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Supplement of

Ise Bay Reanalysis (IBRA): a 12-year ecological hydrodynamic reanalysis dataset for Ise Bay, Japan

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S1 Detailed boundary condition settings

S1.1 Lateral boundary conditions

Water temperature and salinity data, recorded every 30 min at mouth of Ise Bay (latitude 34.509°, longitude 137.018°), were used as lateral boundary conditions. The monitoring post at the bay's mouth is located approximately 5.6 km from the open boundary on the inner bay side. Data were uniformly interpolated horizontally, linearly interpolated vertically, and linearly interpolated over time. Hourly tide levels, observed at the Akabane tide station (latitude 34.6°, longitude 137.183°) near the lateral boundary, were used as lateral boundary conditions for tide levels.

The water quality concentrations and microbial biomass were set as constant values derived from in situ observations (IDEA Consultants, Inc. - Japan Fisheries Science and Technology Association Joint Design Consortium, 2015, 2016). Water samples were collected once per month in 2014 and 2015 at the bay mouth (station No. 55; 34.506° N, 137.002° E) at both the surface layer (0.5 m below the sea surface) and the bottom layer (1.0 m above the seabed) using a Van Dorn sampler with a sampling volume of 6 L. The collected samples were analysed in the laboratory, and the time-averaged values of the measured water quality parameters were used as constant boundary concentrations (Table S1, Figure S1, and Table S2).

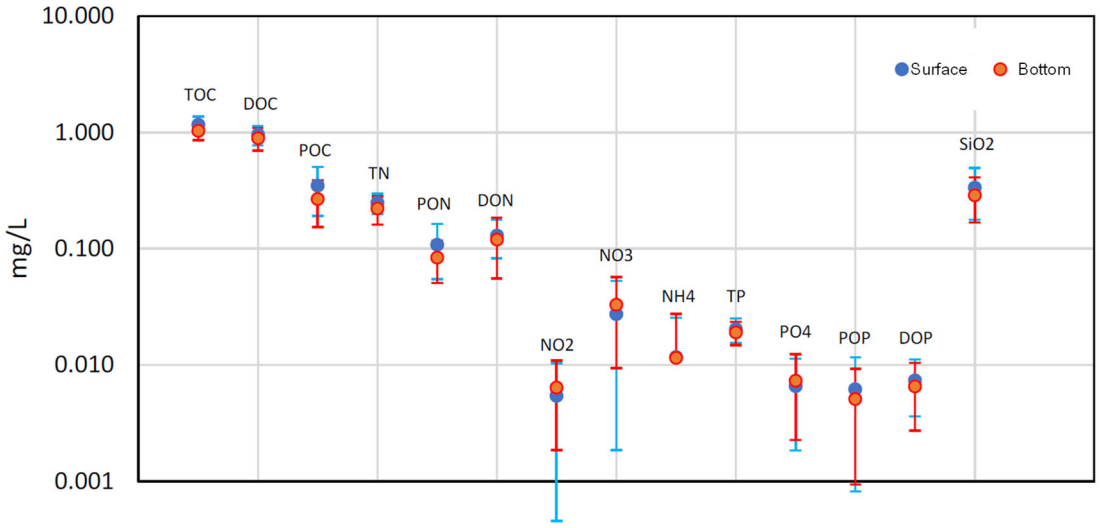


Figure S1 Two-year average concentrations of observed water quality parameters. Error bars indicate the standard deviation.

Table S1 Water quality parameters set at lateral boundary.

Water quality parameters	Value [mg/L]
POC	0.170
PON	0.075
POP	0.002
DOC	0.925
DON	0.125
DOP	0.007
PO4	0.007
NH4	0.012
NO2	0.006
NO3	0.030
SiO2	0.312

Table S2 Microbial biomass set at lateral boundary.

Microbial biomass	Value [μgC/L]
Diatoms	66.4
Autotrophic Nanoflagellates (ANF)	4.3
Cyanobacteria	4.6
Zooplankton	5.0
Ciliates	14.3
Heterotrophic Nanoflagellates (HNF)	1.3
Aerobic bacteria	34.1

Table S3 Lability classes at the lateral boundary.

Lability classes	Labile	0.05
	Semi-labile	0.2
	Refractory	0.75

S1.2 Atmospheric forcing

Atmospheric forcing data, including shortwave and longwave radiation, air pressure, air temperature, wind direction and speed, vapor pressure, and precipitation, were generated from GPV-MSM analysis values (before December 31, 2015) and GPV-LFM analysis values (after January 1, 2016). Data were obtained hourly, with linear interpolation applied in both time and spatial dimensions. Precipitation data were taken

from forecast values for the following hour, representing the accumulation between 0 and 3 h later for GPV-MSM, and between 0 and 1 h later for GPV-LFM.

S1.3 River discharge forcing

River discharge data were generated from hourly observations for class A rivers, as listed in Table S4. For smaller rivers with intermittent observation data, river discharge was calculated hourly using the storage function method:

$$\frac{ds}{dt} = q_{up}(t) + r(t) - q(t) - q_{base} \quad \text{(S1)}$$

$$s = k_1 q^{p_1} + k_2 \frac{dq^{p_2}}{dt} \quad \text{(S2)}$$

$$Q(t) = \frac{q(t)}{3.6} A, \quad \text{(S3)}$$

where s is the apparent storage height of the basin [mm]; t is time [h]; r is the average precipitation in the basin [mm h^{-1}]; q is the runoff over time t [mm h^{-1}]; q_{up} is the runoff from the upper area [mm h^{-1}]; q_{base} is the base runoff [mm h^{-1}]; k_1, k_2, p_1, and p_2 are constants; Q is the river discharge [m^3 s^{-1}]; and A is the basin area [km^2]. This equation is based on the work of Hoshi and Yamaoka (1982). The values of k_1, k_2, p_1, and p_2 were derived by comparing past observed river discharge values.

The average precipitation (r) for each basin was calculated as follows: Precipitation data were obtained from the Automated Meteorological Data Acquisition System (AMeDAS), operated by the Japan Meteorological Agency (JMA). Each river basin was divided into grids, and the distance between each grid point and the nearest AMeDAS observation point was calculated. AMeDAS data points within 30 km of the grid were used, with a maximum of ten observation points per grid. The precipitation at each grid point was weighted using the same method applied to other weather data, and the sum of the precipitation from all grids provided the average precipitation for the basin.

For smaller rivers without direct observation data, river discharge was calculated by multiplying the discharge rates from nearby observed rivers by the ratio of the river's drainage area and the average annual precipitation in the basin.

River water temperature for class A rivers was calculated from hourly observation data. For smaller rivers, the water temperature ($temp_{riv}$) was estimated hourly from the air temperature ($temp_{air}$) using a regression equation:

$$temp_{riv} = atemp_{air} + b, \quad \text{(S4)}$$

where a and b are coefficients derived from the relationship between observed air and water temperatures for class A rivers.

COD, TN, and TP at the river discharge forcins are prescribed using the L–Q equations.

$$L = aQ^b, \quad \text{(S5)}$$

where, L is load, Q is river discharge [m^3/s]. The dissolved oxygen concentration in the river discharge forcing is assumed to be saturated. Table S5 lists the observation points, coefficients a and b, and correlation coefficients used to establish this relationship. Hourly data from 2010 to 2019 were used to calculate these coefficients. For smaller rivers, the water temperature was assumed to match that of nearby class A rivers. Fraction ratios at the river discharge forcing are set as Table S6. These values are decided based on Tanaka et al. (2011). Table S7, Table S8, Table S9, and Table S10 are settings of smaller rivers.

Table S4 Class A rivers: Information on river observation stations and their basin areas.

River name	Tributary	Observation station	Latitude	Longitude	Basin area [km^2]
Kiso River		Kasamatsu	35.363	136.762	4956
Nagara River		Sunomata	35.362	136.688	1914
Ibi River	Makita River	Karasue	35.306	136.594	180
	Kuise River	Takabuchi	35.308	136.596	174
	Ibi River	Mangoku	35.360	136.658	1196
Shonai River		Biwajima	35.203	136.875	705
Yahagi River		Yonedu	34.889	137.059	1657
Toyo River		Tougo	34.811	137.419	634
Suzuka River	Naibu River	Kawaharada	34.919	136.596	51
	Suzuka River	Takaoka	34.902	136.596	269
Kumozu River		Kumozubashi	34.647	136.512	541
Kushida River		Kushidabashi	34.546	136.585	423
Miya River		Iwade	34.464	136.654	780

Table S5 Coefficient of L-Q equations for Class A rivers. River numbers are used as references for small rivers in Table S8, Table S9, and Table S10.

No.	River Name	Water Quality Monitoring Station	COD			T-N			T-P		
			a	b	r	a	b	r	a	b	r
1	Toyo River	Tougo Bridge	2.179	0.944	0.88	1.977	0.825	0.92	0.018	1.102	0.75
2	Yahagi River	Yonezuo Bridge	2.736	0.979	0.95	1.835	0.784	0.90	0.077	0.846	0.81
3	Shonai River	Hiejima Bridge	43.011	0.412	0.69	12.369	0.456	0.61	0.751	0.472	0.58
4	Kiso River	Tokaio Bridge	2.777	0.966	0.93	0.535	0.993	0.93	0.005	1.274	0.91
5	Nagara River	Iseo Bridge	5.557	0.814	0.75	1.869	0.867	0.90	0.082	0.900	0.82
6	Ibi River	Iseo Bridge	4.279	0.849	0.92	1.422	0.905	0.96	0.104	0.875	0.87
7	Suzuka River	Ogura Bridge	3.033	0.922	0.95	3.452	1.016	0.96	0.061	0.968	0.95
8	Kumozu River	Kumozu Bridge	2.784	0.969	0.98	1.104	0.996	1.00	0.029	0.947	0.96
9	Kushida River	Kushida Bridge	1.589	1.012	0.93	0.802	1.009	0.97	0.013	1.058	0.92
10	Miya River	Watarai Bridge	0.744	1.060	0.93	0.750	0.924	0.98	0.005	1.200	0.94

Table S6 Fraction ratios and lability classes at the river discharge forcing.

	Fractionation	Ratio
TP	DIP/TP	0.54
TP	POP/(POP+DOP)	0.68
TN	DIN/TN	0.73
TN	NH4/DIN	0.42
TN	NO3/(NO2+NO3)	0.97
TN	PON/(PON+DON)	0.26
COD	PCOD/COD	0.23
COD	POC/PCOD	0.86
COD	DOC/DCOD	0.93
Lability classes	Labile	0.5
	Semi-labile	0.3
	Refractory	0.2

Table S7 Coefficient of L-Q equations for small rivers (Except Class A River). River numbers are used as references for small rivers in Table S8, Table S9, and Table S10.

No	River Name	Water Quality Monitoring Station	Weather Station	COD			T-N			T-P			River water temperature		
				a	b	r	a	b	r	a	b	r	a	b	r
11	Shio River	Funakura Bridge	Irago	13.140	0.945	0.86	9.933	0.968	0.93	0.951	0.886	0.90	0.893	1.052	0.97
12	Umeda River	Hietsu Bridge	Irago	8.788	0.974	0.77	4.783	0.707	0.57	0.579	0.827	0.69	0.784	3.484	0.96
13	Yagyu River	Yagyu Bridge	Irago	6.976	0.931	0.84	2.654	0.777	0.73	0.229	0.739	0.69	0.852	2.258	0.97
14	Sana River	Yanagi Bridge	Irago	7.022	0.882	0.82	6.020	0.945	0.87	0.330	0.758	0.81	0.619	7.636	0.94
15	Shira River	Shinshirakawa Bridge	Irago	5.496	0.969	0.87	4.551	0.832	0.83	0.225	0.884	0.82	0.603	6.365	0.92
16	Otoha River	Tsurugi River	Irago	4.282	0.813	0.82	2.215	0.903	0.94	0.089	0.649	0.63	0.719	2.888	0.97
17	Yahagifuru River	Furukawa Headworker	Irago	3.247	0.865	0.90	1.001	0.912	0.95	0.053	0.924	0.78	0.791	1.300	0.95
18	Kanori River	Yonedukuo Bridge	Irago	9.024	0.824	0.92	4.667	0.503	0.77	0.409	0.726	0.83	0.784	1.979	0.96
19	Shin River	Suimon Bridge	Nagoya	10.105	0.904	0.92	4.267	0.784	0.89	0.305	0.920	0.94	0.848	1.237	0.98
20	Takahama River	Takahama Bridge	Nagoya	8.949	0.955	0.99	3.196	0.926	0.98	0.292	0.966	0.99	0.815	1.871	0.97
21	Sawatari River	Mitsumata Bridge	Nagoya	11.137	0.709	0.85	6.837	0.387	0.67	0.585	0.447	0.70	0.775	2.532	0.98
22	Aiduma River	Sakaioo Bridge	Nagoya	10.640	0.922	0.91	7.000	0.780	0.75	0.867	0.727	0.73	0.803	1.452	0.98

23	Sakai River	Sakaioo Bridge	Nagoya	10.409	0.906	0.92	5.448	0.777	0.83	0.496	0.781	0.81	0.846	1.099	0.97
24	Agui River	Handaoo Bridge	Nagoya	9.022	0.936	0.93	3.380	0.948	0.86	0.295	0.913	0.88	0.860	1.402	0.98
25	Shin River	Kayatsu Bridge	Nagoya	31.784	0.704	0.53	31.826	0.484	0.35	2.235	0.576	0.41	0.690	5.303	0.97
26	Nikko River	Nikkooo Bridge	Nagoya	11.637	0.964	0.96	5.611	0.867	0.93	0.370	0.948	0.92	0.774	3.769	0.97
27	Ibi River	Kuwabe Bridge	Yokkaichi	1.315	1.018	0.91	1.214	0.977	0.97	0.065	0.775	0.73	0.692	3.495	0.96
28	Asake River	Asakeoo Bridge	Yokkaichi	1.936	0.994	0.94	1.535	0.991	0.97	0.100	0.863	0.82	0.805	2.232	0.96
29	Kanazawa River	Chiyosaki Sluice Gate	Yokkaichi	6.048	1.009	0.98	3.063	1.035	0.96	0.260	1.007	0.90	0.843	2.161	0.96
30	Nakano River	Kogama Bridge	Yokkaichi	4.189	1.056	0.97	1.254	0.907	0.91	0.073	1.046	0.86	0.950	-0.883	0.97
31	Shitomo River	Edo Bridge	Tsu	5.557	0.893	0.95	2.482	0.986	0.98	0.225	1.090	0.96	0.902	0.692	0.97
32	Anou River	Gosansou Bridge	Tsu	2.995	0.915	0.95	1.629	0.907	0.97	0.094	0.721	0.85	0.857	0.443	0.97
33	Iwata River	Kannon Bridge	Tsu	3.933	0.917	0.96	1.632	1.029	0.99	0.127	0.870	0.91	0.862	1.221	0.96
34	Sakanai River	Araki Bridge	Tsu	2.274	0.849	0.95	1.367	1.049	0.98	0.058	0.725	0.90	0.837	1.313	0.94
35	Kongou River	Showa Bridge	Tsu	5.011	1.030	0.97	1.925	0.931	0.94	0.215	1.161	0.91	0.950	-1.571	0.96
36	Sasabue River	Yagito Bridge	Tsu	2.832	1.078	0.96	2.019	1.124	0.97	0.091	1.068	0.92	0.848	0.833	0.96
37	Tokida River	Noyori Bridge	Tsu	3.807	1.034	0.94	2.572	0.941	0.95	0.170	0.983	0.97	0.824	1.176	0.97

38	Suzuka River	Horiwari Bridge	Tsu	1.871	0.918	0.90	0.627	0.853	0.82	0.039	1.176	0.74	0.774	1.753	0.94
39	Kamo River	Nohatai Weir	Tsu	1.847	1.060	0.88	0.487	1.226	0.91	0.029	0.850	0.53	0.818	0.320	0.95
40	Yamazaki River	Doutoku Bridge	Nagoya	9.562	1.021	0.98	10.008	1.049	0.99	0.904	1.155	0.90	0.613	8.612	0.90

Table S8 Coefficient of L-Q equations for small rivers (Except Class A River). The coefficients for COD and river water temperature were obtained from the "Water Quality Monitoring Station" and "Weather Station", while the coefficients for other factors were taken from the reference river.

No	River Name	Water Quality Monitoring Station	Weather Station	Reference River No.	COD			River water temperature		
					a	b	r	a	b	r
41	Tenpaku River	Chidori River	Nagoya	40	7.769	0.976	0.98	0.696	5.685	0.92
42	Hori River	Minatoshin River	Nagoya	40	0.637	0.946	0.97	0.605	7.922	0.90

Table S9 Coefficient of L-Q equations for small rivers (Except Class A River). The coefficients for river water temperature were obtained from the "Weather Station", while the coefficients for other factors were taken from the reference river.

No	River Name	Weather Station	Reference River No.	River water temperature		
				a	B	r
43	Toyo River Spillway	Irago	1	0.893	0.524	0.96
44	Arako River	Nagoya	40	0.905	1.073	0.97
45	Nakagawa Channel	Nagoya	40	0.829	2.620	0.97
46	Kaizou River	Yokkaichi	28	0.725	4.084	0.96
47	Mitaki River	Yokkaichi	28	0.919	3.628	0.96
48	Tenpaku River	Yokkaichi	28	0.709	5.761	0.95
49	Seta River	Tsu	38	0.792	2.952	0.95

Table S10 Reference river for water quality coefficients in rivers without water quality observation station.

No	River Name	Reference River No.
50	Tenpaku River	11
51	Memeda River	11
52	Shinhori River	11
53	Imabori River	11

54	Imaike River	11
55	Shijimi River	11
56	Kamita River	11
57	Sakai River	11
58	Mito River	16
59	Murasaki River	16
60	Nishida River	16
61	Ochiai River	16
62	Hiroishi River	16
63	Yawata River	16
64	Toba River	16
65	Yazaki River	16
66	Kitahama River	17
67	Shijimi River	20
68	Mae River	20
69	Myotokuji River	23
70	Mametsuki River	23
71	Suka River	23
72	Hieda River	23
73	Too River	24
74	Koudo River	24
75	Ishi River	24
76	Hori River	24
77	Shin River	24
78	Futto River	24
79	Shine River	24
80	oo River	24
81	Goho River	24
82	Yamami River	24
83	Utsumi River	24
84	Sannou River	24
85	Inasa River	24
86	Yada River	24

87	Hinaga River	24
88	Shinano River	24
89	Ota River	24
90	Ikada River	26
91	Horikiri River	30
92	Tanaka River	30
93	Ai River	33
94	Ao River	34
95	Miwatari River	34
96	Ohori River	36
97	Edo River	37
98	Horitooshi River	39
99	Kamisuki River	39

S2 Statistical performance for each years

Table S11 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2011.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	1.17	1.42	0.99	-0.35	0.79	0.53	2.77	0.89	-0.02	2.72	-0.11	1.03	0.61	-0.39	1.02
	Middle	0.58	0.88	1.00	-0.40	0.66	0.33	0.80	0.82	0.16	0.73	0.35	0.98	0.92	-0.61	0.92
	Bottom	0.29	0.62	1.00	-0.15	0.55	-0.16	0.40	0.74	0.19	0.36	1.36	1.68	0.92	-0.64	0.99
A2	Surface	0.84	1.16	0.99	-0.28	0.80	0.65	1.42	0.92	-0.69	1.26	-0.42	0.66	0.82	0.03	0.51
	Middle	0.60	0.84	0.99	-0.21	0.58	0.22	0.49	0.78	-0.08	0.44	-0.31	0.75	0.88	-0.33	0.68
	Bottom	0.41	0.68	0.99	-0.09	0.54	0.14	0.32	0.61	-0.06	0.28	0.32	1.00	0.88	-0.67	0.94
A3	Surface	0.36	0.87	0.99	0.13	0.80	-0.28	0.79	0.79	0.07	0.74	-0.10	0.51	0.85	-0.04	0.50
	Middle	-0.02	0.54	0.99	-0.10	0.54	-0.19	0.44	0.66	-0.11	0.39	-0.05	0.52	0.89	-0.15	0.52
	Bottom	-0.24	0.63	0.99	-0.03	0.58	-0.18	0.39	0.70	-0.02	0.35	0.26	0.51	0.91	-0.15	0.44
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.56	0.85	0.99	-0.09	0.64	-0.03	0.85	0.88	-0.04	0.85	-0.24	0.55	0.84	-0.01	0.49
	Middle	0.13	0.73	0.99	-0.33	0.72	0.33	0.73	0.80	-0.21	0.66	-0.27	0.67	0.82	-0.08	0.61
	Bottom	0.24	0.54	1.00	-0.15	0.48	-0.15	0.54	0.74	0.14	0.52	0.01	0.59	0.88	-0.26	0.59
A6	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A7	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A8	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Table S12 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2012.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	1.30	1.50	1.00	-0.41	0.75	0.54	2.28	0.90	0.01	2.22	0.23	1.59	0.66	-1.02	1.57
	Middle	0.90	1.14	1.00	-0.39	0.70	0.51	0.87	0.78	0.08	0.70	0.45	1.42	0.86	-1.00	1.35
	Bottom	0.45	0.76	0.99	-0.11	0.62	-0.02	0.31	0.75	0.10	0.31	1.18	1.74	0.91	-1.00	1.28
A2	Surface	0.74	1.04	1.00	-0.34	0.73	0.30	1.07	0.89	-0.46	1.03	-0.48	0.84	0.83	-0.31	0.69
	Middle	0.62	0.87	1.00	-0.34	0.61	0.20	0.46	0.79	-0.11	0.41	-0.85	1.12	0.79	-0.02	0.73
	Bottom	0.41	0.64	1.00	-0.17	0.49	0.17	0.35	0.70	-0.02	0.31	-0.42	0.86	0.82	-0.29	0.75
A3	Surface	0.19	0.89	0.99	0.26	0.87	-0.35	0.70	0.87	0.01	0.61	-0.26	0.73	0.70	-0.11	0.69
	Middle	-0.11	0.70	0.99	-0.08	0.69	-0.16	0.43	0.83	-0.14	0.40	-0.12	0.67	0.71	0.07	0.66
	Bottom	-0.23	0.77	0.99	0.02	0.73	-0.15	0.37	0.74	-0.07	0.33	0.33	0.64	0.79	-0.05	0.55
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.65	0.96	0.99	-0.20	0.71	0.09	0.75	0.81	0.05	0.74	-0.41	0.60	0.82	-0.07	0.44
	Middle	0.30	0.89	0.99	-0.50	0.84	0.25	0.56	0.73	-0.14	0.50	-0.52	0.64	0.82	-0.17	0.37
	Bottom	0.37	0.76	0.99	-0.24	0.66	-0.06	0.42	0.61	0.05	0.42	-0.13	0.54	0.88	-0.13	0.53
A6	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A7	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A8	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Table S13 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2013.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	1.12	1.32	1.00	-0.25	0.70	0.42	2.33	0.85	0.18	2.29	-0.76	1.13	0.66	-0.28	0.84
	Middle	0.57	0.87	1.00	-0.35	0.67	0.57	0.83	0.68	0.05	0.61	-0.34	1.18	0.86	-0.78	1.13
	Bottom	0.35	0.66	0.99	0.01	0.56	-0.07	0.35	0.60	0.13	0.35	0.98	1.71	0.87	-1.00	1.40
A2	Surface	0.68	1.04	0.99	-0.34	0.78	0.49	1.00	0.80	-0.32	0.87	-0.80	0.91	0.89	0.10	0.43
	Middle	0.51	0.86	0.99	-0.24	0.70	0.31	0.53	0.70	-0.07	0.42	-0.75	1.05	0.80	-0.22	0.74
	Bottom	0.31	0.57	0.99	-0.02	0.48	0.16	0.34	0.76	-0.09	0.30	0.01	0.73	0.88	-0.41	0.73
A3	Surface	0.22	0.82	0.99	0.16	0.79	-0.12	0.66	0.75	-0.20	0.65	-0.25	0.54	0.85	-0.02	0.48
	Middle	0.01	0.67	0.99	-0.17	0.66	-0.13	0.52	0.58	-0.22	0.51	-0.01	0.53	0.85	-0.07	0.53
	Bottom	-0.23	0.70	0.99	-0.01	0.66	-0.13	0.38	0.67	-0.14	0.36	0.21	0.50	0.84	-0.06	0.46
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.62	0.91	0.99	-0.11	0.67	0.13	0.50	0.73	-0.16	0.48	-0.17	0.53	0.81	0.08	0.51
	Middle	0.23	0.83	0.99	-0.44	0.80	0.20	0.54	0.33	-0.26	0.50	-0.41	0.71	0.82	-0.13	0.58
	Bottom	0.30	0.61	0.99	-0.05	0.53	-0.15	0.50	0.24	-0.25	0.48	-0.03	0.42	0.94	-0.21	0.42
A6	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A7	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A8	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Table S14 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2014.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.91	1.20	0.99	-0.06	0.77	0.67	2.49	0.89	0.11	2.40	-0.11	1.13	0.74	-0.63	1.13
	Middle	0.31	0.70	1.00	-0.31	0.63	0.36	0.73	0.64	0.04	0.63	0.69	1.41	0.92	-0.98	1.23
	Bottom	0.31	0.63	0.99	0.11	0.55	-0.23	0.43	0.65	0.14	0.37	1.54	2.02	0.92	-1.00	1.31
A2	Surface	0.45	0.73	1.00	-0.10	0.58	0.28	1.06	0.86	0.01	1.02	-0.80	0.94	0.85	-0.05	0.49
	Middle	0.26	0.65	0.99	-0.18	0.60	0.24	0.63	0.60	-0.06	0.58	-0.65	1.16	0.74	-0.44	0.97
	Bottom	0.22	0.53	1.00	-0.12	0.48	0.00	0.37	0.70	0.05	0.37	0.18	0.99	0.74	-0.47	0.98
A3	Surface	0.33	0.74	0.99	0.17	0.66	-0.33	0.85	0.75	0.27	0.79	-0.52	0.86	0.90	-0.49	0.69
	Middle	-0.02	0.51	0.99	-0.11	0.51	-0.22	0.57	0.57	0.06	0.53	0.06	0.51	0.85	0.00	0.51
	Bottom	-0.20	0.59	0.99	-0.03	0.55	-0.09	0.31	0.64	-0.07	0.29	0.38	0.61	0.86	-0.09	0.48
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.34	0.86	0.99	-0.01	0.79	0.02	0.83	0.87	-0.01	0.83	-0.09	0.52	0.77	-0.02	0.51
	Middle	0.75	1.04	0.64	-0.42	0.71	0.41	0.67	0.36	-0.20	0.53	-0.41	0.63	0.53	-0.42	0.48
	Bottom	0.13	0.62	0.99	-0.14	0.61	-0.43	0.76	0.55	0.28	0.63	0.82	1.35	0.69	-0.67	1.07
A6	Surface	0.75	0.94	1.00	-0.05	0.56	-0.01	1.05	0.73	0.23	1.05	-0.60	0.97	0.87	-0.20	0.76
	Middle	0.49	0.86	1.00	-0.22	0.70	0.09	0.59	0.77	0.07	0.58	-0.60	1.05	0.87	-0.37	0.86
	Bottom	0.42	0.74	1.00	-0.42	0.61	-0.01	0.46	0.85	-0.10	0.46	0.42	1.71	0.91	-1.22	1.66
A7	Surface	0.33	0.70	1.00	-0.14	0.61	0.47	0.88	0.83	-0.21	0.75	-0.69	0.89	0.92	-0.23	0.57
	Middle	0.29	0.71	1.00	-0.19	0.64	0.18	0.62	0.76	0.16	0.60	-0.64	0.92	0.90	-0.33	0.67
	Bottom	0.40	0.68	1.00	-0.20	0.54	-0.18	0.50	0.79	0.07	0.47	0.23	1.39	0.89	-1.04	1.37
A8	Surface	0.43	0.88	0.99	-0.34	0.76	0.28	0.87	0.79	-0.24	0.83	-0.83	1.06	0.89	-0.33	0.66
	Middle	0.46	0.85	0.99	-0.41	0.72	0.16	0.61	0.60	0.09	0.59	-0.54	1.20	0.86	-0.77	1.07
	Bottom	0.50	0.70	1.00	-0.24	0.49	-0.11	0.54	0.65	-0.01	0.53	-0.33	1.05	0.92	-0.77	0.99

Table S15 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2015.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.82	1.07	0.99	-0.22	0.69	0.77	2.80	0.86	-0.03	2.69	-0.47	0.95	0.70	-0.11	0.82
	Middle	0.40	0.75	1.00	-0.33	0.63	0.41	0.71	0.78	0.02	0.58	-0.05	1.08	0.76	-0.46	1.08
	Bottom	0.28	0.72	0.99	0.01	0.67	-0.17	0.34	0.80	0.12	0.29	0.84	1.52	0.73	-0.59	1.27
A2	Surface	0.39	0.77	0.99	-0.15	0.66	0.41	1.24	0.87	-0.28	1.17	-0.51	0.75	0.82	-0.01	0.55
	Middle	0.33	0.66	0.99	-0.05	0.57	0.21	0.63	0.71	-0.05	0.59	-0.20	0.92	0.80	-0.38	0.89
	Bottom	0.23	0.57	0.99	-0.04	0.52	-0.02	0.37	0.75	0.06	0.37	0.42	1.02	0.82	-0.52	0.93
A3	Surface	0.15	0.70	0.99	0.12	0.69	-0.26	0.61	0.84	-0.07	0.55	0.02	0.67	0.63	0.03	0.67
	Middle	-0.05	0.57	0.99	-0.12	0.56	-0.21	0.41	0.78	-0.05	0.36	0.31	0.60	0.80	0.15	0.51
	Bottom	-0.22	0.66	0.99	0.00	0.62	-0.14	0.37	0.74	-0.09	0.34	0.67	0.86	0.73	0.13	0.54
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.29	0.71	0.99	-0.11	0.64	-0.02	0.61	0.90	-0.04	0.61	0.00	0.68	0.65	0.05	0.68
	Middle	-0.07	0.74	0.98	-0.26	0.74	0.47	1.03	0.72	-0.53	0.92	0.00	0.68	0.63	-0.08	0.68
	Bottom	0.21	0.63	0.99	-0.17	0.60	0.01	0.69	0.52	-0.20	0.69	0.48	0.85	0.74	-0.16	0.70
A6	Surface	0.66	0.87	1.00	-0.15	0.58	0.24	1.13	0.85	0.32	1.10	-0.82	1.17	0.91	-0.55	0.83
	Middle	0.48	0.88	1.00	-0.30	0.73	0.33	0.63	0.87	0.09	0.54	-0.74	1.32	0.91	-0.81	1.09
	Bottom	0.57	0.82	1.00	-0.45	0.60	0.18	0.54	0.78	-0.07	0.51	-0.25	1.41	0.95	-1.05	1.39
A7	Surface	0.30	0.76	0.99	-0.30	0.70	0.52	1.02	0.89	-0.16	0.88	-0.59	0.91	0.78	-0.35	0.69
	Middle	0.35	0.86	0.99	-0.28	0.78	0.23	0.64	0.88	0.12	0.60	-0.46	1.10	0.75	-0.63	1.00
	Bottom	0.45	0.71	0.99	-0.27	0.55	-0.05	0.39	0.86	0.02	0.39	0.15	1.34	0.86	-0.96	1.33
A8	Surface	0.43	1.00	0.99	-0.52	0.90	0.35	0.82	0.85	-0.04	0.74	-0.84	1.12	0.91	-0.52	0.75
	Middle	0.56	0.91	1.00	-0.48	0.73	0.28	0.55	0.72	0.03	0.47	-0.56	1.17	0.90	-0.80	1.03
	Bottom	0.53	0.76	1.00	-0.33	0.54	0.03	0.41	0.74	-0.12	0.41	-0.38	1.05	0.95	-0.81	0.98

Table S16 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2016.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.70	0.94	1.00	-0.12	0.63	0.60	2.40	0.86	-0.12	2.33	-0.26	1.36	0.54	-0.59	1.34
	Middle	0.46	0.78	0.99	-0.22	0.63	0.40	0.71	0.74	-0.20	0.58	0.36	1.38	0.88	-1.06	1.34
	Bottom	0.22	0.68	0.99	0.08	0.64	-0.32	0.47	0.41	0.02	0.35	1.16	1.70	0.92	-0.97	1.25
A2	Surface	0.19	0.67	0.99	-0.03	0.64	0.50	1.29	0.83	-0.40	1.18	-0.50	0.74	0.77	-0.02	0.55
	Middle	0.07	0.54	0.99	-0.12	0.53	0.21	0.63	0.49	-0.23	0.60	-0.35	0.91	0.75	-0.36	0.85
	Bottom	0.13	0.54	0.99	0.04	0.52	-0.13	0.35	0.56	-0.02	0.33	0.30	0.97	0.80	-0.48	0.92
A3	Surface	0.15	0.72	0.99	0.19	0.70	-0.28	0.74	0.75	-0.07	0.69	-0.31	0.64	0.78	-0.17	0.56
	Middle	-0.14	0.70	0.99	-0.18	0.68	-0.19	0.57	0.42	-0.26	0.54	0.37	0.58	0.85	0.01	0.45
	Bottom	-0.19	0.69	0.98	0.04	0.66	-0.11	0.52	0.49	-0.24	0.51	0.50	0.70	0.81	-0.15	0.49
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.13	0.59	0.99	0.03	0.58	-0.02	0.62	0.83	-0.14	0.62	-0.14	0.54	0.85	-0.13	0.52
	Middle	-0.05	0.79	0.99	-0.33	0.79	0.28	0.71	0.58	-0.29	0.65	0.15	0.54	0.87	-0.15	0.52
	Bottom	0.09	0.56	0.99	-0.04	0.56	-0.20	0.46	0.52	-0.01	0.41	-0.27	0.62	0.81	-0.05	0.56
A6	Surface	0.49	0.72	1.00	-0.02	0.52	0.33	0.85	0.79	0.09	0.78	-0.81	1.09	0.91	-0.36	0.73
	Middle	0.34	0.72	1.00	-0.21	0.63	0.36	0.59	0.72	-0.05	0.47	-0.79	1.18	0.90	-0.53	0.89
	Bottom	0.36	0.68	1.00	-0.41	0.58	0.17	0.44	0.85	-0.22	0.40	0.05	1.73	0.94	-1.45	1.73
A7	Surface	0.35	0.73	1.00	-0.28	0.64	0.56	0.83	0.84	-0.31	0.62	-0.94	1.12	0.90	-0.25	0.61
	Middle	0.44	0.85	1.00	-0.34	0.72	0.36	0.54	0.82	0.01	0.41	-0.95	1.18	0.89	-0.35	0.70
	Bottom	0.53	0.83	0.99	-0.22	0.63	-0.02	0.38	0.76	-0.04	0.38	-0.38	1.37	0.90	-1.02	1.32
A8	Surface	0.30	0.71	1.00	-0.21	0.64	0.33	0.65	0.77	-0.19	0.56	-0.78	0.99	0.92	-0.33	0.61
	Middle	0.40	0.75	1.00	-0.37	0.64	0.26	0.48	0.67	-0.08	0.41	-0.64	1.08	0.91	-0.64	0.87
	Bottom	0.43	0.65	1.00	-0.20	0.48	-0.04	0.44	0.60	-0.15	0.43	-0.41	0.96	0.94	-0.68	0.87

Table S17 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2017.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.32	0.68	1.00	-0.12	0.60	0.67	2.14	0.86	-0.13	2.03	-0.29	0.93	0.76	-0.44	0.89
	Middle	0.36	0.68	0.99	-0.14	0.58	0.36	0.61	0.75	-0.08	0.50	0.62	1.20	0.92	-0.80	1.02
	Bottom	0.21	0.77	0.99	0.07	0.74	-0.29	0.45	0.67	0.09	0.34	1.35	1.68	0.92	-0.71	1.01
A2	Surface	-0.03	0.62	1.00	-0.04	0.62	0.37	1.02	0.82	-0.23	0.95	-0.33	0.66	0.82	-0.04	0.58
	Middle	0.09	0.52	1.00	0.05	0.51	0.16	0.49	0.77	-0.03	0.47	-0.08	0.93	0.81	-0.41	0.92
	Bottom	0.24	0.64	0.99	0.05	0.59	-0.07	0.30	0.82	-0.02	0.29	0.47	0.99	0.82	-0.38	0.87
A3	Surface	0.06	0.78	0.99	0.17	0.78	-0.27	0.63	0.84	-0.13	0.57	0.15	0.48	0.85	-0.01	0.46
	Middle	-0.06	0.63	0.99	-0.12	0.62	-0.23	0.44	0.85	-0.14	0.37	0.50	0.69	0.84	0.13	0.47
	Bottom	-0.13	0.73	0.99	-0.04	0.71	-0.15	0.37	0.74	-0.06	0.34	0.71	0.86	0.82	-0.01	0.48
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.10	0.66	0.99	-0.01	0.65	-0.08	0.53	0.88	0.07	0.52	-0.05	0.62	0.77	0.02	0.62
	Middle	0.09	0.87	0.99	-0.36	0.87	0.13	0.48	0.77	-0.09	0.47	-0.06	0.52	0.87	-0.10	0.52
	Bottom	0.22	0.72	0.99	-0.17	0.68	-0.18	0.44	0.73	0.04	0.40	0.39	0.74	0.79	-0.09	0.63
A6	Surface	0.35	0.66	1.00	-0.20	0.55	0.35	0.76	0.84	0.05	0.67	-0.82	1.00	0.94	-0.25	0.57
	Middle	0.32	0.78	1.00	-0.29	0.71	0.37	0.59	0.87	0.04	0.46	-0.70	1.14	0.91	-0.53	0.91
	Bottom	0.50	0.77	1.00	-0.39	0.59	0.22	0.49	0.91	-0.14	0.44	-0.04	1.65	0.95	-1.36	1.65
A7	Surface	0.27	0.76	1.00	-0.29	0.71	0.37	0.70	0.80	-0.08	0.59	-0.86	1.07	0.92	-0.36	0.63
	Middle	0.42	0.89	1.00	-0.38	0.78	0.29	0.50	0.87	0.04	0.40	-0.82	1.17	0.91	-0.58	0.84
	Bottom	0.52	0.83	1.00	-0.22	0.64	0.01	0.36	0.88	-0.03	0.36	-0.15	1.58	0.91	-1.31	1.57
A8	Surface	0.20	0.83	1.00	-0.41	0.81	0.42	0.77	0.77	-0.11	0.65	-1.00	1.16	0.92	-0.30	0.60
	Middle	0.47	0.92	0.99	-0.47	0.79	0.44	0.72	0.75	-0.18	0.56	-0.80	1.30	0.89	-0.74	1.03
	Bottom	0.59	0.85	1.00	-0.34	0.61	0.15	0.62	0.70	-0.23	0.60	-0.59	1.22	0.92	-0.83	1.07

Table S18 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2018.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.55	0.83	1.00	-0.18	0.63	0.65	2.60	0.91	-0.43	2.52	-0.21	1.02	0.64	-0.29	1.00
	Middle	0.44	0.84	1.00	-0.39	0.72	0.37	0.72	0.76	-0.05	0.61	0.29	1.05	0.88	-0.67	1.01
	Bottom	0.31	0.81	0.99	-0.22	0.74	-0.23	0.41	0.64	0.05	0.34	1.06	1.43	0.93	-0.70	0.97
A2	Surface	0.11	0.57	1.00	-0.09	0.56	0.35	1.22	0.89	-0.48	1.17	-0.39	0.71	0.81	-0.01	0.59
	Middle	0.17	0.55	1.00	-0.07	0.52	0.12	0.59	0.75	-0.15	0.58	-0.11	0.76	0.84	-0.24	0.76
	Bottom	0.22	0.64	0.99	-0.08	0.60	-0.11	0.36	0.70	0.01	0.35	0.48	1.01	0.80	-0.37	0.89
A3	Surface	-0.04	1.02	0.98	0.28	1.02	-0.37	0.91	0.85	-0.08	0.83	0.07	0.70	0.76	-0.19	0.70
	Middle	-0.17	0.73	0.99	-0.01	0.71	-0.34	0.55	0.81	-0.09	0.43	0.22	0.62	0.80	0.02	0.58
	Bottom	-0.24	0.67	0.99	-0.02	0.62	-0.19	0.40	0.76	-0.07	0.36	0.22	0.50	0.85	-0.11	0.45
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.27	0.78	0.99	-0.17	0.73	0.23	0.91	0.84	-0.02	0.87	-0.17	0.62	0.78	0.07	0.60
	Middle	0.20	0.97	0.99	-0.44	0.95	0.51	0.92	0.56	-0.40	0.77	-0.10	0.70	0.78	-0.06	0.69
	Bottom	0.30	0.82	0.99	-0.26	0.77	-0.18	0.52	0.67	0.02	0.49	-0.19	0.77	0.78	-0.10	0.74
A6	Surface	0.34	0.62	1.00	-0.18	0.52	0.53	1.24	0.85	-0.32	1.13	-0.85	1.19	0.92	-0.55	0.83
	Middle	0.37	0.76	1.00	-0.30	0.66	0.36	0.76	0.74	0.05	0.67	-0.87	1.30	0.91	-0.65	0.97
	Bottom	0.50	0.84	1.00	-0.44	0.68	0.14	0.51	0.73	-0.10	0.49	-0.07	1.69	0.95	-1.40	1.69
A7	Surface	0.29	0.77	1.00	-0.36	0.72	0.64	1.36	0.86	-0.71	1.20	-0.67	0.92	0.90	-0.26	0.63
	Middle	0.46	0.91	1.00	-0.41	0.78	0.28	0.66	0.87	0.04	0.59	-0.66	0.98	0.90	-0.37	0.73
	Bottom	0.58	0.89	1.00	-0.35	0.68	-0.08	0.45	0.79	0.03	0.45	-0.06	1.23	0.91	-0.88	1.23
A8	Surface	0.44	0.87	1.00	-0.39	0.74	0.42	1.00	0.79	-0.34	0.91	-0.90	1.12	0.95	-0.49	0.67
	Middle	0.61	0.99	1.00	-0.55	0.78	0.34	0.63	0.72	-0.14	0.54	-0.78	1.19	0.94	-0.71	0.90
	Bottom	0.59	0.87	1.00	-0.40	0.64	-0.08	0.50	0.47	-0.12	0.49	-0.47	0.96	0.97	-0.72	0.84

Table S19 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2019.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.39	0.71	1.00	-0.22	0.59	0.65	2.31	0.93	-0.17	2.22	-0.75	1.08	0.69	-0.29	0.79
	Middle	0.31	0.69	1.00	-0.28	0.62	0.50	0.77	0.81	-0.03	0.59	-0.74	1.35	0.88	-0.84	1.13
	Bottom	0.17	0.70	0.99	0.02	0.68	-0.25	0.42	0.73	0.05	0.34	0.32	1.16	0.88	-0.77	1.12
A2	Surface	-0.04	0.52	1.00	-0.01	0.52	0.24	1.03	0.92	-0.47	1.00	-0.81	0.91	0.91	-0.12	0.41
	Middle	-0.08	0.48	1.00	0.03	0.48	0.08	0.53	0.77	-0.09	0.52	-1.01	1.26	0.84	-0.29	0.76
	Bottom	0.06	0.54	0.99	0.01	0.53	-0.09	0.31	0.86	-0.02	0.30	-0.57	0.86	0.91	-0.39	0.65
A3	Surface	-0.13	0.96	0.97	0.19	0.95	-0.31	0.52	0.81	-0.09	0.42	-0.03	0.56	0.64	-0.09	0.56
	Middle	-0.20	0.71	0.98	-0.03	0.68	-0.31	0.47	0.81	-0.05	0.36	-0.68	1.04	0.88	-0.58	0.79
	Bottom	-0.24	0.86	0.96	-0.08	0.82	-0.11	0.33	0.56	-0.09	0.31	0.35	0.50	0.83	-0.08	0.36
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.12	0.63	0.99	-0.03	0.62	-0.01	0.69	0.90	-0.09	0.69	-0.15	0.49	0.86	-0.22	0.47
	Middle	0.01	0.76	0.99	-0.37	0.76	0.16	0.54	0.81	-0.14	0.51	-0.24	0.57	0.89	-0.19	0.51
	Bottom	0.15	0.70	0.99	-0.17	0.69	-0.13	0.53	0.59	0.07	0.52	-0.22	0.74	0.89	-0.41	0.70
A6	Surface	0.33	0.63	1.00	-0.25	0.53	0.61	0.98	0.90	0.03	0.76	-1.02	1.26	0.92	-0.41	0.74
	Middle	0.43	0.72	1.00	-0.29	0.58	0.54	0.80	0.86	0.12	0.59	-0.96	1.42	0.89	-0.68	1.04
	Bottom	0.49	0.83	1.00	-0.50	0.66	0.37	0.68	0.72	-0.04	0.57	-0.34	1.68	0.94	-1.30	1.64
A7	Surface	0.34	0.85	1.00	-0.52	0.77	0.64	1.01	0.92	-0.32	0.79	-0.80	1.02	0.91	-0.36	0.63
	Middle	0.53	0.98	1.00	-0.56	0.82	0.39	0.66	0.91	0.06	0.53	-0.79	1.10	0.90	-0.51	0.77
	Bottom	0.48	0.83	1.00	-0.39	0.69	0.12	0.46	0.81	0.08	0.45	-0.27	1.29	0.94	-1.01	1.26
A8	Surface	0.34	0.90	1.00	-0.56	0.83	0.52	0.88	0.91	-0.26	0.71	-0.73	0.90	0.93	-0.21	0.52
	Middle	0.52	0.92	1.00	-0.54	0.75	0.33	0.60	0.84	0.00	0.50	-0.52	0.97	0.92	-0.51	0.82
	Bottom	0.49	0.76	1.00	-0.37	0.58	0.03	0.49	0.69	0.03	0.49	-0.33	0.95	0.95	-0.67	0.89

Table S20 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2020.

		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.53	0.86	0.99	-0.21	0.68	0.79	2.24	0.96	-0.48	2.10	-0.38	1.00	0.61	-0.09	0.92
	Middle	0.34	0.85	0.99	-0.39	0.78	0.33	0.75	0.57	0.01	0.67	-0.71	1.21	0.89	-0.58	0.98
	Bottom	0.13	0.63	0.99	-0.02	0.62	-0.35	0.56	0.56	0.18	0.44	0.26	1.22	0.88	-0.77	1.19
A2	Surface	-0.02	0.74	0.99	-0.19	0.74	0.53	1.58	0.95	-0.60	1.49	-0.67	0.89	0.63	0.04	0.59
	Middle	0.02	0.67	0.99	-0.12	0.67	0.09	0.63	0.65	-0.12	0.62	-0.74	1.10	0.86	-0.40	0.82
	Bottom	0.32	0.72	0.98	-0.03	0.64	-0.02	0.29	0.62	0.02	0.29	-0.23	0.92	0.92	-0.71	0.89
A3	Surface	0.03	0.96	0.98	0.13	0.95	-0.28	1.31	0.85	0.04	1.28	0.31	0.79	0.59	-0.27	0.72
	Middle	-0.13	0.89	0.98	-0.14	0.88	-0.22	0.49	0.72	-0.11	0.44	0.21	0.66	0.69	0.15	0.63
	Bottom	-0.16	0.77	0.98	0.00	0.75	-0.27	0.55	0.68	0.11	0.48	0.44	0.82	0.60	-0.11	0.69
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.14	0.82	0.99	-0.17	0.81	-0.03	1.02	0.93	-0.03	1.02	-0.13	0.78	0.67	-0.15	0.77
	Middle	-0.09	1.12	0.97	-0.66	1.12	0.43	0.95	0.70	-0.52	0.85	-0.14	0.65	0.78	-0.13	0.63
	Bottom	0.27	0.82	0.97	-0.28	0.77	-0.17	0.51	0.57	-0.01	0.48	0.22	0.72	0.79	-0.29	0.69
A6	Surface	0.25	0.66	1.00	-0.26	0.61	0.56	1.43	0.93	-0.15	1.32	-0.42	1.11	0.72	-0.15	1.03
	Middle	0.23	0.92	0.99	-0.39	0.89	0.35	0.97	0.85	0.04	0.91	-0.57	1.28	0.79	-0.38	1.15
	Bottom	0.43	0.81	0.99	-0.40	0.68	0.11	0.62	0.74	-0.06	0.61	-0.57	1.49	0.91	-0.48	1.38
A7	Surface	0.22	0.78	1.00	-0.44	0.75	0.63	1.22	0.96	-0.36	1.04	-0.66	1.03	0.79	-0.16	0.79
	Middle	0.40	1.02	0.99	-0.46	0.93	0.29	0.97	0.88	0.00	0.92	-0.74	1.23	0.79	-0.35	0.98
	Bottom	0.55	0.89	0.99	-0.31	0.71	-0.08	0.56	0.72	0.09	0.56	-0.35	1.47	0.88	-0.83	1.43
A8	Surface	0.27	1.03	0.99	-0.67	0.99	0.72	1.05	0.96	-0.12	0.77	-0.79	1.08	0.70	-0.21	0.75
	Middle	0.51	1.08	0.99	-0.64	0.96	0.49	0.80	0.71	-0.14	0.63	-0.67	1.18	0.88	-0.73	0.98
	Bottom	0.65	0.82	0.99	-0.26	0.50	0.09	0.54	0.40	-0.24	0.54	-0.61	0.95	0.96	-0.63	0.73

Table S21 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2021.

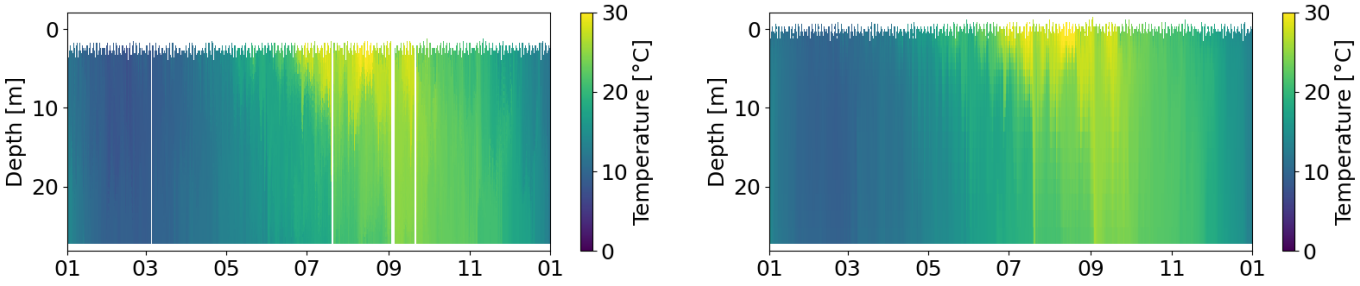
		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.61	0.89	1.00	-0.11	0.65	0.31	2.74	0.92	-0.07	2.72	-0.82	1.46	0.47	-0.03	1.20
	Middle	0.54	0.89	0.99	-0.43	0.71	0.40	0.71	0.83	-0.08	0.59	-1.60	1.91	0.89	-0.14	1.04
	Bottom	0.23	0.61	0.99	-0.16	0.57	-0.21	0.37	0.76	0.06	0.30	-0.40	1.23	0.90	-0.57	1.16
A2	Surface	0.23	0.67	0.99	0.04	0.63	0.64	2.20	0.87	-0.98	2.11	-1.03	1.24	0.79	0.04	0.68
	Middle	0.19	0.54	1.00	-0.15	0.50	0.20	0.66	0.76	-0.16	0.62	-1.34	1.69	0.81	-0.34	1.04
	Bottom	0.16	0.52	0.99	-0.15	0.50	-0.06	0.36	0.79	-0.04	0.35	-0.65	1.10	0.89	-0.58	0.89
A3	Surface	-0.02	0.95	0.98	0.30	0.95	-0.32	0.99	0.86	-0.23	0.94	-0.10	0.57	0.80	0.18	0.56
	Middle	-0.21	0.76	0.99	-0.07	0.73	-0.20	0.51	0.82	-0.12	0.47	-0.10	0.54	0.84	0.17	0.53
	Bottom	-0.22	0.79	0.98	0.01	0.75	-0.16	0.38	0.81	-0.08	0.35	0.12	0.47	0.85	-0.04	0.45
A4	Surface	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Middle	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Bottom	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A5	Surface	0.33	0.85	0.99	-0.09	0.78	0.03	1.09	0.84	-0.21	1.09	-0.23	0.79	0.67	0.14	0.76
	Middle	0.17	0.96	0.99	-0.51	0.95	0.28	0.83	0.75	-0.40	0.78	-0.21	0.67	0.83	0.04	0.64
	Bottom	0.37	0.93	0.99	-0.45	0.86	-0.14	0.45	0.81	0.07	0.43	-0.70	1.00	0.75	0.05	0.72
A6	Surface	0.56	0.79	1.00	-0.03	0.57	0.08	1.47	0.83	-0.39	1.47	-0.57	1.29	0.77	0.06	1.15
	Middle	0.48	0.82	1.00	-0.23	0.66	0.04	0.77	0.77	0.04	0.77	-0.90	1.55	0.82	0.14	1.26
	Bottom	0.55	0.83	1.00	-0.42	0.63	0.13	0.49	0.75	-0.08	0.48	-1.27	1.63	0.96	-0.26	1.03
A7	Surface	0.42	0.73	1.00	-0.17	0.59	0.50	1.54	0.91	-0.98	1.45	-0.80	1.13	0.82	0.18	0.79
	Middle	0.44	0.83	1.00	-0.32	0.71	0.10	0.74	0.85	-0.05	0.74	-0.94	1.34	0.81	0.08	0.96
	Bottom	0.49	0.80	1.00	-0.31	0.64	-0.12	0.43	0.84	-0.02	0.41	-1.06	1.41	0.94	-0.16	0.92
A8	Surface	0.70	0.96	1.00	-0.26	0.67	0.21	0.78	0.94	-0.41	0.75	-0.74	0.91	0.94	0.17	0.52
	Middle	0.90	1.23	1.00	-0.50	0.83	0.17	0.45	0.90	0.01	0.42	-0.68	1.05	0.92	-0.29	0.80
	Bottom	0.82	1.21	0.99	-0.48	0.89	-0.04	0.46	0.78	0.02	0.46	-0.76	0.91	0.97	-0.07	0.51

Table S22 Skills of the numerical simulation and data assimilation results for water temperature, salinity, and DO at each station (No. A1–A8) and each layer (surface layer, middle layer, bottom layer) for 2022.

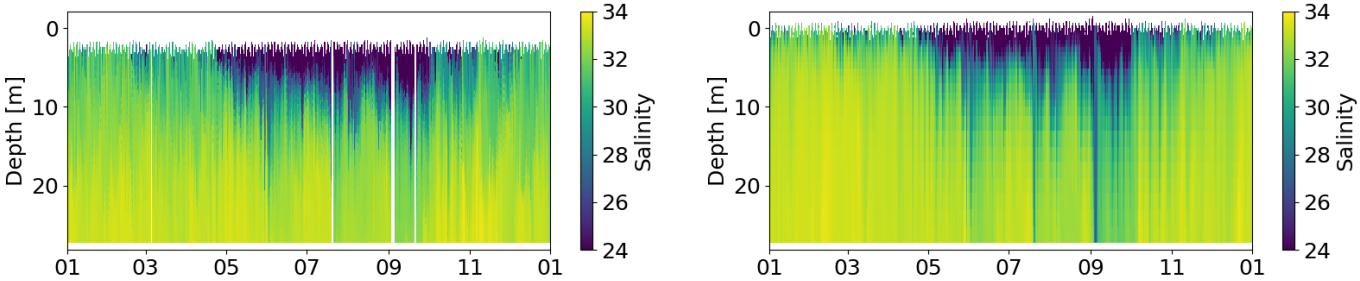
		Water temperature [°C]					Salinity					DO [mg/L]				
No.	Layer	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.40	0.77	1.00	-0.25	0.66	0.67	2.44	0.89	-0.21	2.35	-1.44	1.84	0.63	-0.06	1.15
	Middle	0.32	0.93	0.99	-0.54	0.87	0.21	0.73	0.74	0.09	0.70	-1.55	1.89	0.90	-0.28	1.08
	Bottom	0.28	0.80	0.99	-0.12	0.75	-0.39	0.61	0.78	0.29	0.47	-0.35	1.19	0.89	-0.44	1.14
A2	Surface	-0.20	0.84	0.99	-0.33	0.81	0.62	1.39	0.91	-0.63	1.24	-1.03	1.18	0.87	0.08	0.58
	Middle	-0.11	0.71	0.99	-0.09	0.70	0.07	0.54	0.81	-0.08	0.54	-1.19	1.52	0.87	-0.25	0.96
	Bottom	0.08	0.59	0.99	0.04	0.58	-0.25	0.48	0.82	0.17	0.41	-0.45	0.97	0.91	-0.49	0.86
A3	Surface	-0.16	1.19	0.98	0.37	1.18	-0.42	0.86	0.89	-0.09	0.75	-0.35	0.79	0.75	0.13	0.71
	Middle	-0.21	0.85	0.98	0.00	0.83	-0.26	0.44	0.83	-0.08	0.35	-0.09	0.68	0.80	-0.02	0.67
	Bottom	-0.12	0.85	0.98	0.01	0.85	-0.19	0.39	0.69	-0.03	0.34	0.27	0.78	0.83	-0.44	0.73
A4	Surface	-0.20	0.64	0.99	-0.20	0.61	0.44	1.48	0.93	-0.41	1.41	-1.15	1.43	0.40	0.29	0.85
	Middle	0.14	0.78	0.98	-0.36	0.77	0.13	0.69	0.81	-0.15	0.68	-1.77	2.18	0.73	-0.45	1.27
	Bottom	0.49	0.81	0.98	-0.31	0.64	-0.30	0.69	0.68	0.15	0.63	-0.40	1.69	0.75	-1.16	1.65
A5	Surface	0.12	0.88	0.99	-0.26	0.87	-0.12	0.74	0.88	-0.03	0.73	-0.55	0.98	0.75	0.11	0.81
	Middle	0.10	1.06	0.98	-0.57	1.05	0.09	0.75	0.77	-0.02	0.74	-0.50	0.88	0.81	0.14	0.72
	Bottom	0.26	0.87	0.99	-0.37	0.83	-0.28	0.70	0.78	0.28	0.65	-0.26	0.74	0.85	-0.06	0.70
A6	Surface	0.10	0.60	1.00	-0.26	0.59	0.08	1.07	0.87	-0.03	1.07	-0.95	1.32	0.86	0.17	0.92
	Middle	0.07	0.85	0.99	-0.37	0.84	0.05	0.62	0.82	0.26	0.62	-1.21	1.67	0.86	0.09	1.16
	Bottom	0.42	0.74	1.00	-0.35	0.62	0.02	0.50	0.82	0.01	0.50	-1.36	1.92	0.93	-0.37	1.35
A7	Surface	0.42	0.77	1.00	-0.24	0.65	0.26	0.87	0.89	-0.34	0.83	-1.10	1.28	0.90	-0.14	0.65
	Middle	0.60	0.91	1.00	-0.32	0.69	0.10	0.47	0.94	0.18	0.46	-1.25	1.42	0.91	-0.10	0.68
	Bottom	0.58	0.88	1.00	-0.32	0.66	-0.10	0.47	0.90	0.26	0.46	-1.31	1.54	0.93	-0.25	0.83
A8	Surface	0.21	0.87	1.00	-0.53	0.85	0.15	0.72	0.89	-0.03	0.71	-1.18	1.35	0.92	0.09	0.65
	Middle	0.48	1.09	0.99	-0.60	0.97	0.14	0.59	0.81	0.11	0.57	-1.02	1.44	0.90	-0.51	1.01
	Bottom	0.60	0.85	1.00	-0.28	0.61	-0.21	0.62	0.75	0.11	0.58	-0.85	1.32	0.94	-0.65	1.01

S3 Temporal and vertical structure variability at representative stations

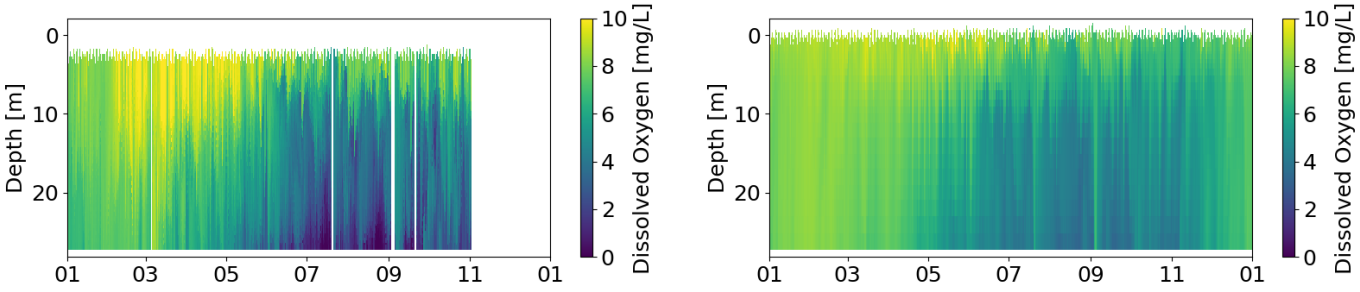
S3.1 Back of Ise Bay: Isopleths



(a) Water temperature

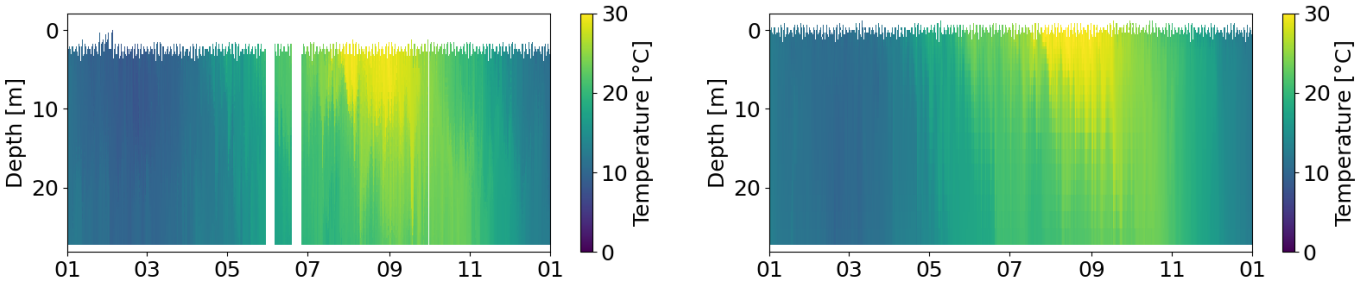


(b) Salinity

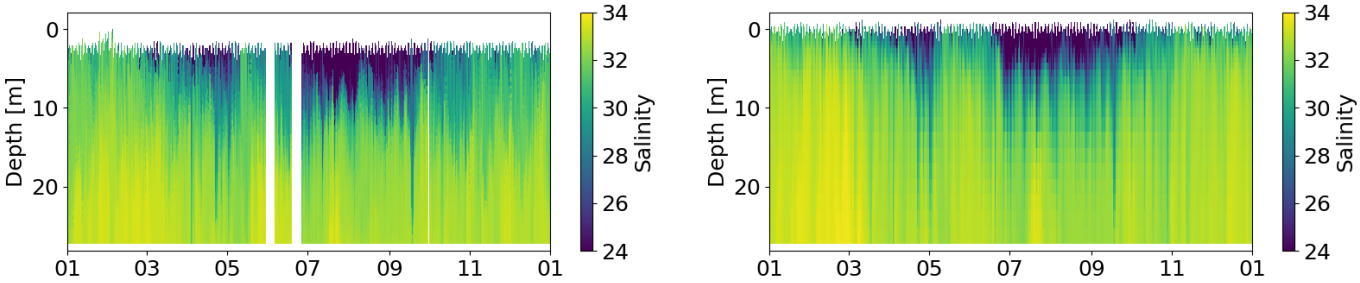


(c) Dissolved oxygen

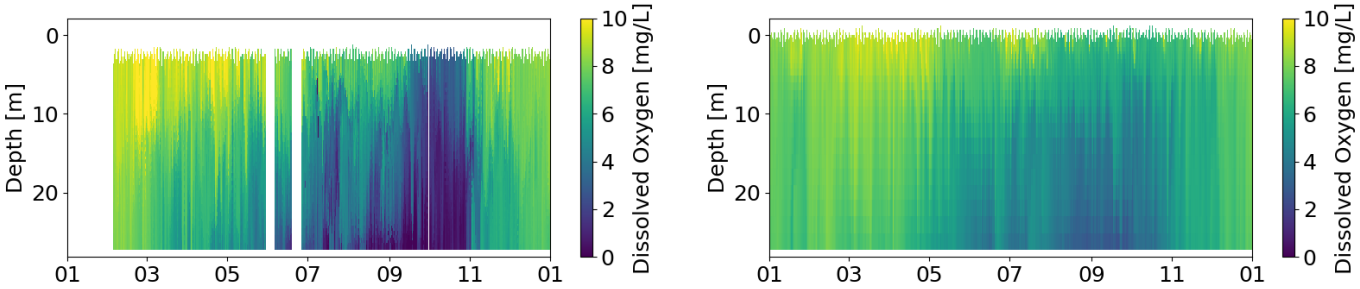
Figure S2 Isopleth plots at Back of Ise Bay in 2011
Left: Observations, Right: Data assimilation results.



(a) Water temperature

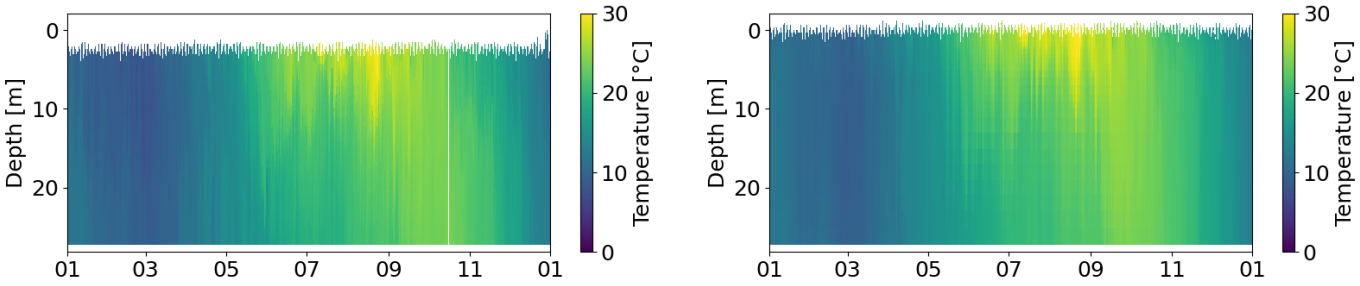


(b) Salinity

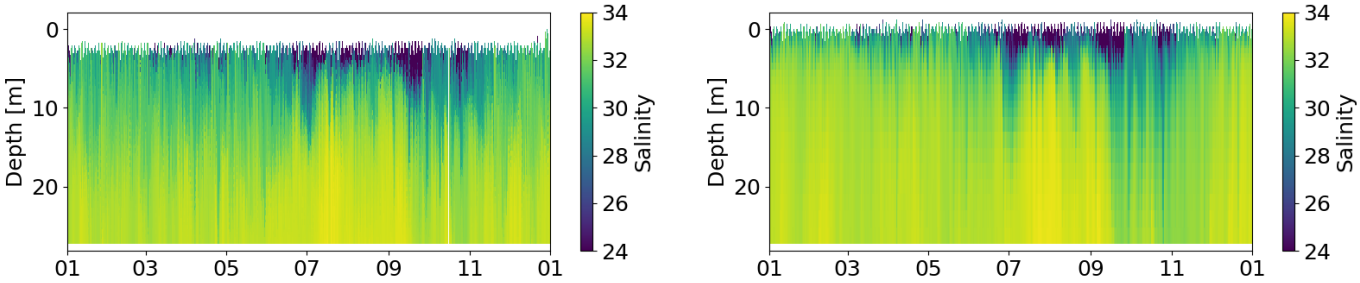


(c) Dissolved oxygen

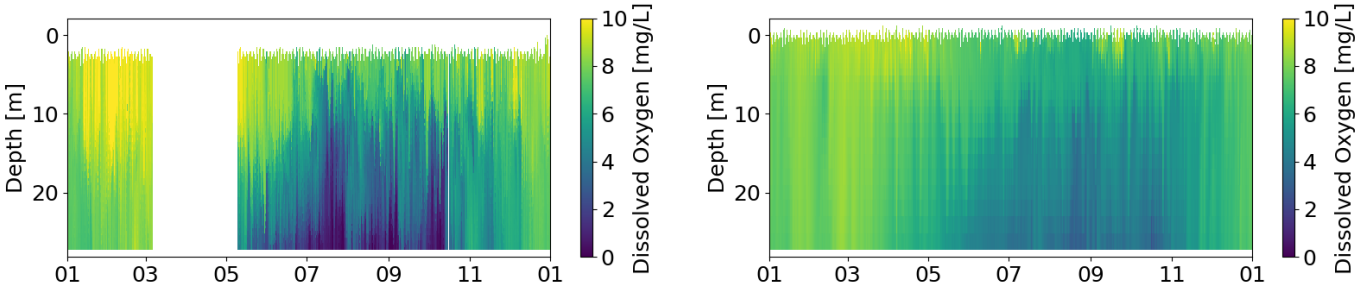
Figure S3 Isopleth plots at Back of Ise Bay in 2012
Left: Observations, Right: Data assimilation results.



(a) Water temperature

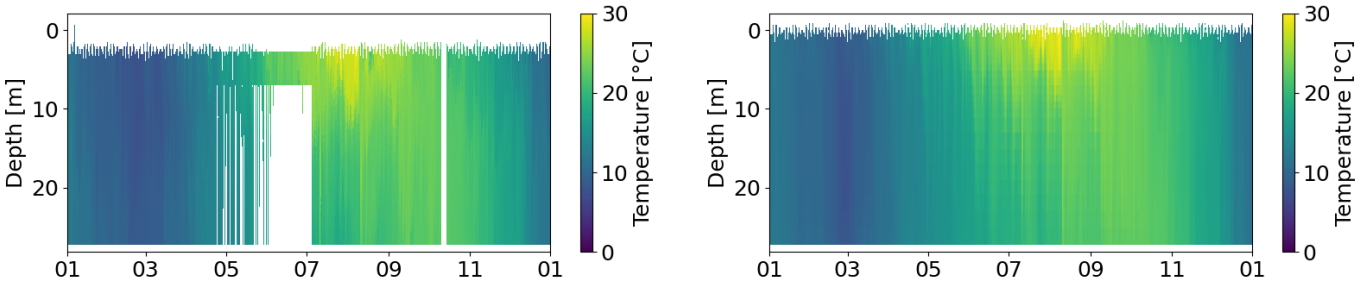


(b) Salinity

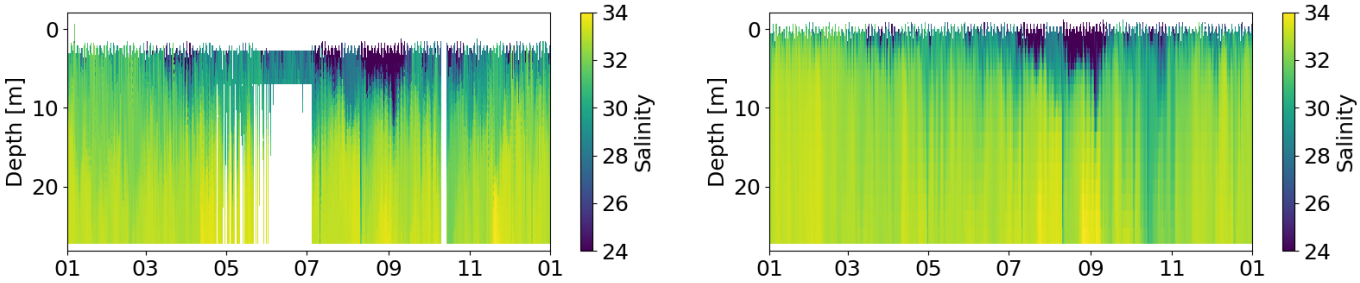


(c) Dissolved oxygen

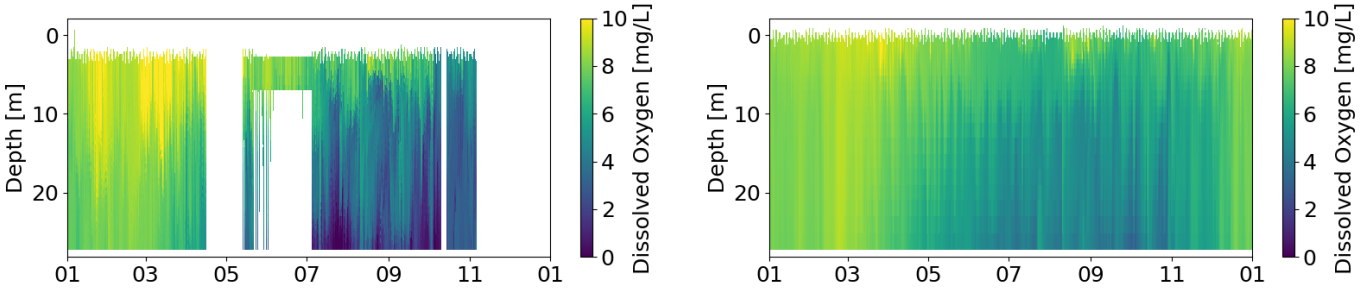
Figure S4 Isopleth plots at Back of Ise Bay in 2013
Left: Observations, Right: Data assimilation results.



(a) Water temperature

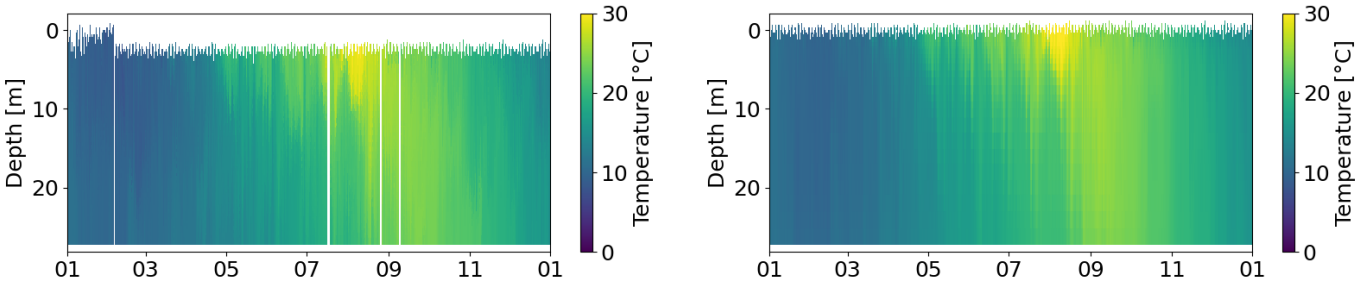


(b) Salinity

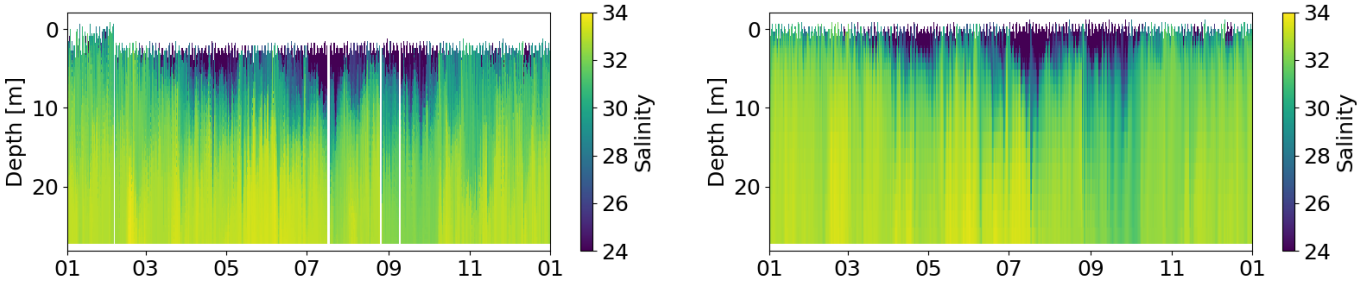


(c) Dissolved oxygen

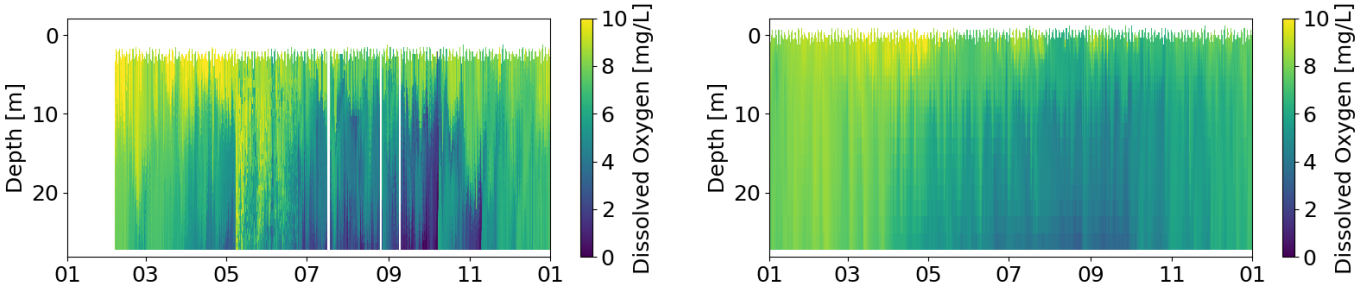
Figure S5 Isopleth plots at Back of Ise Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

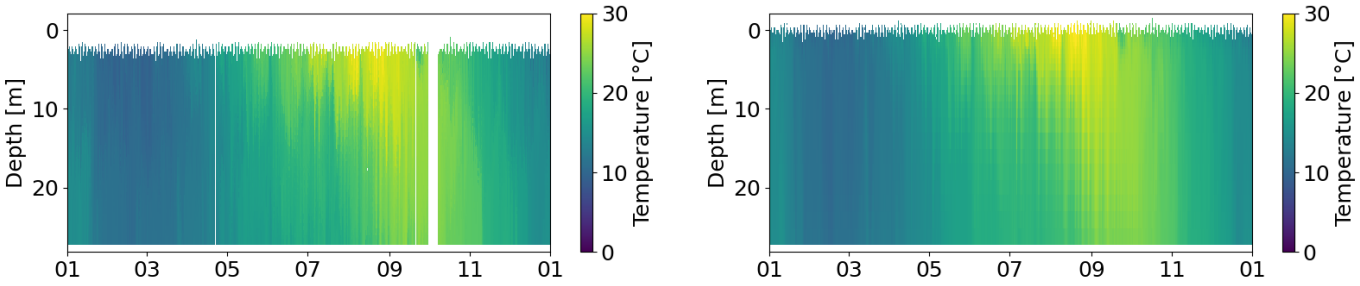


(b) Salinity

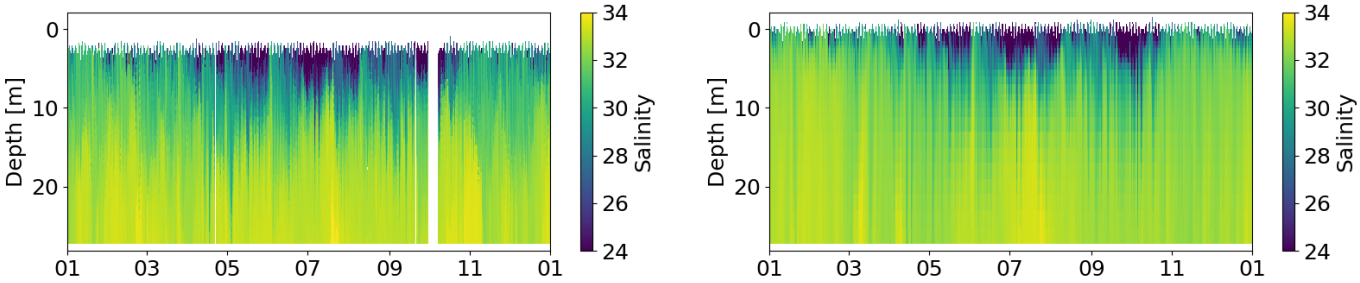


(c) Dissolved oxygen

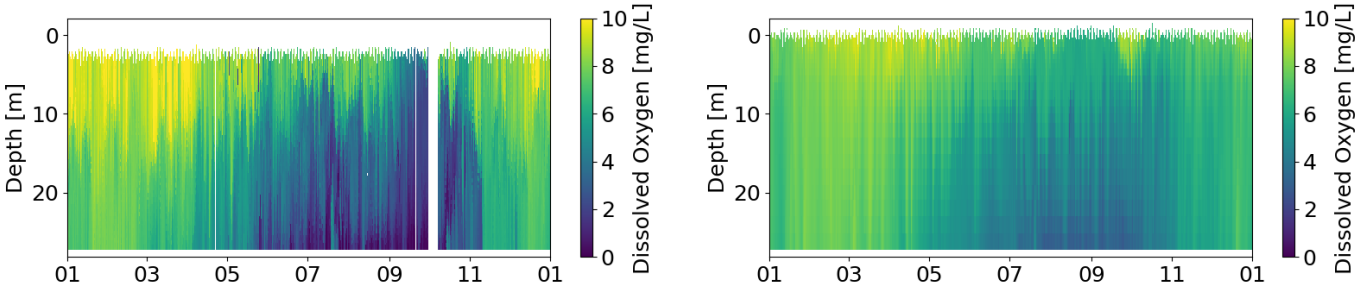
Figure S6 Isopleth plots at Back of Ise Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

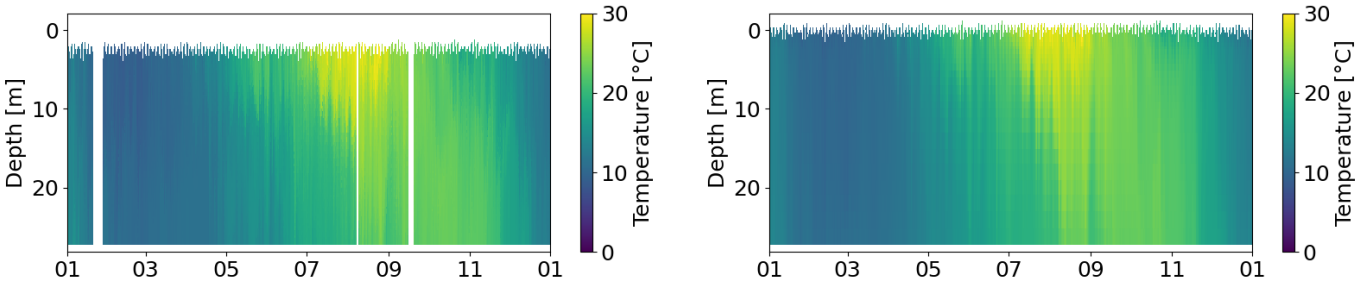


(b) Salinity

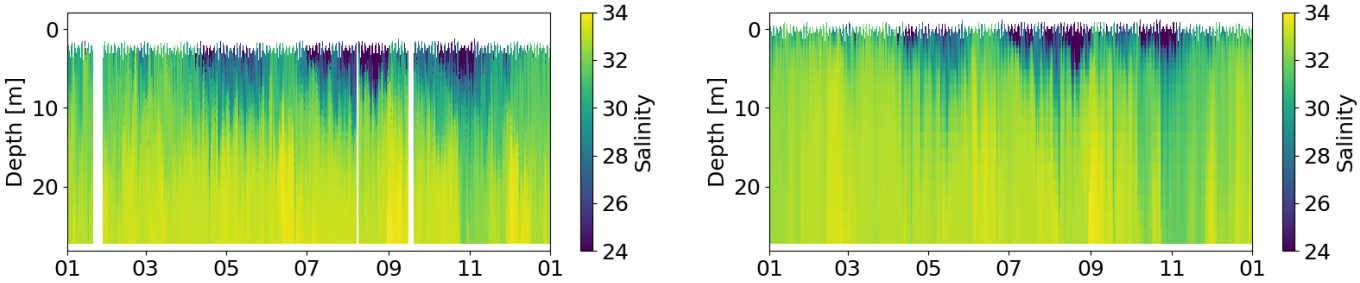


(c) Dissolved oxygen

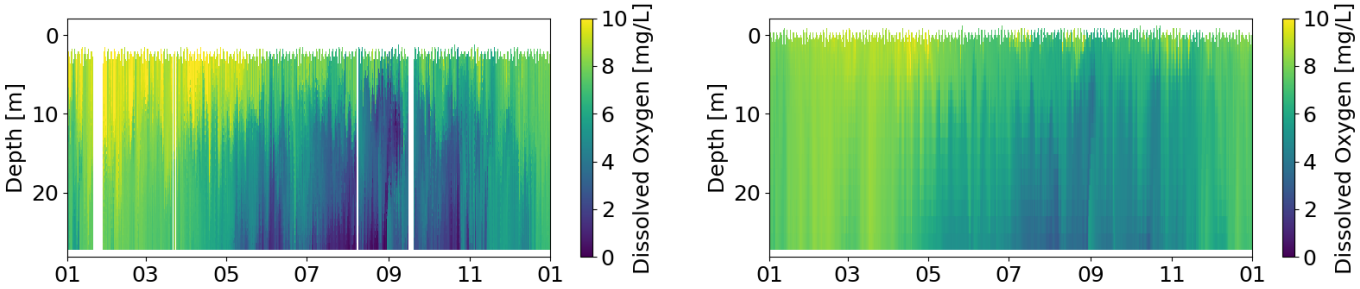
Figure S7 Isopleth plots at Back of Ise Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

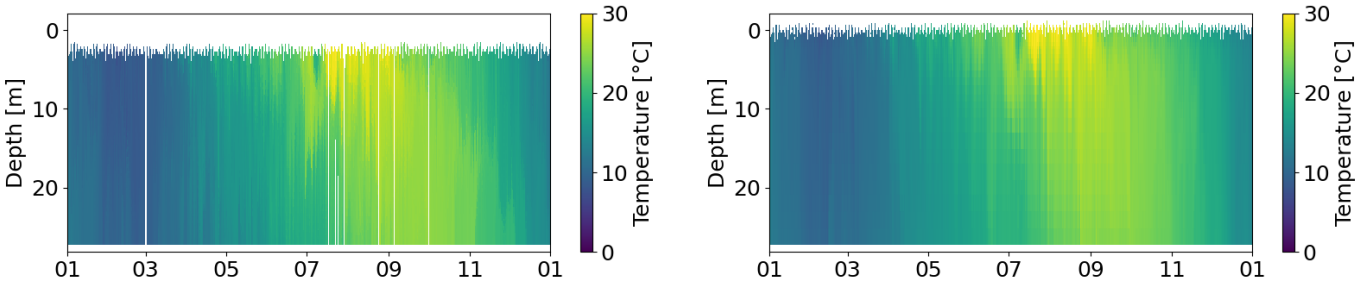


(b) Salinity

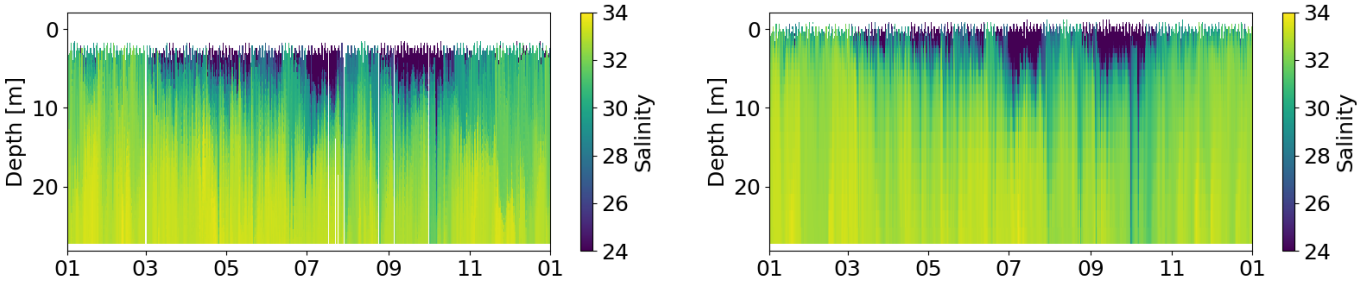


(c) Dissolved oxygen

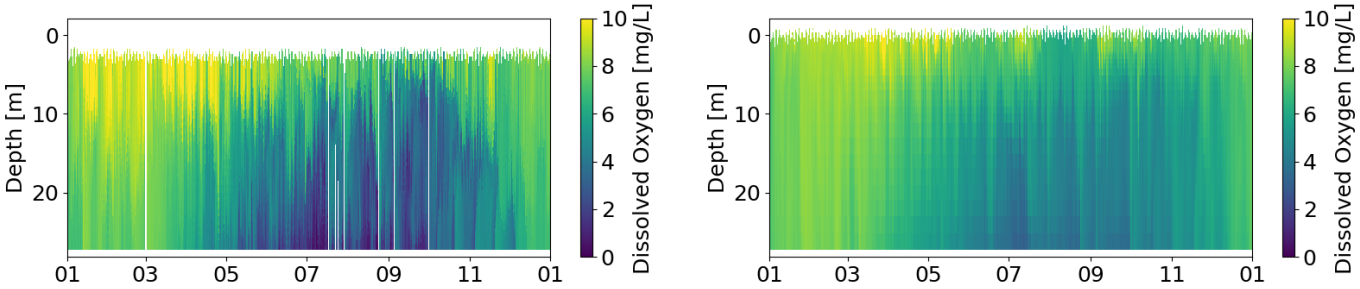
Figure S8 Isopleth plots at Back of Ise Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

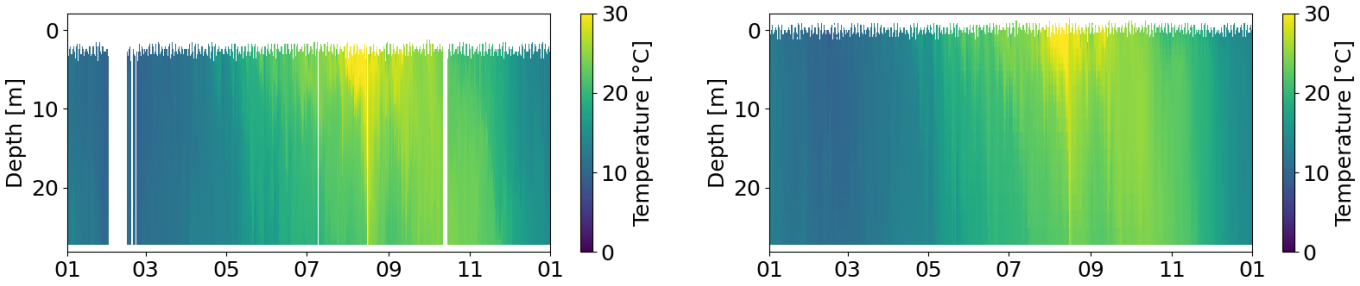


(b) Salinity

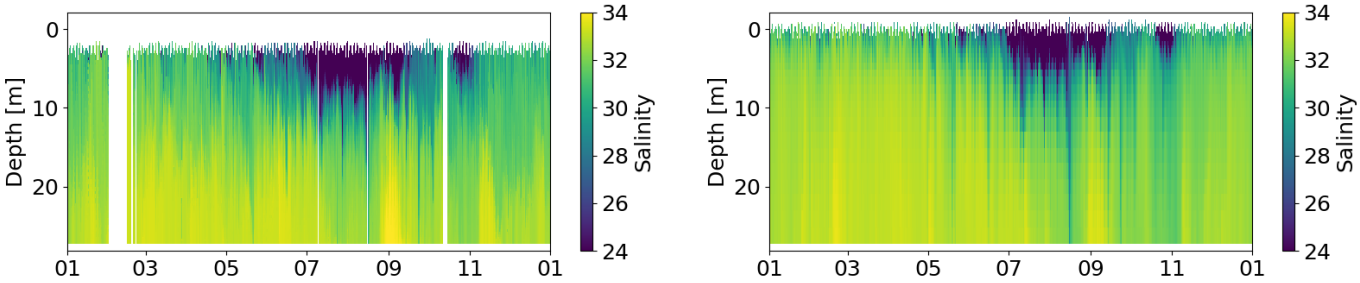


(c) Dissolved oxygen

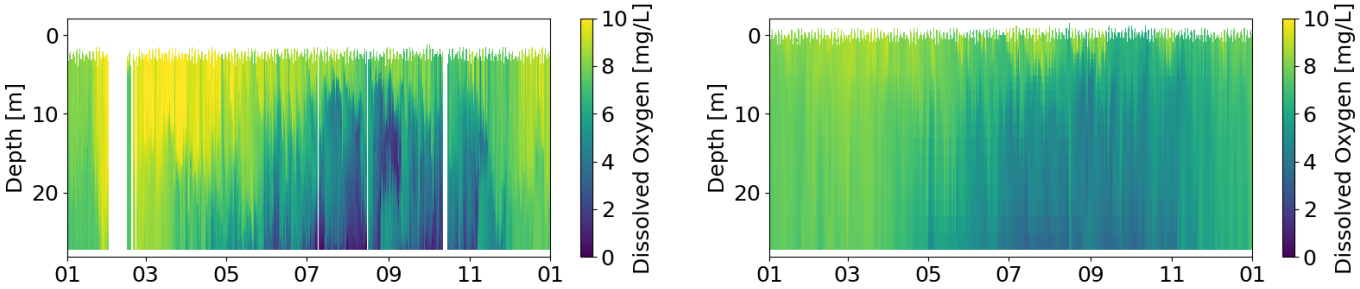
Figure S9 Isopleth plots at Back of Ise Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

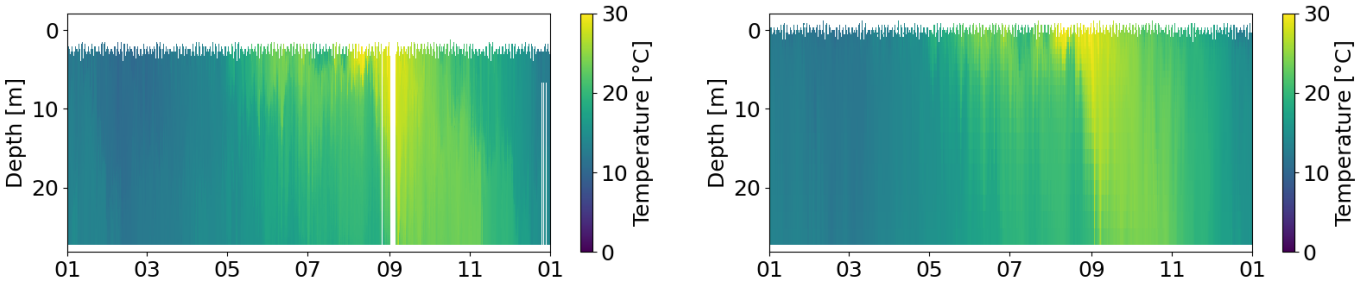


(b) Salinity

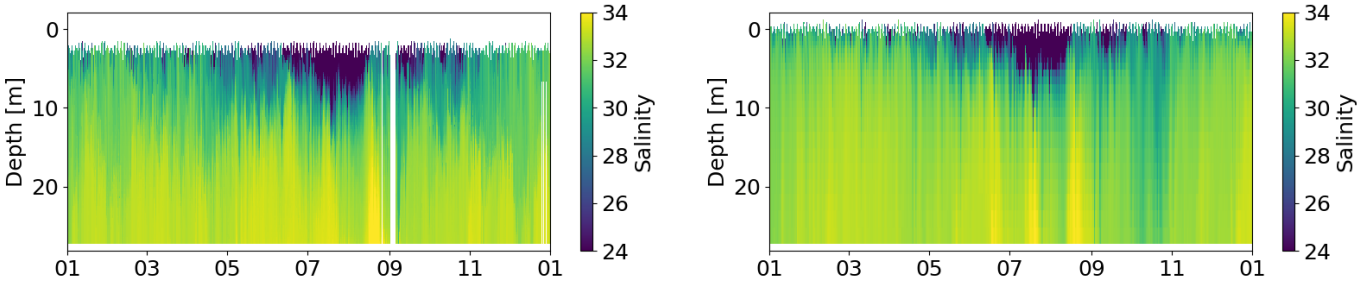


(c) Dissolved oxygen

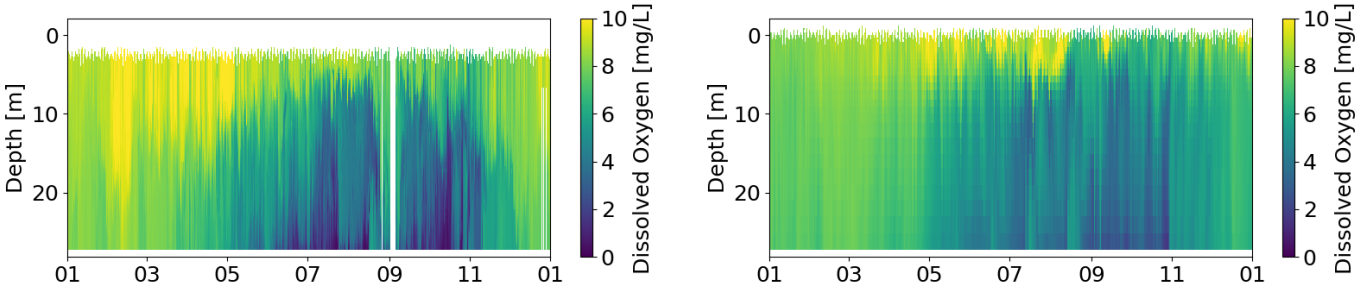
Figure S10 Isopleth plots at Back of Ise Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

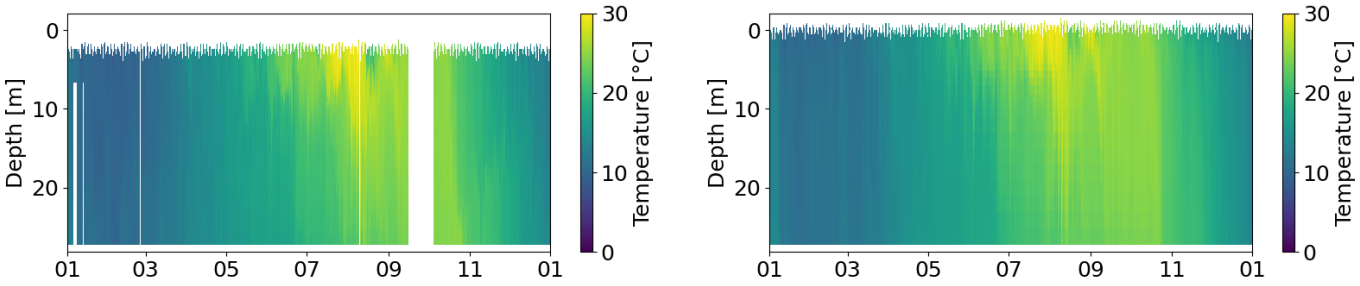


(b) Salinity

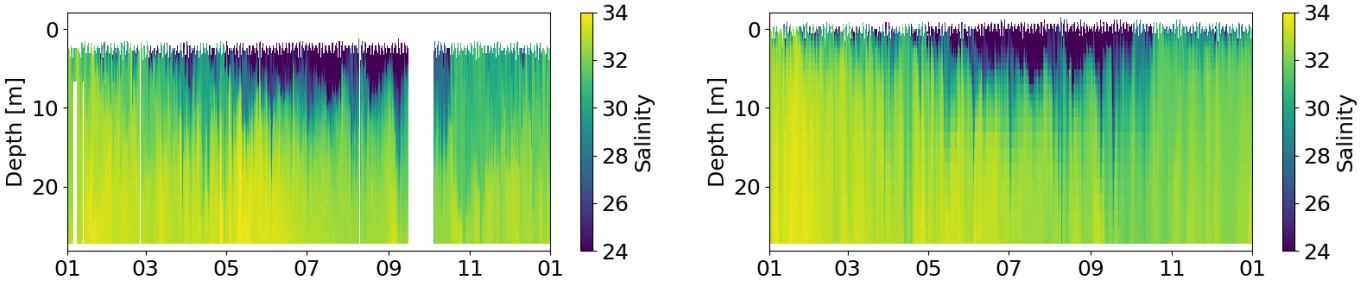


(c) Dissolved oxygen

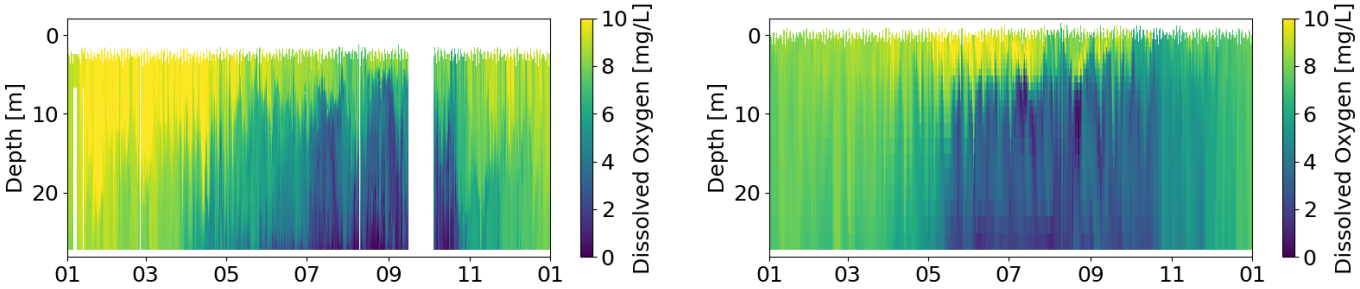
Figure S11 Isopleth plots at Back of Ise Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

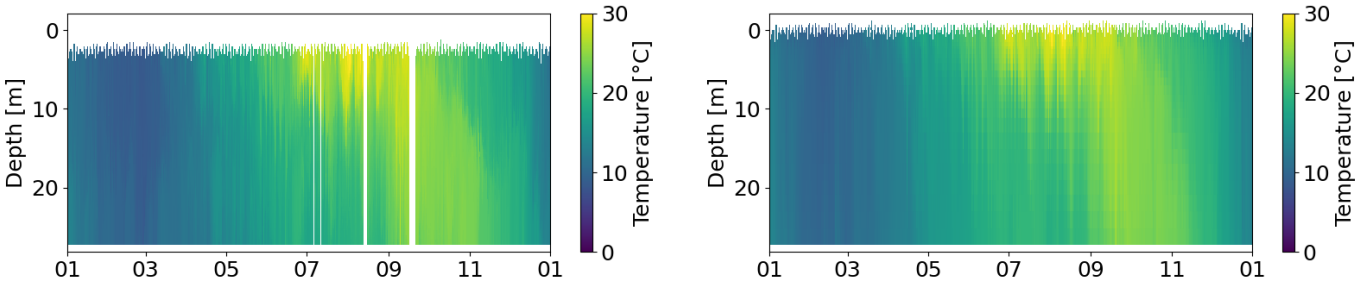


(b) Salinity

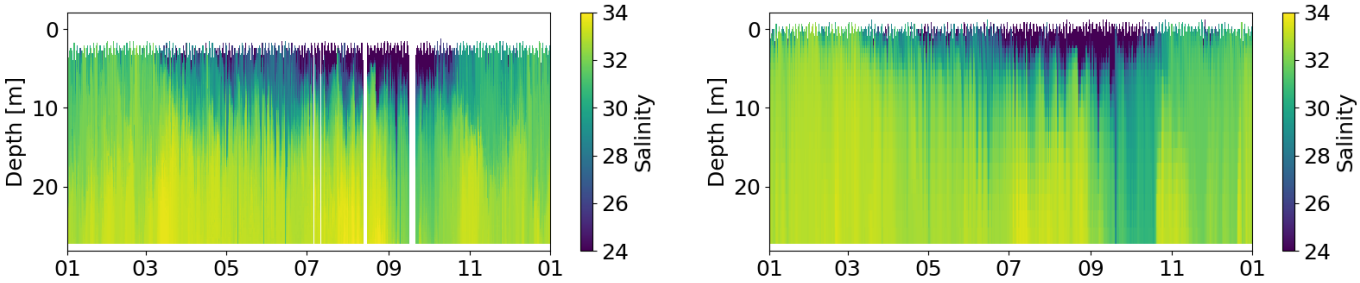


(c) Dissolved oxygen

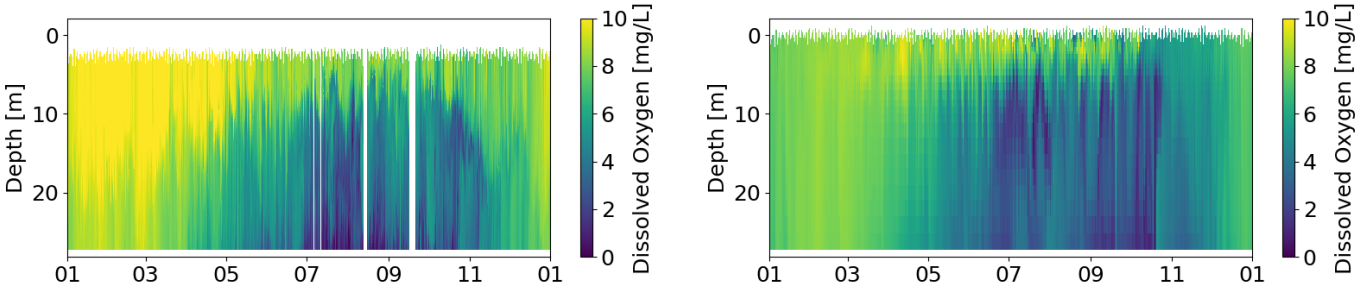
Figure S12 Isopleth plots at Back of Ise Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



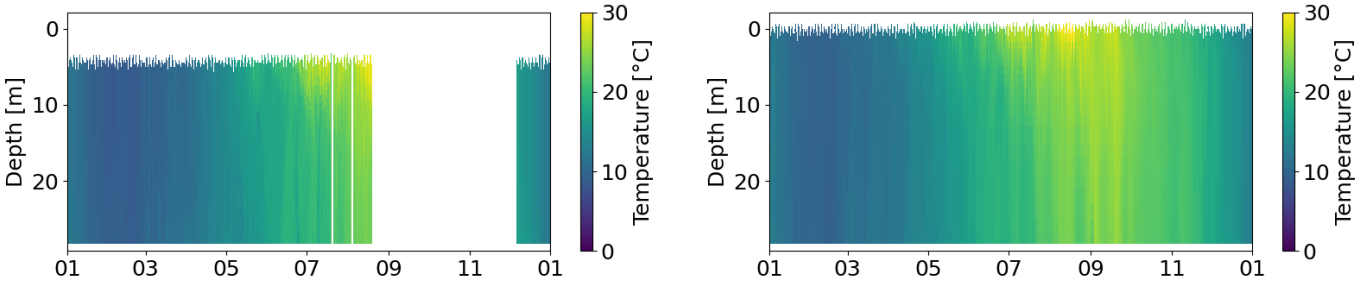
(b) Salinity



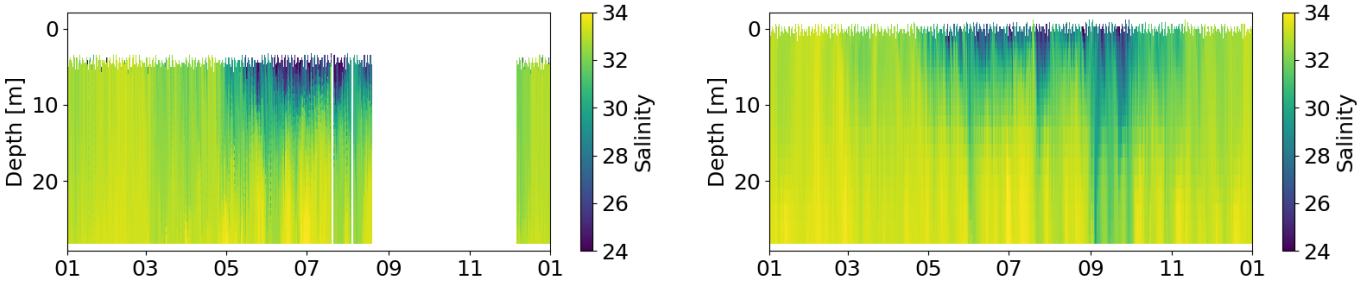
(c) Dissolved oxygen

Figure S13 Isopleth plots at Back of Ise Bay in 2022
Left: Observations, Right: Data assimilation results.

