Supplement of Ocean Sci., 21, 1833–1848, 2025
https://doi.org/10.5194/os-21-1833-2025-supplement

Ocean Science Open Access EGU

Supplement of

Cross-canyon variability in zooplankton backscattering strength in a river-influenced upwelling area

Macarena Díaz-Astudillo et al.

Correspondence to: Macarena Díaz-Astudillo (macarenapaz.da@gmail.com)

Table S1: Details of each of the 16 transects included in the study analyses. The RapidPro CTD was not deployed in 2 transects, outlined below. ET: eastern transect, WT: western transect.

Transect N°	Date	Start Time	Canyon Position	ADCP	CTD
1	27-07-2023	20:45	ET	Yes	Yes
2	27-07-2023	22:00	WT	Yes	No
3	28-07-2023	01:20	ET	Yes	Yes
4	28-07-2023	02:20	WT	Yes	Yes
5	28-07-2023	04:45	ET	Yes	Yes
6	28-07-2023	05:30	WT	Yes	Yes
7	28-07-2023	07:10	ET	Yes	No
8	28-07-2023	08:30	WT	Yes	Yes
9	28-07-2023	10:40	ET	Yes	Yes
10	28-07-2023	12:00	WT	Yes	Yes
11	28-07-2023	14:30	ET	Yes	Yes
12	28-07-2023	15:30	WT	Yes	Yes
13	28-07-2023	17:30	ET	Yes	Yes
14	28-07-2023	19:00	WT	Yes	Yes
15	28-07-2023	21:00	ET	Yes	Yes
16	28-07-2023	22:00	WT	Yes	Yes

Table S2: Details on the zooplankton sampling carried out before (day samples) and after (night samples) the experiment.

Sample Code	Station	Slope	Date	Local time	D/N	Stratum
E1_1	E1	Northern	27-03-2023	15:10	Day	0-50
E1_2	E1	Northern	27-03-2023	14:20	Day	50-100
E2_1	E2	Southern	27-03-2023	17:30	Day	0-50
E2_2	E2	Southern	27-03-2023	16:10	Day	50-100
E1_3	E1	Northern	29-03-2023	01:30	Night	0-50
E1_4	E1	Northern	29-03-2023	00:50	Night	50-100
E2_3	E2	Southern	29-03-2023	02:50	Night	0-50
E2_4	E2	Southern	29-03-2023	02:00	Night	50-100

To put the observations in the context of the environmental conditions for the region, the time series of the wind vector, Biobío river discharge and Concepcion Bay tides were obtained for July-August 2023 (Fig. S1). During July-August, the winds were mainly from the south with intensities below 12 m s^{-1}, and the northern winds were weak (c.a. 5 m s^{-1}). During the ADCP measurements, winds were weak and mainly from the north. The tidal cycle was in late ebb with a range of 1 m and a river discharge of $\sim$1600 m^3 s^{-1}.

