State of California
Department of Fish and Wildlife

Memorandum

Date: December 9, 2024

To: Erin Chappell
Regional Manager
Bay Delta Region

From: Margaret Johnson
Environmental Scientist
Bay Delta Region

Subject: 2024 Summer Townet Survey Age-0 Striped Bass Abundance Index

The annual California Department of Fish and Wildlife Summer Townet Survey (STN) abundance index for age-0 Striped Bass (*Morone saxatilis*) in 2024 is 0.7. This marks a two-fold decrease since 2023 in which the index was 1.4 (Figure 1).

The STN sampling period consists of six biweekly surveys, beginning in mid-June and ending in late August. During each survey, young pelagic fishes are sampled from 40 fixed stations, which consist of 31 index stations and nine supplemental non-index stations (Figure 2). These sampling stations are located in the upper San Francisco Estuary, from eastern San Pablo Bay upstream through to the Sacramento Deep Water Ship Channel (SDWSC) and to Stockton on the lower San Joaquin River. The STN age-0 Striped Bass annual index is calculated from the two survey indices bracketing the date when the Striped Bass reach or surpass a mean fork length of 38.1 mm. At index stations, Striped Bass reached mean fork lengths of 25.4 mm during Survey 3 (July 1-5) and 39.0 mm during Survey 4 (July 15-19). Therefore, the 2024 index was calculated using data from Surveys 3 and 4. This year, we estimated that Striped Bass reached a mean length of 38.1 mm on July 16th, during the beginning of Survey 4 (July 15-July 19). More information on index calculation is available at the project website Summer Townet Survey.

The age-0 Striped Bass catch was highest during Survey 1, with 552 Striped Bass caught at index stations and seven caught at non-index stations (Table 1). Catches declined with each subsequent survey, dropping to 2 fish by Survey 6. The highest catches of age-0 Striped Bass occurred in Suisun Marsh, an important low-salinity nursery area for young Striped Bass and other fishes (Meng et al. 1994, Meng and Matern 2001, Matern et al. 2002, Feyrer et al. 2003). The 20-mm Survey showed similar patterns during the early summer. For the 20-mm Survey, the Striped Bass catch peaked in mid-June in Suisun Marsh and declined sharply thereafter.

According to the California Department of Water Resources, the water year in 2024 was classified as above normal, following a wet year in 2023 (see Water Year Hydrologic Classification Indices). Decreased precipitation and runoff at the beginning of 2024 may have contributed to earlier spawning and lower catches of age-0 Striped Bass (Turner & Chadwick 1972, Stevens 1977). This may account for the earlier date at which the fish reached 38.1 mm. Nevertheless, age-0 Striped Bass catch was higher in 2024 than in 2020 and 2021-2022, which were classified as dry and critical water years. These patterns indicate an ability for Striped Bass to recover under conditions of higher outflow, but recovery may be limited.

Cc: Steven B. Slater
Kathy Hieb
Dr. Tim Malinich
Colin Brennan

References

Feyrer, F., Herbold, B., Matern, S.A., and P.B. Moyle. 2003. Dietary shifts in a stressed fish assemblage: Consequences of a bivalve invasion in the San Francisco Estuary. Environ. Biol. Fishes. 67(3):277-288. DOI:10.1023/A:1025839132274.

Matern, S.A., Moyle, P.B., and L.C. Pierce. 2002. Native and alien fishes in a California estuarine marsh: Twenty-one years of changing assemblages. Trans. Amer. Fish. Soc. 131:797–816. DOI:10.1577/1548-8659%282002%29131%3C0797%3ANAAFIA%3E2.0.CO%3B2.

Meng, L., Moyle, P.B., and B. Herbold. 1994. Changes in abundance and distribution of native and introduced fishes of Suisin Marsh. Trans. Amer. Fish. Soc. 123(4): 498-507. DOI: 10.1577/1548-8659(1994)123<0498:CIAADO>2.3.CO;2.

Meng, L., and S.A. Matern. 2001. Native and introduced larval fishes of Suisun Marsh, California: The effects of freshwater flow. Trans. Amer. Fish. Soc. 130:750-765. DOI: 10.1577/1548-8659(2001)130<0750:NAILFO>2.0.CO;2.

Stevens, D. E. 1977. Striped Bass (*Morone saxatilis*) year class strength in relation to river flow in the Sacramento-San Joaquin Estuary, California. Transactions of the American Fisheries Society 106:34–42.