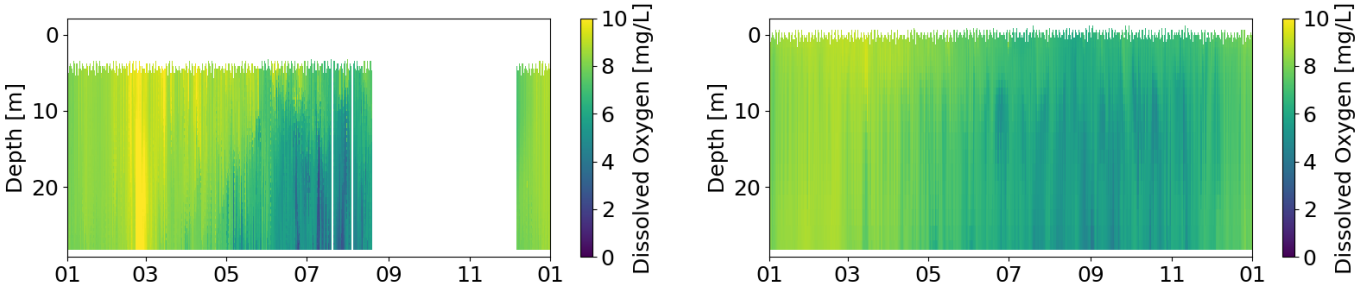
S3.2 Center of Ise Bay: Isopleths



(a) Water temperature

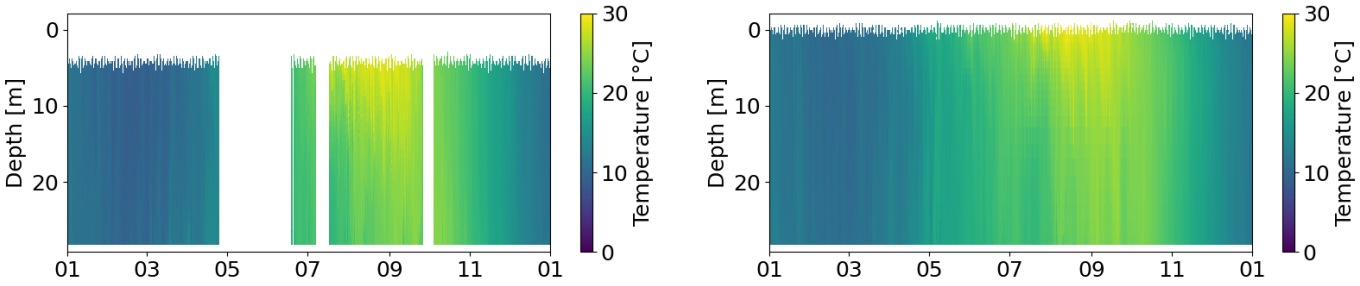


(b) Salinity

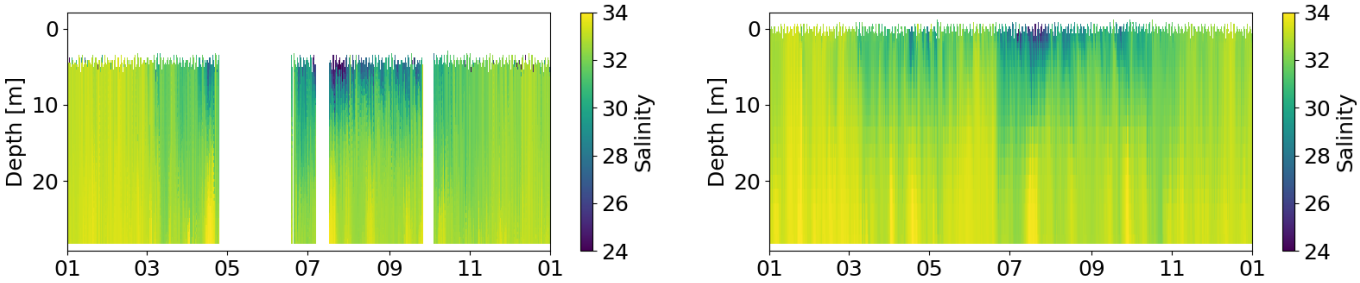


(c) Dissolved oxygen

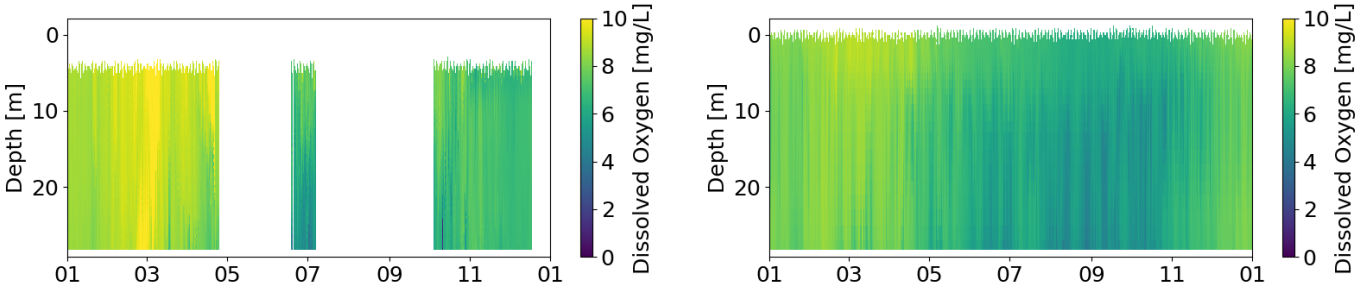
Figure S14 Isopleth plots at Center of Ise Bay in 2011
Left: Observations, Right: Data assimilation results.



(a) Water temperature

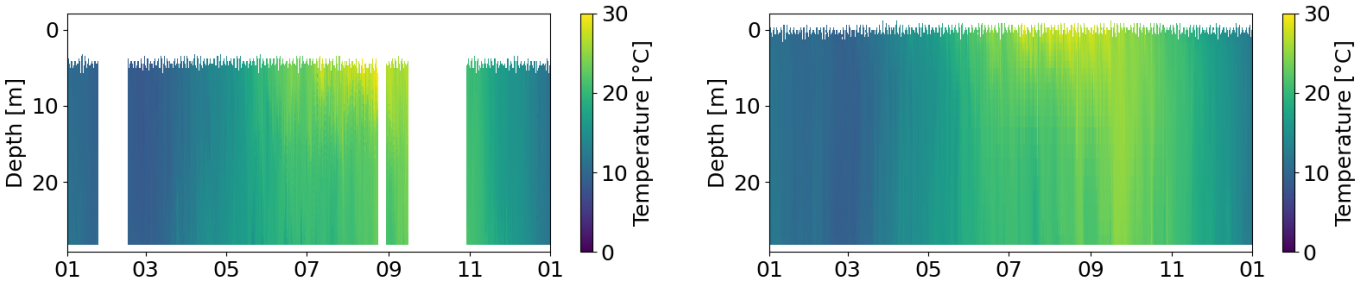


(b) Salinity

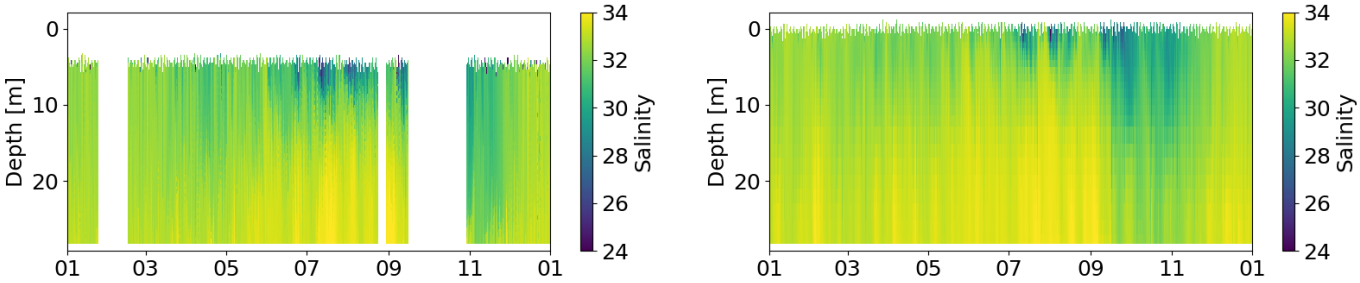


(c) Dissolved oxygen

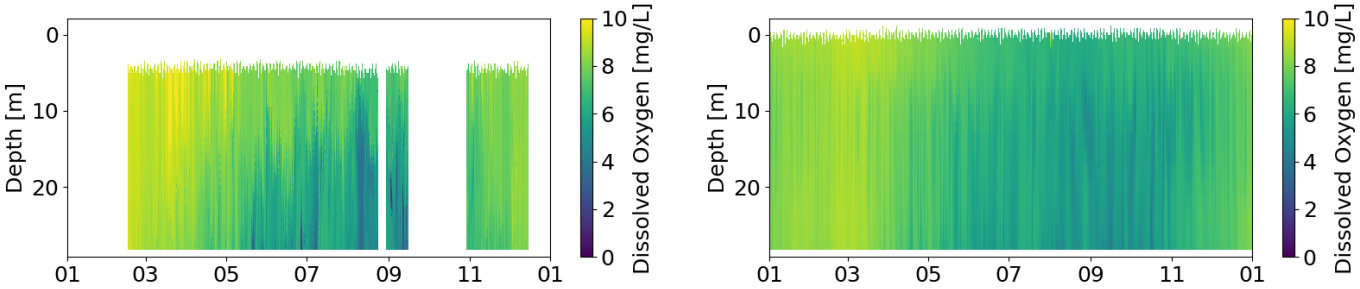
Figure S15 Isopleth plots at Center of Ise Bay in 2012
Left: Observations, Right: Data assimilation results.



(a) Water temperature

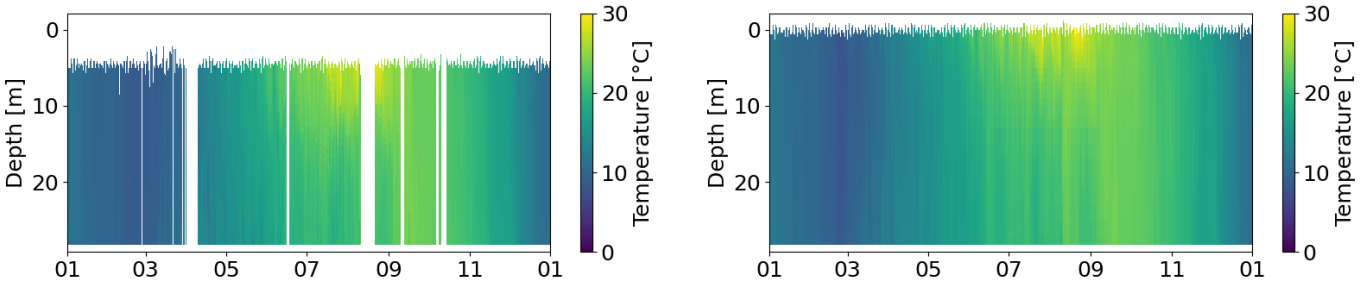


(b) Salinity

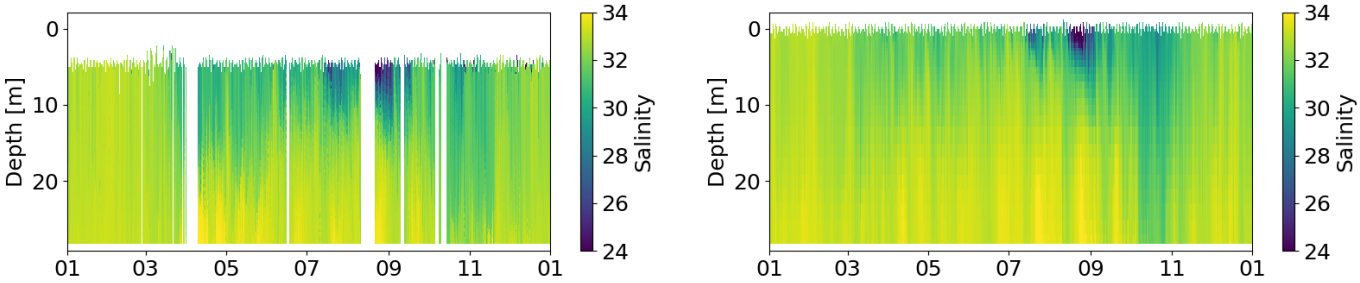


(c) Dissolved oxygen

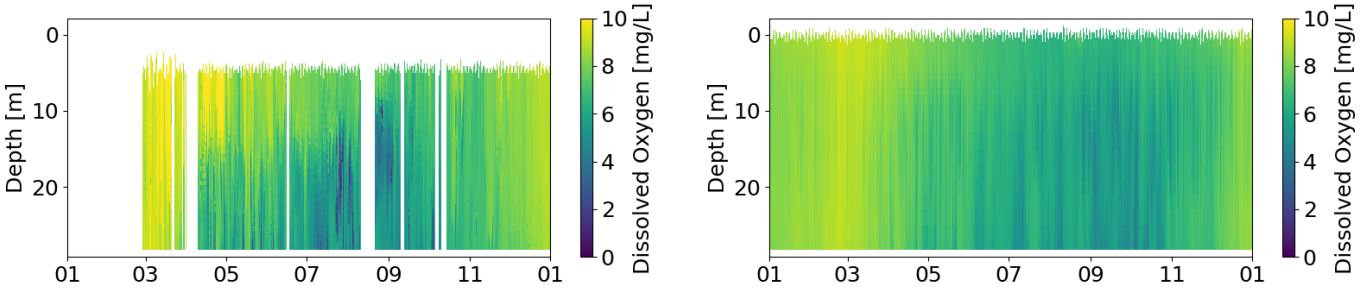
Figure S16 Isopleth plots at Center of Ise Bay in 2013
Left: Observations, Right: Data assimilation results.



(a) Water temperature

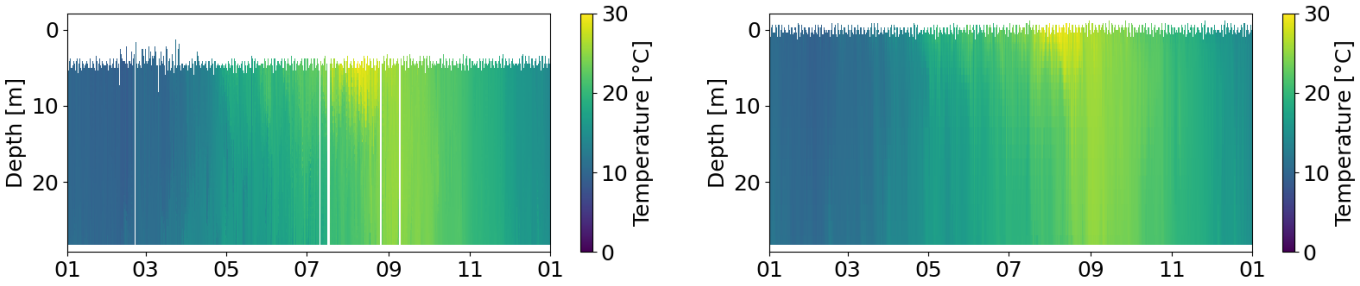


(b) Salinity

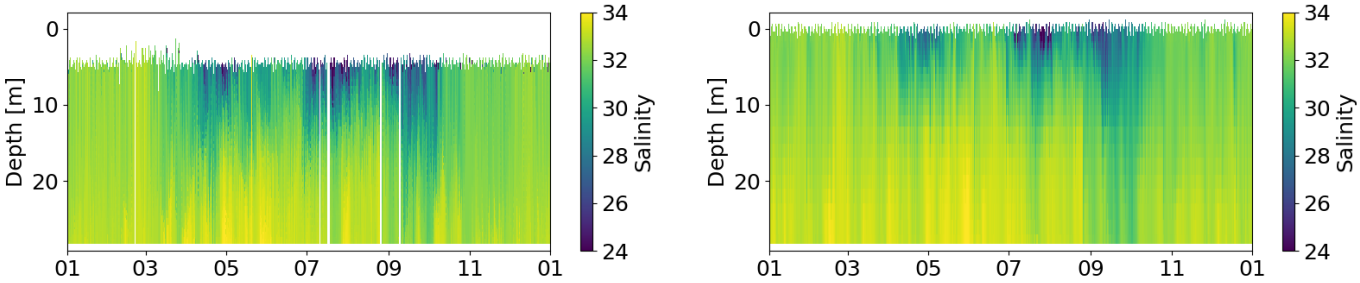


(c) Dissolved oxygen

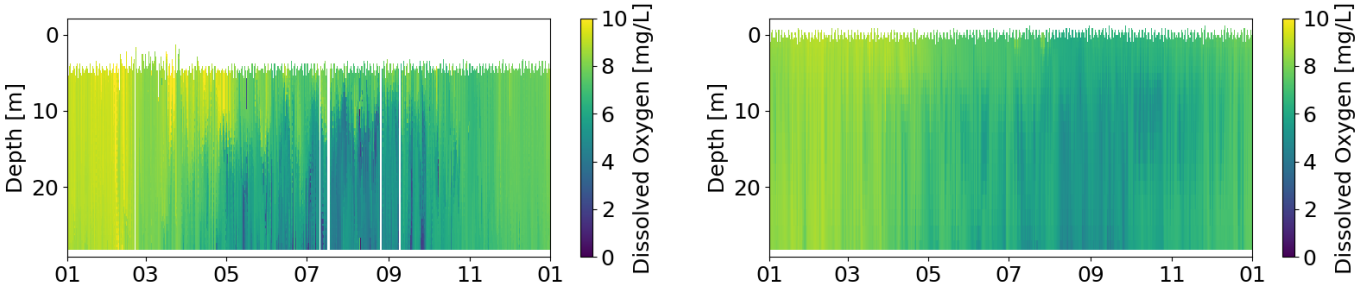
Figure S17 Isopleth plots at Center of Ise Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

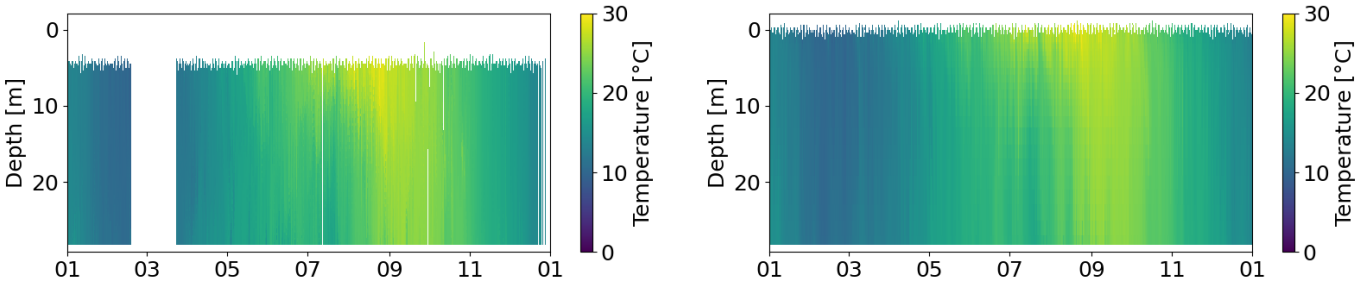


(b) Salinity

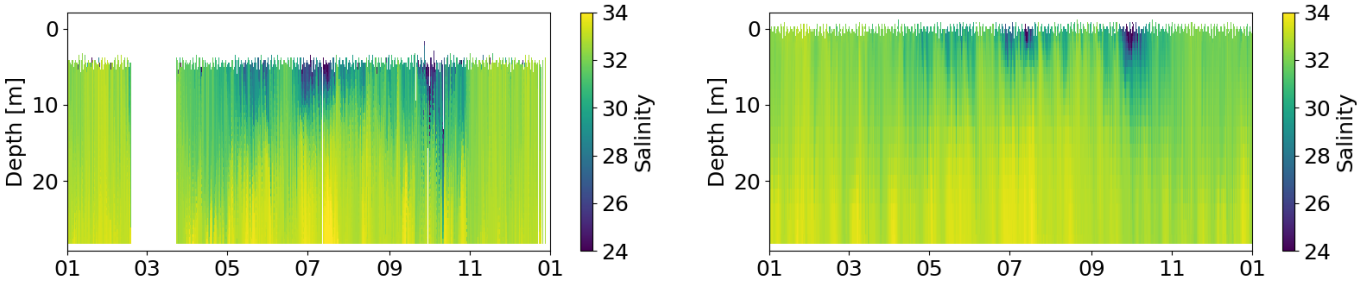


(c) Dissolved oxygen

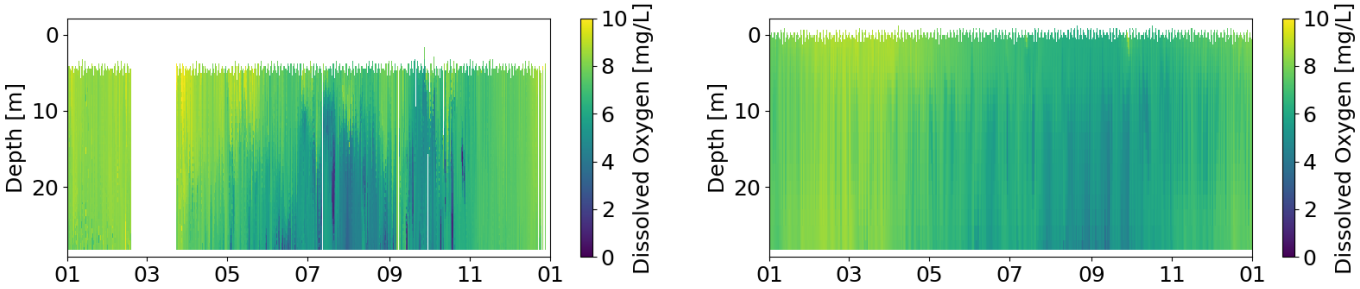
Figure S18 Isopleth plots at Center of Ise Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

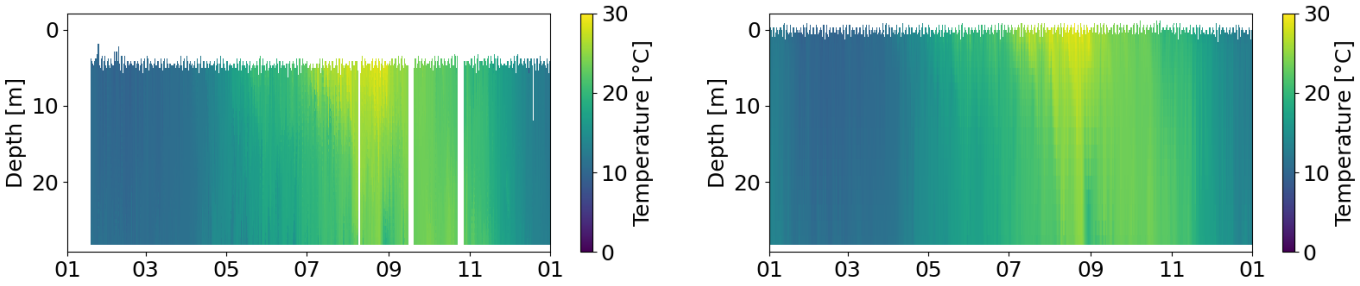


(b) Salinity

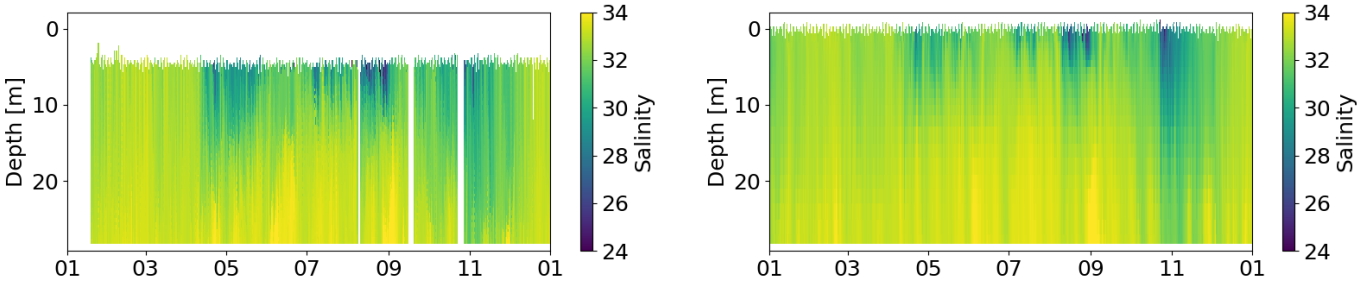


(c) Dissolved oxygen

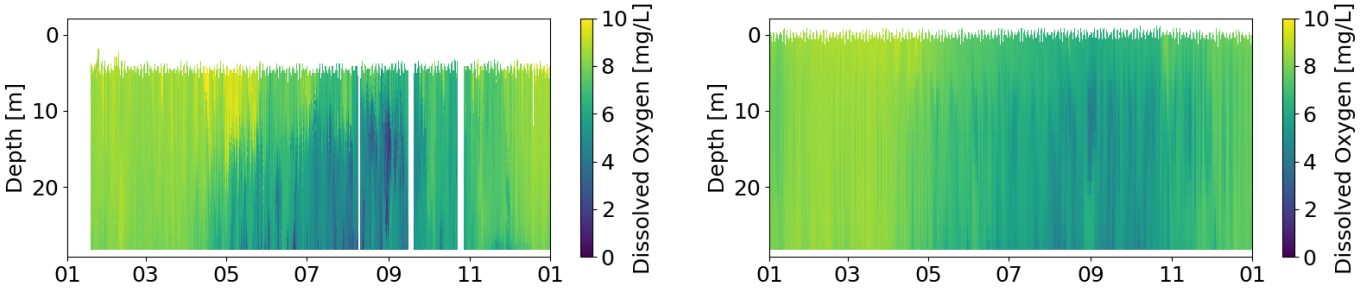
Figure S19 Isopleth plots at Center of Ise Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

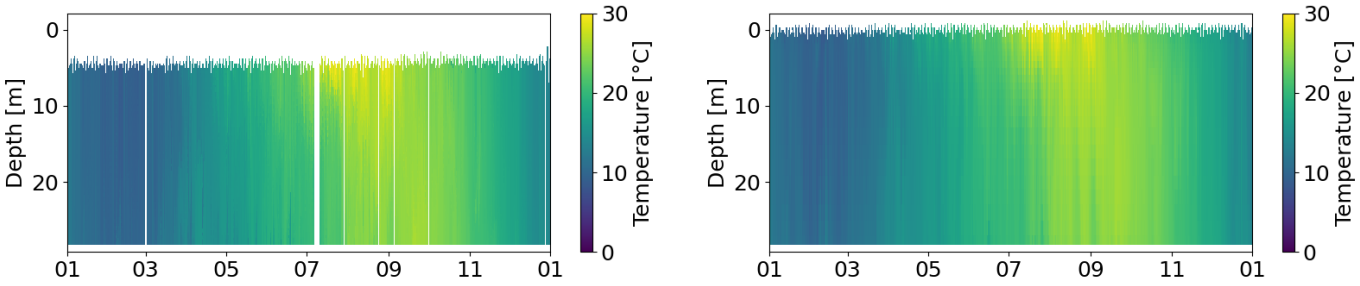


(b) Salinity

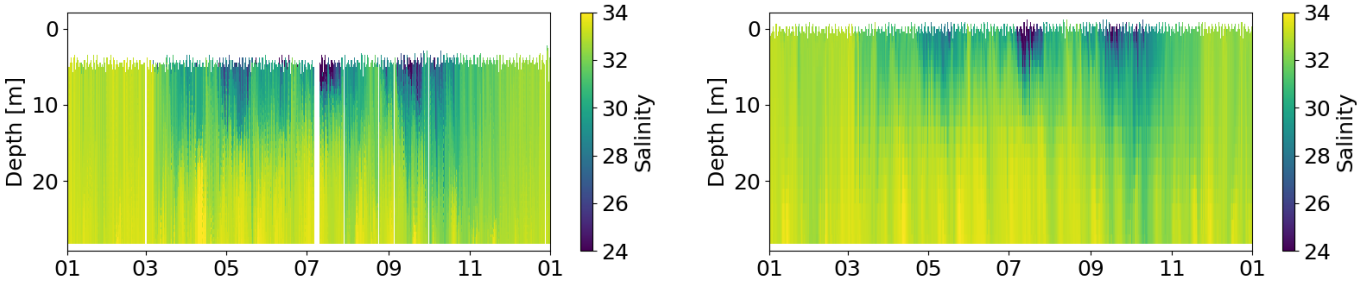


(c) Dissolved oxygen

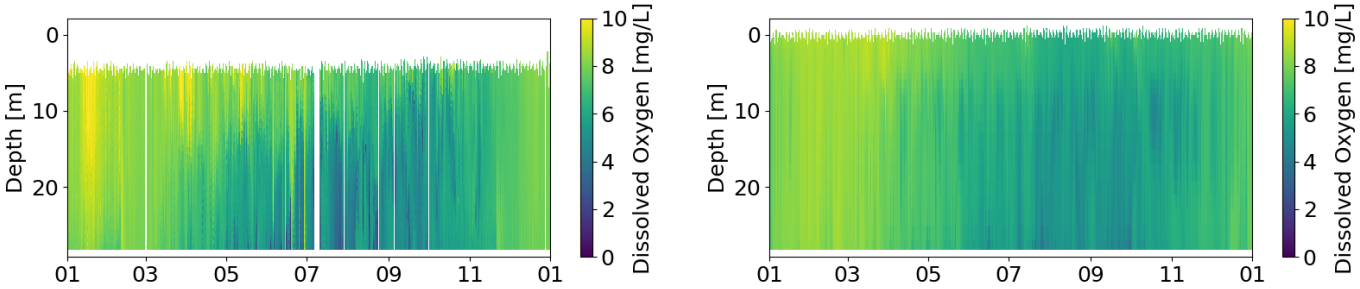
Figure S20 Isopleth plots at Center of Ise Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

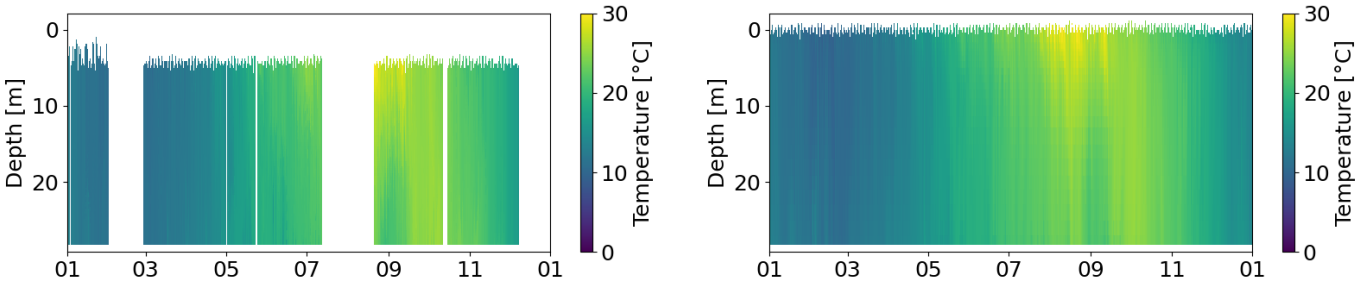


(b) Salinity

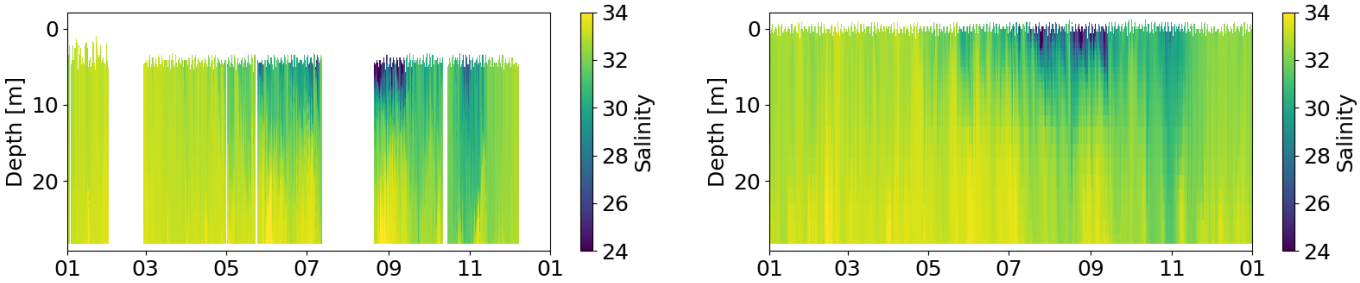


(c) Dissolved oxygen

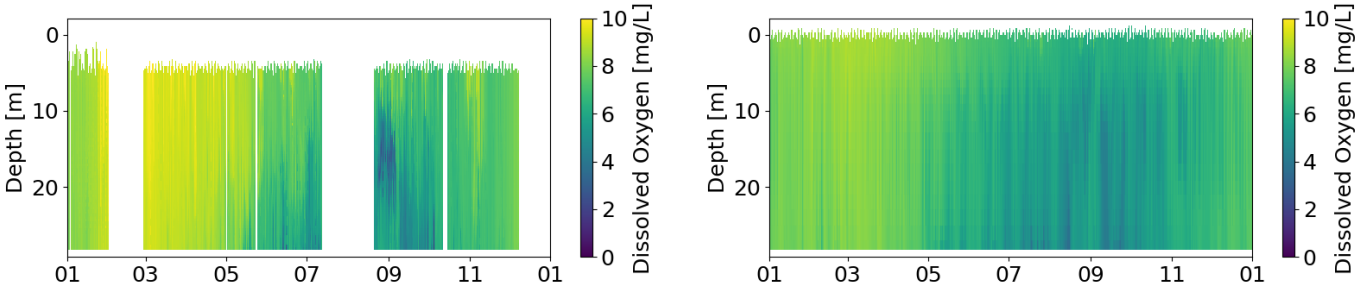
Figure S21 Isopleth plots at Center of Ise Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

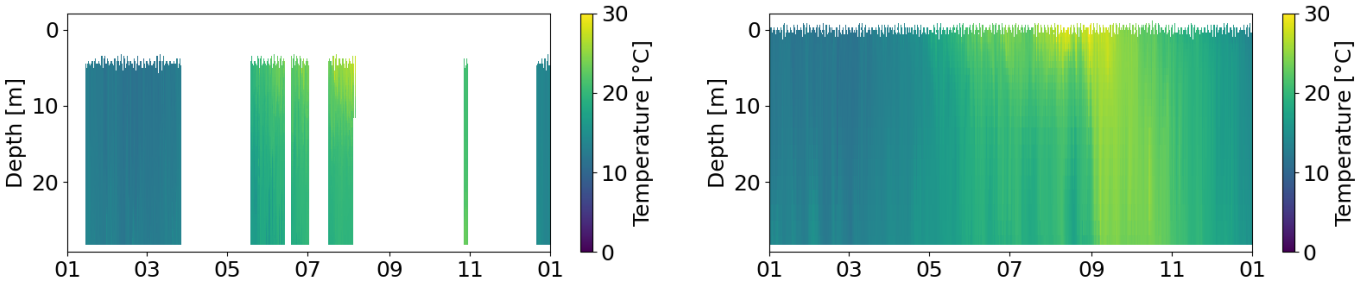


(b) Salinity

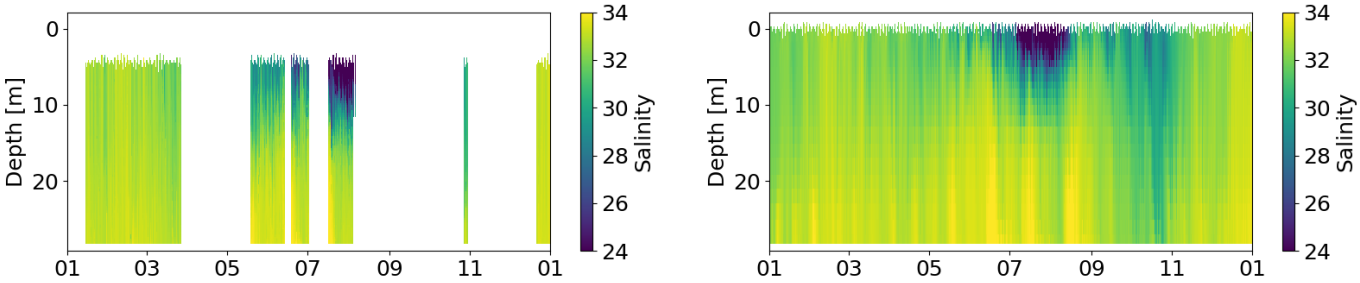


(c) Dissolved oxygen

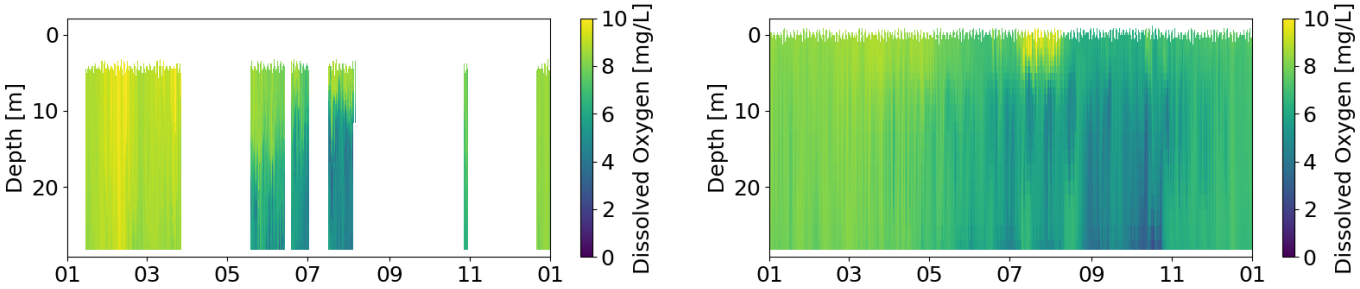
Figure S22 Isopleth plots at Center of Ise Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

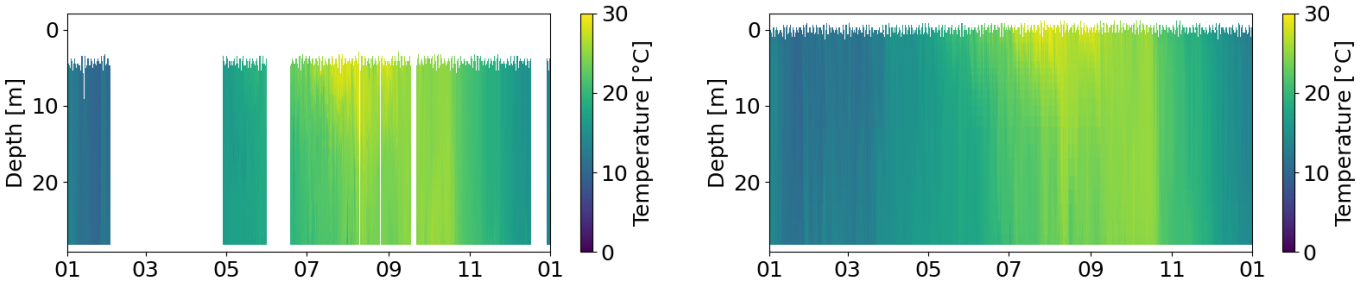


(b) Salinity

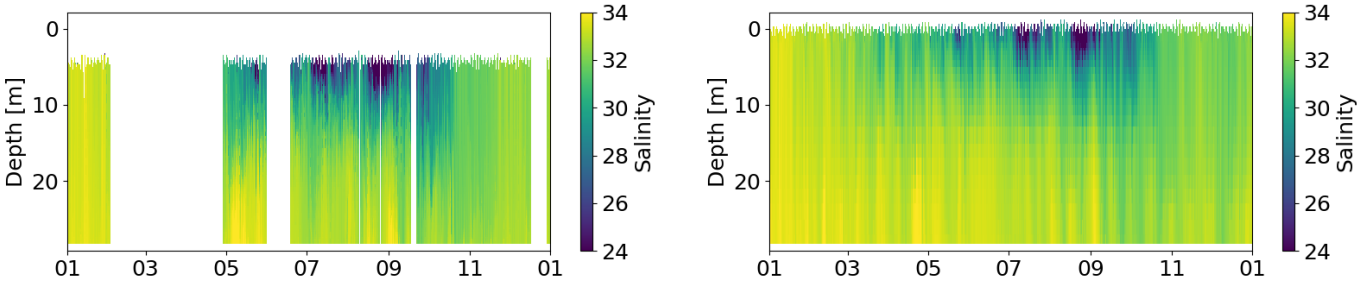


(c) Dissolved oxygen

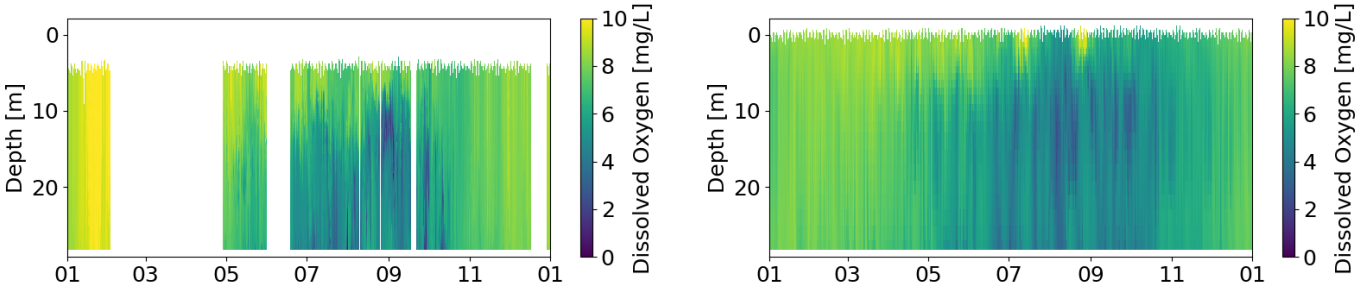
Figure S23 Isopleth plots at Center of Ise Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

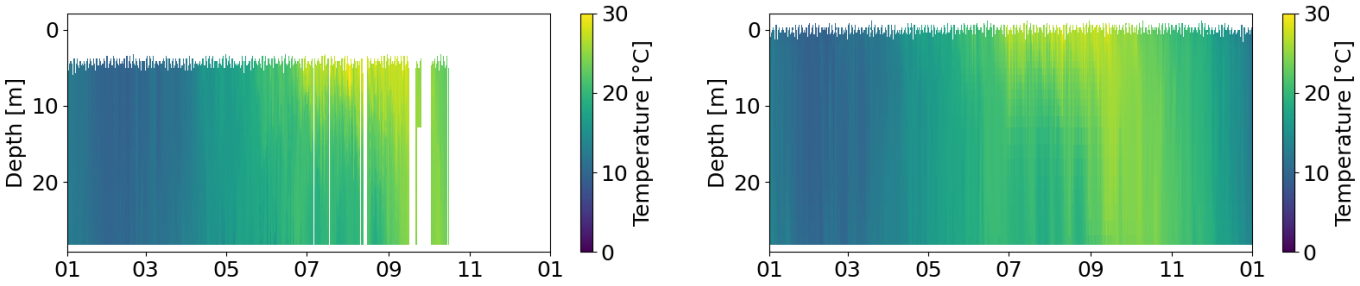


(b) Salinity

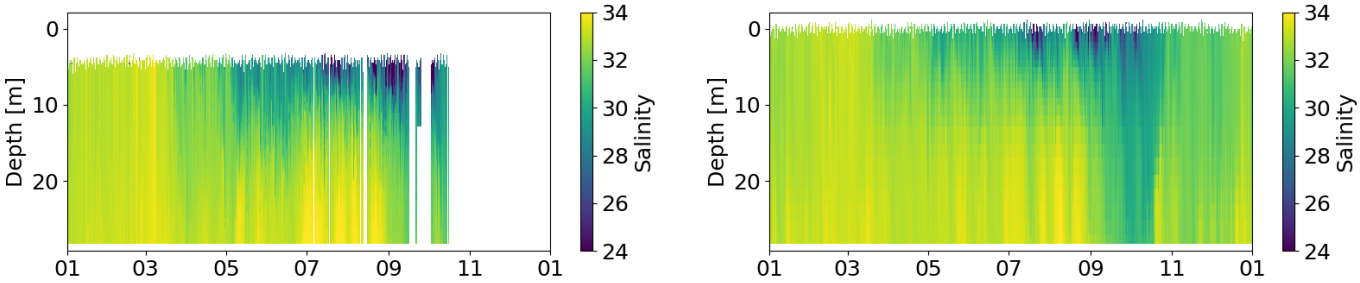


(c) Dissolved oxygen

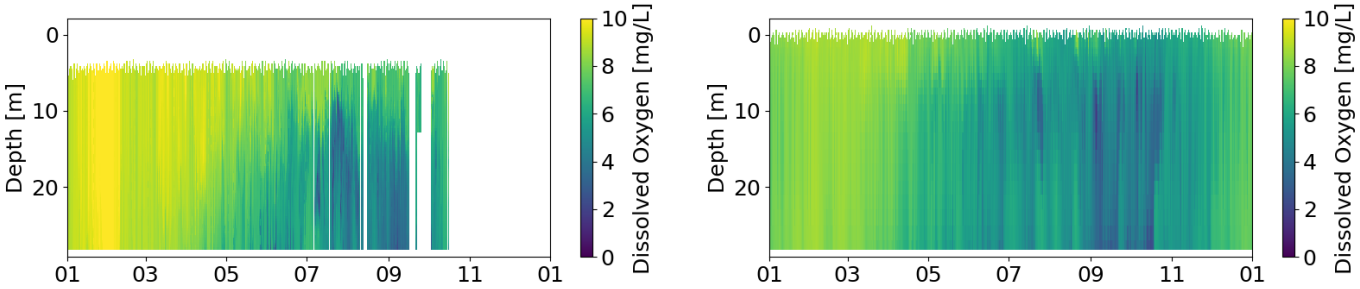
Figure S24 Isopleth plots at Center of Ise Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



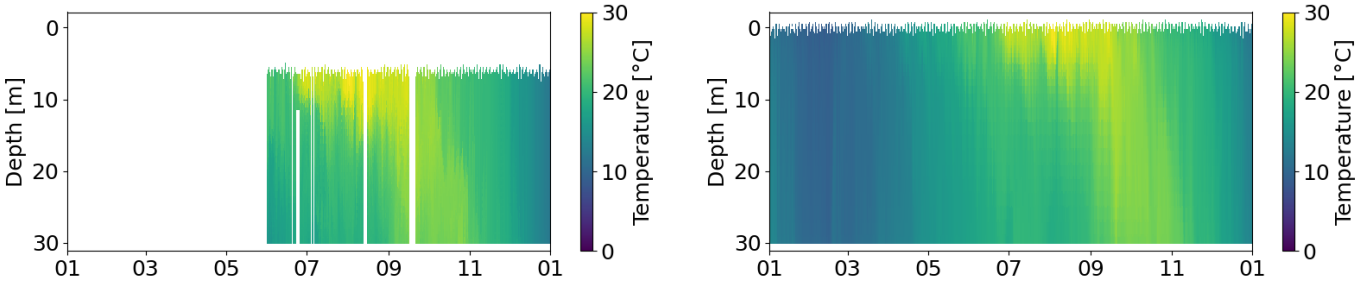
(b) Salinity



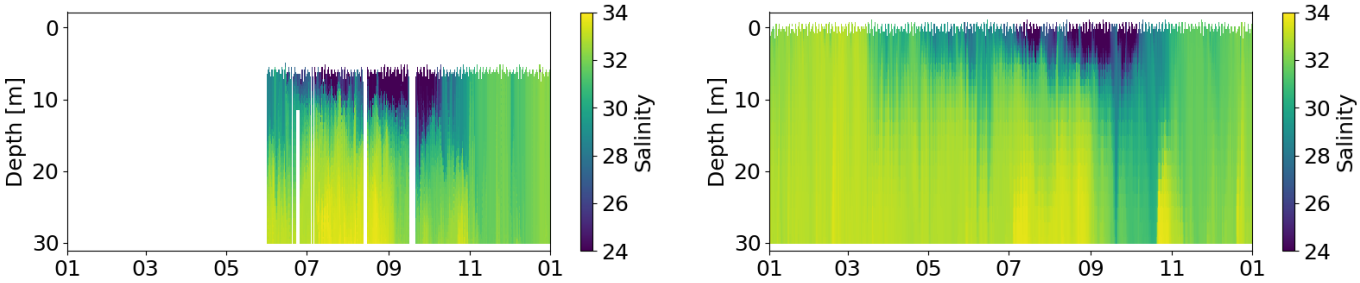
(c) Dissolved oxygen

Figure S25 Isopleth plots at Center of Ise Bay in 2022
Left: Observations, Right: Data assimilation results.

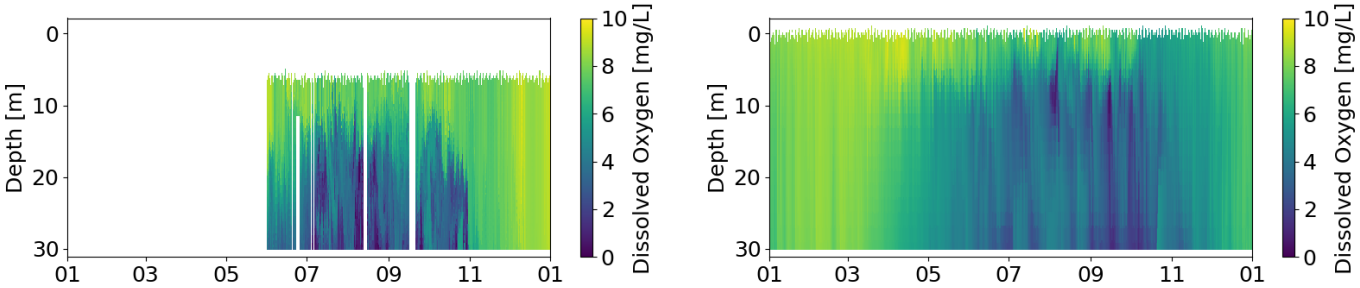
S3.3 Western Ise Bay: Isopleths



(a) Water temperature



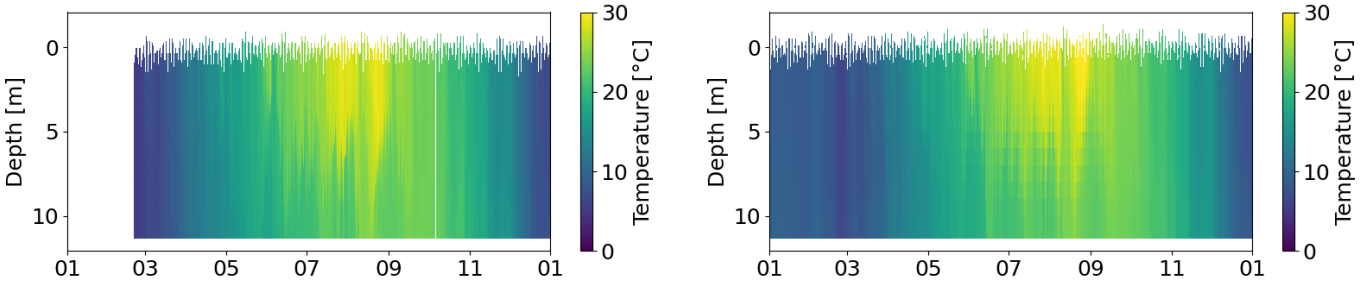
(b) Salinity



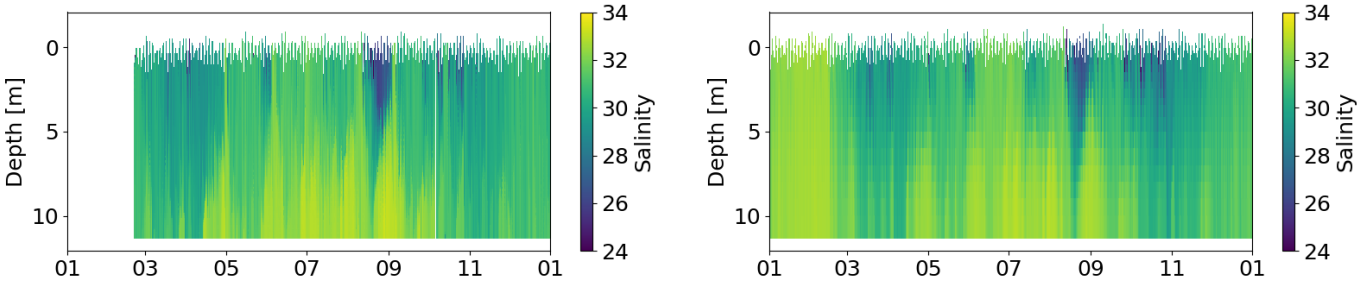
(c) Dissolved oxygen

Figure S26 Isopleth plots at Western Ise Bay in 2022
Left: Observations, Right: Data assimilation results.

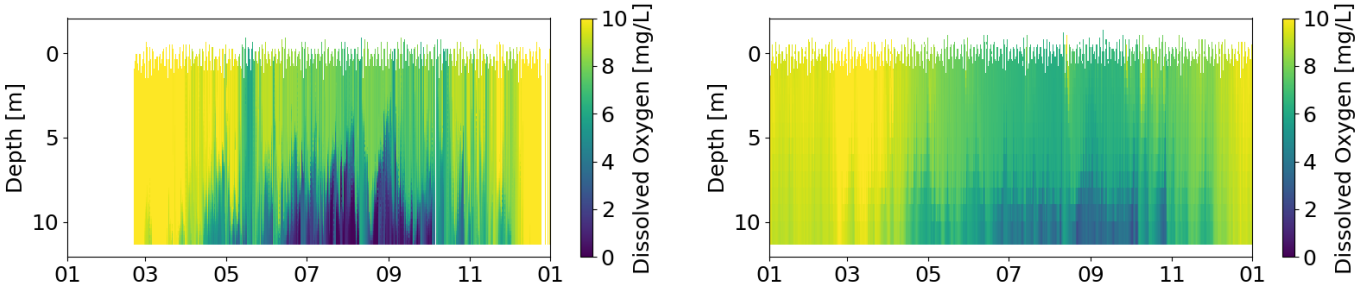
S3.4 Back of Mikawa Bay: Isopleths



(a) Water temperature

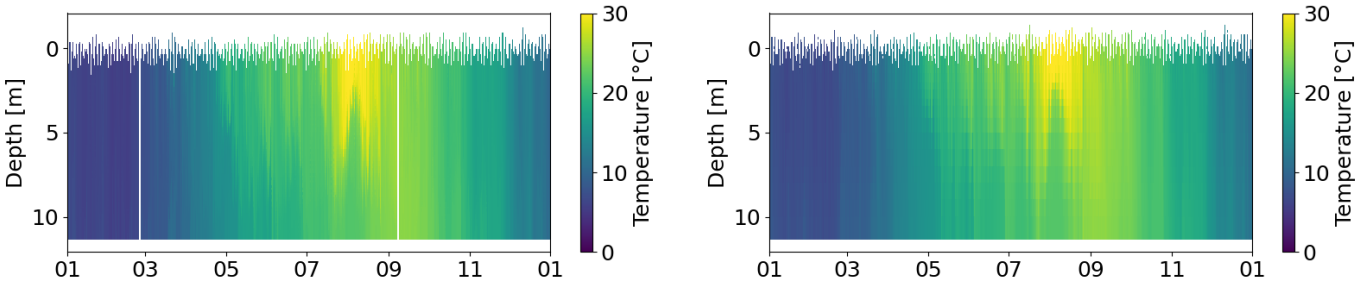


(b) Salinity

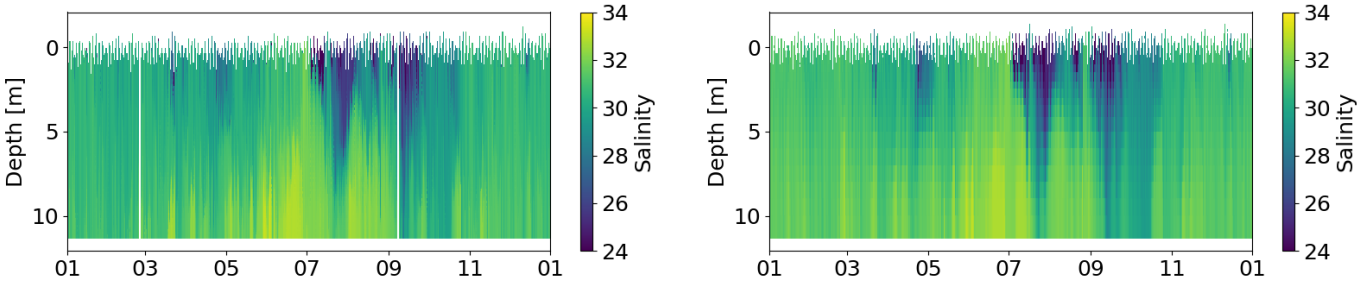


(c) Dissolved oxygen

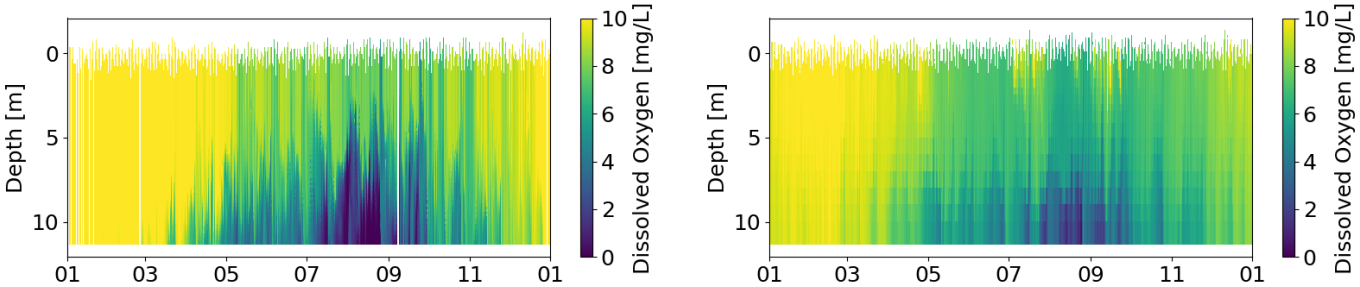
Figure S27 Isopleth plots at Back of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

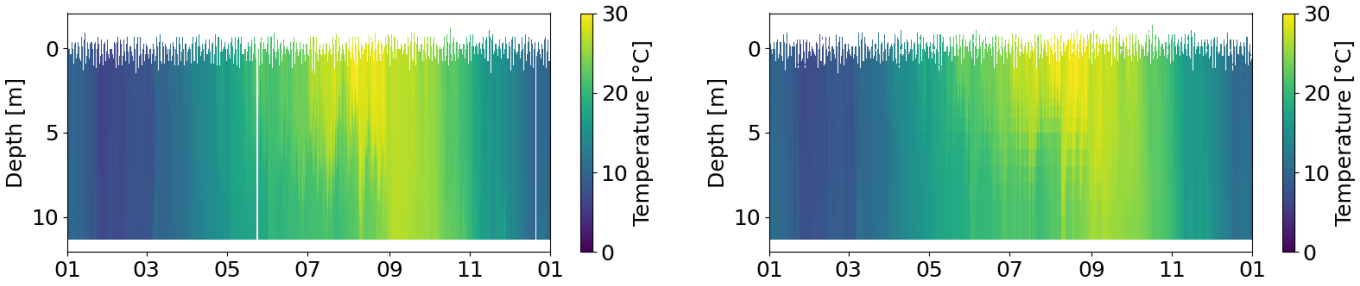


(b) Salinity

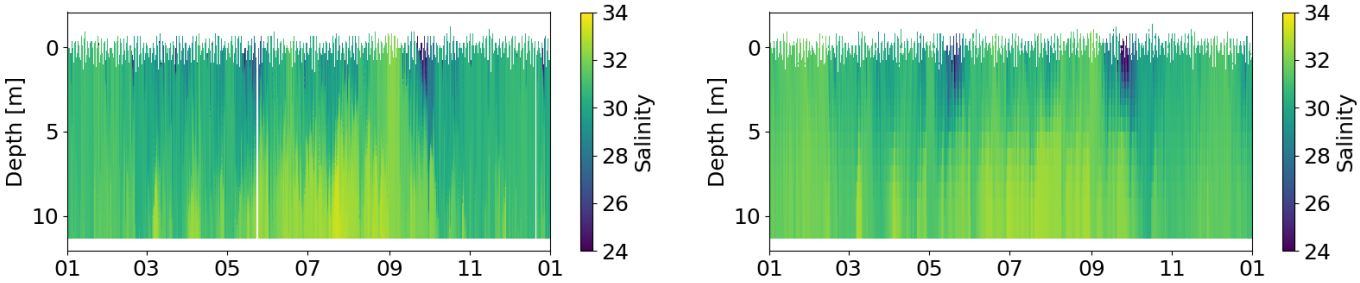


(c) Dissolved oxygen

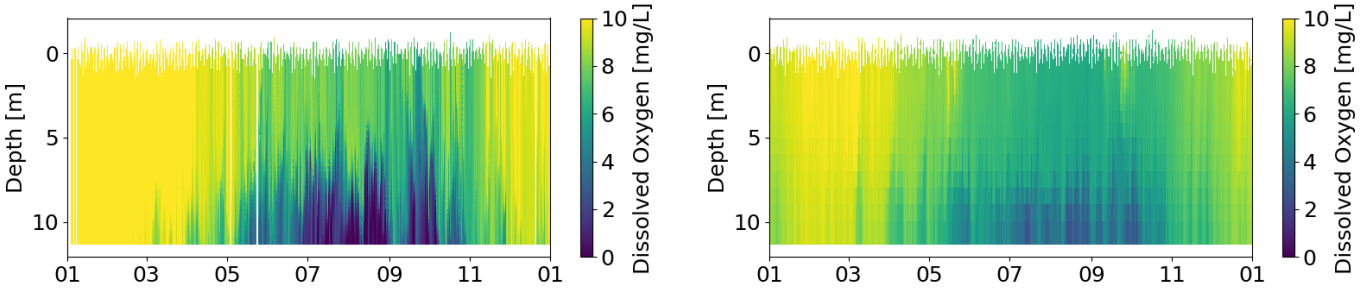
Figure S28 Isopleth plots at Back of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

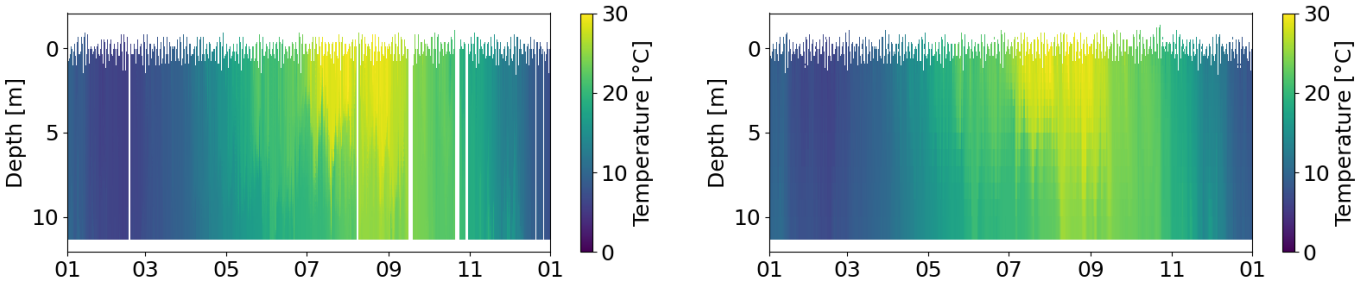


(b) Salinity

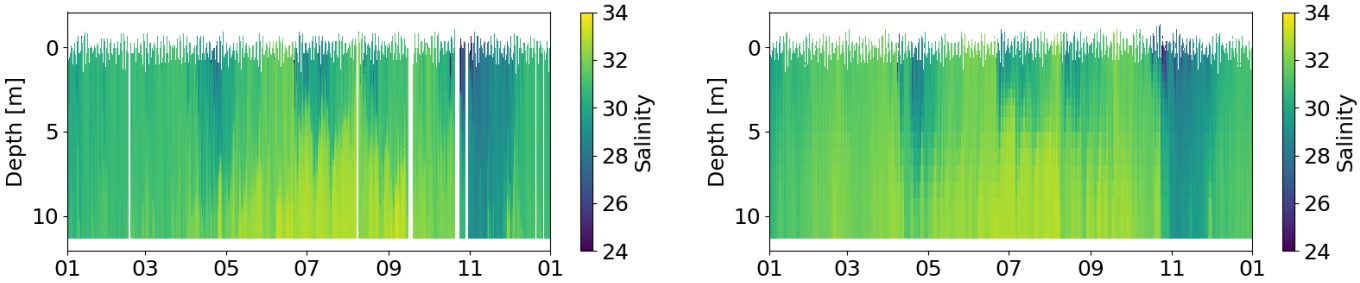


(c) Dissolved oxygen

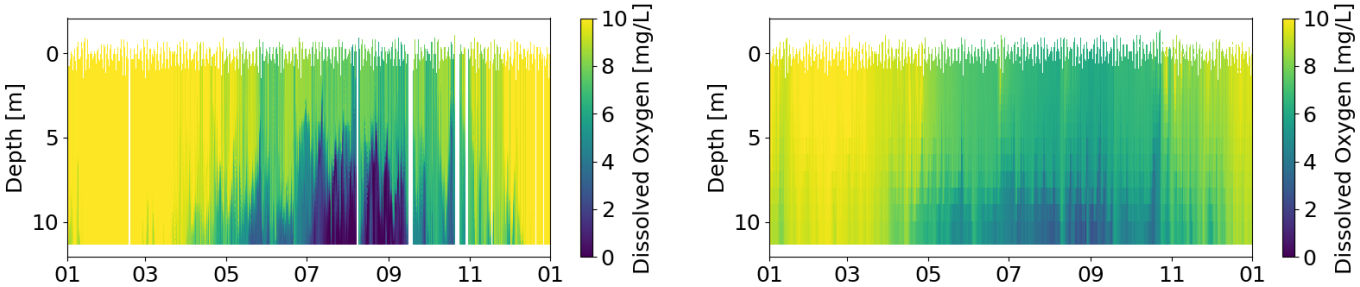
Figure S29 Isopleth plots at Back of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

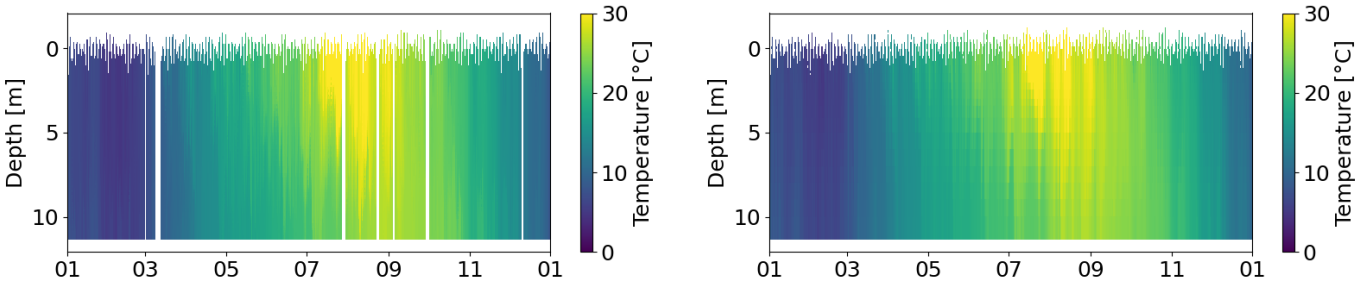


(b) Salinity

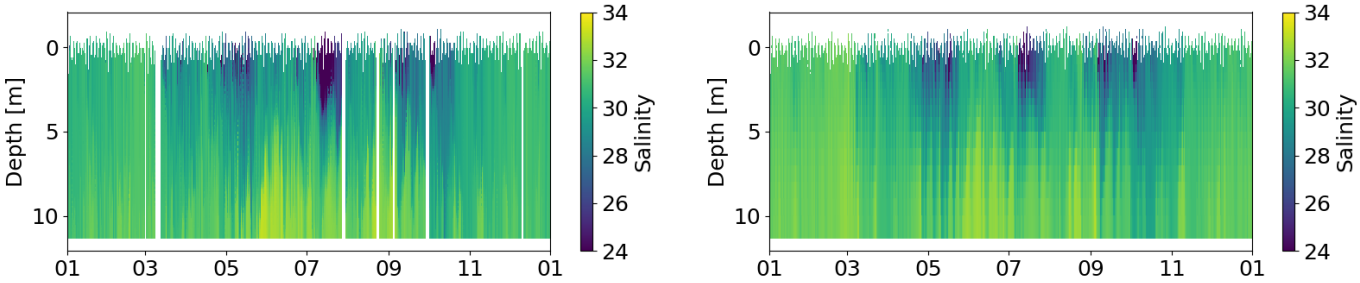


(c) Dissolved oxygen

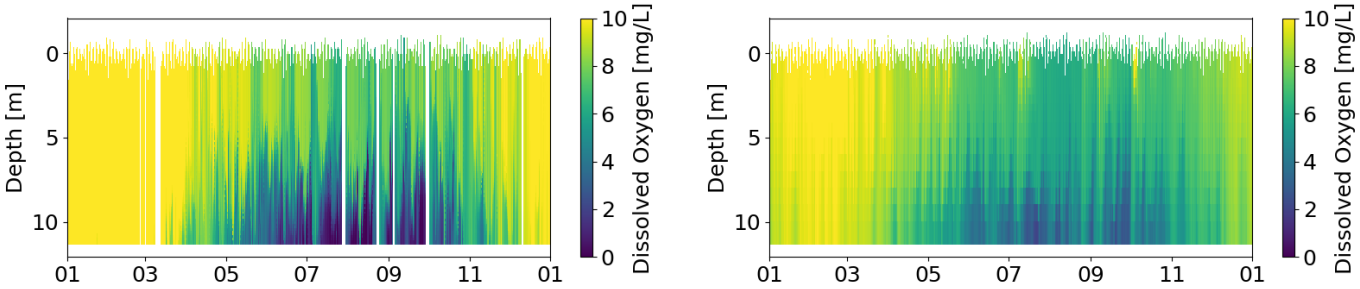
Figure S30 Isopleth plots at Back of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

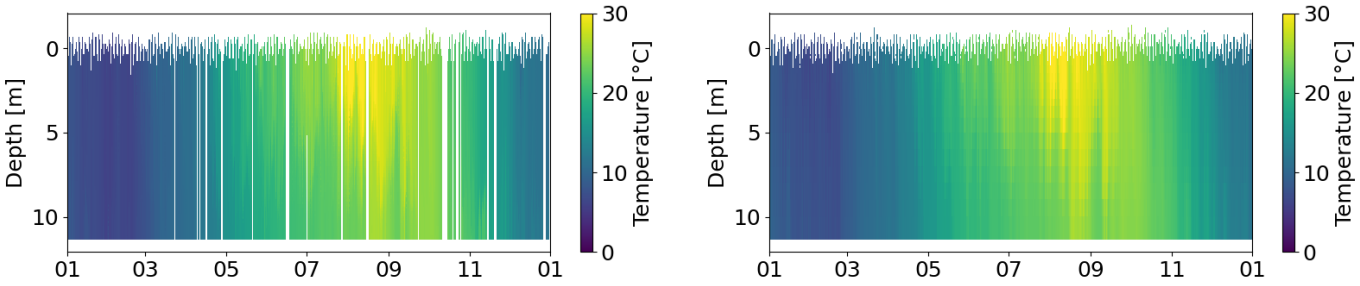


(b) Salinity

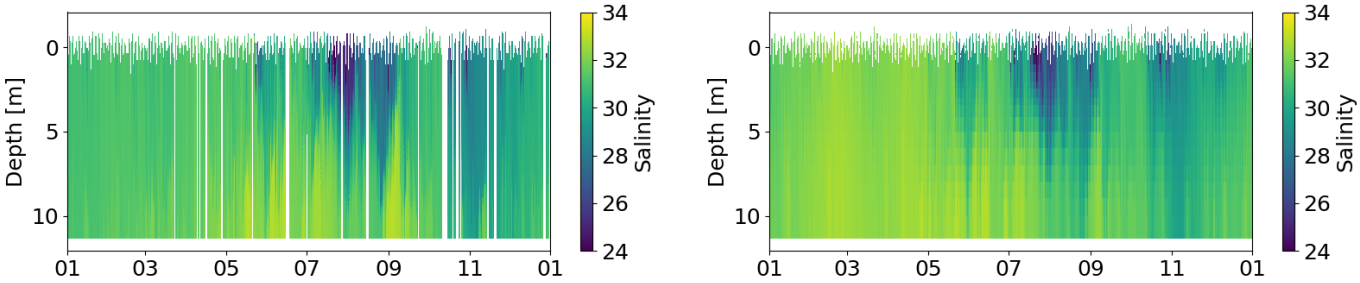


(c) Dissolved oxygen

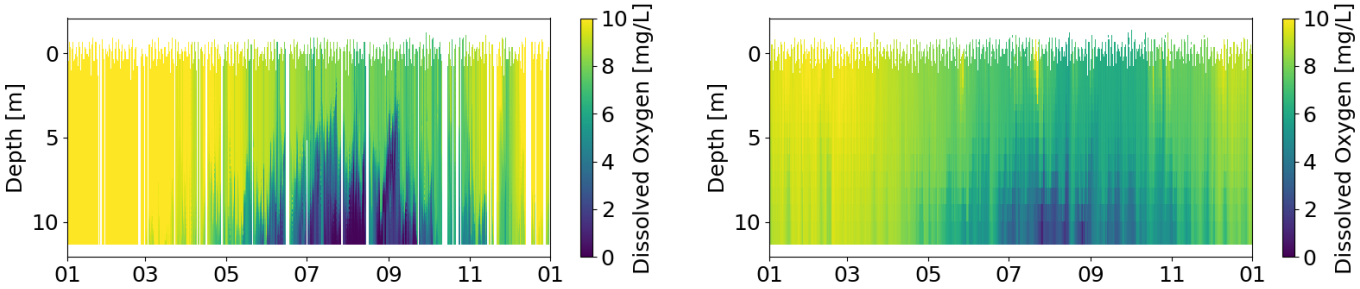
Figure S31 Isopleth plots at Back of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

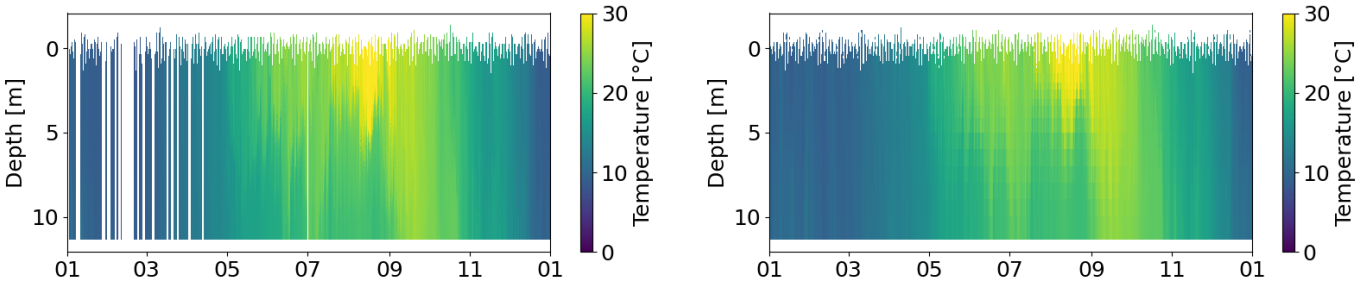


(b) Salinity

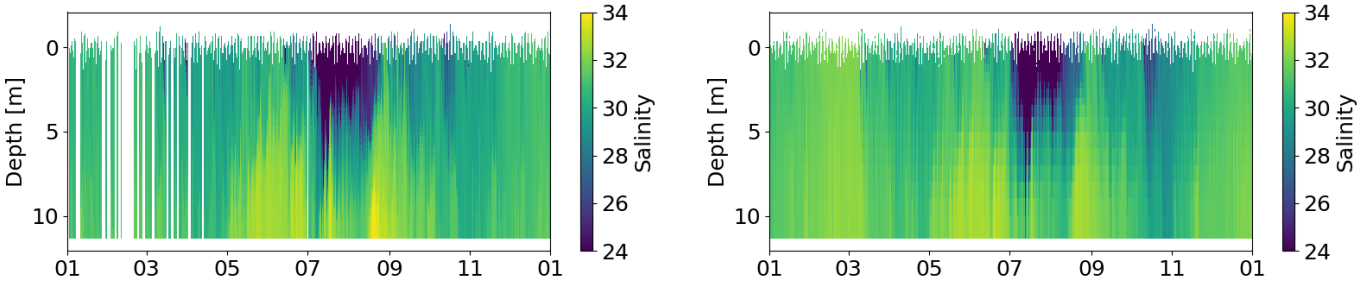


(c) Dissolved oxygen

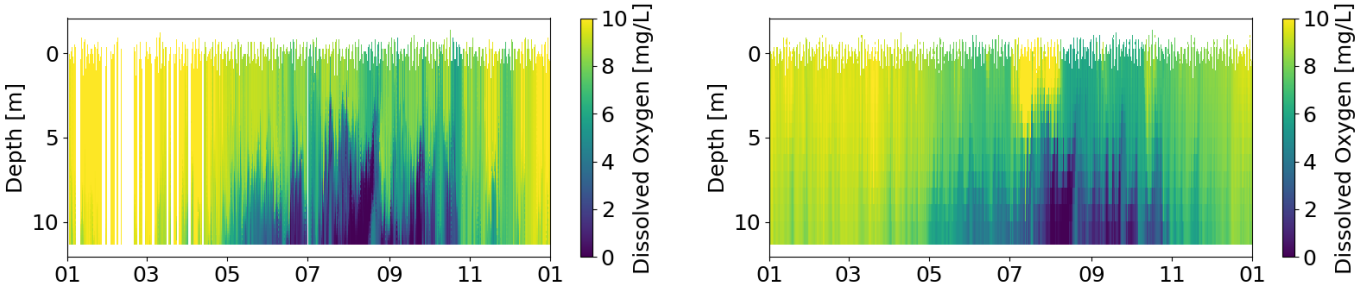
Figure S32 Isopleth plots at Back of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

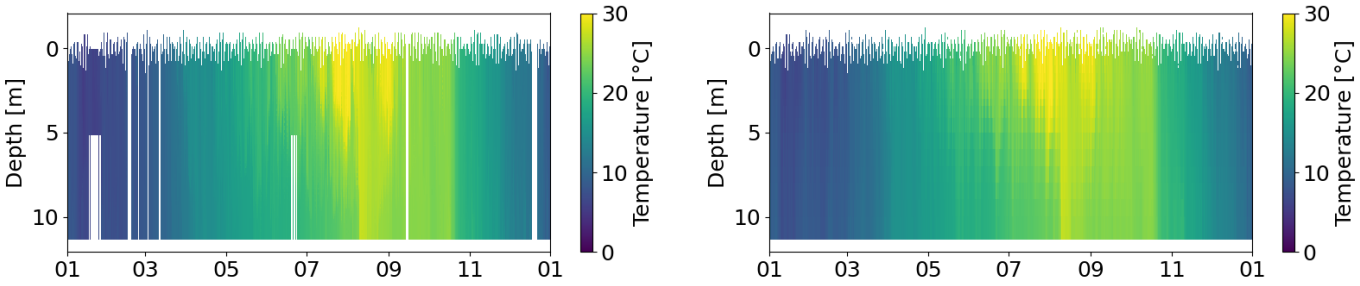


(b) Salinity

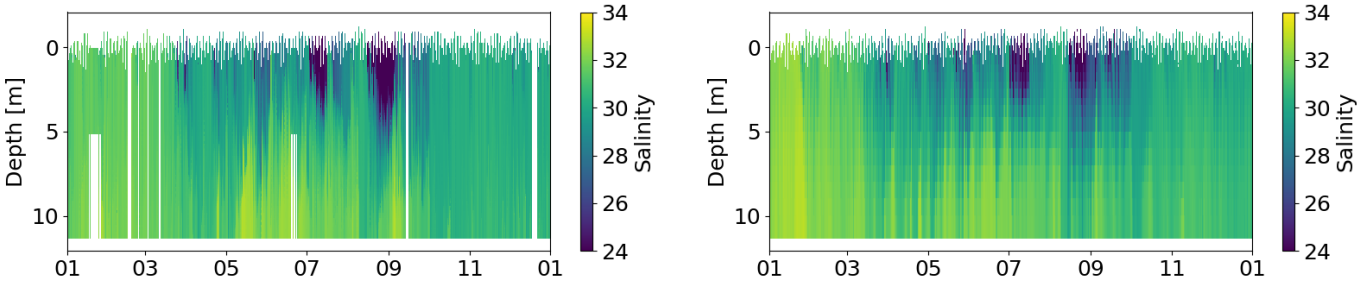


(c) Dissolved oxygen

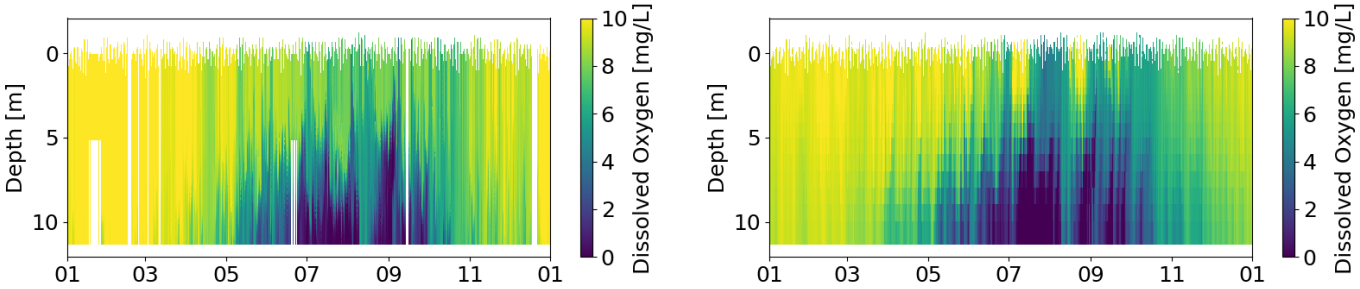
Figure S33 Isopleth plots at Back of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

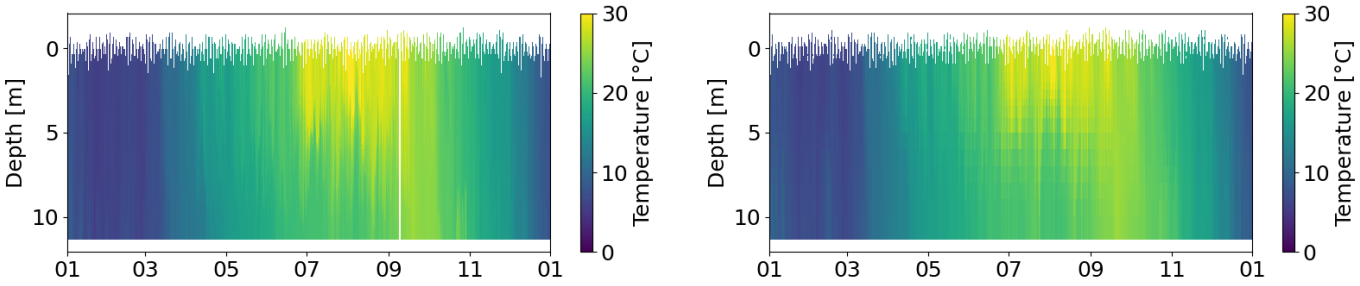


(b) Salinity

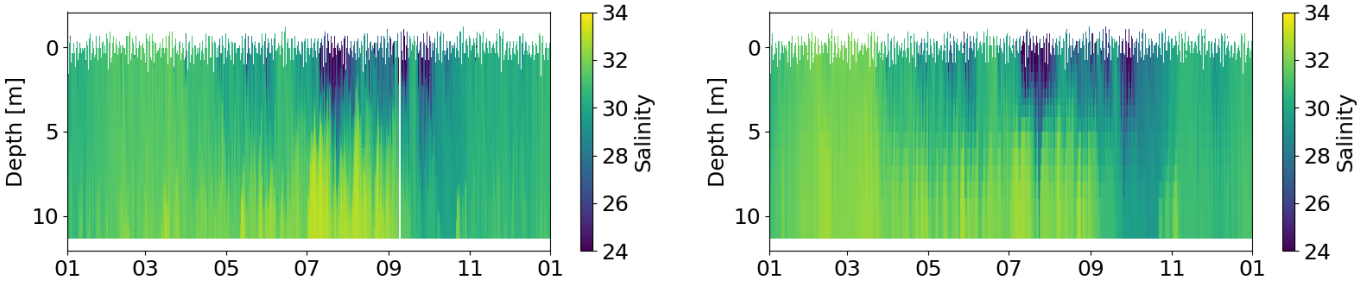


(c) Dissolved oxygen

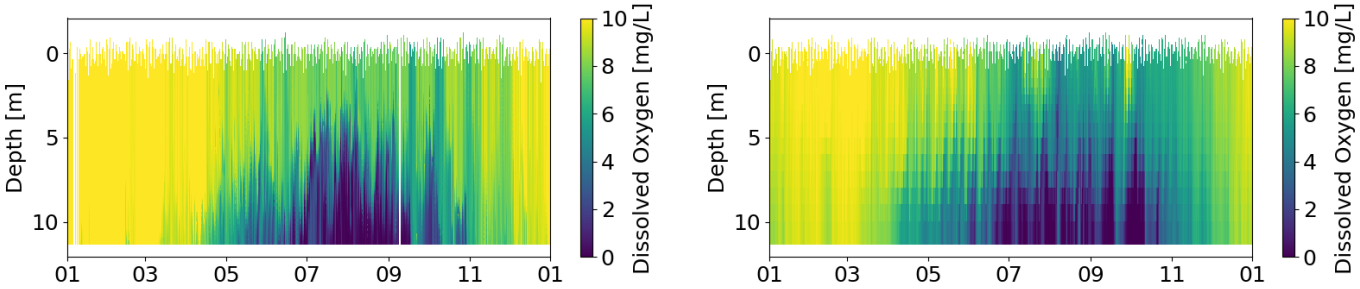
Figure S34 Isopleth plots at Back of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



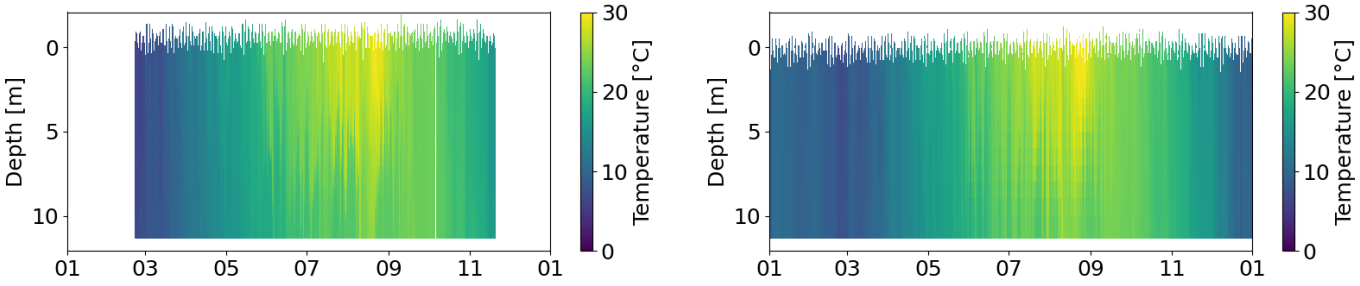
(b) Salinity



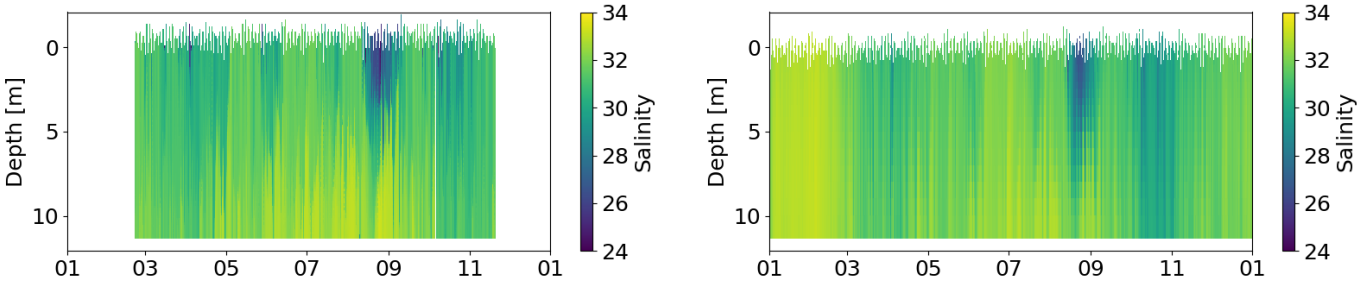
(c) Dissolved oxygen

Figure S35 Isopleth plots at Back of Mikawa Bay in 2022
Left: Observations, Right: Data assimilation results.

