State of California
Department of Fish and Wildlife

Memorandum

Date: December 22, 2025

To: Erin Chappell
Regional Manager
Bay Delta Region

From: Margaret Johnson
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Subject: 2025 Fall Midwater Trawl September-November fish abundance and distribution

The midseason abundance indices reported here are the sum of the first three (September-November) of the four planned monthly abundance indices that will comprise the annual FMWT abundance indices.

The Fall Midwater Trawl (FMWT) reports on the relative abundance and distribution of upper-estuary pelagic species including but not limited to Delta Smelt *(Hypomesus transpacificus*), Longfin Smelt (*Spirinchus thaleichthys*), age-0 Striped Bass (*Morone saxatilis*), Threadfin Shad (*Dorosoma petenense*), American Shad (*Alosa sapidissima*), and Splittail (*Pogonichthys macrolepidotus*). The FMWT samples 130 stations (see: FMWT station map) each month from September to December, and those stations range from San Pablo Bay upstream to Stockton on the San Joaquin River, and to West Sacramento on the Sacramento River Deep Water Ship Channel (SRDWSC).

FMWT catch from a subset of stations (100 'index stations', which have been used since the inception of the FMWT) is used to calculate abundance indices (Figure 1). FMWT equipment and methods have remained consistent, which allows the comparison of abundance index trends. Monthly and annual abundance indices are calculated using catch data from index stations grouped into 14 regions. Monthly abundance indices are calculated by averaging catch per tow for index stations in each region, multiplying each regional average by its respective weighting factor (i.e., a scalar based on water volume) for each region, and summing those products for all 14 regions (White and Baxter 2022). The midseason abundance indices reported here are the sum of the first three (September-November) of the four planned monthly abundance indices that will comprise the annual FMWT abundance indices.

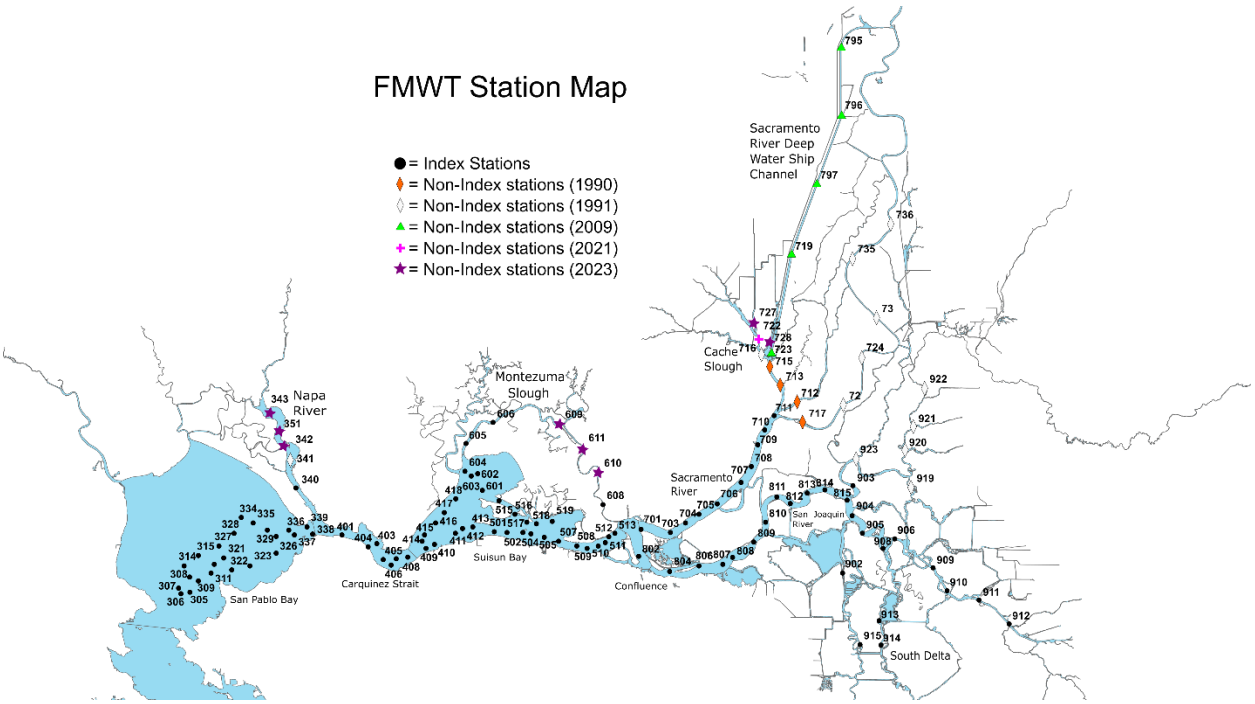

Figure 1. Map of Fall Midwater Trawl monthly sampling sites among index and non-index stations in the upper San Francisco Estuary, California, USA.

