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NOTES ON GEOGRAPHIC DISTRIBUTION

First records of the Indo-Pacific *Platax teira* (Forsskål, 1775), Longfin Batfish (Perciformes, Ephippidae), in the Tropical Eastern Pacific

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Abstract. *Platax teira* (Forsskål, 1775) is distributed in the Indo-West Pacific and with records in other regions, such as from Japan, Australia, New Zealand, the Mediterranean Sea, and the Persian Gulf. Several specimens have been recorded alive in the Mexican Pacific waters, in Bahía de Banderas and Cabo Pulmo, at the entrance of the Gulf of California. Its presence could be due to an aquarium release and raises concern about the potential invasiveness of this species in the Tropical Eastern Pacific.

Key words. New record, marine, Gulf of California, México, North America

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INTRODUCTION

The family Ephippidae Bleeker, 1859 includes marine and brackish-water fishes commonly known as batfishes (Nelson et al. 2016; Froese and Pauly 2024). This family comprises 15 species in eight genera, including spadefishes and scats (WoRMS 2025). Within this group, the genus *Platax* consists of five species, all naturally distributed in the Indian and Pacific oceans, although some species, particularly *Platax orbicularis* (Forsskål, 1775), have been recorded in other regions (Heemstra 2001; WoRMS 2025).

Platax teira (Forsskål, 1775), Longfin Batfish, is primarily distributed throughout the Tropical waters of the Indo-West Pacific, from the Red Sea and East Africa to Papua New Guinea and extending north to the Ryukyu Islands (Japan), and south to Australia (Figure 1; Froese and Pauly 2024). Additionally, records exist from the Bay of Islands, New Zealand (Francis et al. 1999), the Persian Gulf (Carpenter et al. 1997), and the Mediterranean Sea (Turkey) (Bilecenoglu and Kaya 2006). The preferred temperature of this species is between 24.6 and 28.9 °C, with a mean of 28.2 °C (Froese and Pauly 2024).

Batfishes are characterized by their dorsoventrally elongated and large fins during their juvenile stages, which later transform into a highly compressed, disc-shaped body in adulthood. Juveniles typically inhabit sheltered environments such as reefs and mangroves, while adults may be found both in these areas and in deeper offshore waters, either in groups or individually (Robertson and Allen 2024). Large adult batfishes inhabit sheltered bays and deep offshore waters. They are commonly found around shipwrecks, often in small groups, though they occasionally form large schools. Small juveniles associate with floating debris and tend to aggregate as they encounter one another (Froese and Pauly 2024). They can remain pelagic as they grow, sometimes forming schools beneath large *Sargassum* rafts, which typically appear after the wet season (Kuiter and Tonozuka 2001). Juveniles inhabit shallow, protected inner reefs, while adults are found in lagoon and seaward reefs at depths of 20 m or more (Froese and Pauly 2024). Though edible, they are not highly regarded and are not considered an important game fish (van der Elst 1993).

Platax teira has not been previously recorded in the Mexican Pacific (Espinosa-Pérez 2014), where 1121 marine fish species have been documented, nor in the Eastern Tropical Pacific (ETP) (Robertson and Allen 2024). Given its absence from these records, the recent observations of *P. teira* in the region raise concerns regarding its potential establishment as a non-native or invasive species.

This study aims to document the first confirmed records of *P. teira* in the ETP, based on multiple observations in the Gulf of California, Mexico.