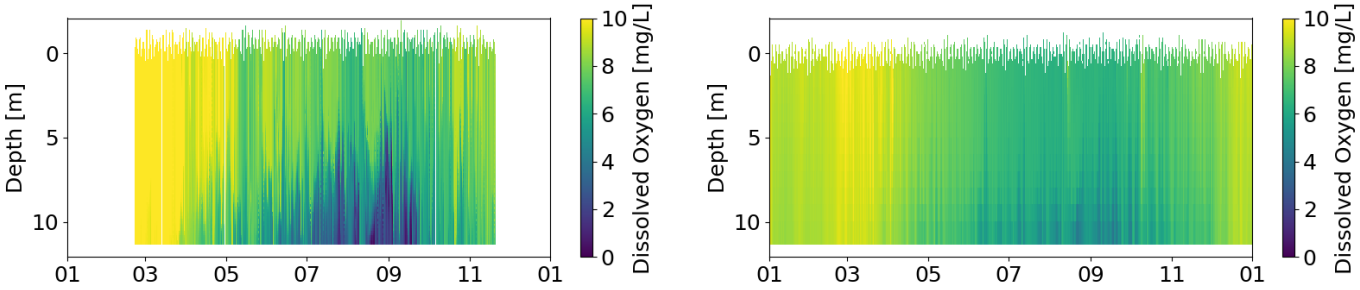
S3.5 Center of Mikawa Bay: Isopleths



(a) Water temperature

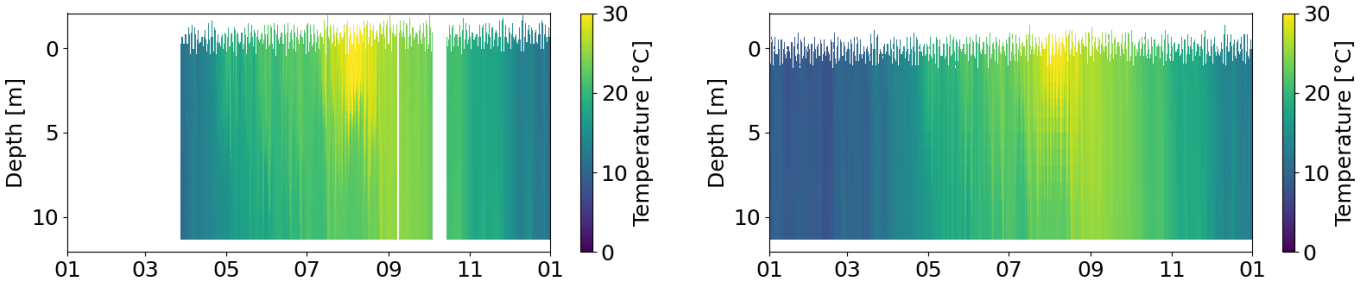


(b) Salinity

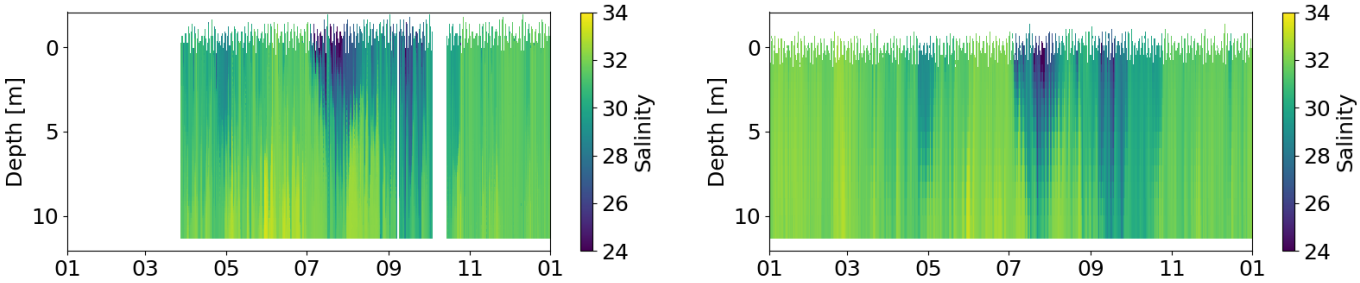


(c) Dissolved oxygen

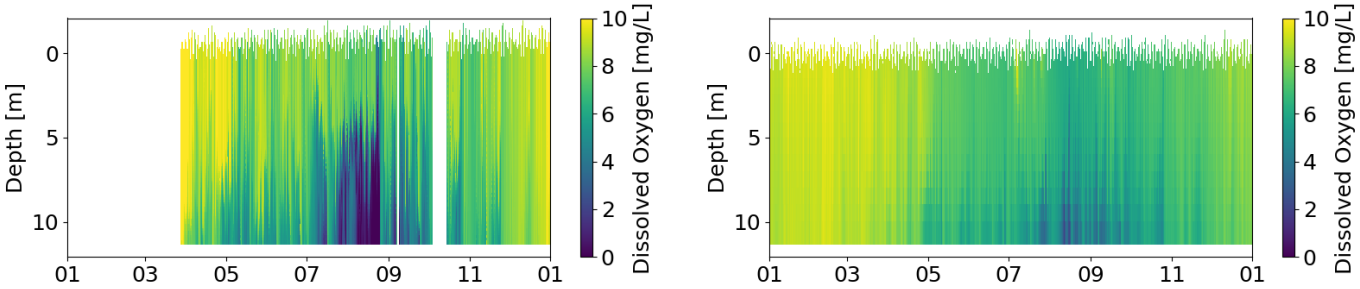
Figure S36 Isopleth plots at Center of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

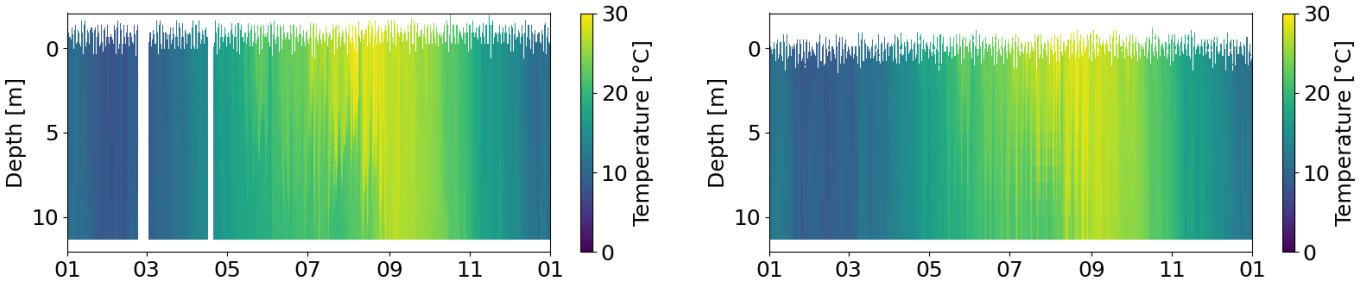


(b) Salinity

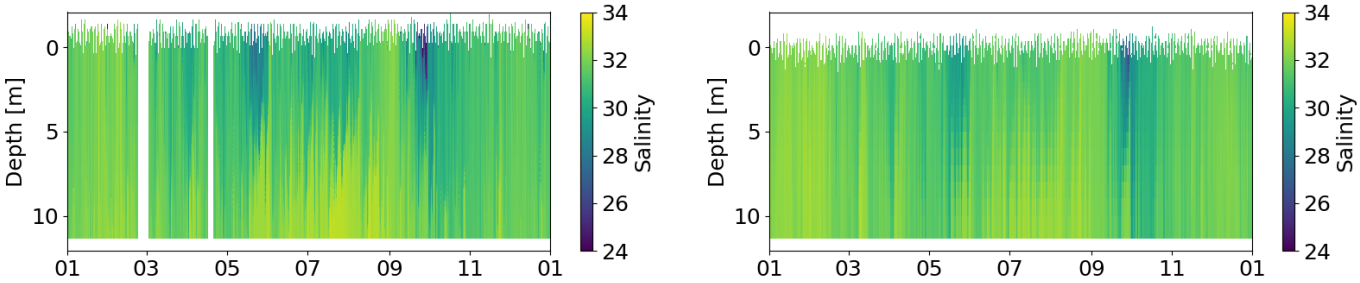


(c) Dissolved oxygen

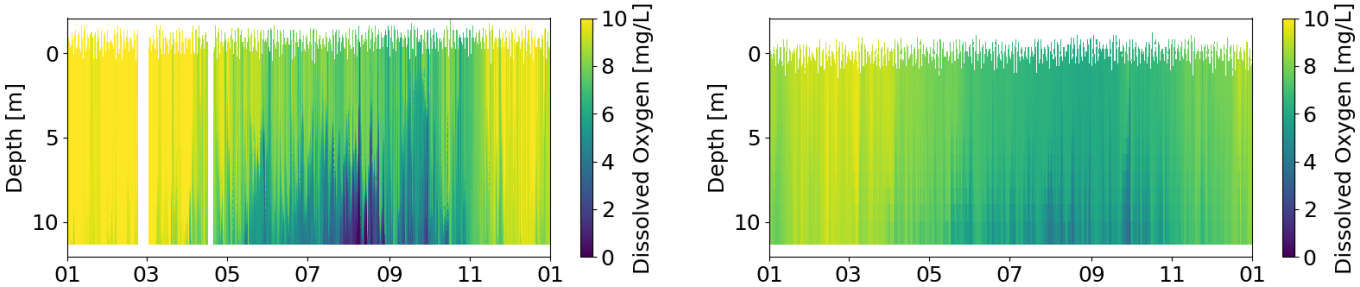
Figure S37 Isopleth plots at Center of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

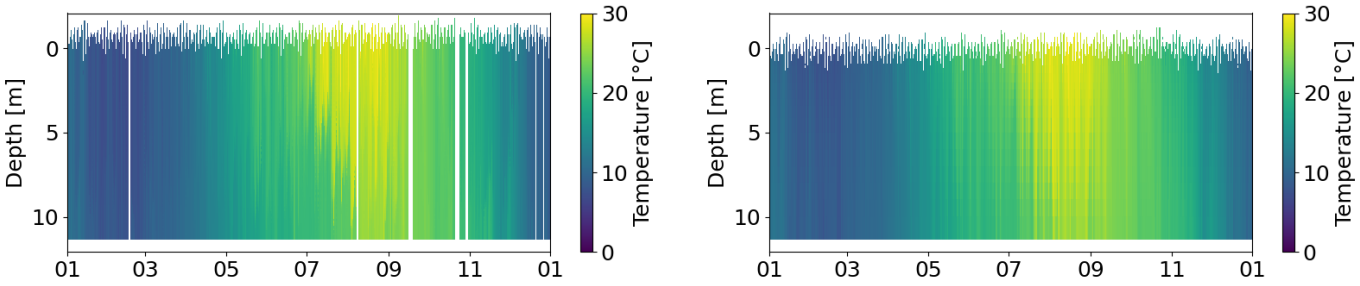


(b) Salinity

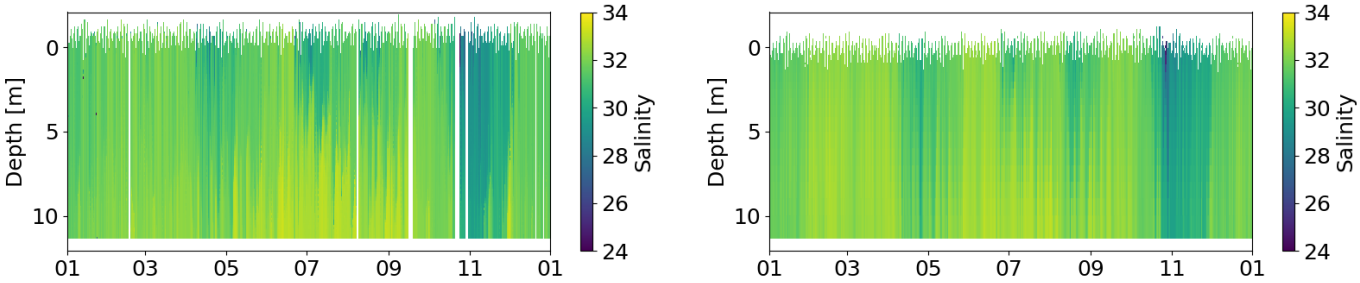


(c) Dissolved oxygen

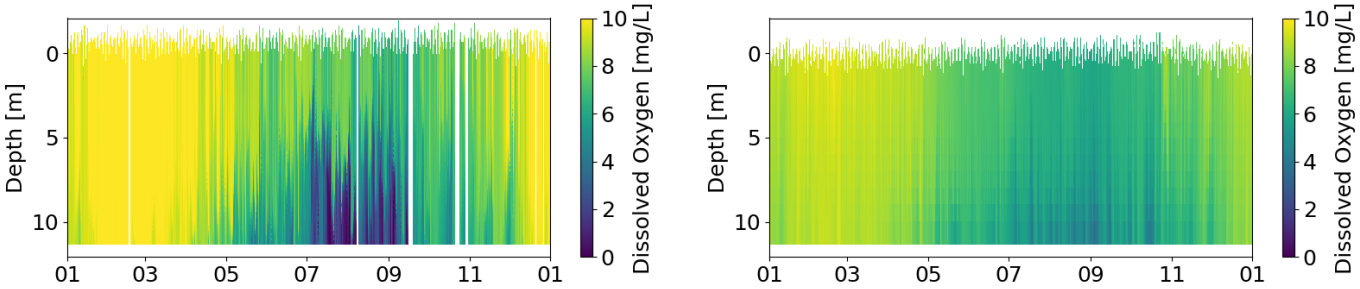
Figure S38 Isopleth plots at Center of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

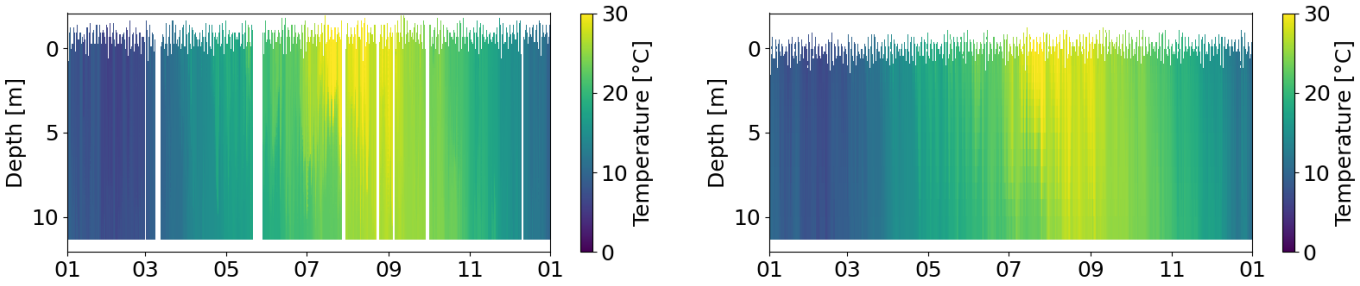


(b) Salinity

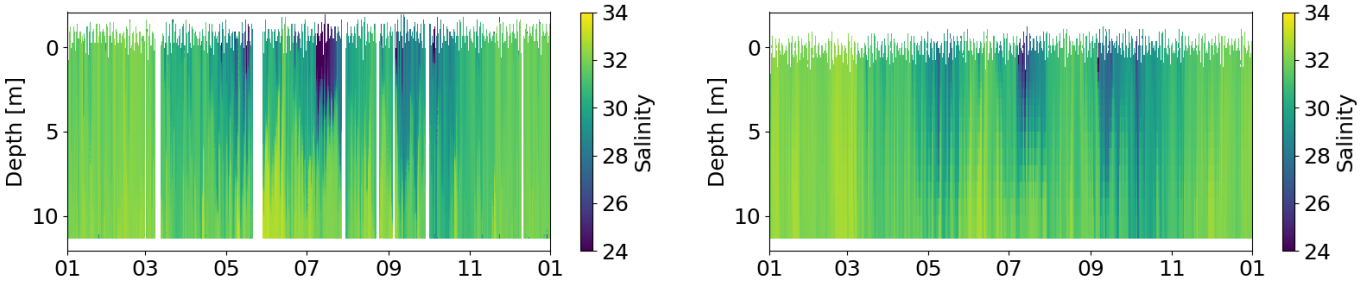


(c) Dissolved oxygen

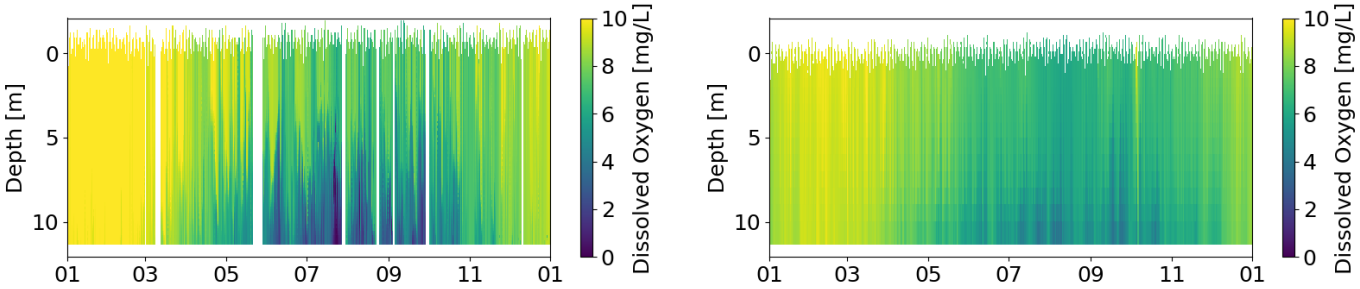
Figure S39 Isopleth plots at Center of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

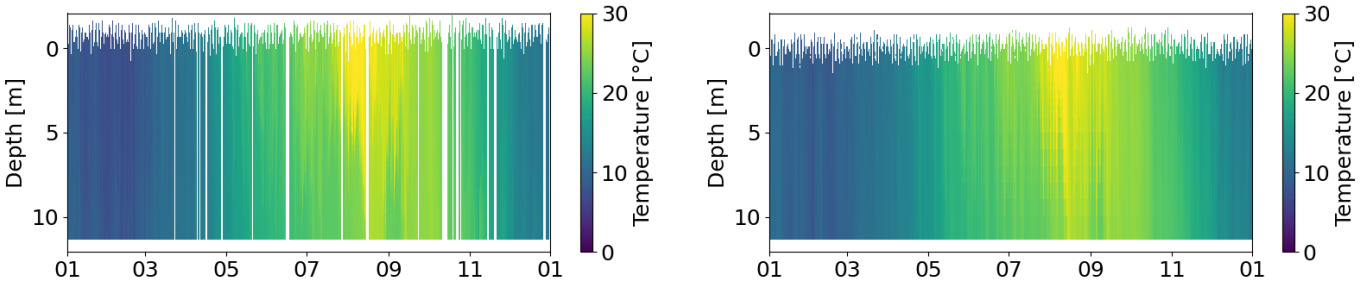


(b) Salinity

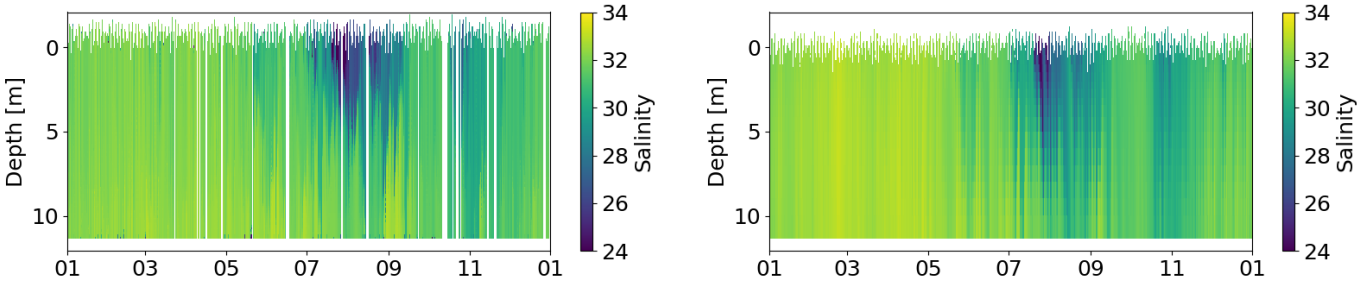


(c) Dissolved oxygen

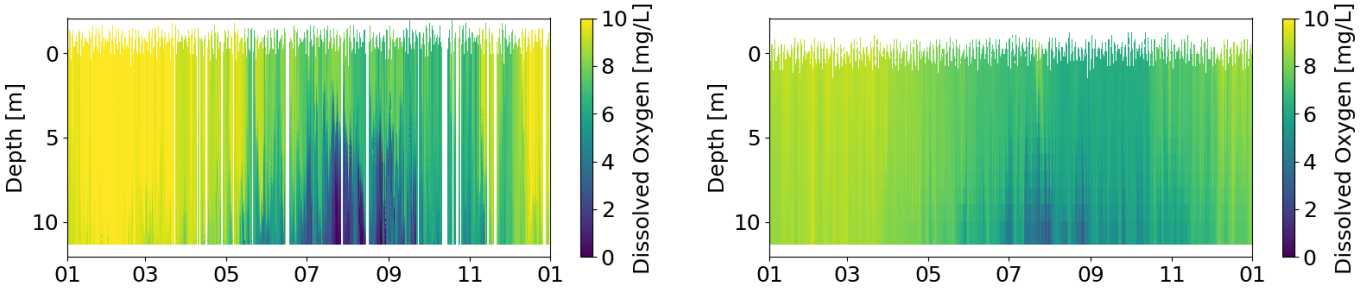
Figure S40 Isopleth plots at Center of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

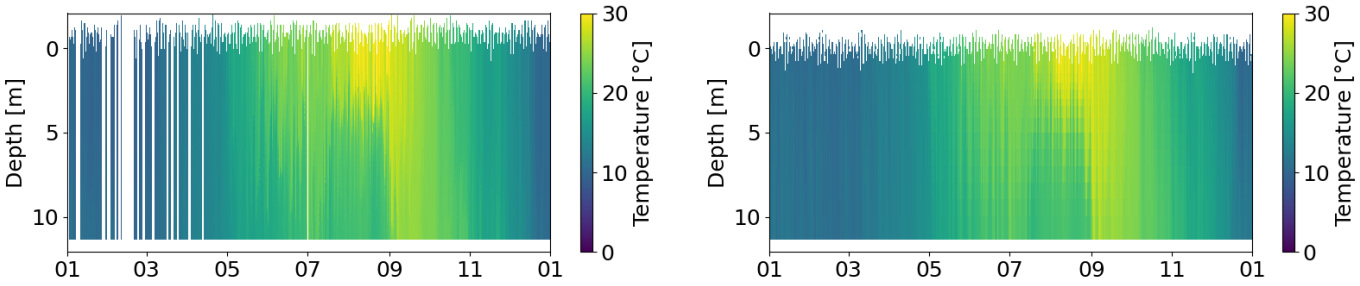


(b) Salinity

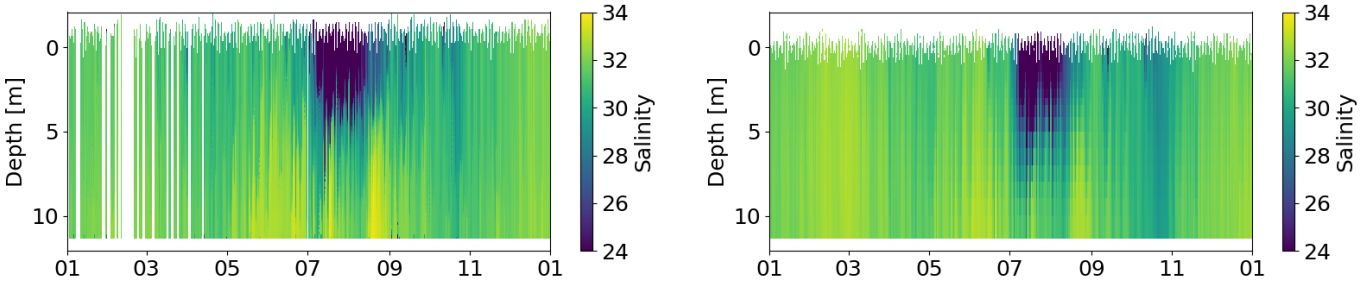


(c) Dissolved oxygen

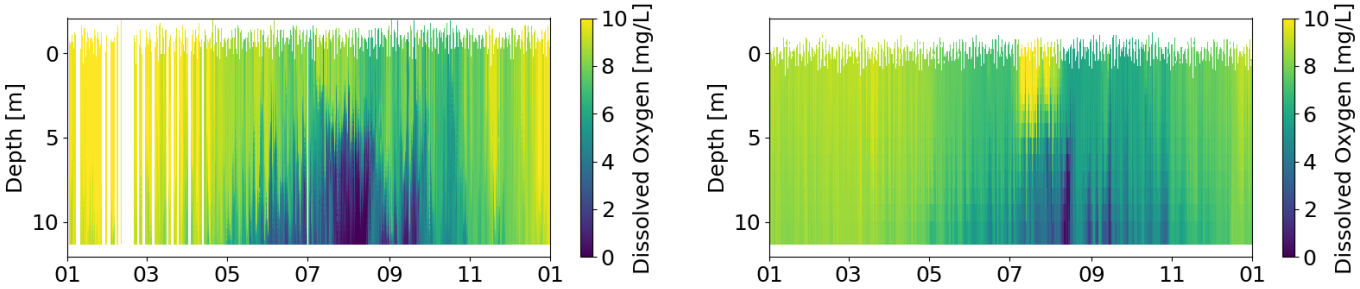
Figure S41 Isopleth plots at Center of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

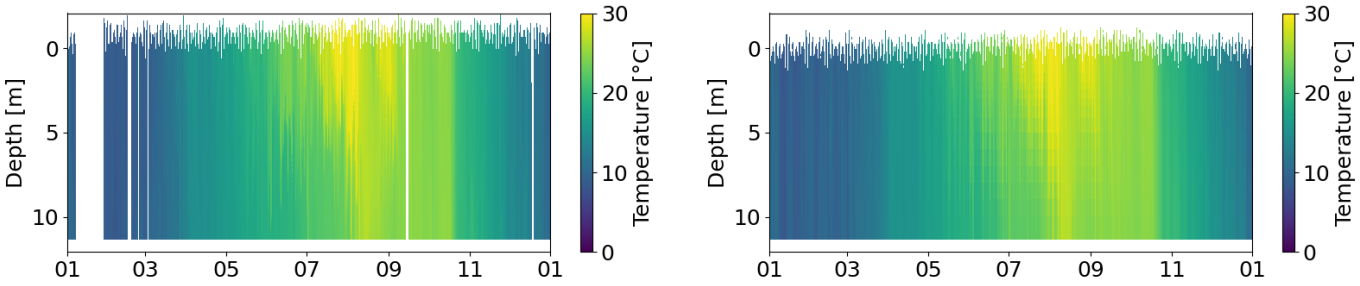


(b) Salinity

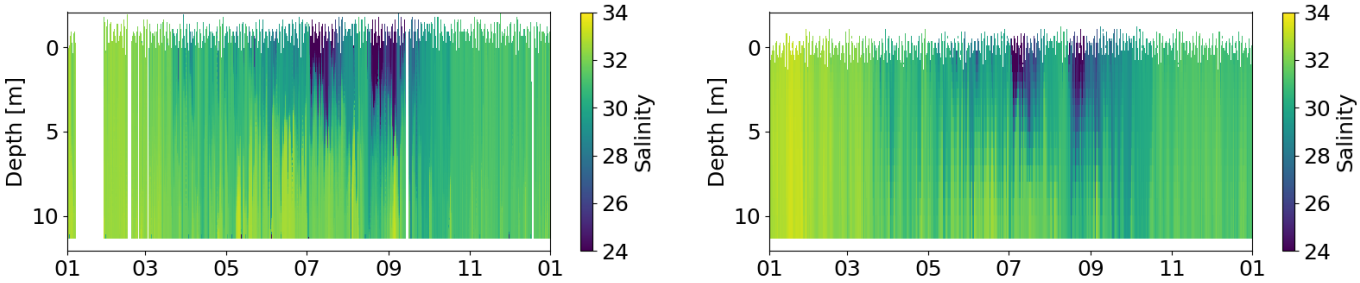


(c) Dissolved oxygen

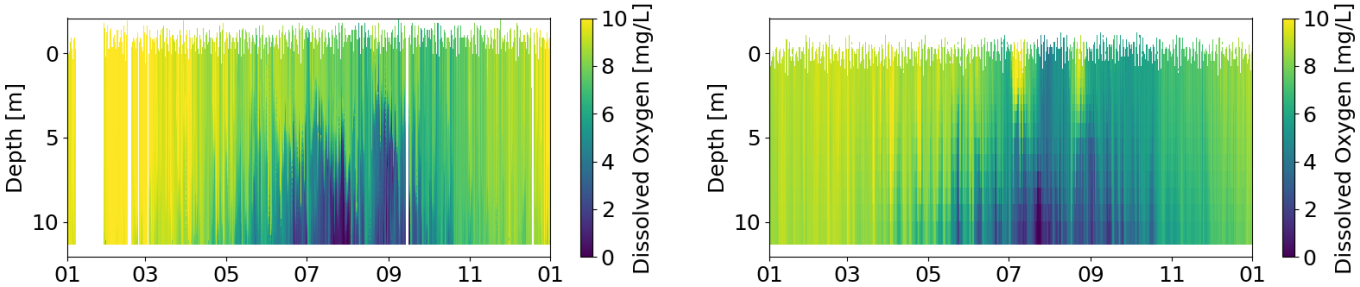
Figure S42 Isopleth plots at Center of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

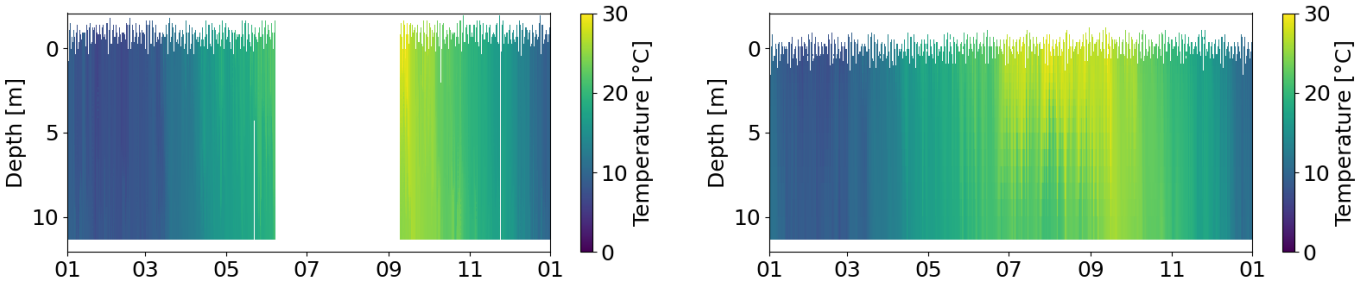


(b) Salinity

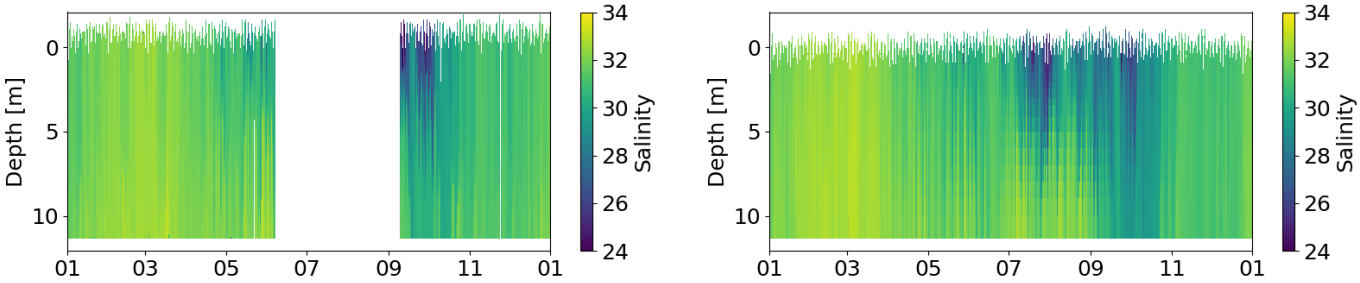


(c) Dissolved oxygen

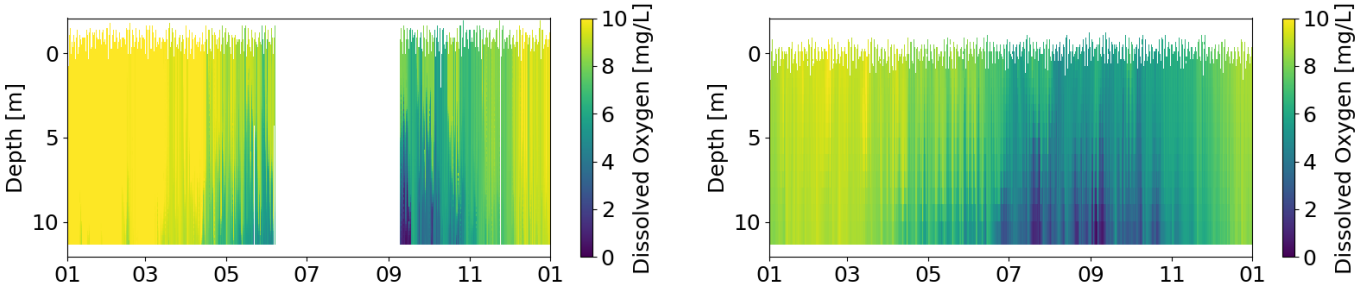
Figure S43 Isopleth plots at Center of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



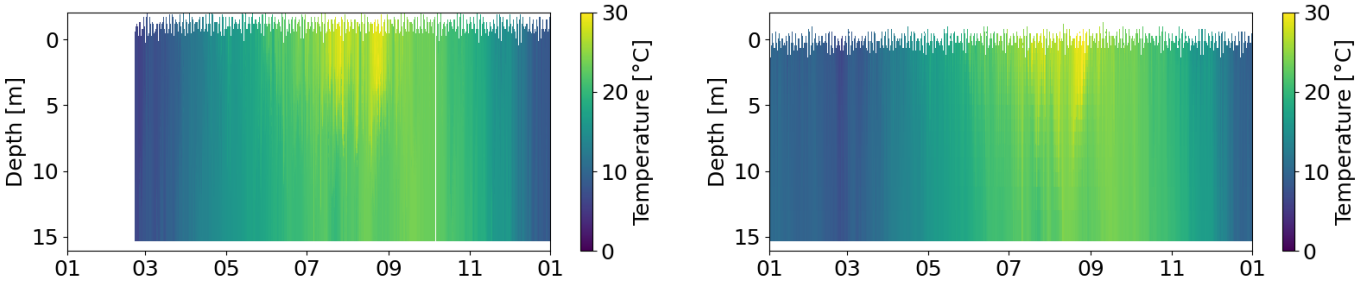
(b) Salinity



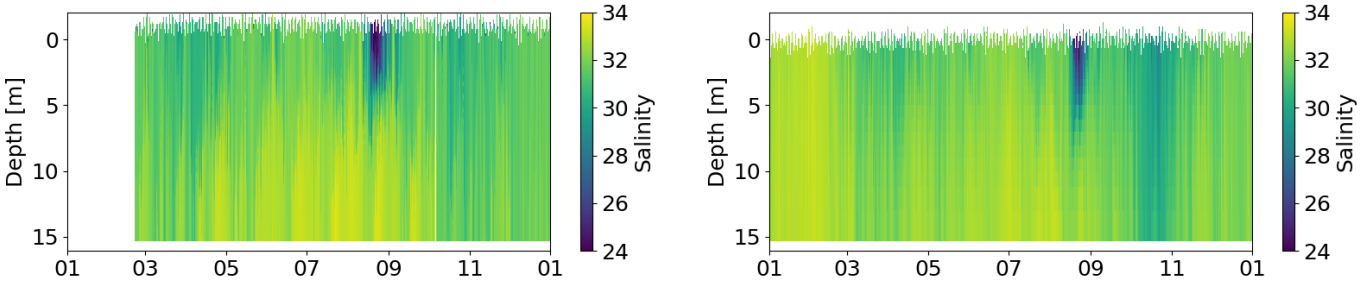
(c) Dissolved oxygen

Figure S44 Isopleth plots at Center of Mikawa Bay in 2022
Left: Observations, Right: Data assimilation results.

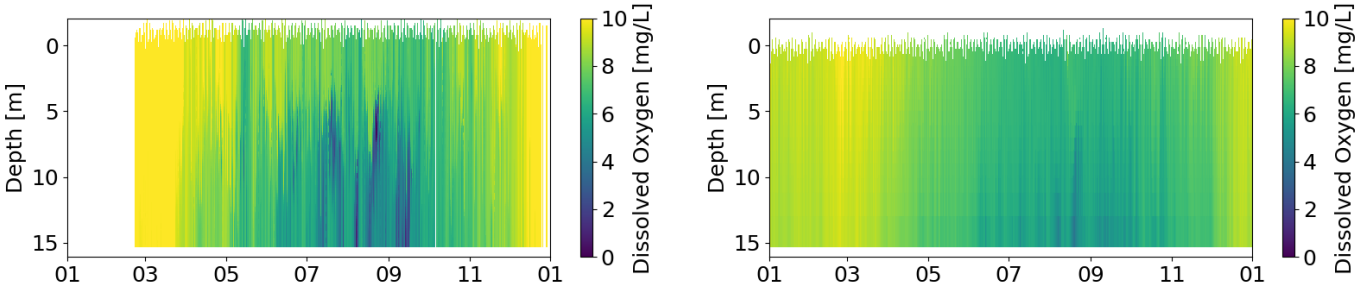
S3.6 Mouth of Mikawa Bay: Isopleths



(a) Water temperature

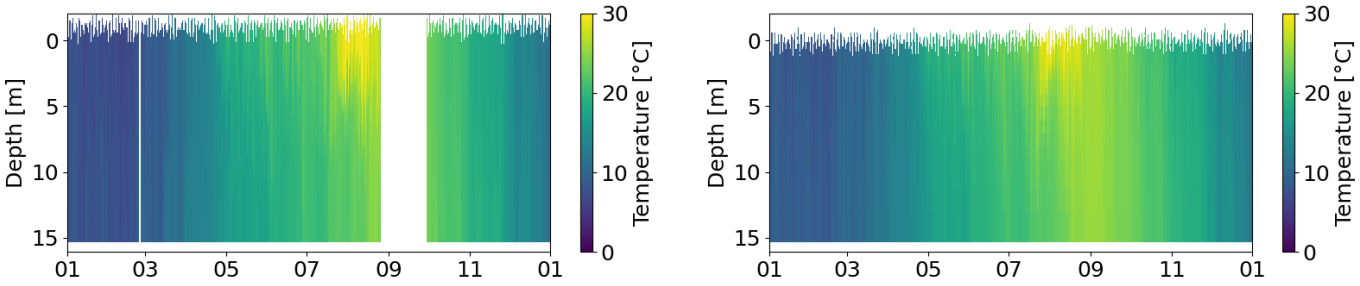


(b) Salinity

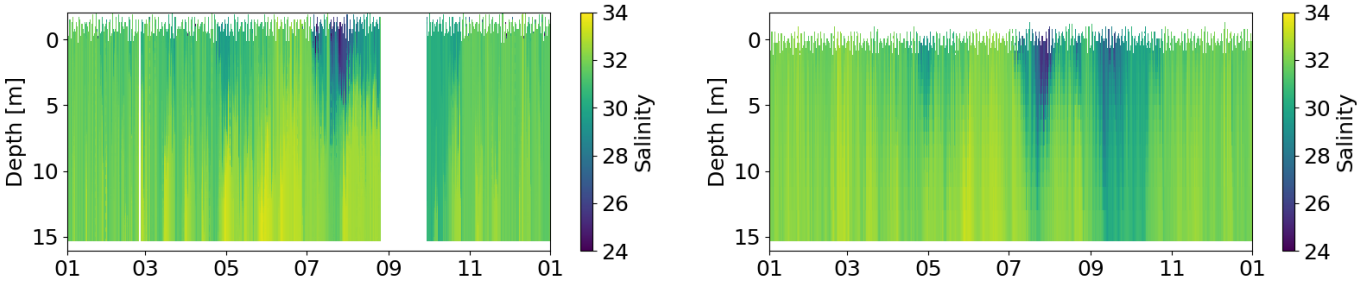


(c) Dissolved oxygen

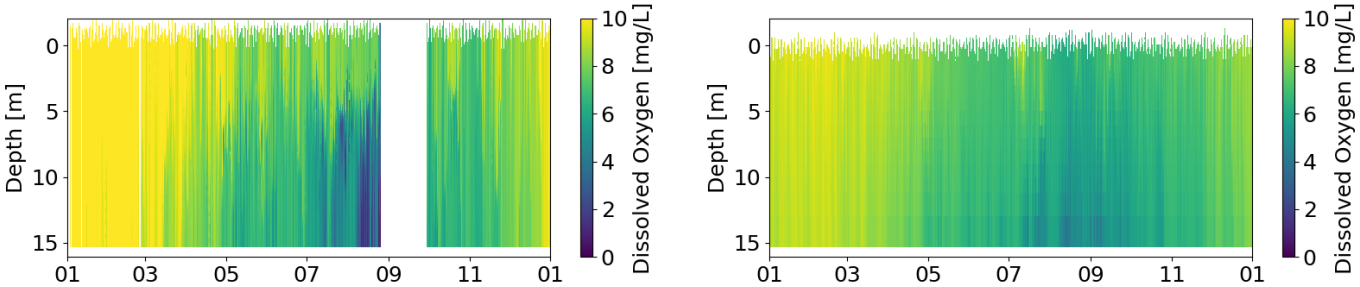
Figure S45 Isopleth plots at Mouth of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

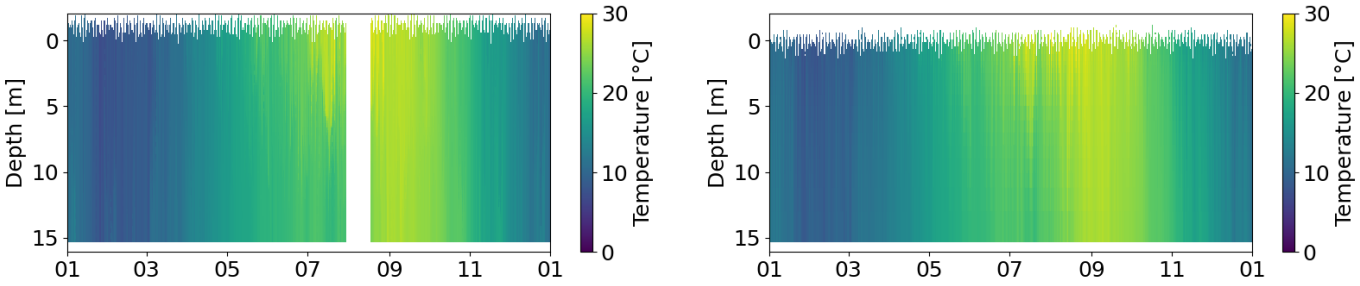


(b) Salinity

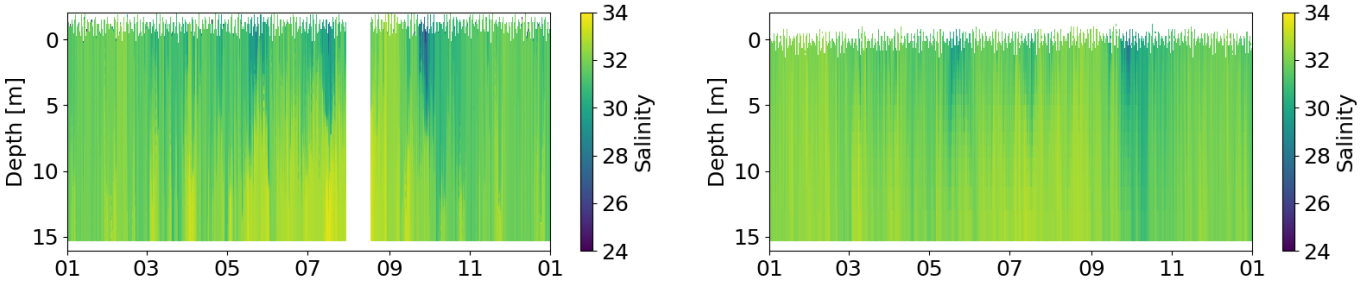


(c) Dissolved oxygen

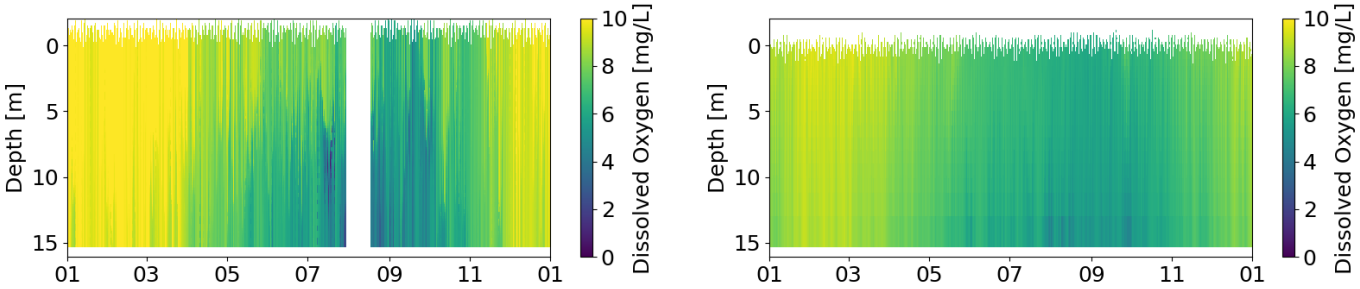
Figure S46 Isopleth plots at Mouth of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

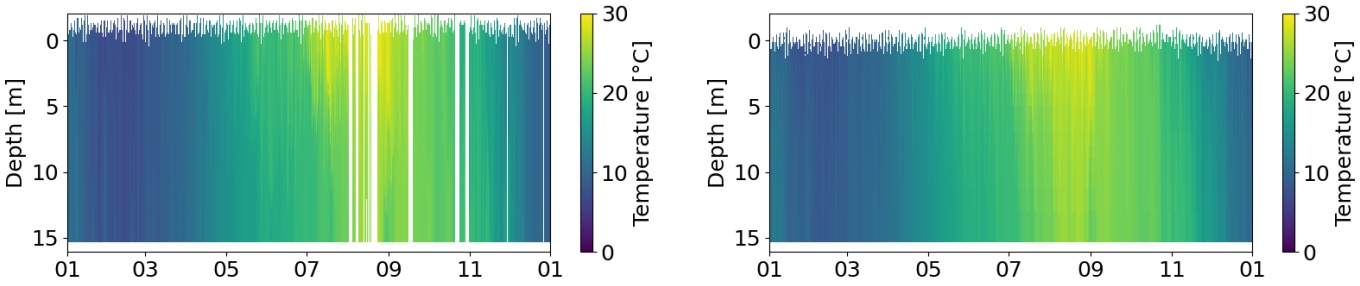


(b) Salinity

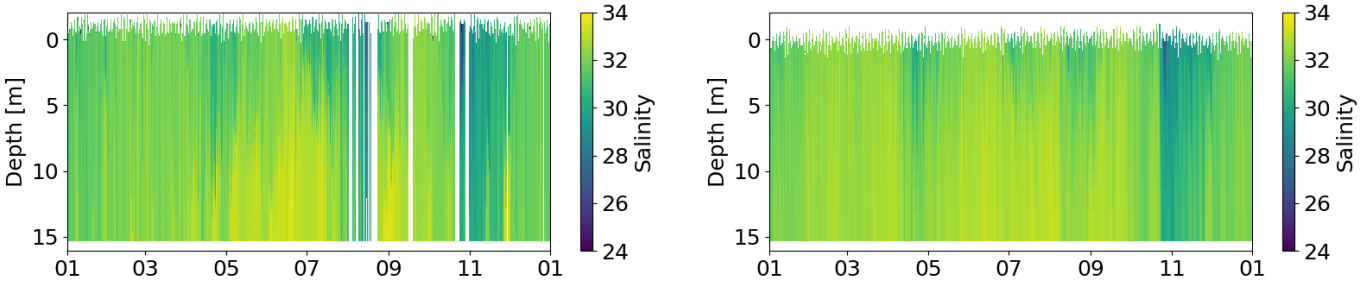


(c) Dissolved oxygen

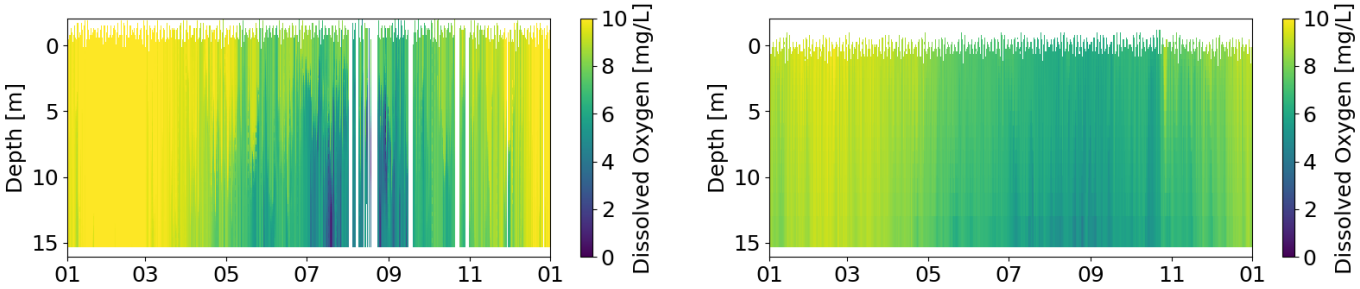
Figure S47 Isopleth plots at Mouth of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

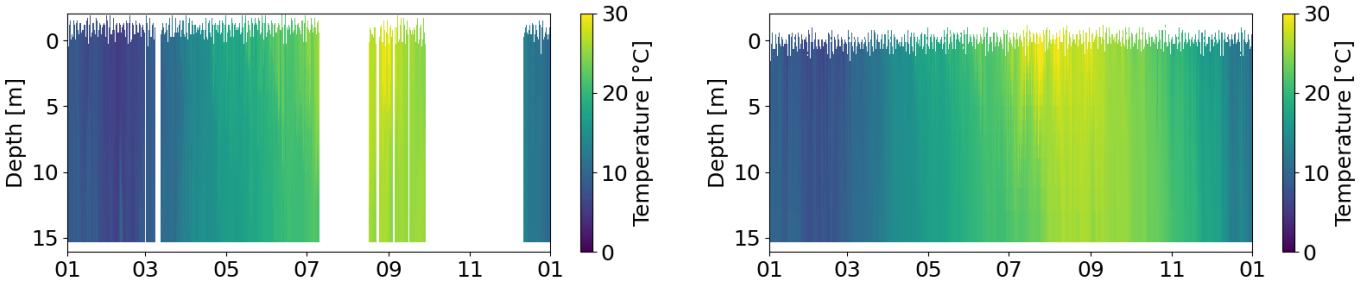


(b) Salinity

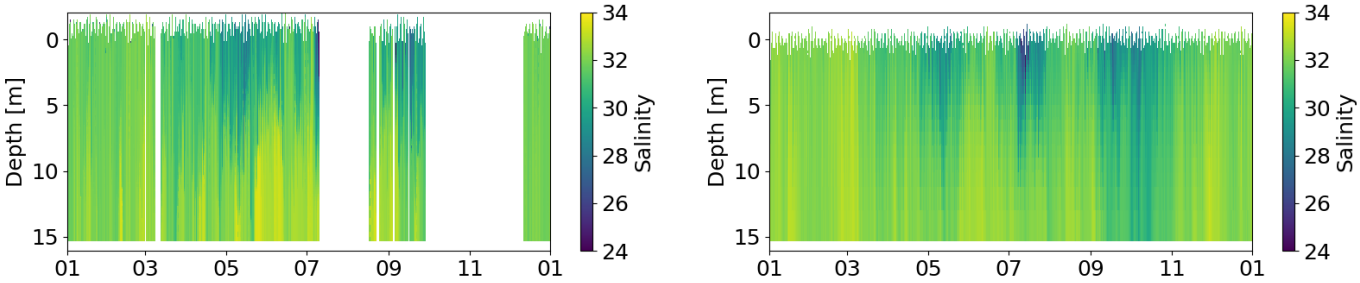


(c) Dissolved oxygen

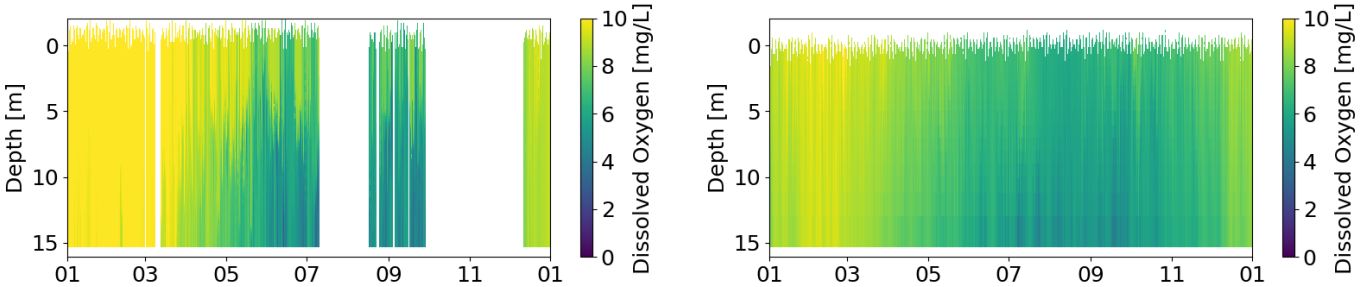
Figure S48 Isopleth plots at Mouth of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

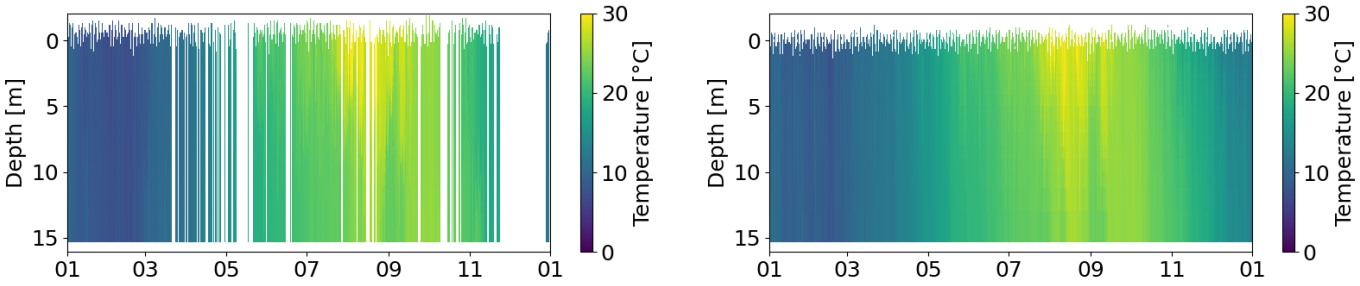


(b) Salinity

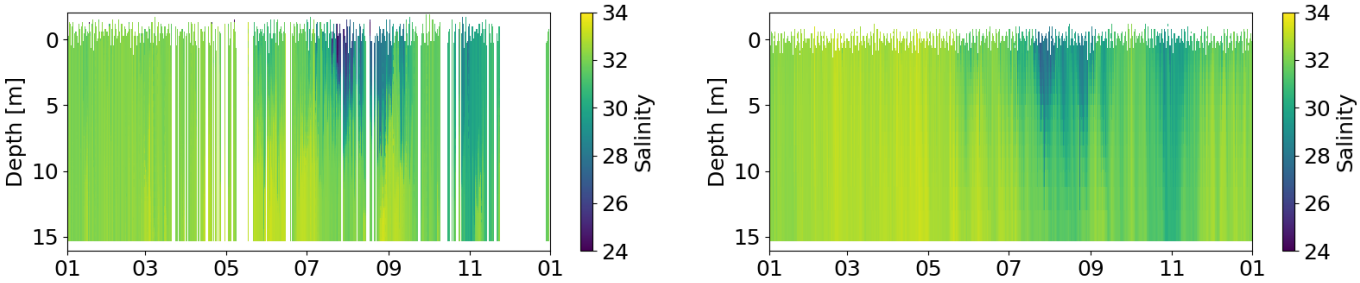


(c) Dissolved oxygen

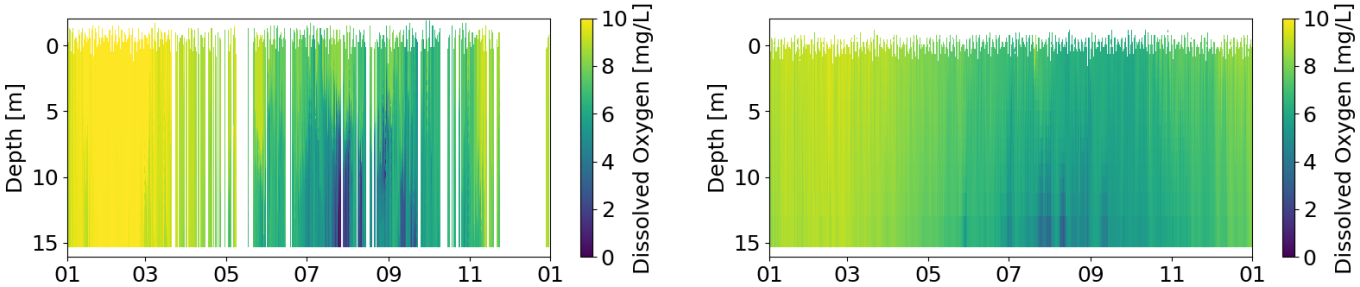
Figure S49 Isopleth plots at Mouth of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

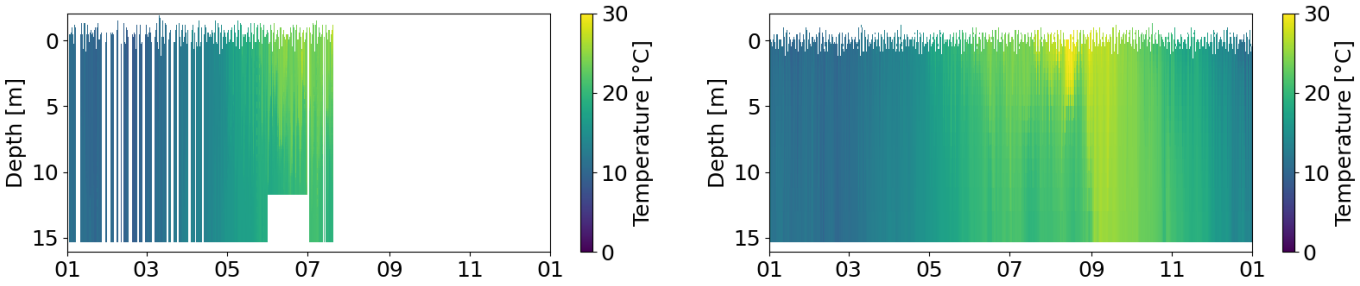


(b) Salinity

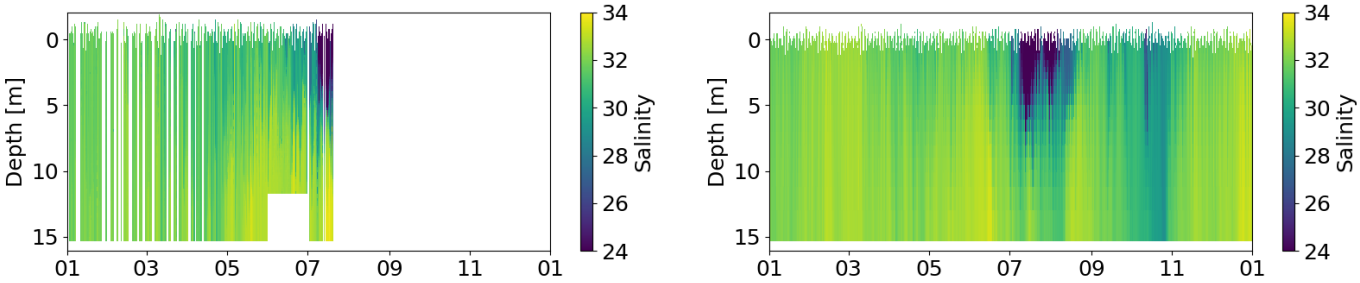


(c) Dissolved oxygen

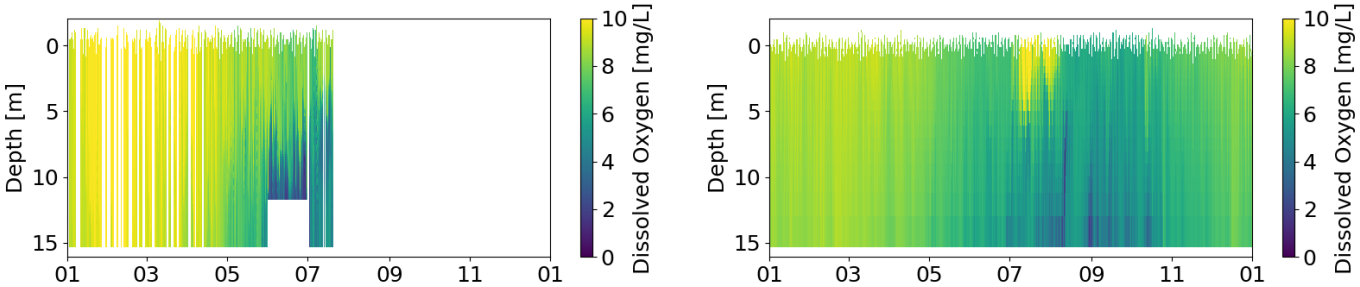
Figure S50 Isopleth plots at Mouth of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

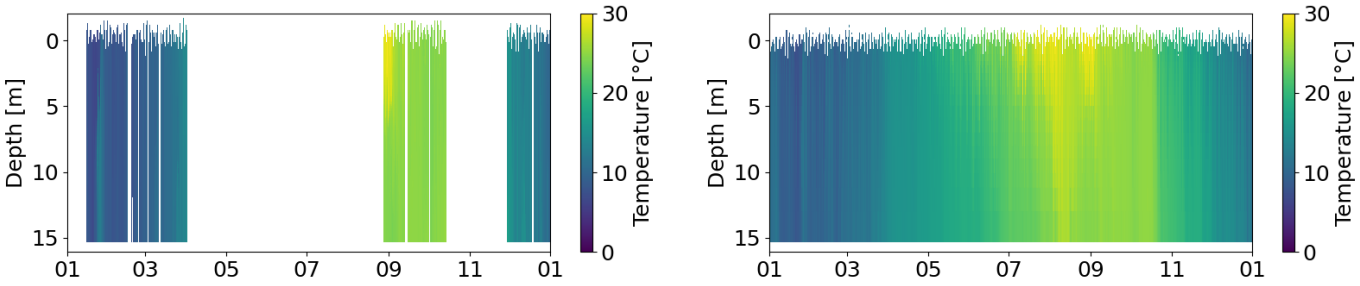


(b) Salinity

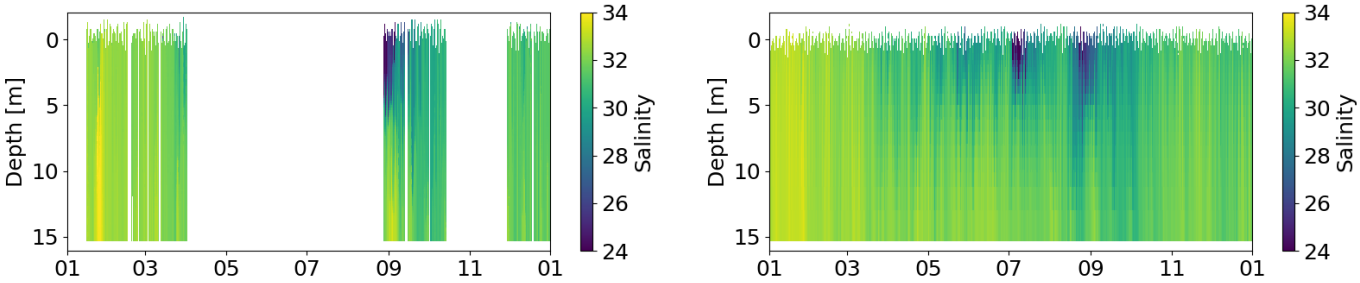


(c) Dissolved oxygen

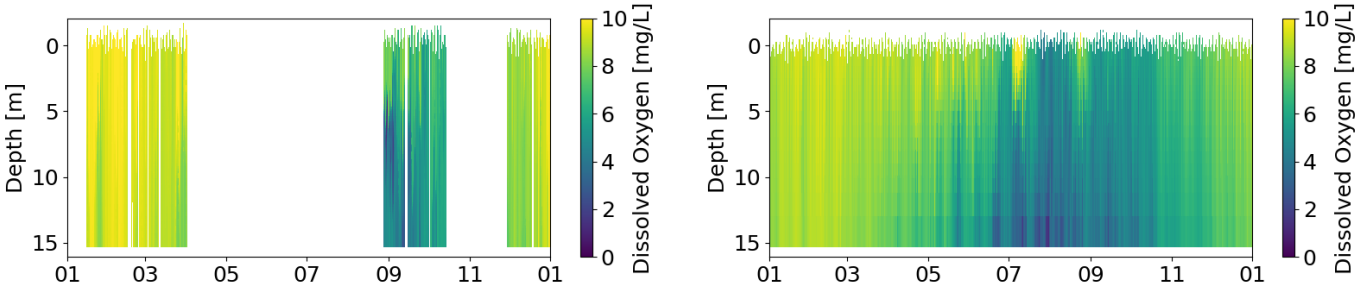
Figure S51 Isopleth plots at Mouth of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

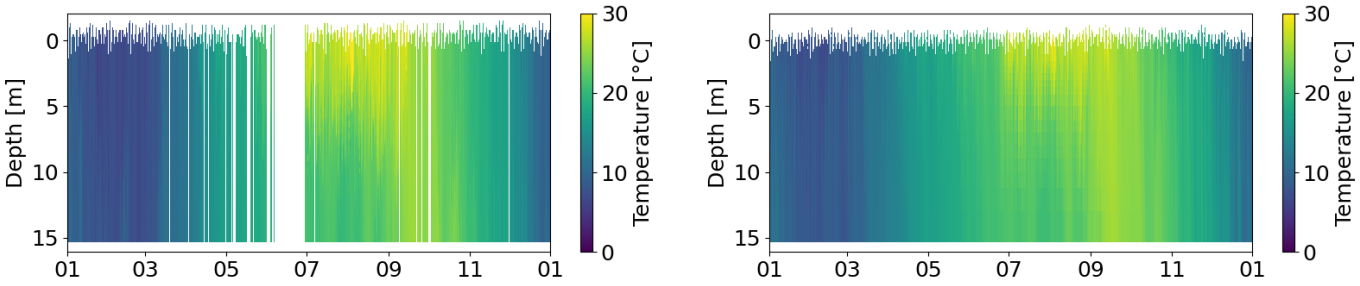


(b) Salinity

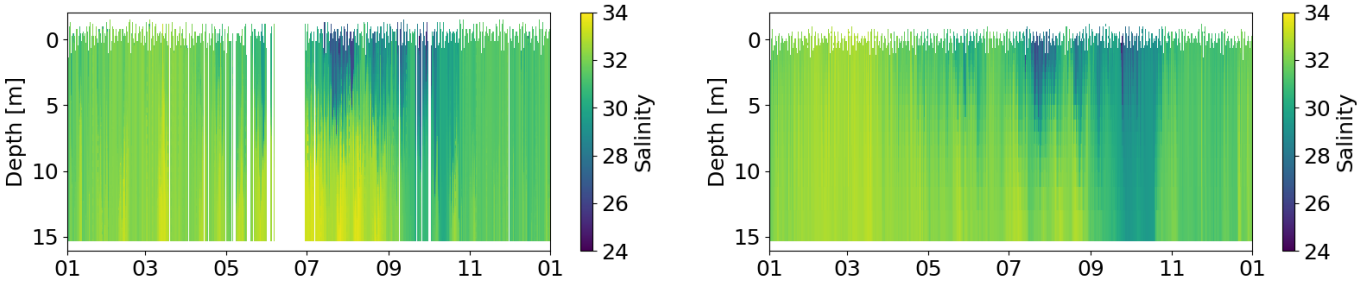


(c) Dissolved oxygen

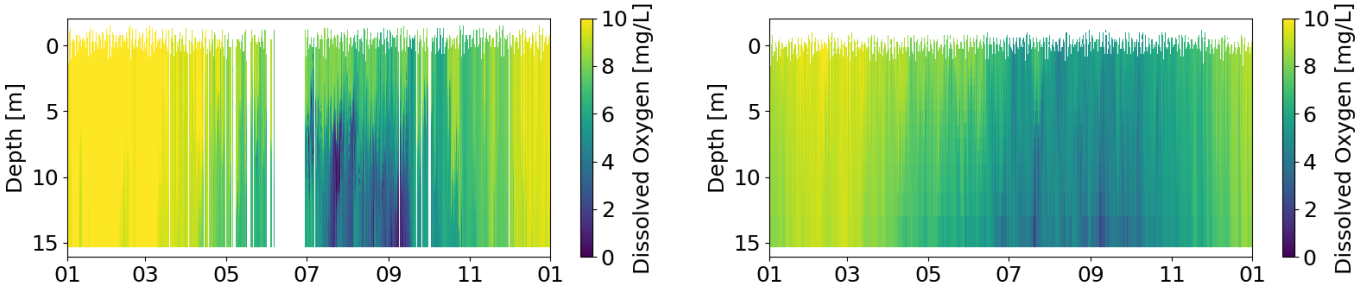
Figure S52 Isopleth plots at Mouth of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



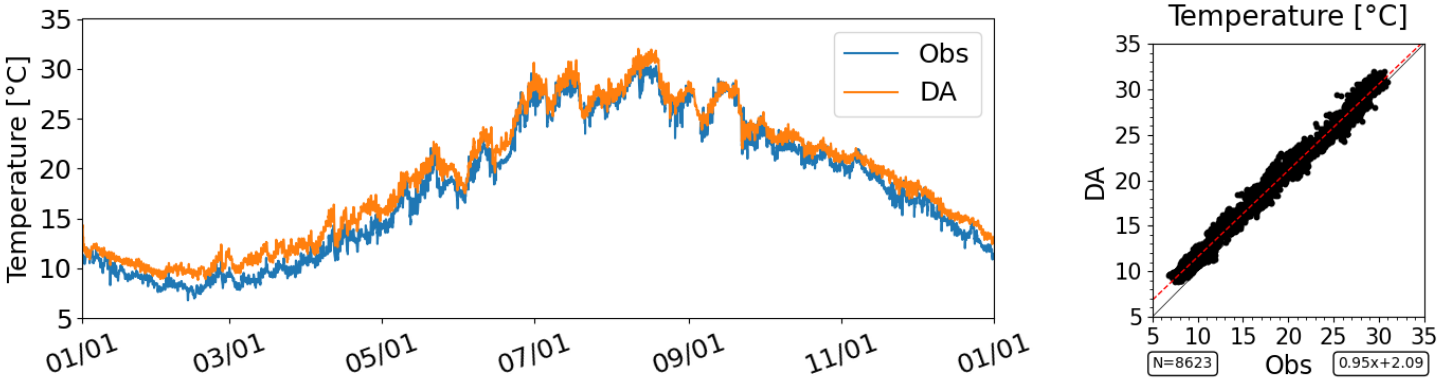
(b) Salinity



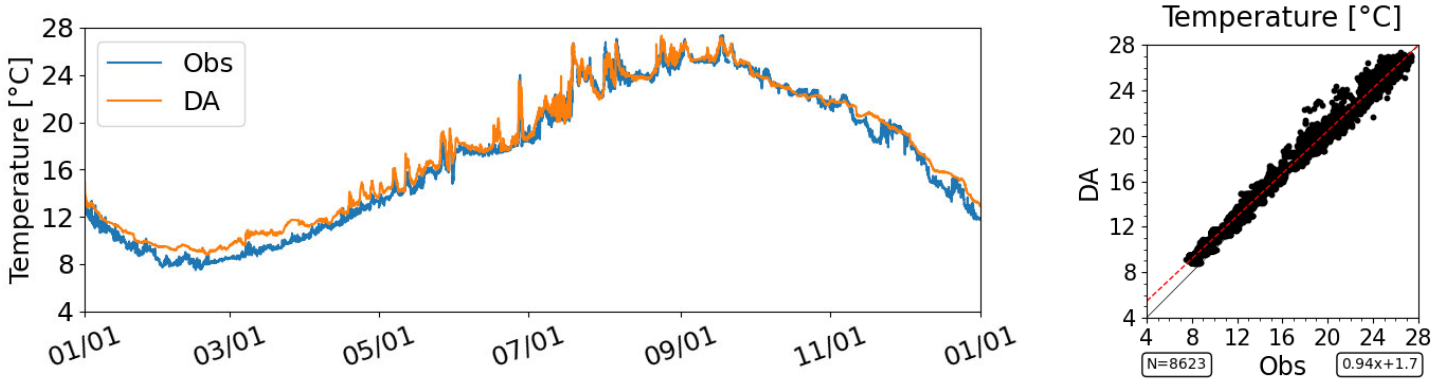
(c) Dissolved oxygen

Figure S53 Isopleth plots at Mouth of Mikawa Bay in 2022
Left: Observations, Right: Data assimilation results.

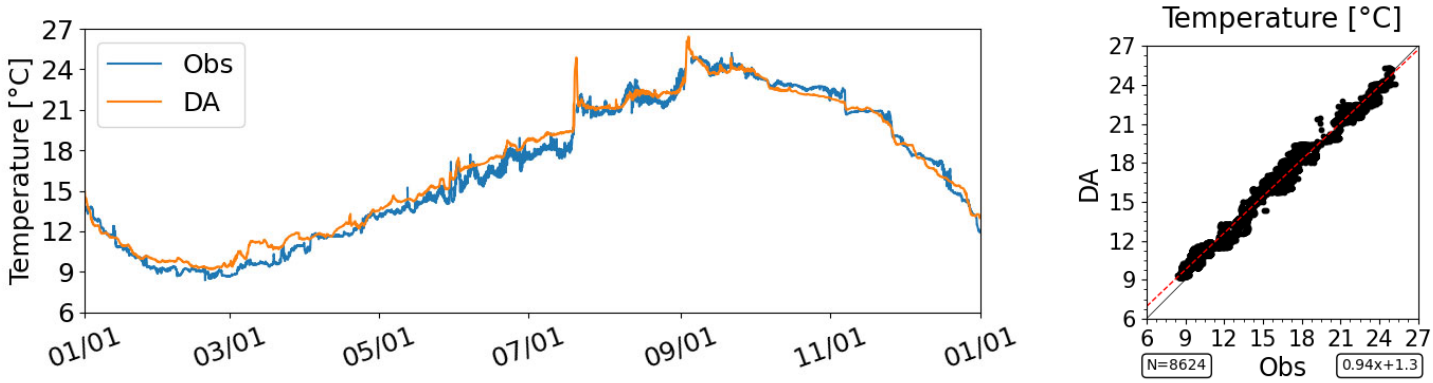
S3.7 Back of Ise Bay: Timeseries and scatter plot



(a) Surface layer

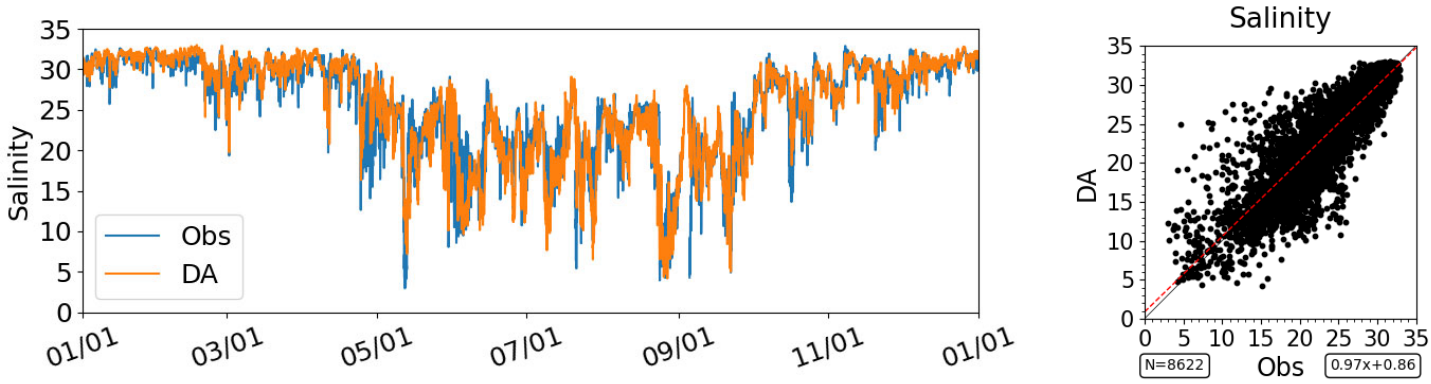


(b) Middle layer

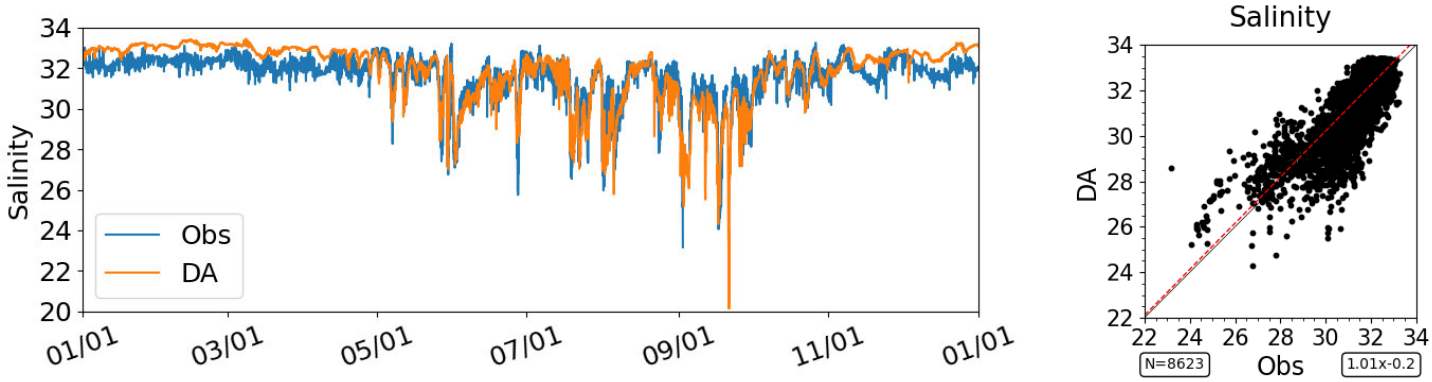


(c) Bottom layer

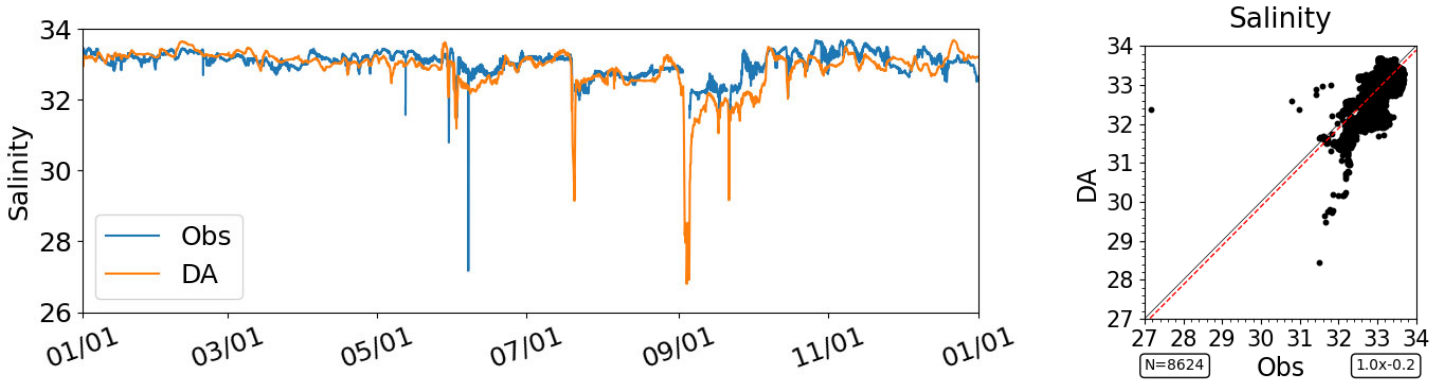
Figure S3.53 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2011



(a) Surface layer

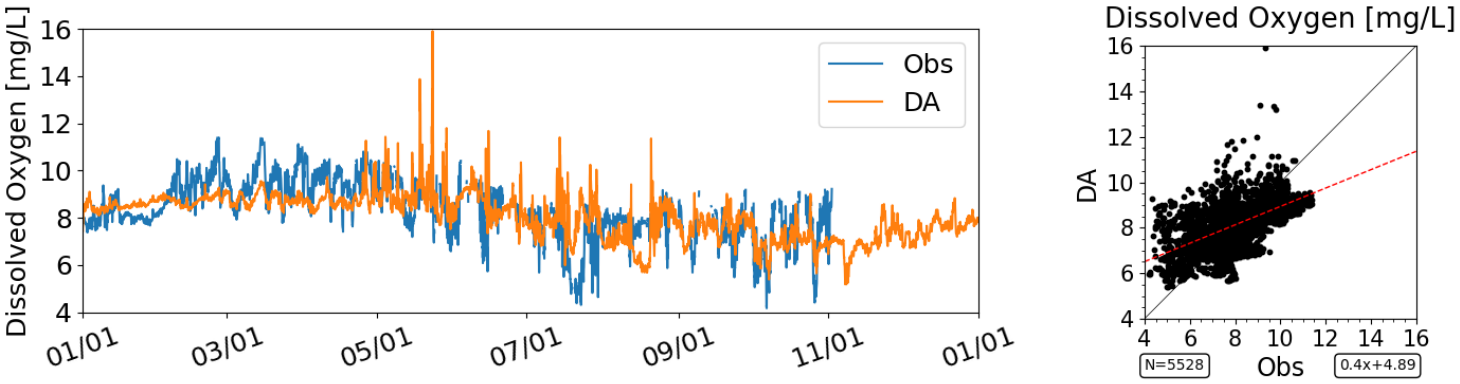


(b) Middle layer

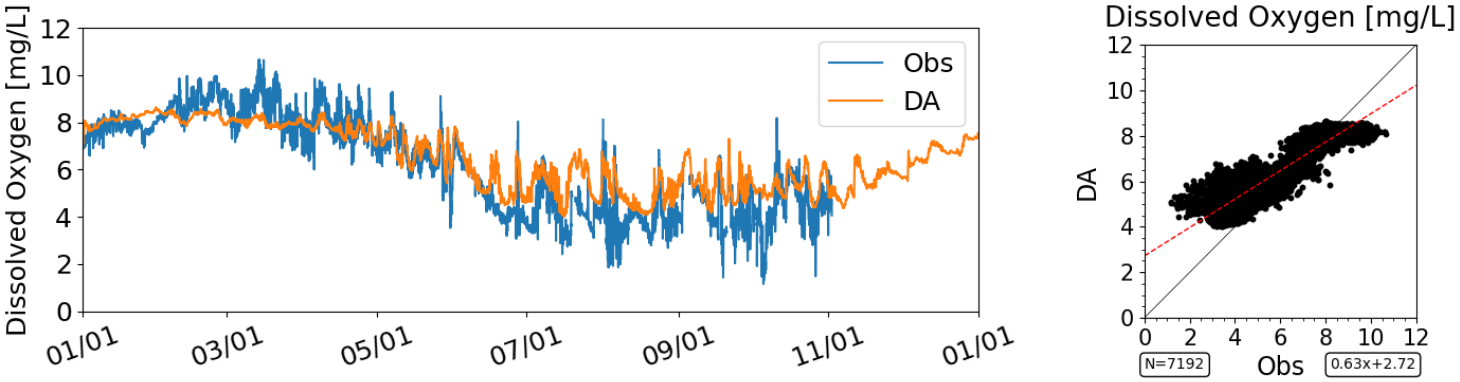


(c) Bottom layer

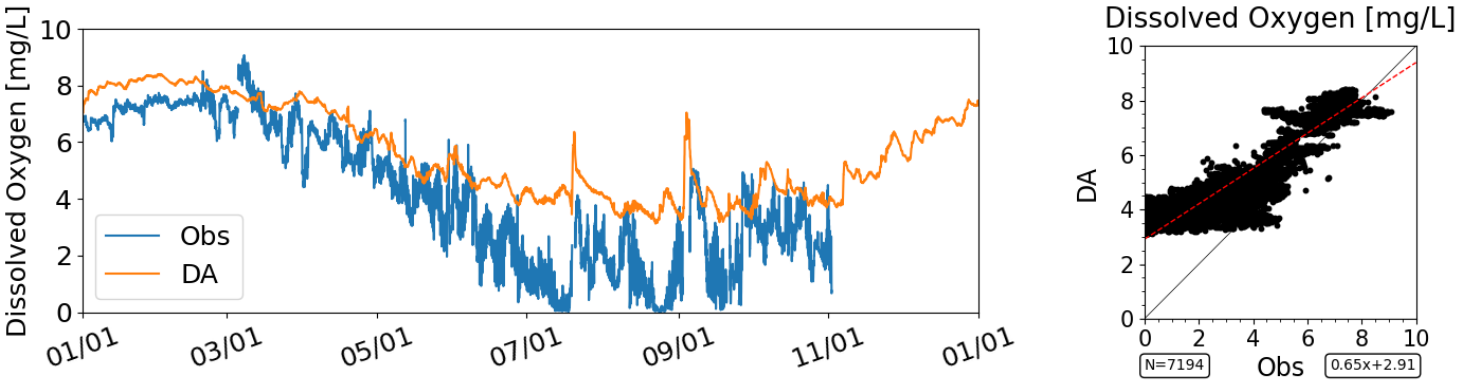
Figure S3.54 Timeseries and scatter plot for salinity at Back of Ise Bay in 2011



(a) Surface layer

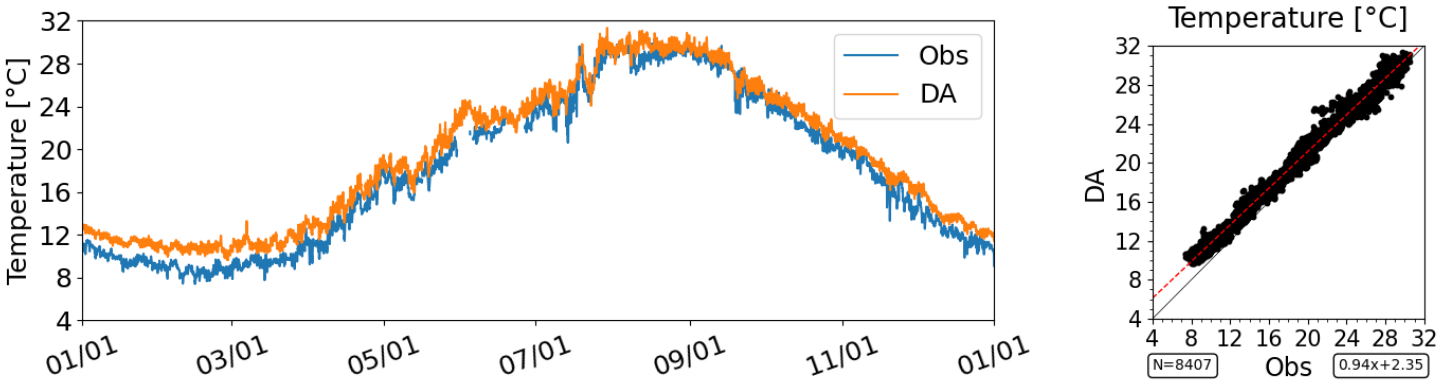


(b) Middle layer

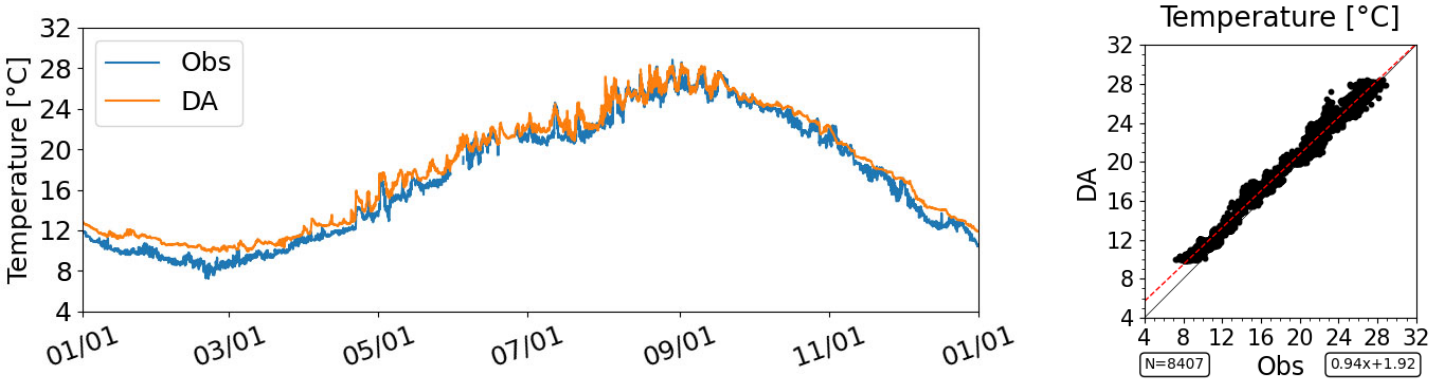


(c) Bottom layer

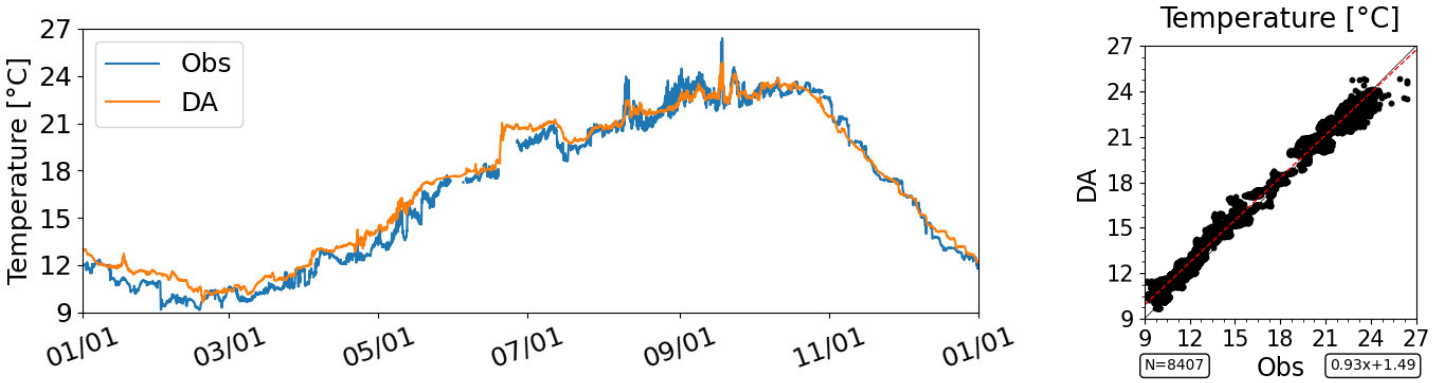
Figure S3.55 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2011



(a) Surface layer

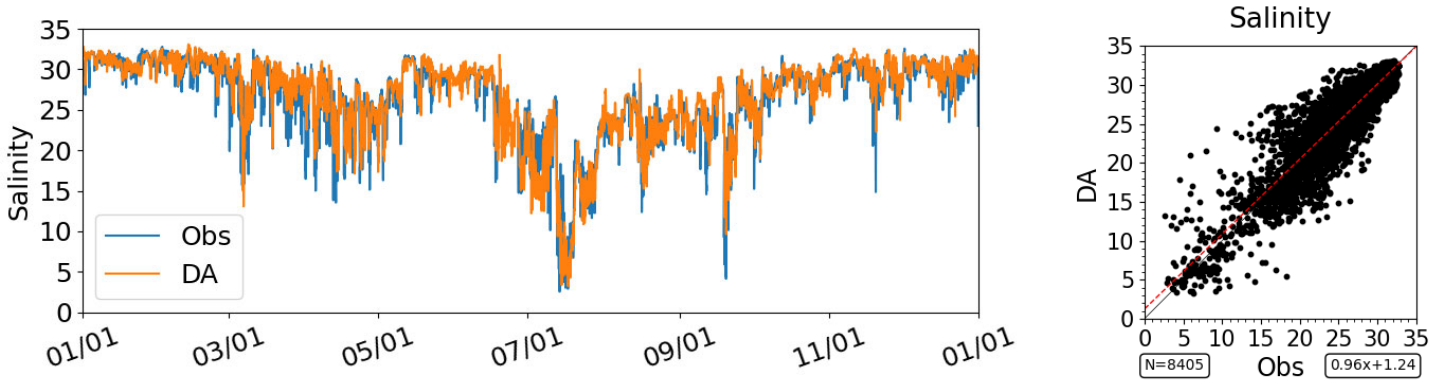


(b) Middle layer

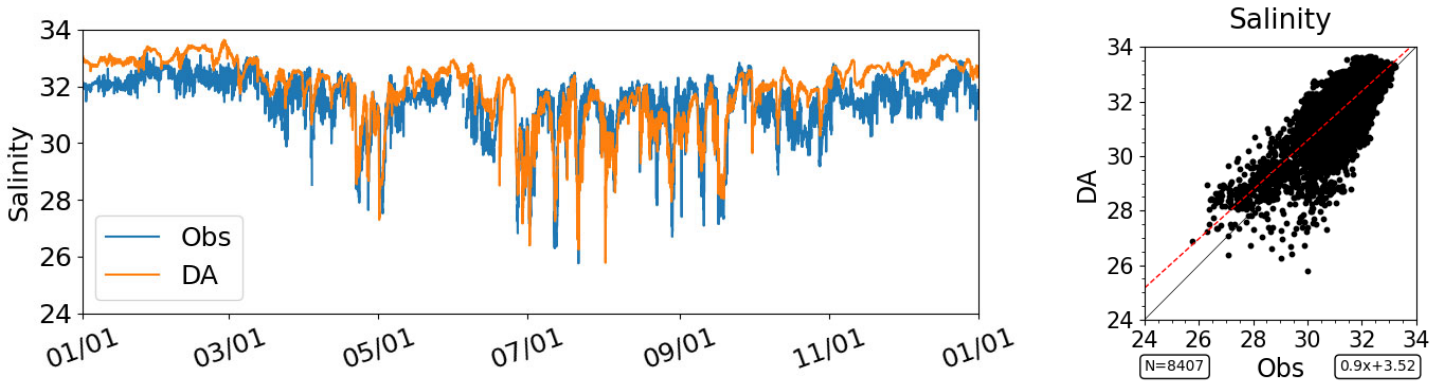


(c) Bottom layer

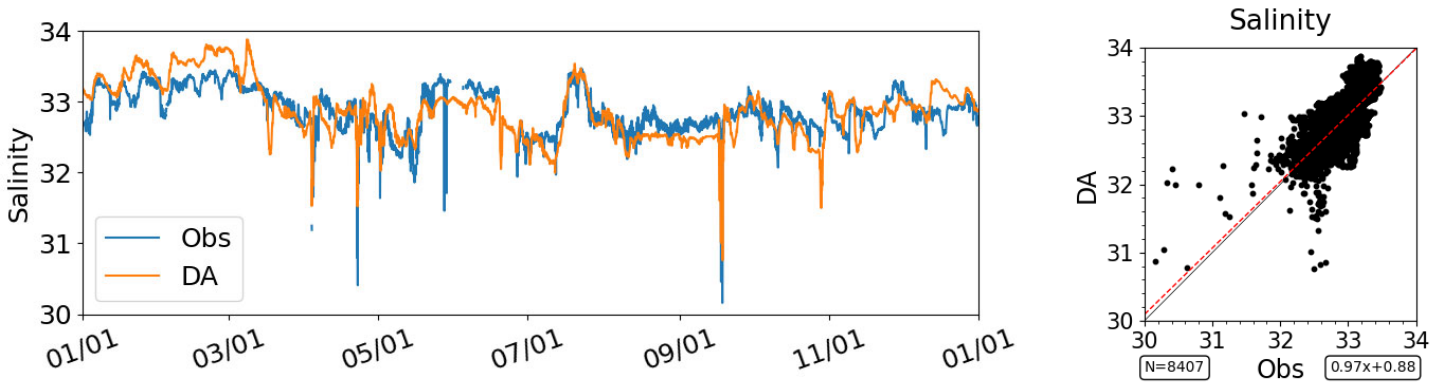
Figure S3.56 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2012



(a) Surface layer

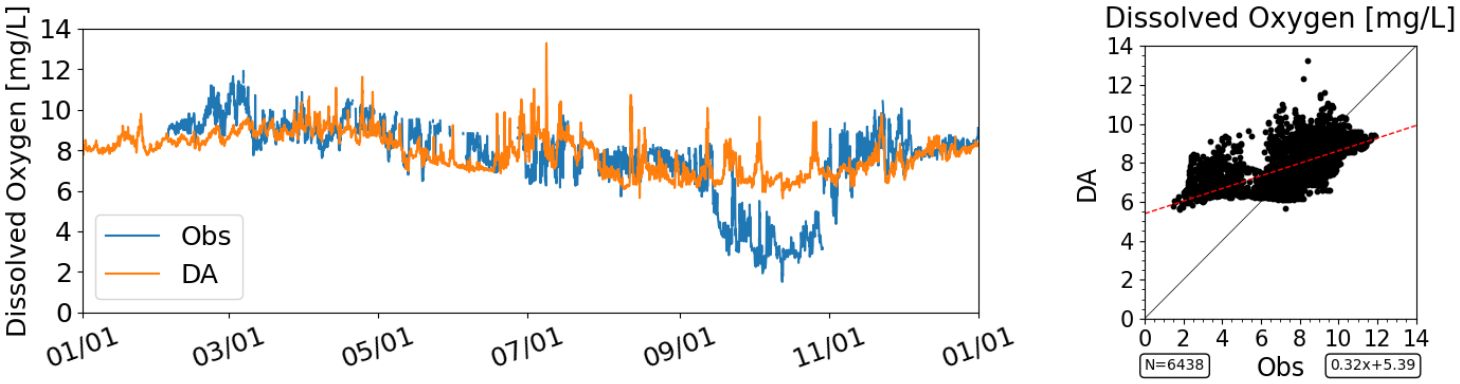


(b) Middle layer

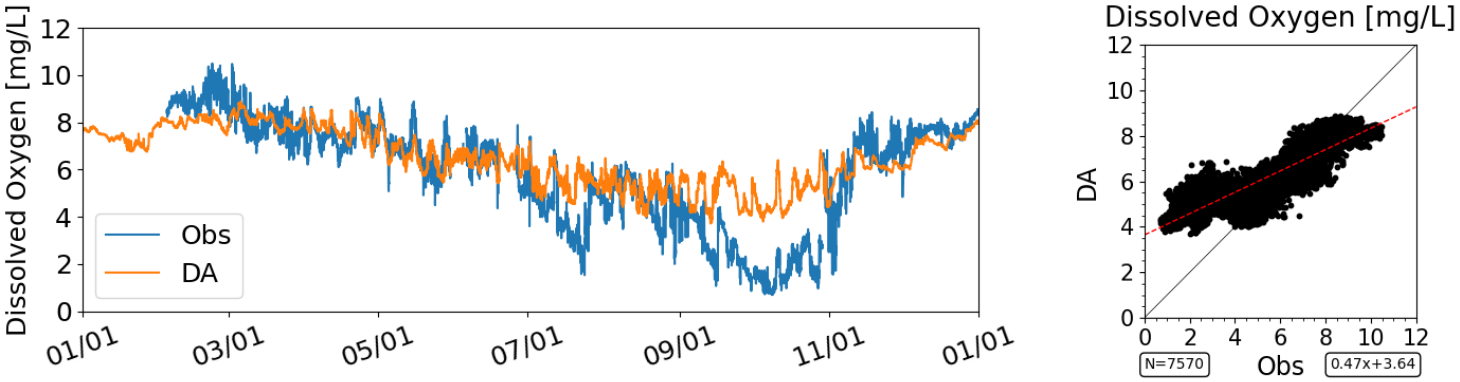


(c) Bottom layer

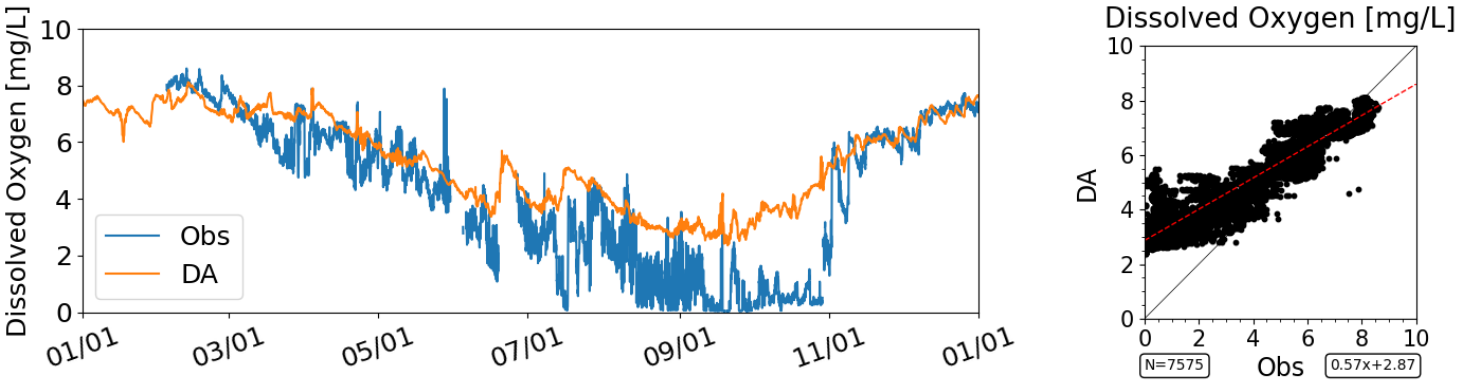
Figure S3.57 Timeseries and scatter plot for salinity at Back of Ise Bay in 2012