The monthly FMWT surveys were conducted Sept. 2-17, Oct. 1-16, and Nov. 3-18. During each of the three months, 130 fish trawls were conducted, except for station 328 in October. Here, we report fish catch from index and non-index stations, species distributions by region, and midseason abundance indices. A map of species distribution by station is also publicly available online: (FMWT Species Distribution Map).

Delta Smelt (Hypomesus transpacificus)

No Delta Smelt were collected at any stations from September through November. The 2025 September-November index (0) is tied with 2016 and 2018-2024 as the lowest index in FMWT history (Figure 2). However, the Enhanced Delta Smelt Monitoring (EDSM) survey of the U.S. Fish and Wildlife Service (USFWS) caught 31 Delta Smelt between 10/6 & 11/20, a period of seven weeks which comprised of 906 tows (U.S. Fish and Wildlife Service 2025).

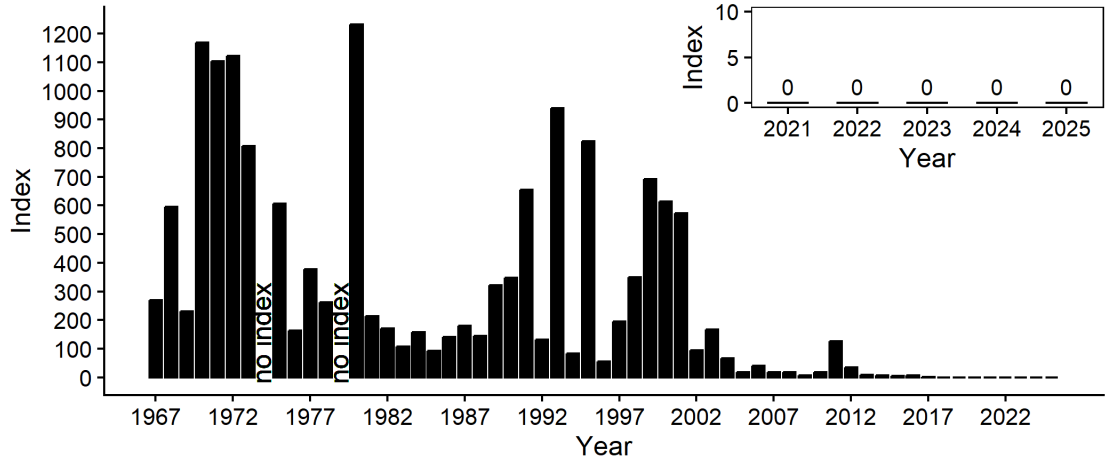

Figure 2. FMWT Delta Smelt September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

Age-0 Striped Bass (Morone saxatilis)

Seven age-0 Striped Bass were collected at index stations in September for an index of 6. In October, five were collected for an index of 5. In November 18 were collected for an index of 18. The 2025 September-November index (29) is a 68% decrease from the previous year (Figure 3). Three Striped Bass were collected at non-index stations during September, zero were collected in October, and two were collected in November.