Turner, J.L. and H.K. Chadwick. 1972. Distribution and Abundance of Young-of-the-Year Striped Bass, *Morone saxatilis*, in Relation to River Flow in the Sacramento-San Joaquin Estuary. Transactions of the American Fisheries Society 101:442–452.

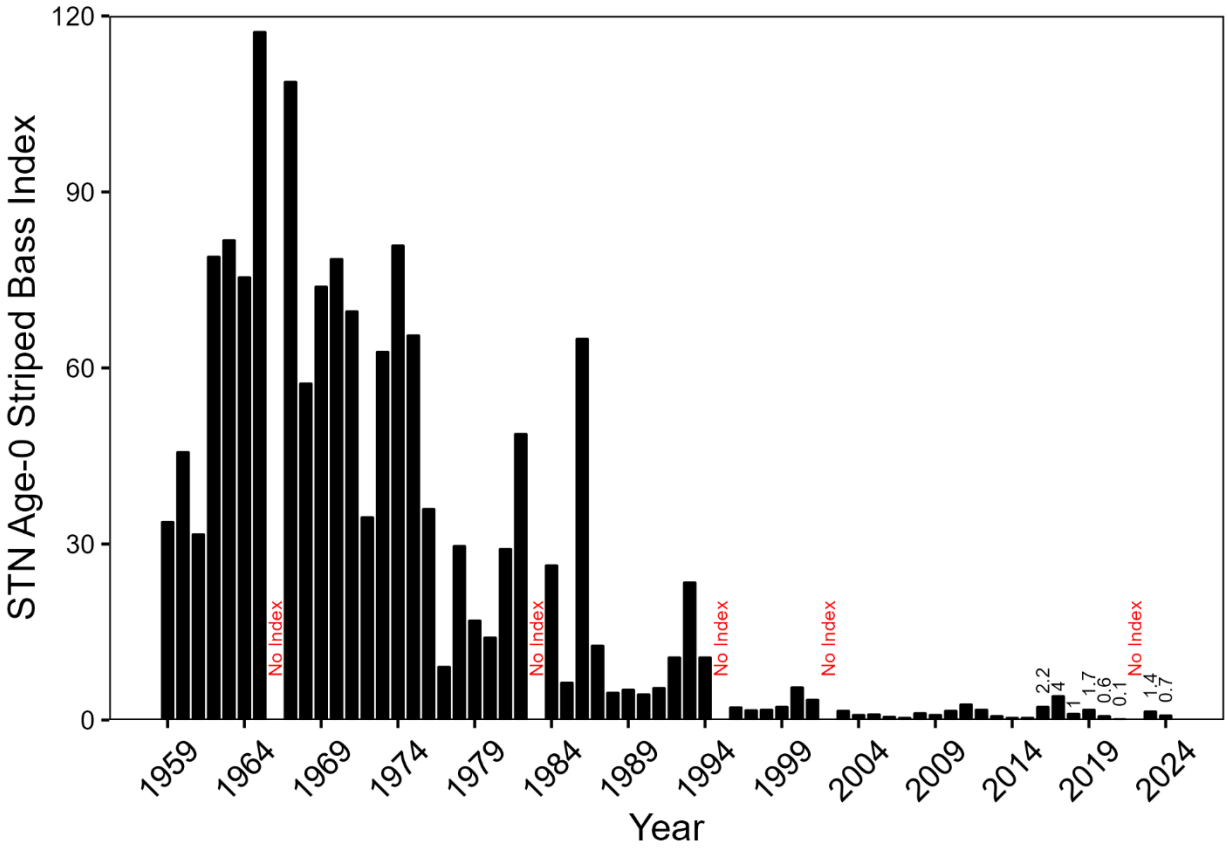

Figure 1. Summer Townet Survey age-0 Striped Bass abundance indices, 1959-2024.