(a) Surface layer



(b) Middle layer

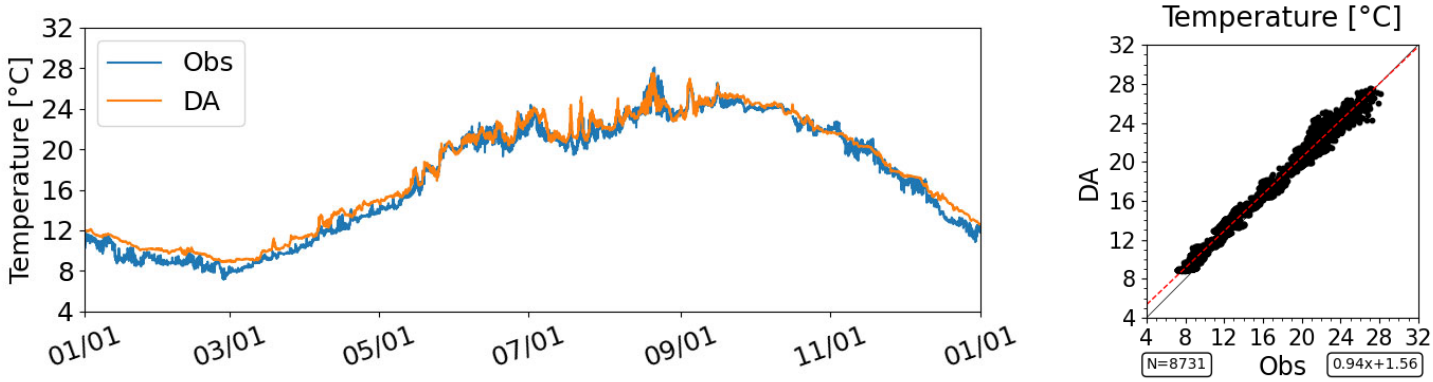


(c) Bottom layer

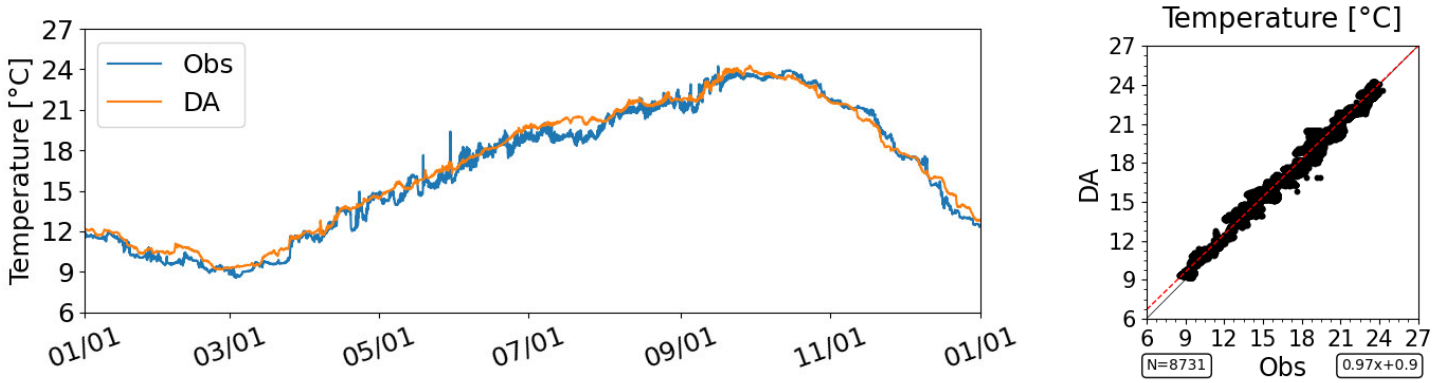
Figure S3.58 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2012



(a) Surface layer

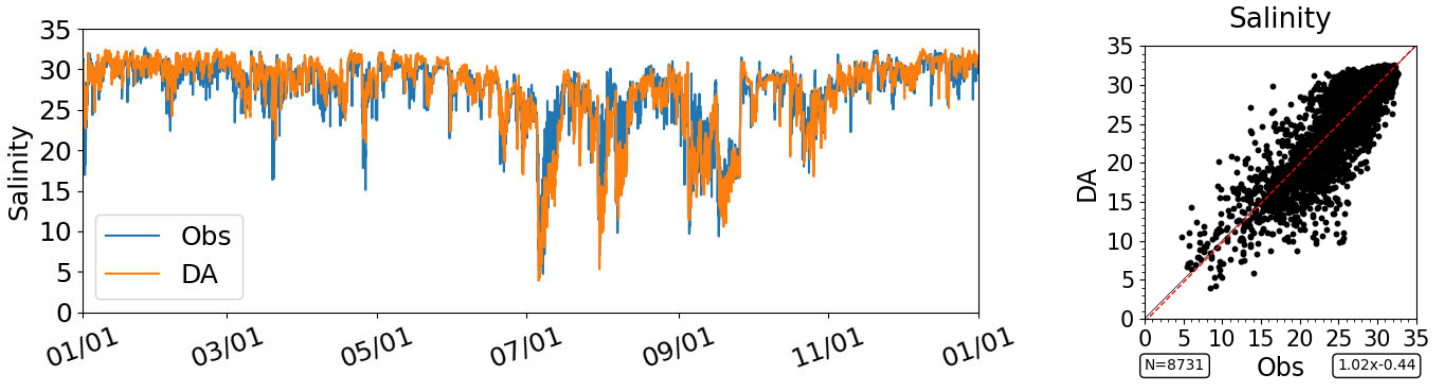


(b) Middle layer

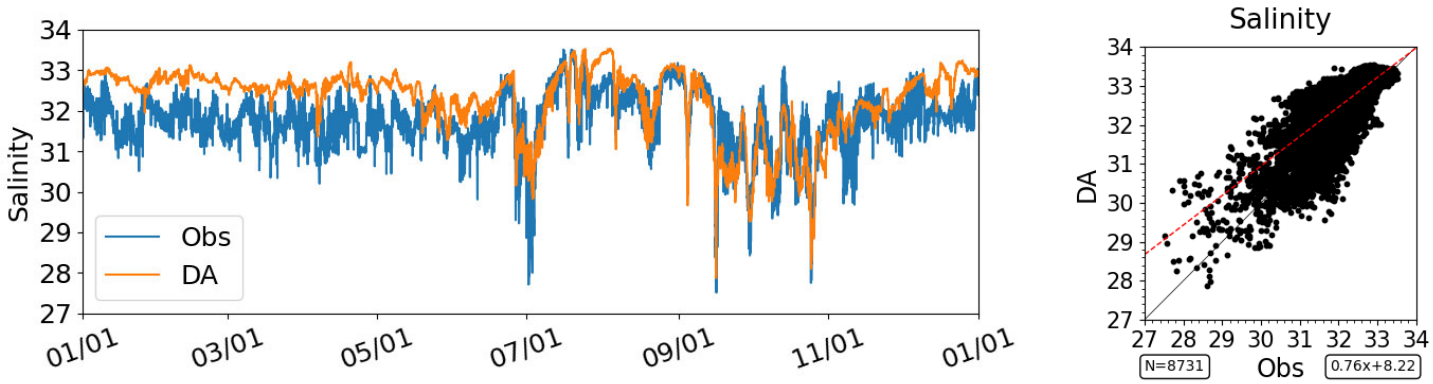


(c) Bottom layer

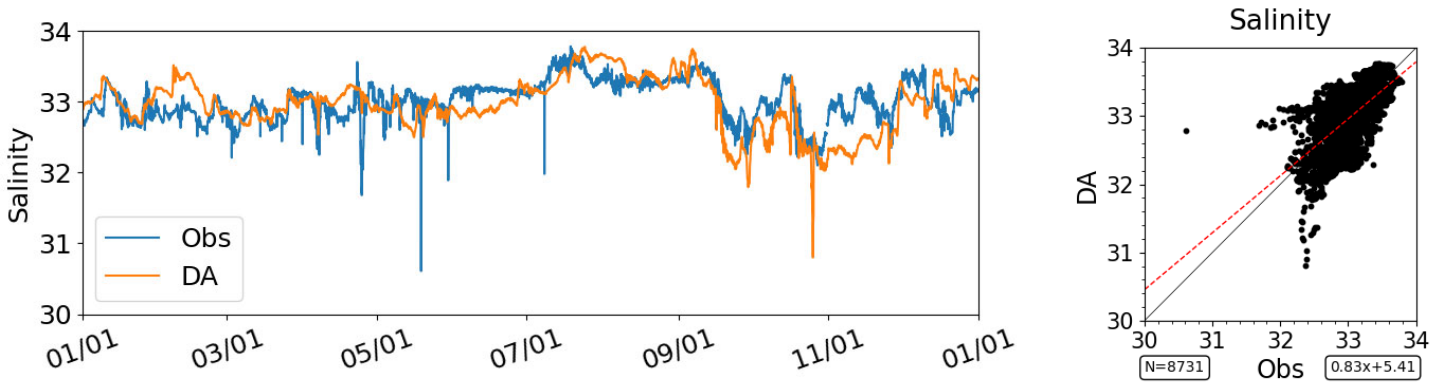
Figure S3.59 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2013



(a) Surface layer

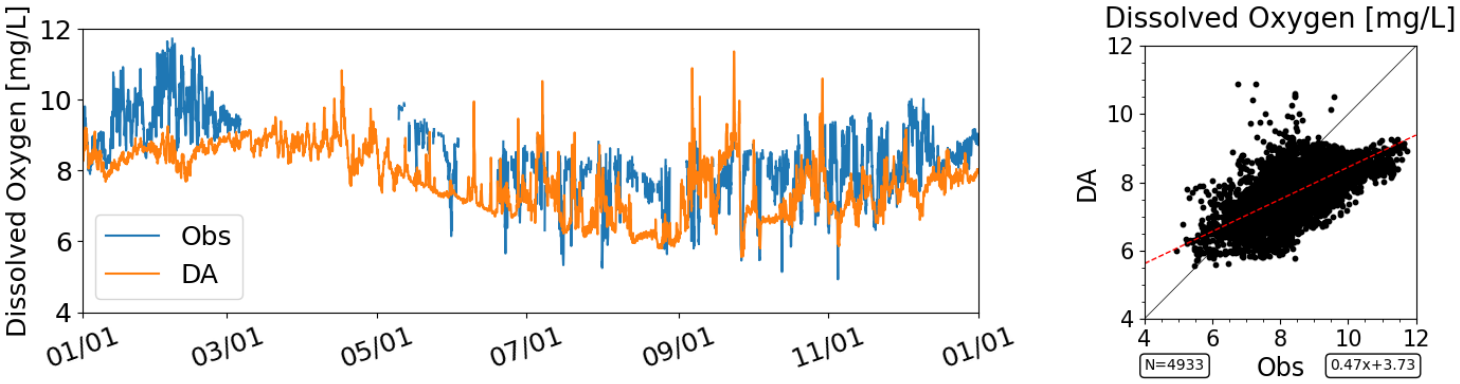


(b) Middle layer

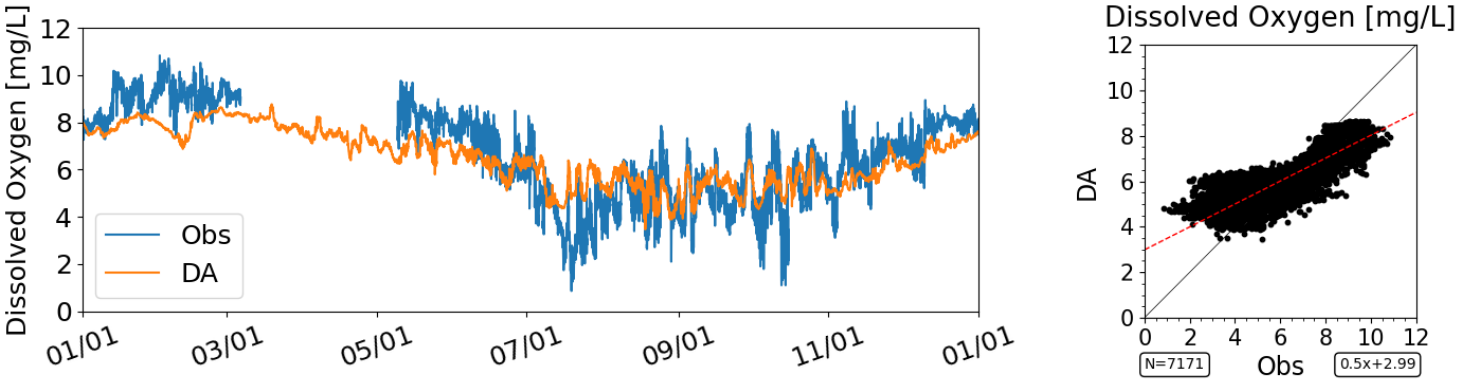


(c) Bottom layer

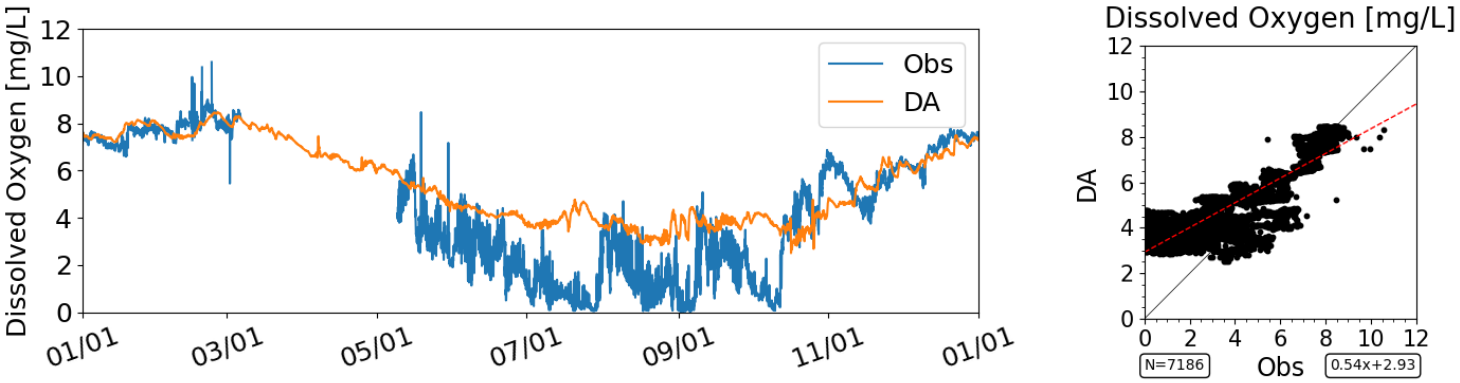
Figure S3.60 Timeseries and scatter plot for salinity at Back of Ise Bay in 2013



(a) Surface layer

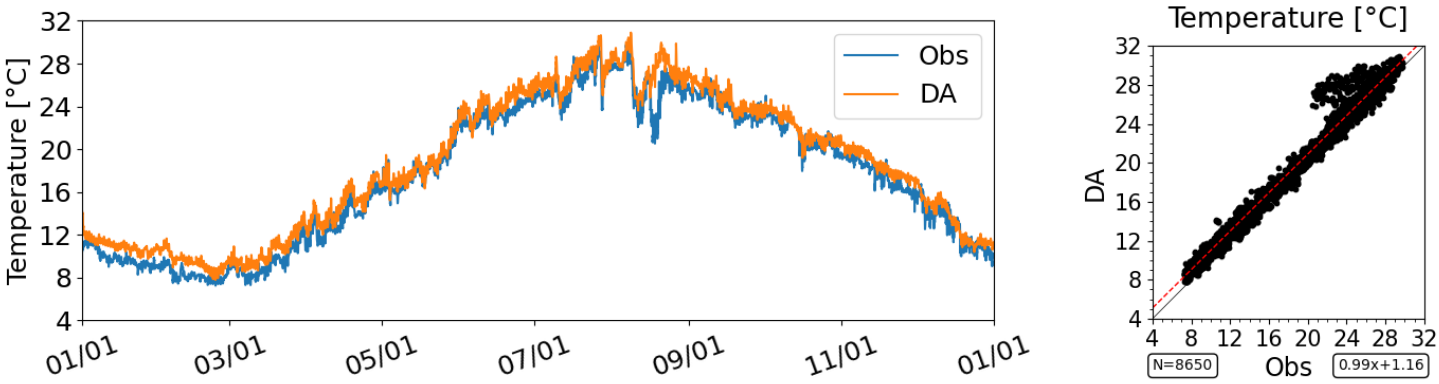


(b) Middle layer

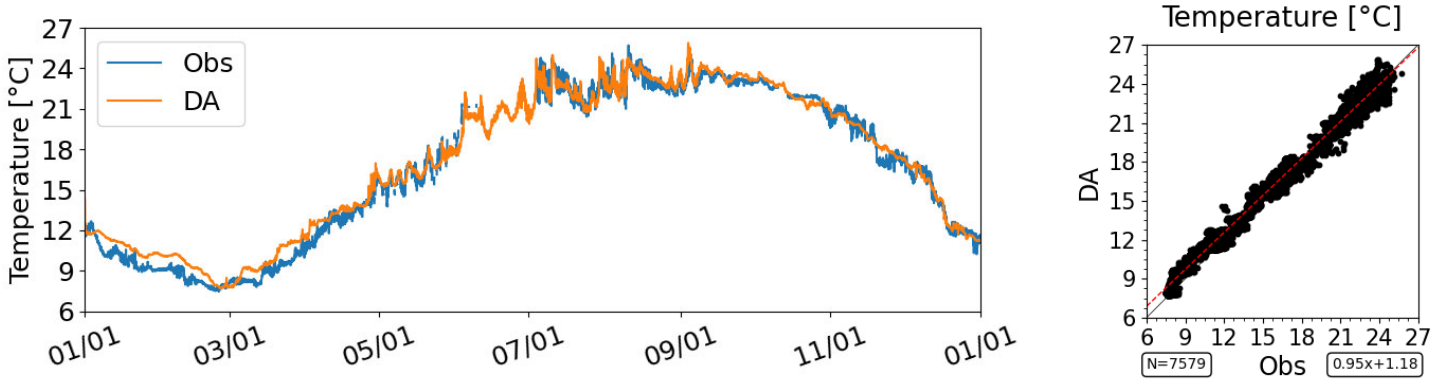


(c) Bottom layer

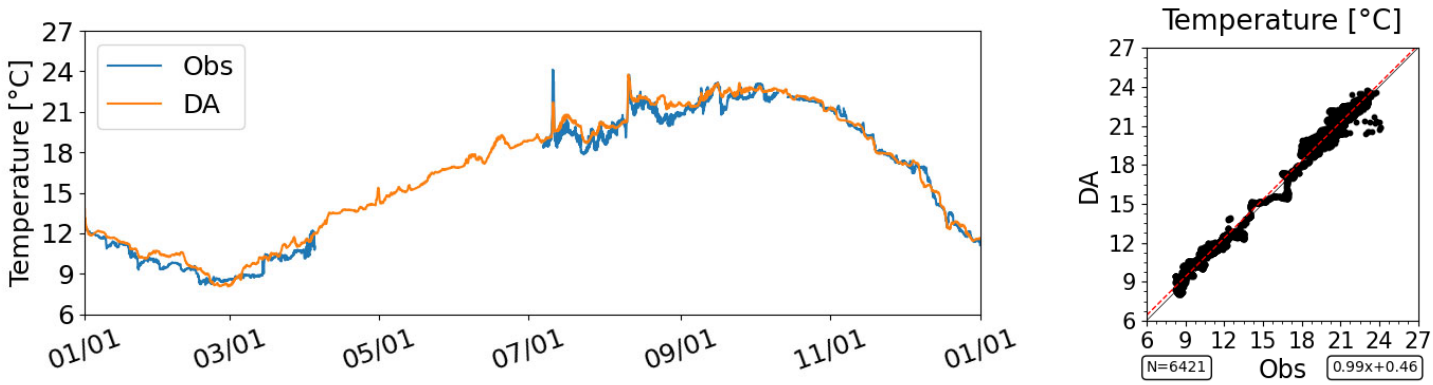
Figure S3.61 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2013



(a) Surface layer

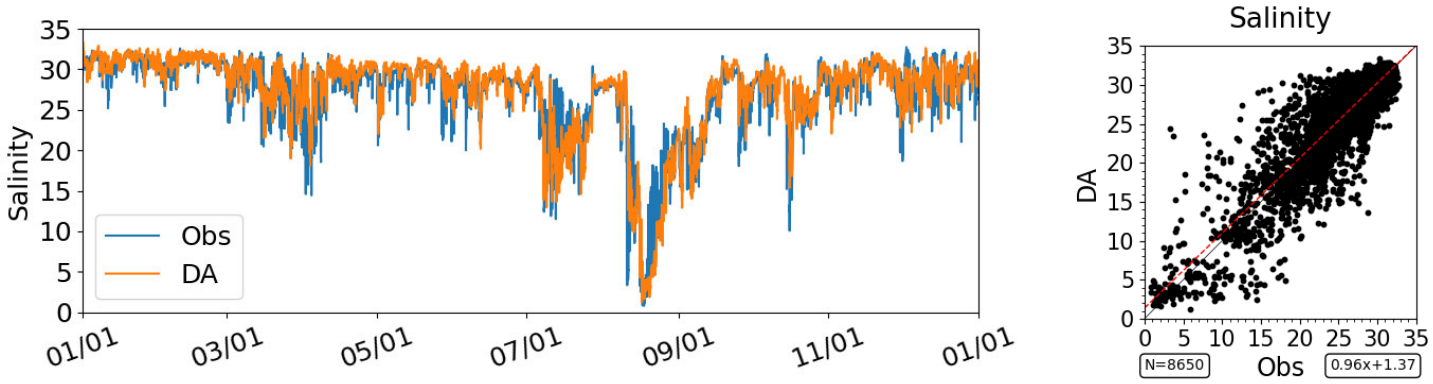


(b) Middle layer

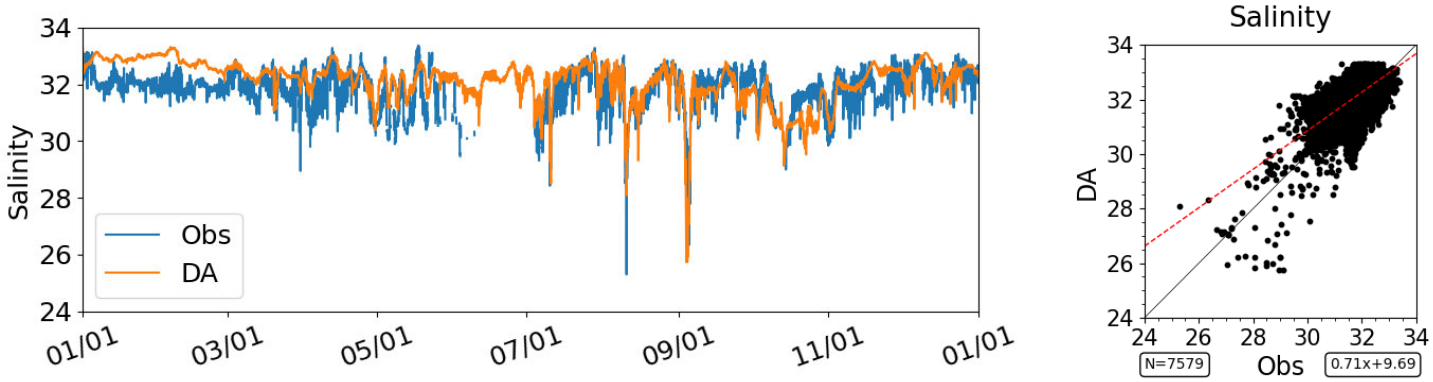


(c) Bottom layer

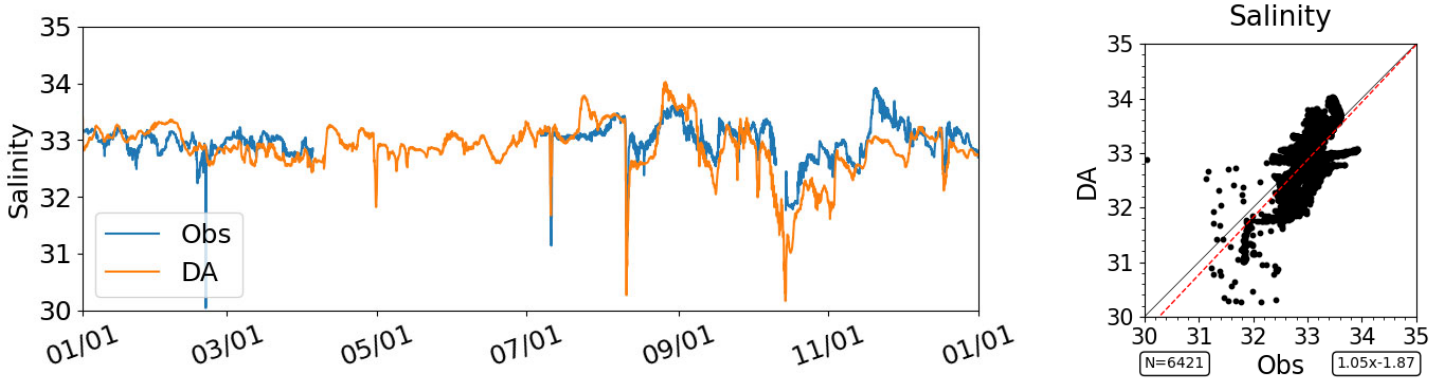
Figure S3.62 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2014



(a) Surface layer

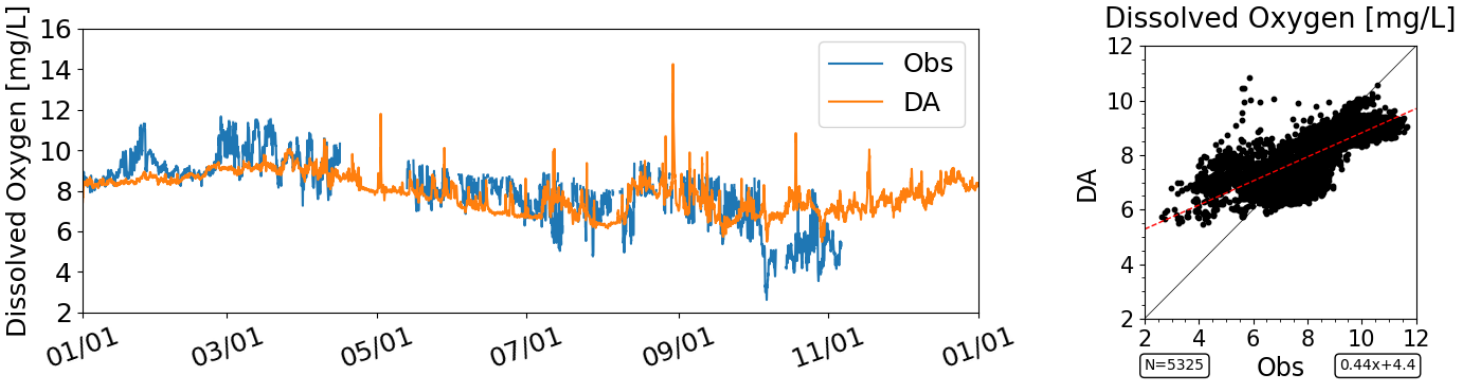


(b) Middle layer

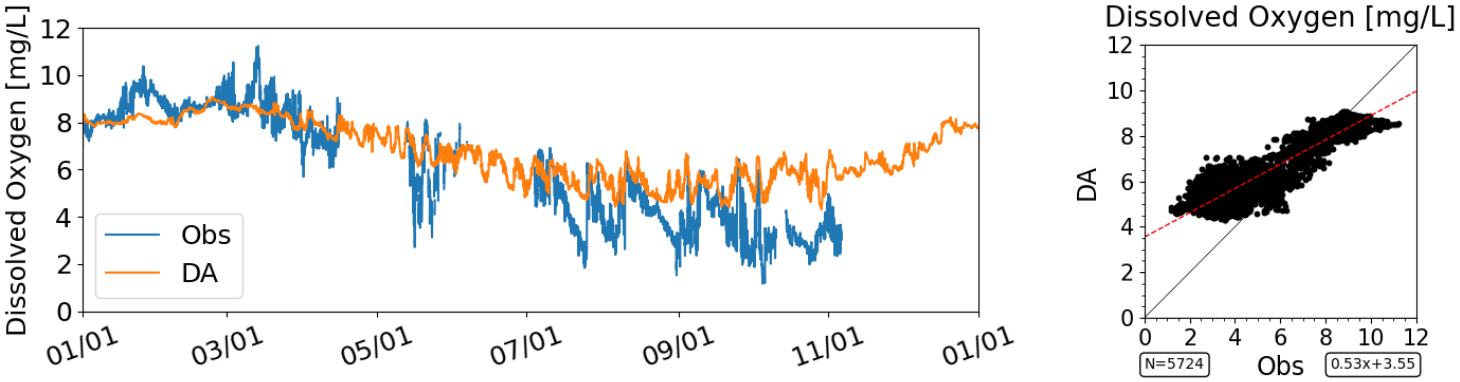


(c) Bottom layer

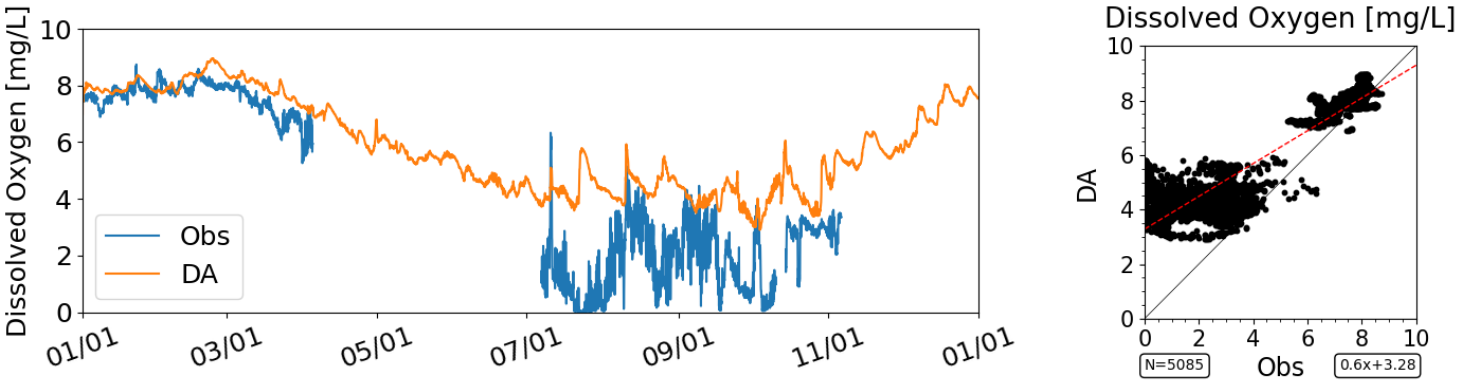
Figure S3.63 Timeseries and scatter plot for salinity at Back of Ise Bay in 2014



(a) Surface layer



(b) Middle layer

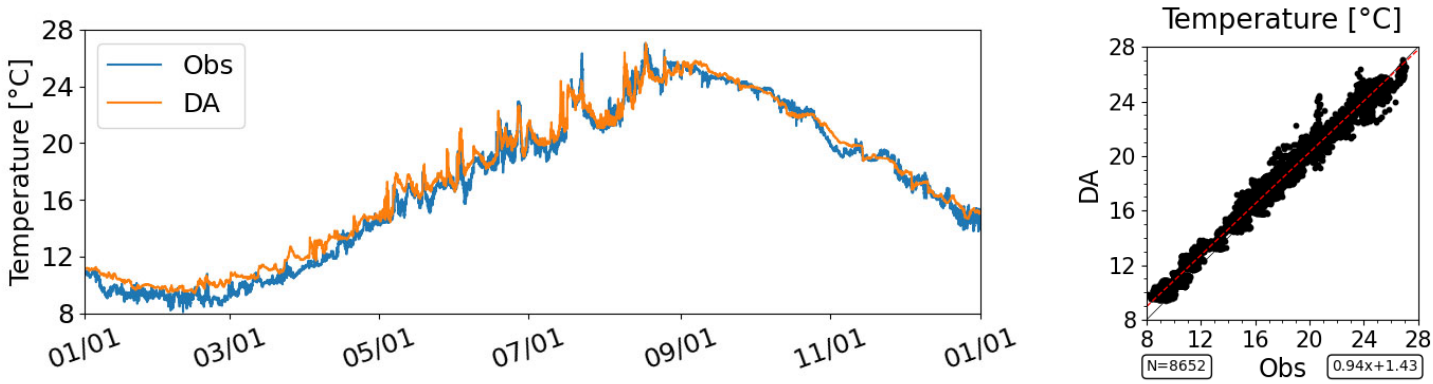


(c) Bottom layer

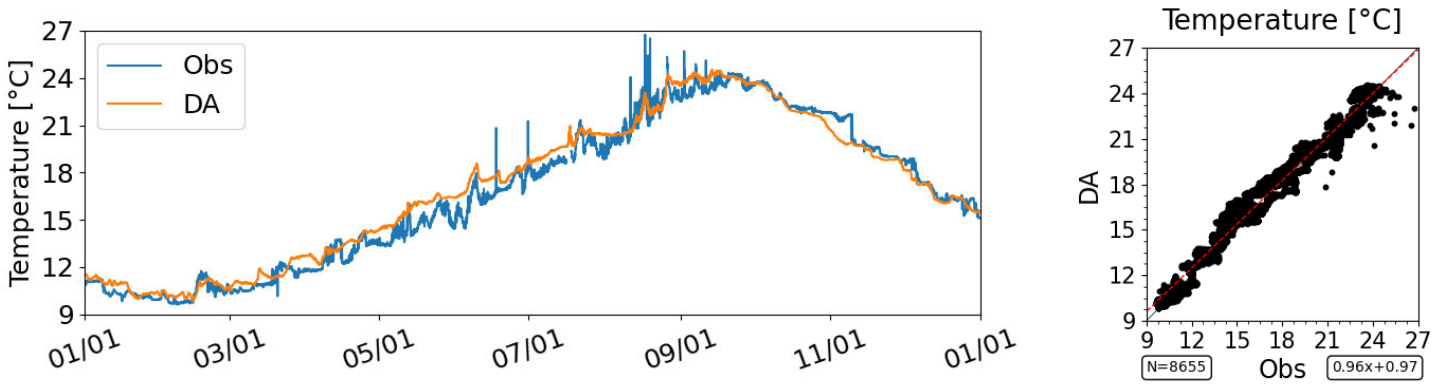
Figure S3.64 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2014



(a) Surface layer

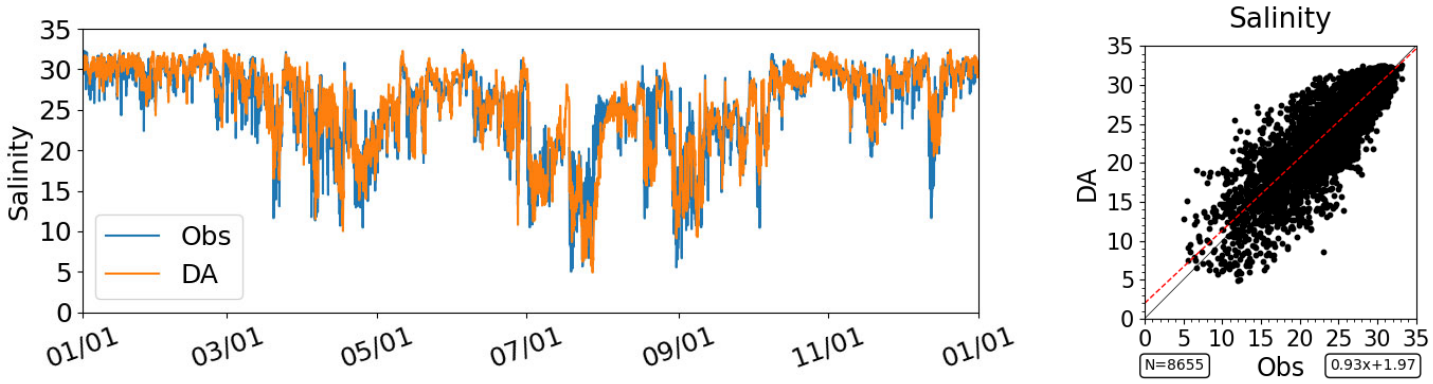


(b) Middle layer

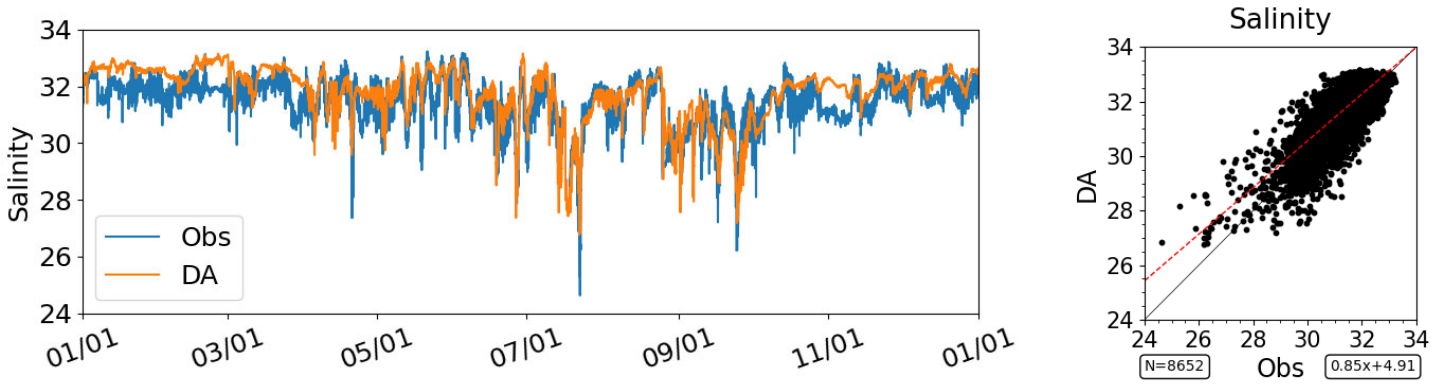


(c) Bottom layer

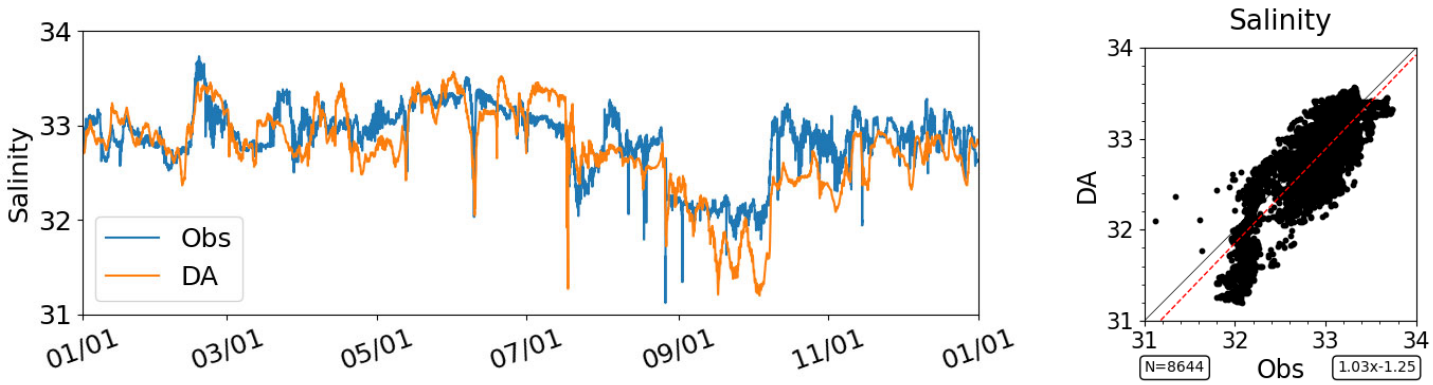
Figure S3.65 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2015



(a) Surface layer

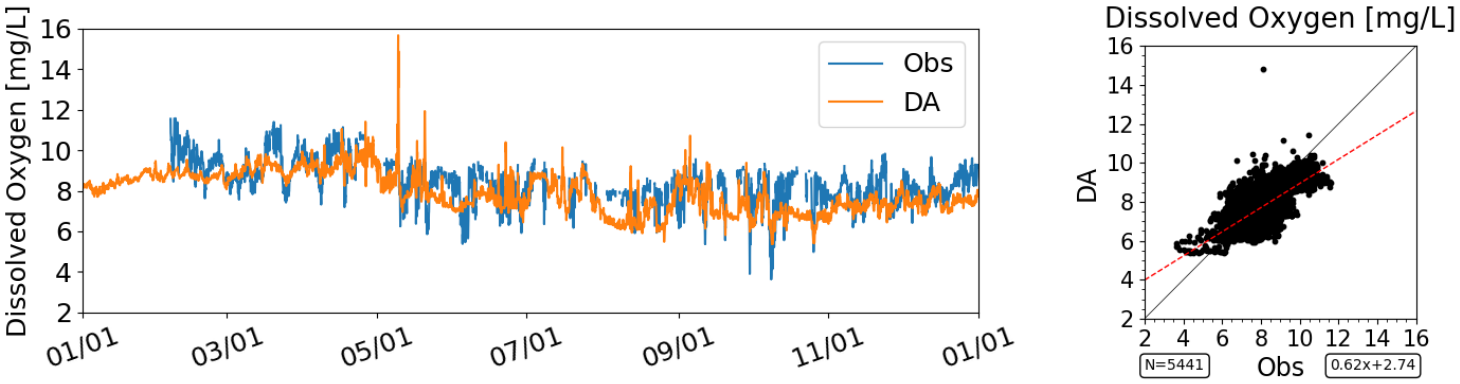


(b) Middle layer

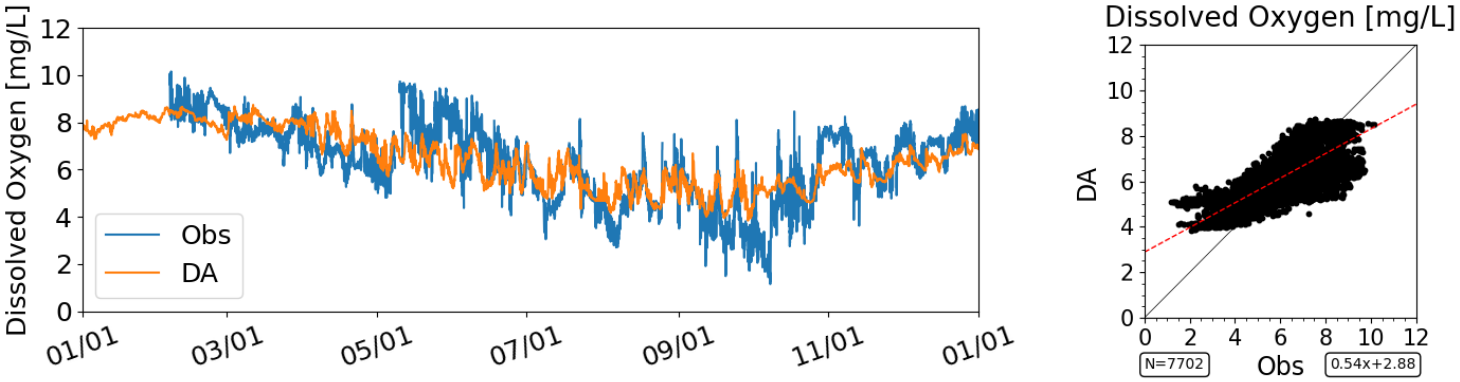


(c) Bottom layer

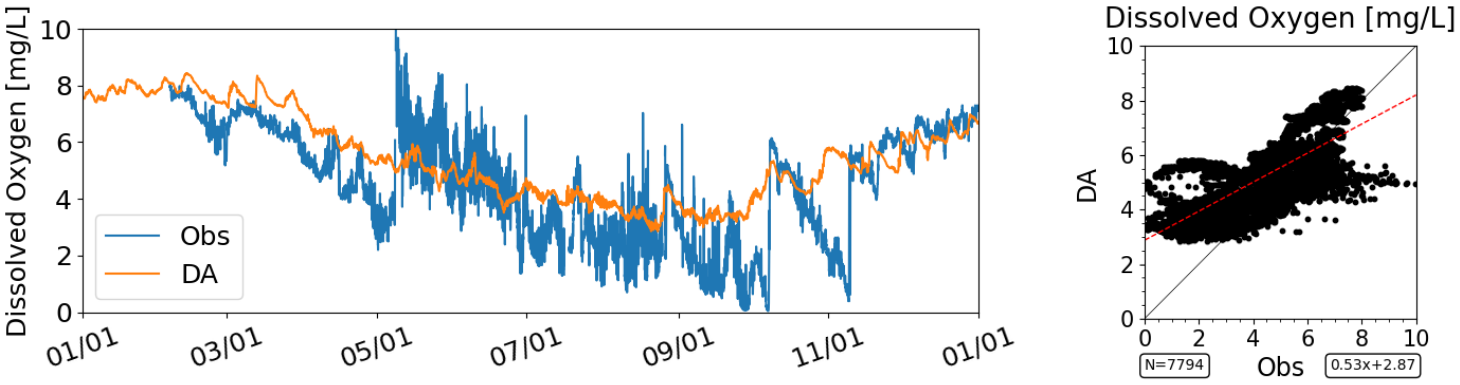
Figure S3.66 Timeseries and scatter plot for salinity at Back of Ise Bay in 2015



(a) Surface layer



(b) Middle layer

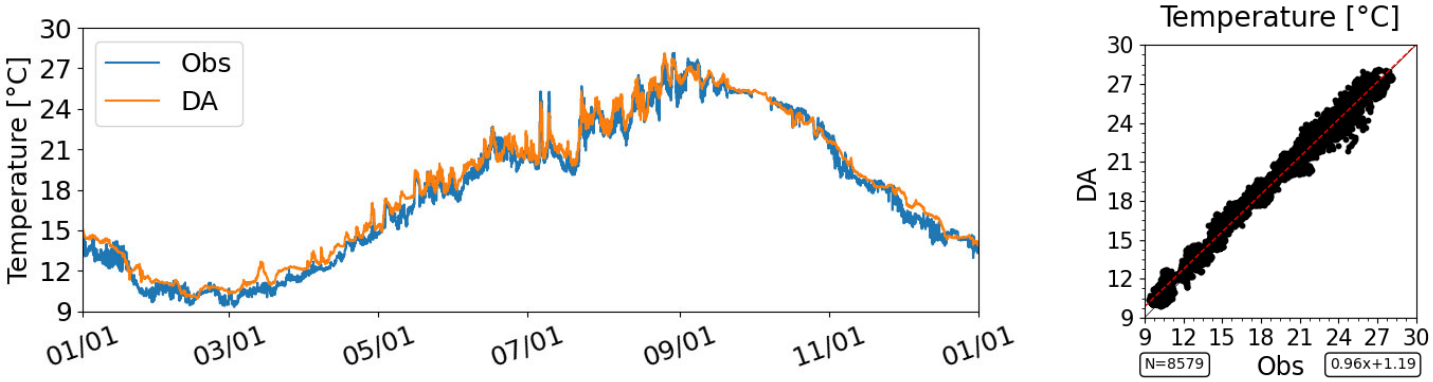


(c) Bottom layer

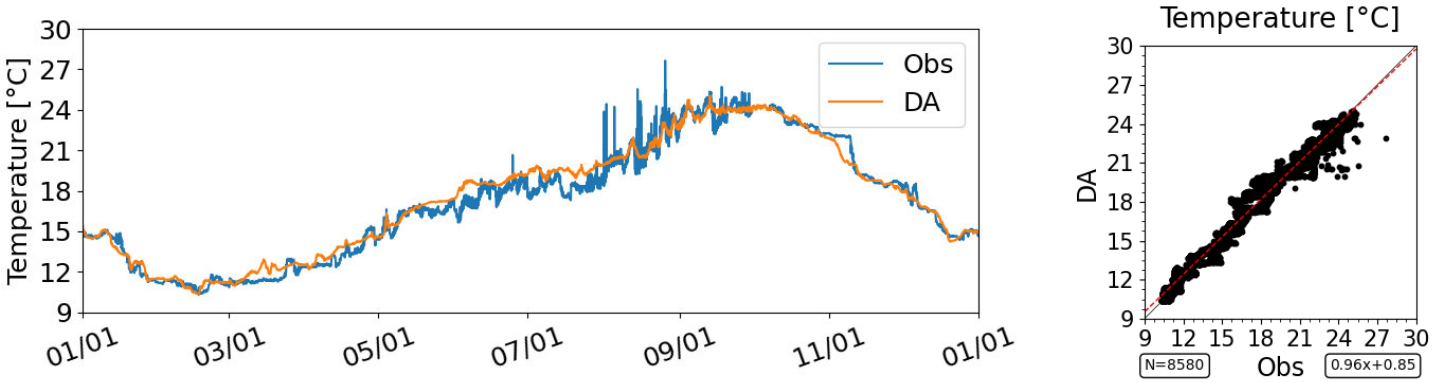
Figure S3.67 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2015



(a) Surface layer

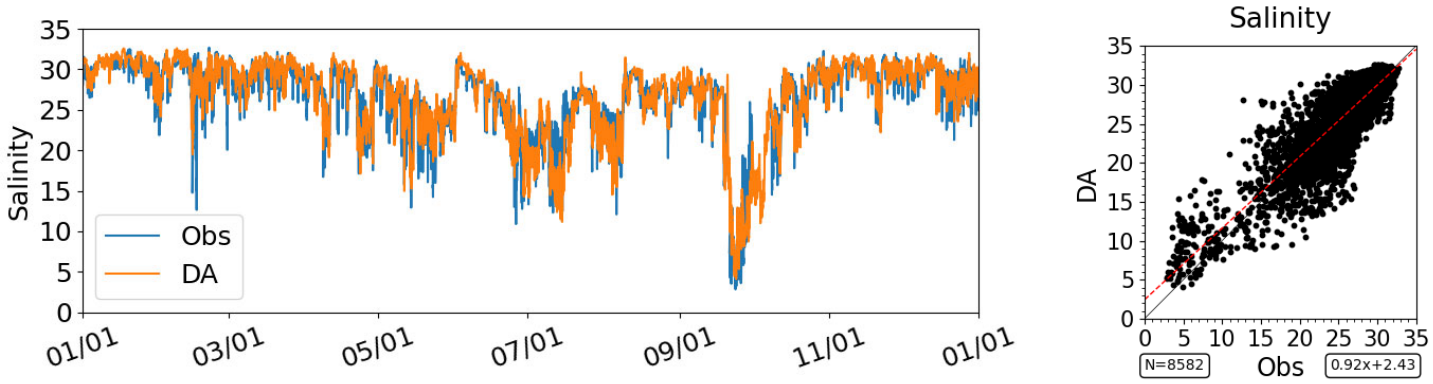


(b) Middle layer

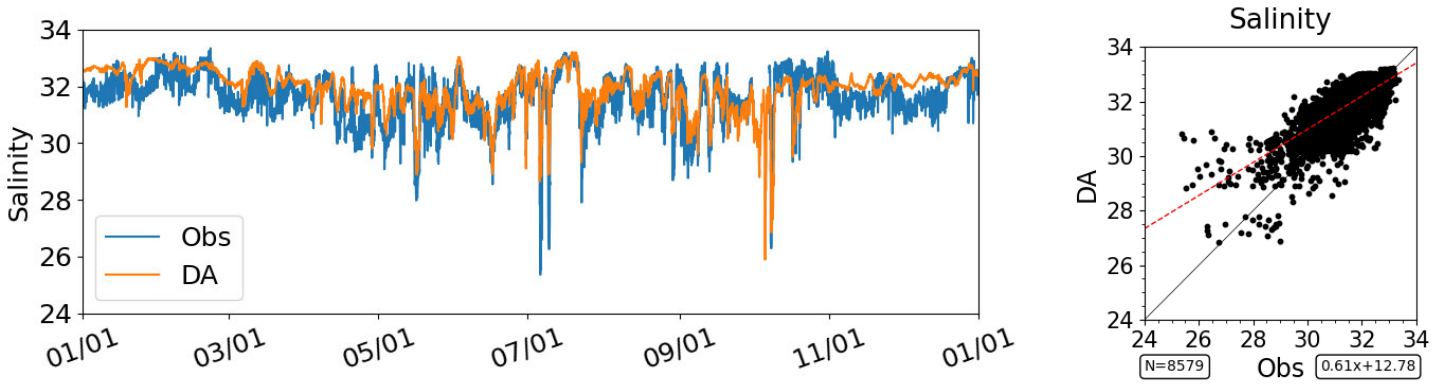


(c) Bottom layer

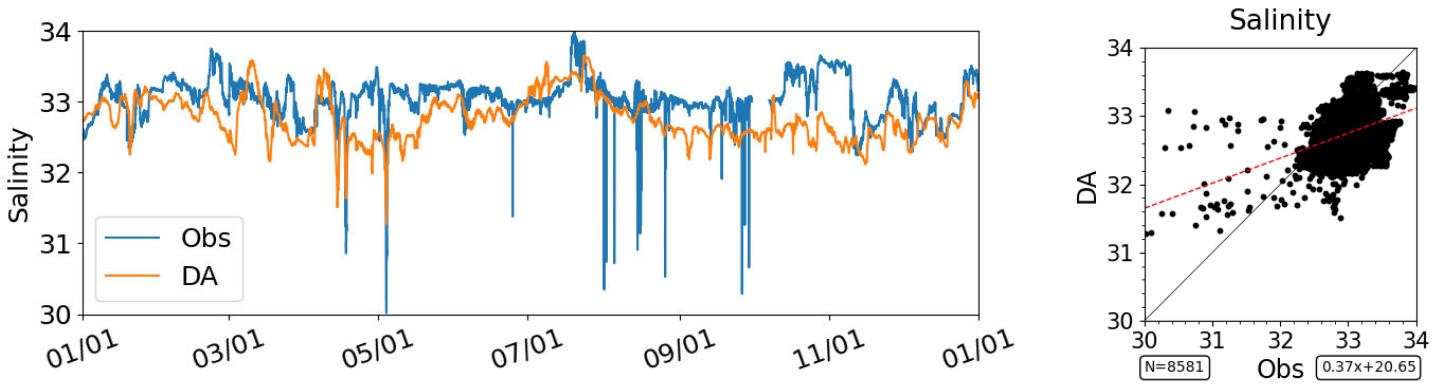
Figure S3.68 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2016



(a) Surface layer

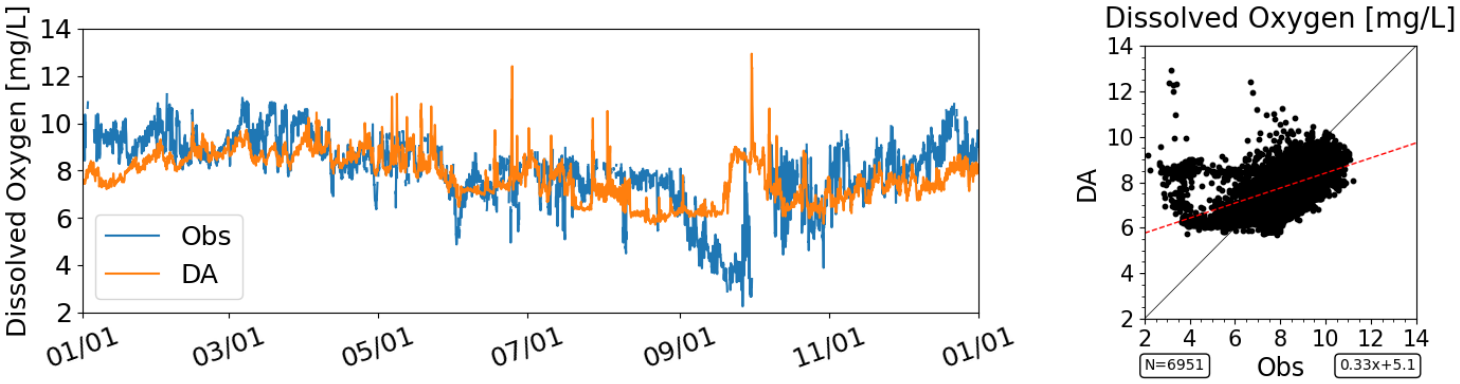


(b) Middle layer

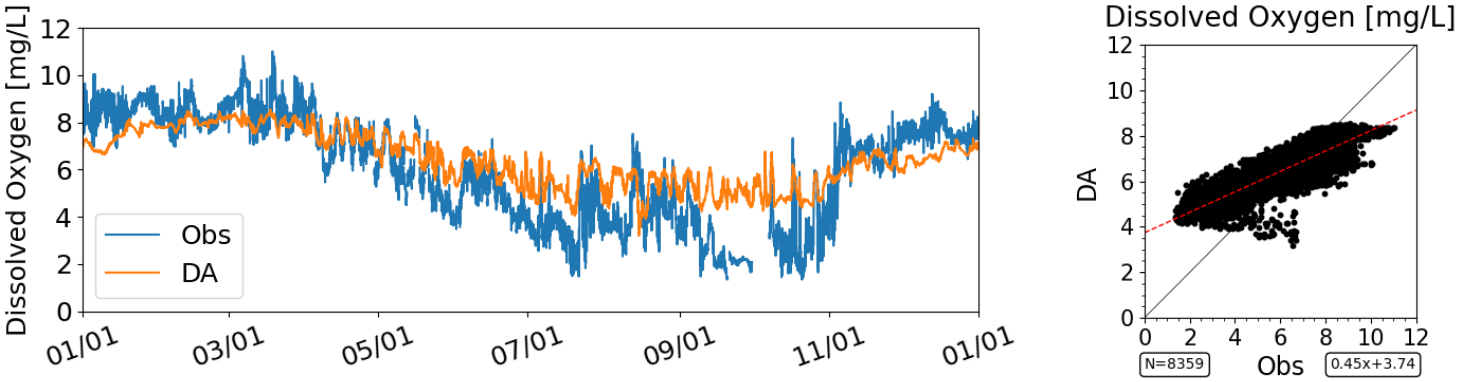


(c) Bottom layer

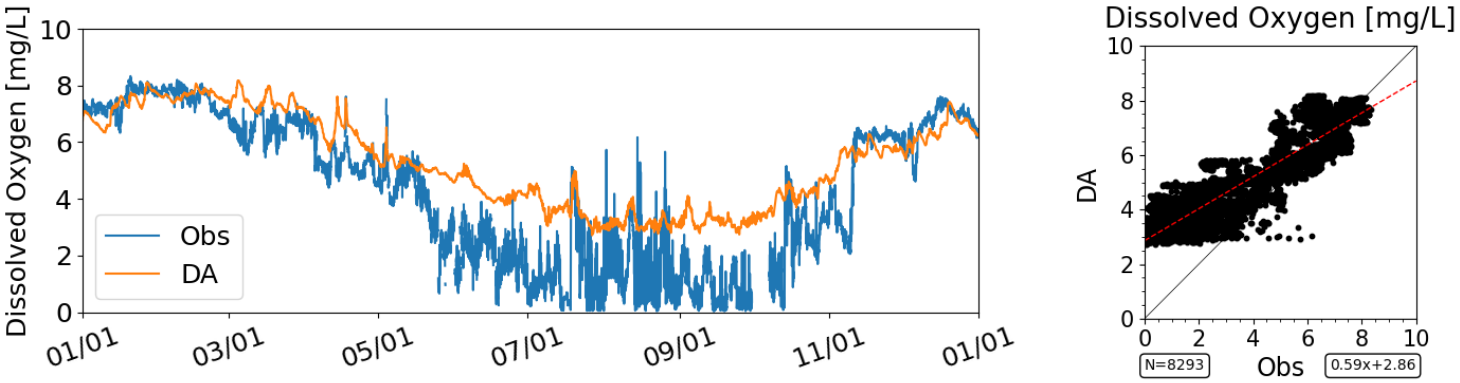
Figure S3.69 Timeseries and scatter plot for salinity at Back of Ise Bay in 2016



(a) Surface layer



(b) Middle layer

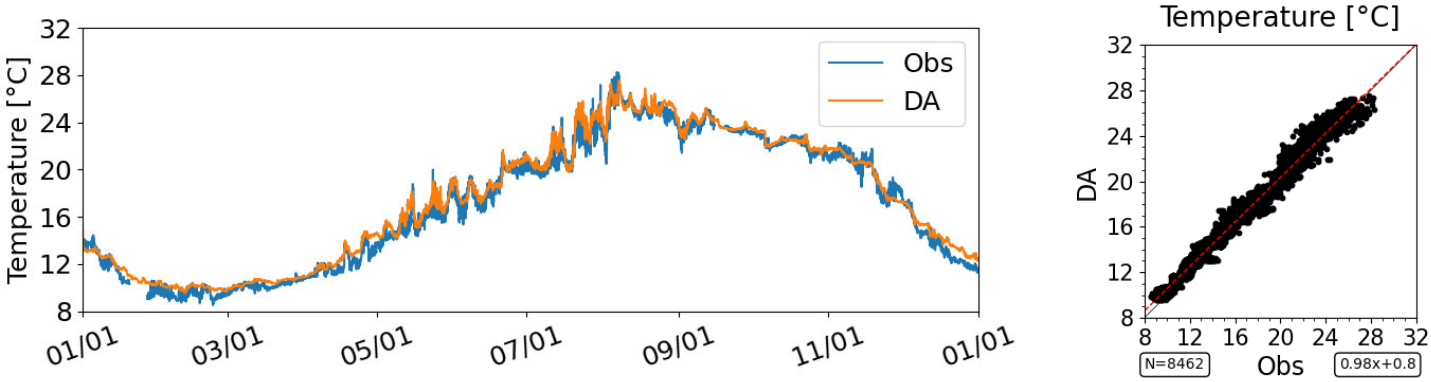


(c) Bottom layer

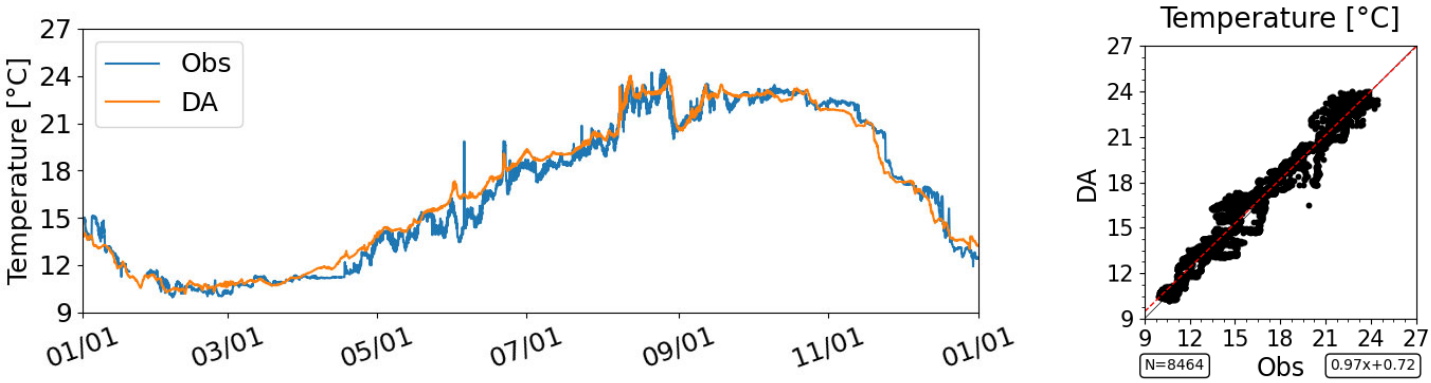
Figure S3.70 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2016



(a) Surface layer

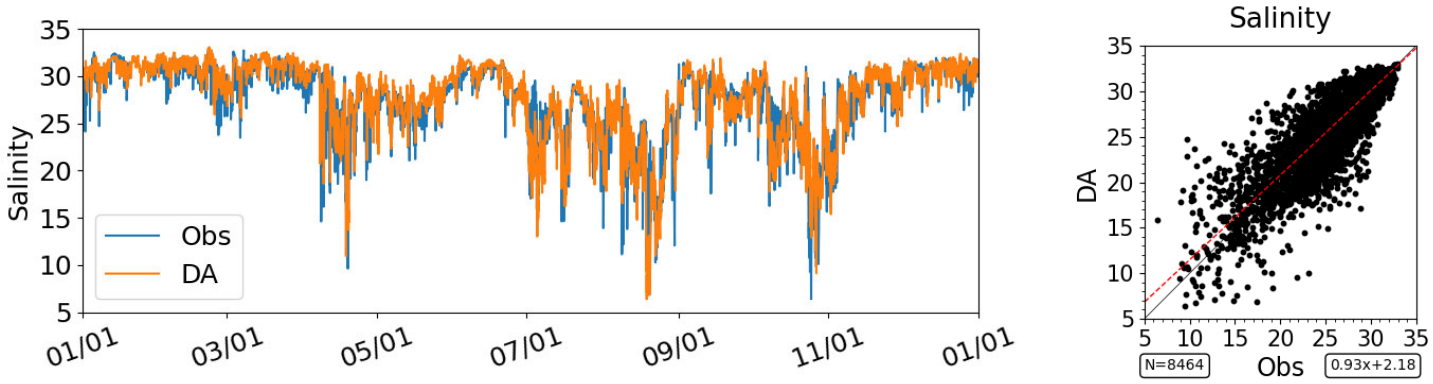


(b) Middle layer

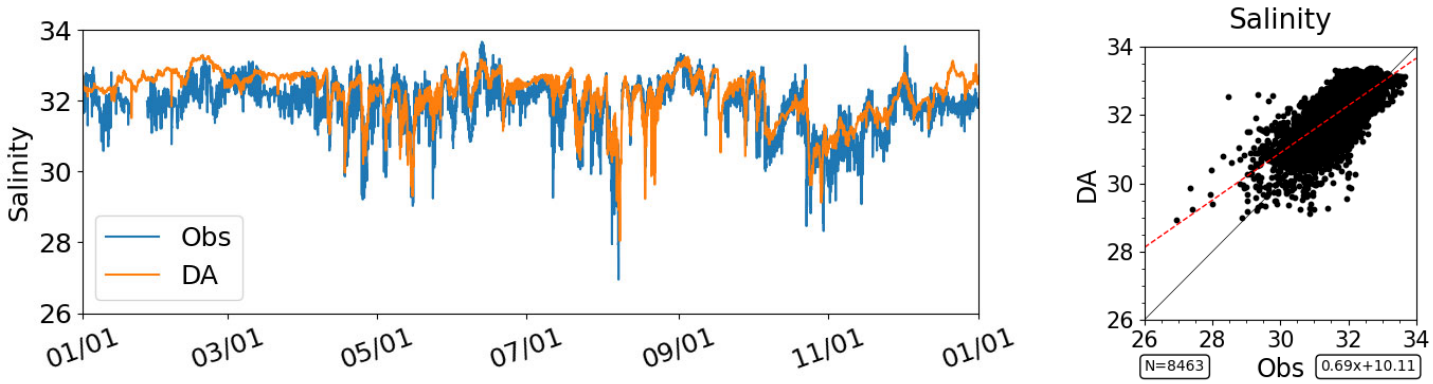


(c) Bottom layer

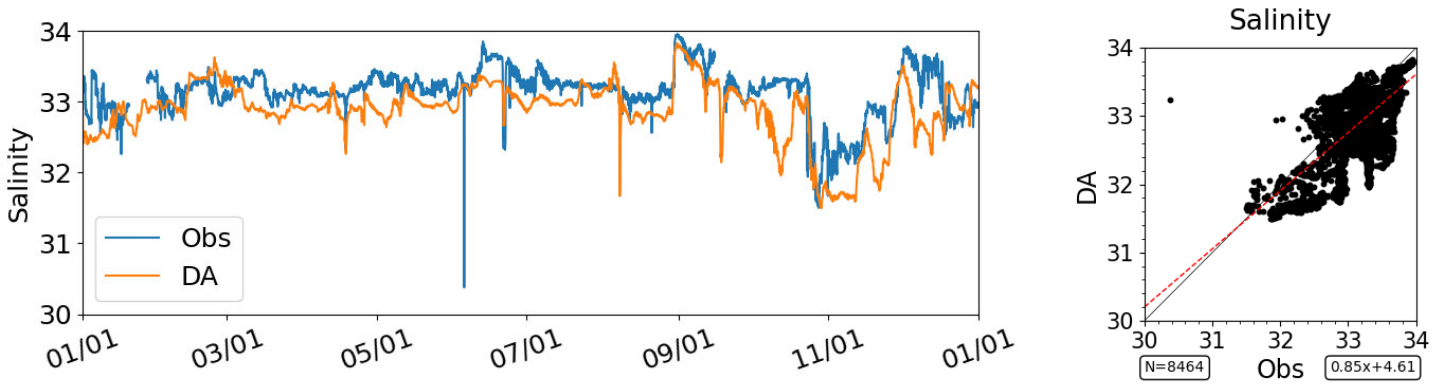
Figure S3.71 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2017



(a) Surface layer

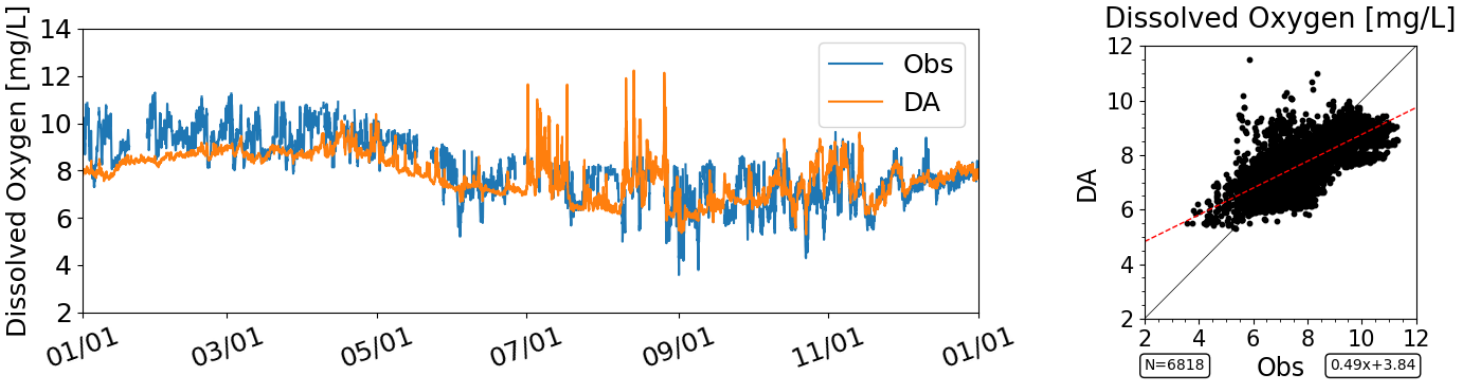


(b) Middle layer

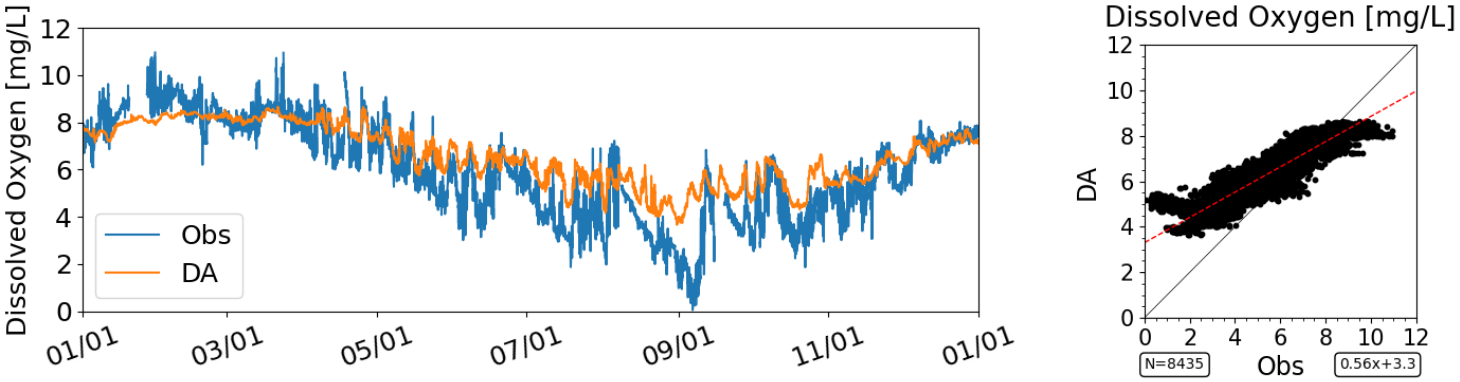


(c) Bottom layer

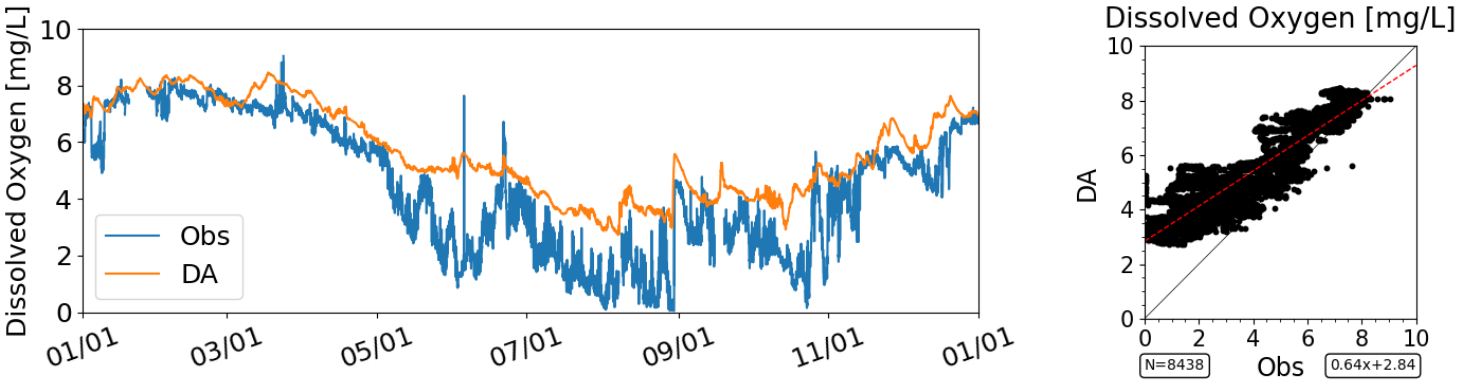
Figure S3.72 Timeseries and scatter plot for salinity at Back of Ise Bay in 2017



(a) Surface layer

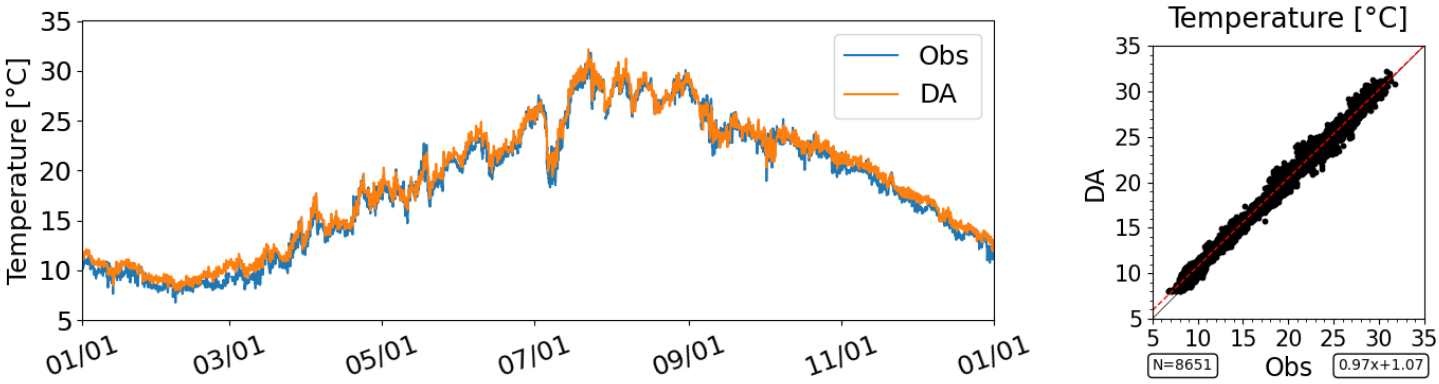


(b) Middle layer

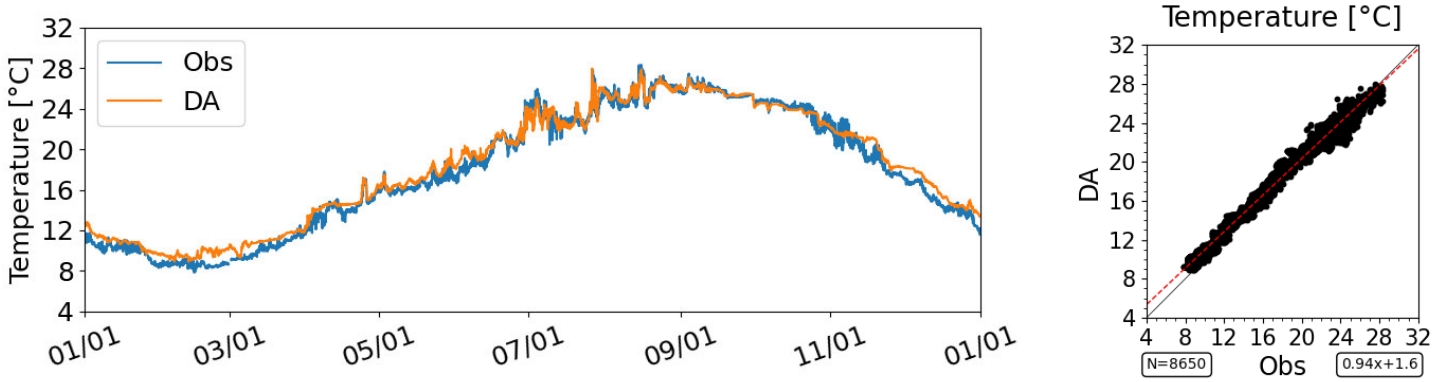


(c) Bottom layer

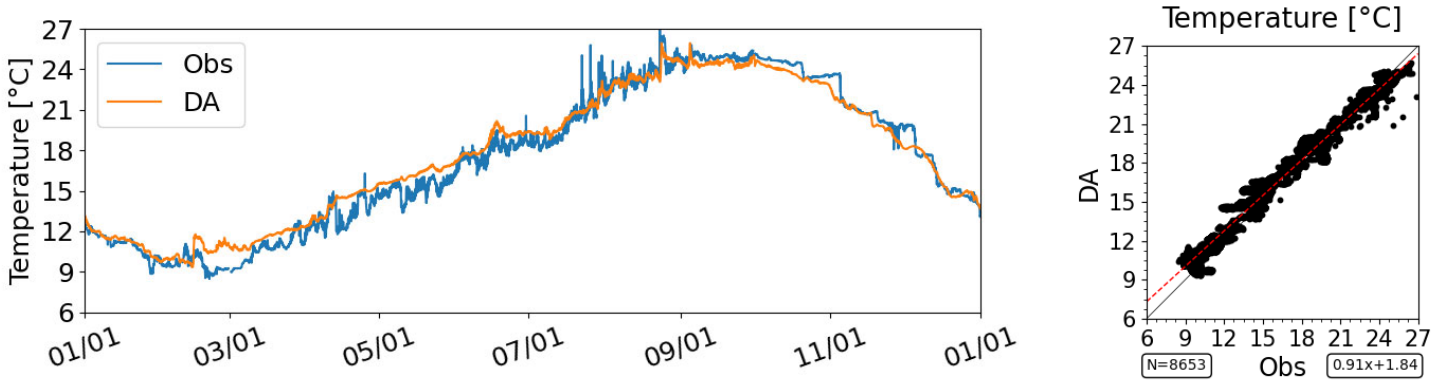
Figure S3.73 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2017



(a) Surface layer

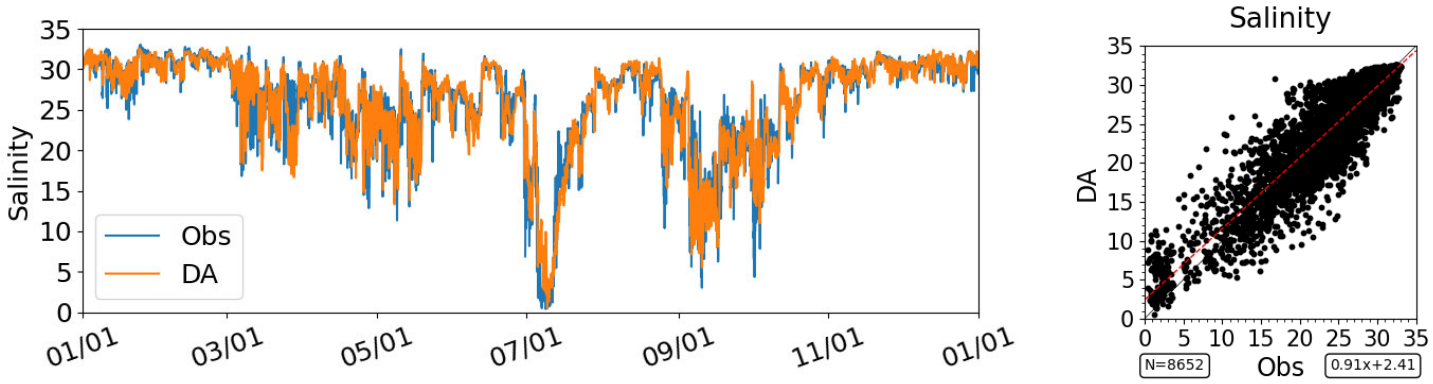


(b) Middle layer

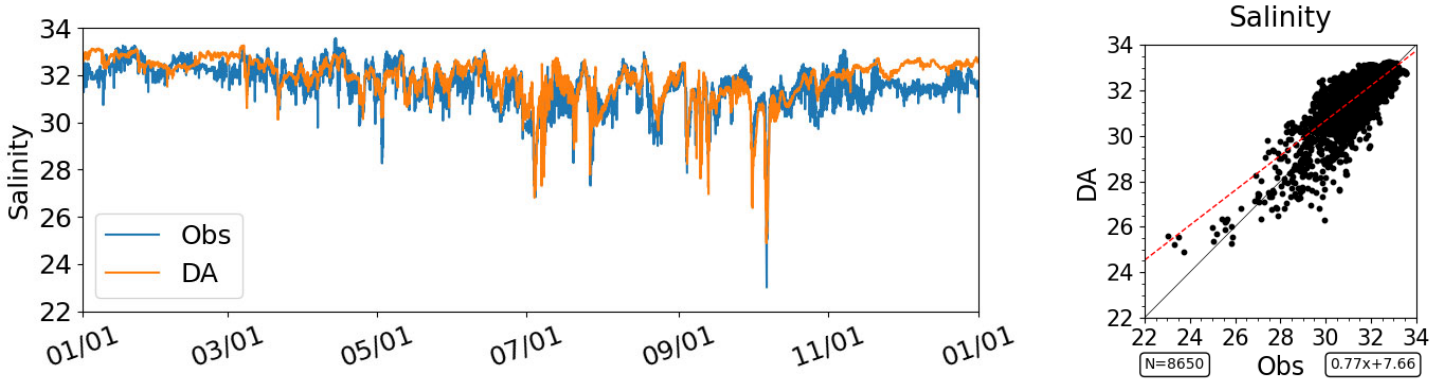


(c) Bottom layer

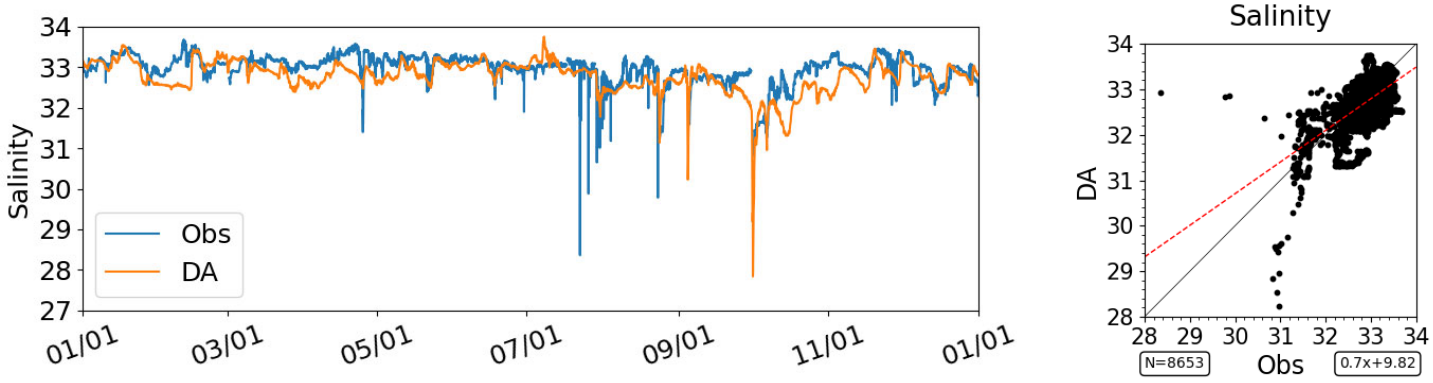
Figure S3.74 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2018



(a) Surface layer

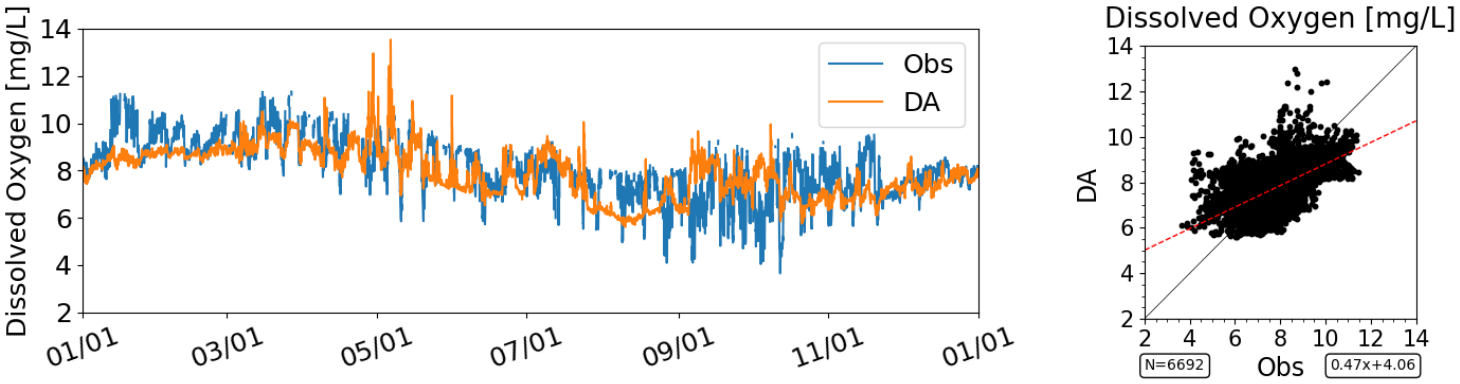


(b) Middle layer

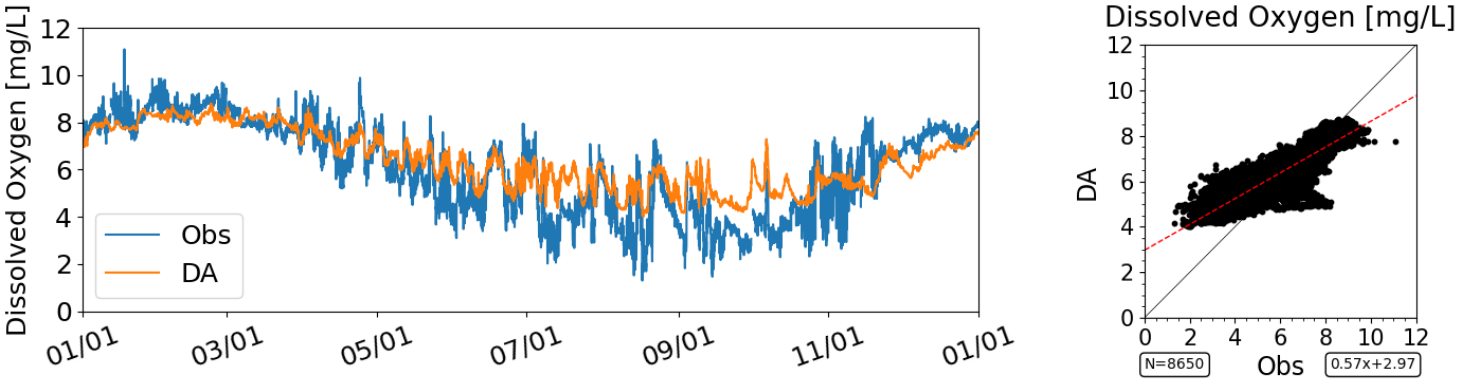


(c) Bottom layer

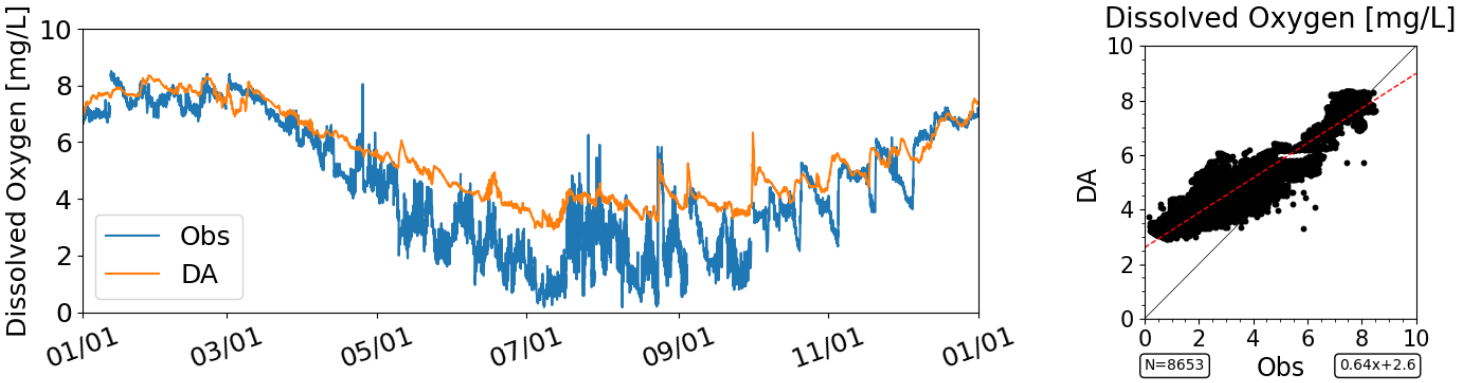
Figure S3.75 Timeseries and scatter plot for salinity at Back of Ise Bay in 2018



(a) Surface layer

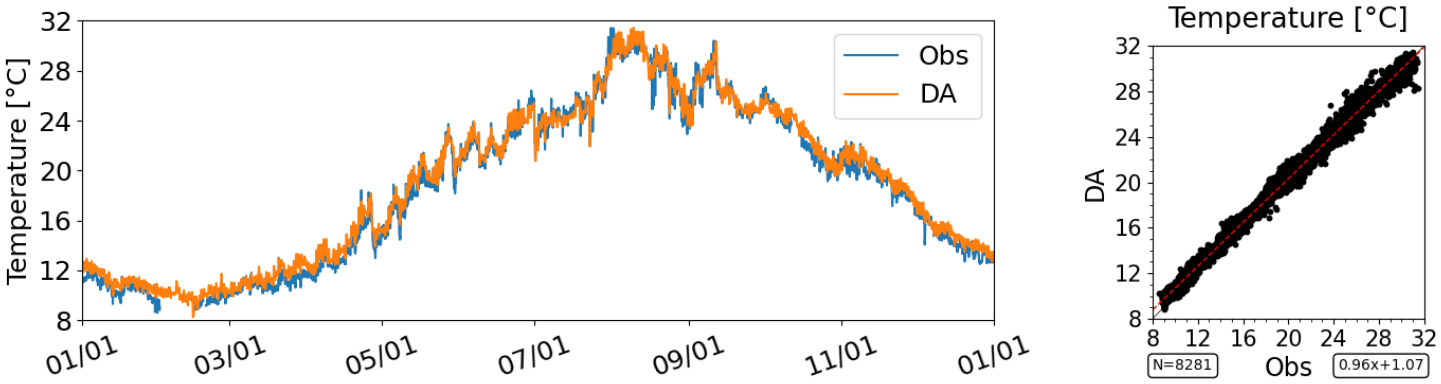


(b) Middle layer

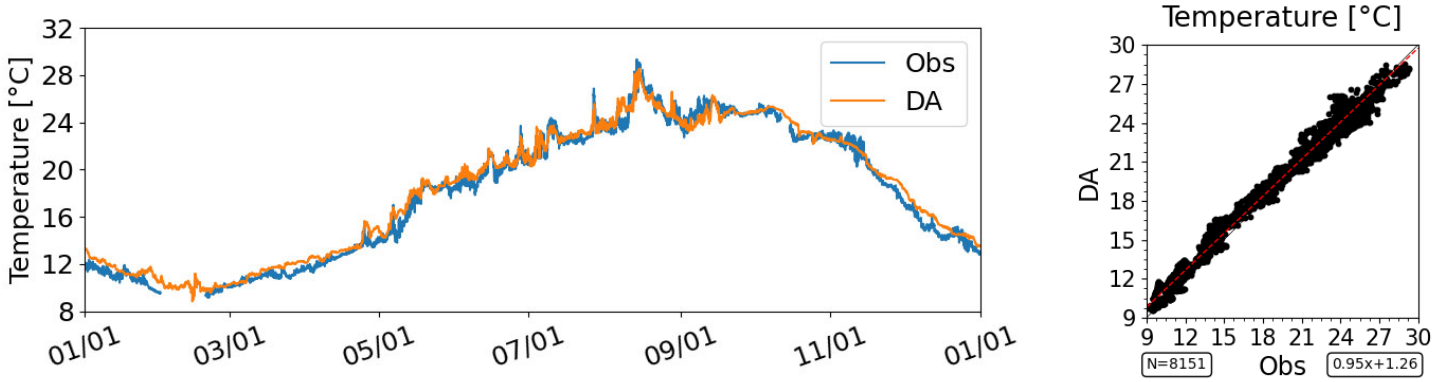


(c) Bottom layer

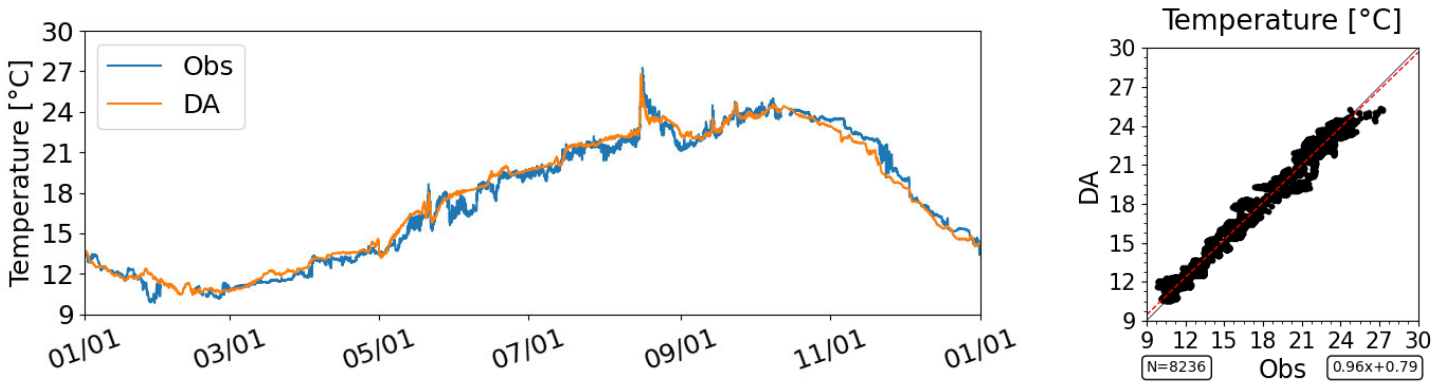
Figure S3.76 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2018



(a) Surface layer

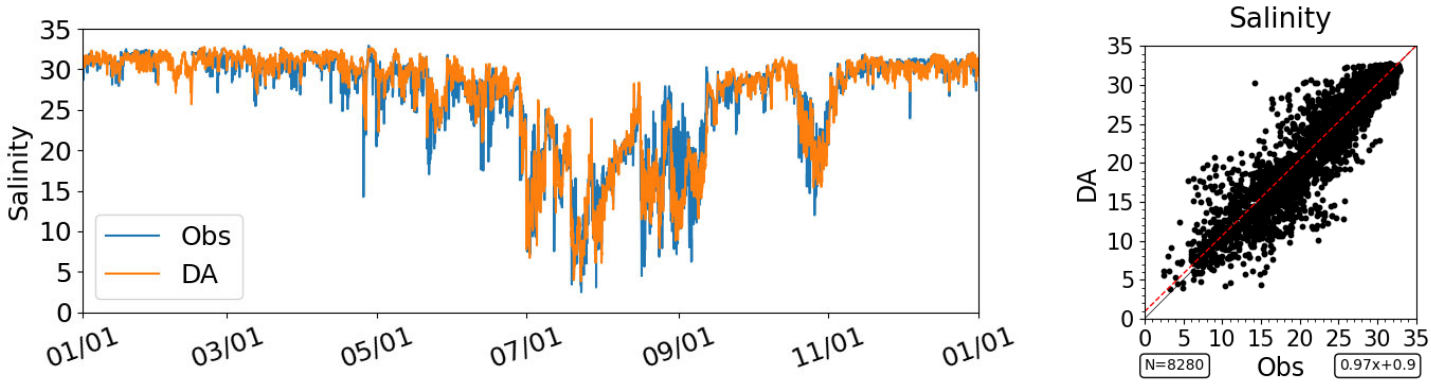


(b) Middle layer

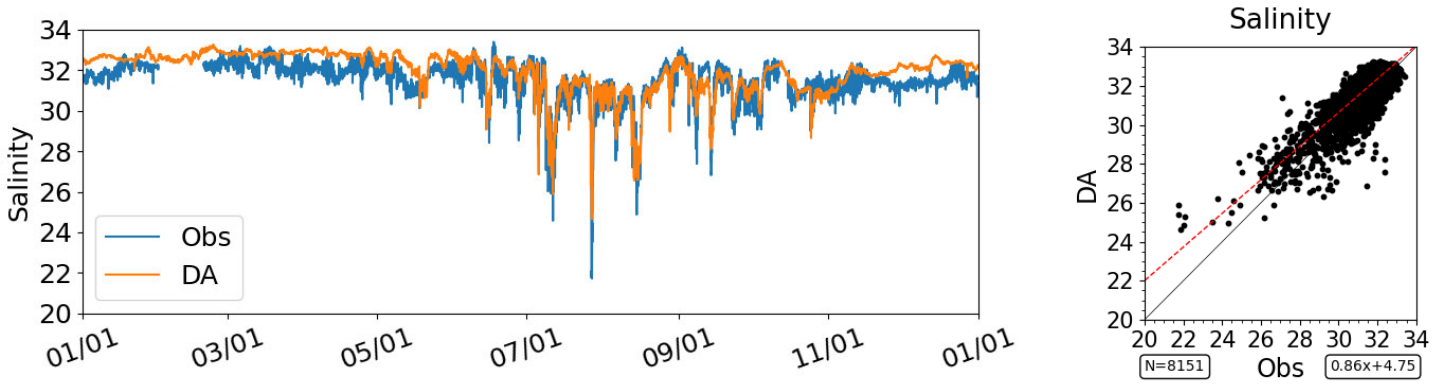


(c) Bottom layer

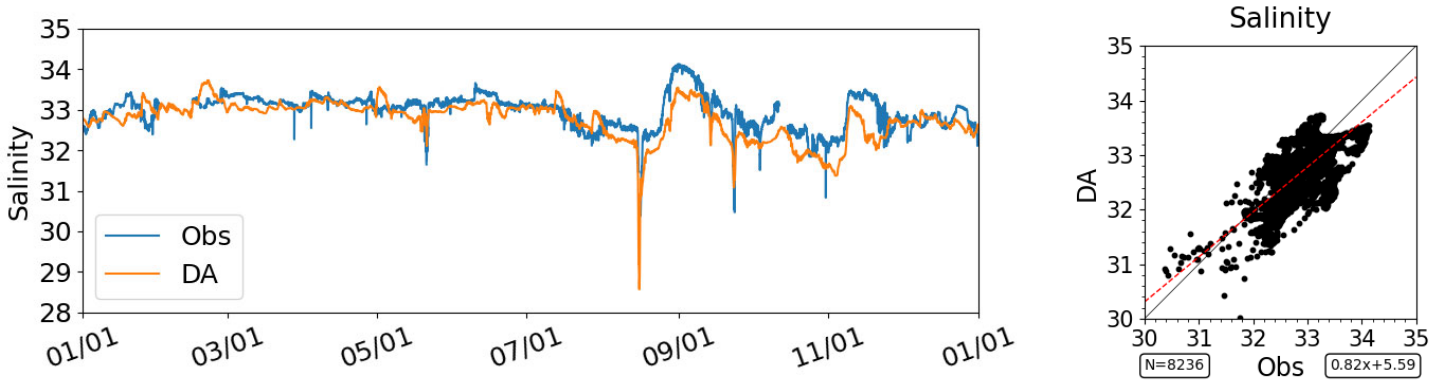
Figure S3.77 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2019