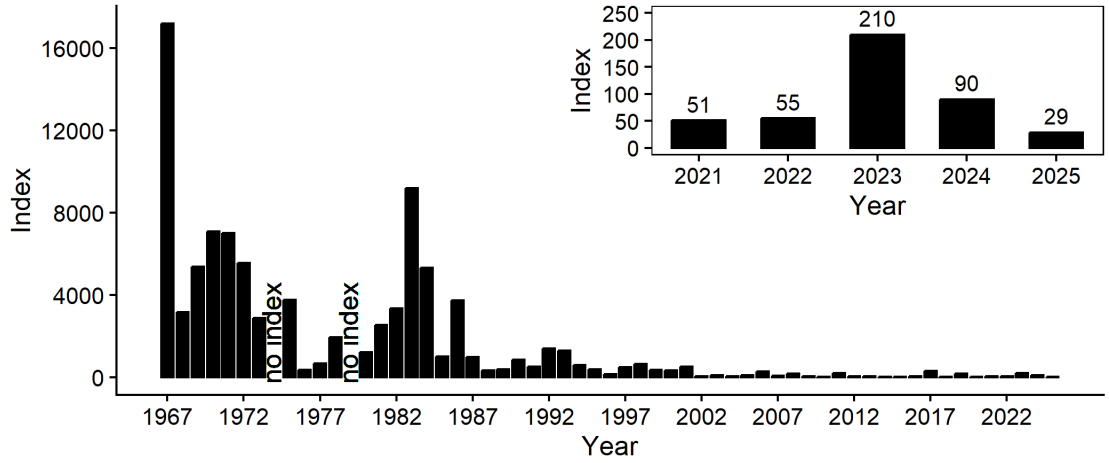

Figure 3. FMWT Age-0 Striped Bass September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

Striped Bass catch was highest in Suisun Bay for all three monthly surveys (Table 1).

Table 1. Age-0 Striped Bass catch among regions during the 2025 Fall Midwater Trawl sampling at index and non-index stations.

Month	*Type*	*Region*	*Catch*
September	Index	Lower Sacramento River	1
September	Index	Montezuma Slough	2
September	Index	Suisun Bay	4
September	Non-Index	Mokelumne River	1
September	Non-Index	Montezuma Slough	2
October	Index	Suisun Bay	5
November	Index	Carquinez Strait	1
November	Index	Lower Sacramento River	1
November	Index	Montezuma Slough	1
November	Index	Suisun Bay	15
November	Non-Index	Upper Sacramento River	2
Total			**35**

Longfin Smelt (Spirinchus thaleichthys)

Zero Longfin Smelt were collected at index stations in September, resulting in an index of 0. In October, four were collected for an index of 4. In November, 60 were collected for an index of 133. The 2025 September-November index (137) is an 11% increase from the previous year (Figure 4). One Longfin Smelt was collected at a non-index station during the October survey.

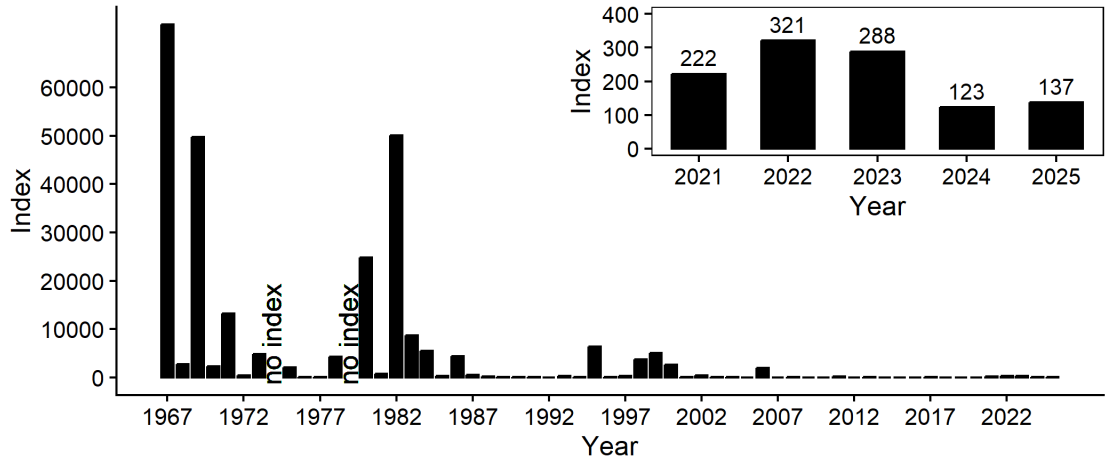

Figure 4. FMWT Longfin Smelt September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

Longfin Smelt catch was highest in October in Montezuma Slough and Suisun Bay, and highest in November in San Pablo Bay (Table 2). The majority of Longfin Smelt caught thus far have been age-0 (Table 3). The FMWT only measures the first 50 individuals of any fish species caught during a tow. The adjusted length frequency adjusts for the fish not measured by calculating the ratio of total catch to the number of fish measured multiplied by the length frequency.