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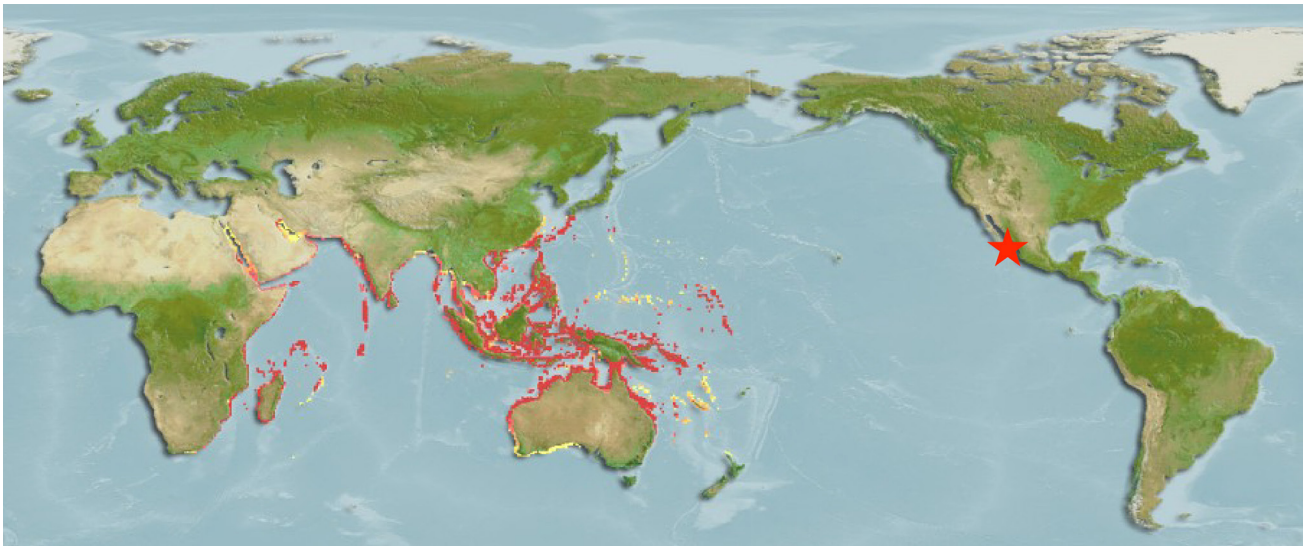

Figure 1. Global distribution of *Platax teira*, mainly in the Indo Pacific Ocean. Red star in the Mexican Pacific corresponds to the new records in the Gulf of California reported in this contribution. Modified from AquaMaps (2025).

METHODS

Observations were conducted at three sites: one at the southern tip of the Baja California Peninsula and two in Bahía de Banderas, all located at the entrance of the Gulf of California, Mexican Pacific, where multiple oceanographic currents converge (Figure 2).

The California Current and the Gulf of California Current flow southward, while the Mexican Coastal Current (or Costa Rica Current) moves northward, creating a dynamic oceanographic system (Pantoja et al. 2012). Water temperatures in the region average 27°C, with seasonal variations ranging from 16 °C to 34 °C. The Mexican Pacific experiences mixed tides with a semi-diurnal tendency, with amplitudes reaching 120 cm in Puerto Vallarta and 150 cm in Cabo Pulmo (SMN 2025).

In Bahía de Banderas, fish were observed at two sites (Figure 2): La Cruz de Huanacaxtle (Nayarit), a small fishing village with a 700-m-long artificial breakwater, constructed between 2009 and 2012. The breakwater consists of large granite rocks and concrete structures over 2 m high. The rocky area reaches a maximum depth of 5 m, transitioning into a sandy bottom. The second site was Marietas Islands National Park (Nayarit), a National Marine Park comprising two large islands and several islets. The seabed consists of rocks, sand, and coral formations, with depths reaching 25 m, where a sandy bottom begins.

The third observation site, Cabo Pulmo National Park (Baja California Sur), is located at the southern tip of the Baja California Peninsula (Figure 2). This protected marine area has one of the highest coral coverages in the Gulf of California, supported by strict conservation efforts. The substrate consists of rock formations, sand, and reef structures.

Observations were made by SCUBA diving or snorkel gear. Specimens were identified following Heemstra (2001) and Robertson and Allen (2024).