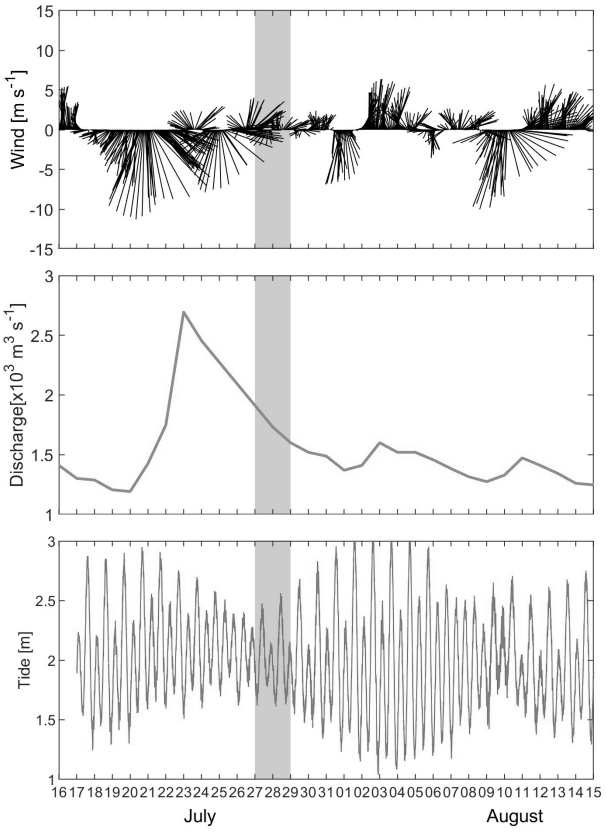

Figure S1: Time series of wind vectors, Biobío river discharge, and tidal cycles during the study period (in gray).

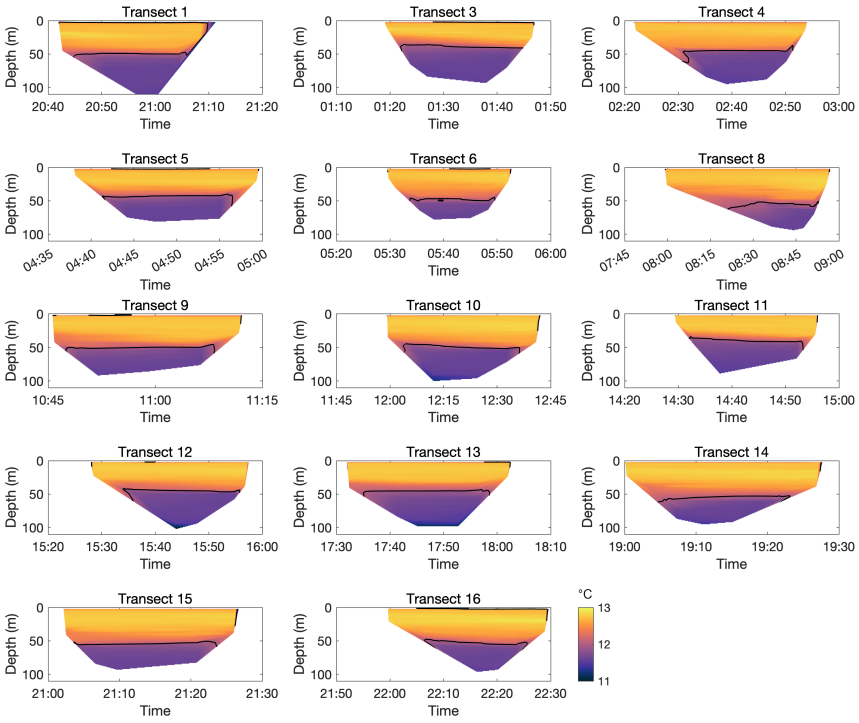

Figure S2: Cross-canyon sections of temperature. The 12°C temperature contour is highlighted in black.

