pit-Klamath brook lamprey, <i>L. lethophaga</i>	NT
Acipenseridae	
Northern green sturgeon, <i>Acipenser medirostris</i>	VU
Southern green sturgeon, <i>A. medirostris</i>	EN
White sturgeon, <i>A. transmontanus</i>	VU
Cyprinidae	
Thicktail chub, <i>Siphatales crassicauda</i>	EX
Goose Lake tui chub, <i>S. t. thalassinus</i>	NT
Pit River tui chub, <i>S. thalassinus ssp.</i>	LC
Cow Head tui chub, <i>S. t. vaccaceps</i>	VU
Klamath tui chub, <i>S. b. bicolor</i>	LC
High Rock Springs tui chub, <i>S. b. ssp.</i>	EX
Lahontan Lake tui chub, <i>S. b. pectinifer</i>	VU
Lahontan stream tui chub, <i>S. b. obesus</i>	LC
Eagle Lake tui chub, <i>S. b. subsp.</i>	NT
Owens tui chub, <i>S. b. snyderi</i>	CR
Mojave tui chub, <i>S. mohavensis</i>	CR
Bonytail, <i>Gila elegans</i>	EX
Blue chub, <i>Gila coerulea</i>	NT
Arroyo chub, <i>Gila orcutti</i>	VU
Lahontan redbelly, <i>Richardsonius egregius</i>	LC
Sacramento hitch, <i>Lavinia e. exilicauda</i>	NT
Clear Lake hitch, <i>L. e. chi</i>	EN
Monterey hitch, <i>L. e. harengus</i>	VU
Central California roach, <i>L. s. symmetricus</i>	NT
Red Hills roach, <i>L. s. subsp.</i>	VU
Russian River roach, <i>L. s. ssp</i>	NT
Clear Lake roach, <i>L. s. ssp.</i>	NT
Monterey roach, <i>L. s. subditus</i>	NT
Navarro Roach, <i>L. s. navarroensis</i>	NT
Tomales Roach, <i>L. s. subspecies</i>	NT
Gualala roach, <i>L. parvipinnus</i>	NT
Northern Roach, <i>L. mitrulus</i>	VU

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Sacramento blackfish, <i>Orthodon microlepidotus</i>	LC
Sacramento splittail, <i>Pogonichthys macrolepidotus</i>	VU
Clear Lake splittail, <i>P. ciscoides</i>	EX
Hardhead, <i>Mylopharodon conocephalus</i>	NT
Sacramento pikeminnow, <i>Ptychocheilus grandis</i>	LC
Colorado pikeminnow, <i>P. lucius</i>	EX
Sacramento speckled dace, <i>Rhinichthys osculus ssp.</i>	LC
Lahontan speckled dace, <i>R. o. robustus</i>	LC
Klamath speckled dace, <i>R. o. klamathensis</i>	LC
Owens speckled dace, <i>R. o. subsp.</i>	CR
Long Valley speckled dace, <i>R. o. ssp.</i>	EN
Amargosa Canyon speckled dace, <i>R. o. nevadensis</i>	EN
Santa Ana speckled dace, <i>R. o. ssp.</i>	EN
Catostomidae	
Tahoe sucker, <i>Catostomus tahoensis</i>	LC
Owens sucker, <i>C. fumeiventris</i>	NT
Mountain sucker, <i>C. platyrhynchus</i>	NT
Sacramento sucker, <i>C. o. occidentalis</i>	LC
Goose Lake sucker, <i>C. o. lacusanserinus</i>	VU
Monterey sucker, <i>C. o. mnioltiltus</i>	LC
Humboldt sucker, <i>C. o. humboldtianus</i>	LC
Modoc sucker, <i>C. microps</i>	EN
Klamath smallscale sucker, <i>C. rimiculus</i>	LC
Klamath largescale sucker, <i>C. snyderi</i>	VU
Lost River sucker, <i>C. luxatus</i>	EN
Santa Ana sucker, <i>C. santaanae</i>	EN
Shortnose sucker, <i>Chasmistes brevirostris</i>	VU
Razorback sucker, <i>Xyrauchen texanus</i>	CR
Osmeridae	
Eulachon, <i>Thaleichthys pacificus</i>	EN
Longfin smelt, <i>Spirinchus thaleichthys</i>	VU
Delta smelt, <i>Hypomesus pacificus</i>	CR
Salmonidae	
Mountain whitefish, <i>Prosopium williamsoni</i>	NT
Bull trout, <i>Salvelinus confluentus</i>	EX
Upper Klamath-Trinity fall Chinook salmon, <i>Oncorhynchus tshawytscha</i>	VU
Upper Klamath-Trinity spring Chinook salmon, <i>O. tshawytscha</i>	EN
Southern Oregon Northern California coast fall Chinook salmon, <i>O. tshawytscha</i>	NT
California Coast fall Chinook salmon, <i>O. tshawytscha</i>	VU
Central Valley winter Chinook salmon, <i>O. tshawytscha</i>	VU
Central Valley spring Chinook salmon, <i>O. tshawytscha</i>	VU
Central Valley late fall Chinook salmon, <i>O. tshawytscha</i>	EN
Central Valley fall Chinook salmon, <i>O. tshawytscha</i>	VU
Central coast coho salmon, <i>O. kisutch</i>	CR
Southern Oregon Northern California coast coho salmon, <i>O. kisutch</i>	EN