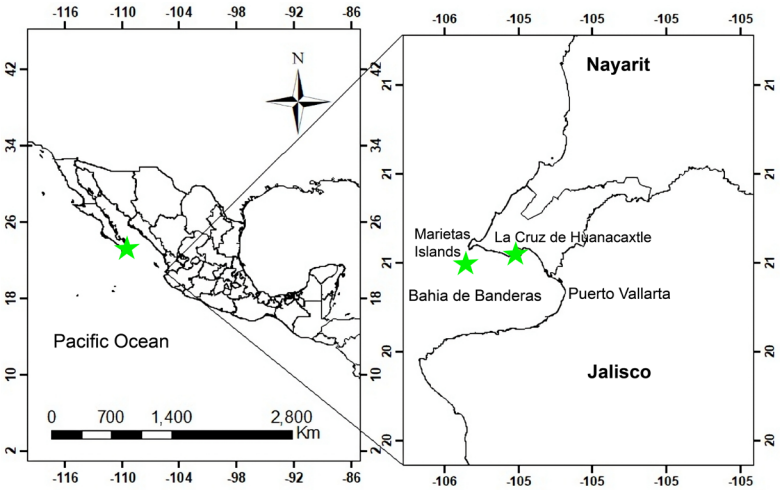

Figure 2. Map of Mexico, showing observations of *Platax teira* in the Mexican Pacific (left), star show Cabo Pulmo site, at the tip of the Baja California peninsula. On the right, sites of the observations of *Platax teira* in Bahía de Banderas: Marietas Islands (left star) and La Cruz de Huanacaxtle (right star).

RESULTS

Platax teira (Forsskål, 1775)

New records. MEXICO — Nayarit • La Cruz de Huanacaxtle; 20°44′25″N, 105°22′21″W; 3 m depth; 28 °C water temp.; 09.XI.2024, Medina-Rosas P. obs; 1 spec. • Same locality; 24 °C water temp.; 05.XII.2024; Velasco A. obs.; 2 spec. • Marietas Islands; 20°41′50″N, 105°34′56″W; 3 m depth; 24 °C water temp.; 9–12.XII.2024 and 30.XII.2024, Moreno-Lopez JA. obs., 1 spec.

One observation on 9 November 2024 (Figure 3A, Supplementary file Video S1) and two observations on 5 December 2024 (Figure 3B, Supplementary file Video S2) in La Cruz de Huanacaxtle are likely the same individual that was observed the previous month. Both observations were made in the marina of La Cruz during survey SCUBA dives. Fish were swimming calmingly around the rocky bottom.

One specimen observed multiple days on 9–12 and 30 Dec. 2024 in the Marietas Islands. The same fish (Figure 3C) was swimming around the line of the buoy near the Cueva del muerto site, east side of Isla Larga, where it interacted with other fish species, including Sea Chub *Kyphosus elegans* (Peters, 1869) (Figure 3C), and feeding on the algae attached to the line near the surface. Observations were made using snorkel gear from the surface.

MEXICO — Baja California Sur • Cabo Pulmo, at El Islote; 23°24′21″N, 109°14′49″W; 18 m depth; 20 °C water temp.; 11.XII.2023, Webster P. obs., 1 spec.

The specimen (Figure 3D, Supplementary file Video S3) was observed on 11 December 2023 on the southwest side of the island of El Islote, at a Barberfish *Johnrandallia nigrirostris* (Gill, 1862) cleaning station, where it was being pecked at by a barberfish and a female Hogfish *Bodianus diplotaenia* (Gill, 1862). This observation was made during a SCUBA diving survey and subsequently reported in the iNaturalist database (iNaturalist 2023).

No measurements were taken during the observations. However, based on the sizes of other fish commonly inhabiting the region and available reference points in the environment (such as the buoy line), the specimens were estimated to measure at least 30 cm. The maximum length of *P. teira* is 70 cm (Froese and Pauly 2024; Robertson and Allen 2024).