(a) Surface layer

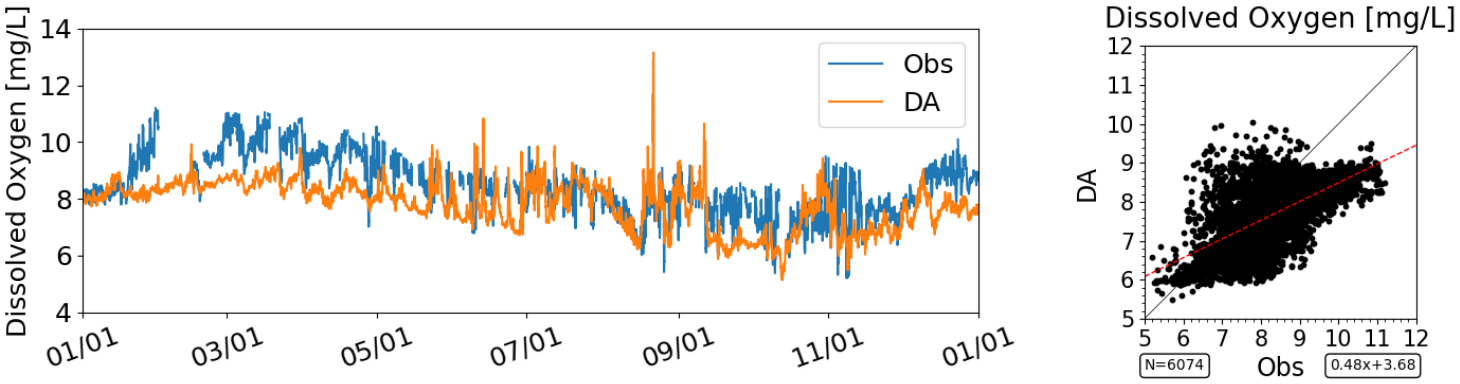


(b) Middle layer

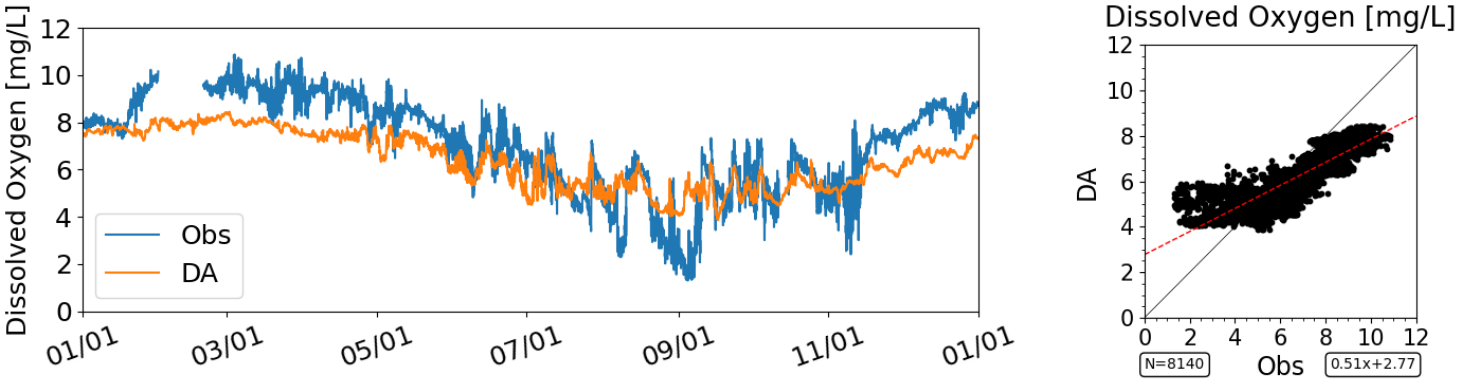


(c) Bottom layer

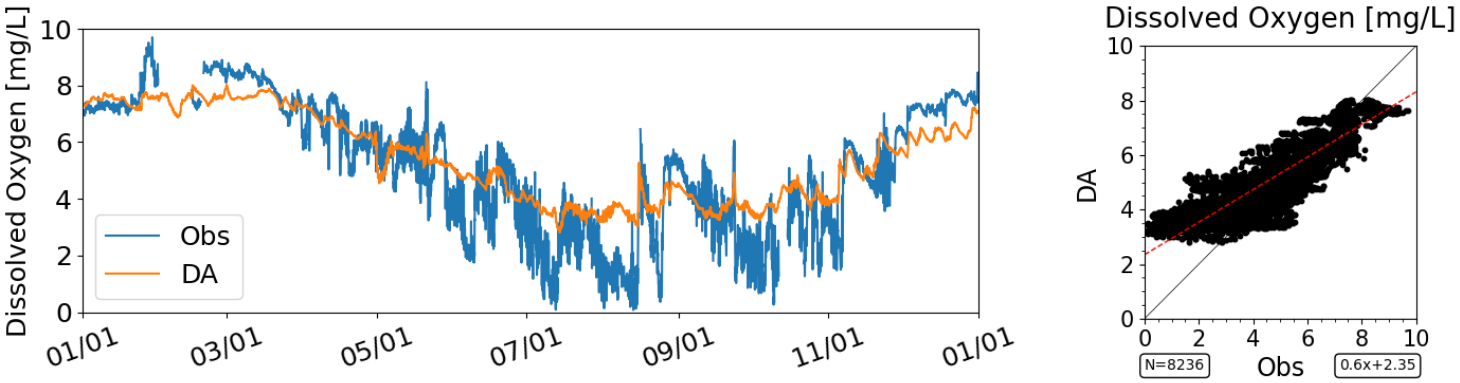
Figure S3.78 Timeseries and scatter plot for salinity at Back of Ise Bay in 2019



(a) Surface layer



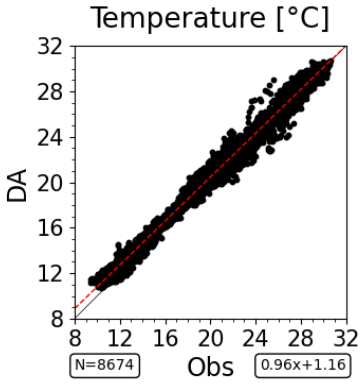
(b) Middle layer



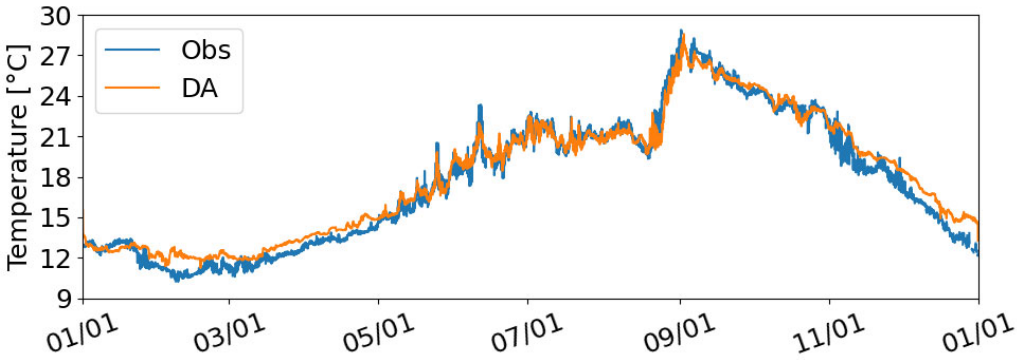
(c) Bottom layer

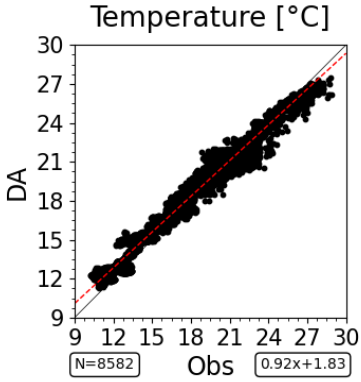
Figure S3.79 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2019



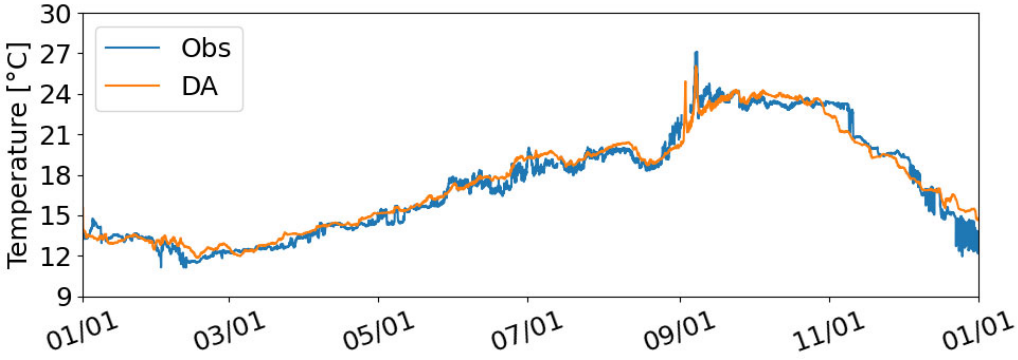


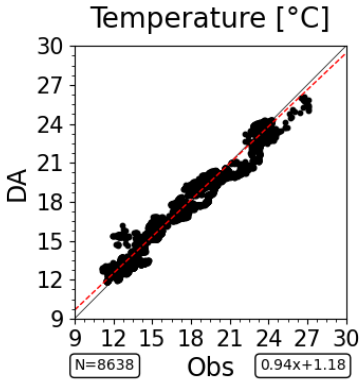
(a) Surface layer





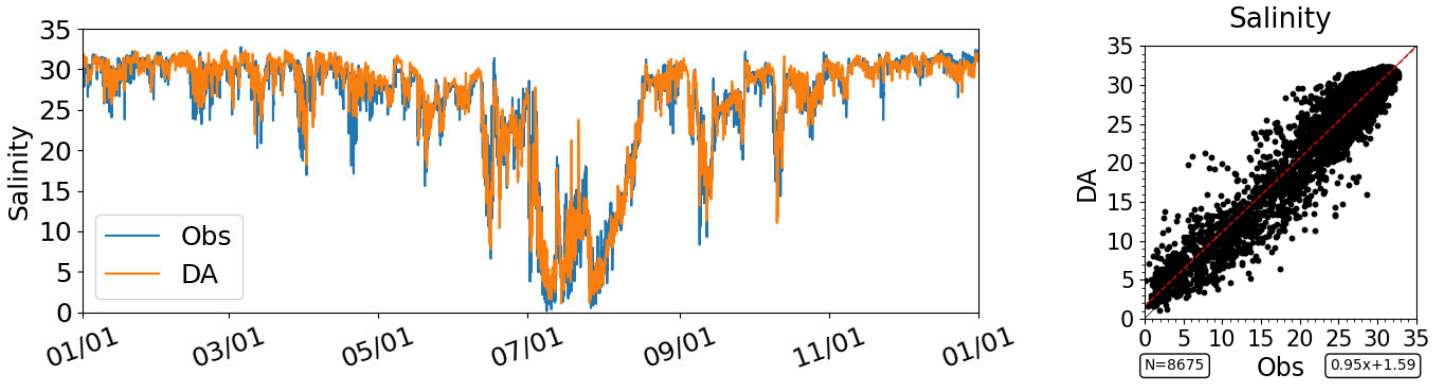
(b) Middle layer



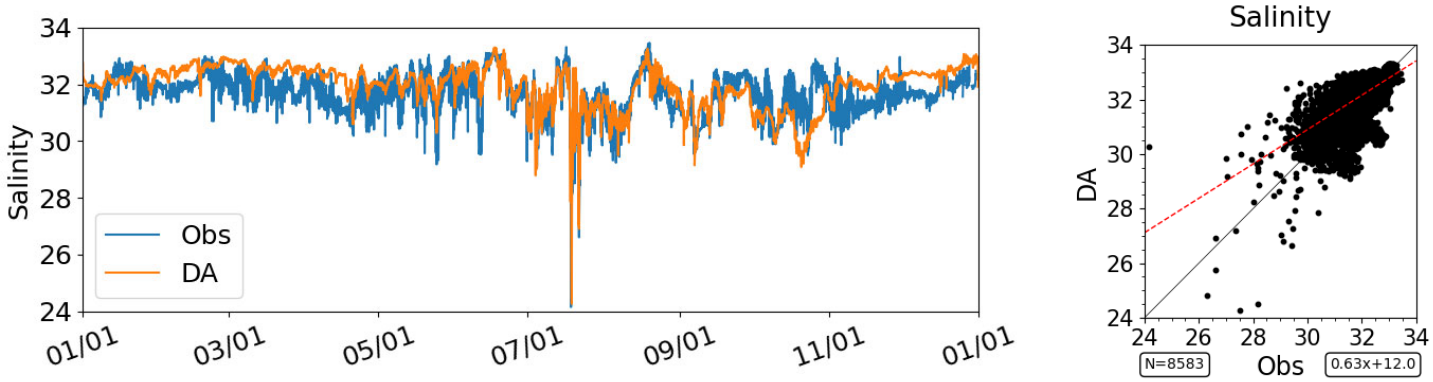


(c) Bottom layer

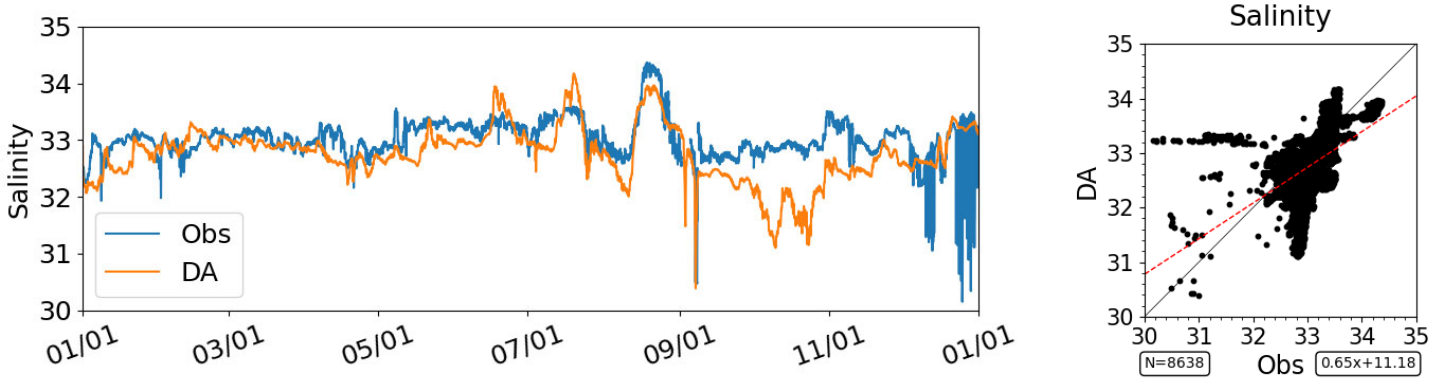
Figure S3.80 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2020



(a) Surface layer

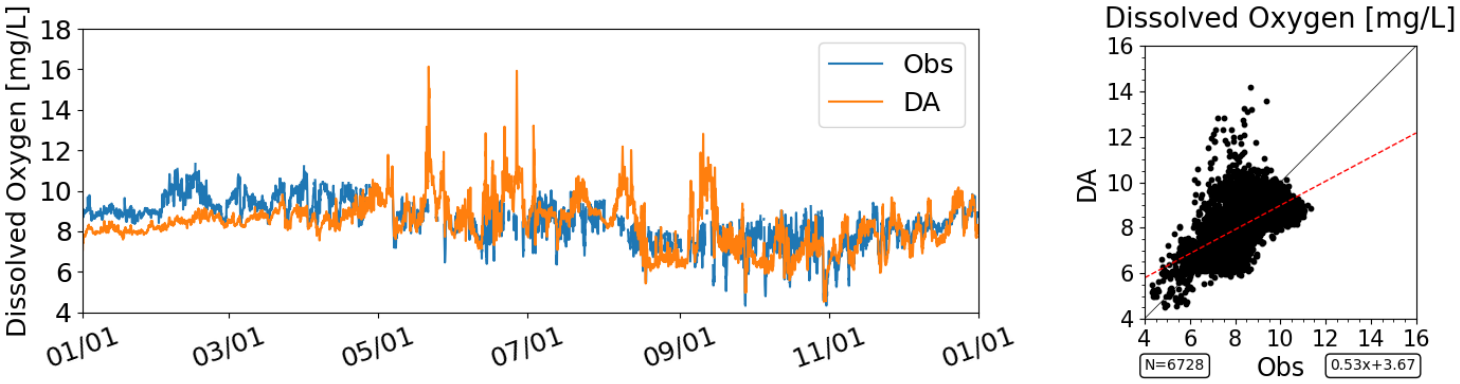


(b) Middle layer

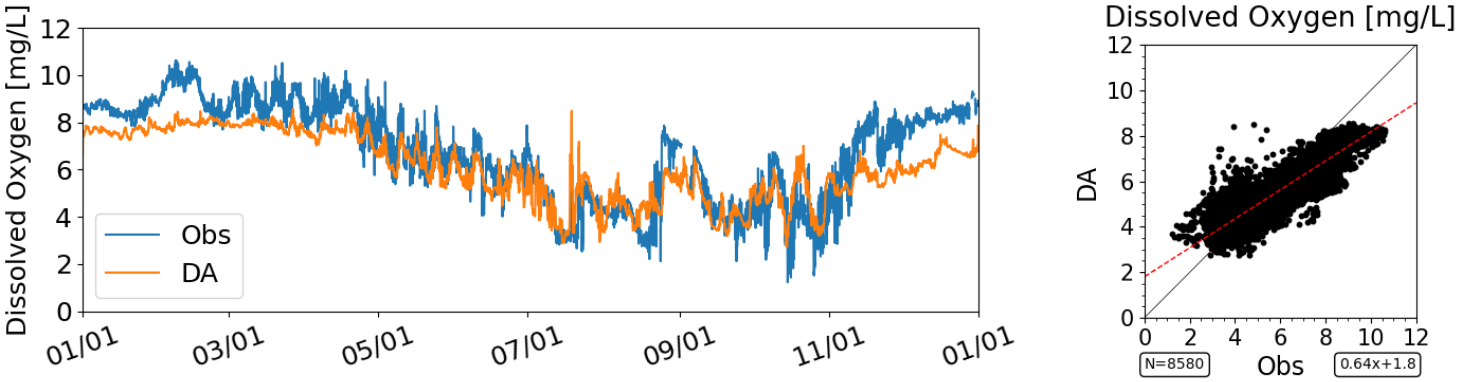


(c) Bottom layer

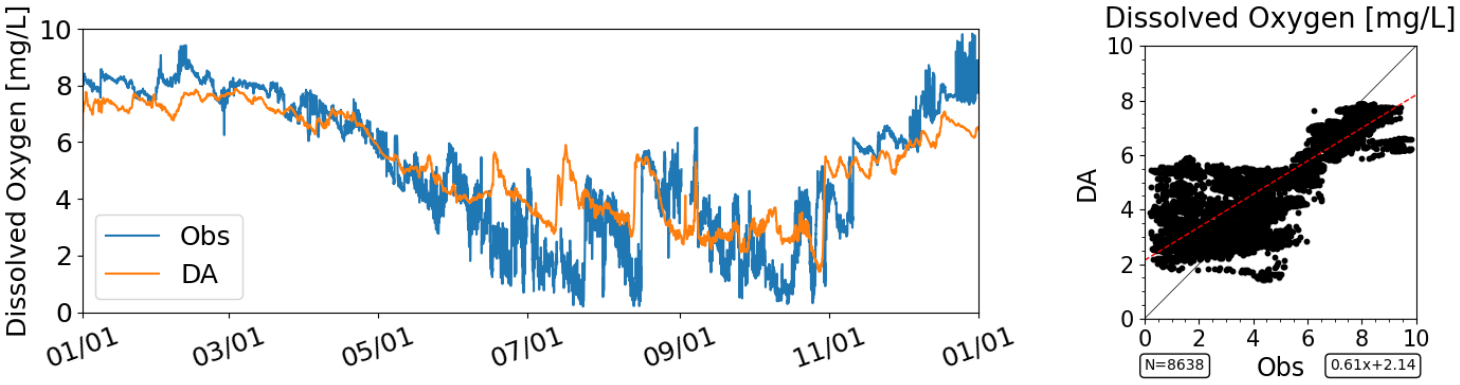
Figure S3.81 Timeseries and scatter plot for salinity at Back of Ise Bay in 2020



(a) Surface layer

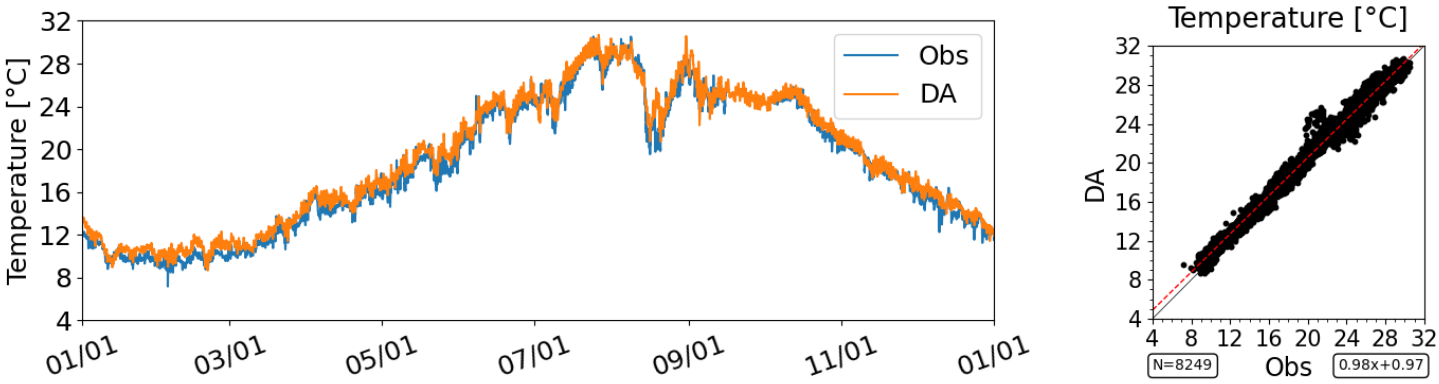


(b) Middle layer

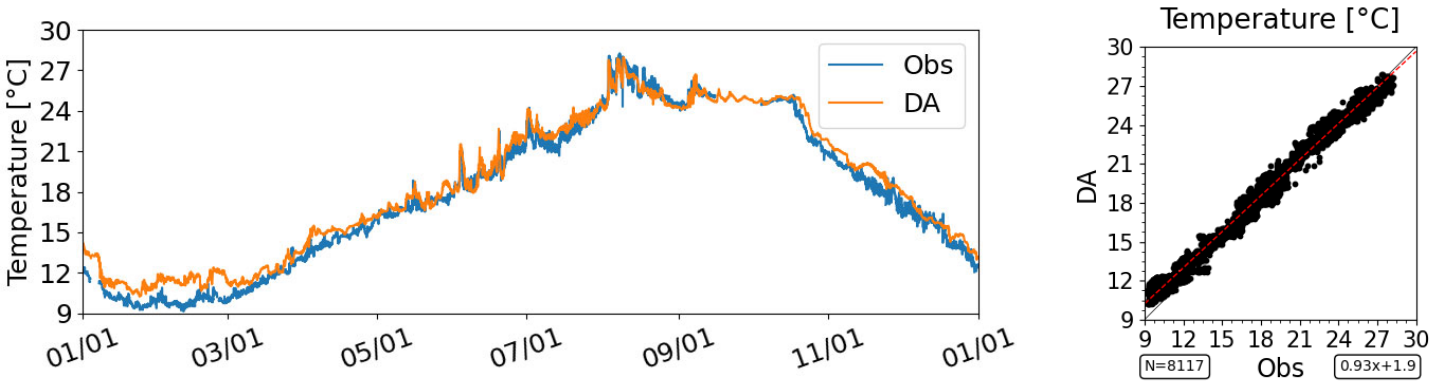


(c) Bottom layer

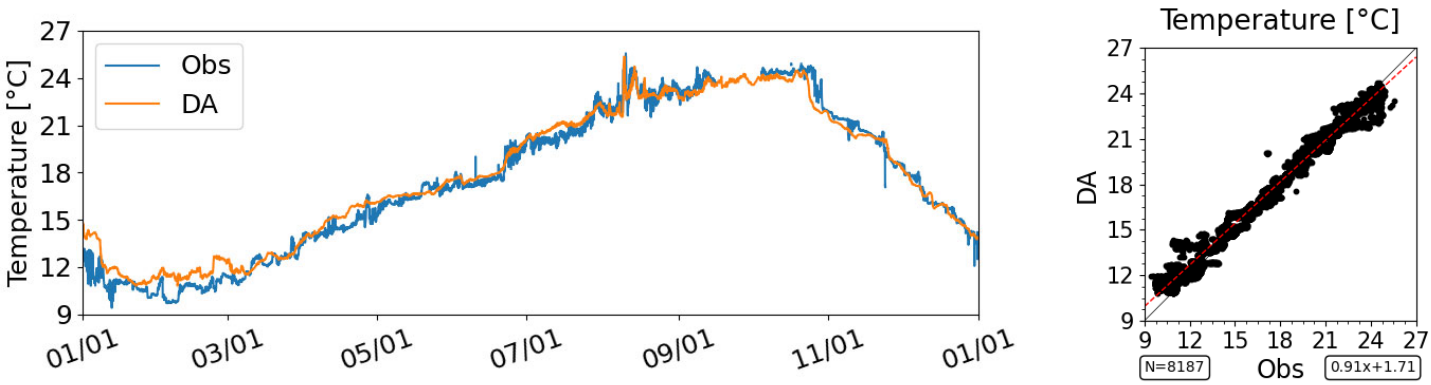
Figure S3.82 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2020



(a) Surface layer

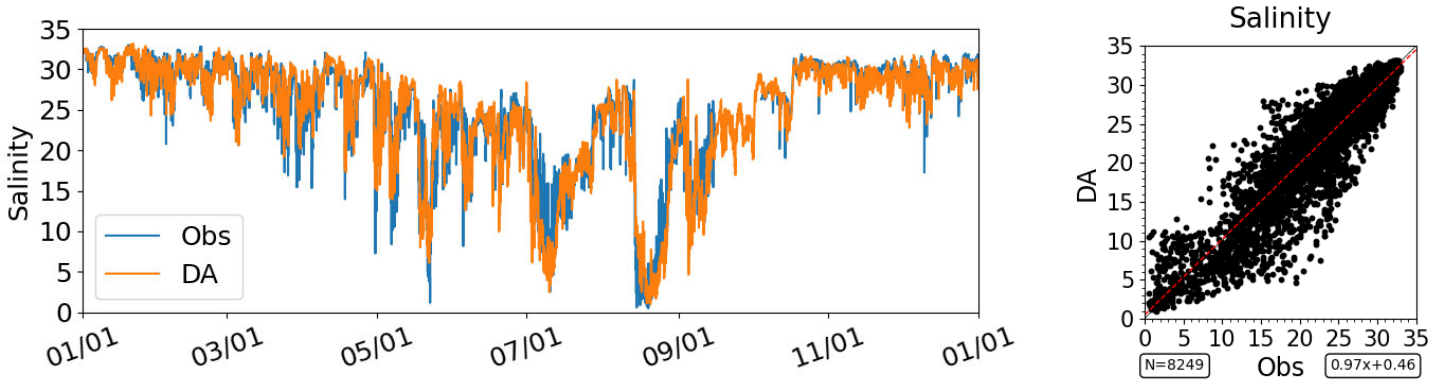


(b) Middle layer

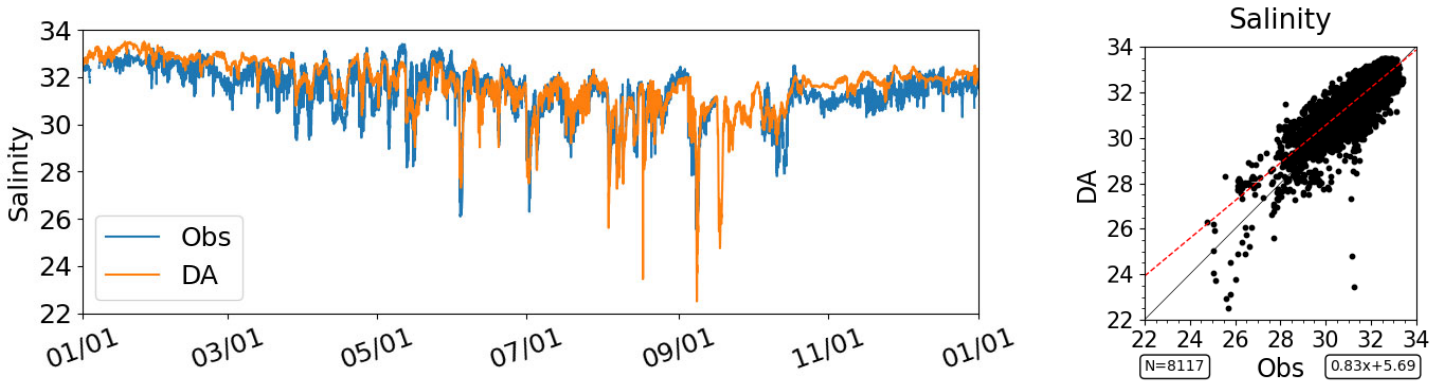


(c) Bottom layer

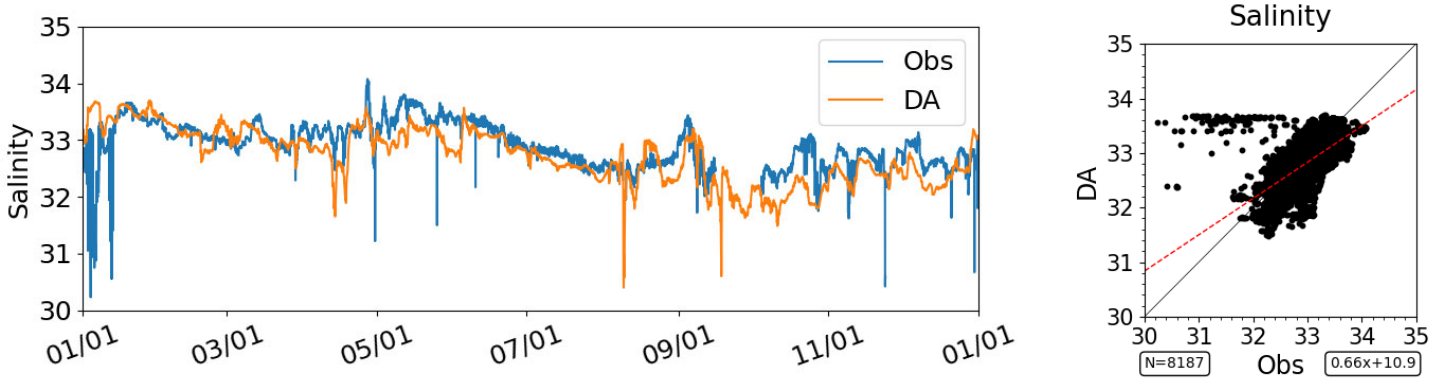
Figure S3.83 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2021



(a) Surface layer

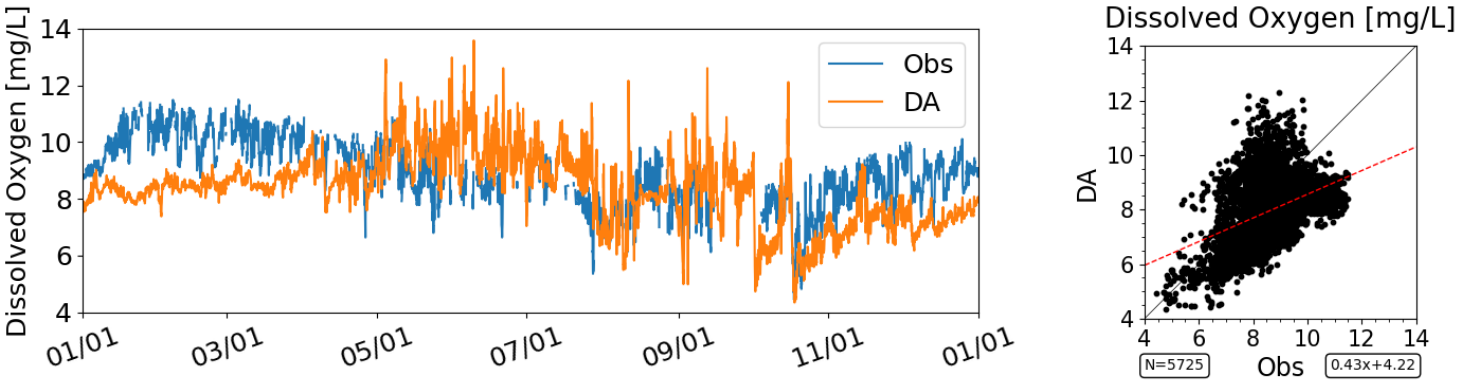


(b) Middle layer

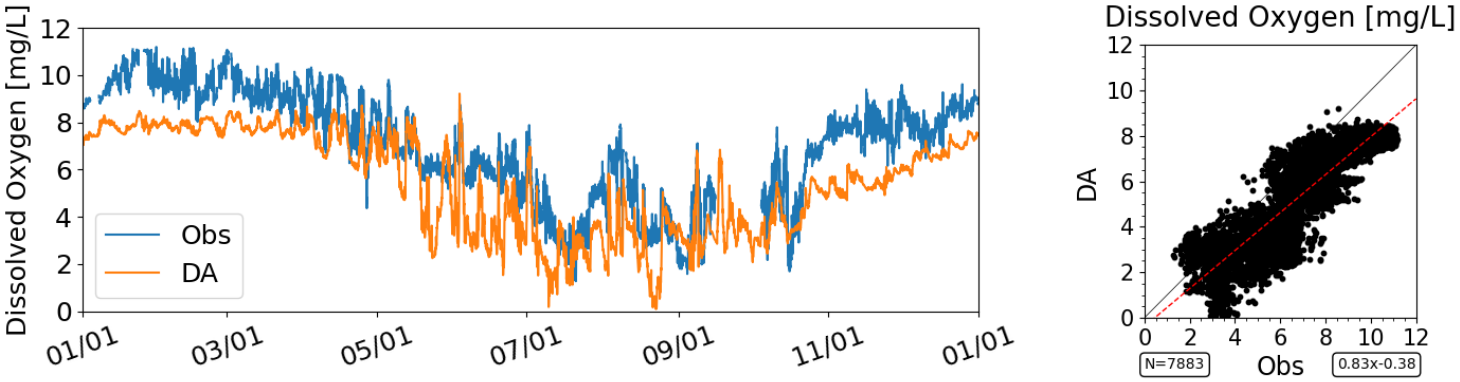


(c) Bottom layer

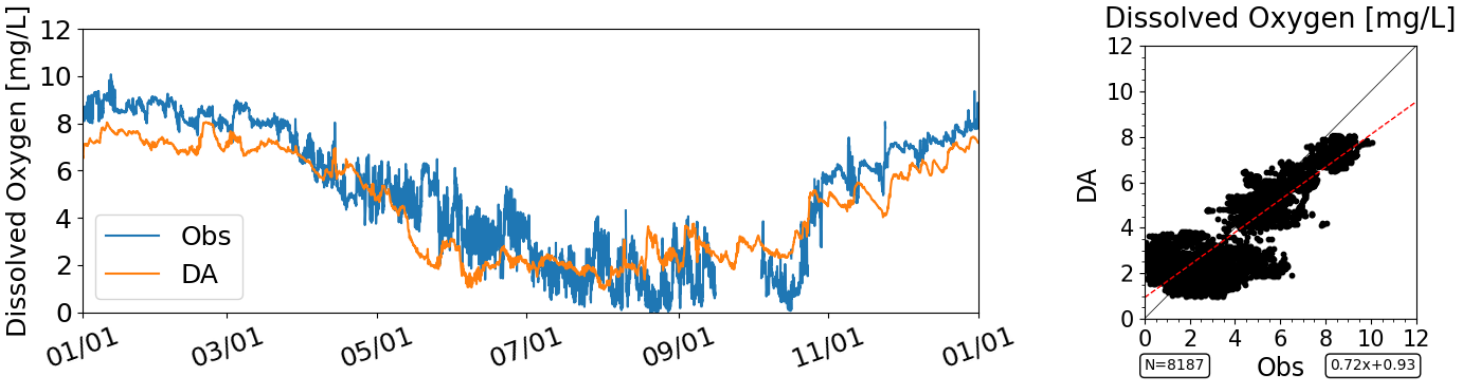
Figure S3.84 Timeseries and scatter plot for salinity at Back of Ise Bay in 2021



(a) Surface layer

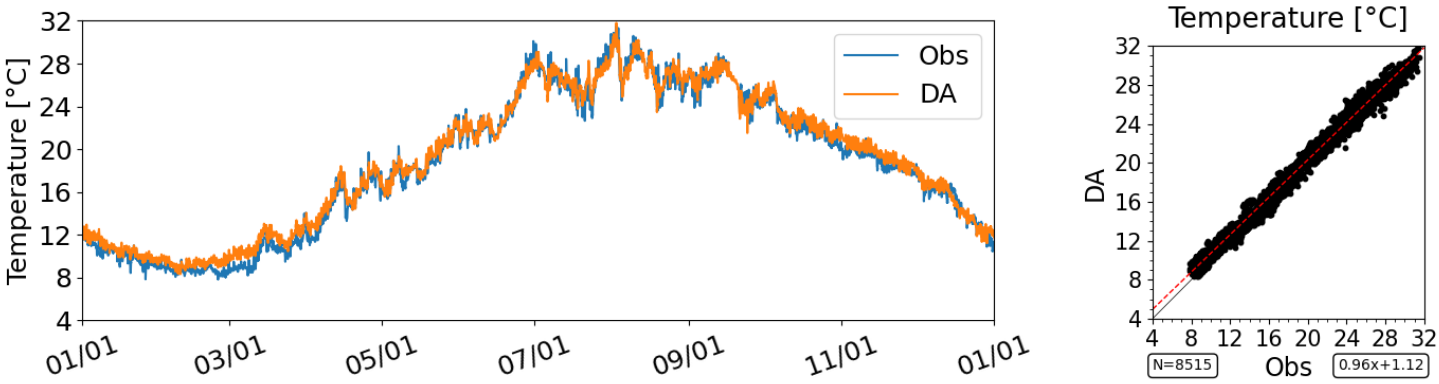


(b) Middle layer

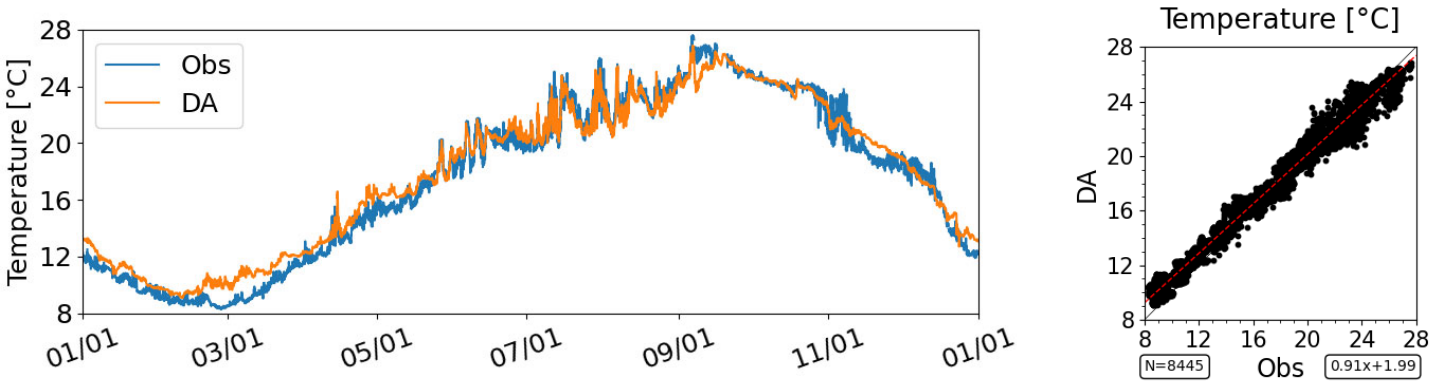


(c) Bottom layer

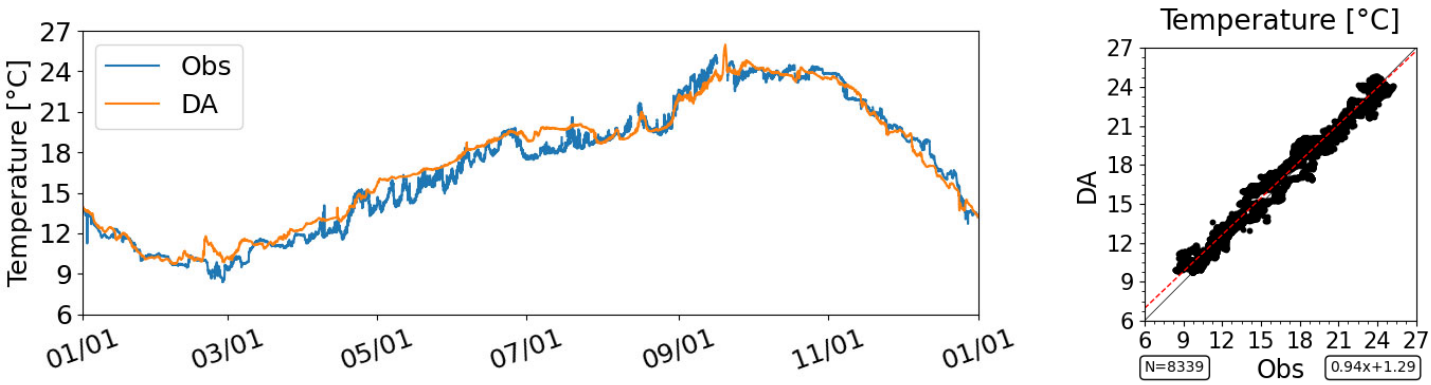
Figure S3.85 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2021



(a) Surface layer

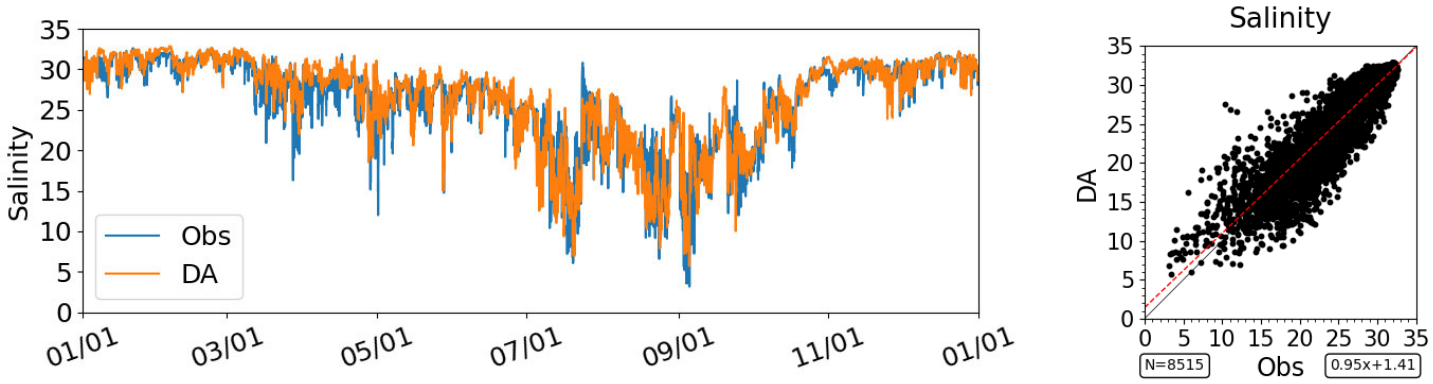


(b) Middle layer

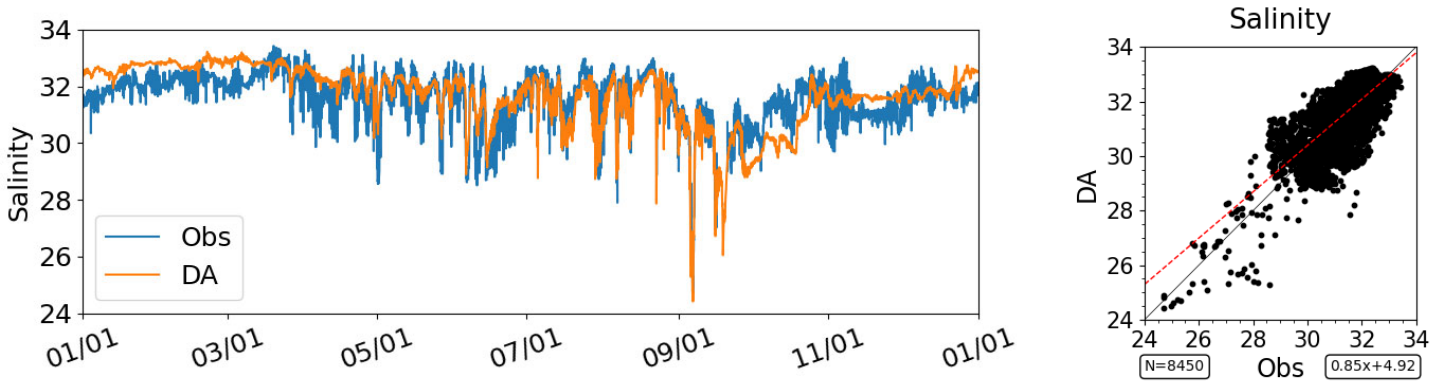


(c) Bottom layer

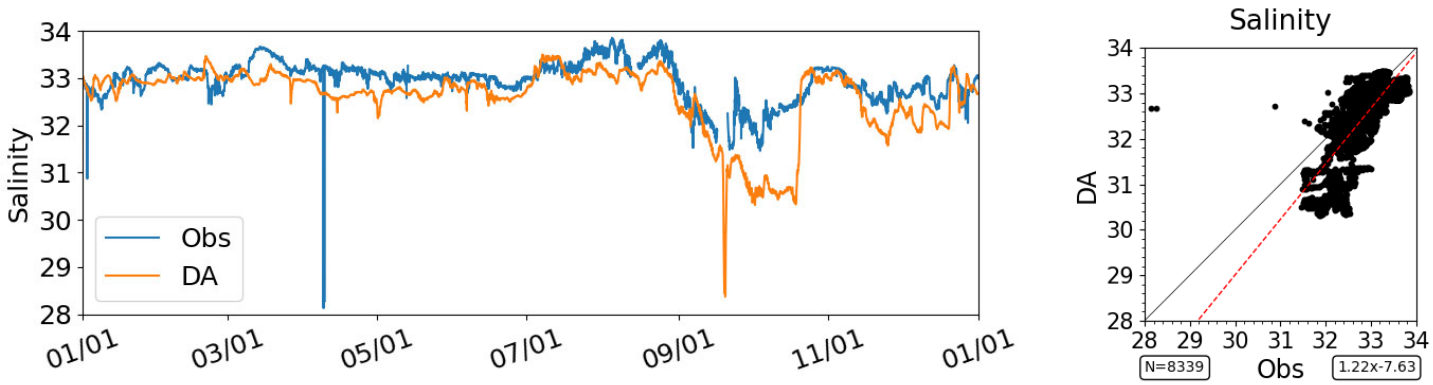
Figure S3.86 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2022



(a) Surface layer

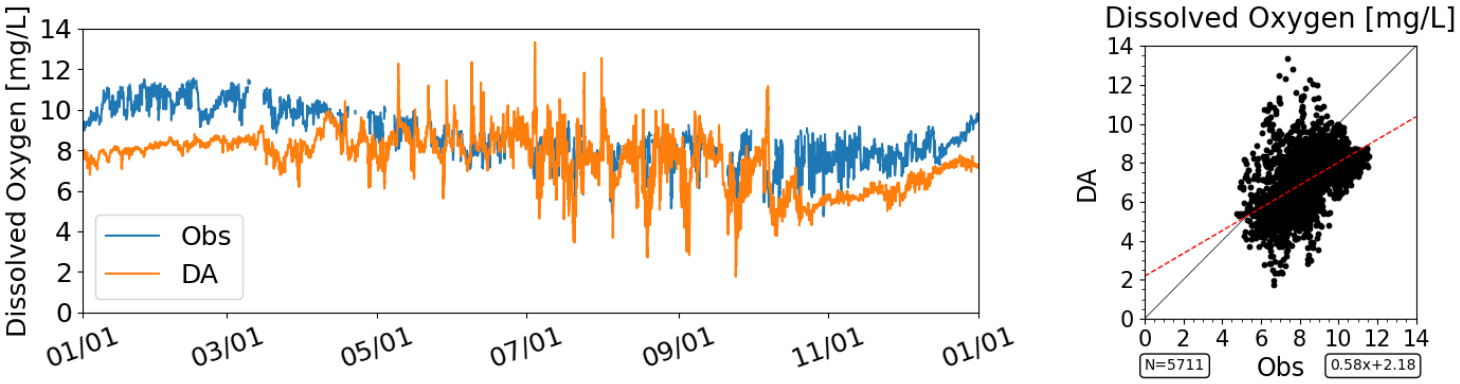


(b) Middle layer

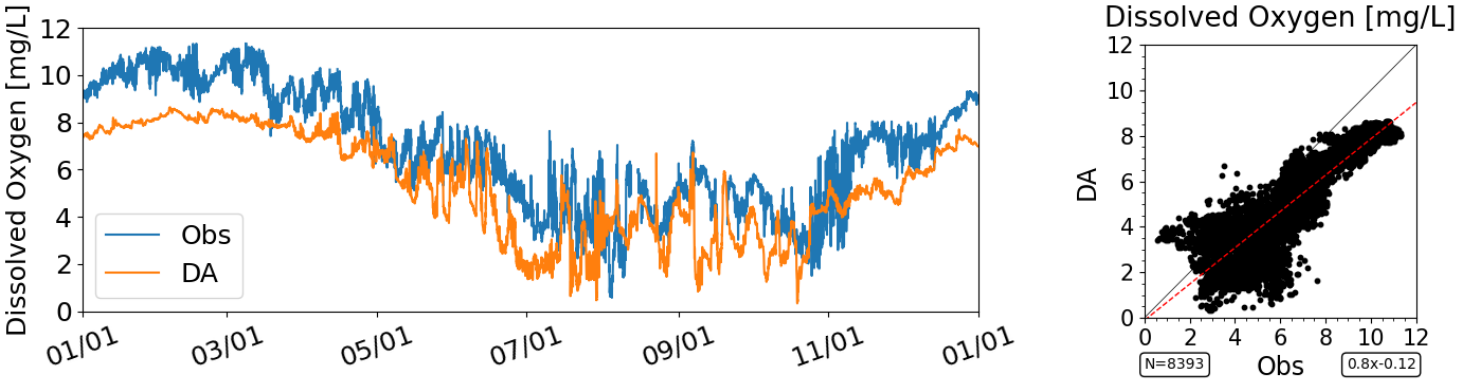


(c) Bottom layer

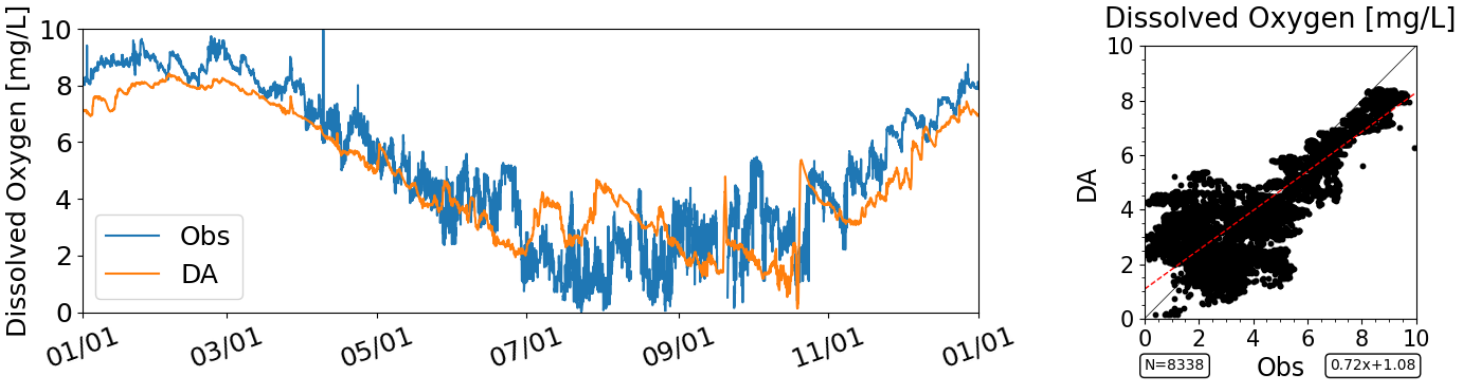
Figure S3.87 Timeseries and scatter plot for salinity at Back of Ise Bay in 2022



(a) Surface layer



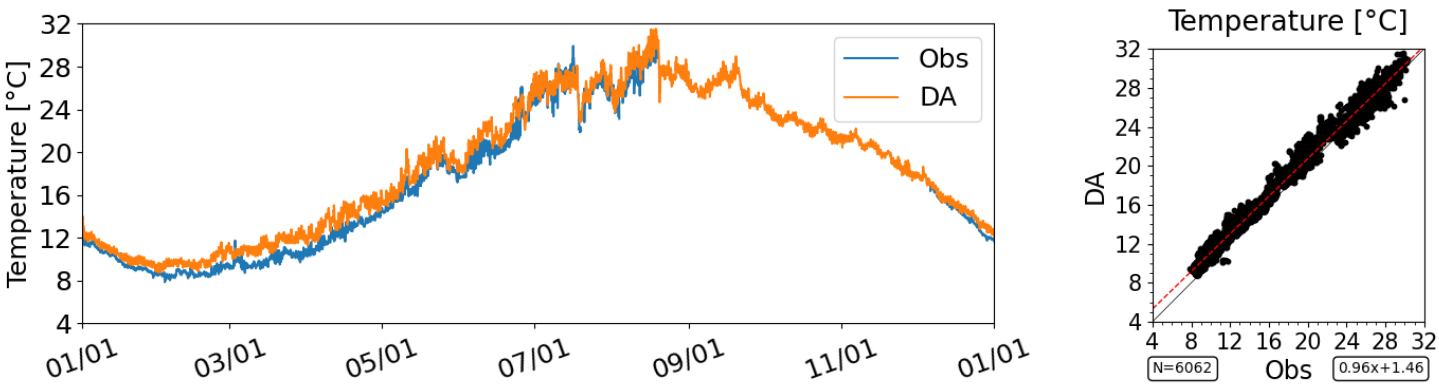
(b) Middle layer



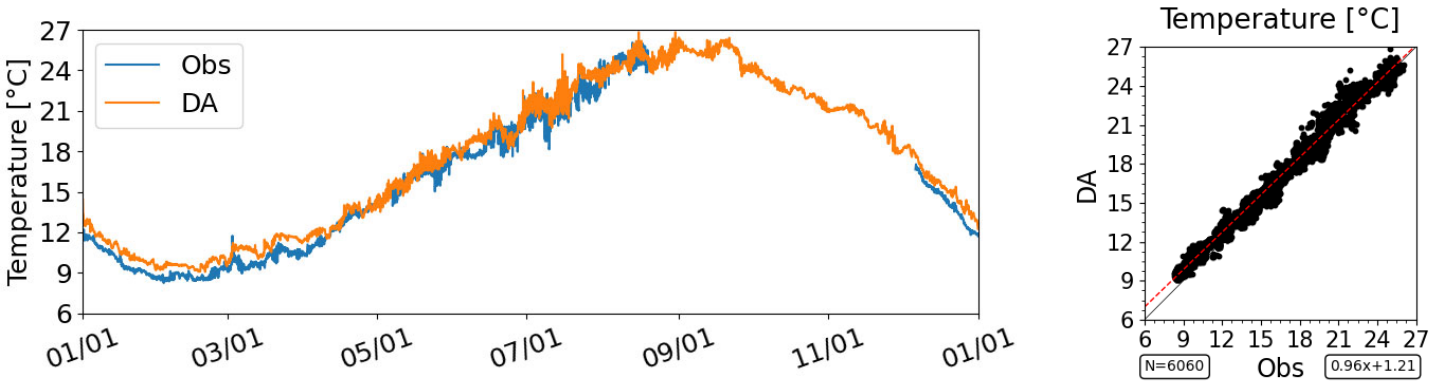
(c) Bottom layer

Figure S3.88 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2022

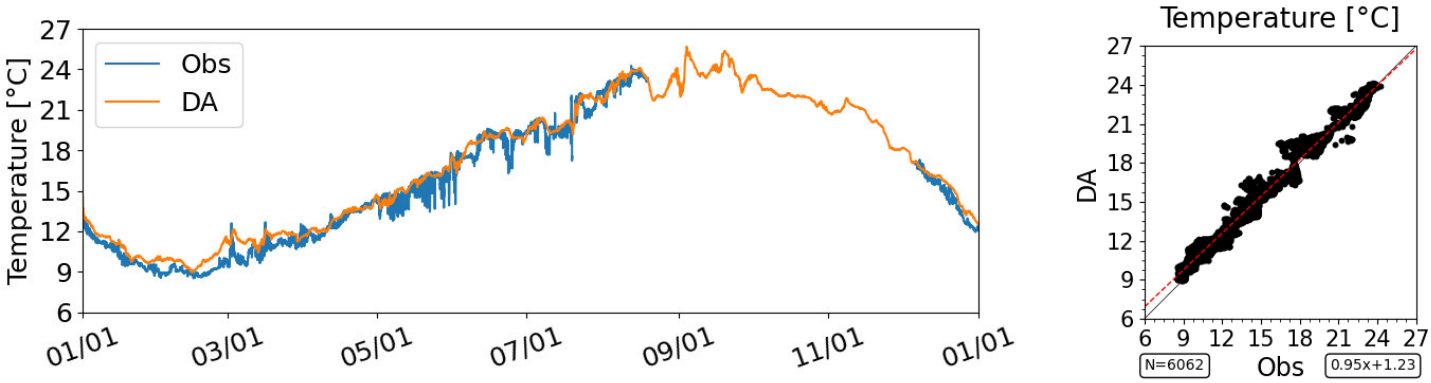
S3.8 Center of Ise Bay: Timeseries and scatter plot



(a) Surface layer

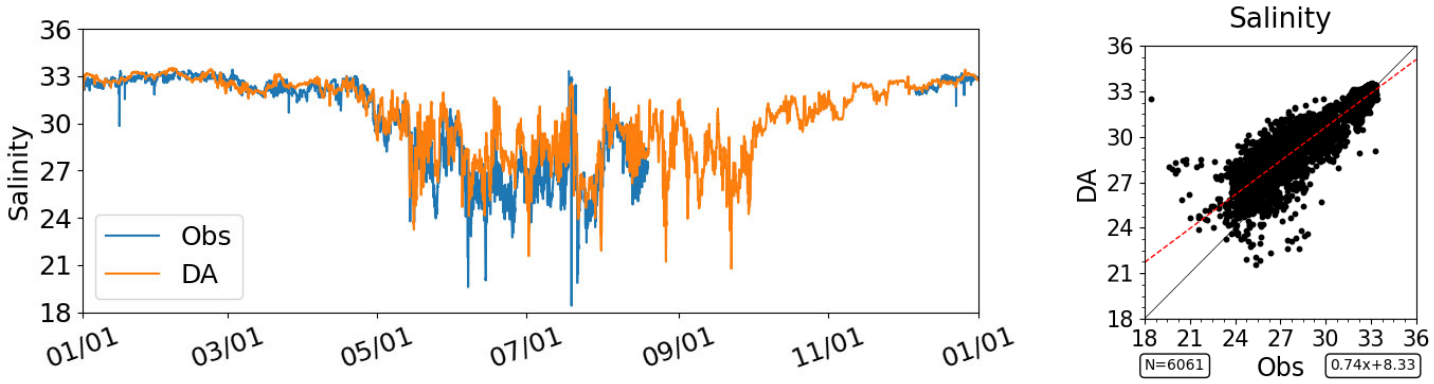


(b) Middle layer

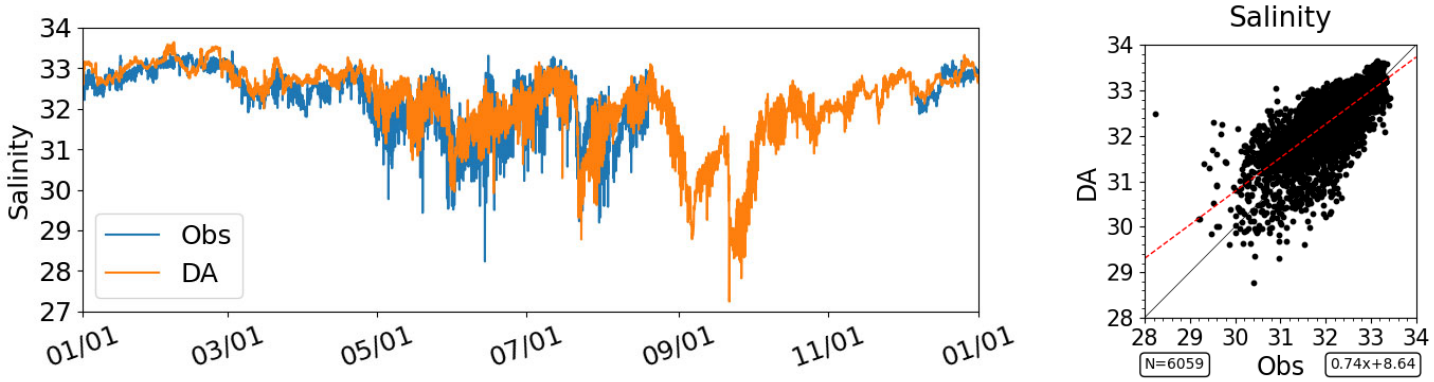


(c) Bottom layer

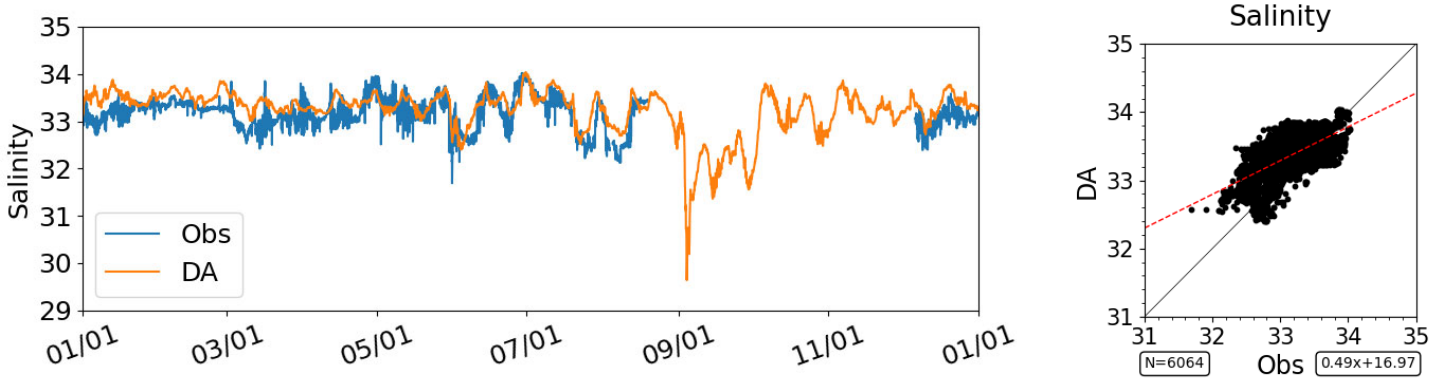
Figure S3.89 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2011



(a) Surface layer

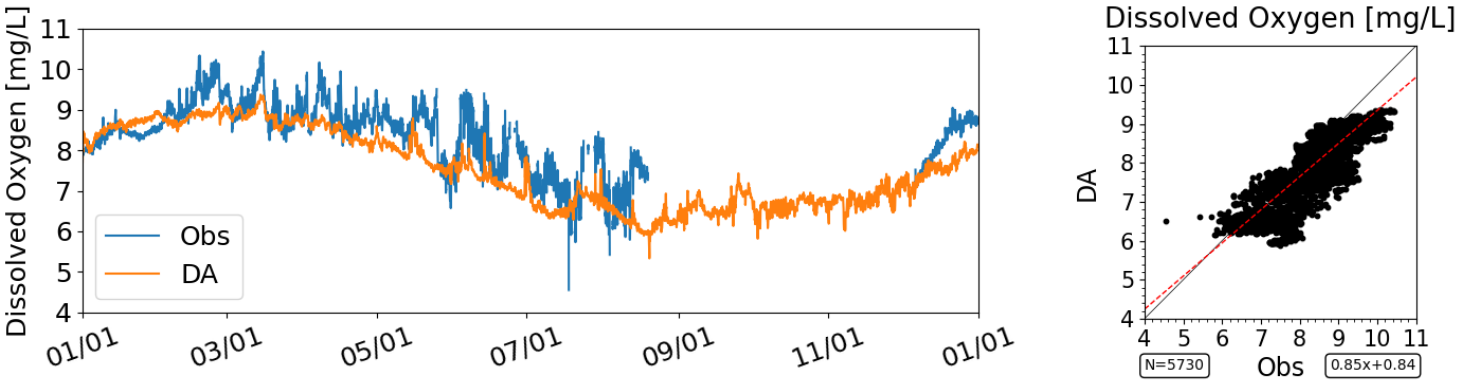


(b) Middle layer

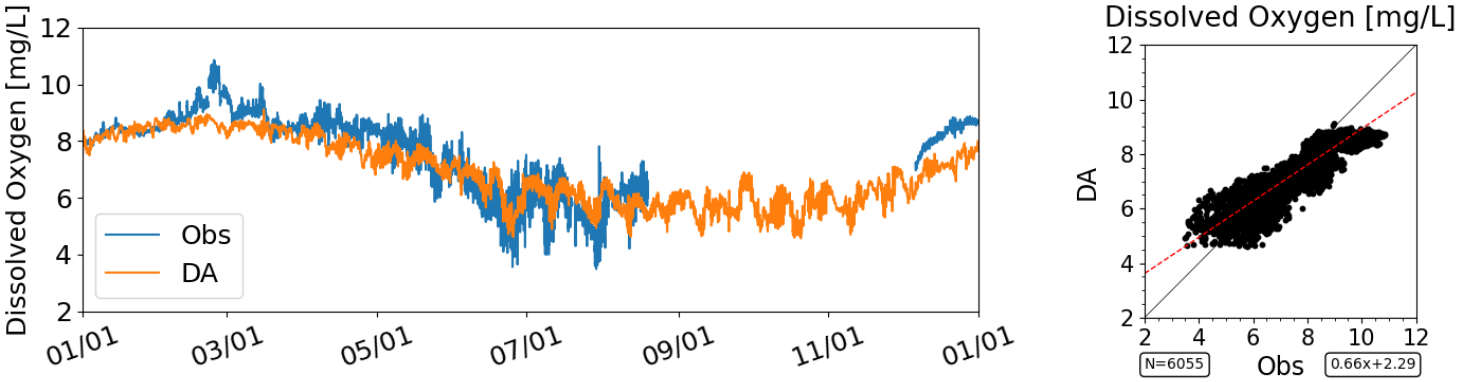


(c) Bottom layer

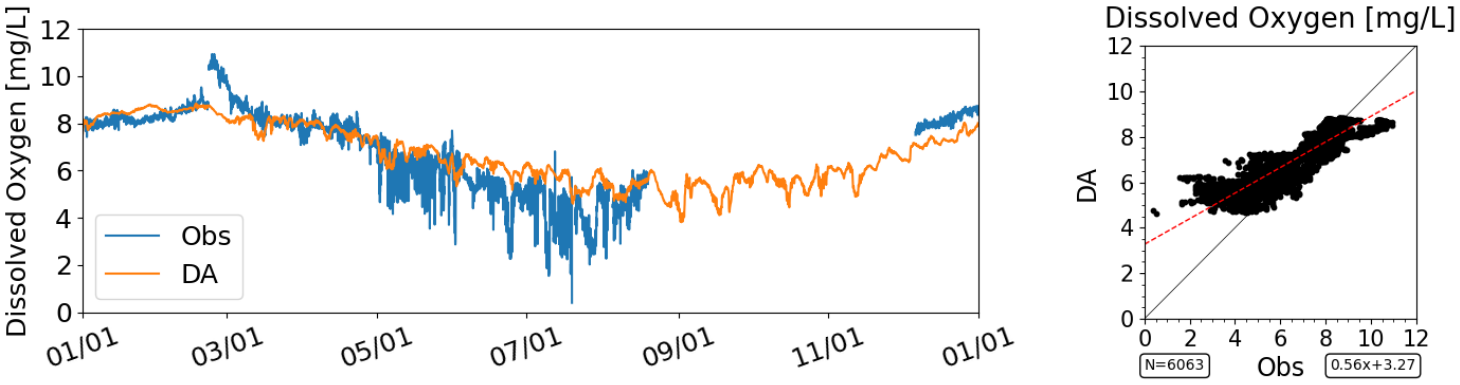
Figure S3.90 Timeseries and scatter plot for salinity at Center of Ise Bay in 2011



(a) Surface layer

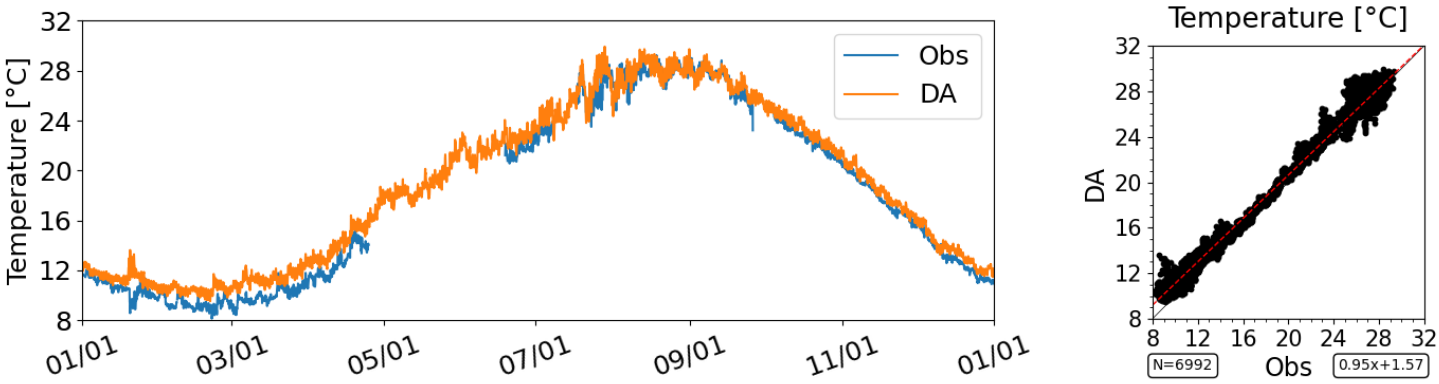


(b) Middle layer

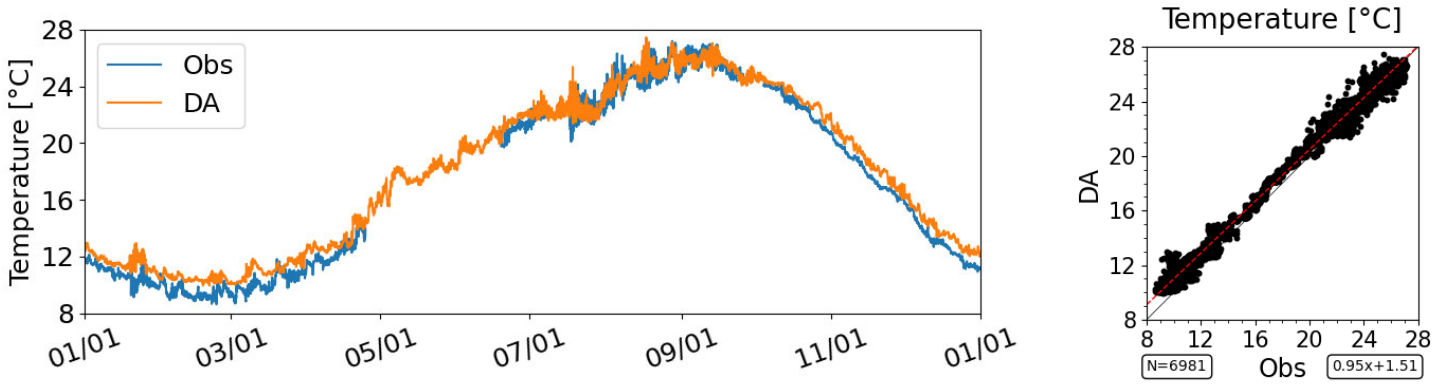


(c) Bottom layer

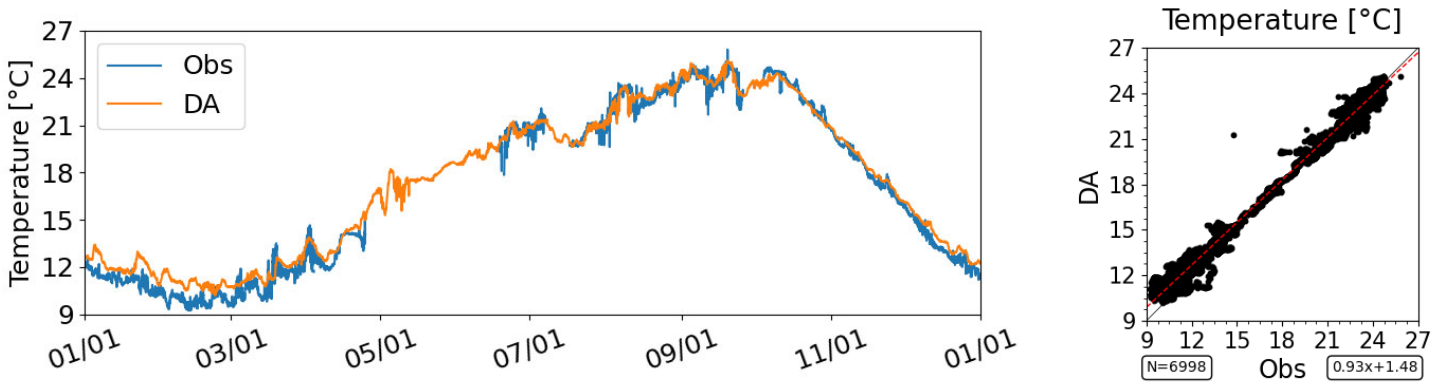
Figure S3.91 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2011



(a) Surface layer

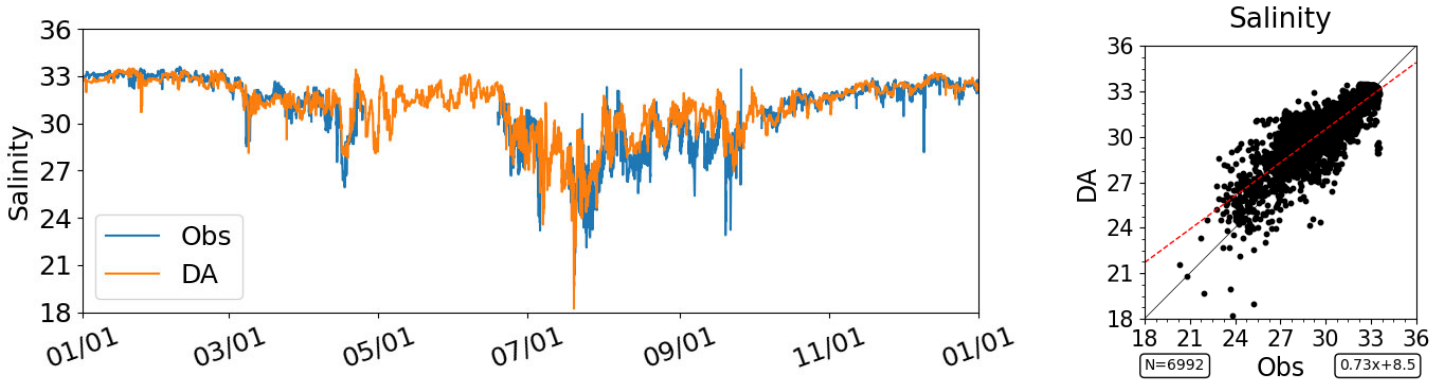


(b) Middle layer

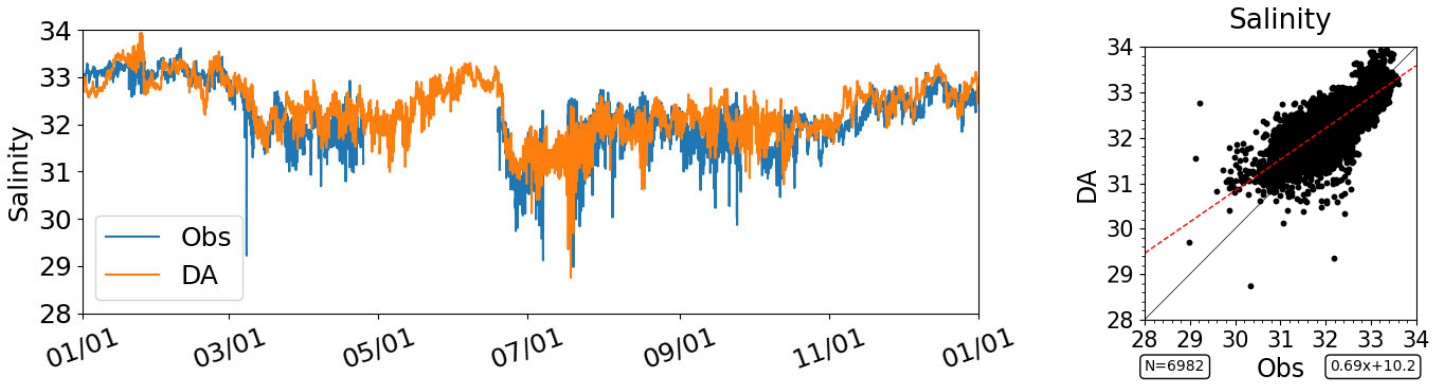


(c) Bottom layer

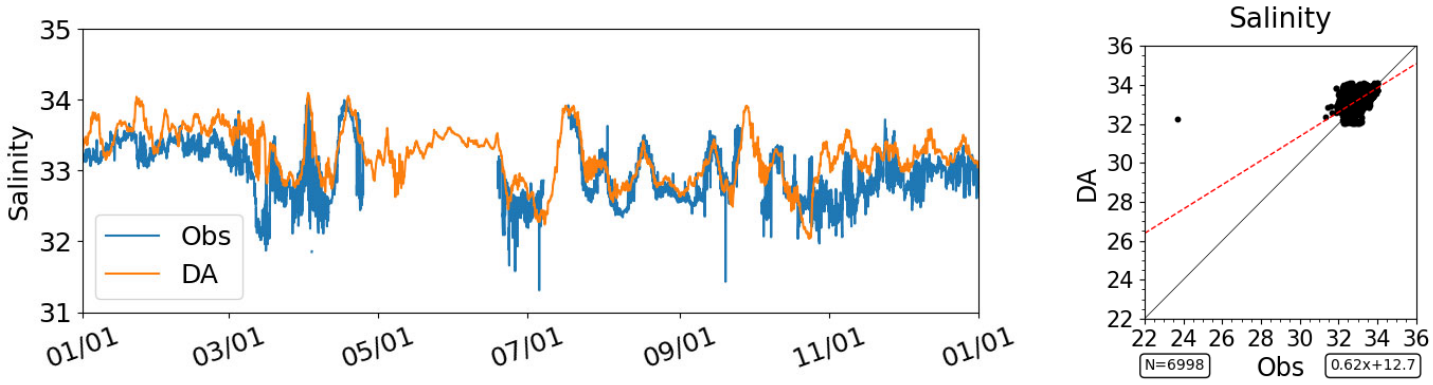
Figure S3.92 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2012



(a) Surface layer

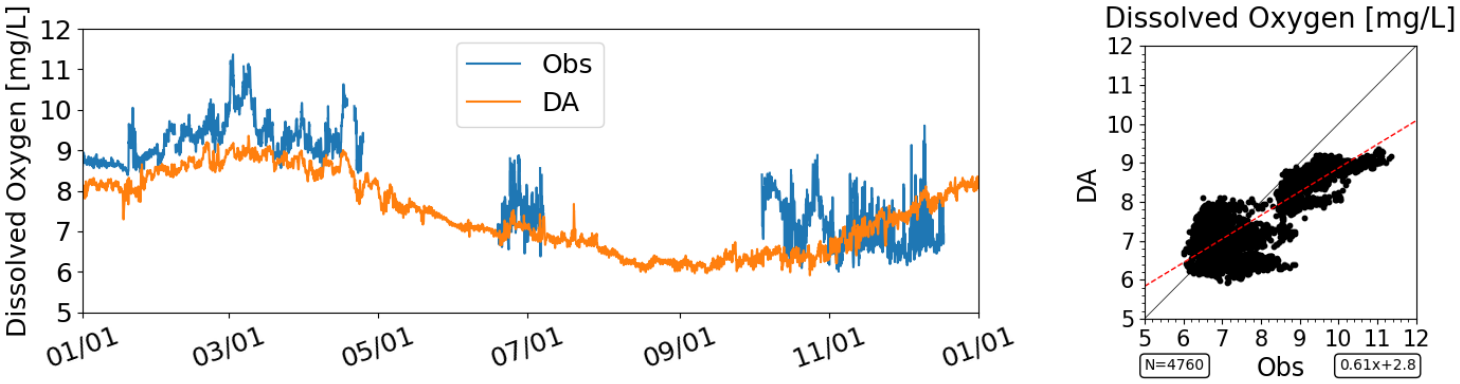


(b) Middle layer

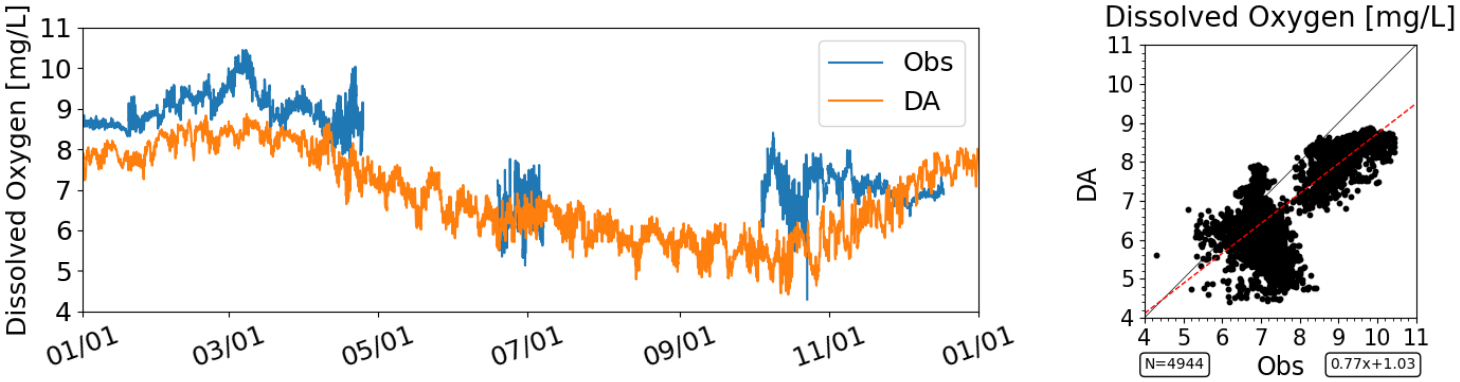


(c) Bottom layer

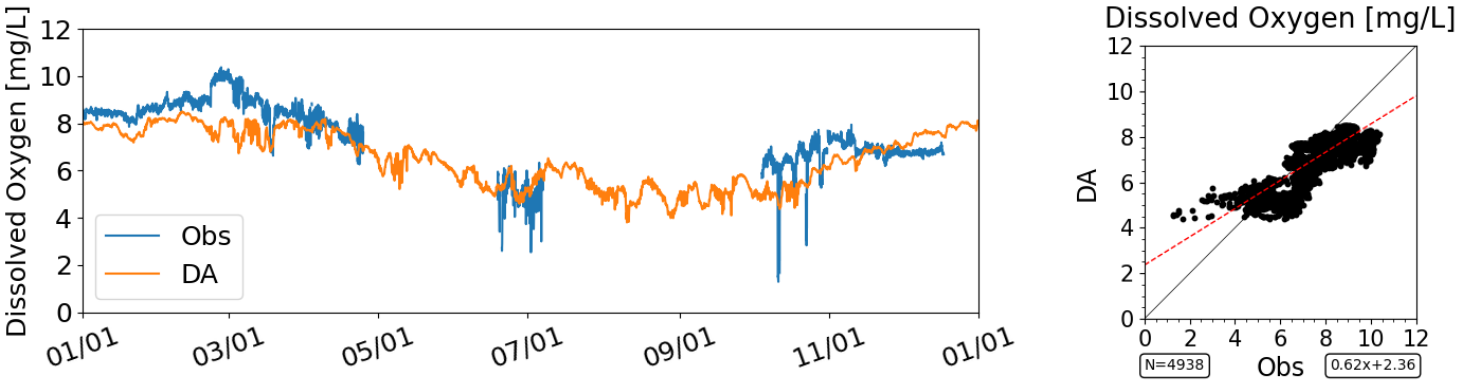
Figure S3.93 Timeseries and scatter plot for salinity at Center of Ise Bay in 2012



(a) Surface layer

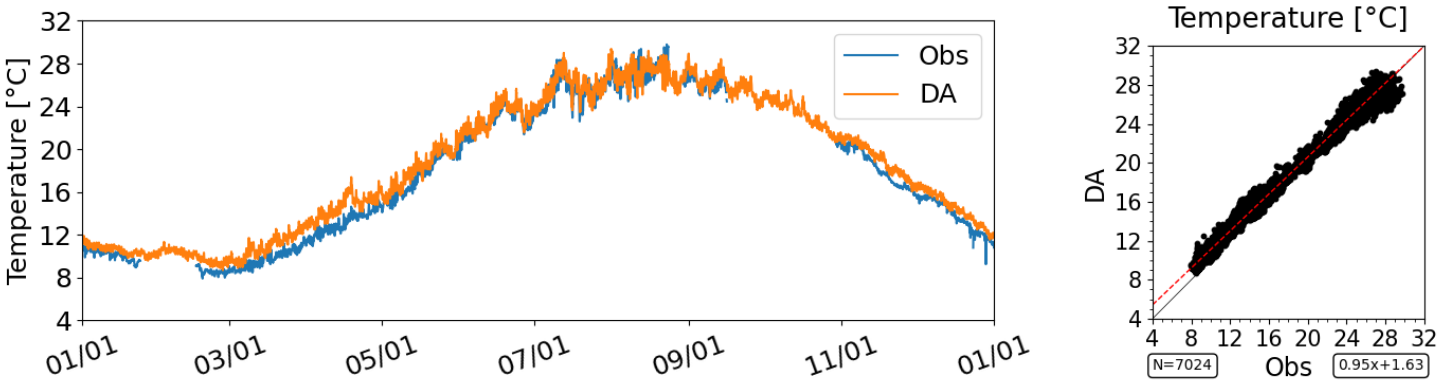


(b) Middle layer

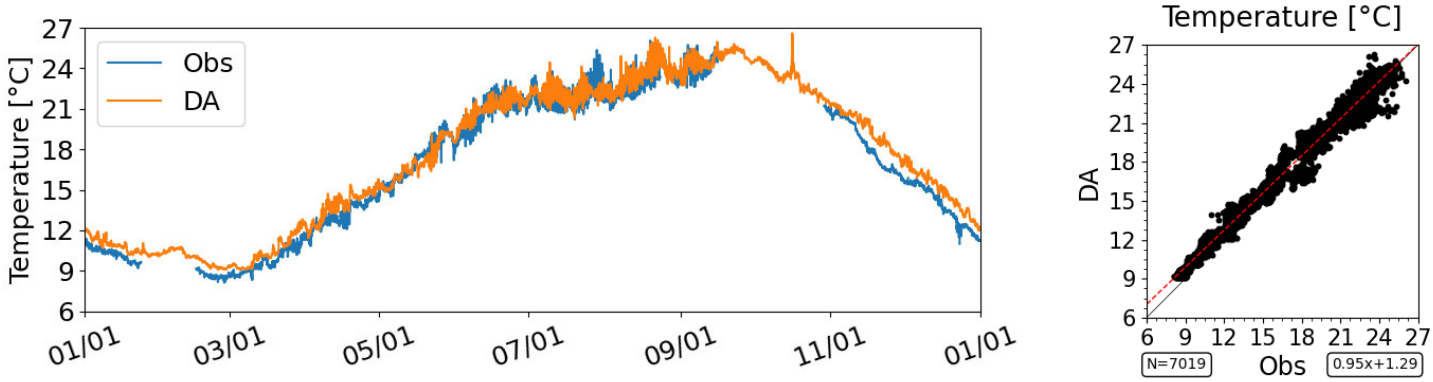


(c) Bottom layer

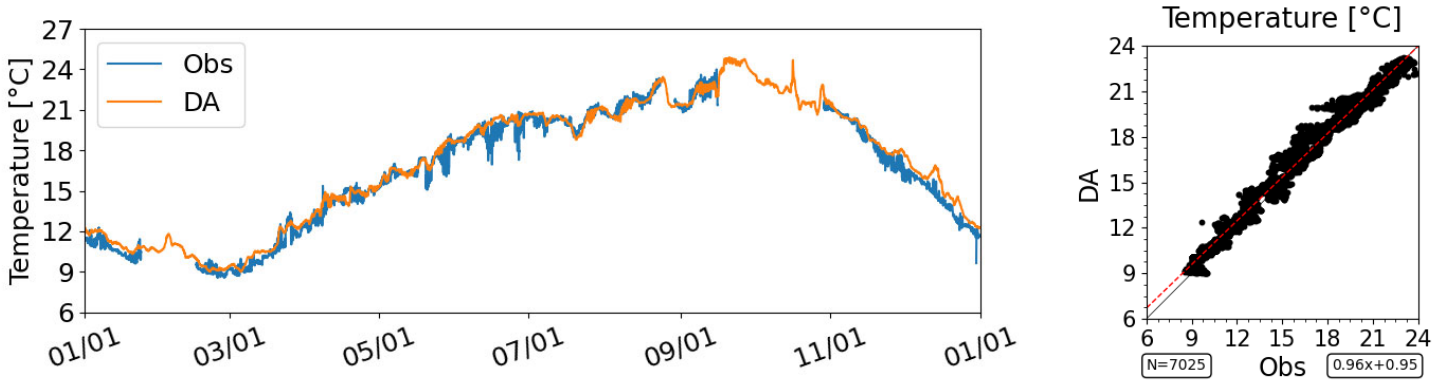
Figure S3.94 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2012



(a) Surface layer

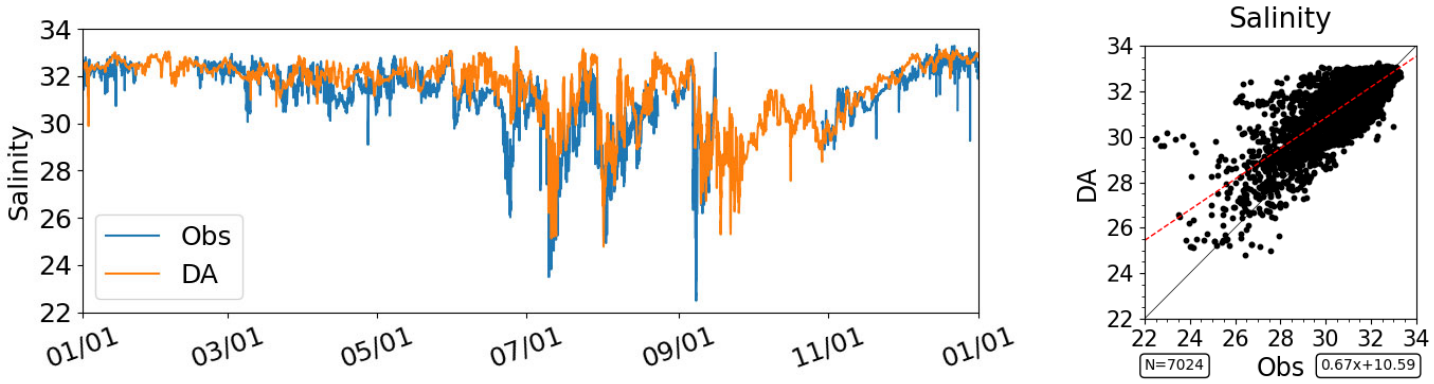


(b) Middle layer

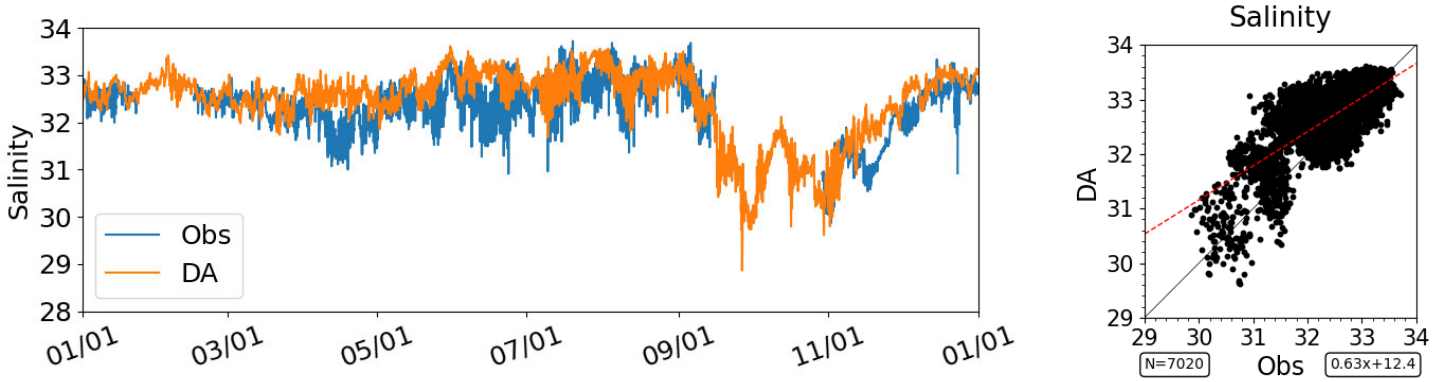


(c) Bottom layer

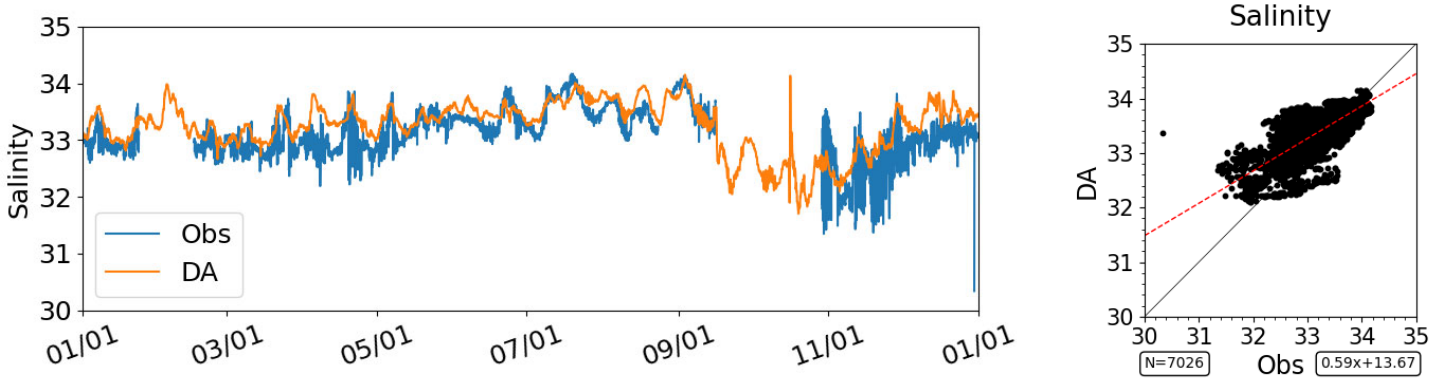
Figure S3.95 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2013