Table 2. Longfin Smelt catch among regions during the 2025 Fall Midwater Trawl sampling at index and non-index stations.

Month	*Type*	*Region*	*Catch*
October	Index	Montezuma Slough	2
October	Index	Suisun Bay	2
October	Non-Index	Napa River	1
November	Index	Lower Sacramento River	1
November	Index	Montezuma Slough	2
November	Index	San Pablo Bay	37
November	Index	Suisun Bay	20
Total			**65**

Table 3. Longfin Smelt catch, length, and age class data during the 2025 Fall Midwater Trawl sampling at index and non-index stations.

Month	*Station*	*Catch*	*Fork Length*	*Adjusted Length Frequency*	*Age Class*
October	341	1	61	1	Age 0

Month	*Station*	*Catch*	*Fork Length*	*Adjusted Length Frequency*	*Age Class*
October	504	1	61	1	Age 0
October	519	1	61	1	Age 0
October	606	2	52	1	Age 0
October	606	2	60	1	Age 0
November	307	2	56	1	Age 0
November	307	2	57	1	Age 0
November	311	1	60	1	Age 0
November	314	6	52	1	Age 0
November	314	6	57	1	Age 0
November	314	6	59	1	Age 0
November	314	6	61	1	Age 0
November	314	6	62	1	Age 0
November	314	6	100	1	Age 1+
November	315	3	66	1	Age 0
November	315	3	68	1	Age 0
November	315	3	104	1	Age 1+
November	321	6	54	1	Age 0
November	321	6	59	1	Age 0
November	321	6	61	1	Age 0
November	321	6	61	1	Age 0
November	321	6	65	1	Age 0
November	321	6	67	1	Age 0
November	322	1	57	1	Age 0
November	325	3	58	1	Age 0
November	325	3	68	1	Age 0
November	325	3	92	1	Age 1+
November	327	10	50	1	Age 0

Month	*Station*	*Catch*	*Fork Length*	*Adjusted Length Frequency*	*Age Class*
November	327	10	55	1	Age 0
November	327	10	55	1	Age 0
November	327	10	56	1	Age 0
November	327	10	57	1	Age 0
November	327	10	59	1	Age 0
November	327	10	60	1	Age 0
November	327	10	60	1	Age 0
November	327	10	61	1	Age 0
November	327	10	63	1	Age 0
November	328	1	71	1	Age 0
November	337	1	100	1	Age 1+
November	339	3	49	1	Age 0
November	339	3	56	1	Age 0
November	339	3	73	1	Age 0
November	414	2	60	1	Age 0
November	414	2	63	1	Age 0
November	415	2	65	1	Age 0
November	415	2	115	1	Age 1+
November	416	1	52	1	Age 0
November	417	2	61	1	Age 0
November	417	2	76	1	Age 0
November	418	1	63	1	Age 0
November	501	1	65	1	Age 0
November	508	1	60	1	Age 0
November	517	3	61	1	Age 0
November	517	3	66	1	Age 0
November	517	3	71	1	Age 0

Month	*Station*	*Catch*	*Fork Length*	*Adjusted Length Frequency*	*Age Class*
November	519	1	95	1	Age 1+
November	602	2	59	1	Age 0
November	602	2	68	1	Age 0
November	604	4	57	1	Age 0
November	604	4	63	1	Age 0
November	604	4	76	1	Age 0
November	604	4	103	1	Age 1+
November	605	1	75	1	Age 0
November	606	1	60	1	Age 0
November	703	1	66	1	Age 0

Threadfin Shad (Dorosoma petenense)

One Threadfin Shad was collected at an index station in September for an index of 1. In October, two Threadfin Shad were collected for an index of 2. In November, five were collected for an index of 5. The 2025 September-November index of 8 is a 97% decrease from the previous year (Figure 5). A total of 915 Threadfin Shad were collected at non-index stations during September, 95 were collected in October, and 125 were collected in November.