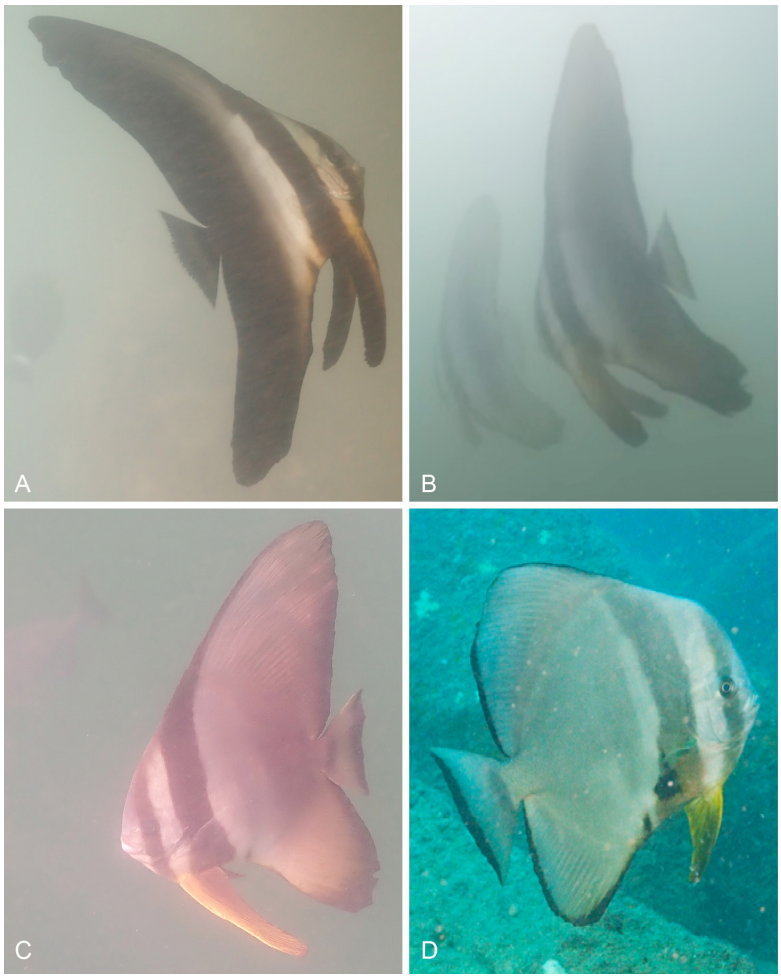

Figure 3. *Platax teira* observed in the Mexican Pacific. **A.** Juvenile individual at La Cruz de Huanacaxtle, Nayarit, Mexico. **B.** Two juvenile individuals at La Cruz de Huanacaxtle, Nayarit, Mexico. Courtesy of Arturo Velasco. Videoframe obtained from Supplementary Video S2. **C.** Juvenile individual at Marietas Islands, Nayarit, Mexico. **D.** Adult individual observed at Cabo Pulmo, Baja California Sur, México. Courtesy of Pat Webster. Videoframe obtained from Supplementary Video S3.

Identification. The morphological traits of *Platax teira*, including its compressed body shape, distinctive coloration, elongated fins in juveniles, and specific fin structure, allow one to differentiate batfishes. *Platax teira* and *P. orbicularis* were originally distributed in the Indo-Pacific, but *P. orbicularis* is now also known from off the coast of Florida, USA, the region closest to the new records of *P. teira*. While they share morphological similarities, they exhibit differences that help differentiate them. One of the most noticeable differences between these species is their body shape. *Platax teira* has a more elongated and less circular body, whereas *P. orbicularis* appears rounder and more elongated (mouth to tail). Juveniles of *P. teira* have a characteristic dark blotch below the pectoral fin, which is absent in juvenile *P. orbicularis*. The dark blotch under the pectoral fin is more prominent in the adult stage. Instead, the juveniles of *P. orbicularis* display irregular dark bands across their body. The most important difference is the coloration; they are very distinct, more yellowish to reddish brown and resemble drifting leaves in *P. teira*. Additionally, adults of *P. teira* are silvery with a prominent black band running through the eye and another marking along the edge of the dorsal fin. *Platax orbicularis* also has a silvery-gray appearance but with fainter markings and a less defined dark band through the eye. Moreover, the dorsal and anal fins of *P. teira* are longer, giving the species a more stretched appearance compared to *P. orbicularis*, whose fins are shorter and more rounded. Another distinguishing factor between these species is their maximum size. *Platax teira* can grow up to 70 cm, making it larger than *P. orbicularis*, which usually reaches around 50 cm in total length (Myers 1991; Heemstra 2001; Allen and Erdmann 2012; Robertson and Allen 2024).

While *P. teira* and *P. orbicularis* share a close taxonomic relationship, their differences in body shape, fin structure, coloration, habitat preferences, behavior, and size make it possible to distinguish them in the wild.