(a) Surface layer

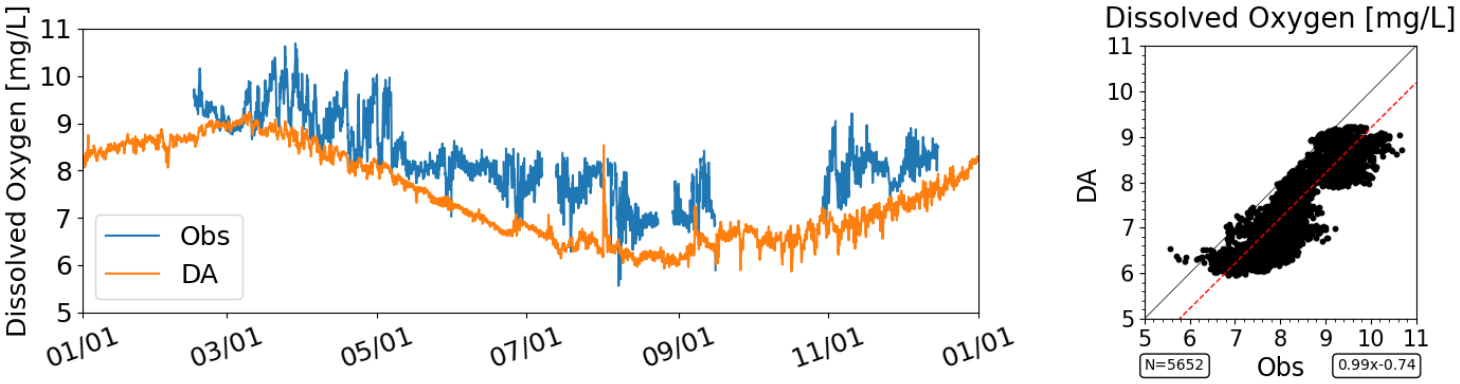


(b) Middle layer

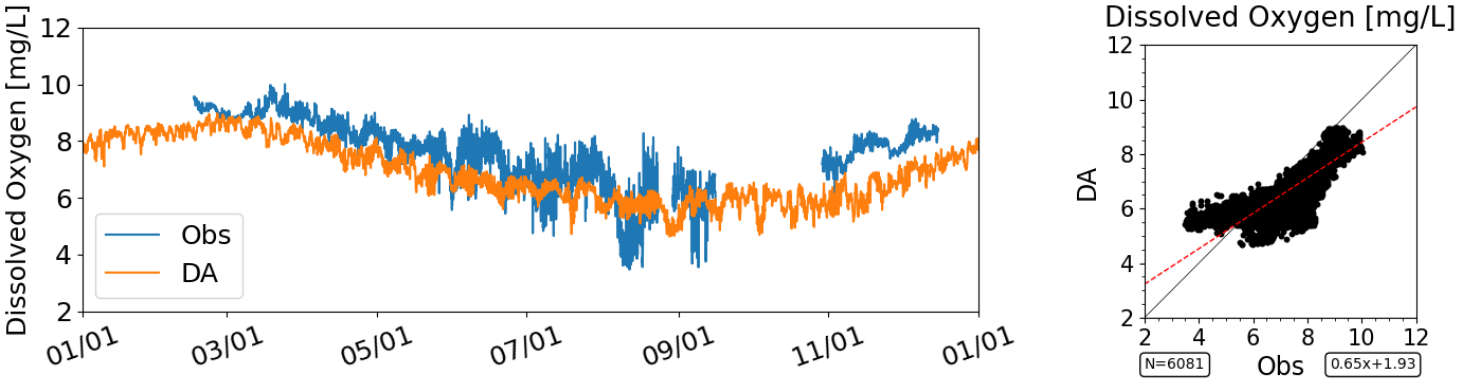


(c) Bottom layer

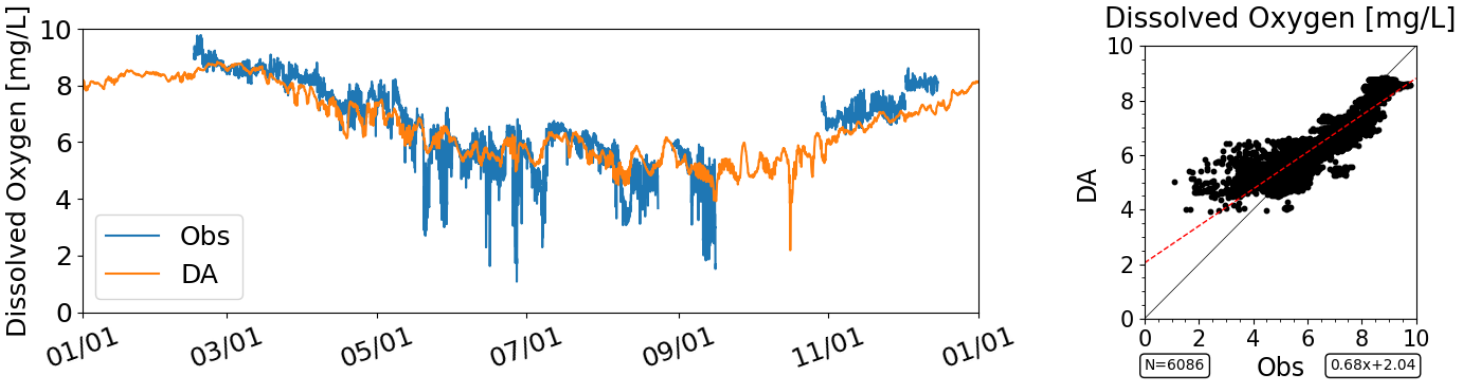
Figure S3.96 Timeseries and scatter plot for salinity at Center of Ise Bay in 2013



(a) Surface layer

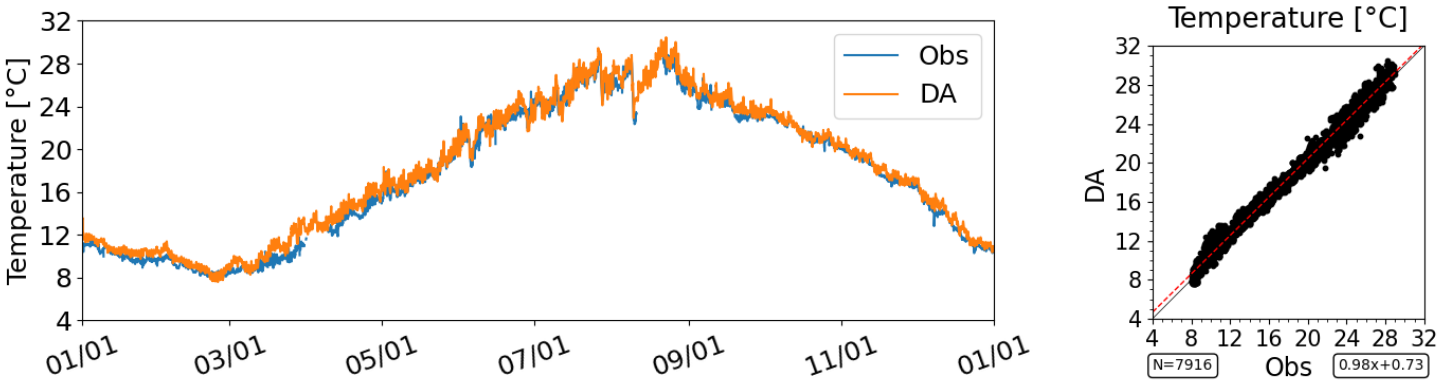


(b) Middle layer

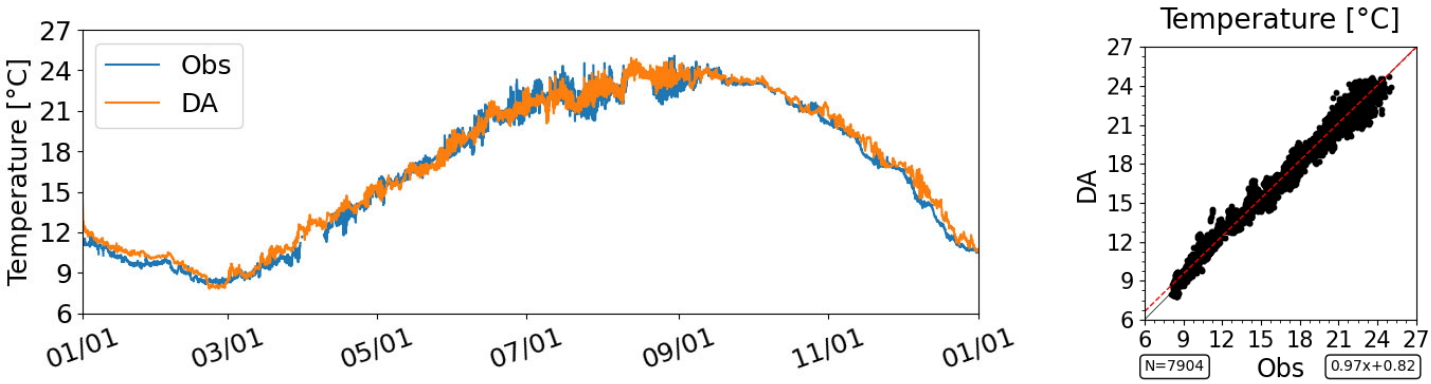


(c) Bottom layer

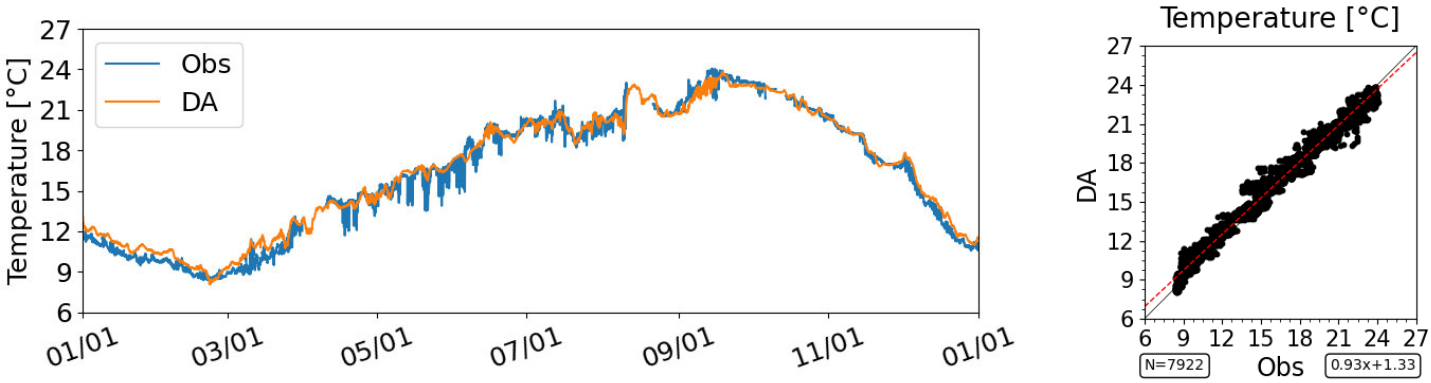
Figure S3.97 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2013



(a) Surface layer

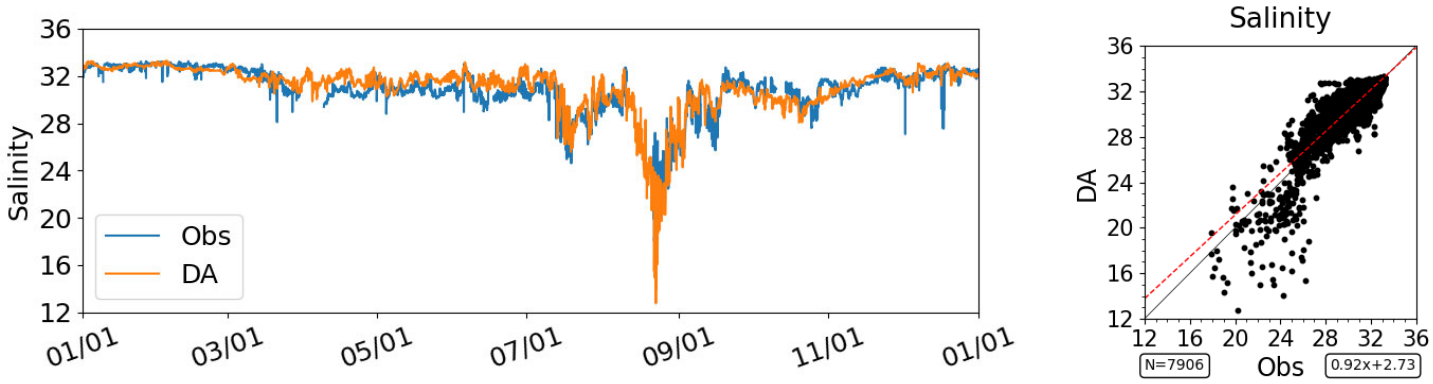


(b) Middle layer

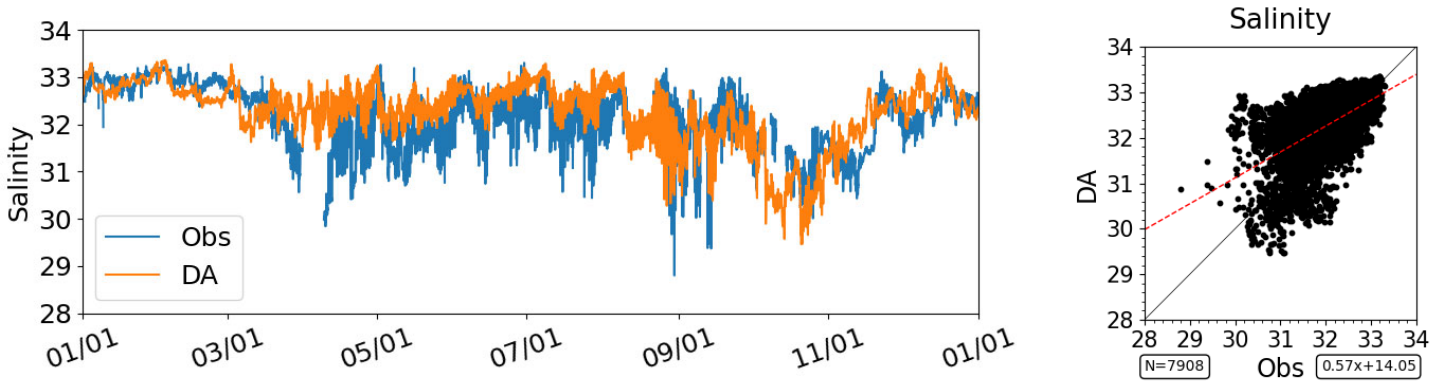


(c) Bottom layer

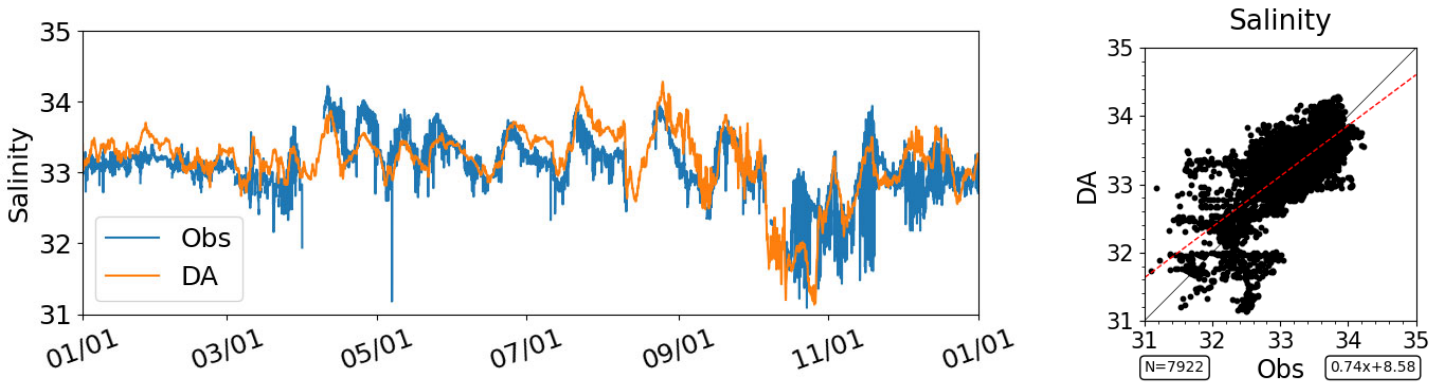
Figure S3.98 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2014



(a) Surface layer

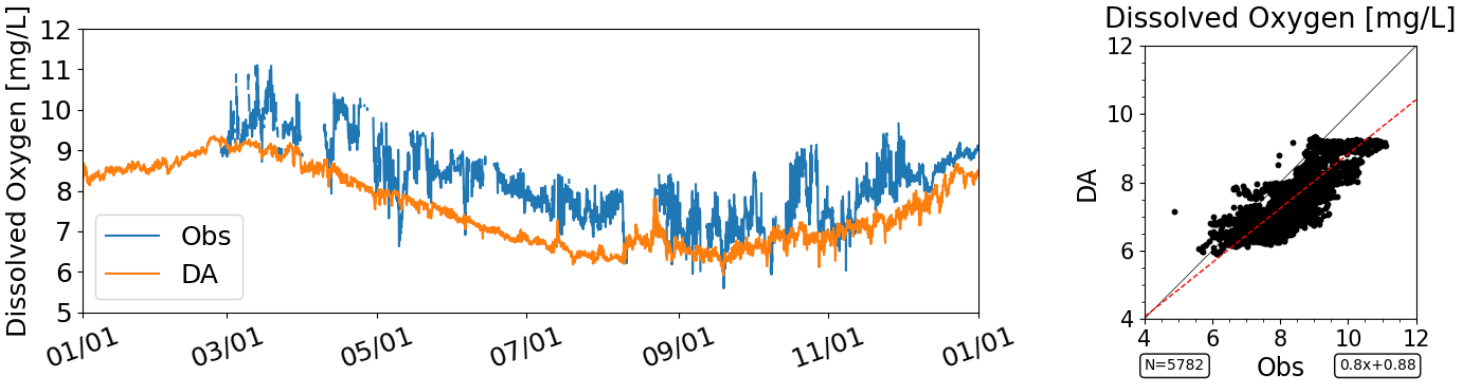


(b) Middle layer

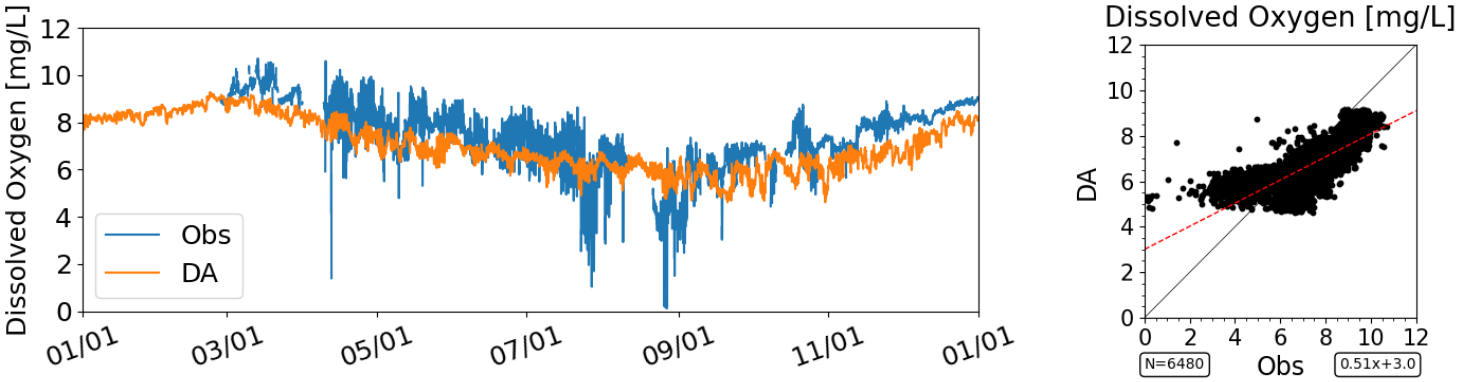


(c) Bottom layer

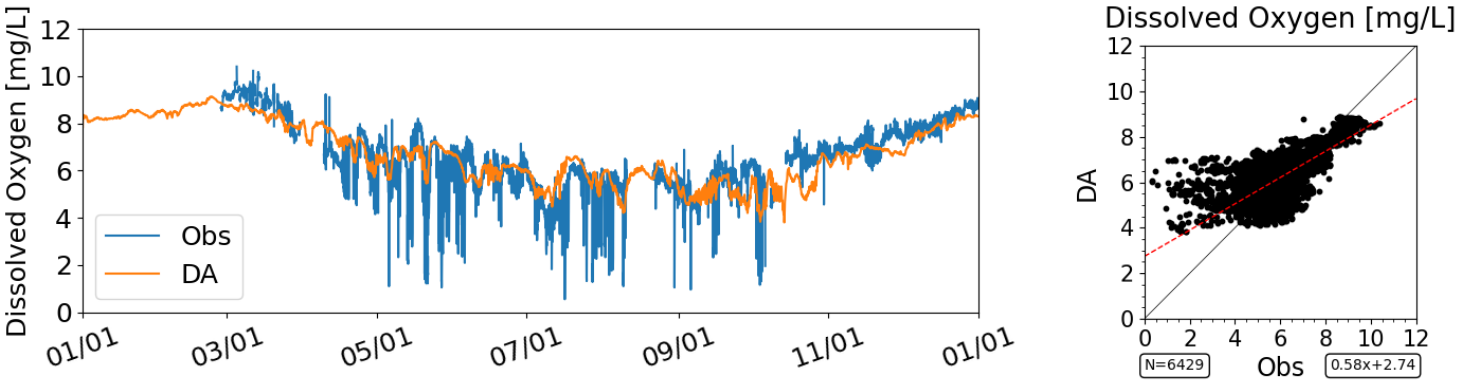
Figure S3.99 Timeseries and scatter plot for salinity at Center of Ise Bay in 2014



(a) Surface layer

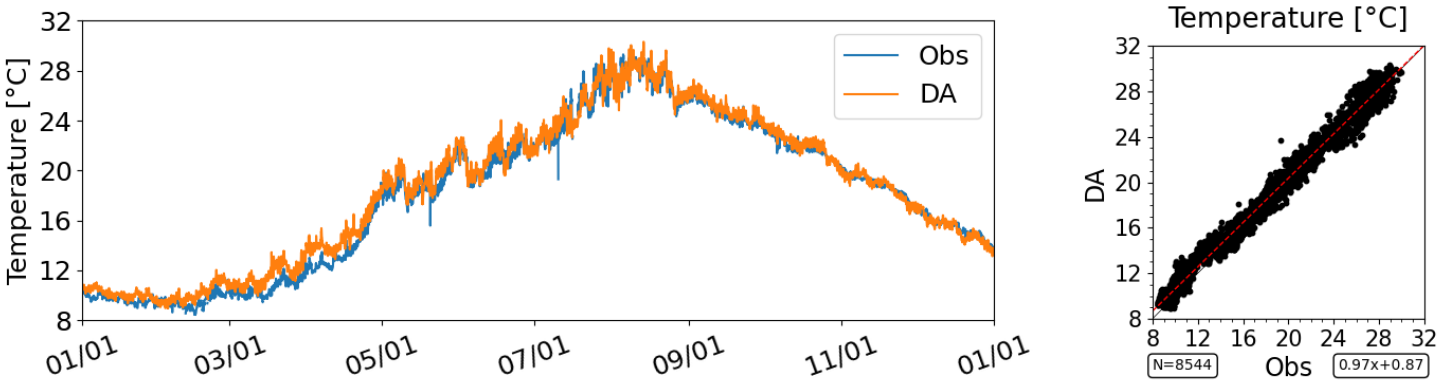


(b) Middle layer

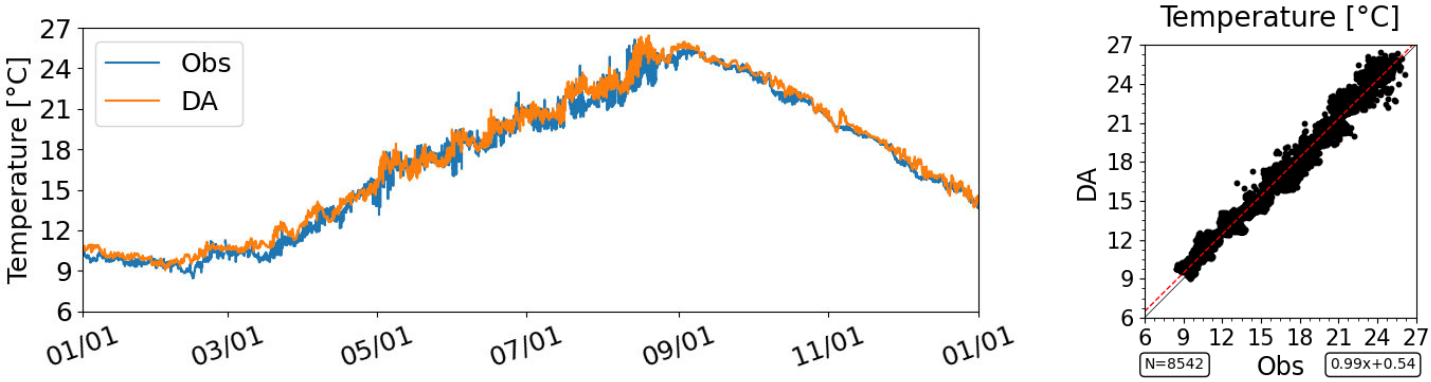


(c) Bottom layer

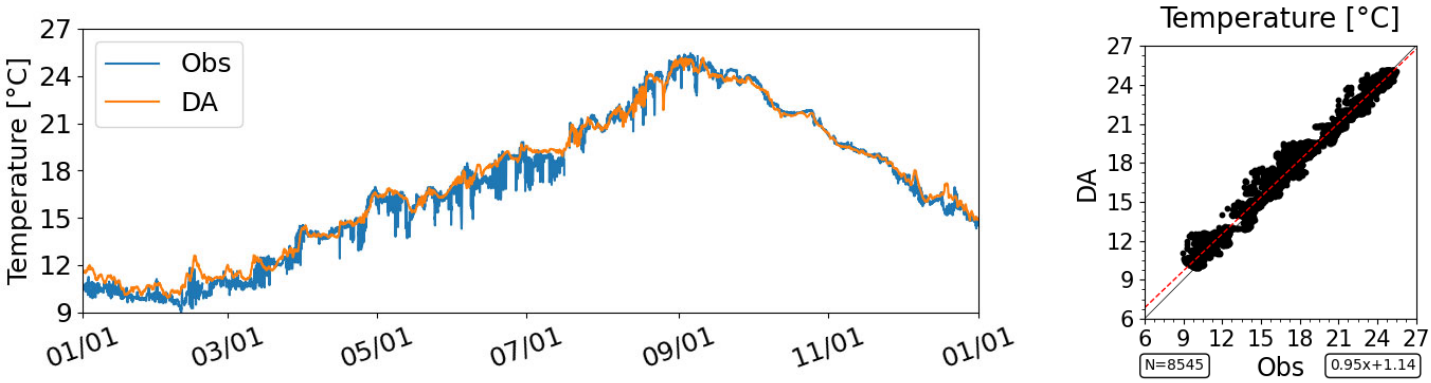
Figure S3.100 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2014



(a) Surface layer

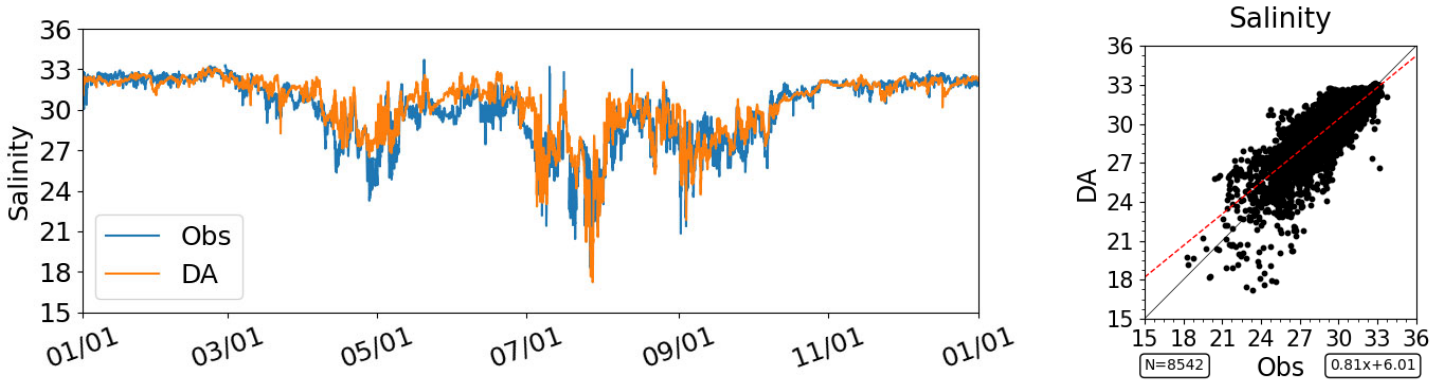


(b) Middle layer

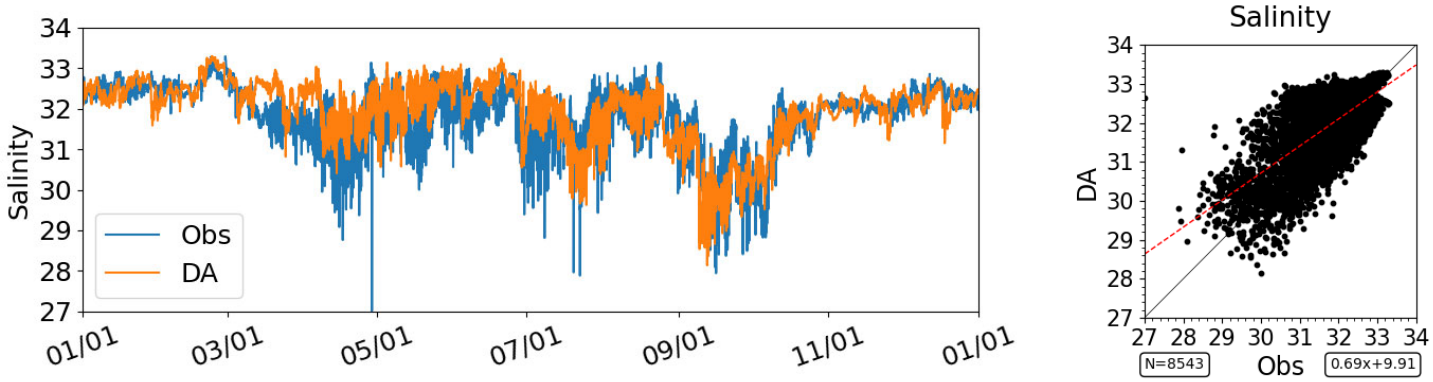


(c) Bottom layer

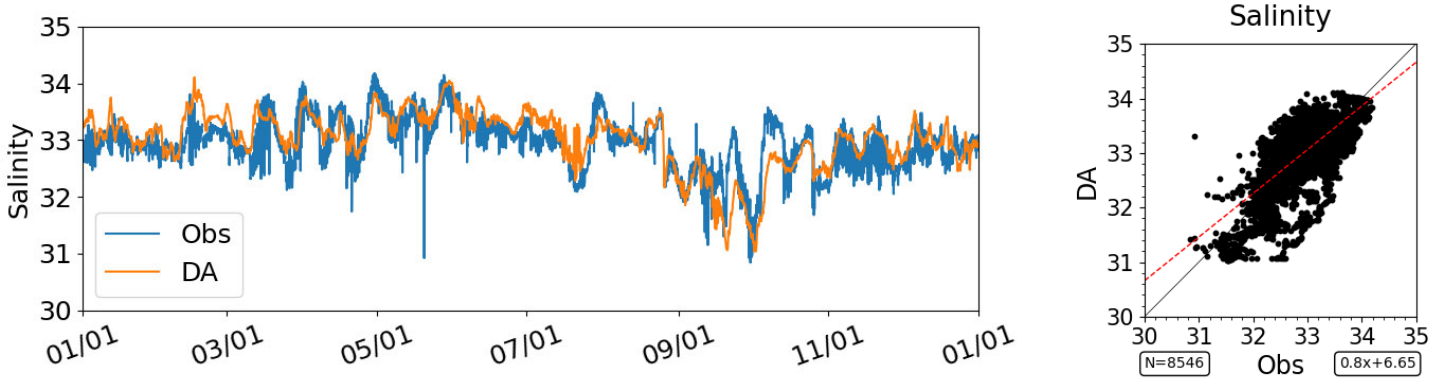
Figure S3.101 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2015



(a) Surface layer

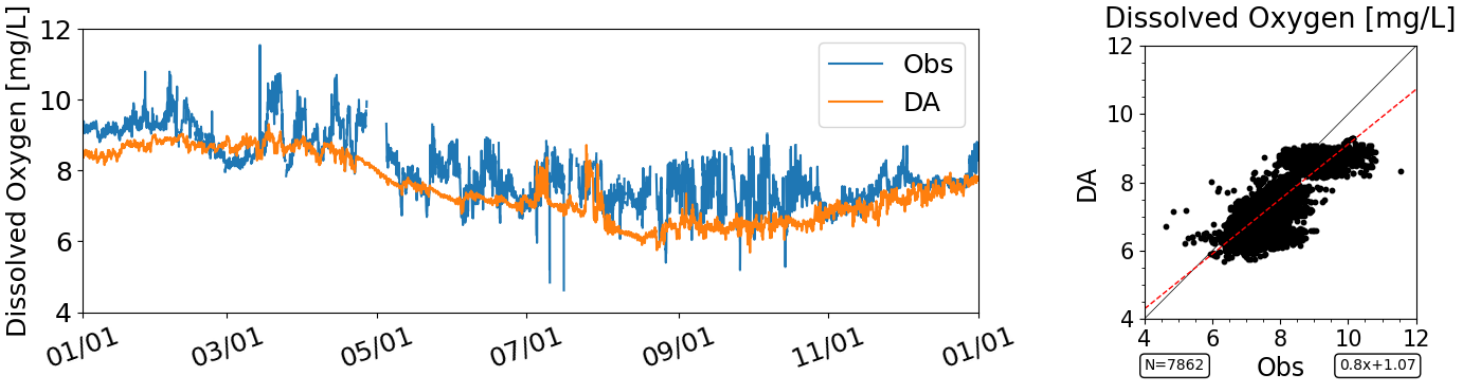


(b) Middle layer

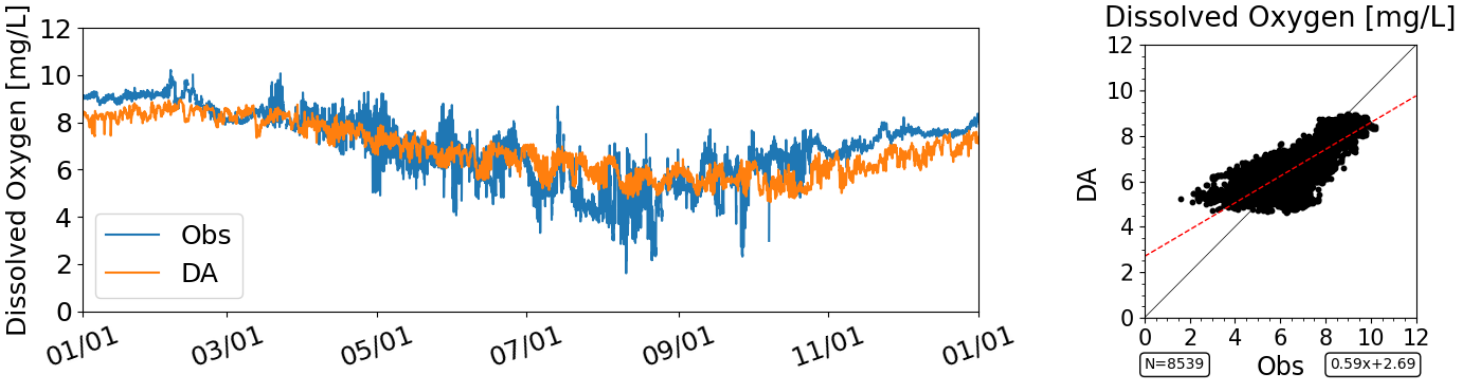


(c) Bottom layer

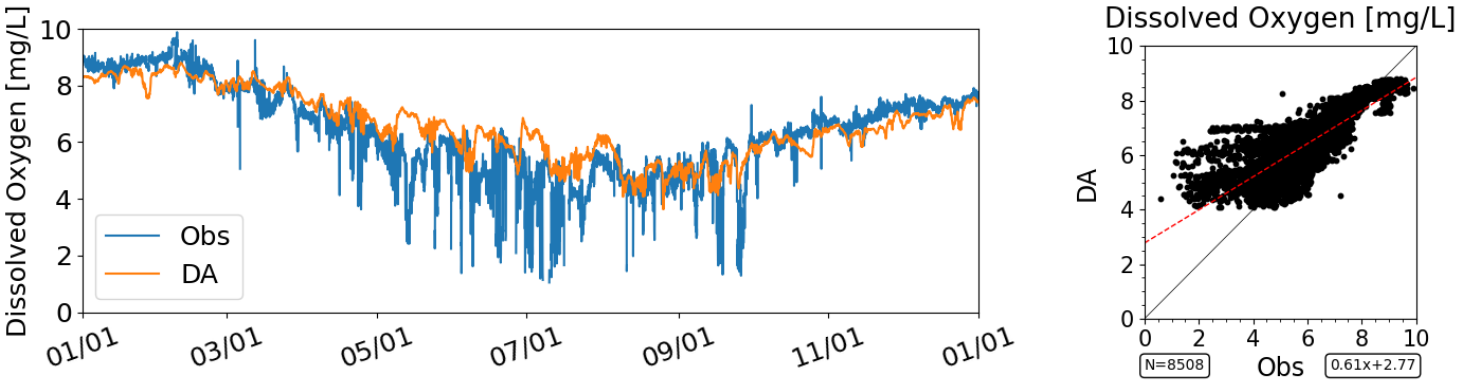
Figure S3.102 Timeseries and scatter plot for salinity at Center of Ise Bay in 2015



(a) Surface layer



(b) Middle layer

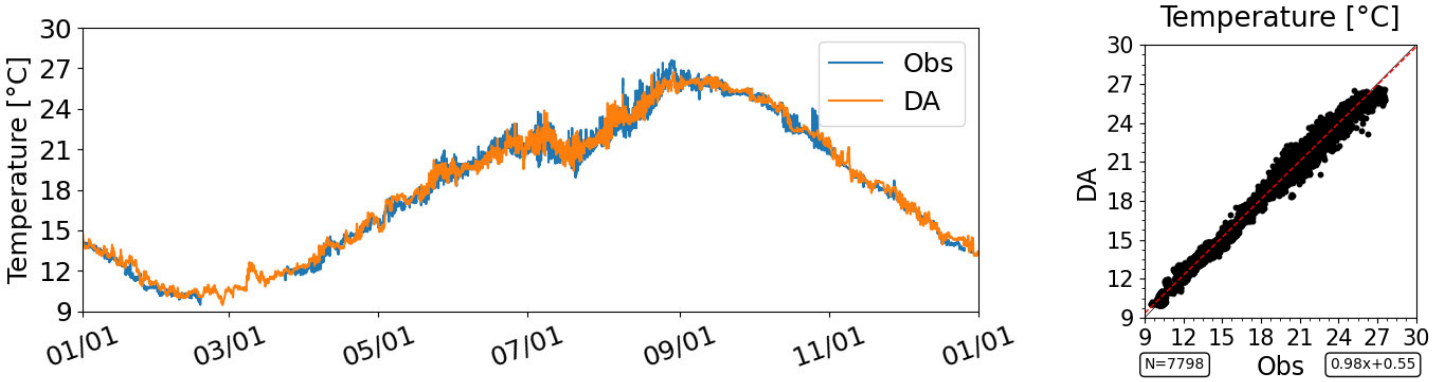


(c) Bottom layer

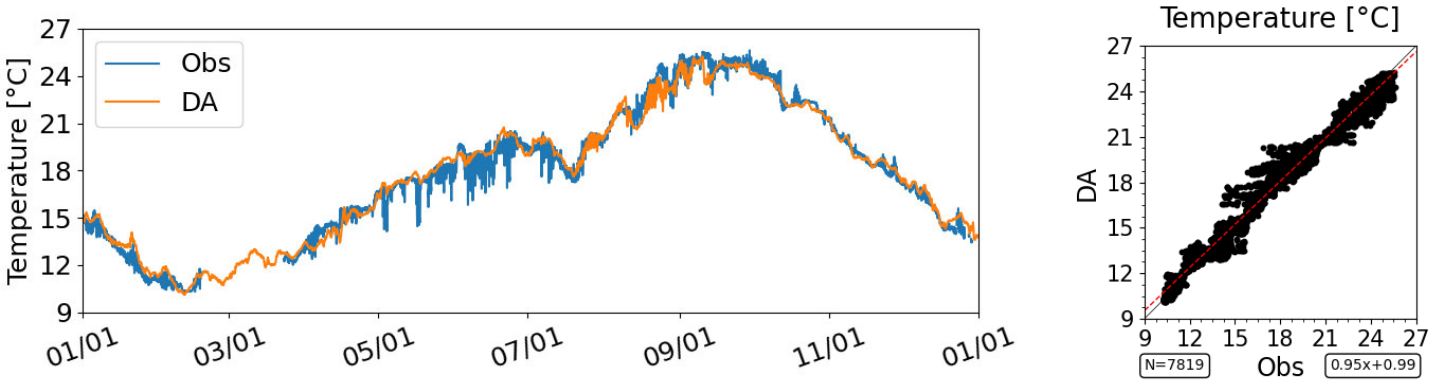
Figure S3.103 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2015



(a) Surface layer

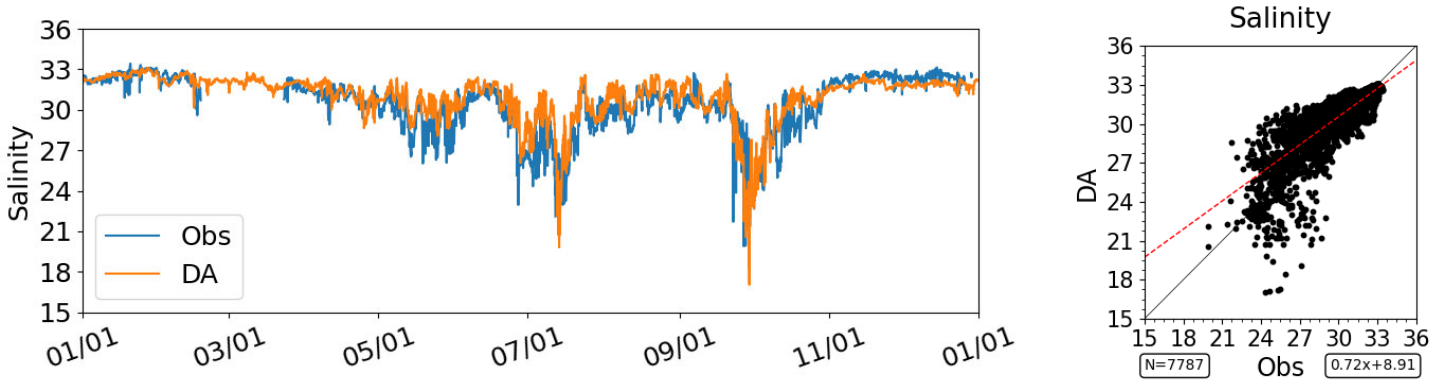


(b) Middle layer

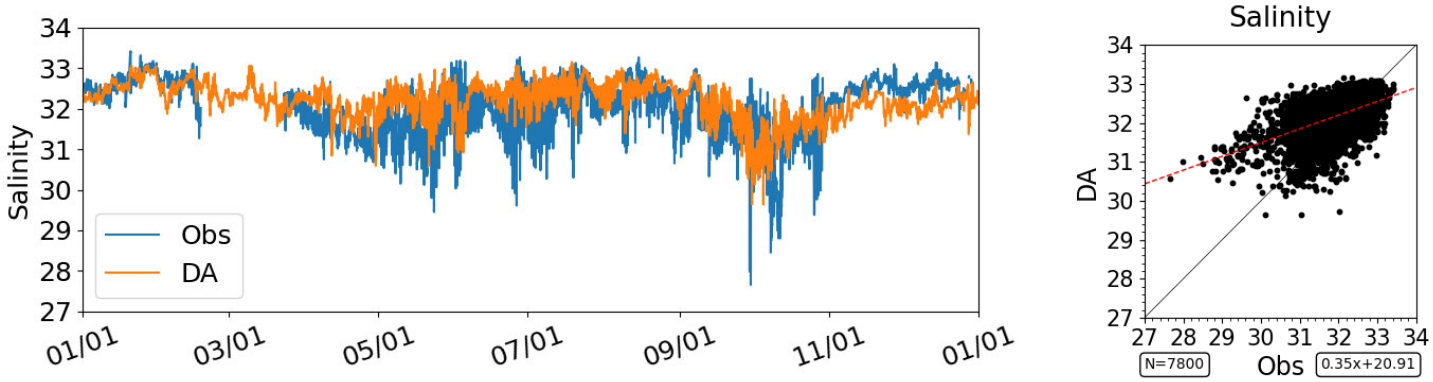


(c) Bottom layer

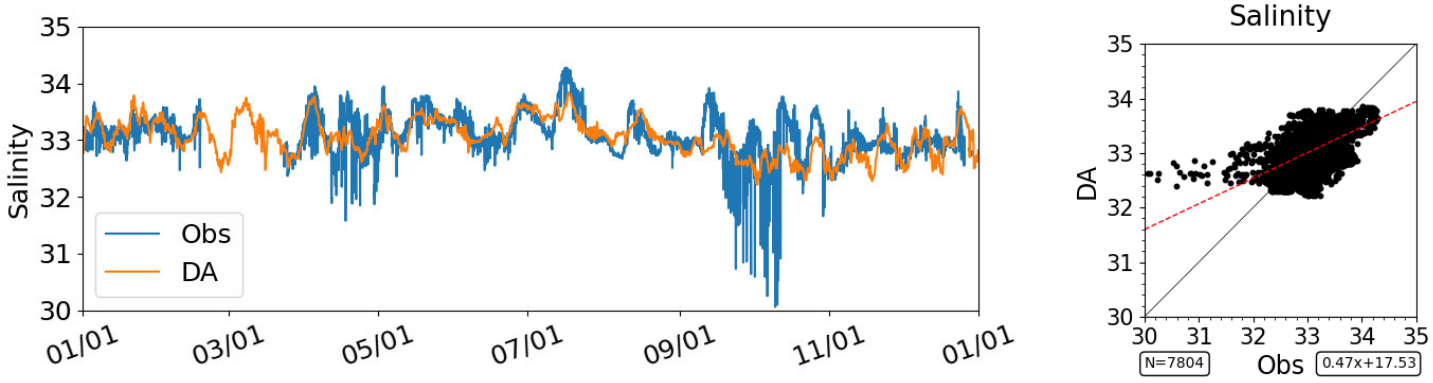
Figure S3.104 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2016



(a) Surface layer

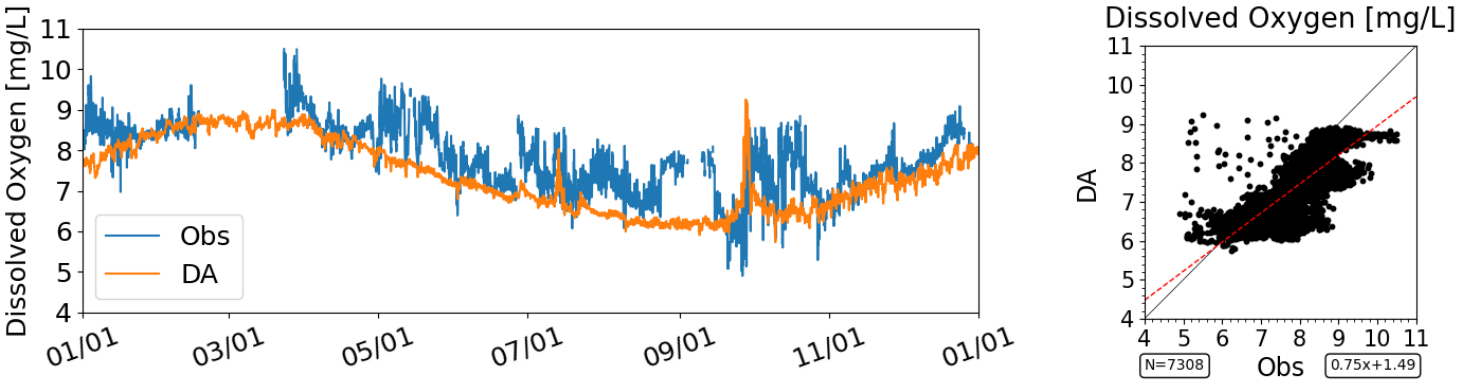


(b) Middle layer

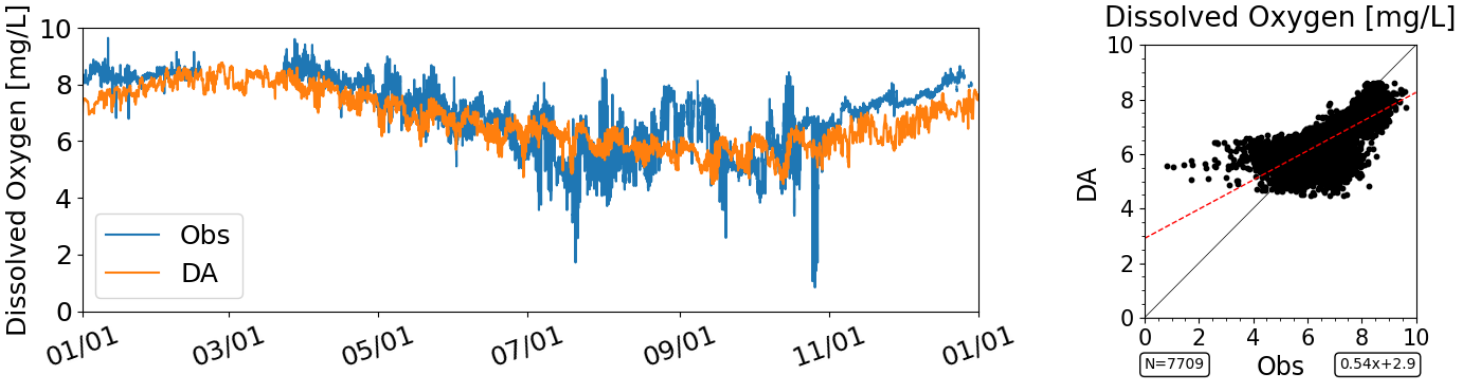


(c) Bottom layer

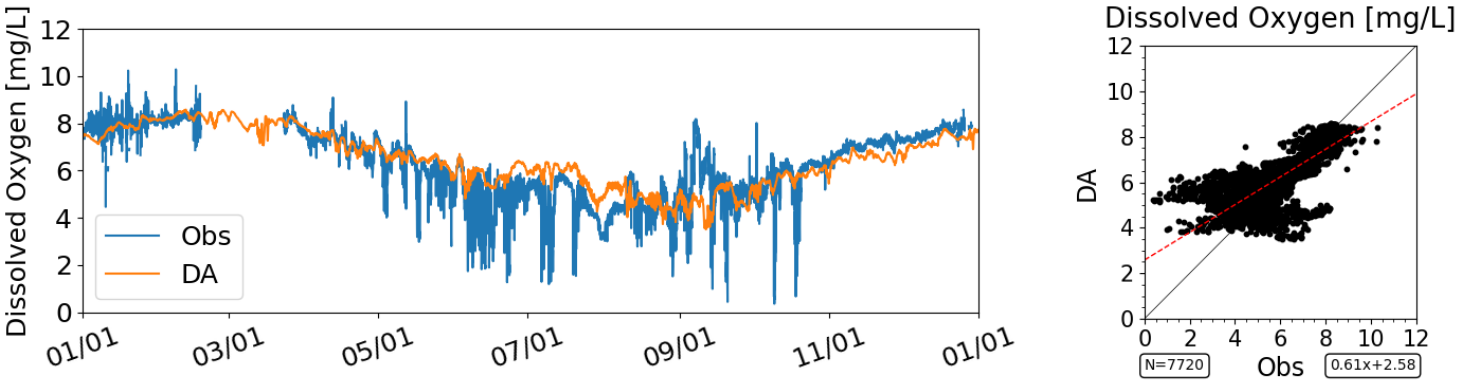
Figure S3.105 Timeseries and scatter plot for salinity at Center of Ise Bay in 2016



(a) Surface layer

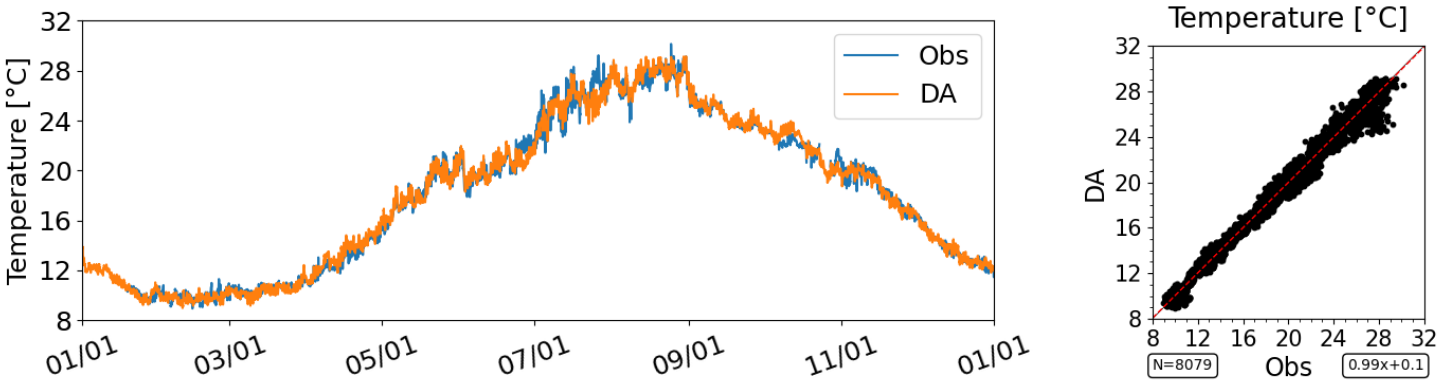


(b) Middle layer

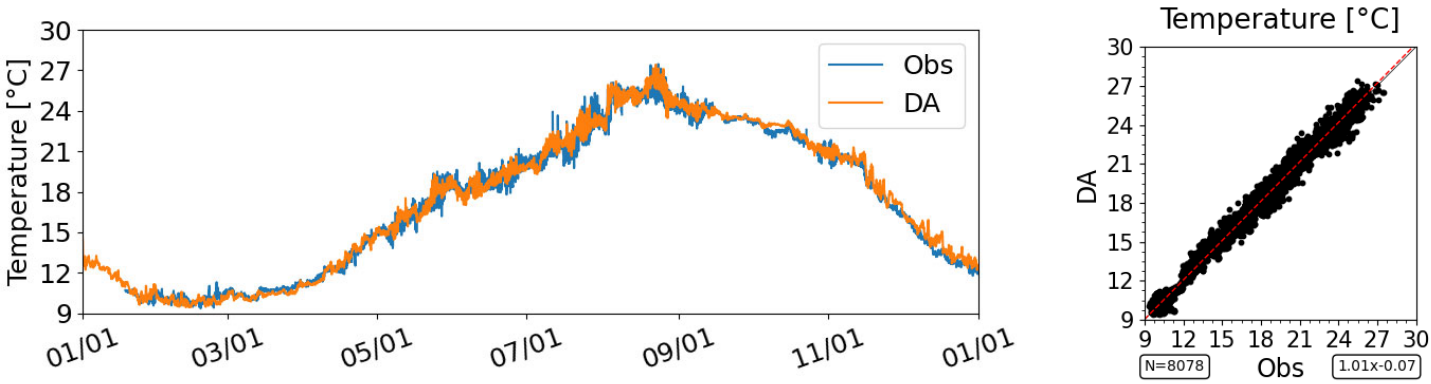


(c) Bottom layer

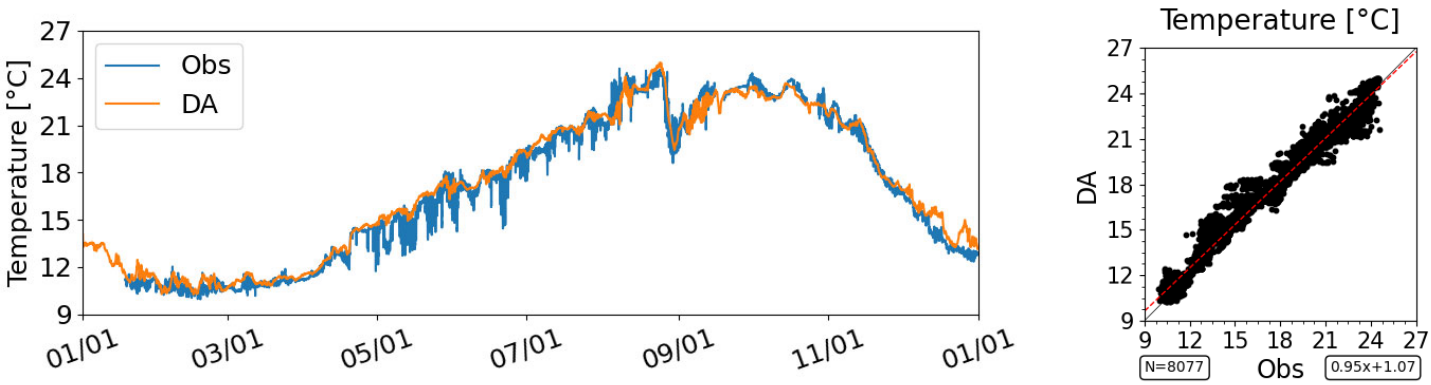
Figure S3.106 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2016



(a) Surface layer

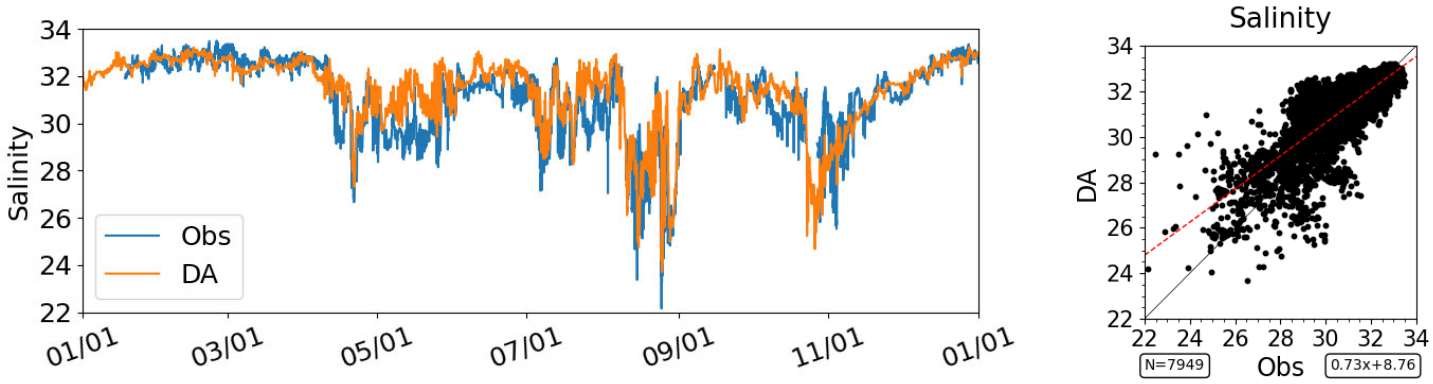


(b) Middle layer

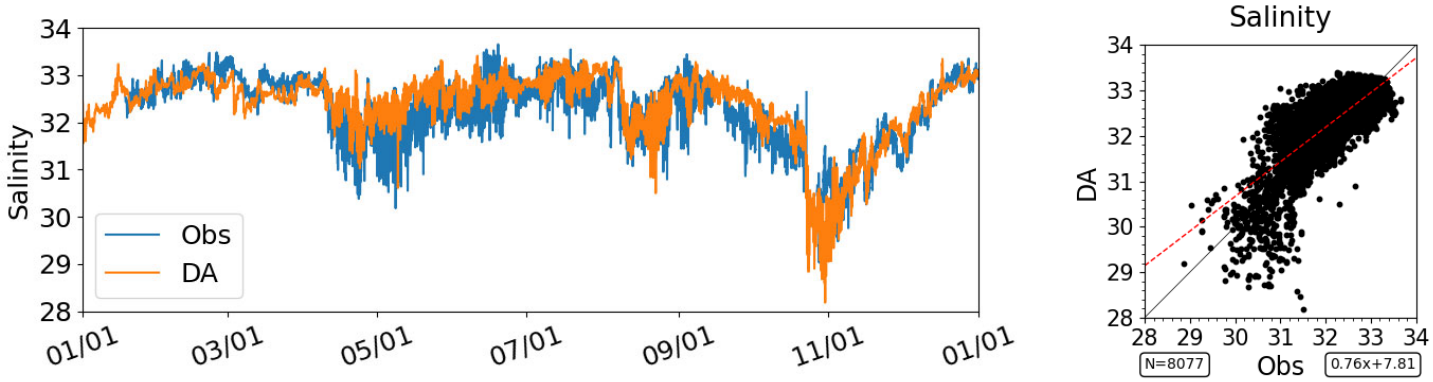


(c) Bottom layer

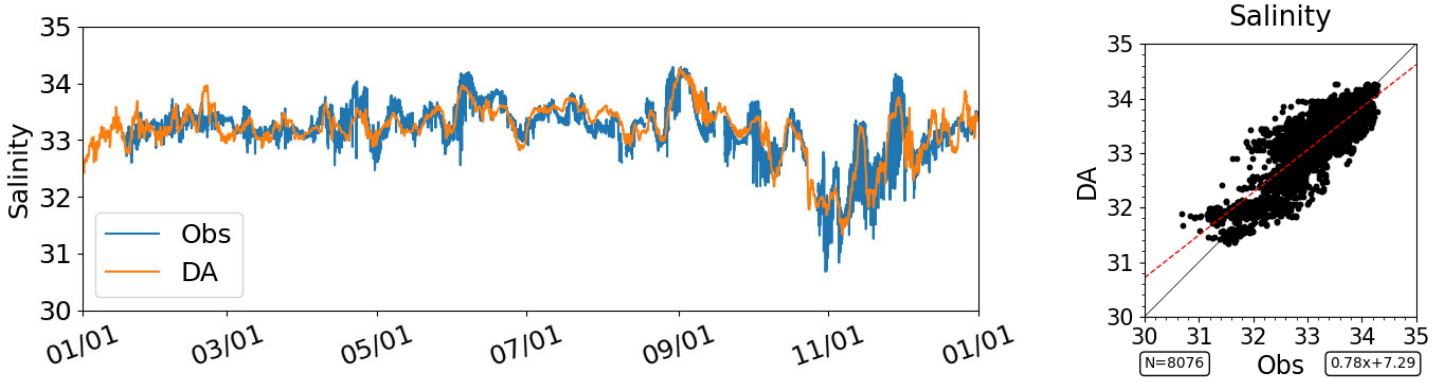
Figure S3.107 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2017



(a) Surface layer

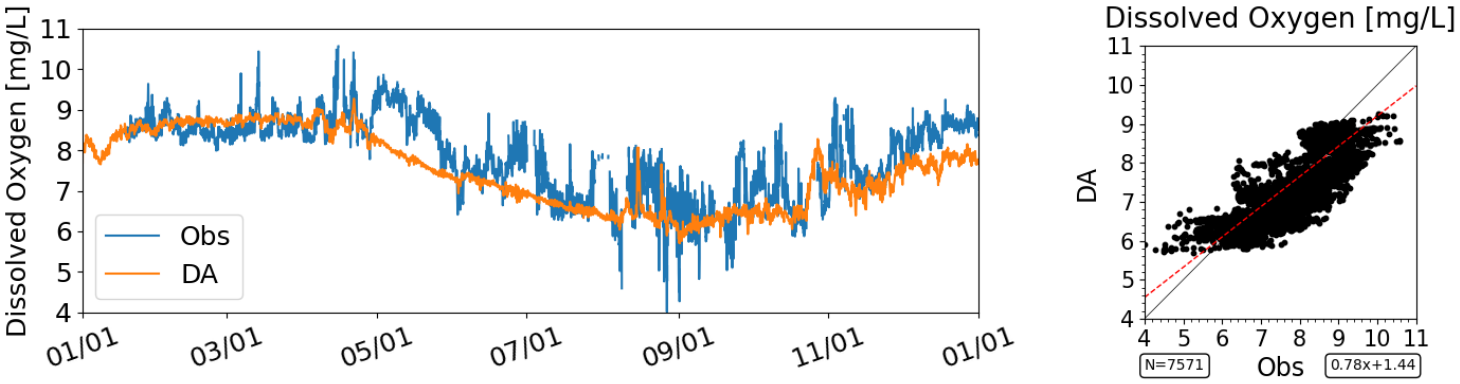


(b) Middle layer

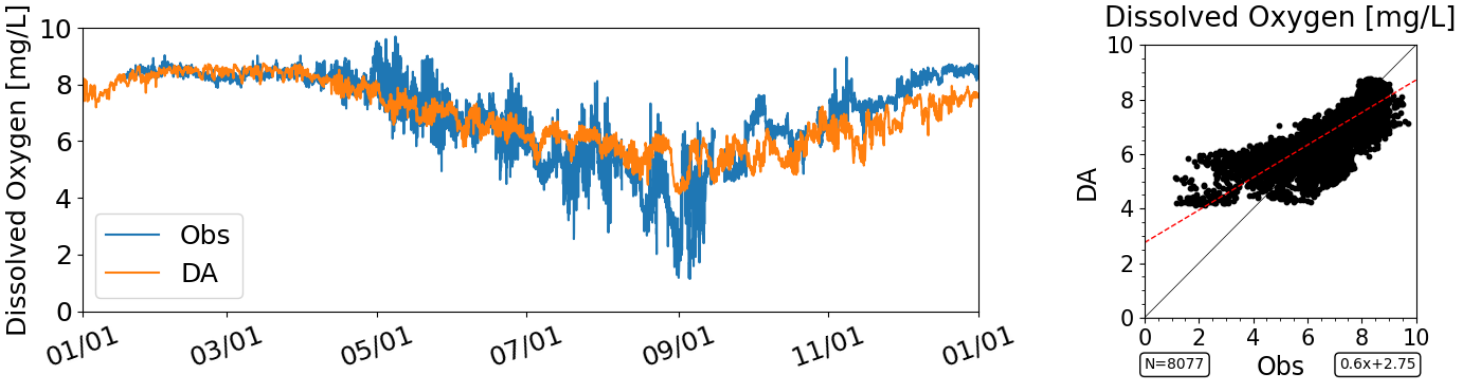


(c) Bottom layer

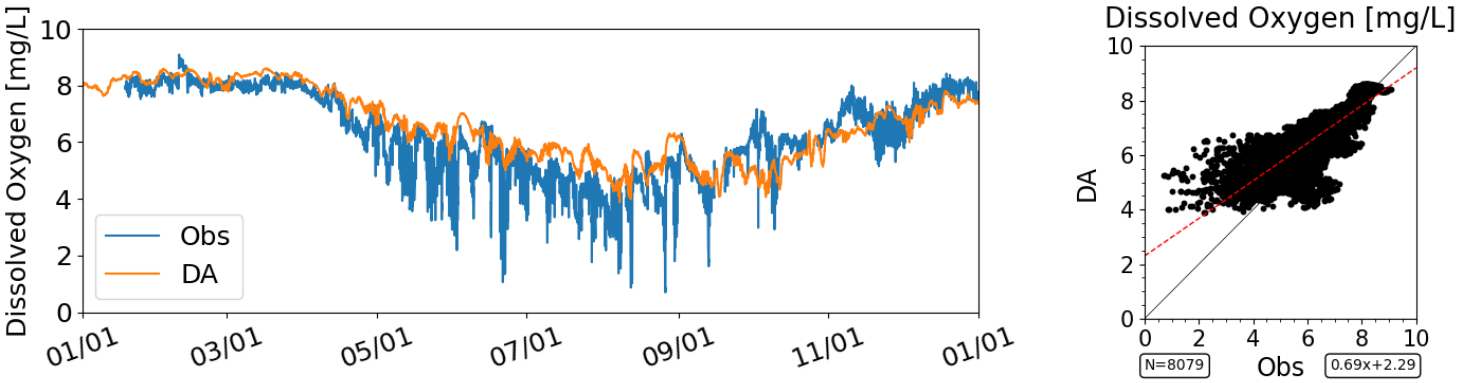
Figure S3.108 Timeseries and scatter plot for salinity at Center of Ise Bay in 2017



(a) Surface layer

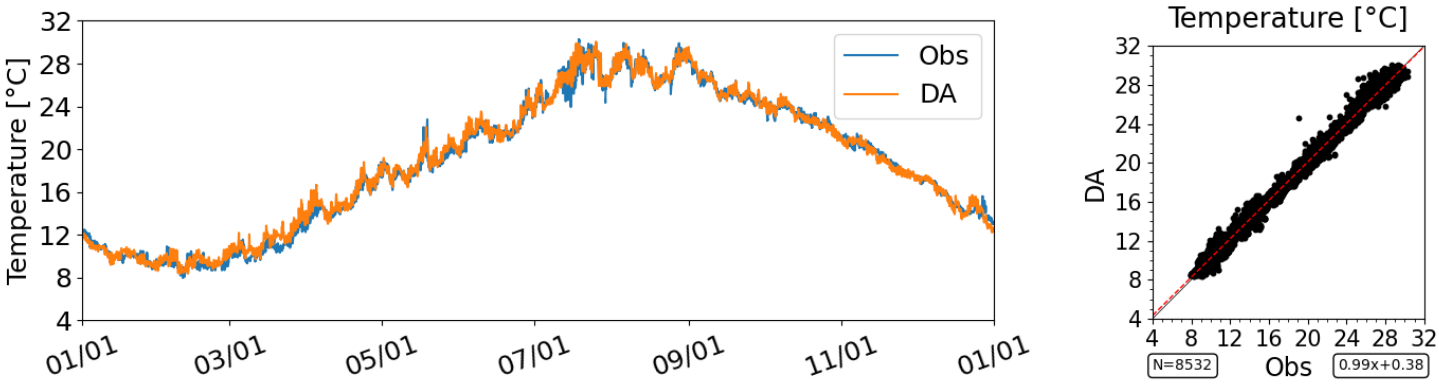


(b) Middle layer

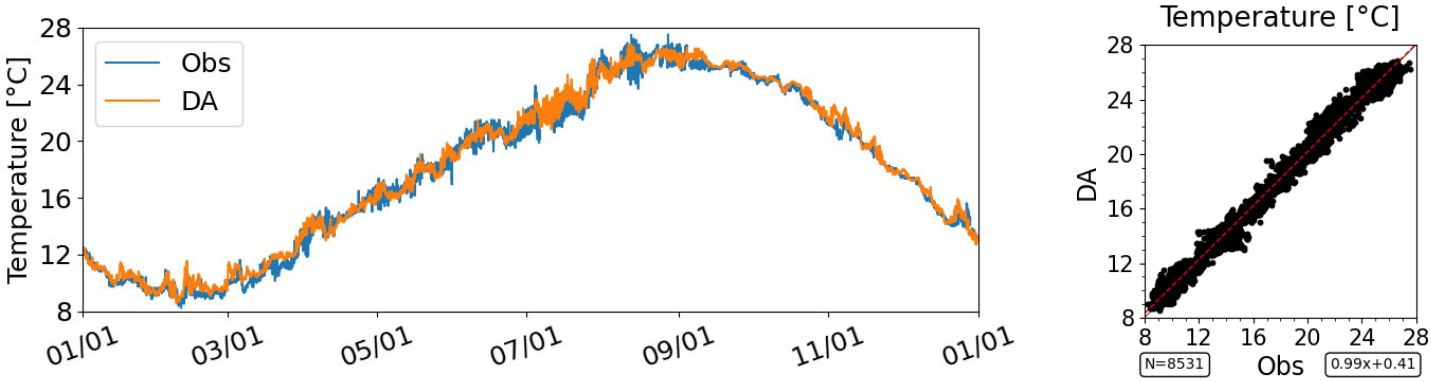


(c) Bottom layer

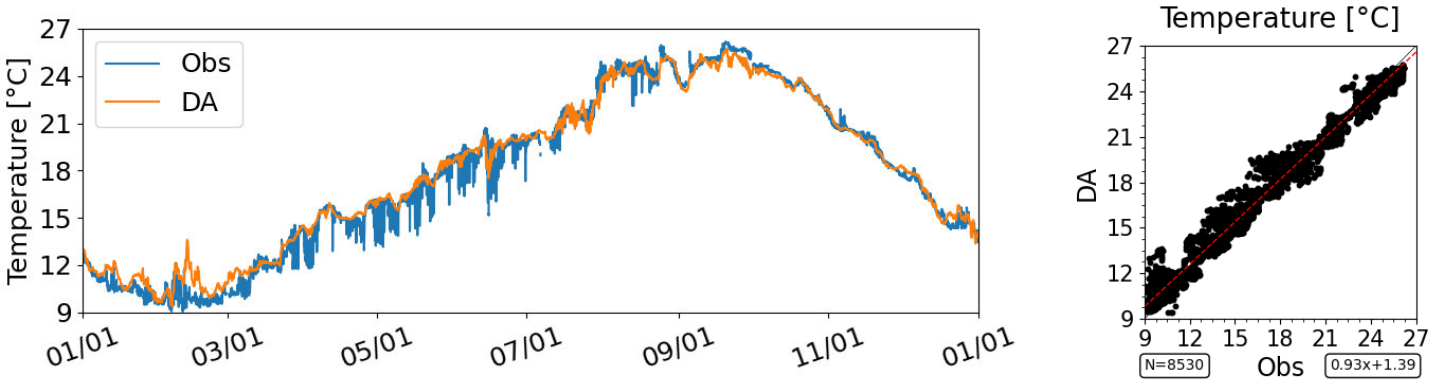
Figure S3.109 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2017



(a) Surface layer

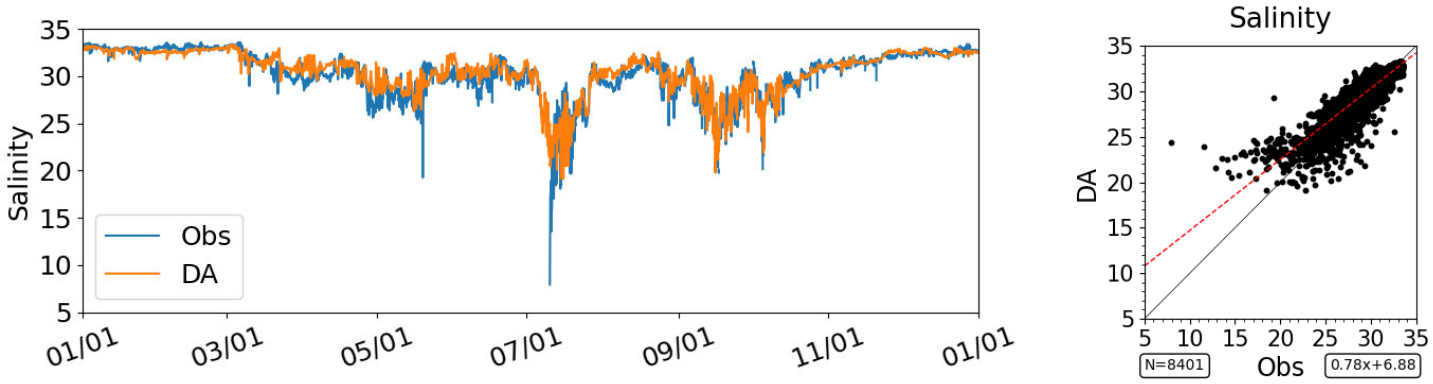


(b) Middle layer

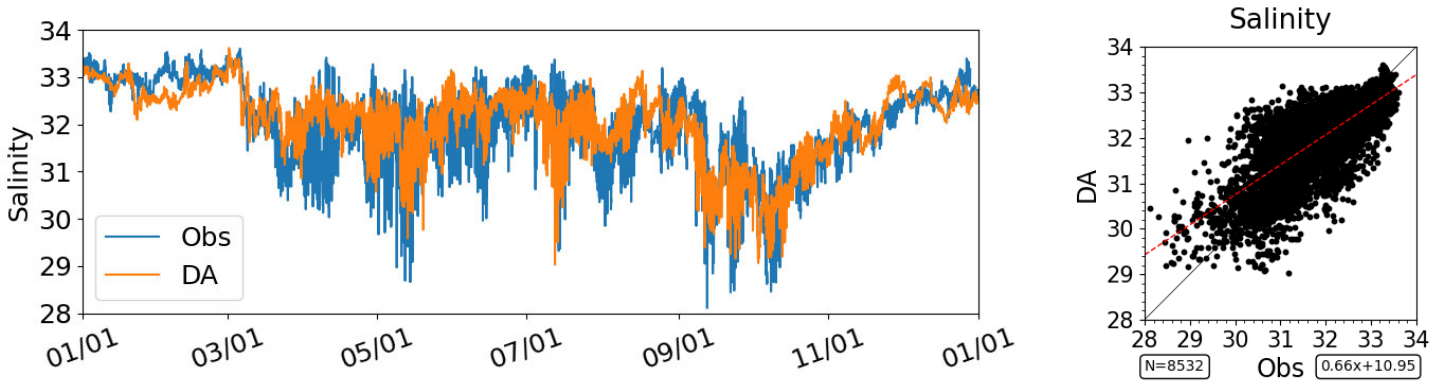


(c) Bottom layer

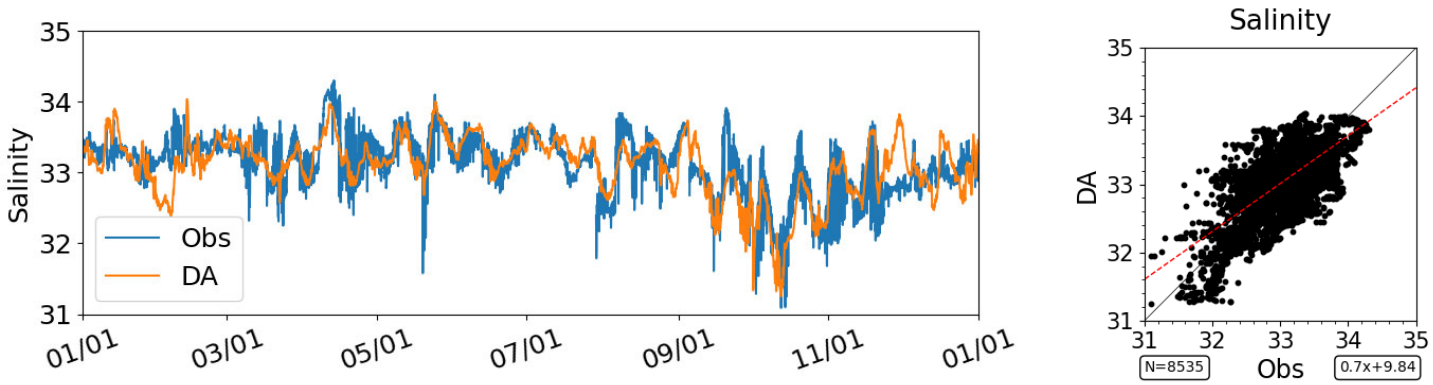
Figure S3.110 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2018



(a) Surface layer

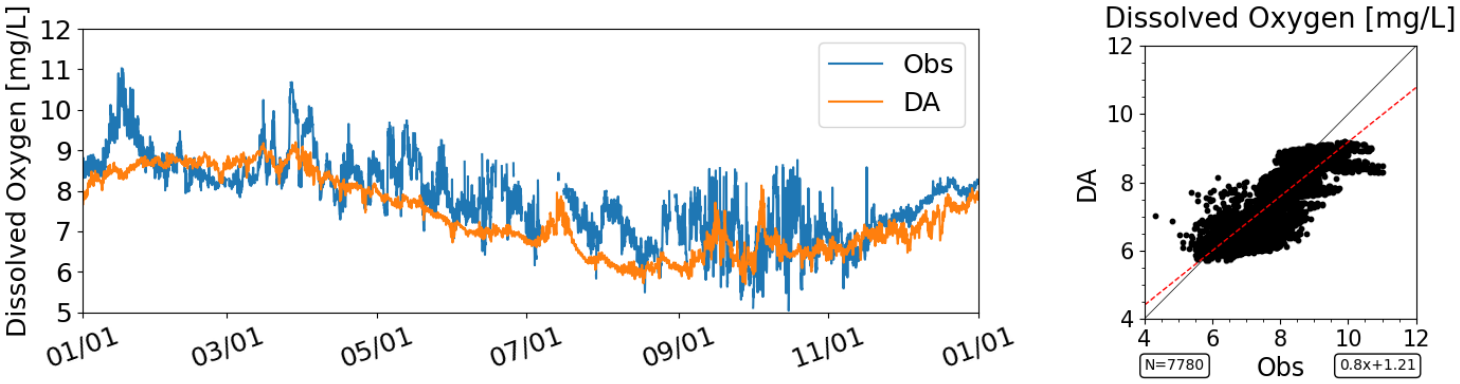


(b) Middle layer

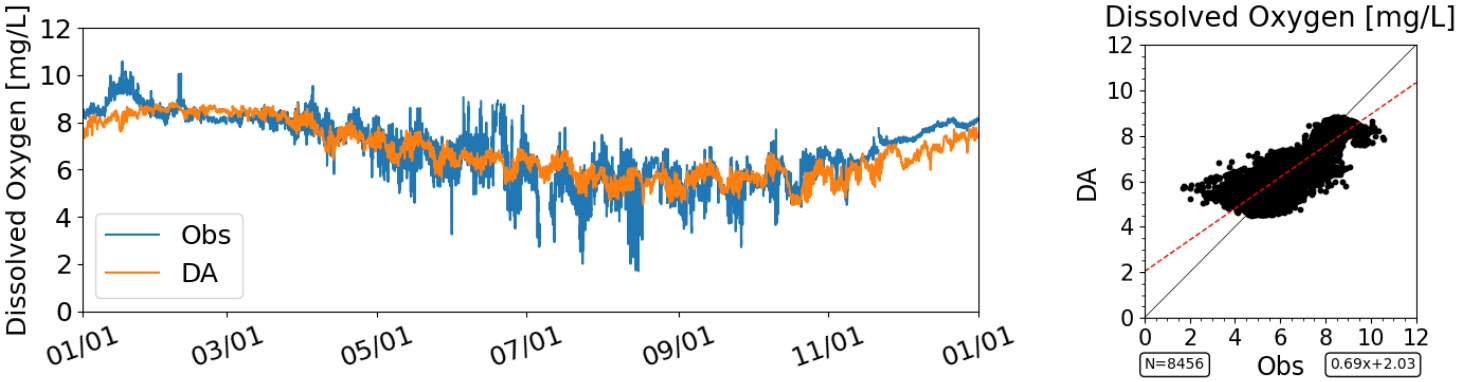


(c) Bottom layer

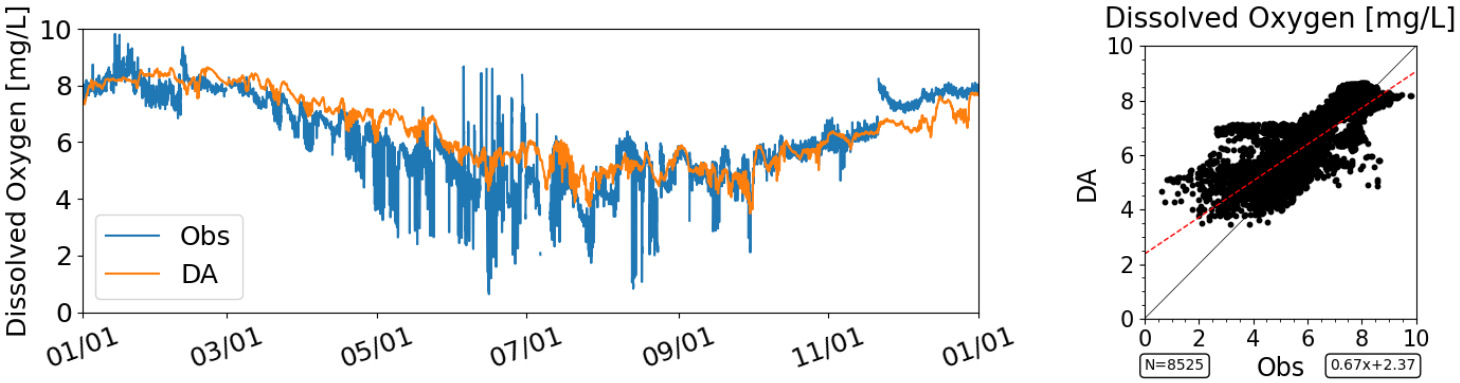
Figure S3.111 Timeseries and scatter plot for salinity at Center of Ise Bay in 2018



(a) Surface layer

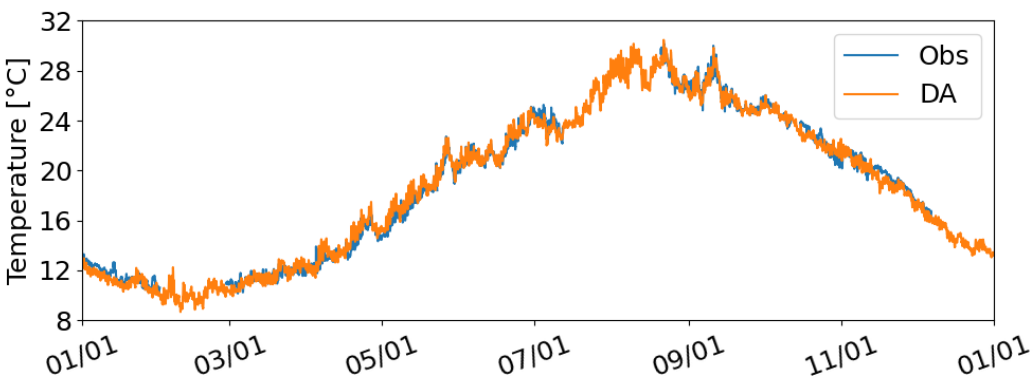


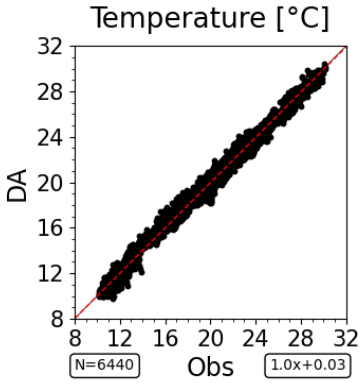
(b) Middle layer



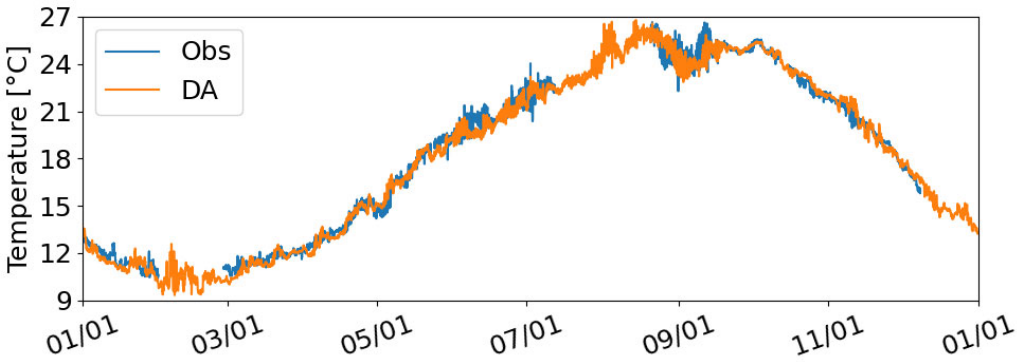
(c) Bottom layer

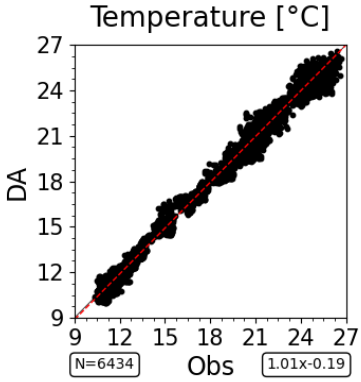
Figure S3.112 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2018



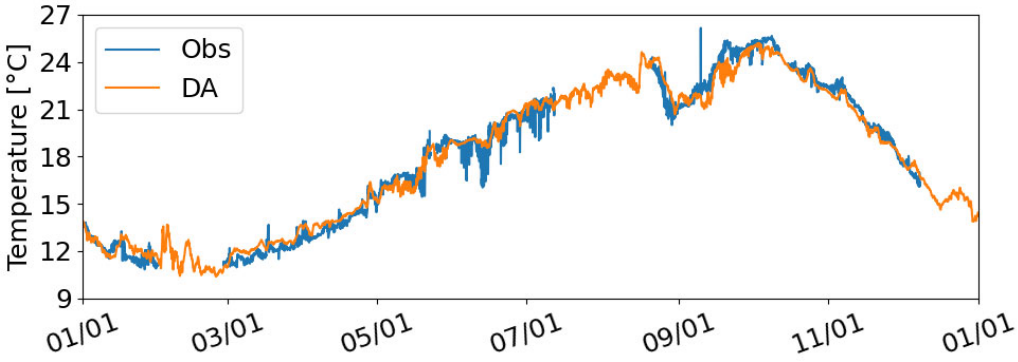


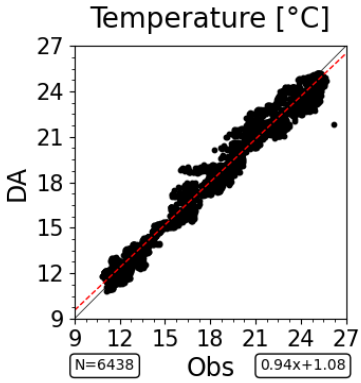
(a) Surface layer





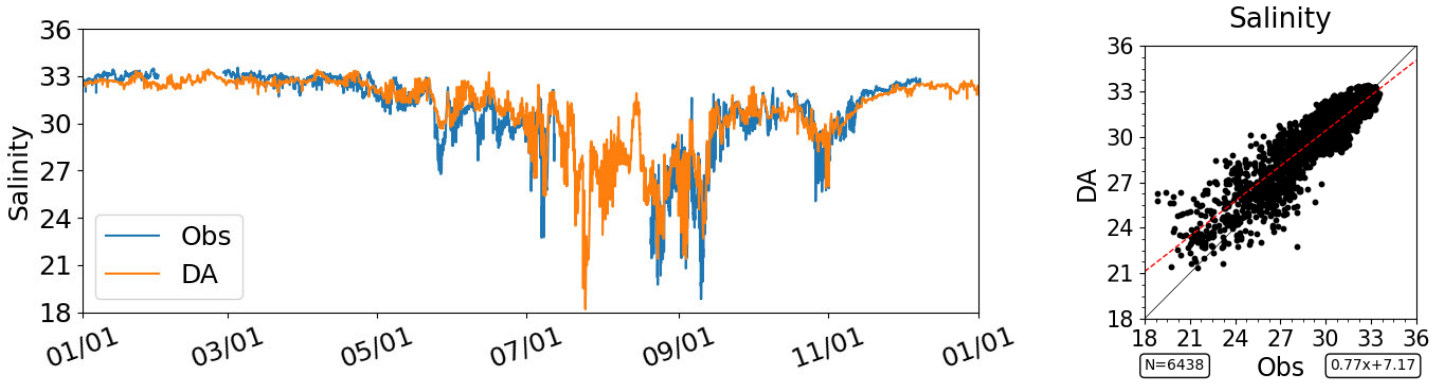
(b) Middle layer



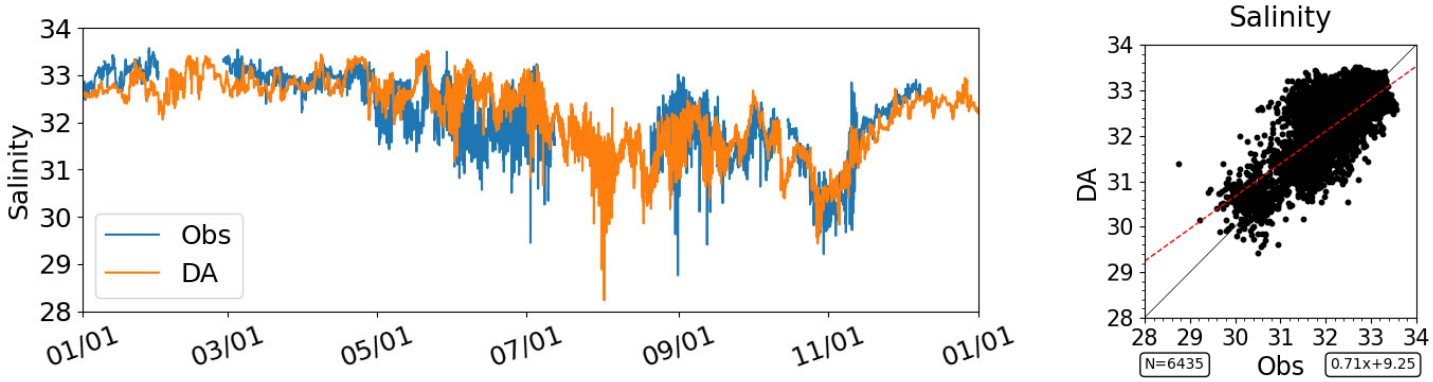


(c) Bottom layer

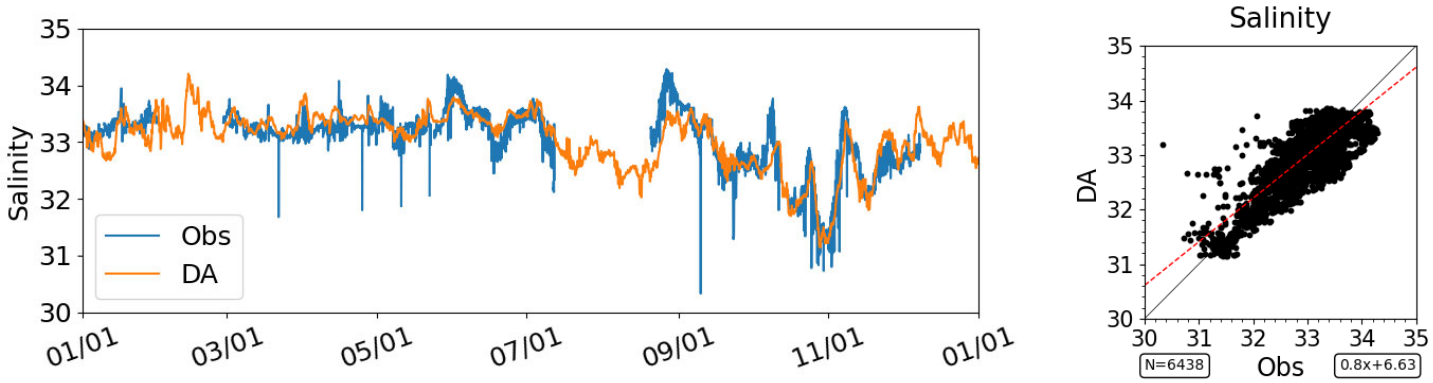
Figure S3.113 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2019



(a) Surface layer

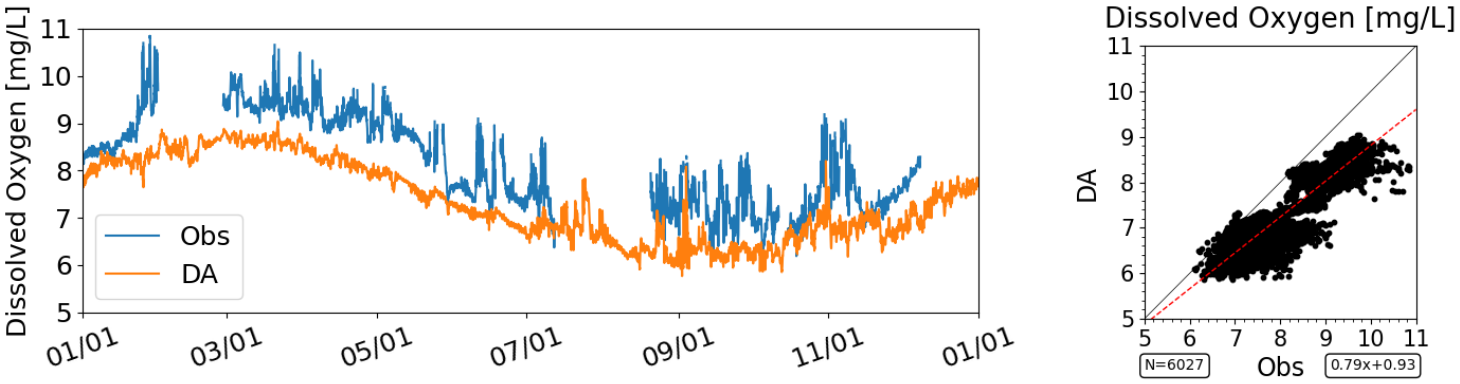


(b) Middle layer

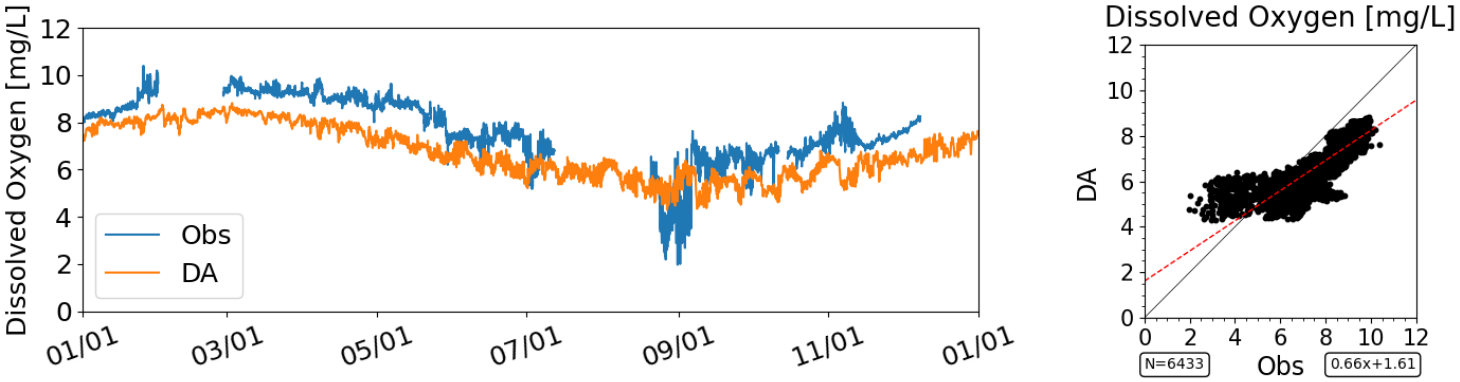


(c) Bottom layer

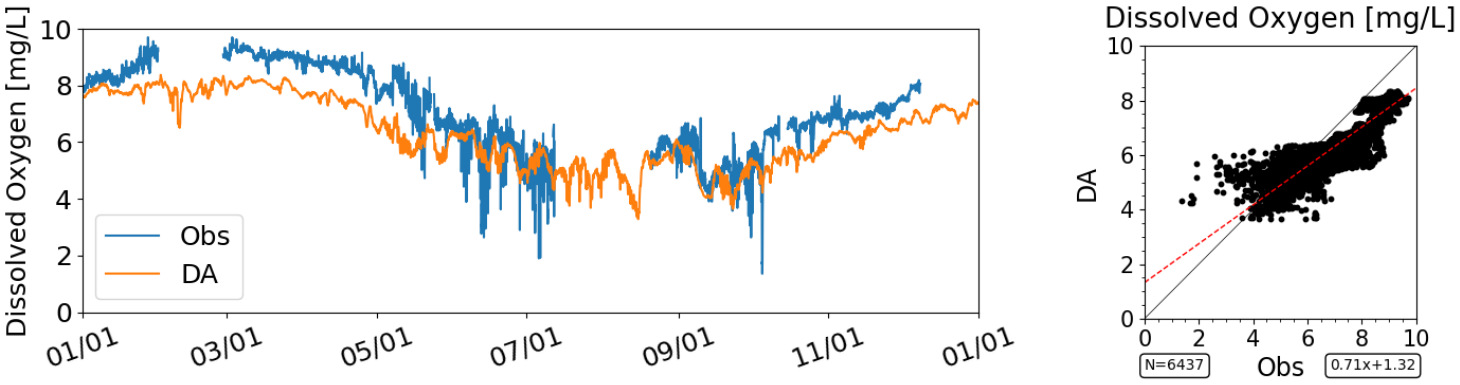
Figure S3.114 Timeseries and scatter plot for salinity at Center of Ise Bay in 2019