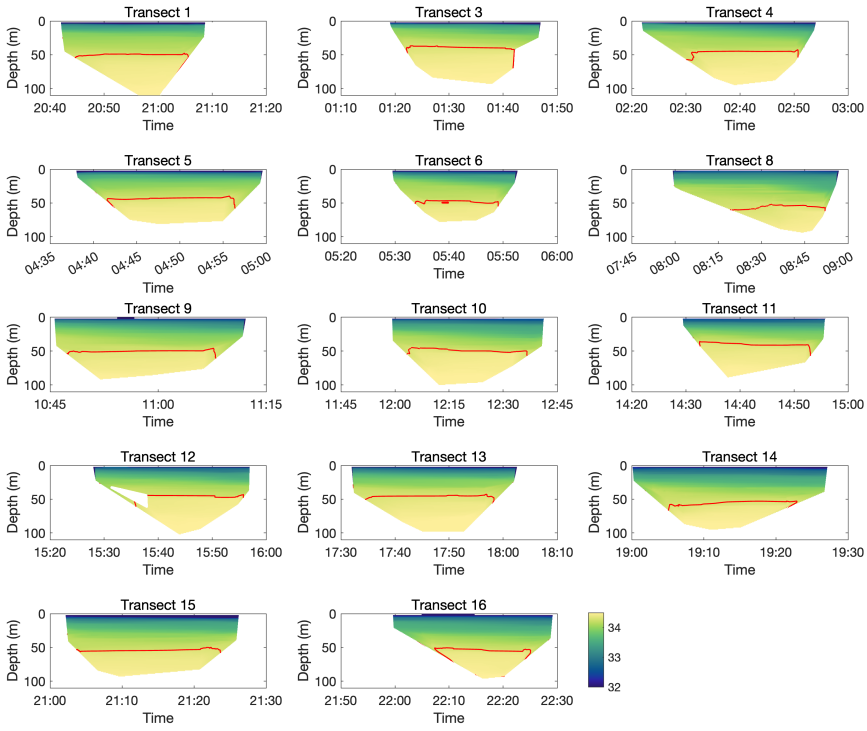

Figure S3: Cross-canyon sections of salinity. The 34 salinity contour is highlighted in red.

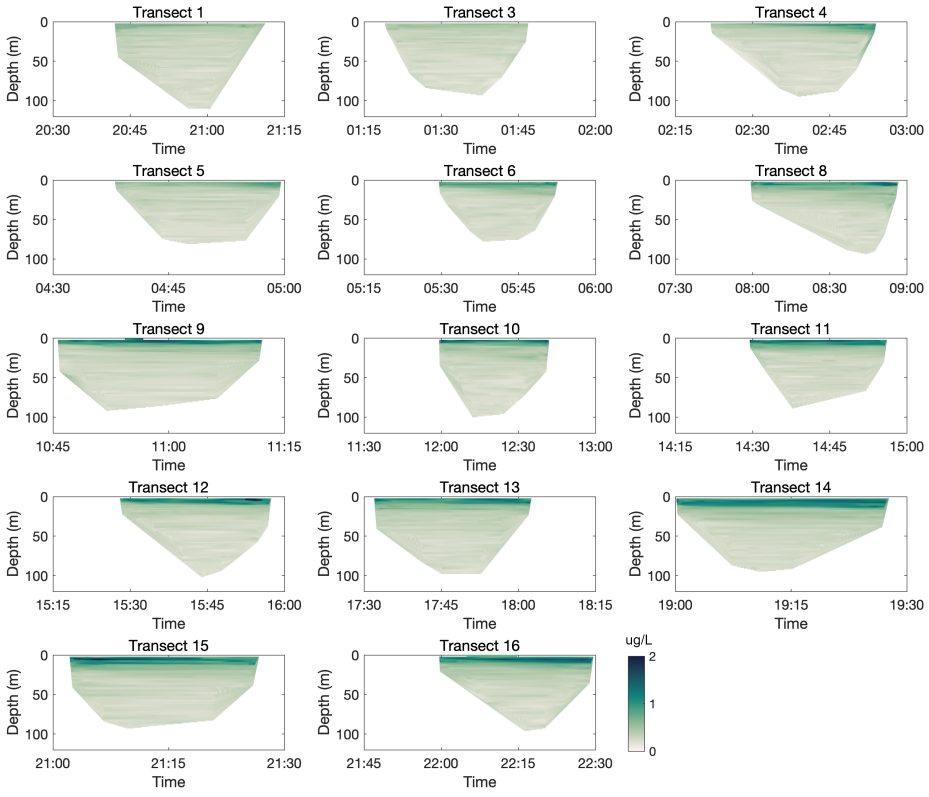

Figure S4: Cross-canyon sections of chlorophyll-a.