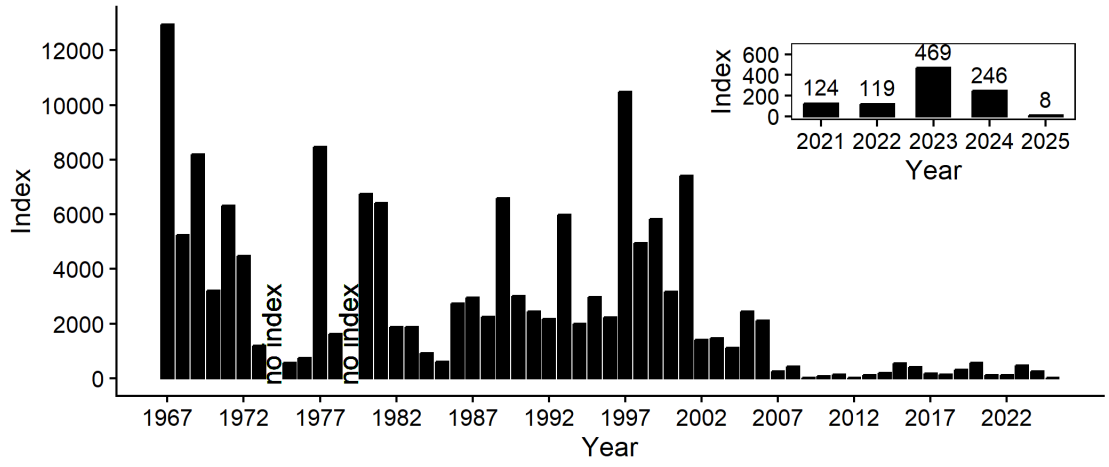

Figure 5. FMWT Threadfin Shad September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

Overall, Threadfin Shad catch was highest at SRDWSC in September and Montezuma Slough in October (Table 4).

*Table 4. Threadfin Shad catch among regions during the 2025 Fall Midwater Trawl sampling at index and non-index stations. *SRDWSC = Sacramento River Deepwater Shipping Channel.*

Month	*Type*	*Region*	*Catch*
September	Index	Lower Sacramento River	1
September	Non-Index	Mokelumne River	415
September	Non-Index	Montezuma Slough	1
September	Non-Index	SRDWSC	499
October	Index	Lower San Joaquin River	1
October	Index	Suisun Bay	1
October	Non-Index	Mokelumne River	1
October	Non-Index	Montezuma Slough	49
October	Non-Index	SRDWSC	45
November	Index	Lower Sacramento River	1
November	Index	Lower San Joaquin River	2
November	Index	Montezuma Slough	1
November	Index	Suisun Bay	1
November	Non-Index	Montezuma Slough	11
November	Non-Index	SRDWSC	114
Total			**1,143**

American Shad (Alosa sapidissima)

A total of 428 American Shad were collected at index stations in September for an index of 477. In October, 105 were collected for an index of 170. In November, 201 were collected for an index of 233. The 2025 September-November index (880) is a 8% increase from the previous year (Figure 6). 148 American Shad were collected at non-index stations during September, 67 were collected in October, and 55 were collected in November.

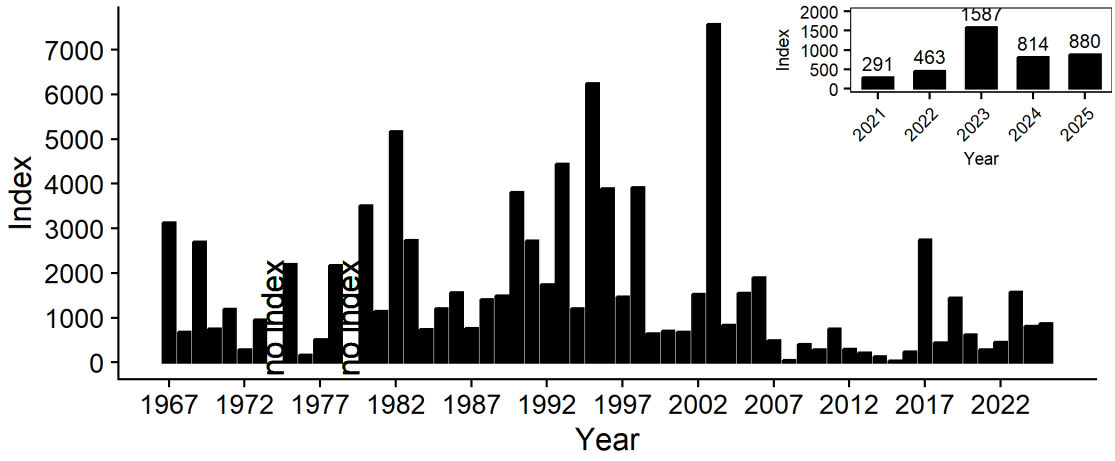

Figure 6. FMWT American Shad September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

American Shad catch was highest from September to November at Suisun Bay (Table 5).