(a) Surface layer

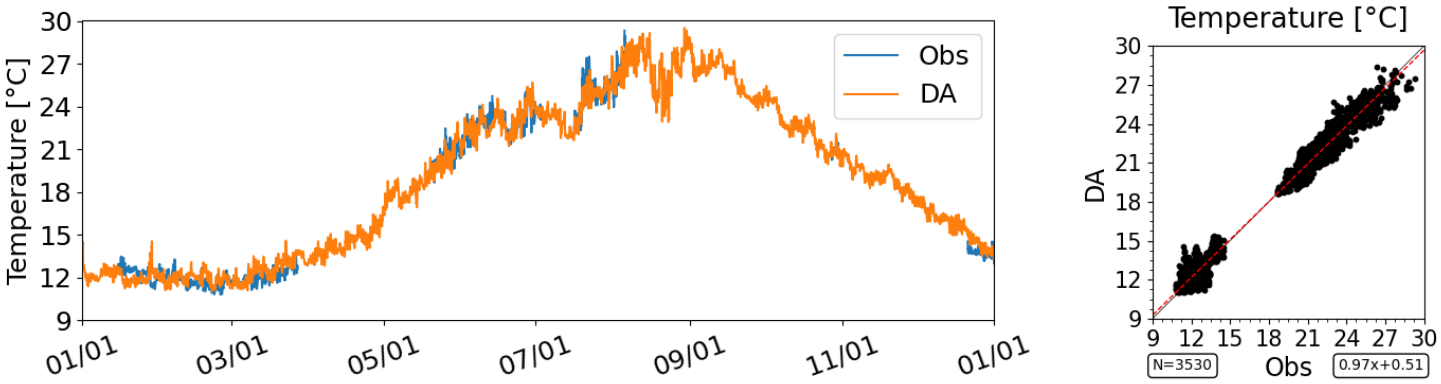


(b) Middle layer

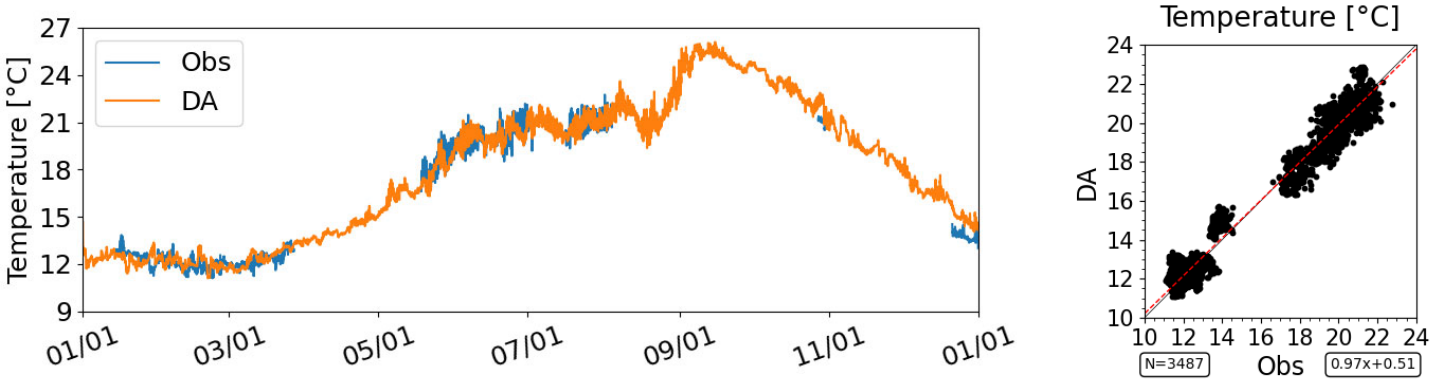


(c) Bottom layer

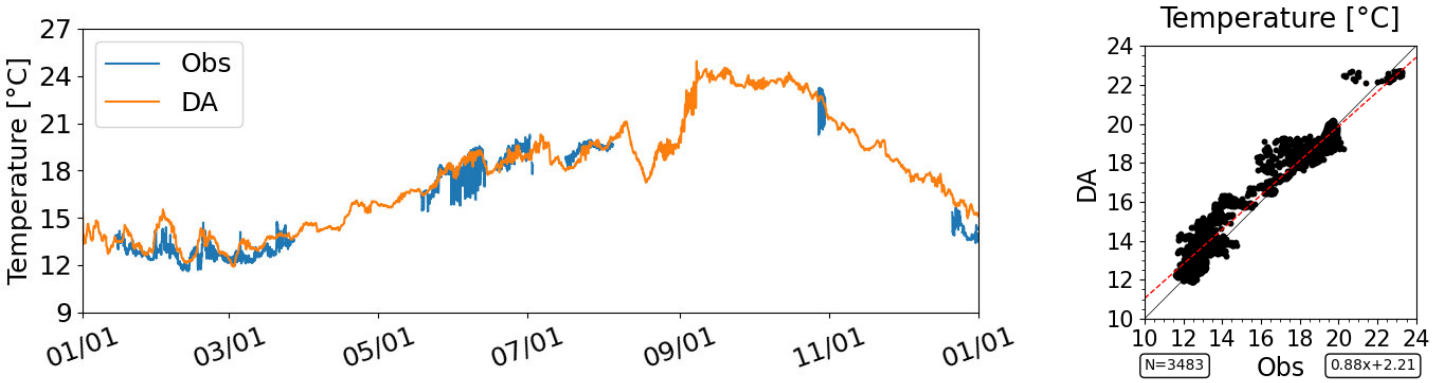
Figure S3.115 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2019



(a) Surface layer

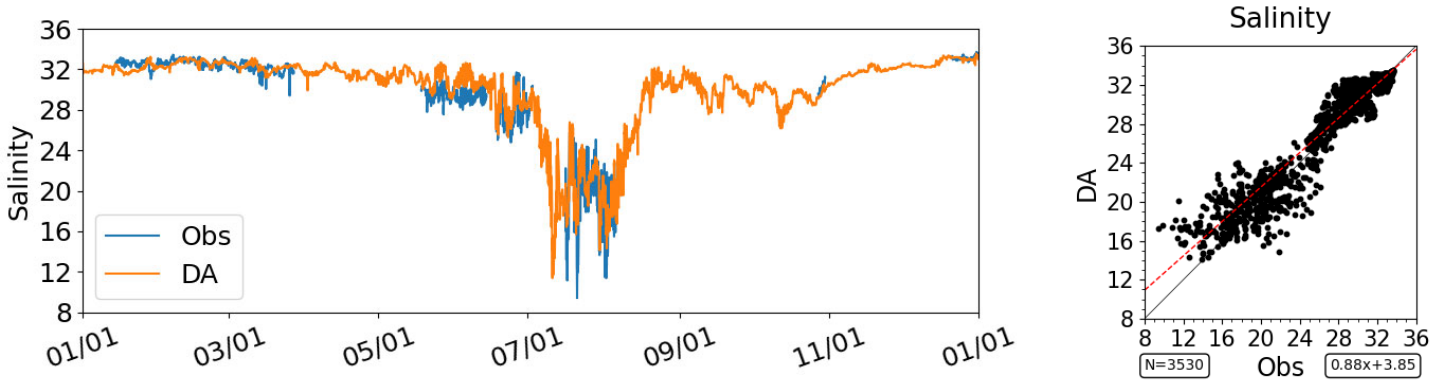


(b) Middle layer

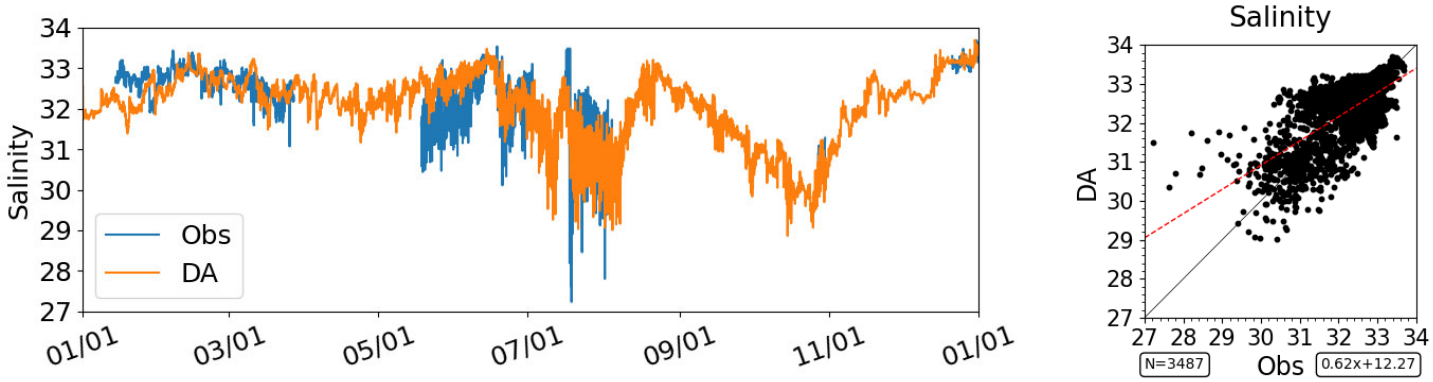


(c) Bottom layer

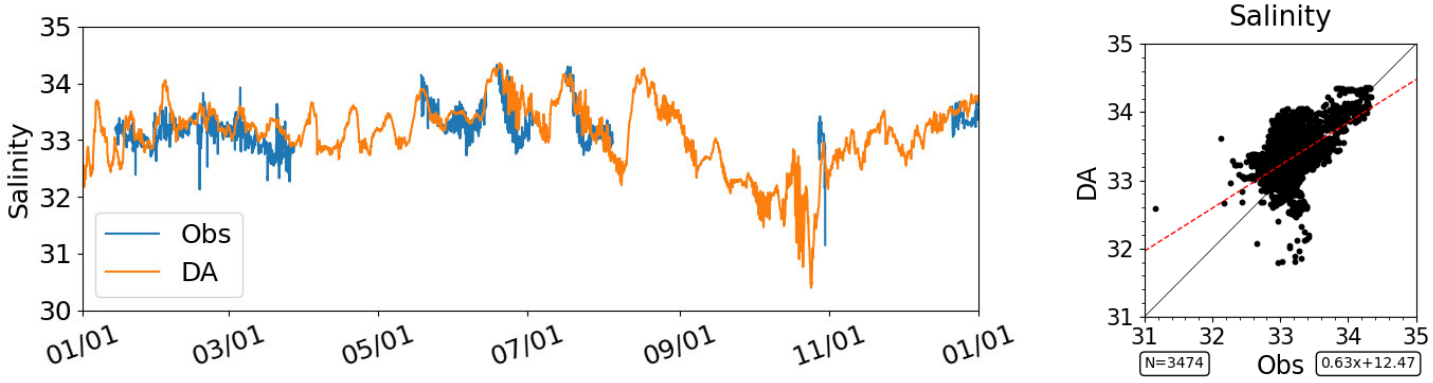
Figure S3.116 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2020



(a) Surface layer

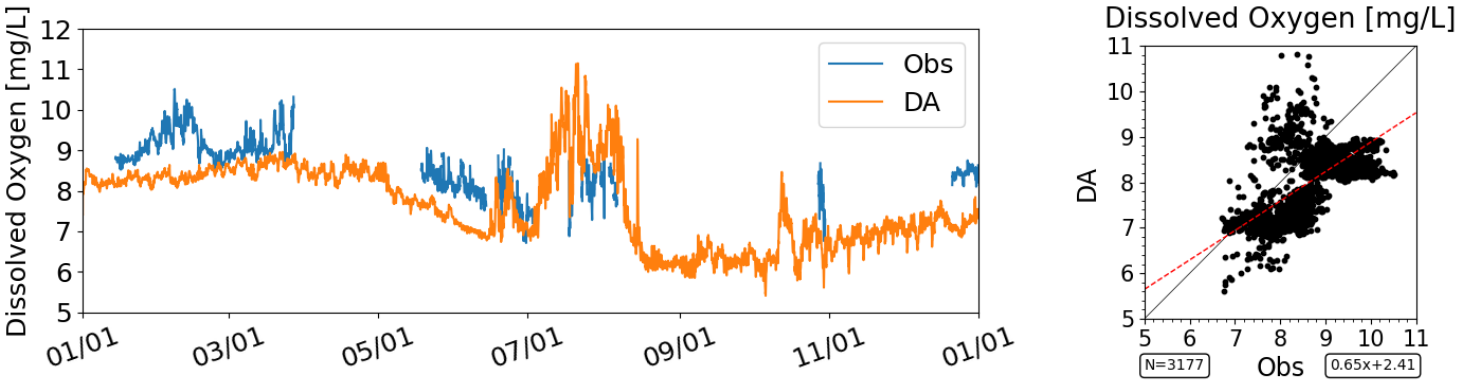


(b) Middle layer

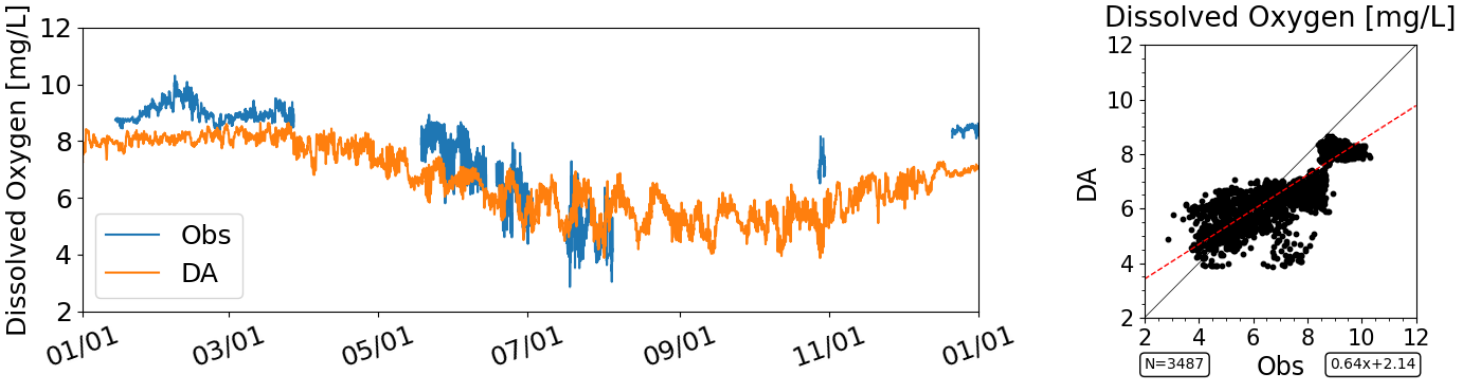


(c) Bottom layer

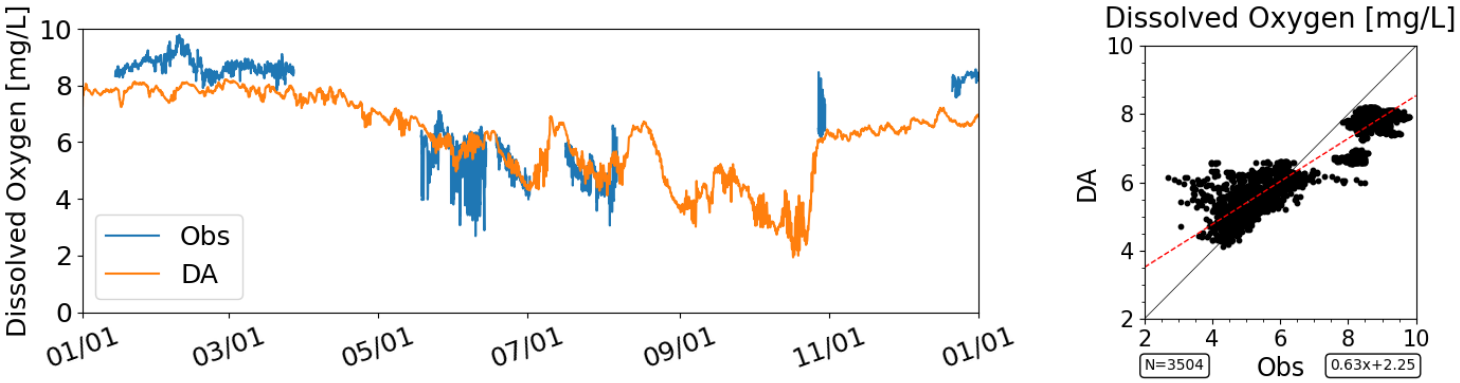
Figure S3.117 Timeseries and scatter plot for salinity at Center of Ise Bay in 2020



(a) Surface layer

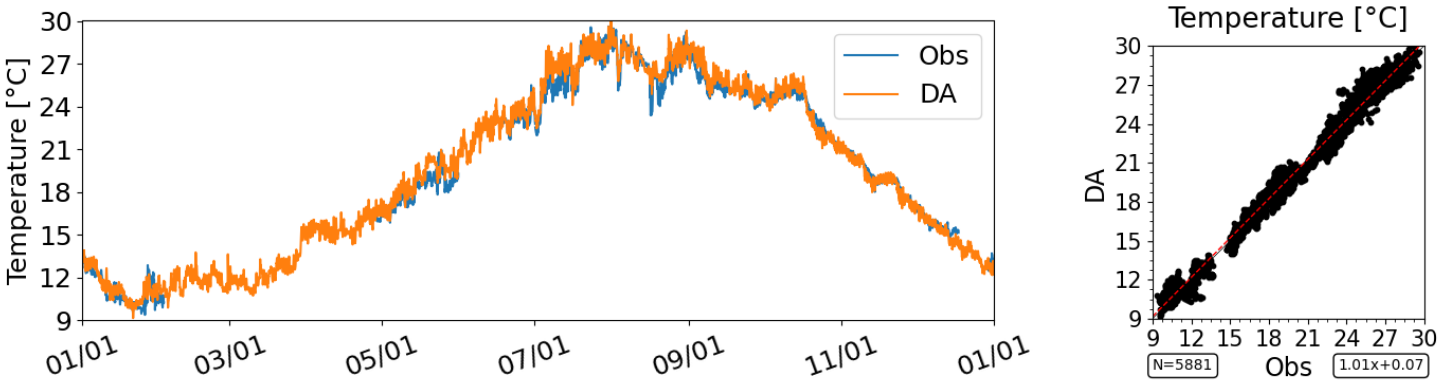


(b) Middle layer

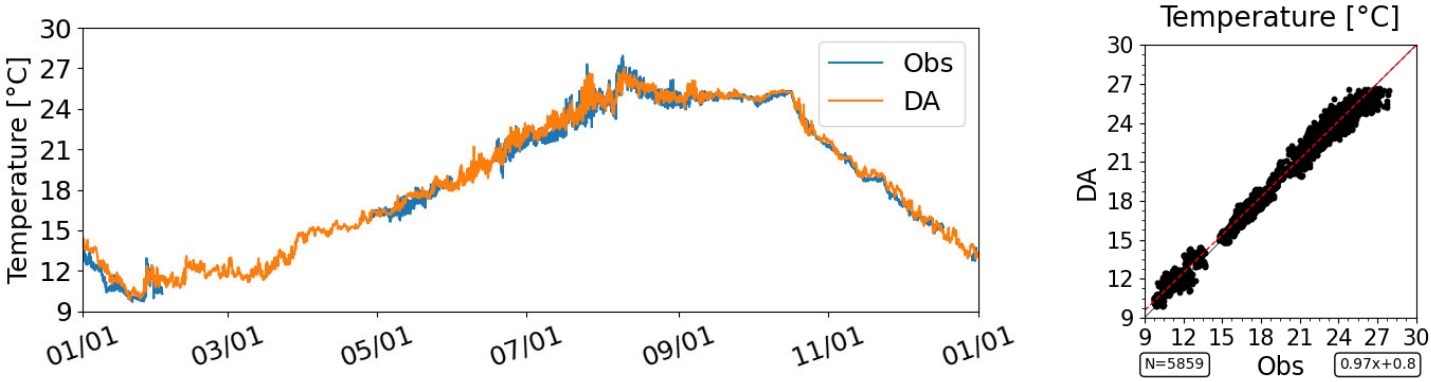


(c) Bottom layer

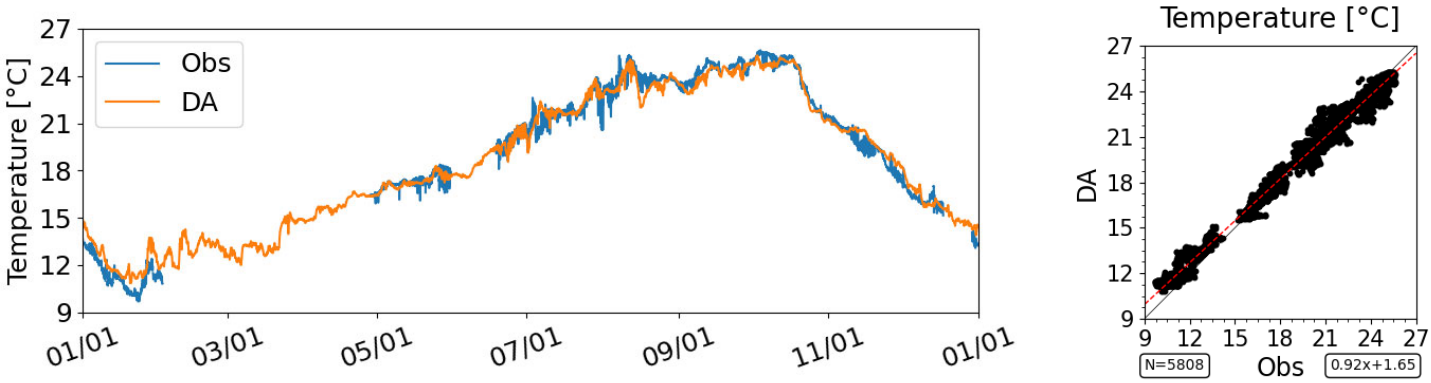
Figure S3.118 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2020



(a) Surface layer

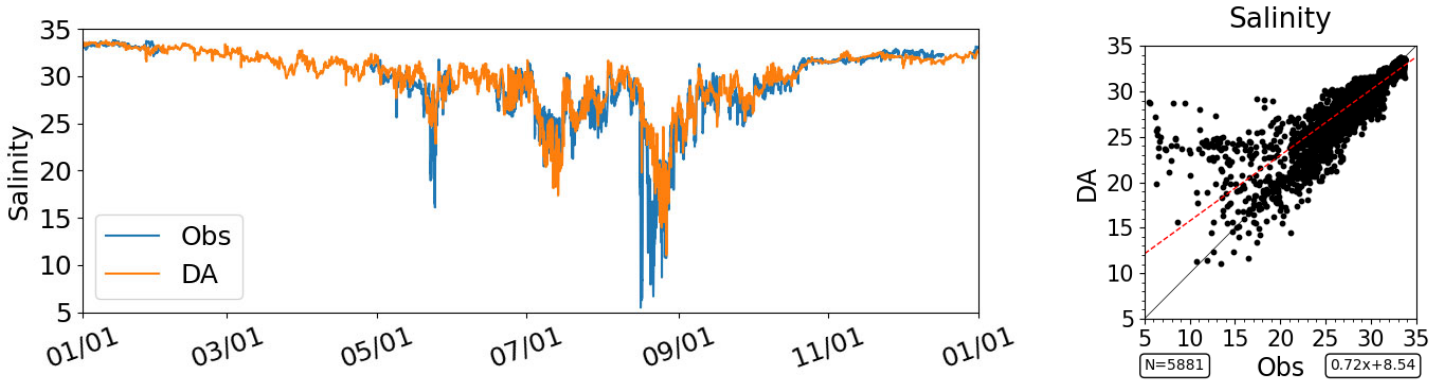


(b) Middle layer

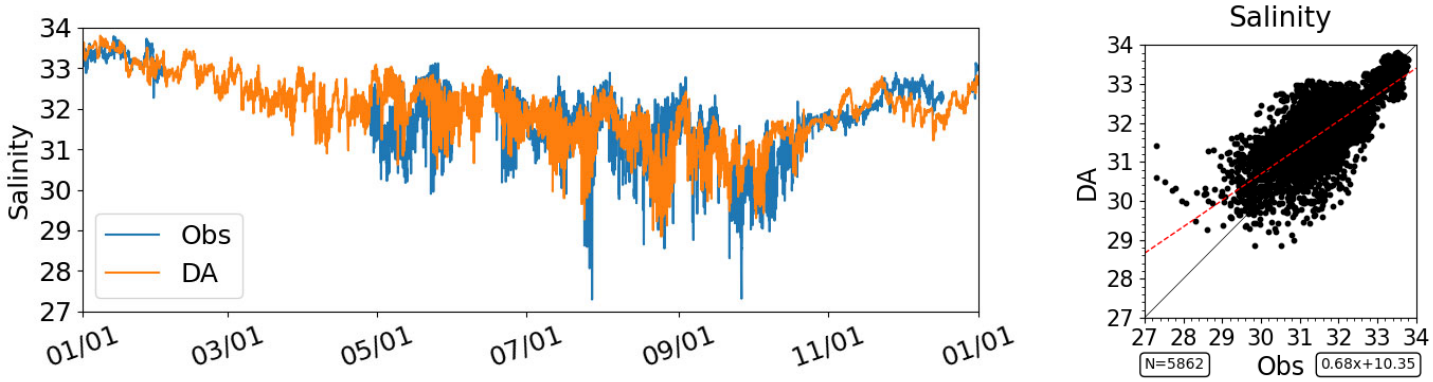


(c) Bottom layer

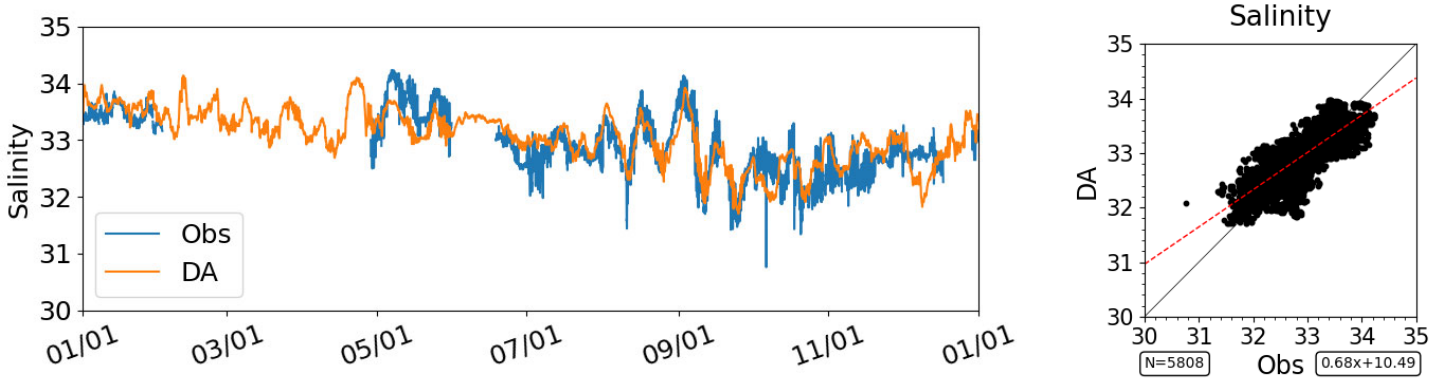
Figure S3.119 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2021



(a) Surface layer

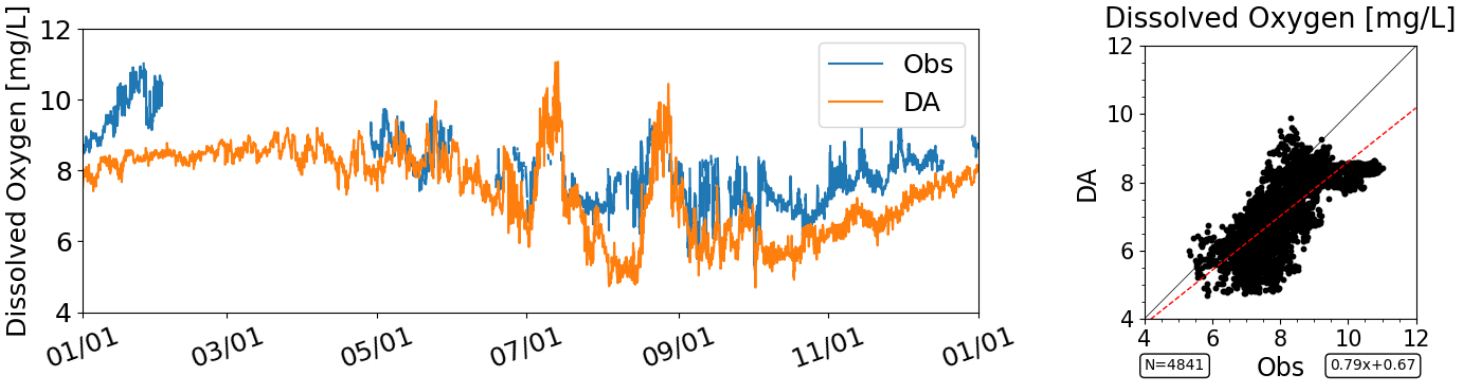


(b) Middle layer

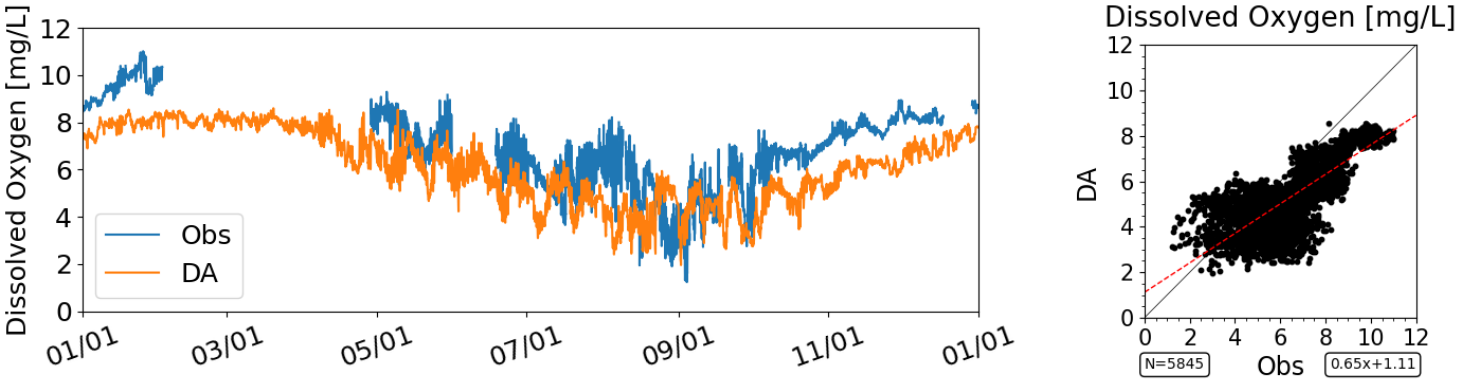


(c) Bottom layer

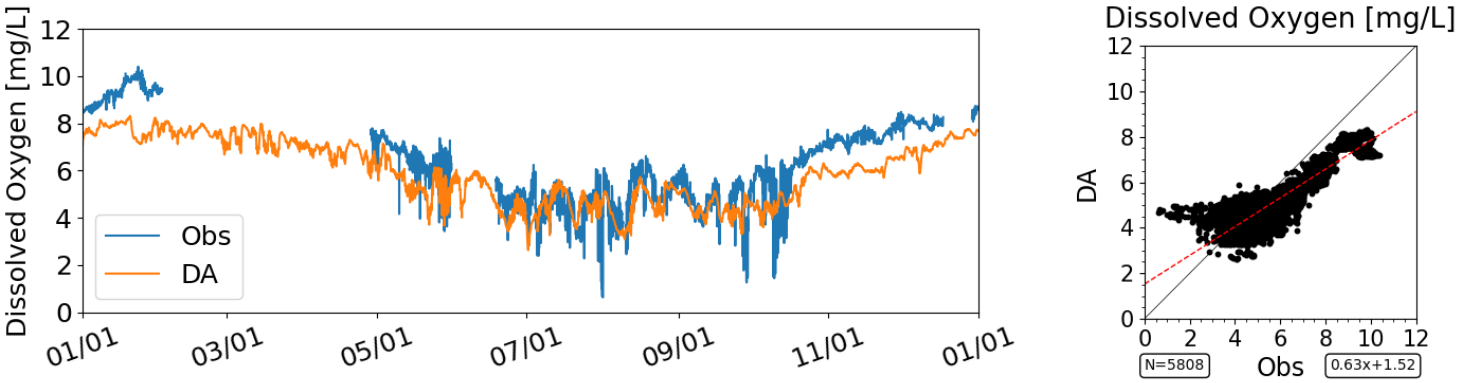
Figure S3.120 Timeseries and scatter plot for salinity at Center of Ise Bay in 2021



(a) Surface layer

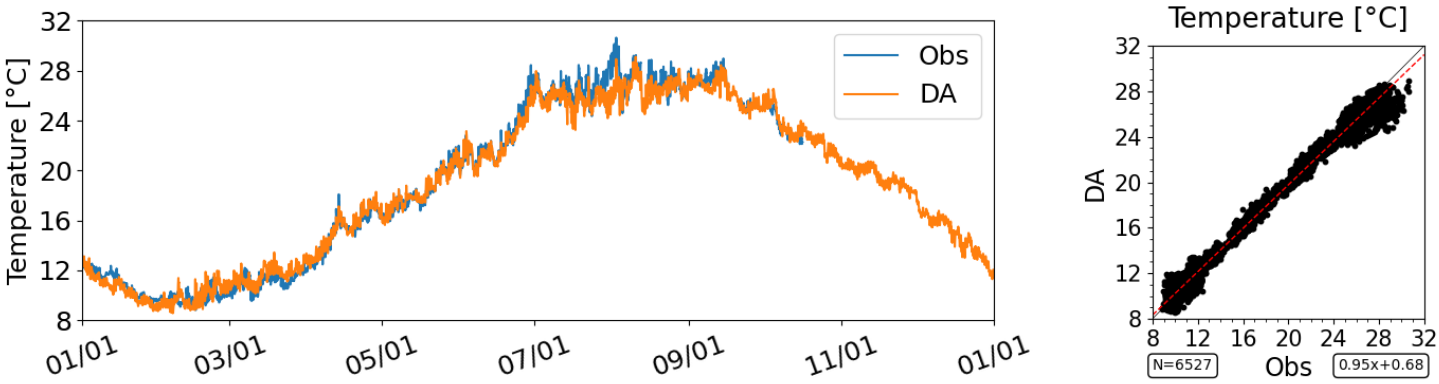


(b) Middle layer

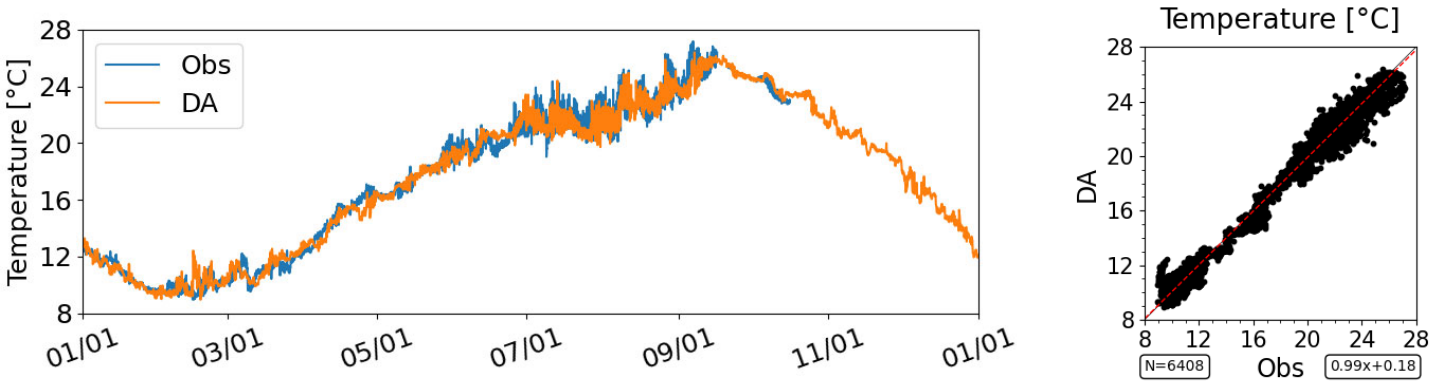


(c) Bottom layer

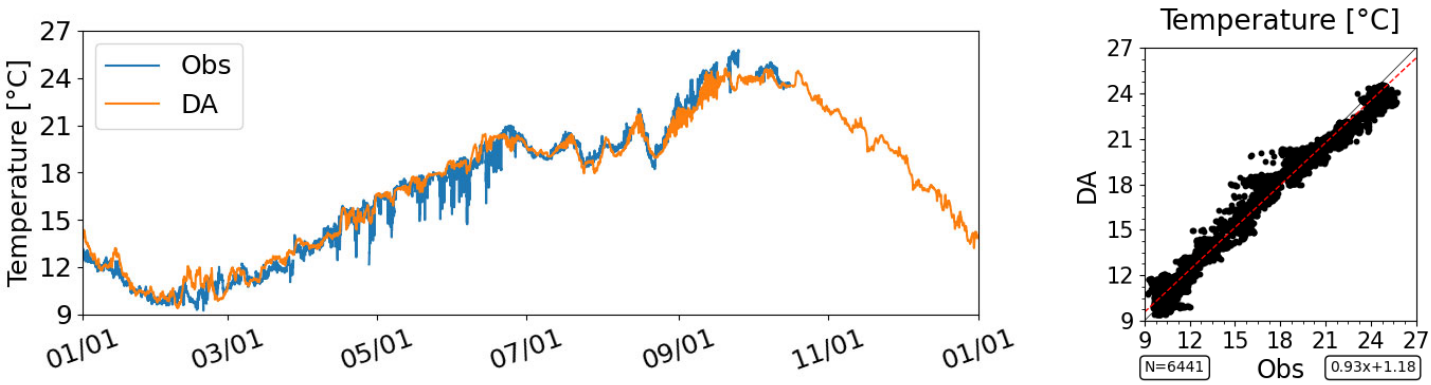
Figure S3.121 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2021



(a) Surface layer

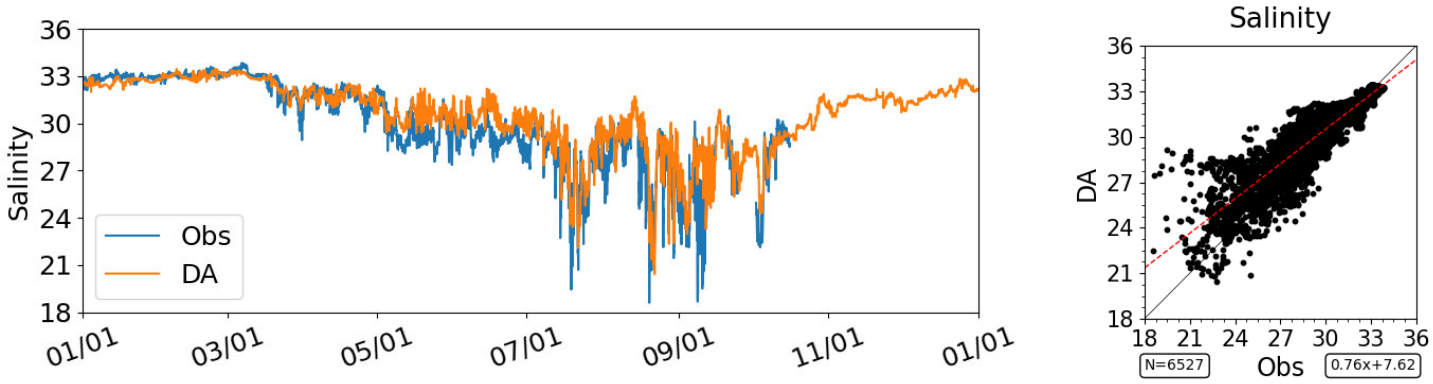


(b) Middle layer

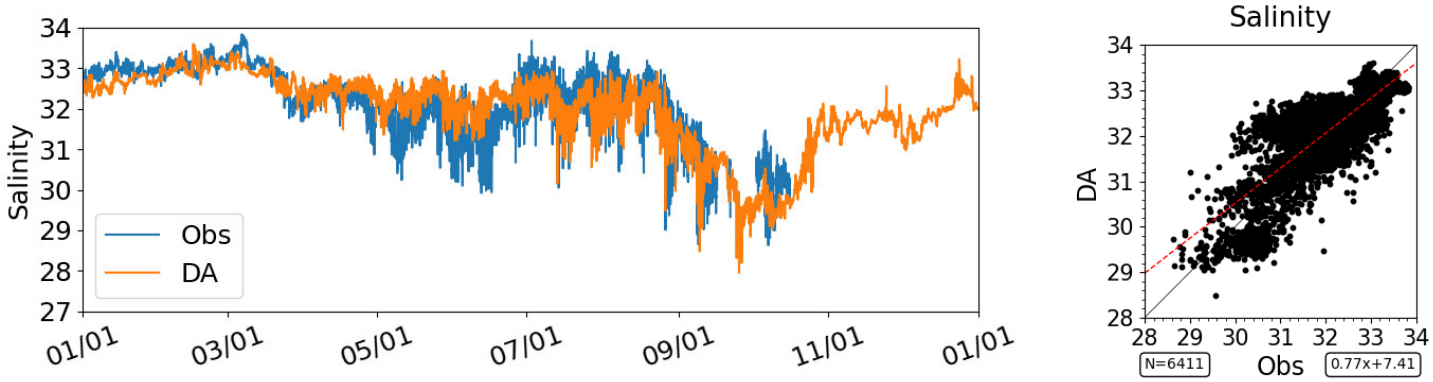


(c) Bottom layer

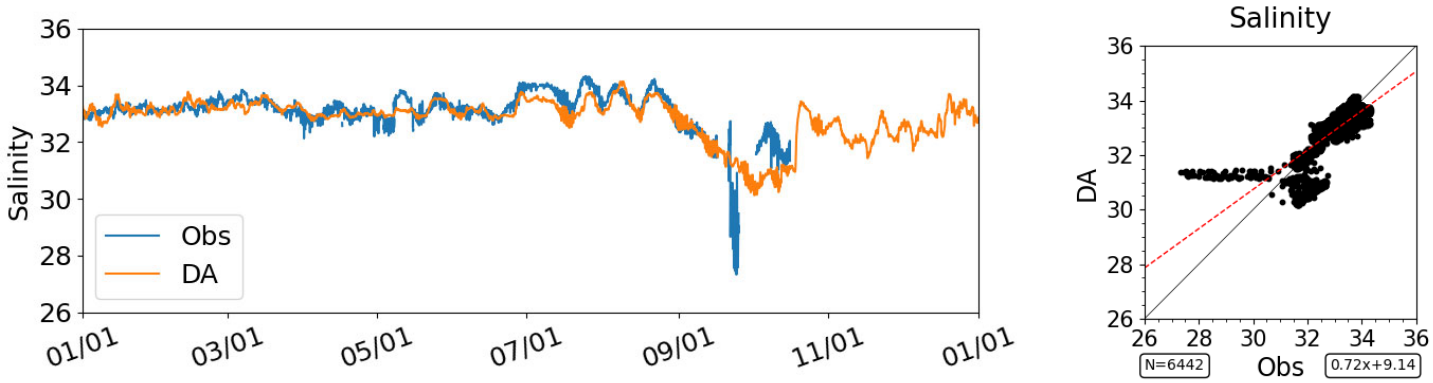
Figure S3.122 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2022



(a) Surface layer

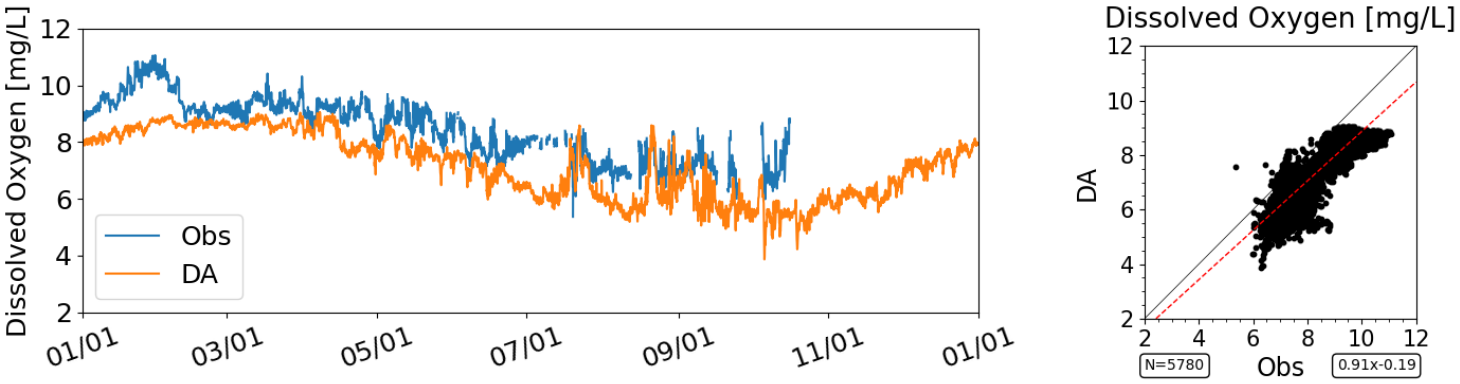


(b) Middle layer

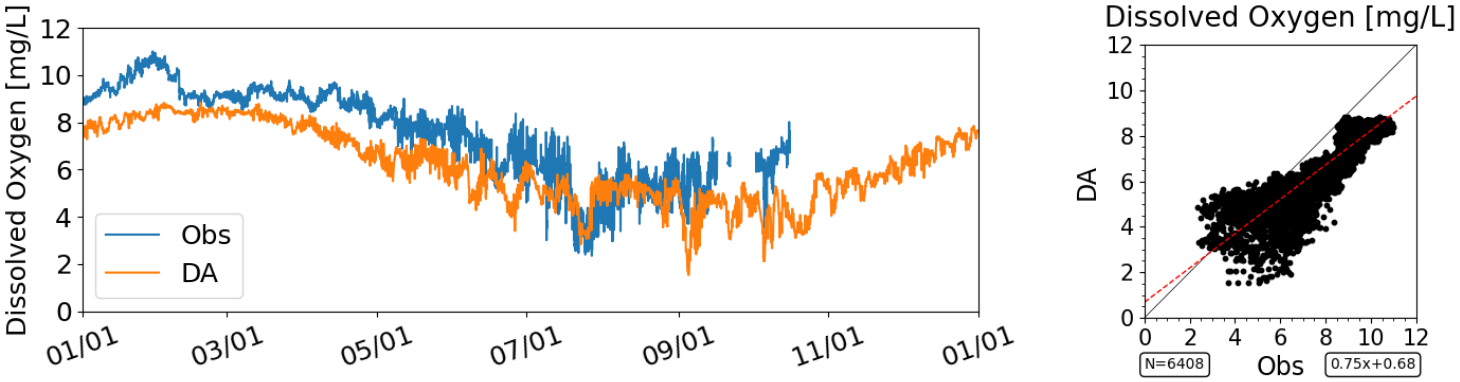


(c) Bottom layer

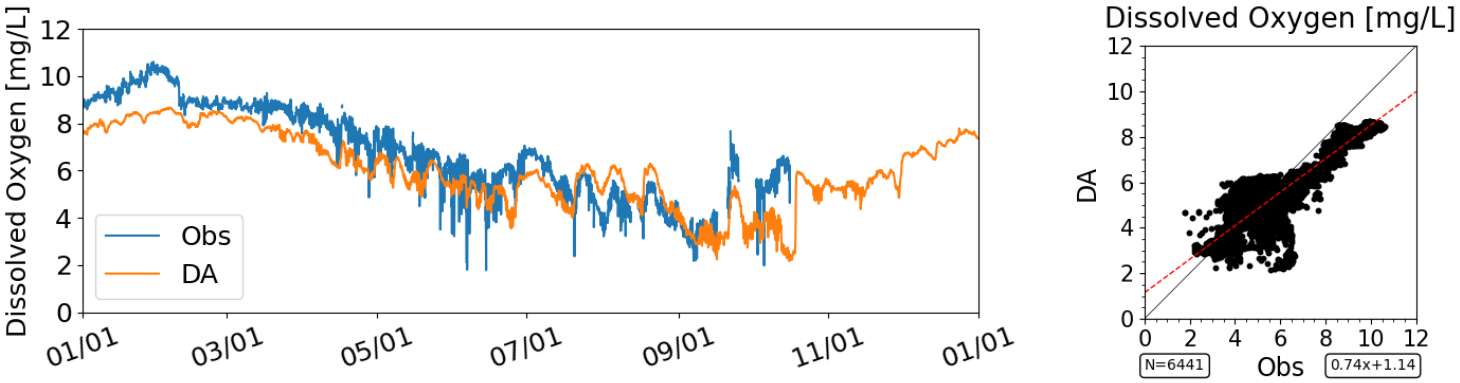
Figure S3.123 Timeseries and scatter plot for salinity at Center of Ise Bay in 2022



(a) Surface layer



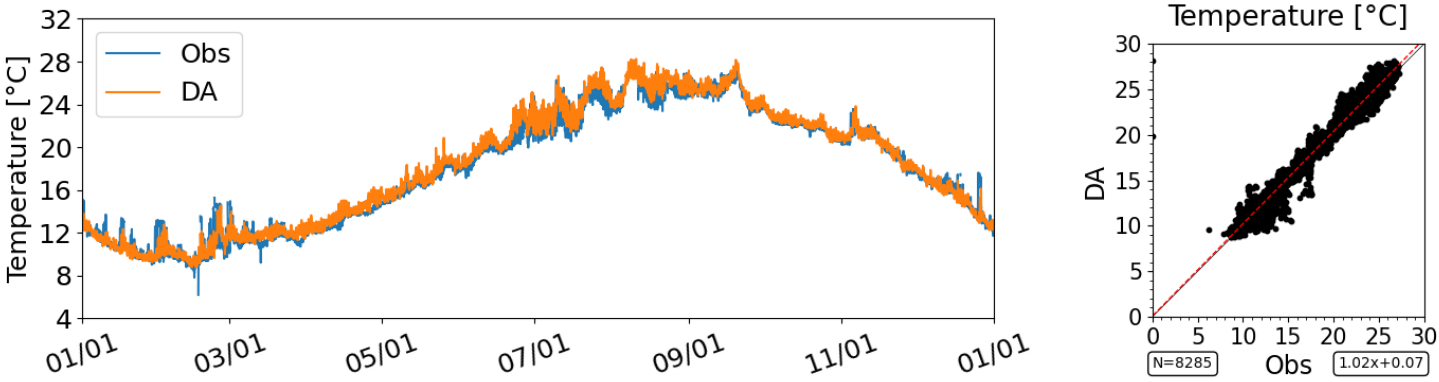
(b) Middle layer



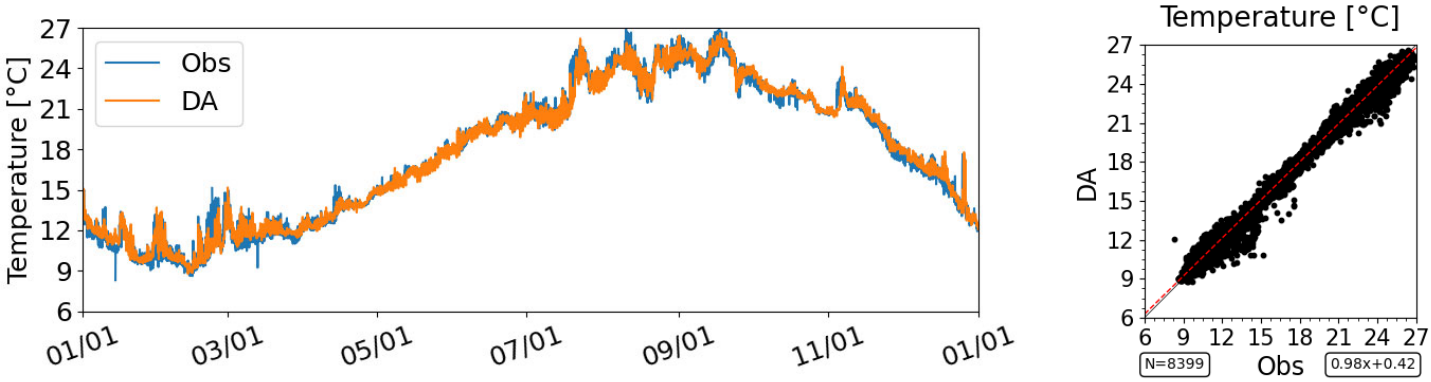
(c) Bottom layer

Figure S3.124 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2022

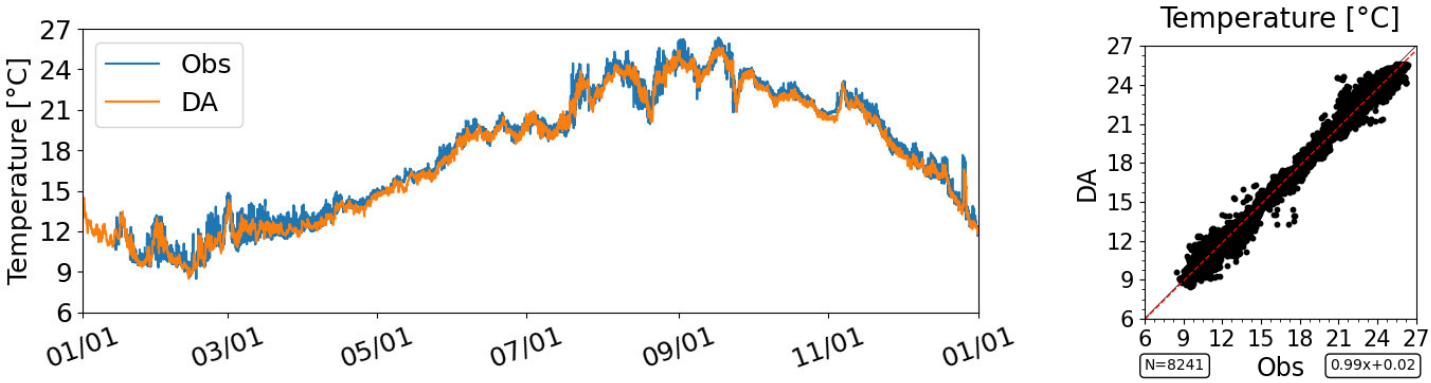
S3.9 Mouth of Ise Bay: Timeseries and scatter plot



(a) Surface layer

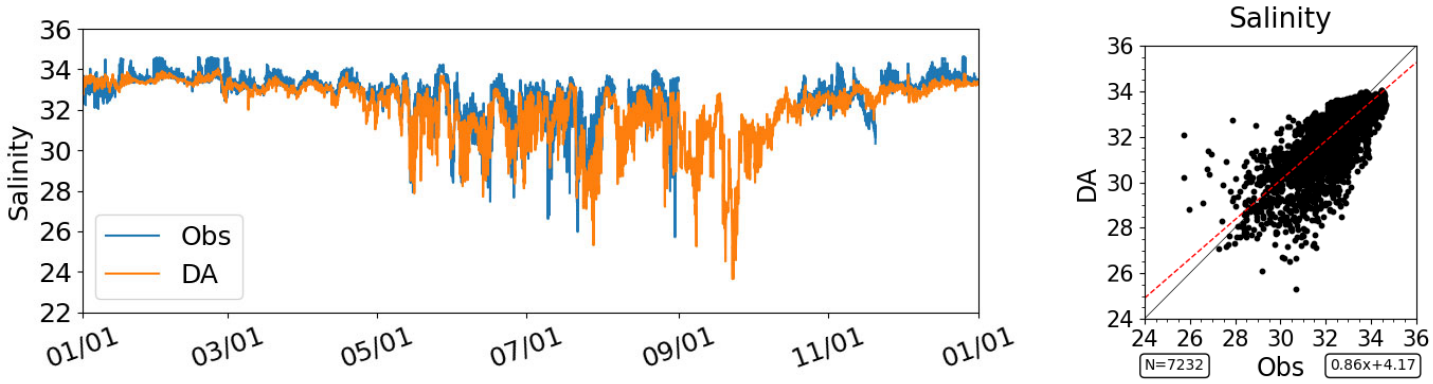


(b) Middle layer

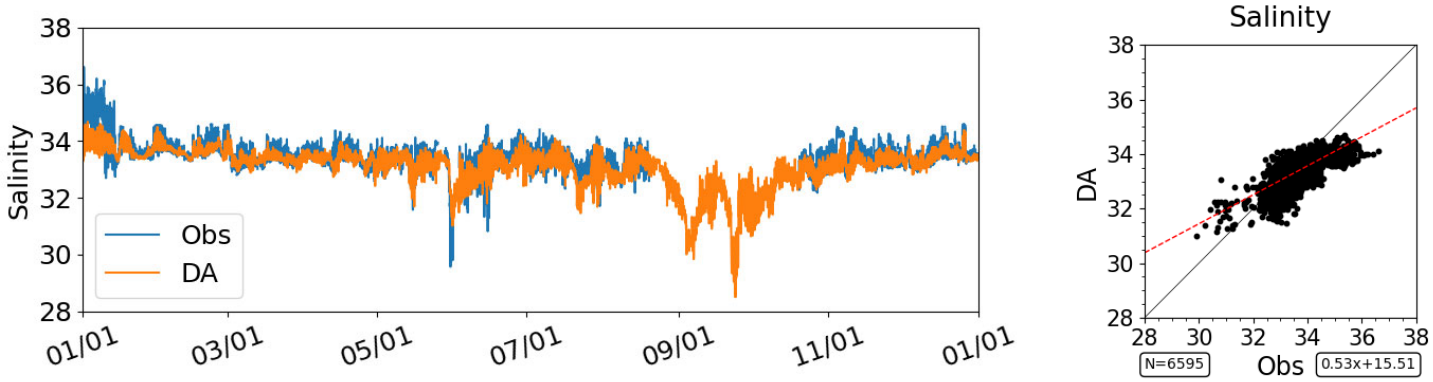


(c) Bottom layer

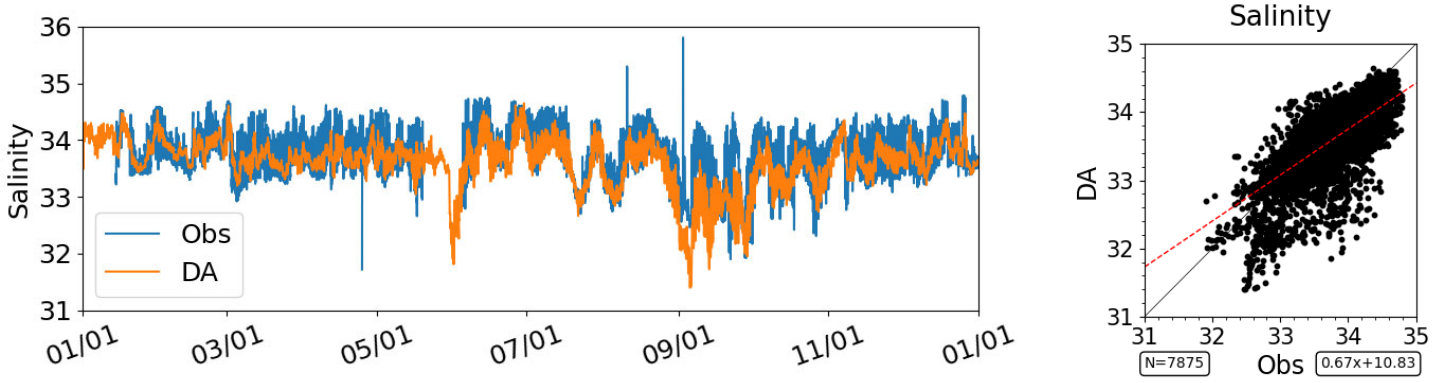
Figure S3.125 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2011



(a) Surface layer

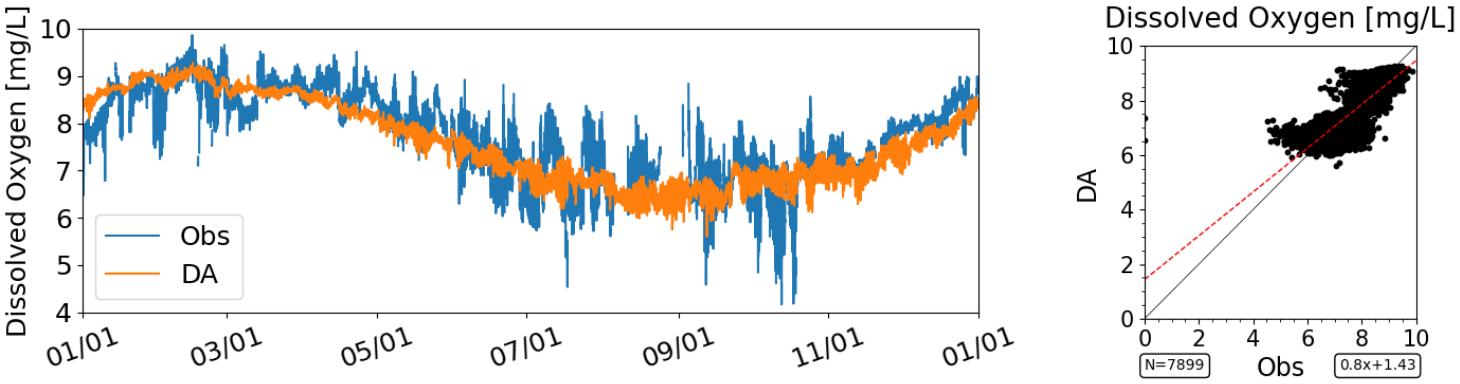


(b) Middle layer

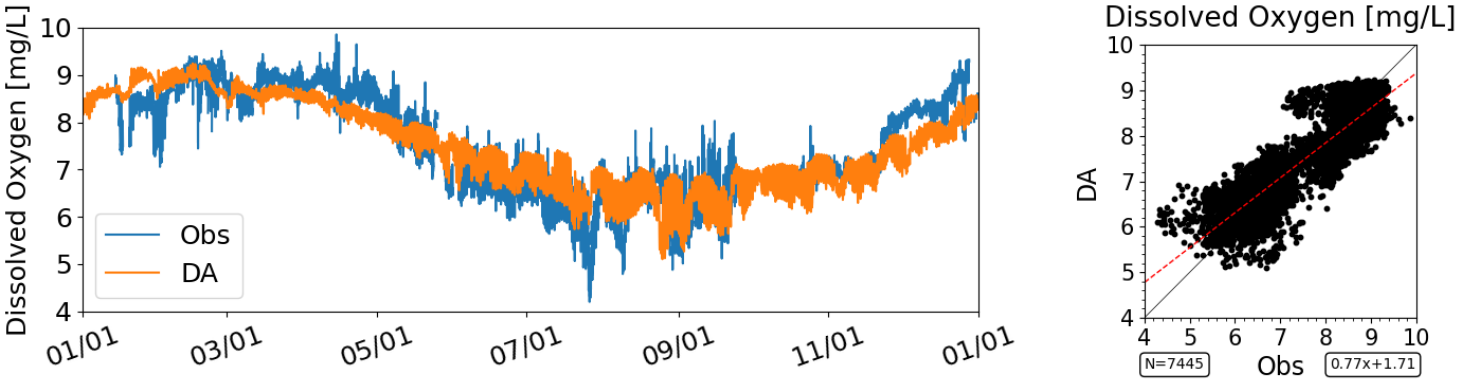


(c) Bottom layer

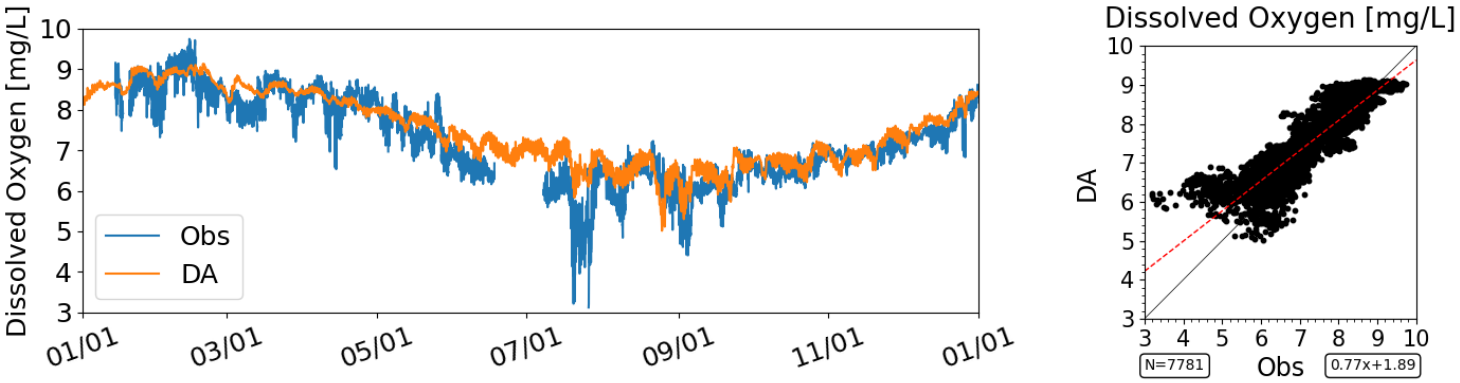
Figure S3.126 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2011



(a) Surface layer

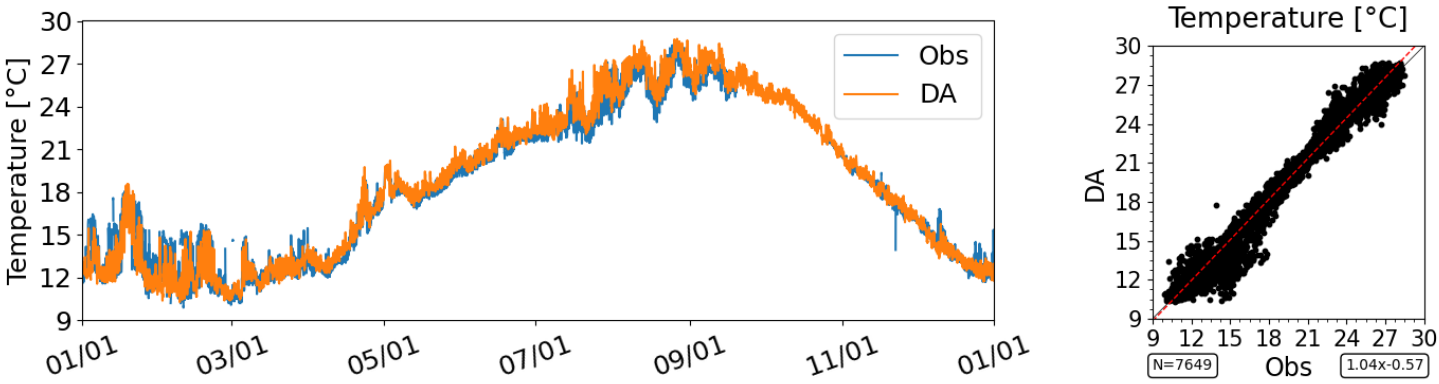


(b) Middle layer

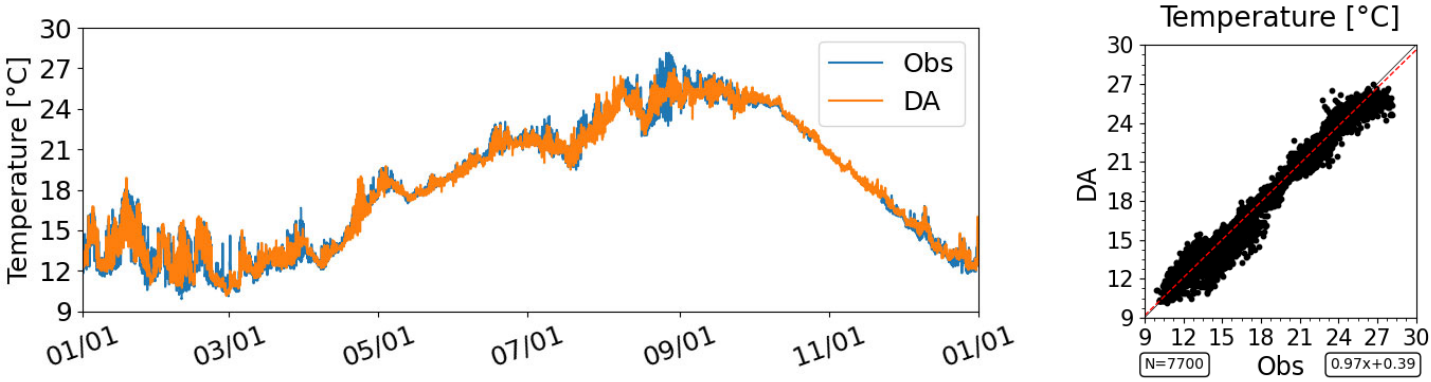


(c) Bottom layer

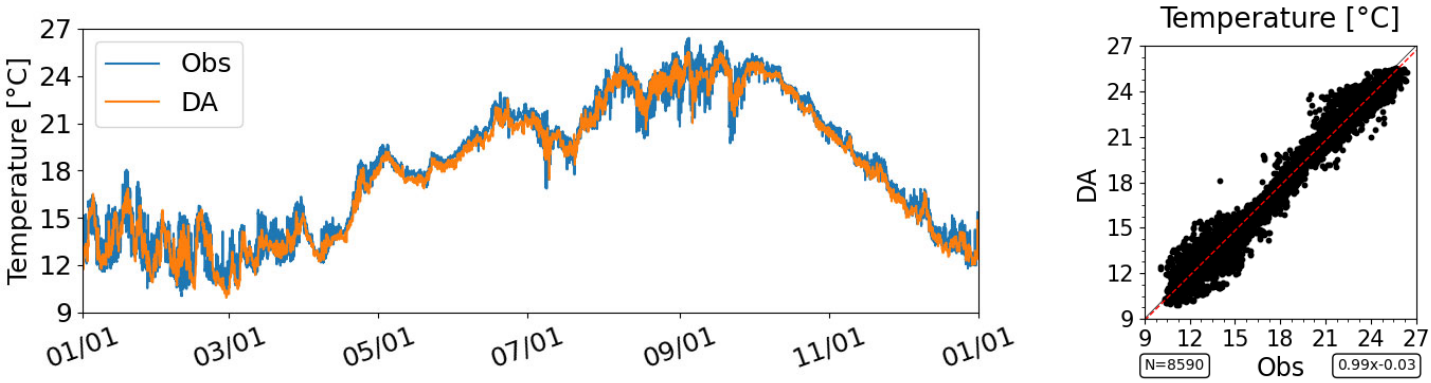
Figure S3.127 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2011



(a) Surface layer

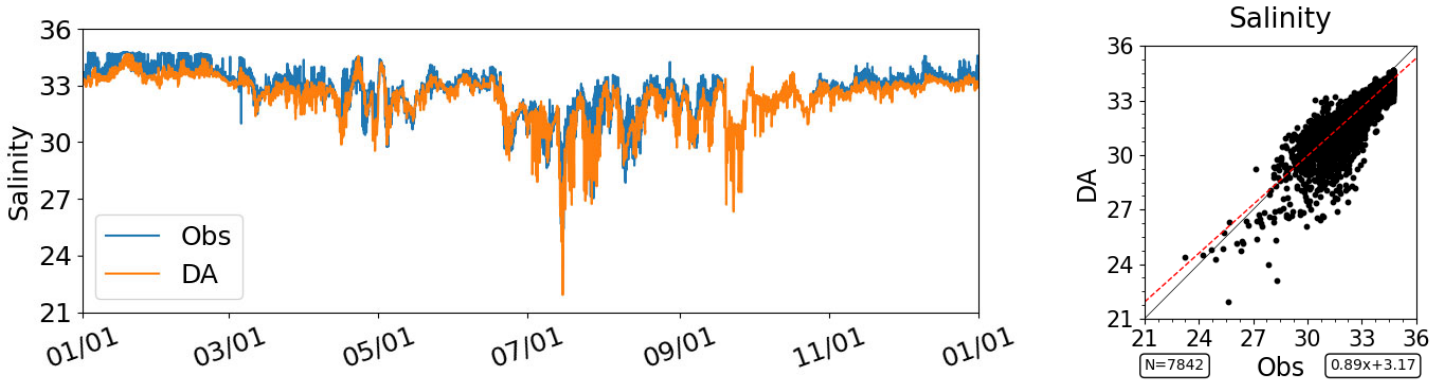


(b) Middle layer

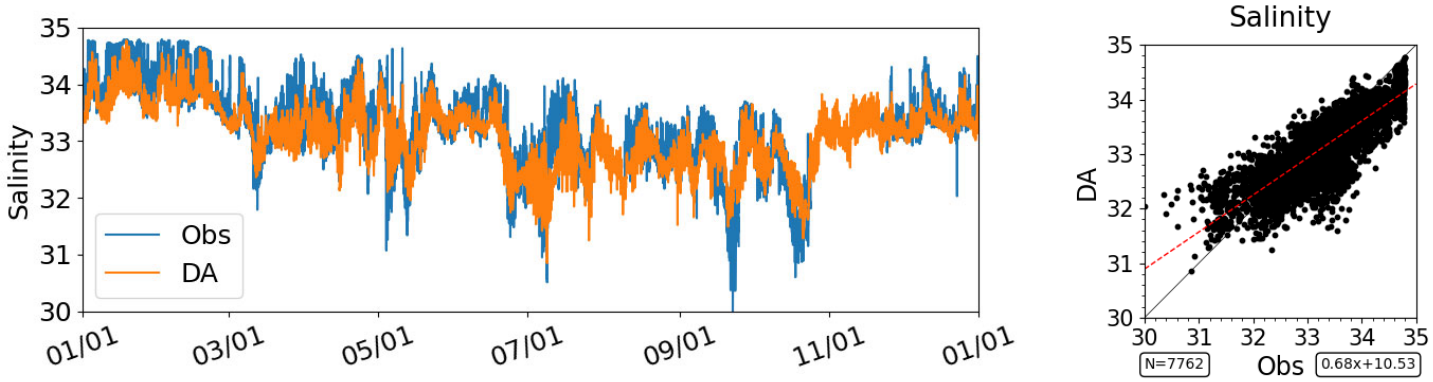


(c) Bottom layer

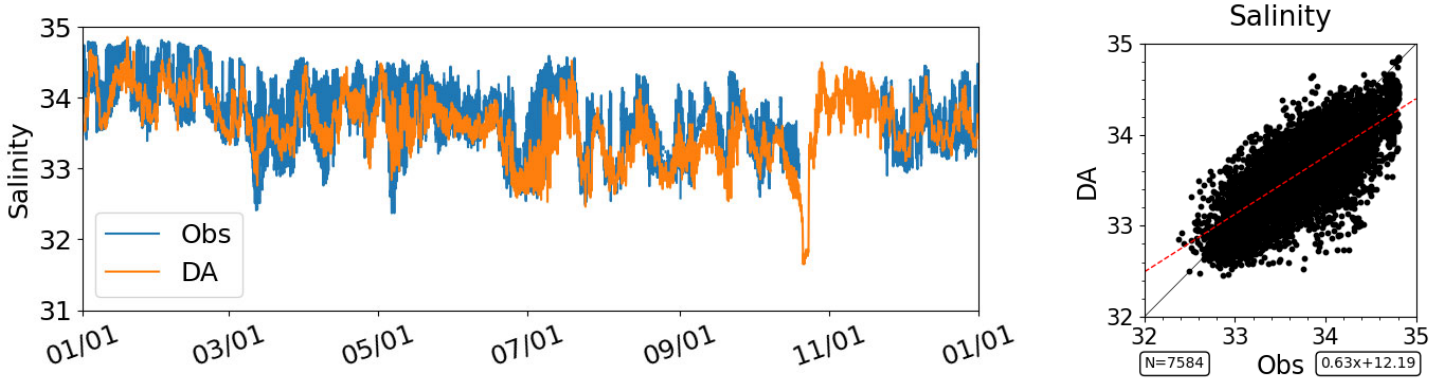
Figure S3.128 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2012



(a) Surface layer

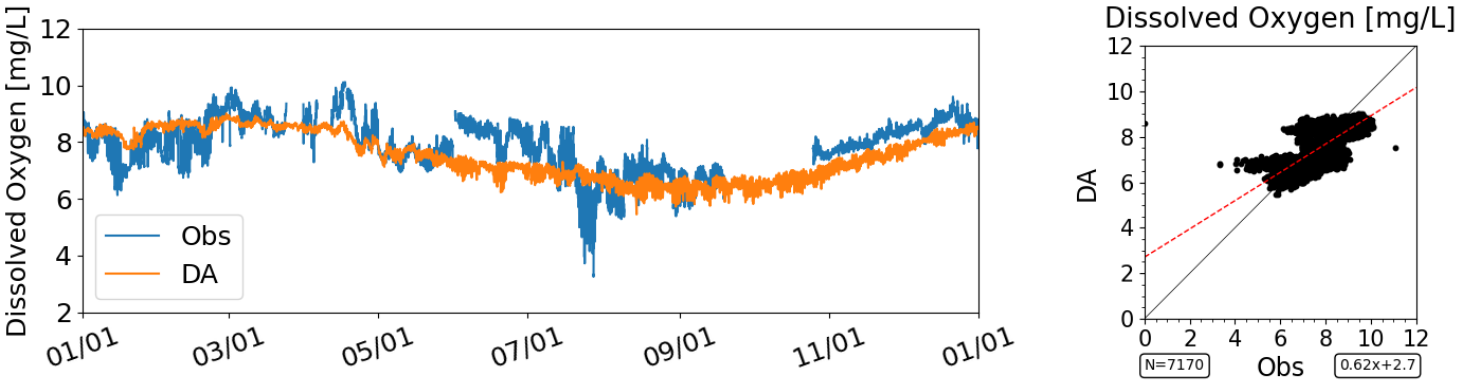


(b) Middle layer

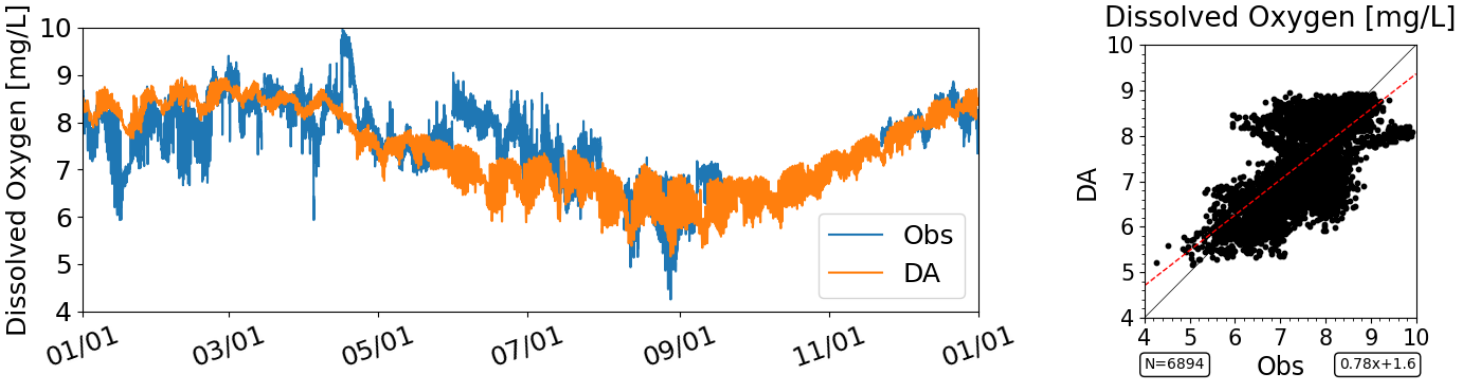


(c) Bottom layer

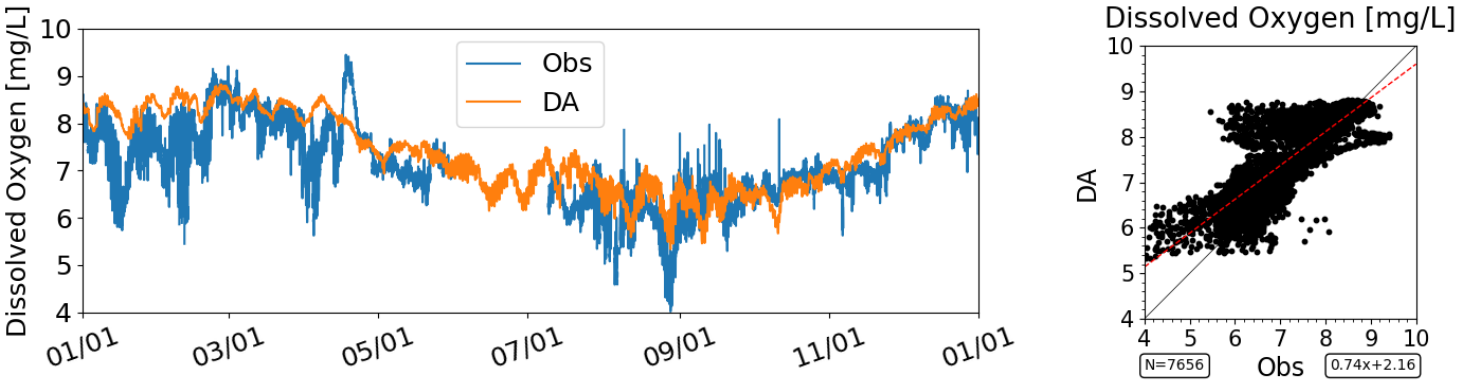
Figure S3.129 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2012



(a) Surface layer

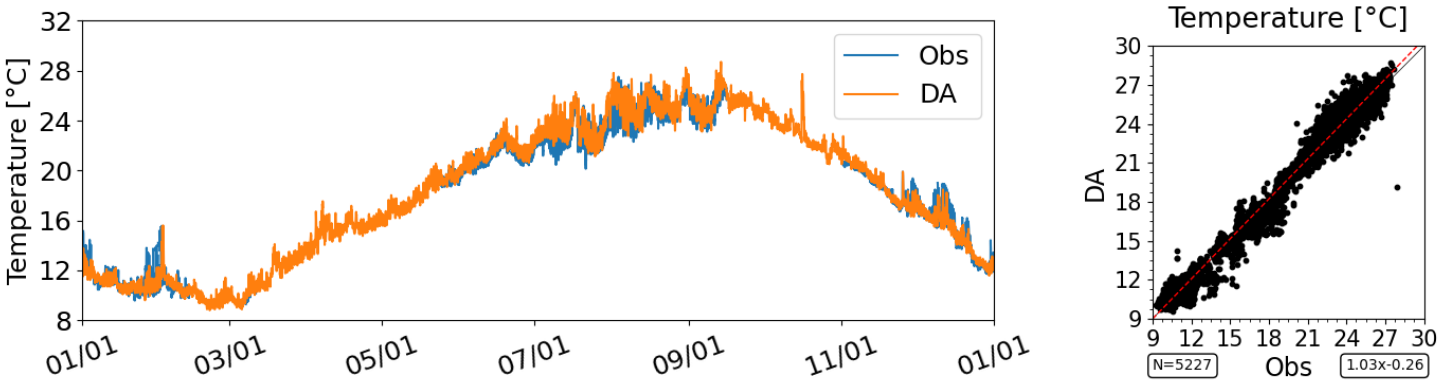


(b) Middle layer

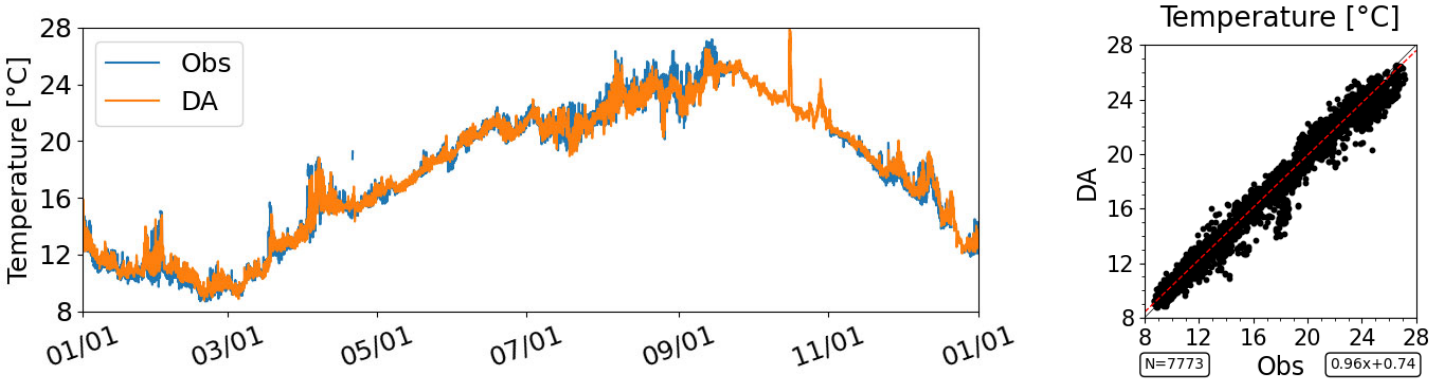


(c) Bottom layer

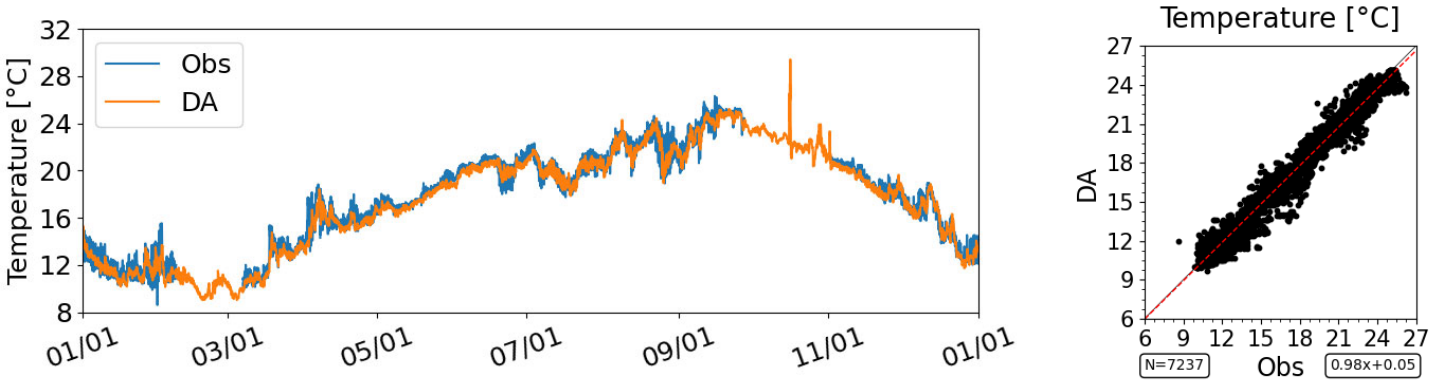
Figure S3.130 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2012



(a) Surface layer

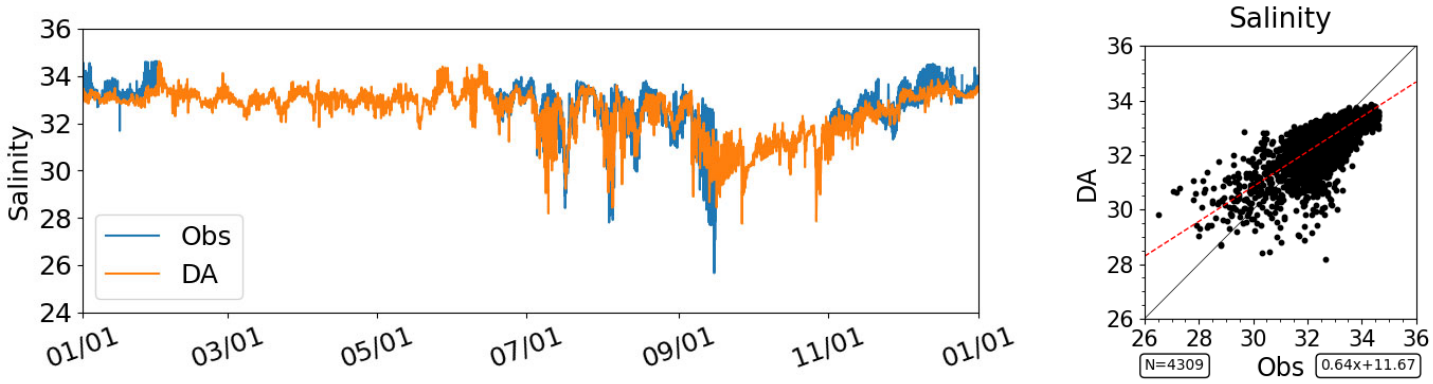


(b) Middle layer

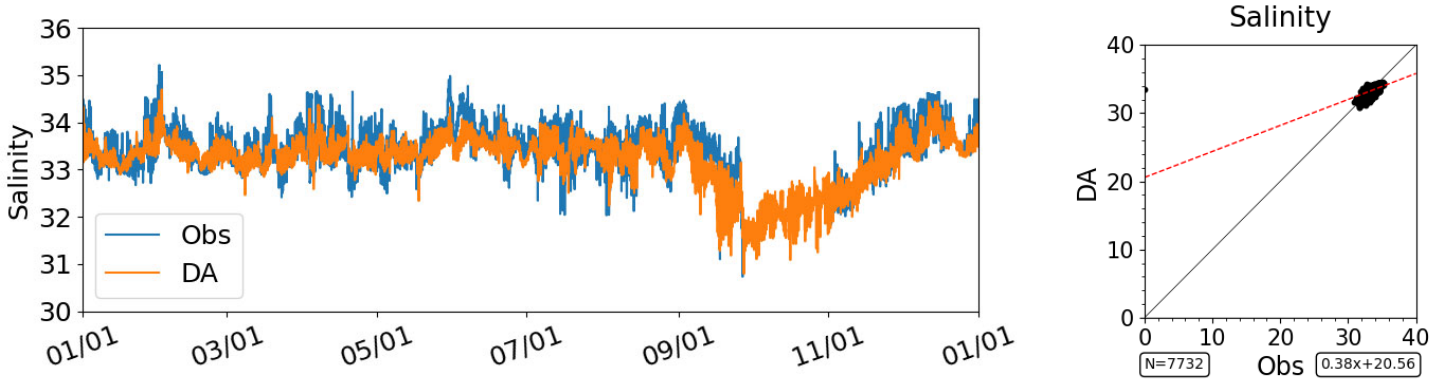


(c) Bottom layer

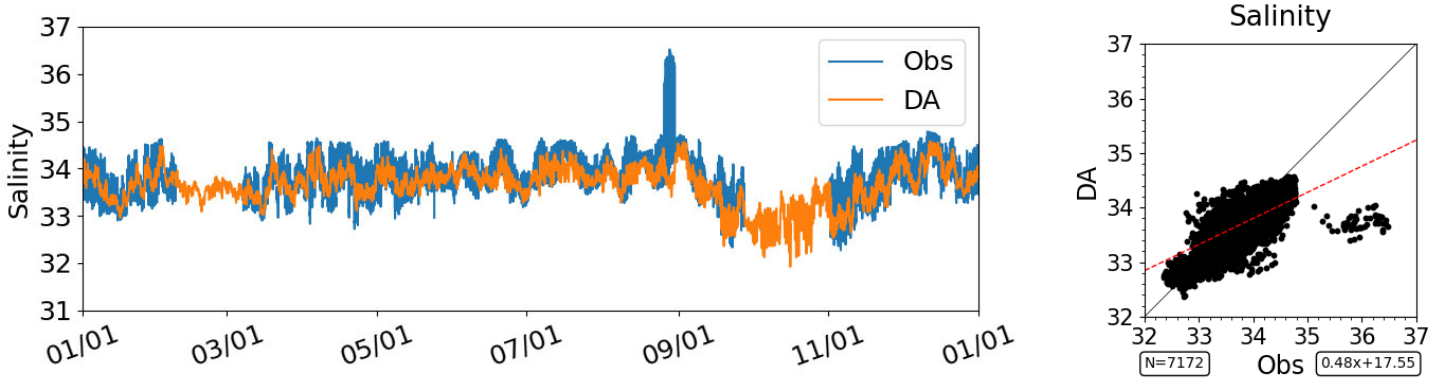
Figure S3.131 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2013



(a) Surface layer

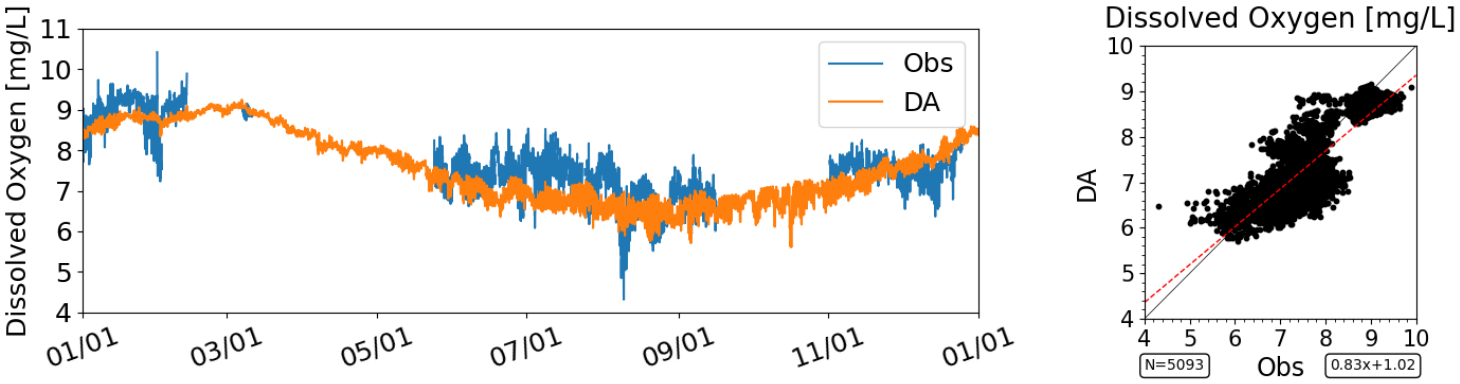


(b) Middle layer

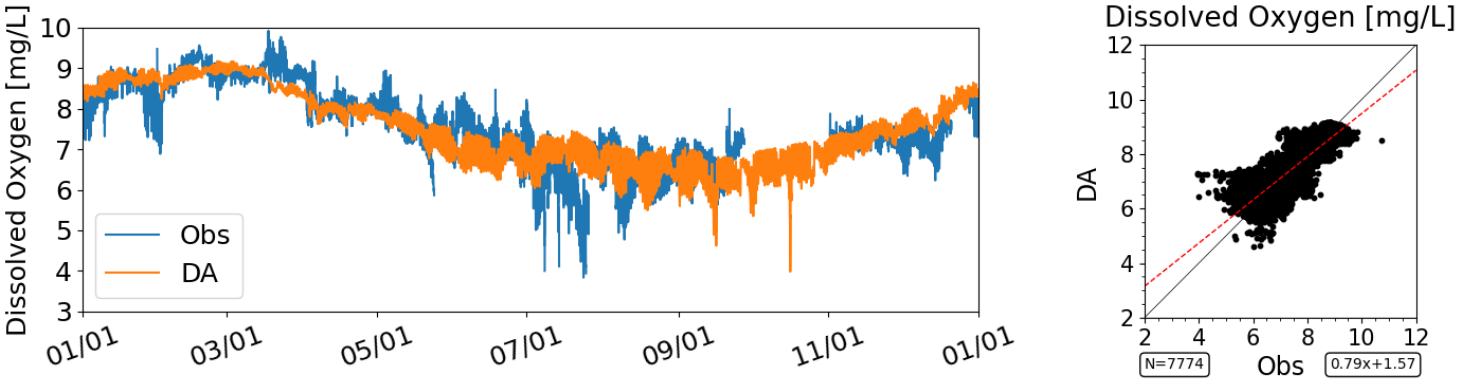


(c) Bottom layer

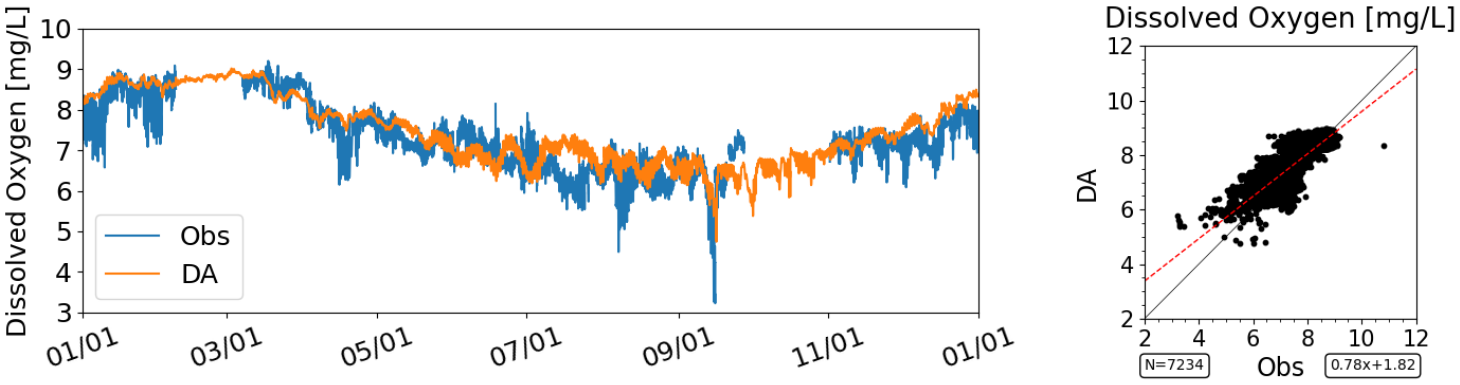
Figure S3.132 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2013