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Pink salmon, <i>O. gorbuscha</i>	CR
Chum salmon, <i>O. keta</i>	EN
Northern California coast winter steelhead, <i>O. mykiss</i>	NT
Northern California coast summer steelhead, <i>O. mykiss</i>	EN
Klamath Mountains Province winter steelhead, <i>O. mykiss</i>	NT
Klamath Mountains Province summer steelhead, <i>O. mykiss</i>	EN
Central California coast winter steelhead, <i>O. mykiss</i>	VU
South Central California coast steelhead, <i>O. mykiss</i>	VU
Southern California steelhead, <i>O. mykiss</i>	EN
Coastal rainbow trout, <i>O. m. irideus</i>	LC
McCloud River redband trout, <i>O. m. stonei</i>	EN
Goose Lake redband trout, <i>O. m. subsp.</i>	NT
Eagle Lake rainbow trout, <i>O. m. aquilarum</i>	VU
Kern River rainbow trout, <i>O. m. gilberti</i>	EN
California golden trout, <i>O. m. aguabonita</i>	VU
Little Kern golden trout, <i>O. m. whitei</i>	VU
Coastal cutthroat trout, <i>O. clarki clarki</i>	NT
Paiute cutthroat trout, <i>O. c. seleneris</i>	EN
Lahontan cutthroat trout, <i>O. c. henshawi</i>	VU
Fundulidae	
California killifish, <i>Fundulus parvipinnis</i>	LC
Cyprinodontidae	
Desert pupfish, <i>Cyprinodon macularius</i>	CR
Owens pupfish, <i>C. radiosus</i>	EN
Saratoga Springs pupfish, <i>C. n. nevadensis</i>	VU
Amargosa River pupfish, <i>C. n. amargosae</i>	VU
Tecopa pupfish, <i>C. n. calidae</i>	EX
Shoshone pupfish, <i>C. n. shoshone</i>	CR
Salt Creek pupfish, <i>C. s. salinus</i>	VU
Cottonball Marsh pupfish, <i>C. s. milleri</i>	VU
Cottidae	
Rough sculpin, <i>Cottus asperimus</i>	NT
Bigeye marbled sculpin, <i>C. klamathensis macrops</i>	VU
Lower Klamath marbled sculpin, <i>C.k. polyporus</i>	NT
Upper Klamath marbled sculpin, <i>C. k. klamathensis</i>	NT
Coastal Prickly sculpin, <i>C. asper ssp.</i>	LC
Clear Lake prickly sculpin, <i>C. a. ssp.</i>	NT
Coastrange sculpin, <i>C. aleuticus</i>	LC
Riffle sculpin, <i>C. gulosus</i>	NT
Pit sculpin, <i>C. pitensis</i>	LC
Paiute sculpin, <i>C. beldingi</i>	LC
Reticulate sculpin, <i>C. perplexus</i>	NT
Staghorn sculpin, <i>Leptocottus armatus</i>	LC*
Gasterosteidae	
Coastal threespine stickleback, <i>Gasterosteus a. aculeatus</i>	LC
Inland threespine stickleback, <i>G. a. microcephalus</i>	LC

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Unarmored threespine stickleback, <i>G. a. williamsoni</i>	EN
Shay Creek stickleback, <i>G. a. ssp.</i>	CR
Centrarchidae	
Sacramento perch, <i>Archoplites interruptus</i>	EN
Embiotocidae	
Sacramento tule perch, <i>Hysterocarpus t. traski</i>	NT
Russian River tule perch, <i>H. t. pomo</i>	NT
Clear Lake tule perch, <i>H. t. lagunae</i>	NT
Gobiidae	
Tidewater Goby <i>Eucyclogobius newberryi</i>	VU

ALIEN SPECIES**

Clupeidae

American shad, *Alosa sapidissima*
Threadfin shad, *Dorosoma cepedianum*

Cyprinidae

Fathead minnow, *Pimephales promelas*
Golden shiner, *Notemigonus chrysoleucas*
Red shiner, *Cyprinella lutrensis*
Goldfish, *Carassius auratus*
Common carp, *Cyprinus carpio*

Ictaluridae

Channel catfish, *Ictalurus punctatus*
Blue catfish, *I. furcatus*
White catfish, *Ameiurus catus*
Brown bullhead, *A. nebulosus*
Black bullhead, *A. melas*
Yellow bullhead, *A. natalis*
Flathead catfish, *Pylodictus olivaris*

Salmonidae

Brook trout, *Salvelinus fontinalis*
Lake trout, *S. namaycush*
Brown trout, *Salmo trutta*
Kokanee, *Oncorhynchus nerka*
Colorado cutthroat trout, *O. clarki pleuriticus*

Atherinopsidae

Mississippi silverside, *Menidia audens*

Poeciliidae

Western mosquito fish, *Gambusia affinis*
Sailfin molly, *Molliensia latipinnis*
Porthole livebearer, *Poeciliopsis gracilis*

Fundulidae

Rainwater killifish, *Lucania parva*

Moronidae

Striped bass, *Morone saxatilis*
White bass, *M. chrysops*

Percidae

Yellow perch, *Perca flavescens*
Bigscale logperch, *Percina macrolepida*

Centrarchidae

Green sunfish, *Lepomis cyanellus*
Redear sunfish, *L. microlophus*

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Bluegill, *L. macrochirus*
Pumpkinseed, *L. gibbosus*
Warmouth, *L. gulosus*
Black crappie, *Pomoxis nigromaculatus*
White crappie, *P. annularis*
Smallmouth bass, *Micropterus dolomieu*
Largemouth bass, *M. salmoides*
Spotted bass, *M. punctulatus*
Redeye bass, *M. coosae*

Cichlidae

California tilapia, *Oreochromis sp.*
Redbelly tilapia, *Tilapia zillii*

Gobiidae

Yellowfin goby, *Acanthogobius flavimanus*
Shimofuri goby, *Tridentiger bifasciatus*

*estuarine species not included in Moyle *et al.* 2011

**most alien species are common in CA