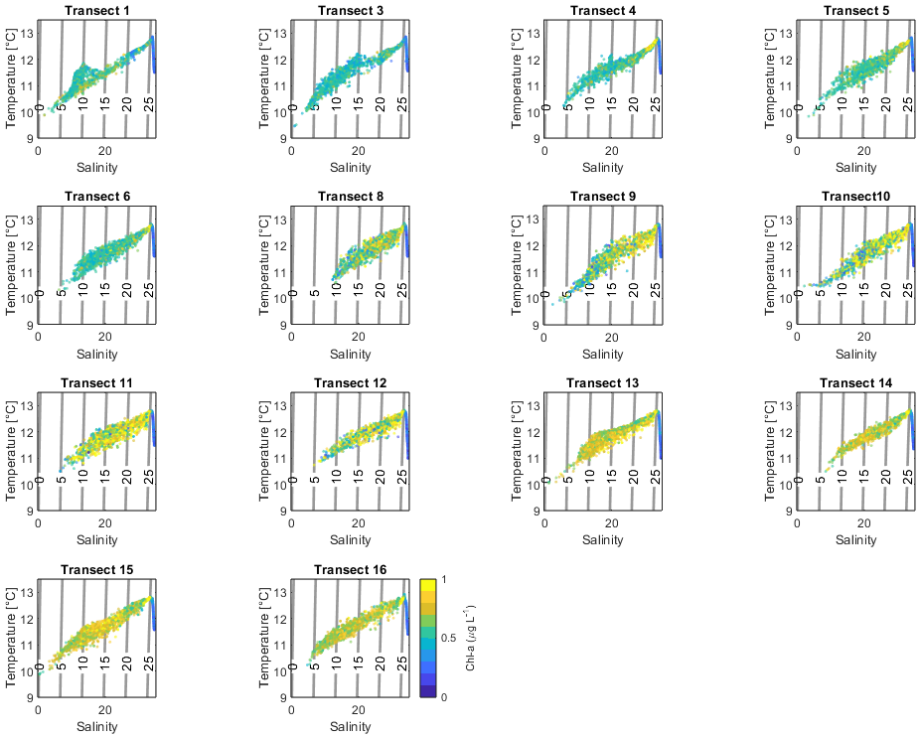

Figure S5: Temperature-salinity plots for each transect with chlorophyll-a concentration in colors.

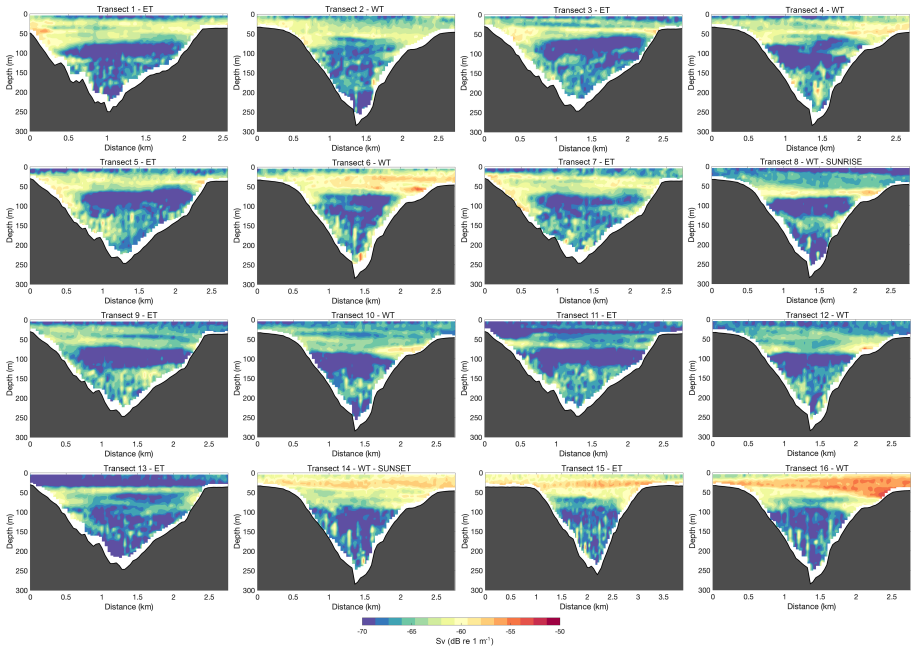

Figure S6: Cross-canyon sections of the mean volume backscattering strength (Sv). In all transects, the left side of the canyon shows the northern slope, and the right side, the southern slope. Transect 8 was conducted 37 minutes after sunrise, and transect 14, 55 minutes after sunset.