*Table 5. American Shad catch among regions during the 2025 Fall Midwater Trawl sampling at index and non-index stations. *SRDWSC = Sacramento River Deepwater Shipping Channel.*

Month	*Type*	*Region*	*Catch*
September	Index	Carquinez Strait	1
September	Index	Lower Sacramento River	112
September	Index	Lower San Joaquin River	6
September	Index	Montezuma Slough	24
September	Index	San Pablo Bay	11
September	Index	South Delta	6
September	Index	Suisun Bay	268
September	Non-Index	Cache Slough	8
September	Non-Index	Mokelumne River	57
September	Non-Index	Montezuma Slough	40
September	Non-Index	SRDWSC	43
October	Index	Lower Sacramento River	13
October	Index	Lower San Joaquin River	2

Month	*Type*	*Region*	*Catch*
October	Index	Montezuma Slough	30
October	Index	San Pablo Bay	15
October	Index	Suisun Bay	45
October	Non-Index	Mokelumne River	2
October	Non-Index	Montezuma Slough	13
October	Non-Index	SRDWSC	31
October	Non-Index	Upper Sacramento River	21
November	Index	Lower Sacramento River	41
November	Index	Lower San Joaquin River	13
November	Index	Montezuma Slough	13
November	Index	San Pablo Bay	14
November	Index	Suisun Bay	120
November	Non-Index	Mokelumne River	1
November	Non-Index	Montezuma Slough	23
November	Non-Index	SRDWSC	31
Total			**1,004**

Splittail (Pogonichthys macrolepidotus)

No Splittail were collected at index or non-index stations in September through November for an index of 0. The 2025 September-November index (0) is a continuation of low to zero catch in recent years (Figure 7). The Splittail FMWT index tends to be low or zero except in relatively wet years, such as 2011, when age-0 fish tend to be abundant. FMWT operates in water >2 m deep, whereas Splittail, particularly age-0 fish, appear to primarily inhabit water <2 m deep (Sommer et al. 1997; Moyle et al. 2004).

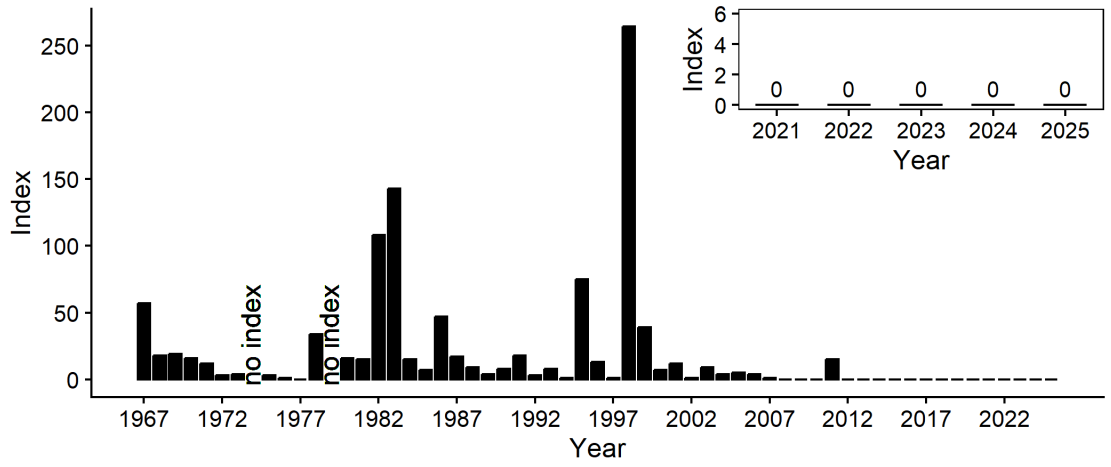

Figure 7. FMWT Splittail September-November abundance indices, 1967-2025. Inset graph shows detailed view of previous 5 years.

References

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