DISCUSSION

There have been multiple observations of *Platax teira* along the Mexican coast, particularly in Bahía de Banderas, during the past year. This raises concerns about the potential for this species to become established, although no significant ecological damage has yet been reported. Given the life cycle and morphological characteristics of *P. teira*, the individuals observed in Nayarit are likely juveniles, as indicated by the size and shape of their fins, while the specimen found in Cabo Pulmo was an adult. *Platax teira* is known to have a lifespan of up to 18 years (Froese and Pauly 2024).

Despite its presence in these areas, *P. teira* is not commercially targeted (van der Elst 1993), and it has been assessed as Least Concern by the International Union for Conservation of Nature (IUCN) (Carpenter and Robertson 2019). However, the species has been introduced in other parts of the world, primarily through the aquarium trade (Heemstra 2001). For example, reports indicate its occurrence in the Mediterranean Sea, where it is considered an introduced species (Bilecenoglu and Kaya 2006; Giovos et al. 2020). Similarly, *Chaetodipterus faber* (Broussonet, 1782) (Spadefish), also belonging to the family Ephippidae, is present in the Mediterranean, where it has been attributed to aquarium releases (Giovos et al. 2020). No ecological effects have been reported for these species in both studies, but only one specimen was recorded.

In Mexico, the occurrence of non-native fish species is well documented. The recent sighting of *Pomacanthus maculosus* (Forsskål, 1775) (Yellowbar King Angelfish) in Bahía de Banderas (Zavala-Jimenez 2022) is another example of species likely introduced via aquarium releases. Furthermore, previous studies of marine fish diversity in Mexico have not accounted for *Platax* species (Espinosa-Pérez and Ramírez 2015; Mendoza-Alfaro et al. 2023). While studies on invasive fishes in Mexico have largely overlooked *P. teira*, there have been reports of *P. orbicularis* as a potential invasive species in the Gulf of Mexico (de León-González et al. 2021). Although the impacts of *P. orbicularis* in Florida remain unknown, the absence of data on invasive species does not preclude the possibility of ecological consequences (Morris and Schofield 2025). A species invasiveness score (SIS) for *P. orbicularis* in the Gulf of Mexico has been calculated, resulting in a relatively low risk of invasion (SIS = 25/100), based on its impact potential, geographic spread, and introduction pathways (Mendoza-Alfaro et al. 2014). No similar SIS has been calculated for *P. teira* in the Eastern Tropical Pacific or the Mexican Pacific, but given this species' scattered presence in multiple sites across the region, continued monitoring is necessary to track its spread. To date, *P. teira* has not been included in the list of the 100 most harmful invasive species in Mexico (Aguirre-Muñoz and Mendoza-Alfaro 2009), though its invasive potential warrants further attention.

Interestingly, the sites where *P. teira* has been observed include both marine protected areas (MPAs) and artificial habitats. Cabo Pulmo and the Marietas Islands are National Marine Parks, while La Cruz de Huanacaxtle is a fishing town, all located at the entrance to the Gulf of California in the Mexican Pacific. These areas share similar ecological characteristics, with rocky and sandy bottoms, making them suitable habitats for *P. teira*. While there is currently no evidence to suggest that this species poses a direct threat to local biodiversity, its presence in MPAs raises concerns about its potential impact, should it establish a more permanent population. Monitoring and management strategies will be crucial in mitigating any future ecological risks associated with this species, particularly within protected areas.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions

Conceptualization: PMR. Data curation: PMR. Funding acquisition: PMR. Investigation: PMR. Methodology: PMR. Resources: PMR, JAML. Supervision: PMR. Visualization: PMR. Validation: PMR. Writing – original draft: PMR, JAML. Writing – review and editing: PMR.

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Data availability

All data that support the findings of this study are available in the main text and Supplementary materials.

Supplementary files

Video S1. *Platax teira* recorded at La Cruz de Huanacaxtle on 9 Nov. 2024.
Video S2. *Platax teira* recorded at La Cruz de Huanacaxtle on 5 Dec. 2024. Two specimens. Courtesy of Arturo Velasco.
Video S3. *Platax teira* recorded at Cabo Pulmo on 11 Dec. 2023. Courtesy of Patrick Webster.

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