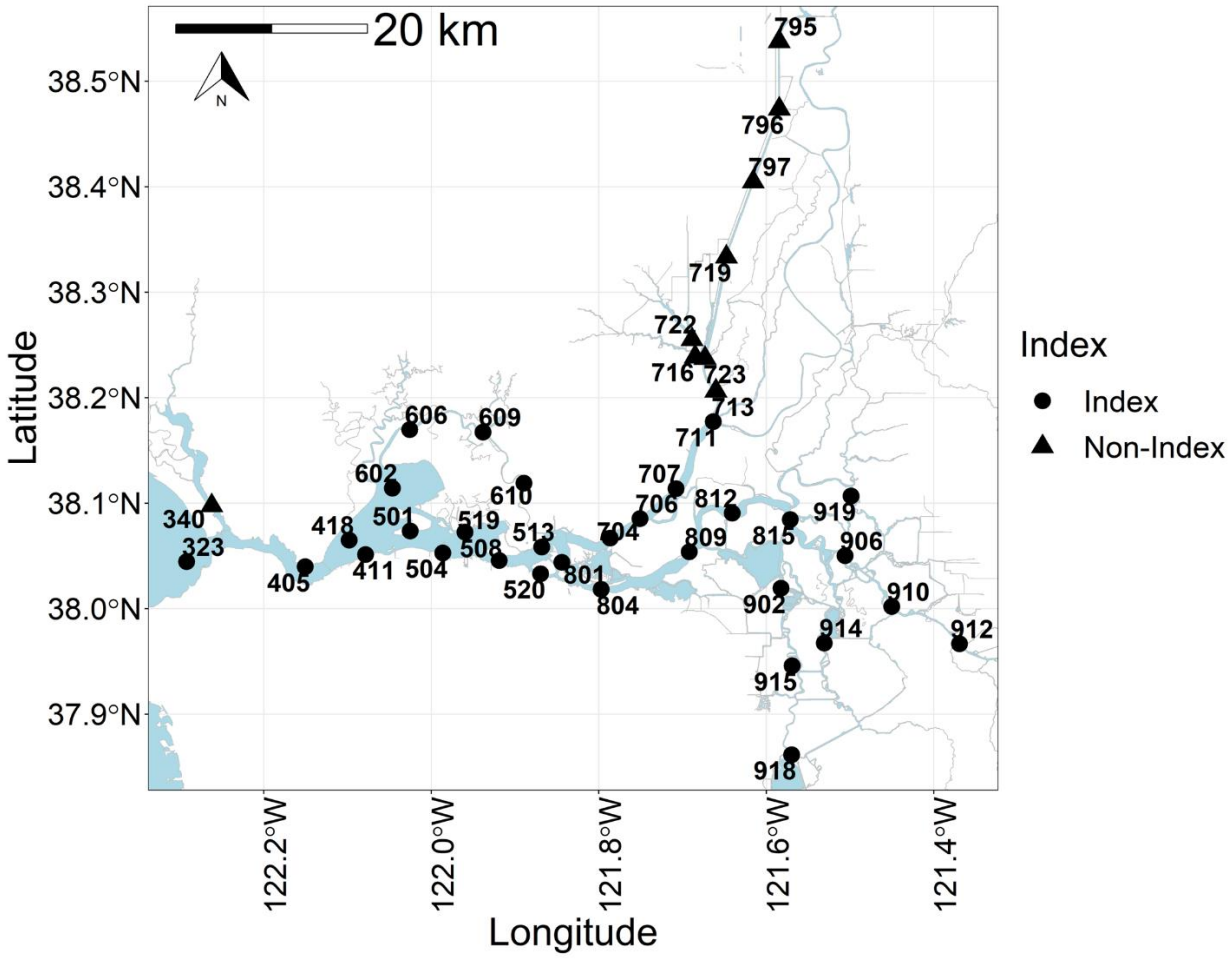

Figure 2. Map of Summer Townet Survey index stations and non-index stations within the San Francisco Estuary.

Table 1. Summer Townet Survey dates, indices, catches, and associated mean fork lengths of age-0 Striped Bass in 2024. Catch and mean fork length data from index stations (n=31) and non-index stations (n=9) shown separately.

Survey	Survey Index	Index Station Catch	Index Station Mean FL (mm)	Non-index Station Catch	Non-index Station Mean FL (mm)
Survey 1 (6/3-6/7)	8.4	552	15.7	7	18.0
Survey 2 (6/17-6/21)	4.6	234	19.7	20	20.0
Survey 3 (7/1-7/5)	2	118	25.4	4	26.0
Survey 4 (7/15-7/19)	0.6	29	39.0	6	35.2
Survey 5 (7/29-8/2)	0.2	17	55.6	0	NA
Survey 6 (8/12-8/16)	0	2	44.0	0	NA