Southern Sailfin Catfish in the San Joaquin River, Stanislaus County, California: new record

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RESEARCH NOTE

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Pterygoplichthys ambrosettii (Holmberg 1893), referred to as the Southern Sailfin Catfish, belongs to the family Loricariidae (Siluriformes), and is a benthically-associated armored catfish species native to the Paraguay, Parana, Bermejo, and Uruguay river basins of South America. The U.S. Fish and Wildlife Service describes the history of invasiveness as high for members of this genus, with economic impacts related to fouling commercial fishing gear and riverbed destabilization, and ecological impacts such as disruption to aquatic food chains and nutrient cycling (USFWS 2018), with a *moderate* climate match in much of California (Sanders et al. 2014). Records for the continental United States include localities in North Carolina, South Carolina (Nico et al. 2024), and Louisiana, with other *Pterygoplichthys* spp. recorded in Texas, Colorado, Nevada (Orfinger and Gooding 2018), and Florida (Nico et al. 2012).

During fisheries monitoring activities for the San Joaquin River Restoration Program (SJRRP; Bureau of Reclamation, Region 10 California Great Basin) on 24 March 2024, we captured a single Southern Sailfin Catfish (Total Length: 406 mm; **Fig. 1**) on the mainstem San Joaquin River (SJR), California, within the boundaries of the SJRRP Restoration Area (from Merced River confluence to Friant Dam. The individual was incidentally captured in a fyke trap that was targeting salmonids (Root and Sutphin 2021). The trapping location was SJR river kilometer 190.7, approximately 300 m upstream of the SJR confluence with the Merced River (37.347065, –120.976280) in the vicinity of Hills Ferry, California. The captured individual was initially identified to genus using commonly accepted morphological characteristics (Salvador et al. 2024; Armbruster and Page 2006). However, loricariid suckermouth catfishes constitute the most diverse family of catfishes and the fifth most species-rich vertebrate family on Earth (Roxo et al. 2019), and that identifying individuals in this genus with morphometrics can be difficult (Hoover et al. 2004). We verified species identification by DNA sequencing and phylogenetic analysis of the *COI* gene conducted by the Bureau of Reclamation Ecological Research Laboratory and filed with the Barcode of Life Data System database (IDSJRPA001-24; https://portal.boldsystems.org/record/SJRPA001-24) and GenBank (PQ521447; **https://www.ncbi.nlm.nih.gov/nuccore/PQ521447**). We checked the individual with a passive integrated transponder (PIT) reader to determine if the individual was previously tagged and none was found. The individual was PIT tagged and released upstream of the trapping location on 24 March 2024 and was re-captured and collected at the same location on 24 May 2024, frozen, and transferred to the Natural History Museum of Los Angeles County (LACM 61833).

Figure 1. Southern Sailfin Catfish incidentally captured while conducting fisheries monitoring in the

mainstem San Joaquin River, CA, USA approximately 300 m upstream of the Merced River confluence. This finding represents the first confirmed record of a Southern Sailfin Catfish in the San Joaquin River, and to our knowledge the first confirmed record of *P. ambrosettii* in California (Record searches: Arctos: **https://arctos.database.museum/search.cfm**, October 2024; VertNet **http://portal.vertnet.org/search**, October 2024). Other documented locations for *Pterygoplichthys spp.* (2) in California are from the Los Angeles River (USGS 2017; LACM Fish 56698-4; LACM Fish 56698-6). There are numerous unconfirmed accounts of loricariid individuals in California (iNaturalist; **https://www.inaturalist.org/observations?taxon_id=85876**) however identification to genus is unconfirmed. This individual has been reported to the U.S. Geological Survey Nonindigenous Aquatic Species (NAS) Program (OMB Control Number:1028-0098).

Aside from well-documented ecological impacts of Southern Sailfin Catfish (see Orfinger and Goodding 2018), their proclivity for burrowing has contributed to siltation problems, bank erosion, and bank instability (Nico et al. 2009; Salvador et al. 2024). These potential impacts make this species detection especially concerning for water managers within the San Joaquin River drainage given the extensive use of earthen levees and adjacent land subsidence. This species detection highlights the importance of restoration planning efforts to include biological changes in conjunction with physical changes (Portz and Tyus 2004), particularly with species capable of ecosystem modification (Witmer et al. 2012).

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