(a) Surface layer

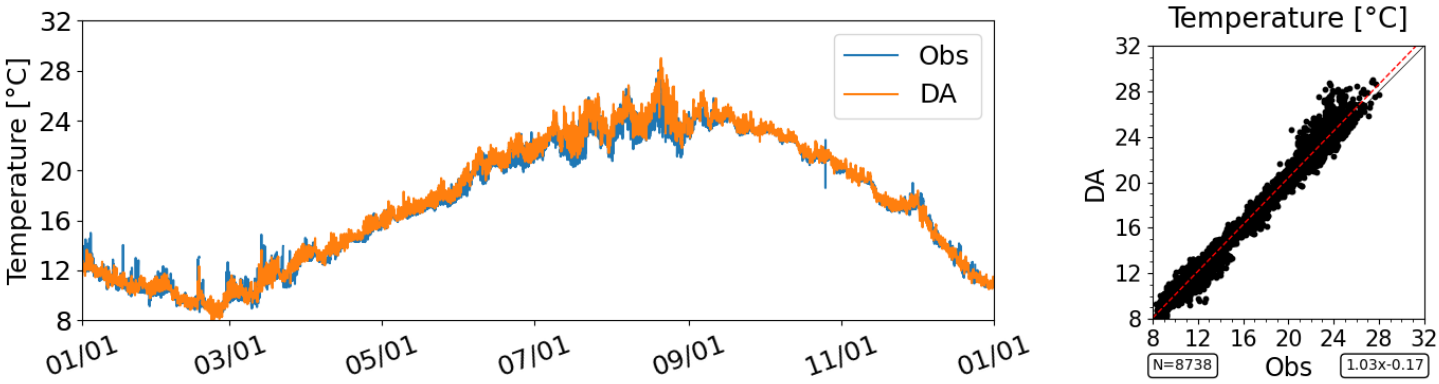


(b) Middle layer

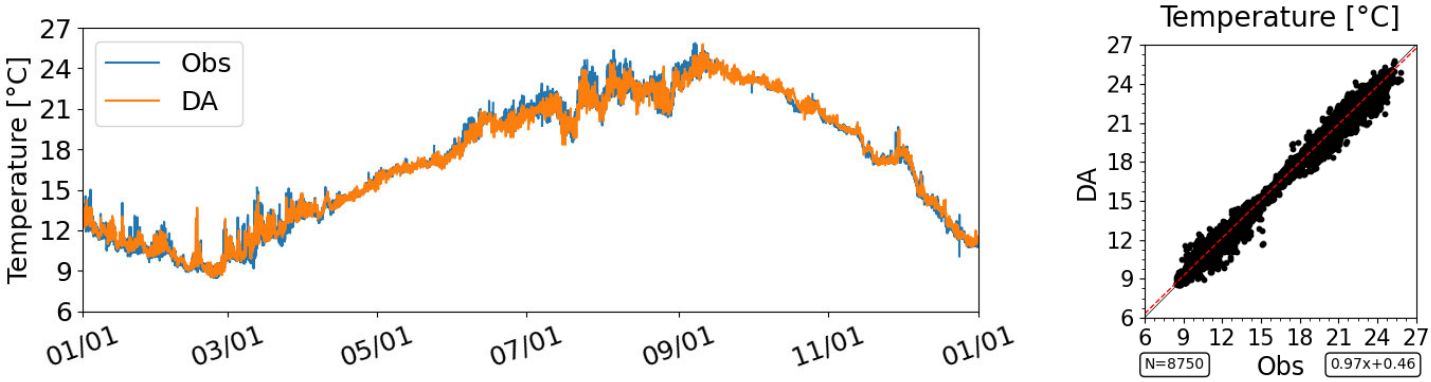


(c) Bottom layer

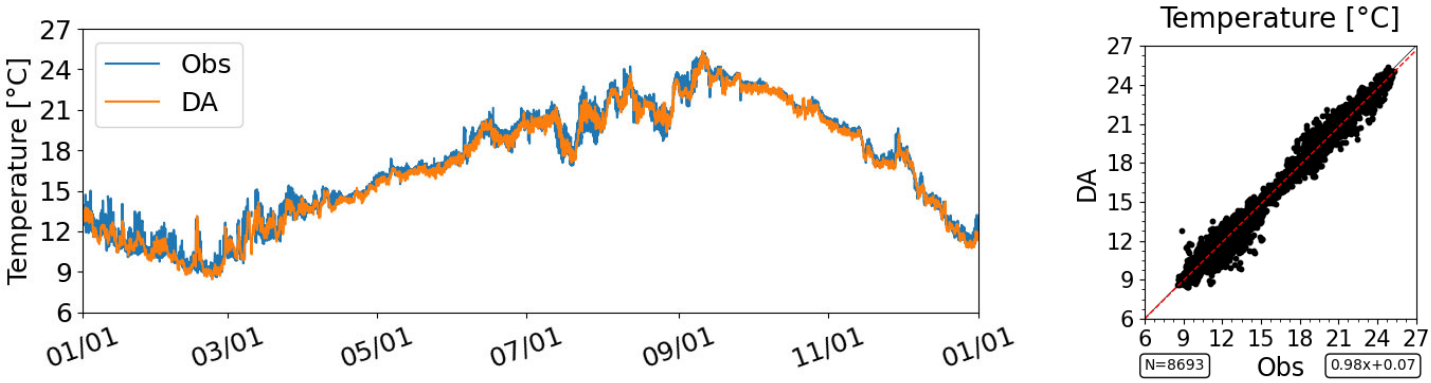
Figure S3.133 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2013



(a) Surface layer

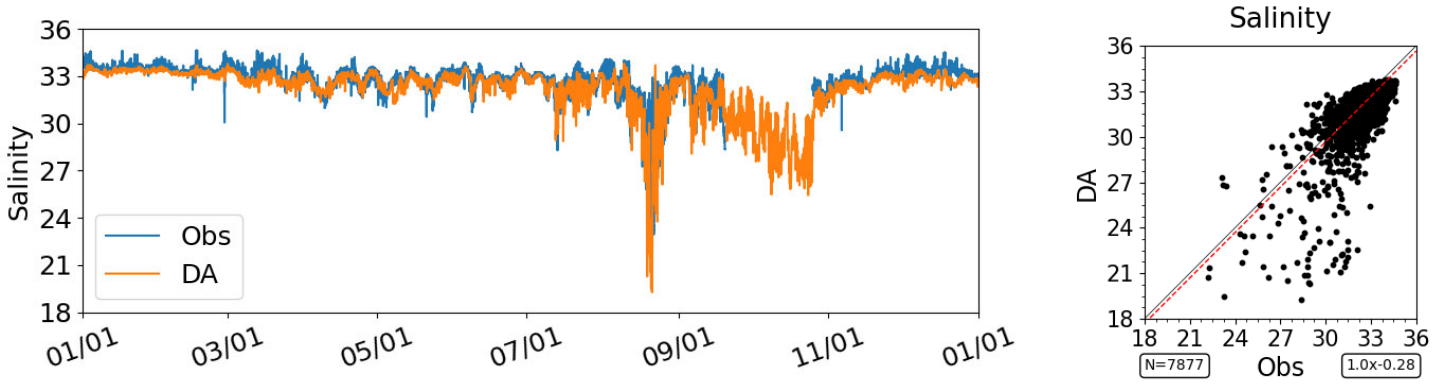


(b) Middle layer

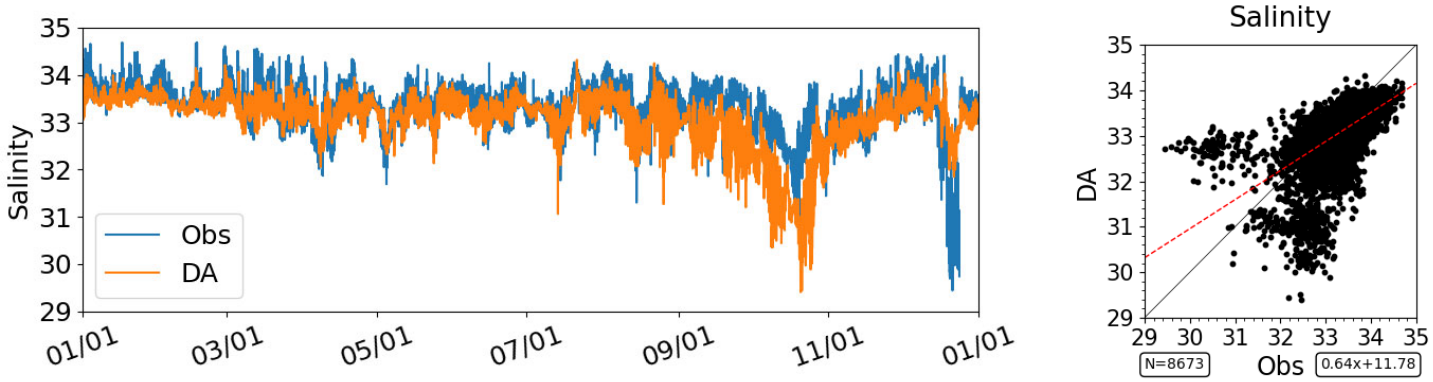


(c) Bottom layer

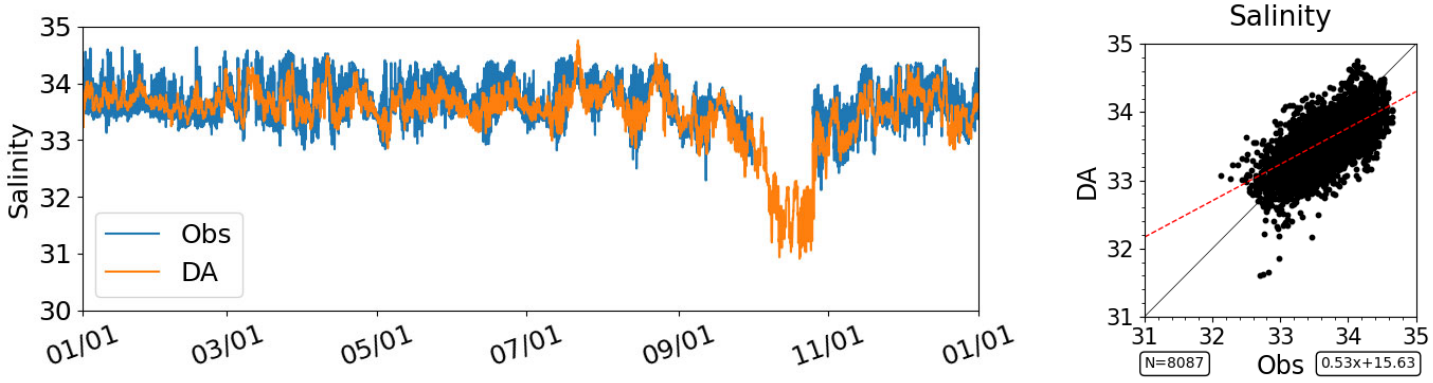
Figure S3.134 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2014



(a) Surface layer

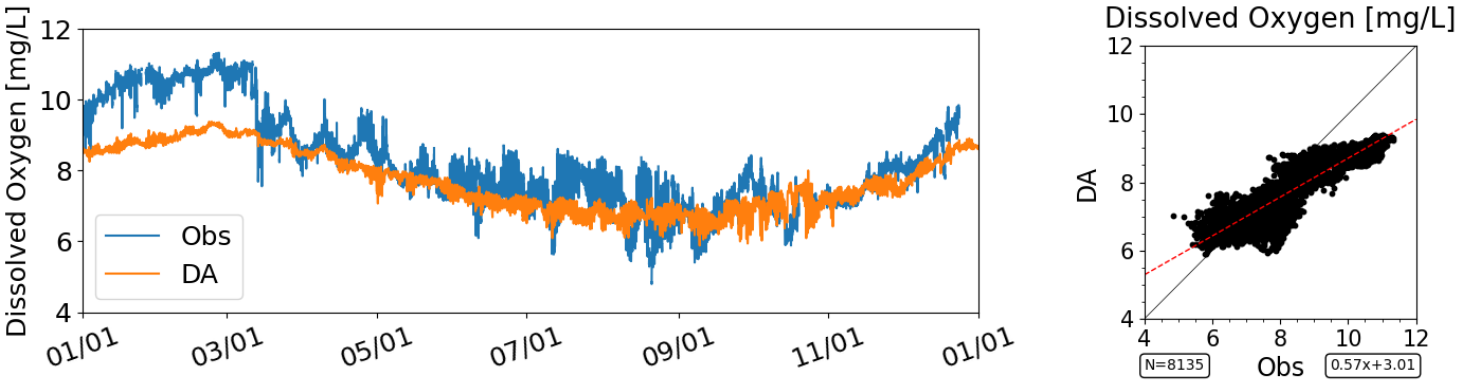


(b) Middle layer

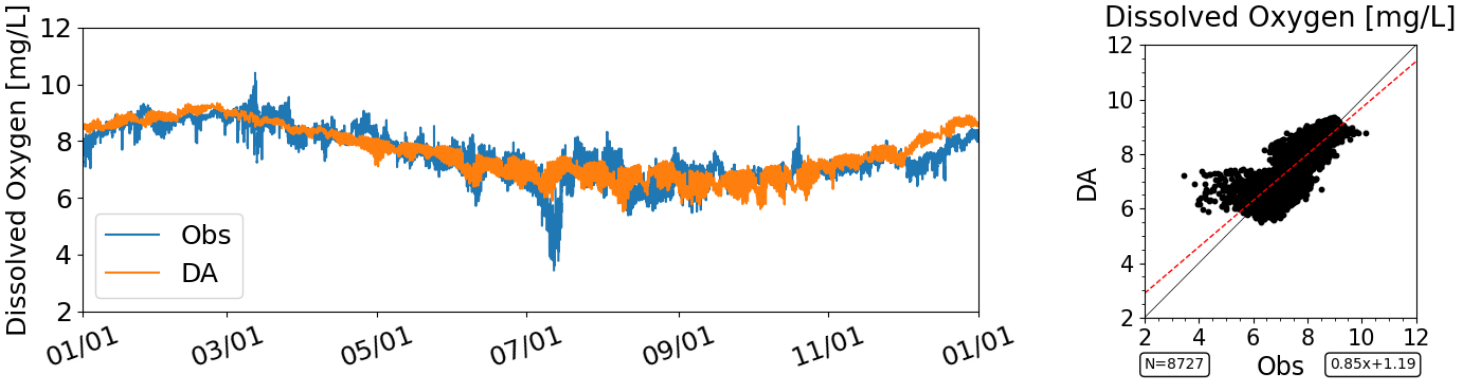


(c) Bottom layer

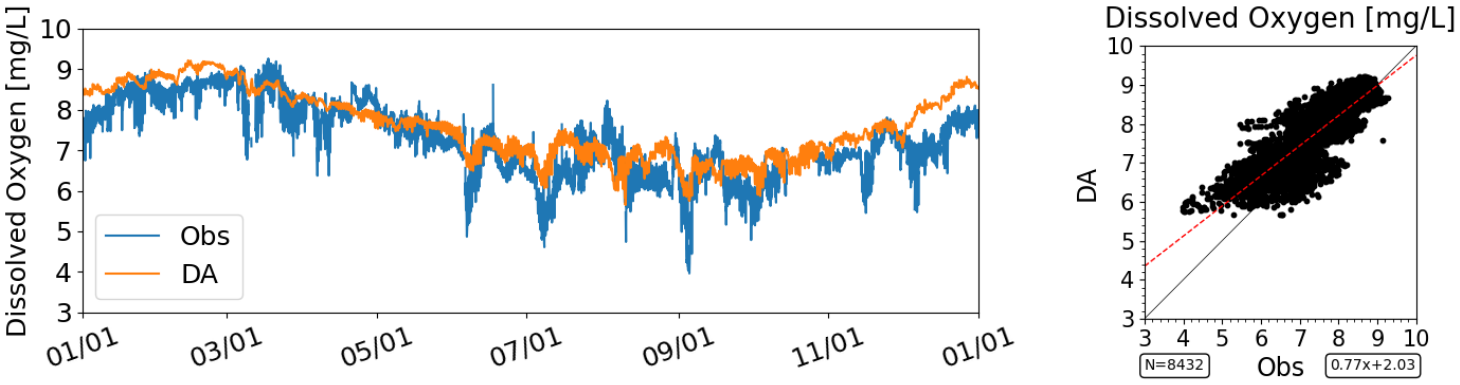
Figure S3.135 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2014



(a) Surface layer

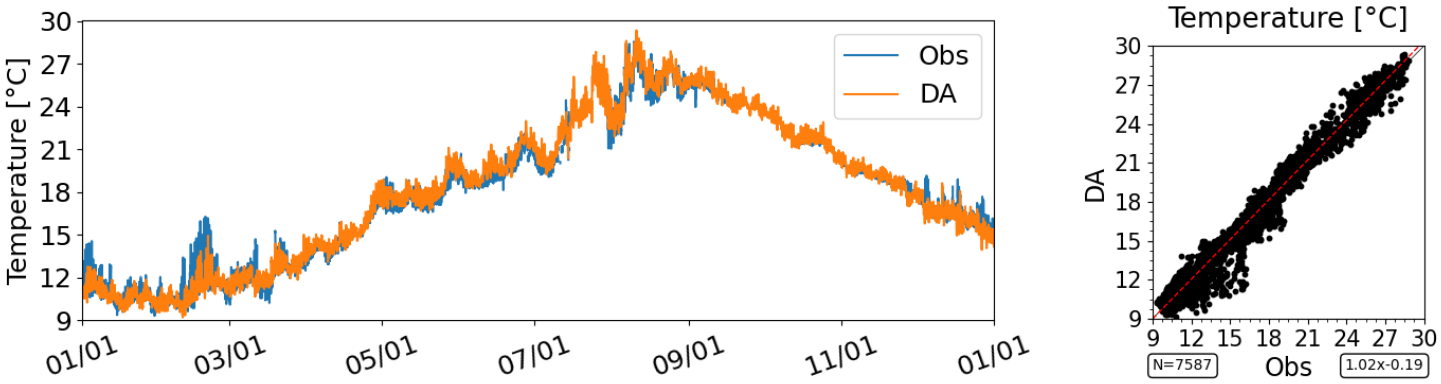


(b) Middle layer

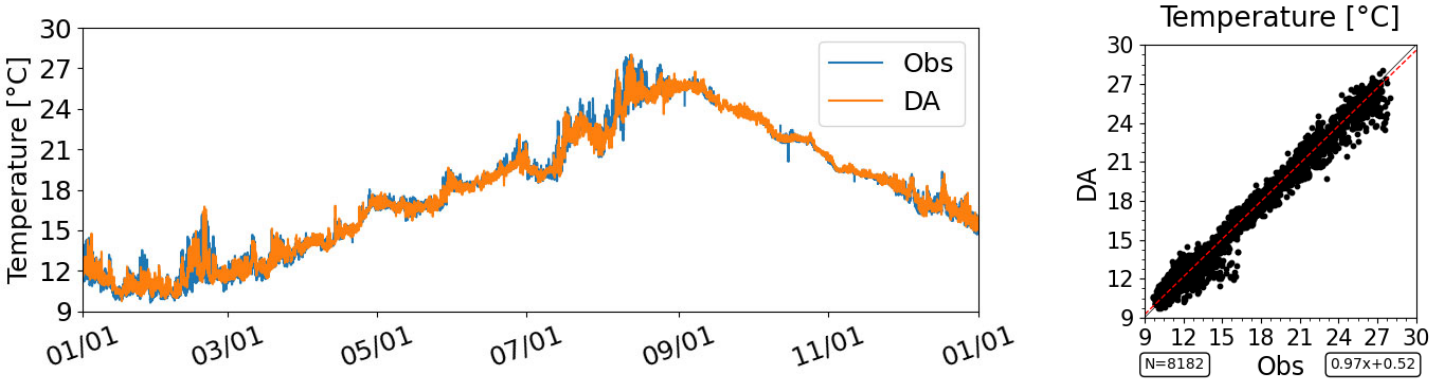


(c) Bottom layer

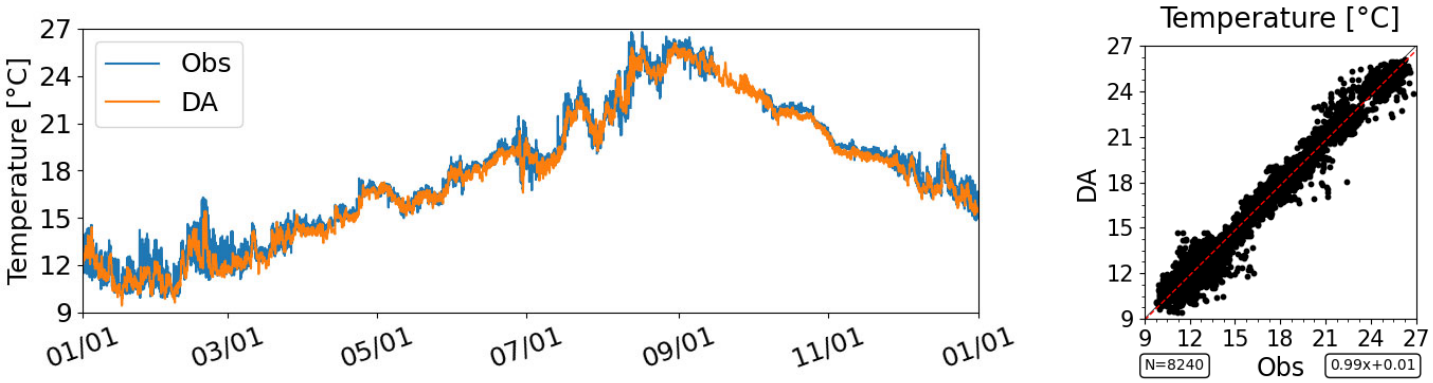
Figure S3.136 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2014



(a) Surface layer

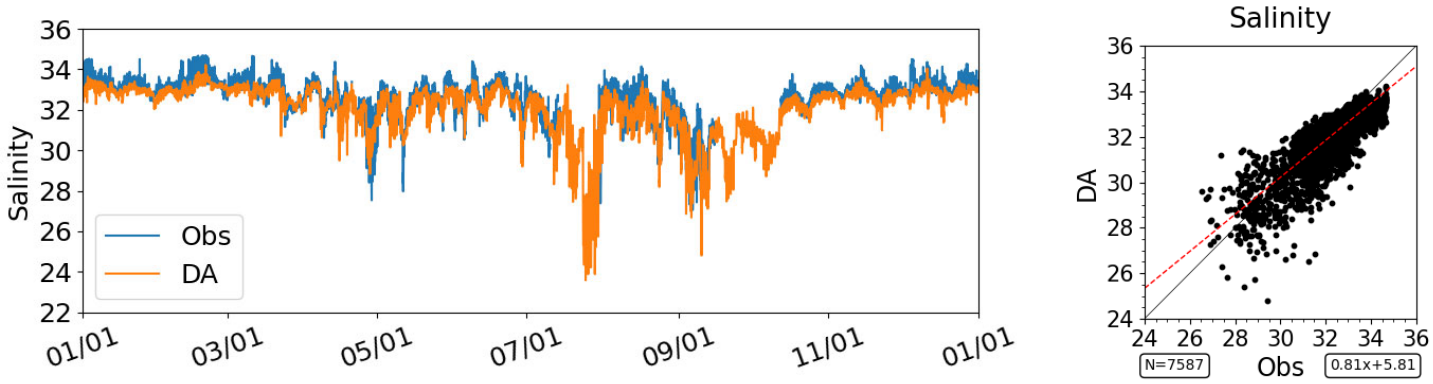


(b) Middle layer

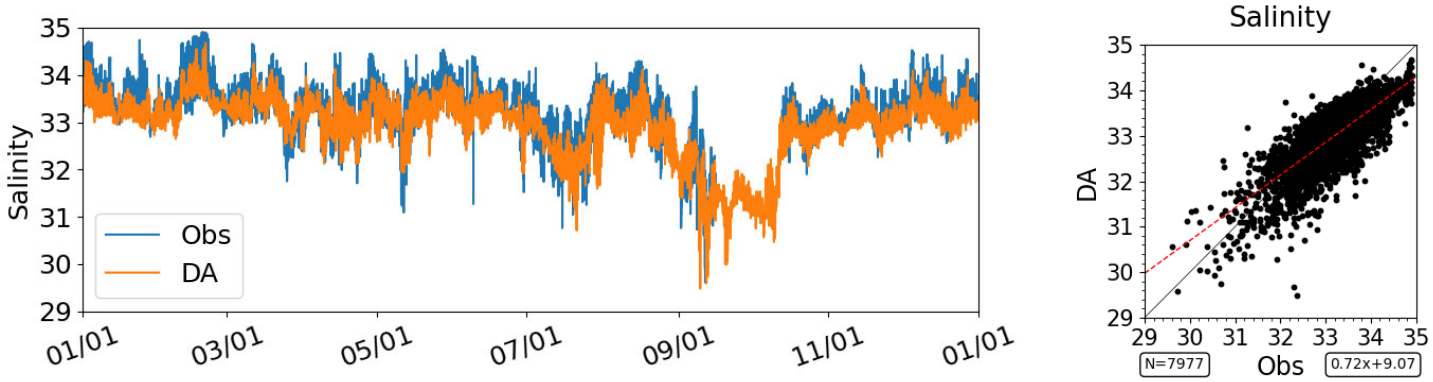


(c) Bottom layer

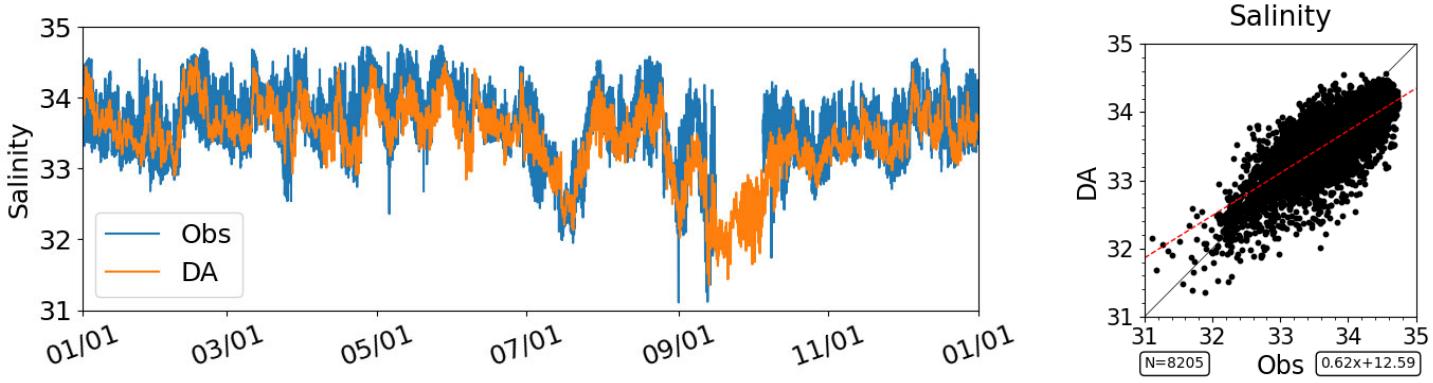
Figure S3.137 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2015



(a) Surface layer

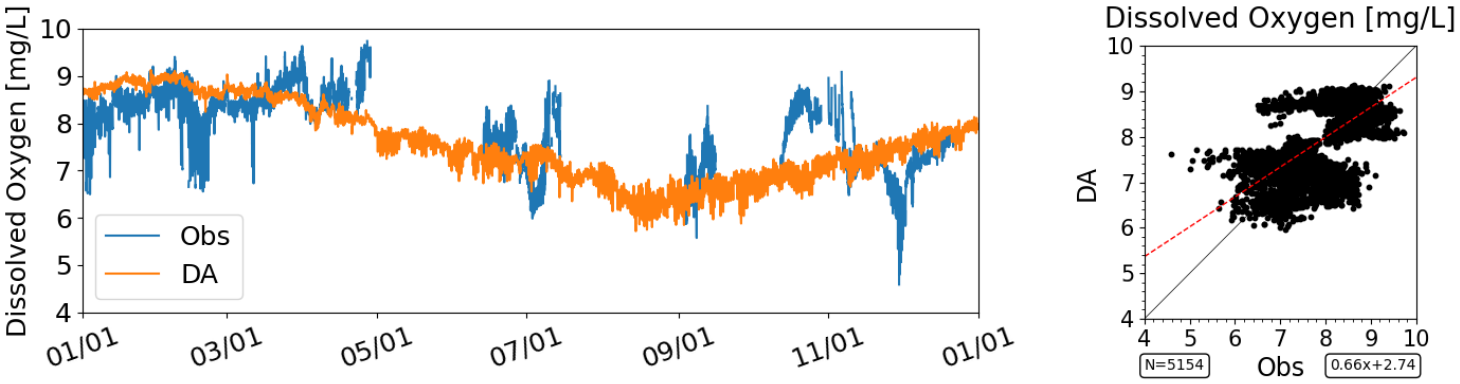


(b) Middle layer

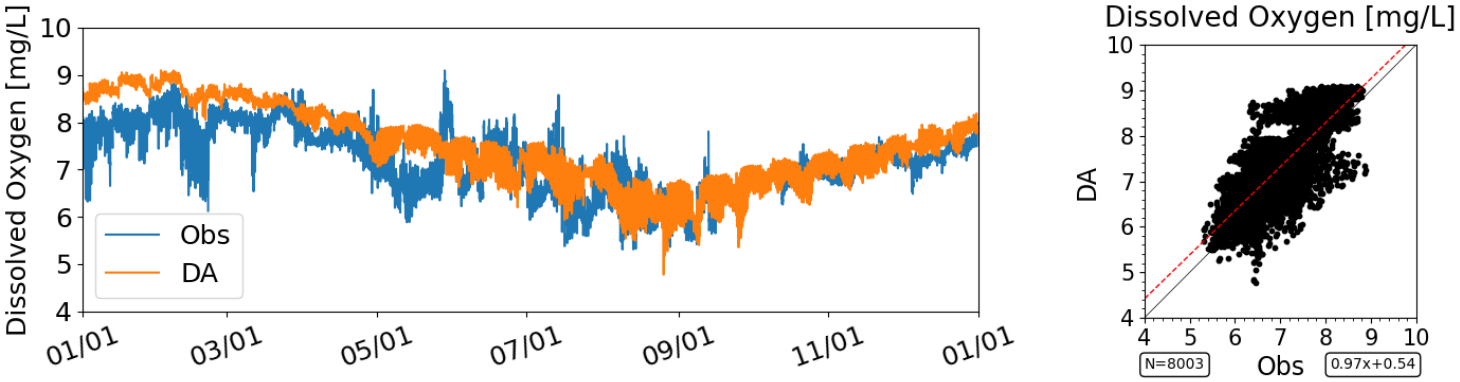


(c) Bottom layer

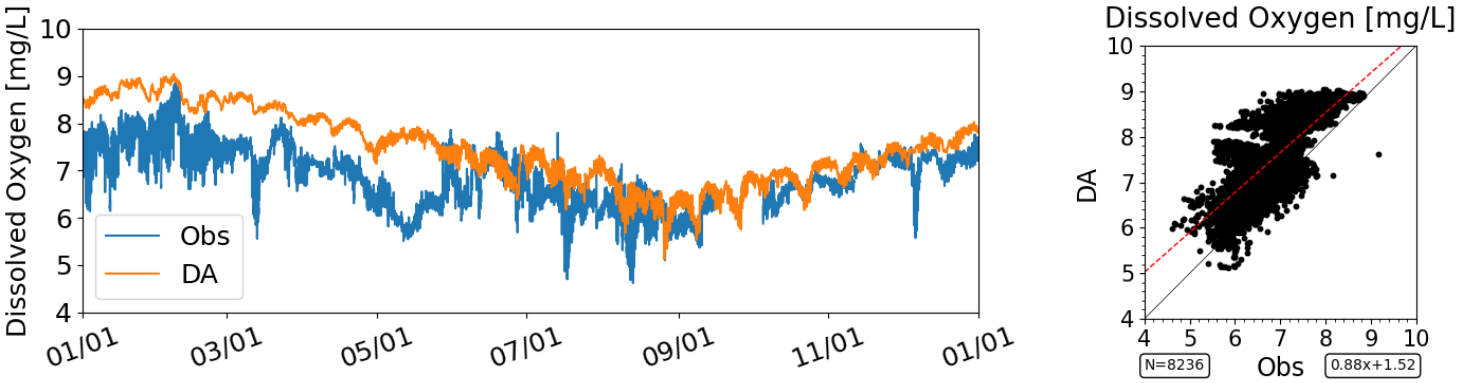
Figure S3.138 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2015



(a) Surface layer

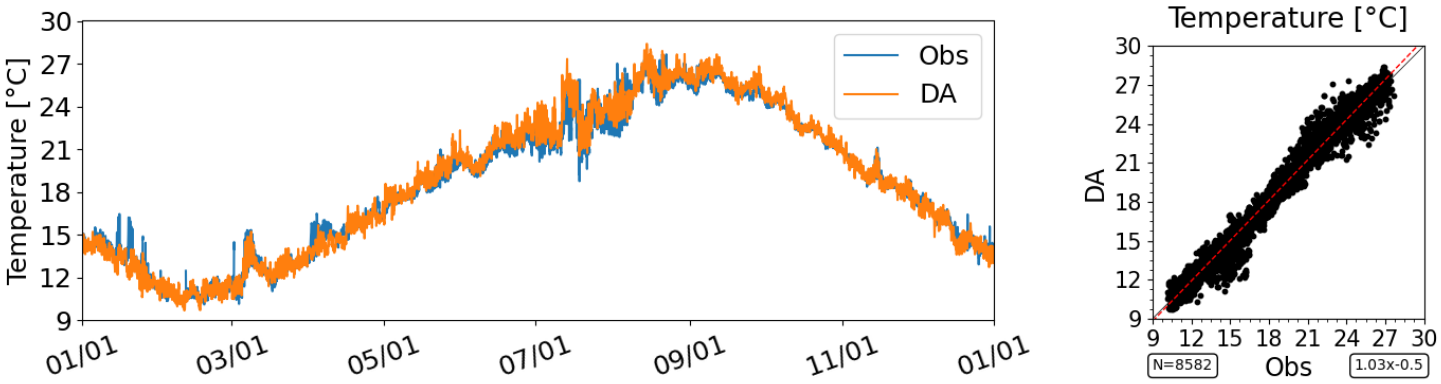


(b) Middle layer

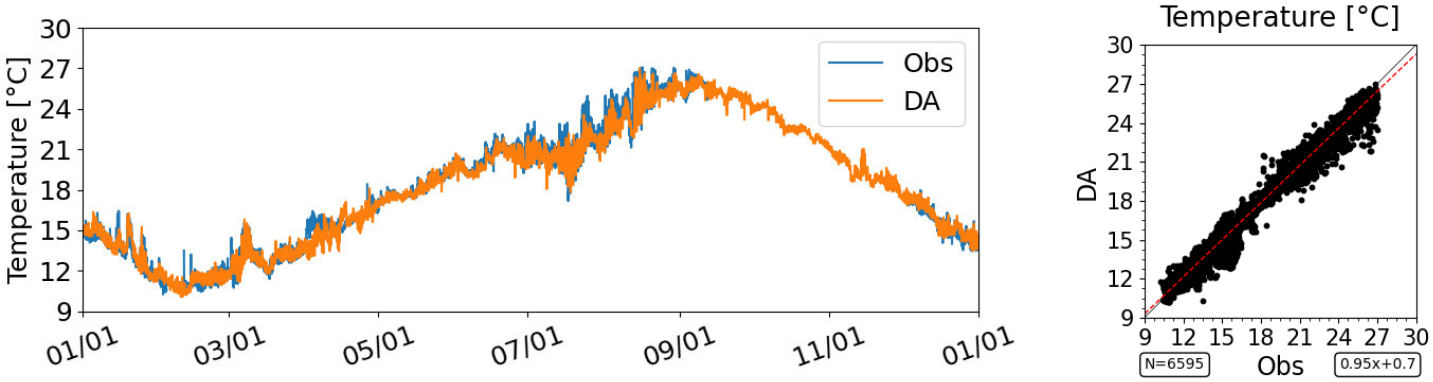


(c) Bottom layer

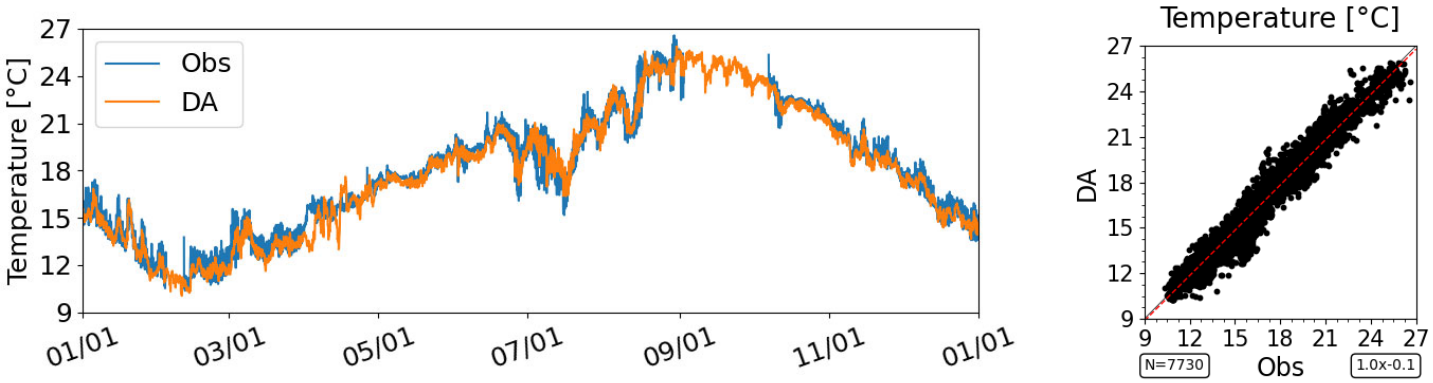
Figure S3.139 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2015



(a) Surface layer

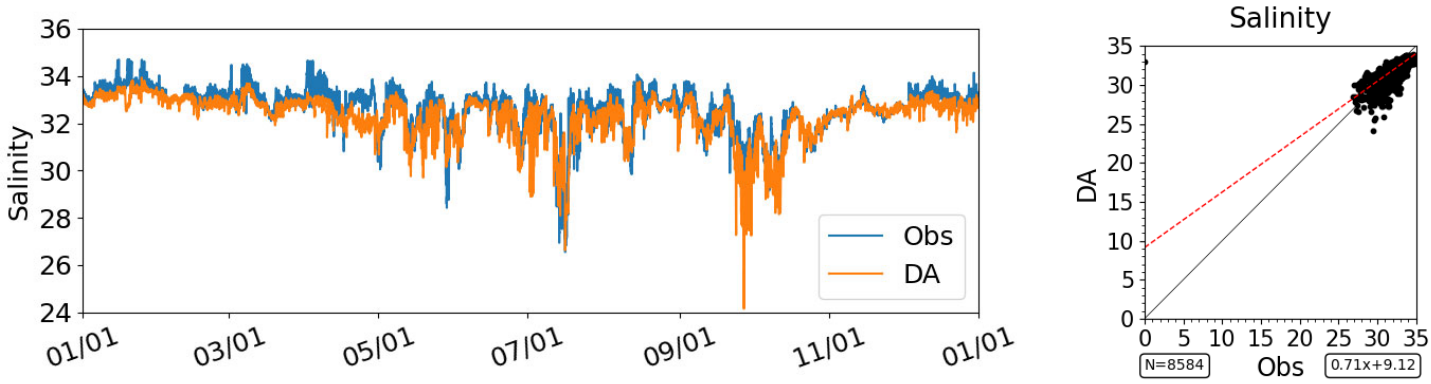


(b) Middle layer

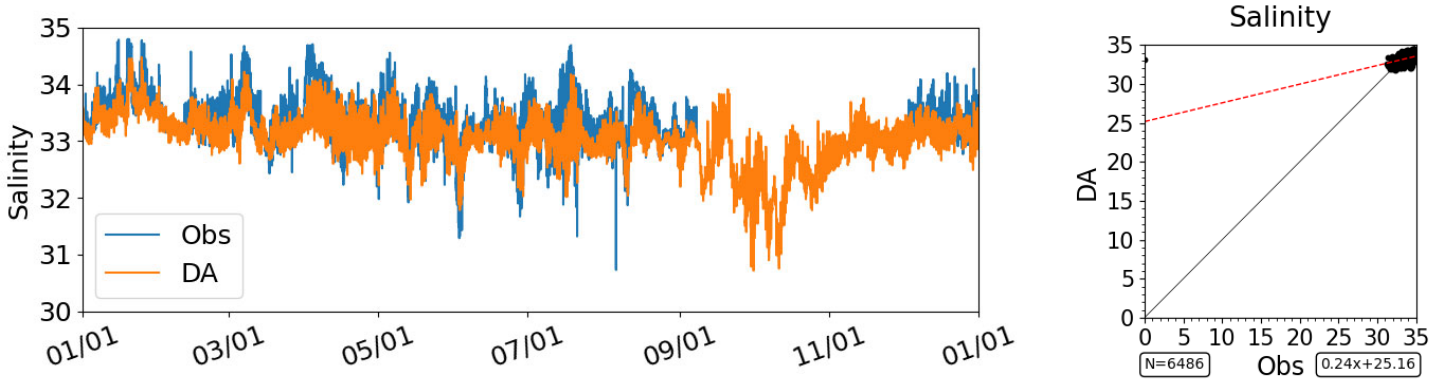


(c) Bottom layer

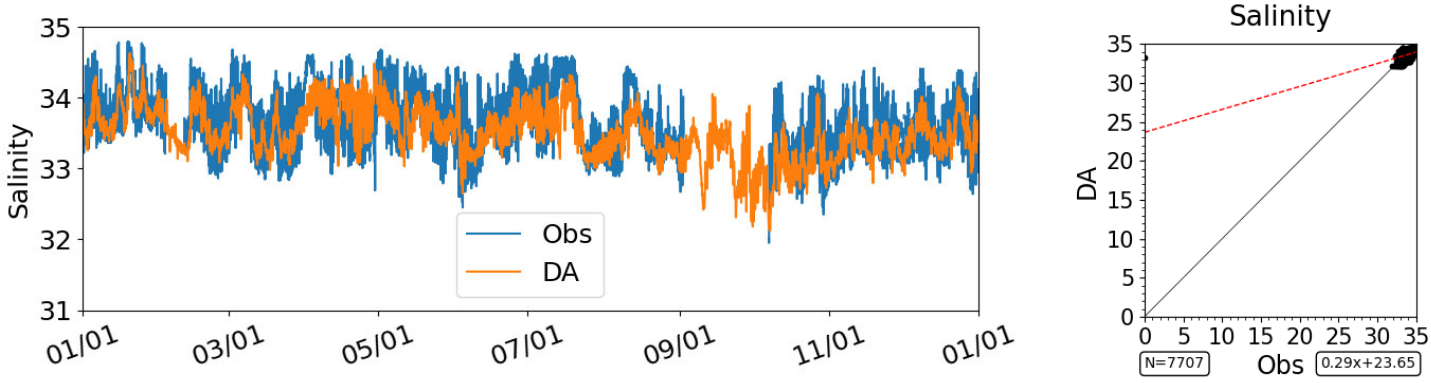
Figure S3.140 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2016



(a) Surface layer

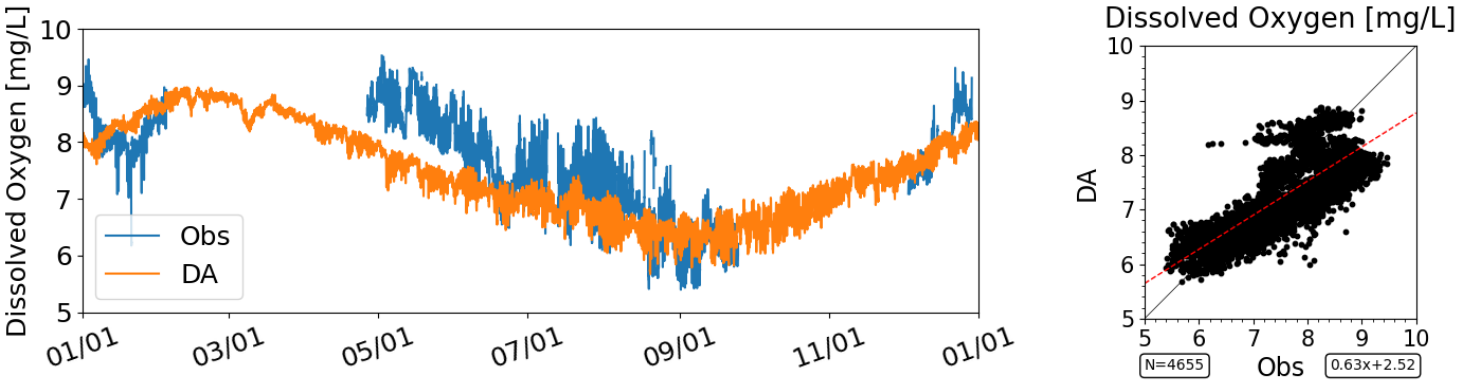


(b) Middle layer

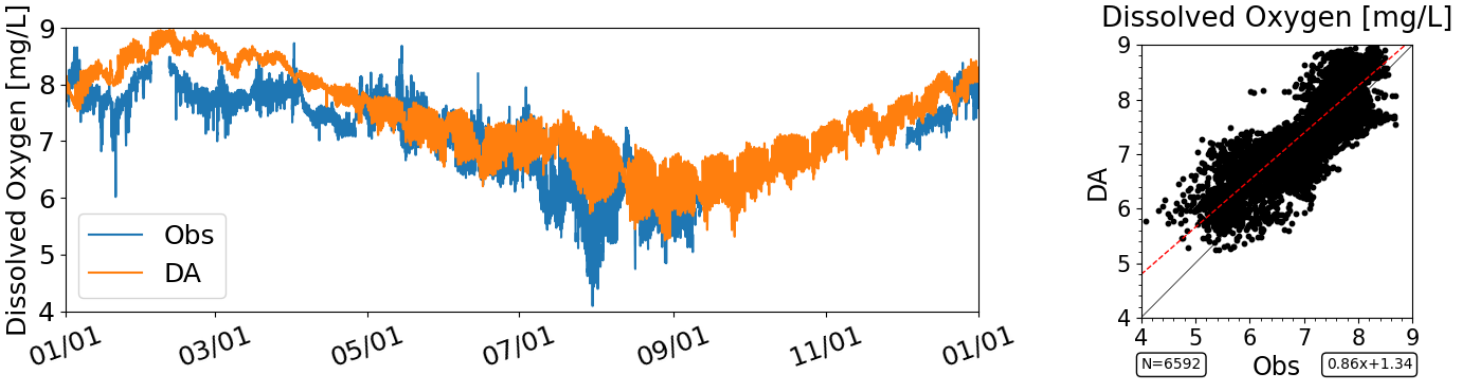


(c) Bottom layer

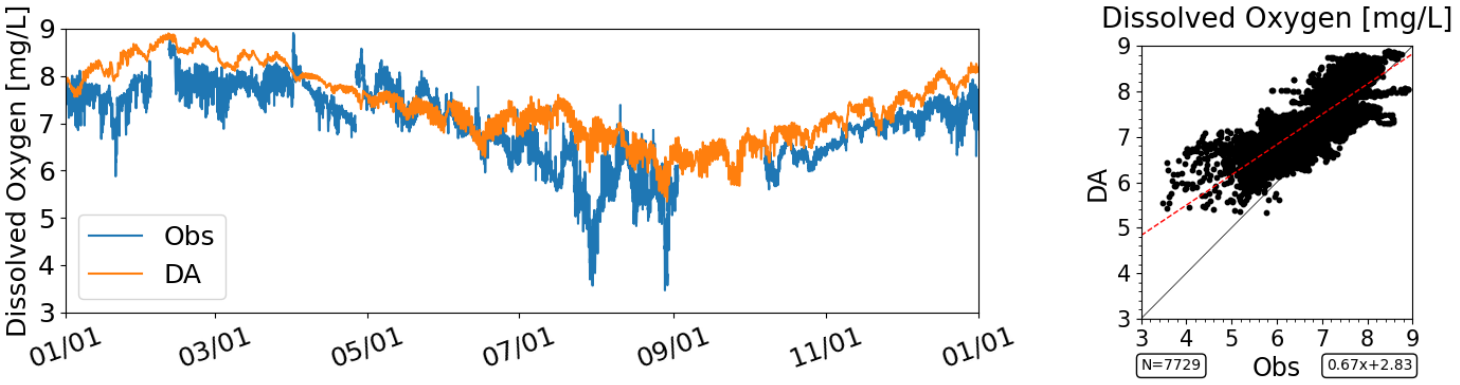
Figure S3.141 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2016



(a) Surface layer

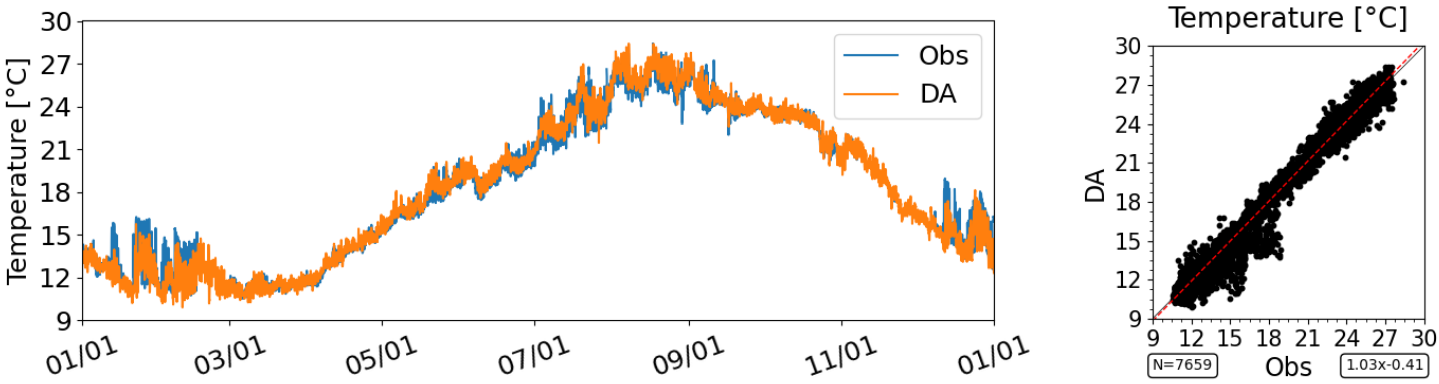


(b) Middle layer

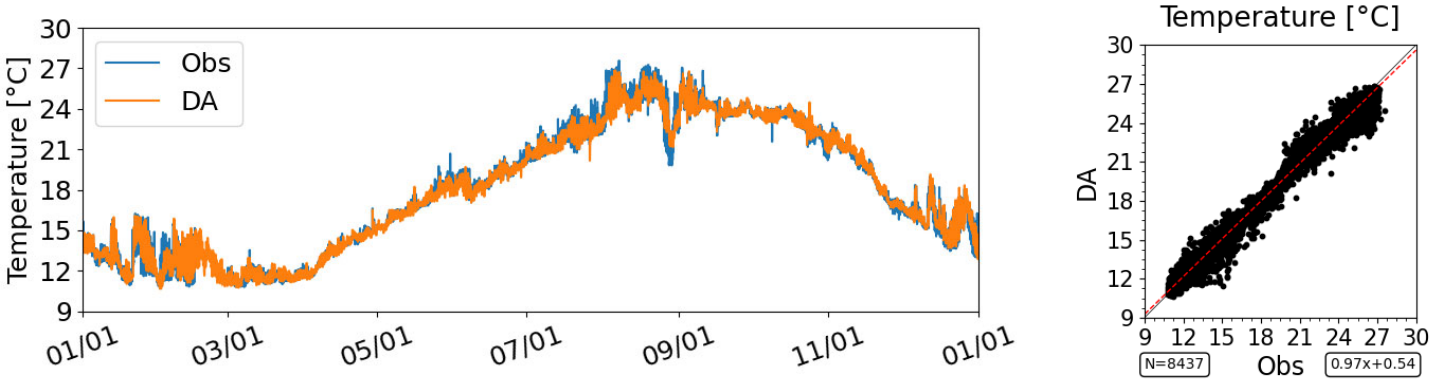


(c) Bottom layer

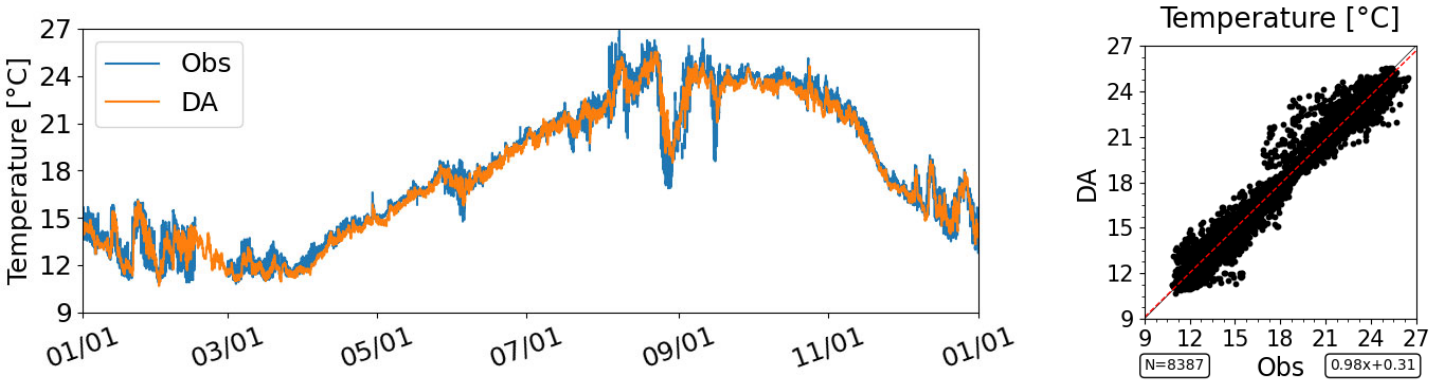
Figure S3.142 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2016



(a) Surface layer

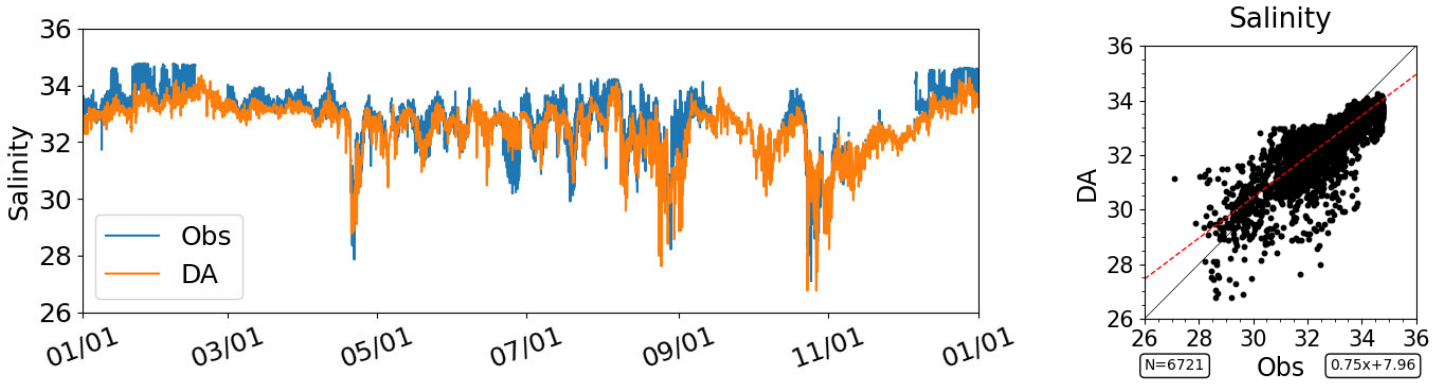


(b) Middle layer

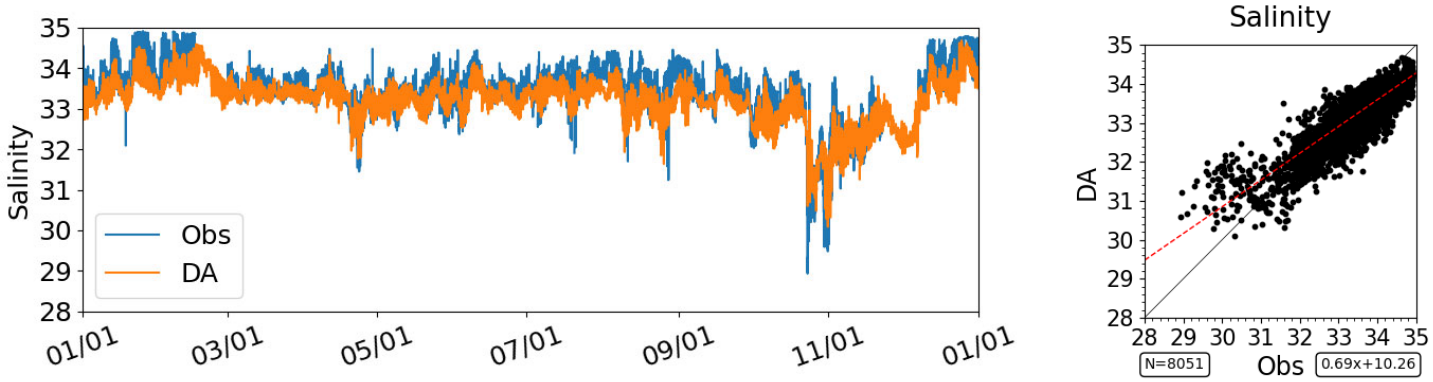


(c) Bottom layer

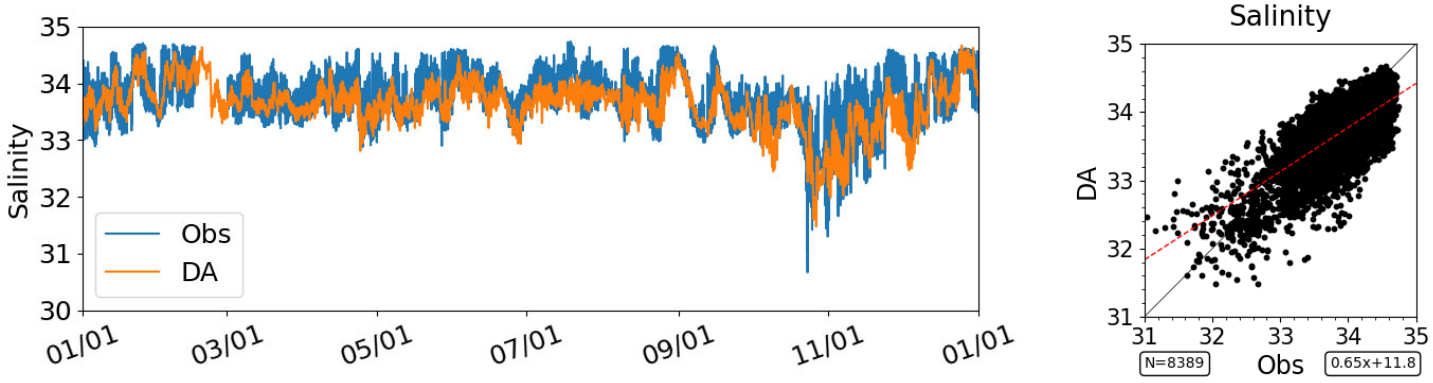
Figure S3.143 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2017



(a) Surface layer

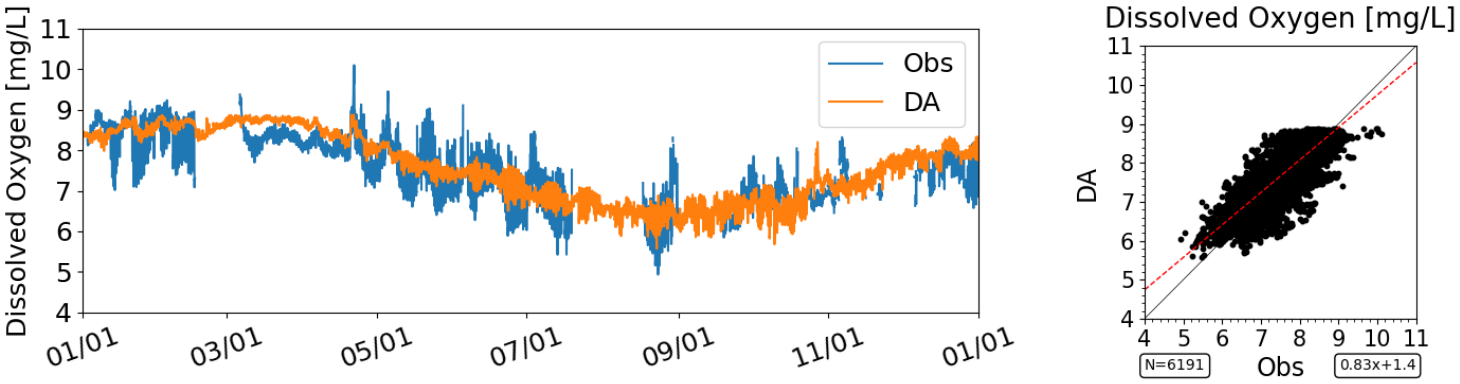


(b) Middle layer

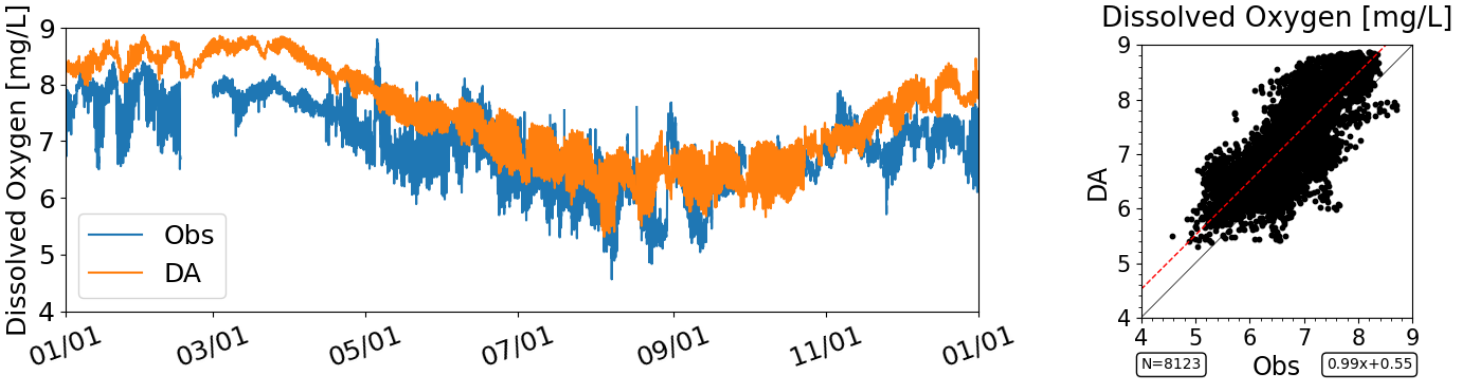


(c) Bottom layer

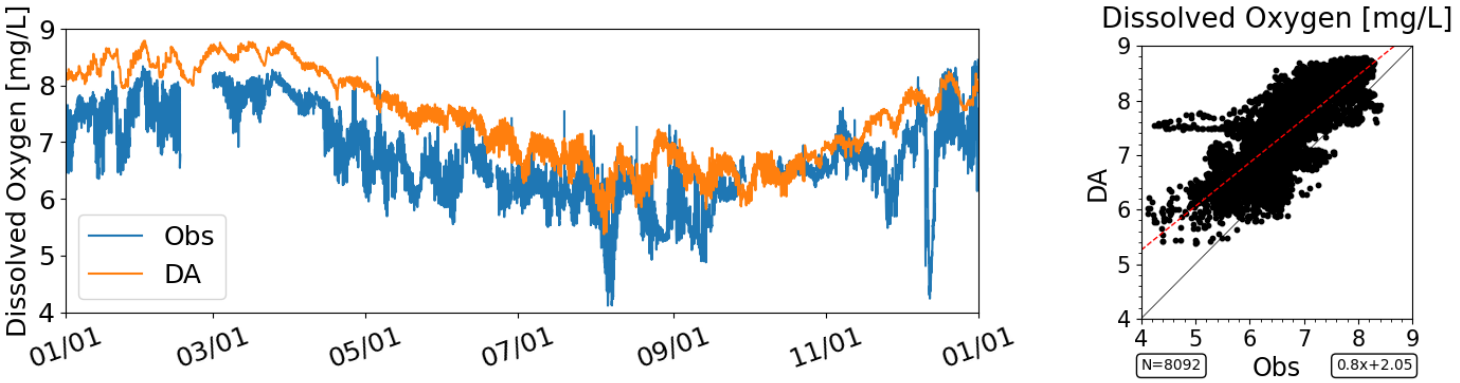
Figure S3.144 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2017



(a) Surface layer



(b) Middle layer

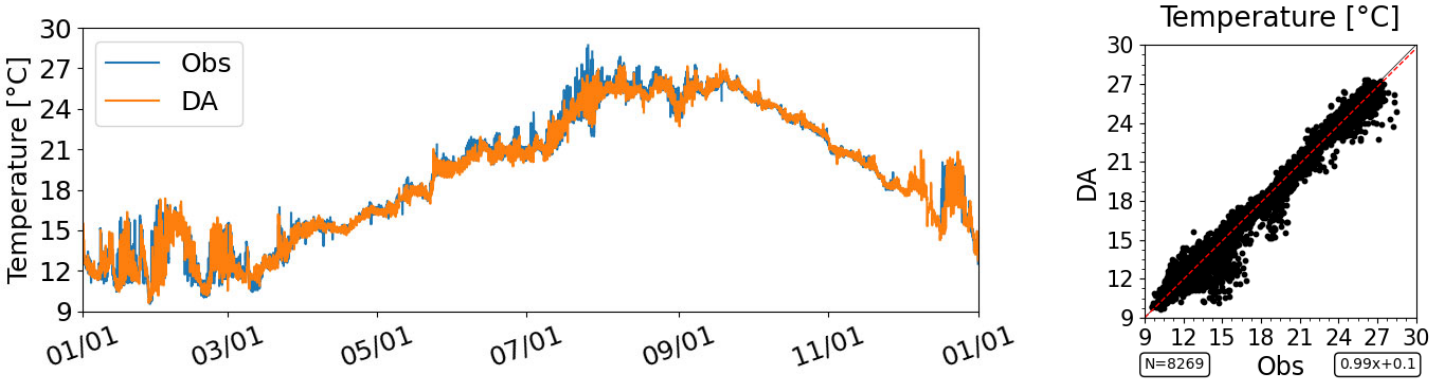


(c) Bottom layer

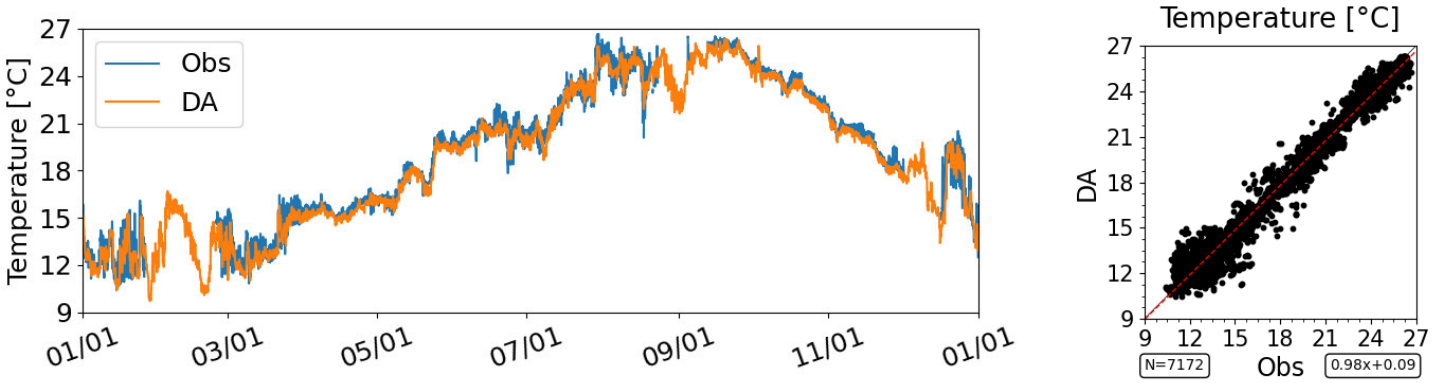
Figure S3.145 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2017



(a) Surface layer

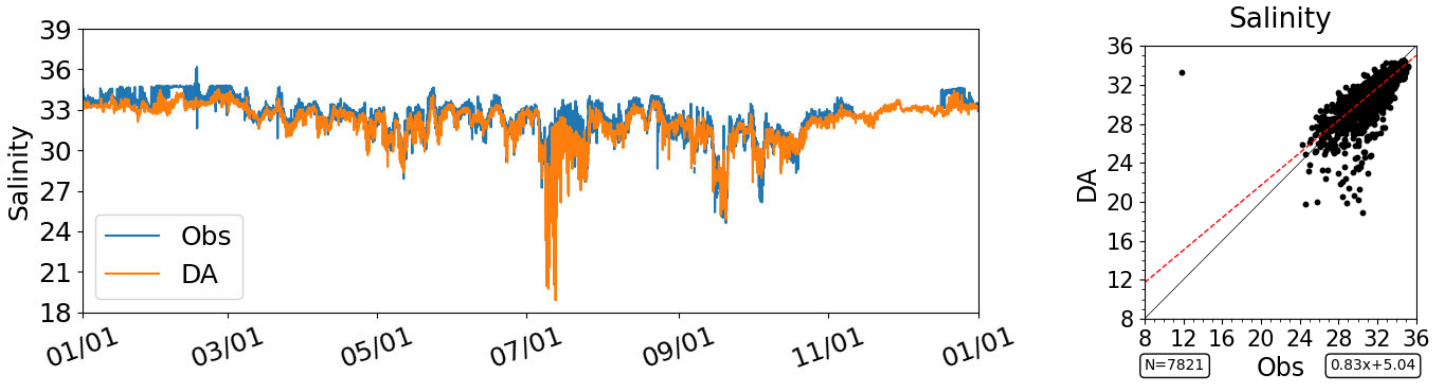


(b) Middle layer

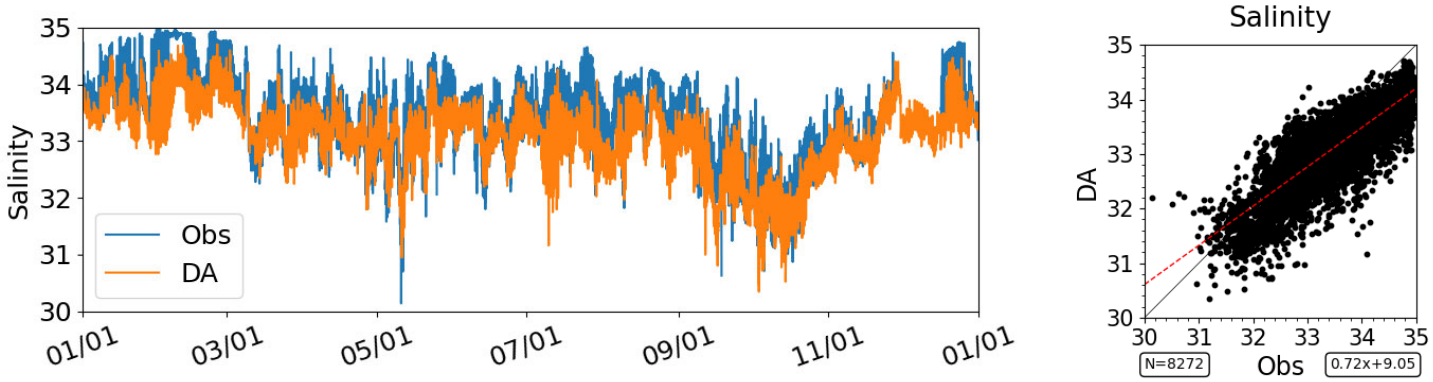


(c) Bottom layer

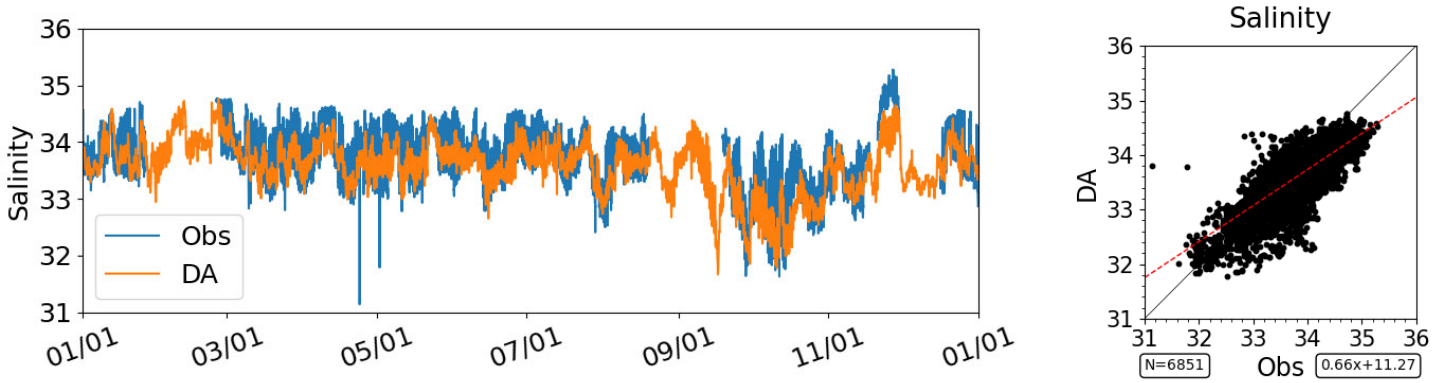
Figure S3.146 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2018



(a) Surface layer

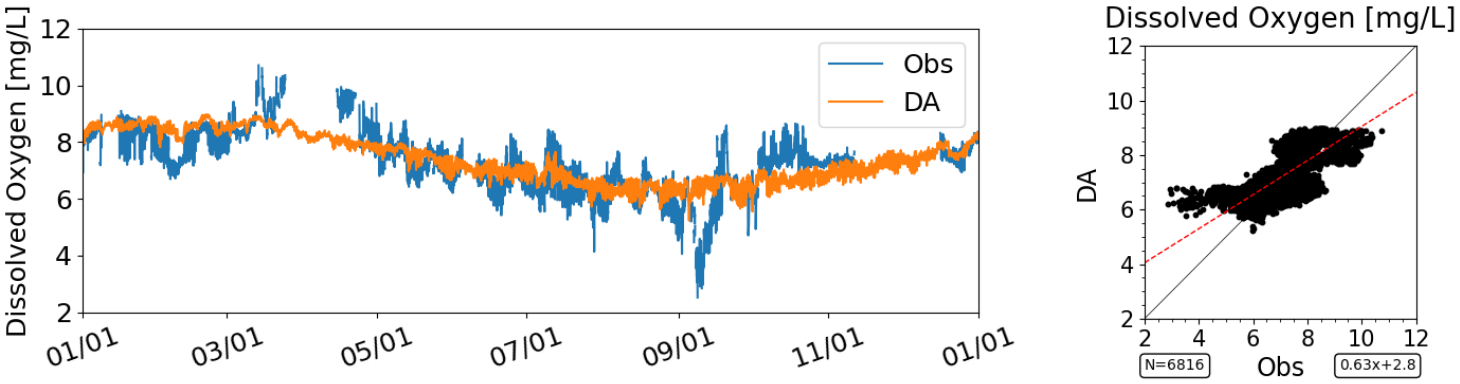


(b) Middle layer

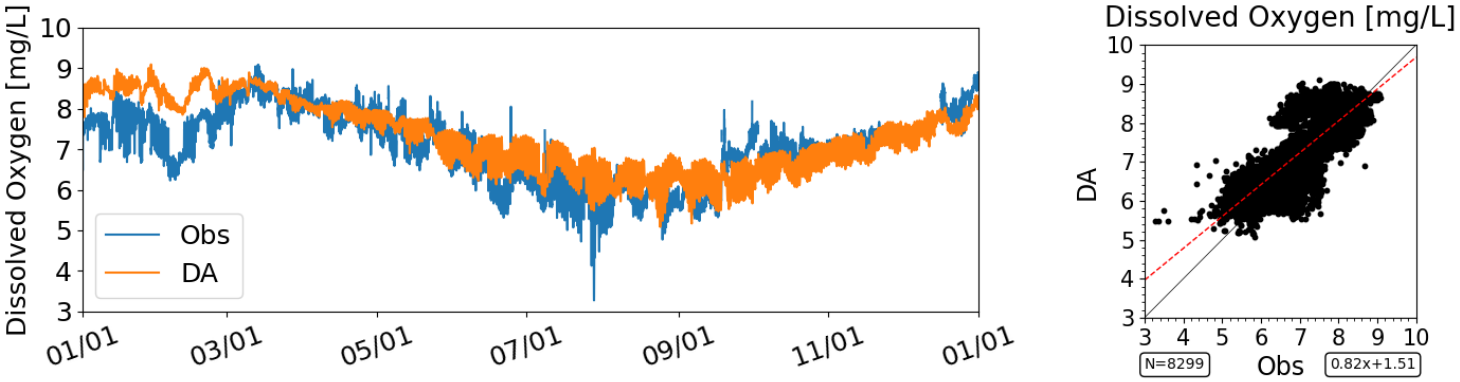


(c) Bottom layer

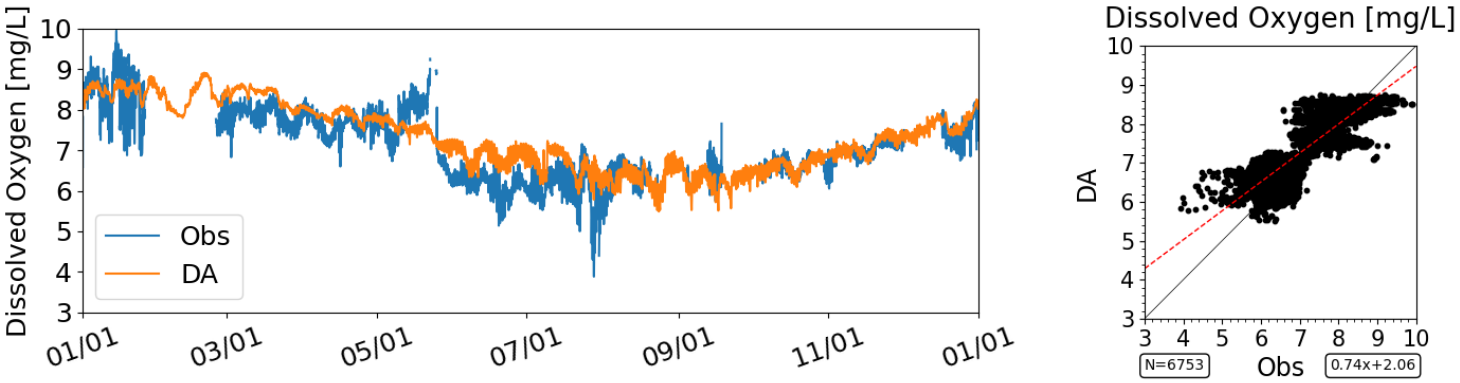
Figure S3.147 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2018



(a) Surface layer

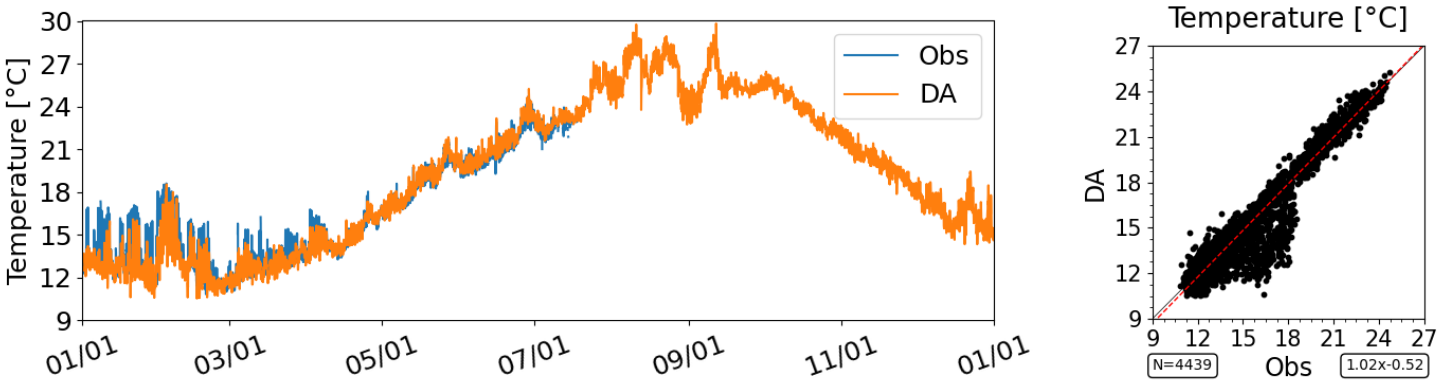


(b) Middle layer

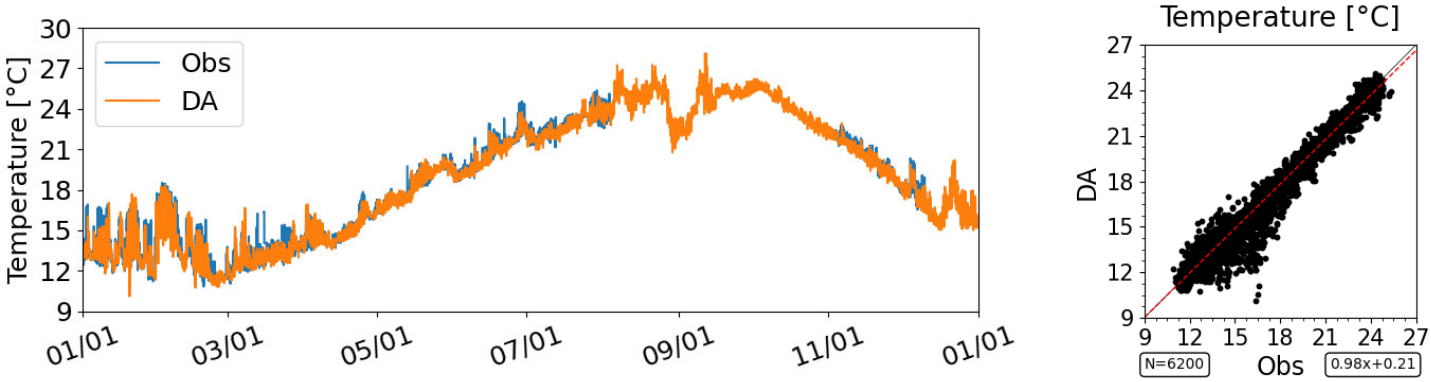


(c) Bottom layer

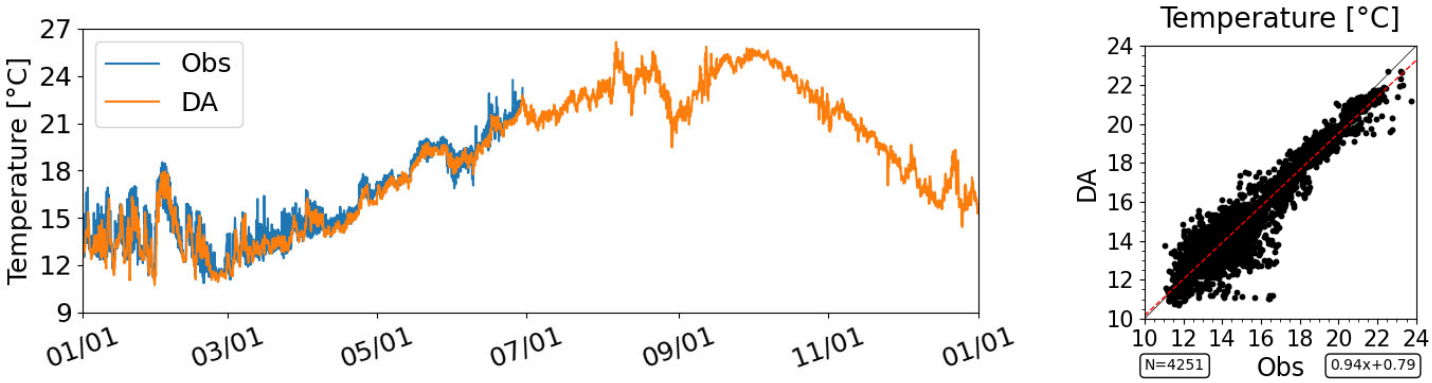
Figure S3.148 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2018



(a) Surface layer

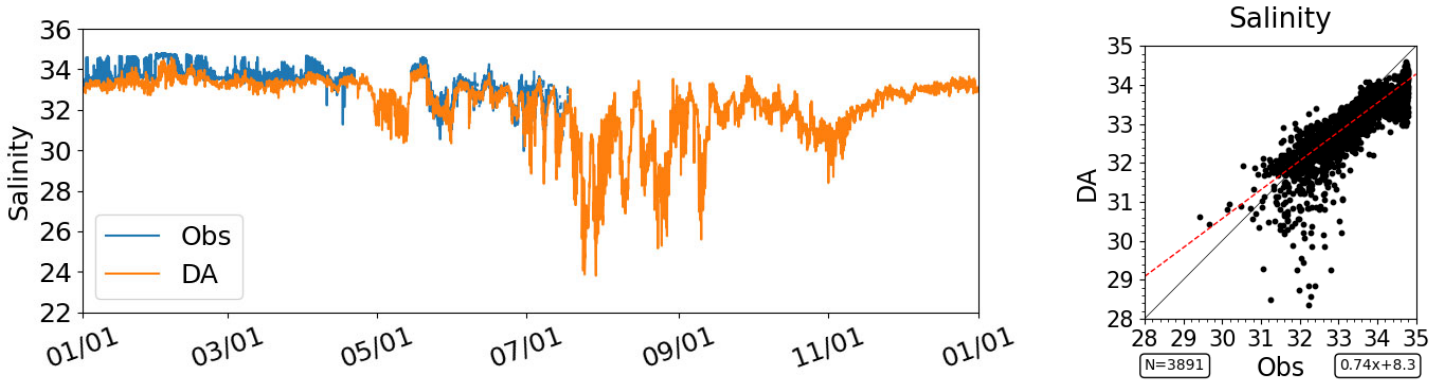


(b) Middle layer

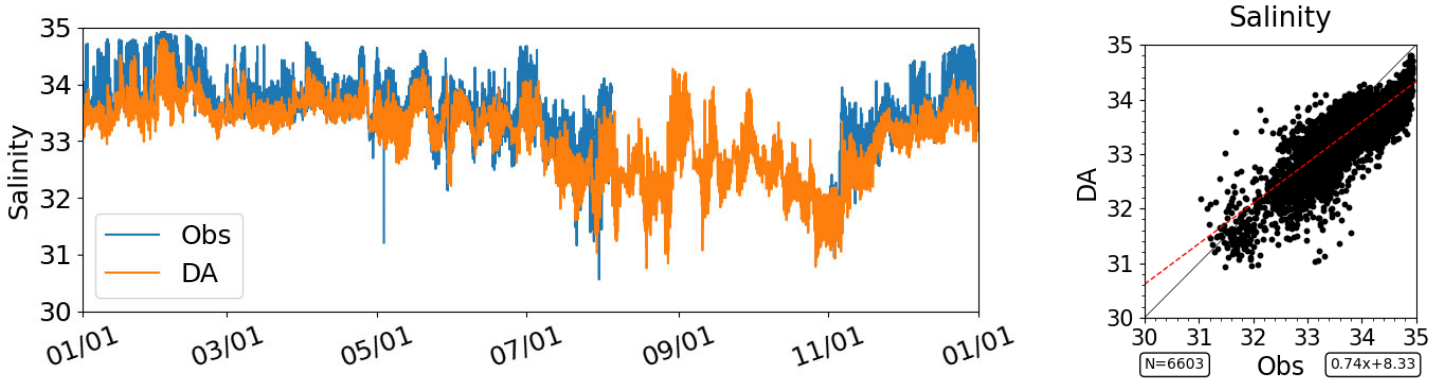


(c) Bottom layer

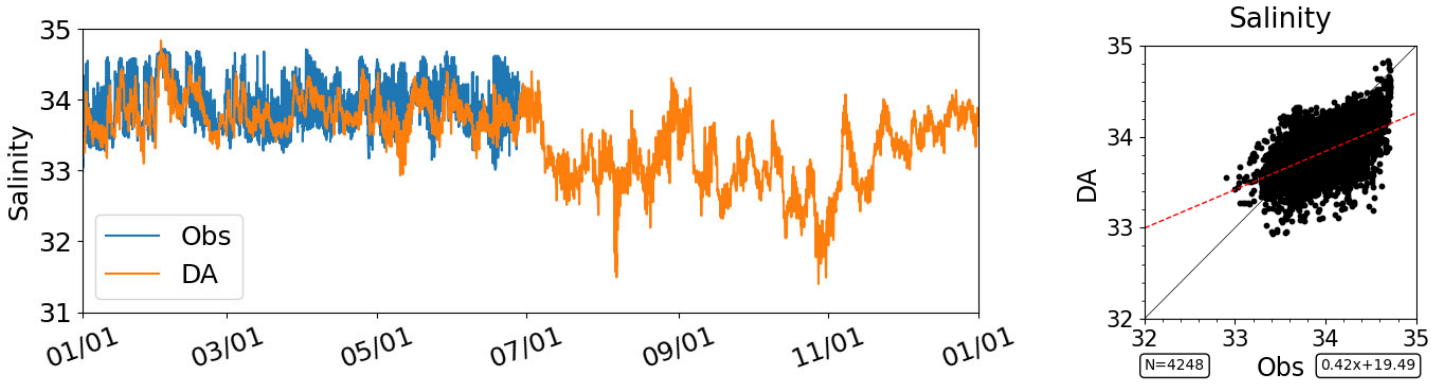
Figure S3.149 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2019



(a) Surface layer

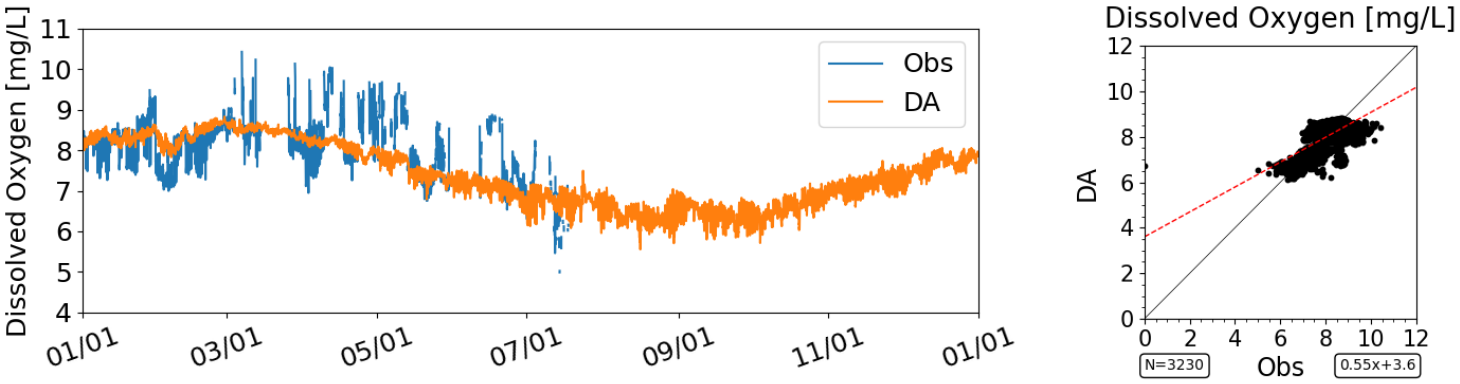


(b) Middle layer

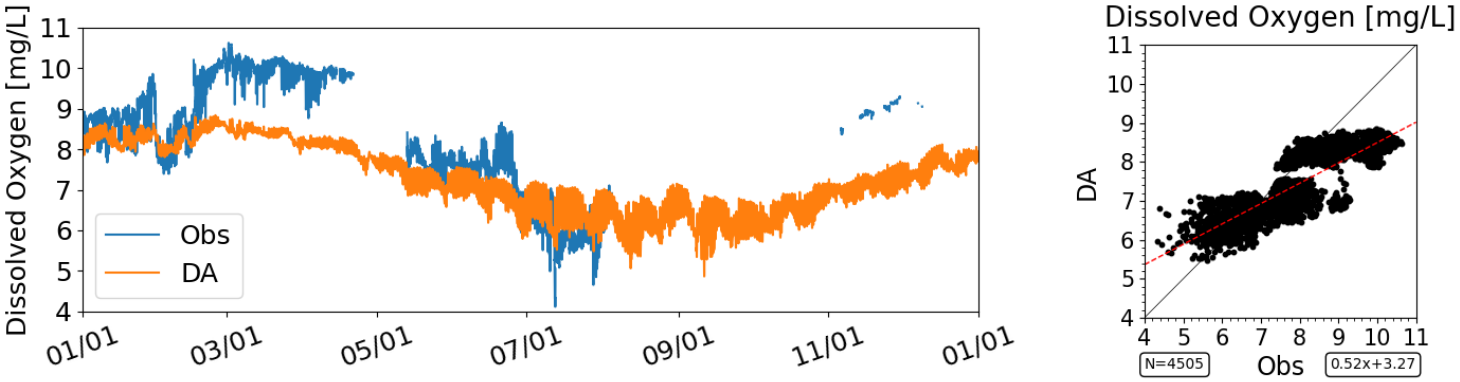


(c) Bottom layer

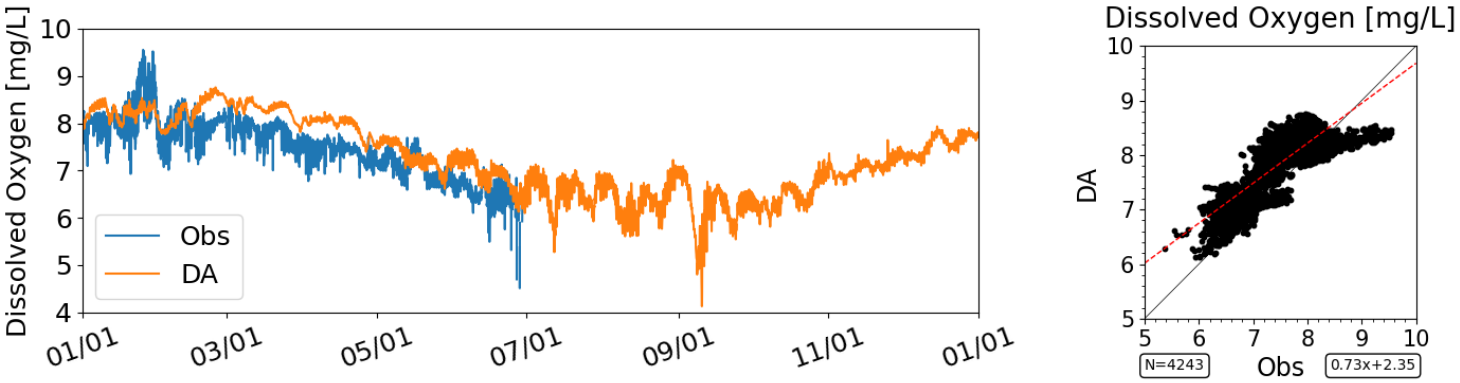
Figure S3.150 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2019



(a) Surface layer

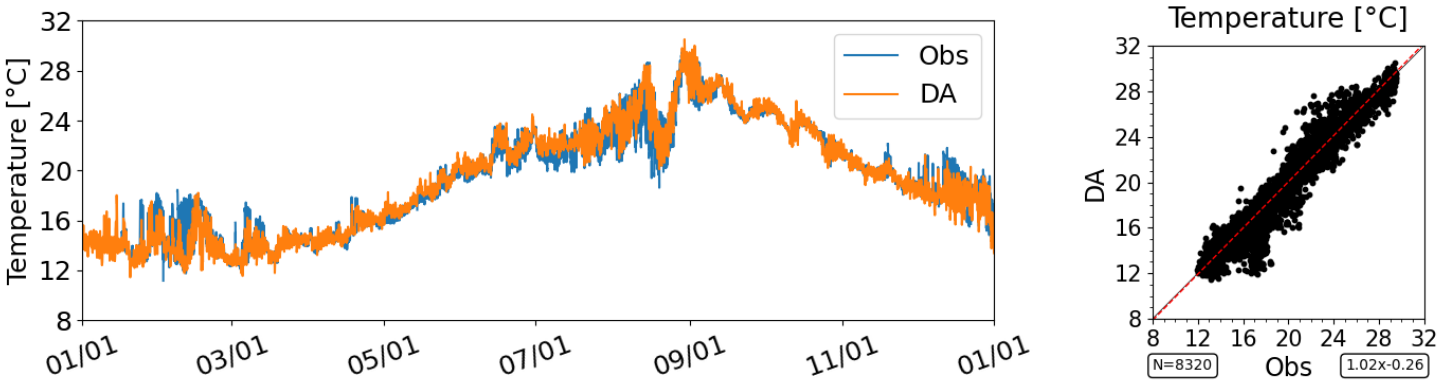


(b) Middle layer

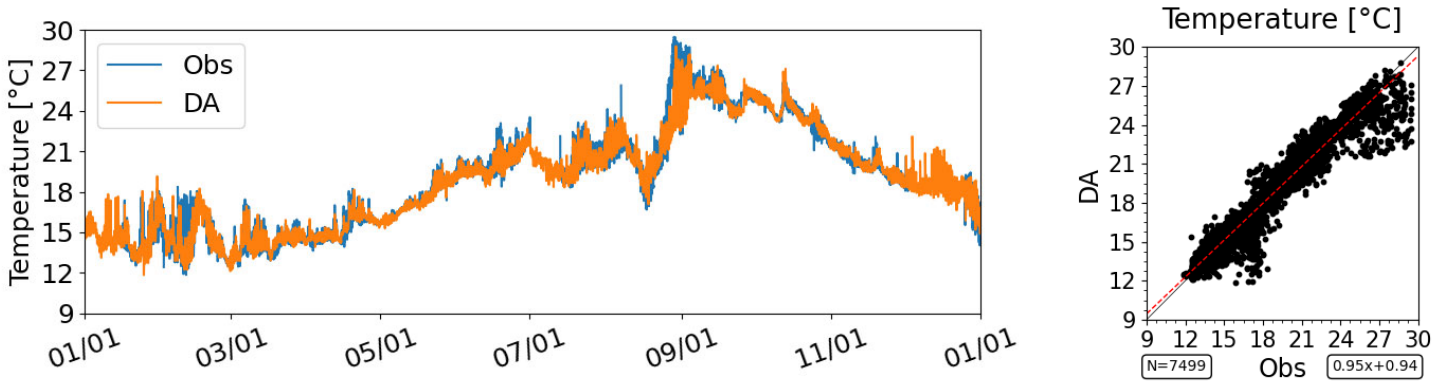


(c) Bottom layer

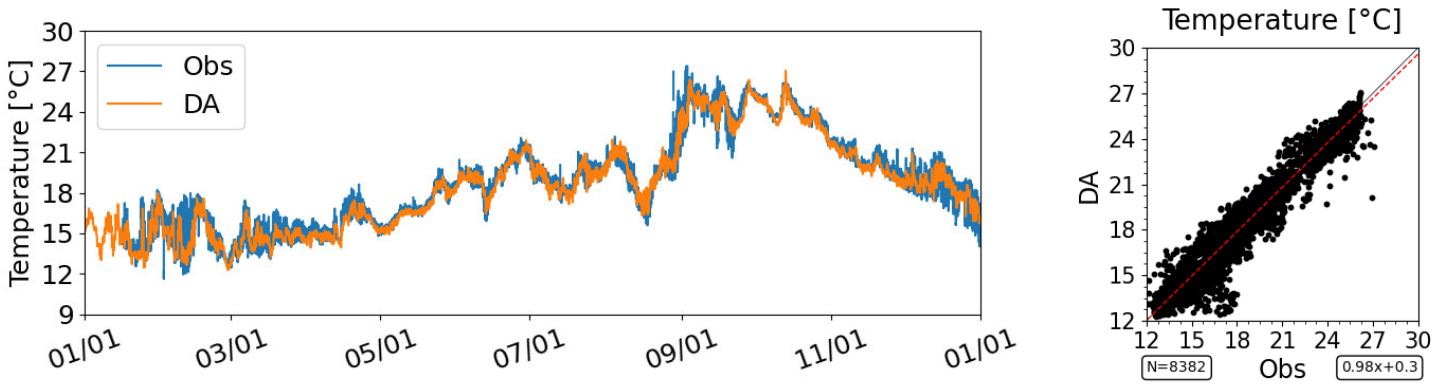
Figure S3.151 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2019



(a) Surface layer

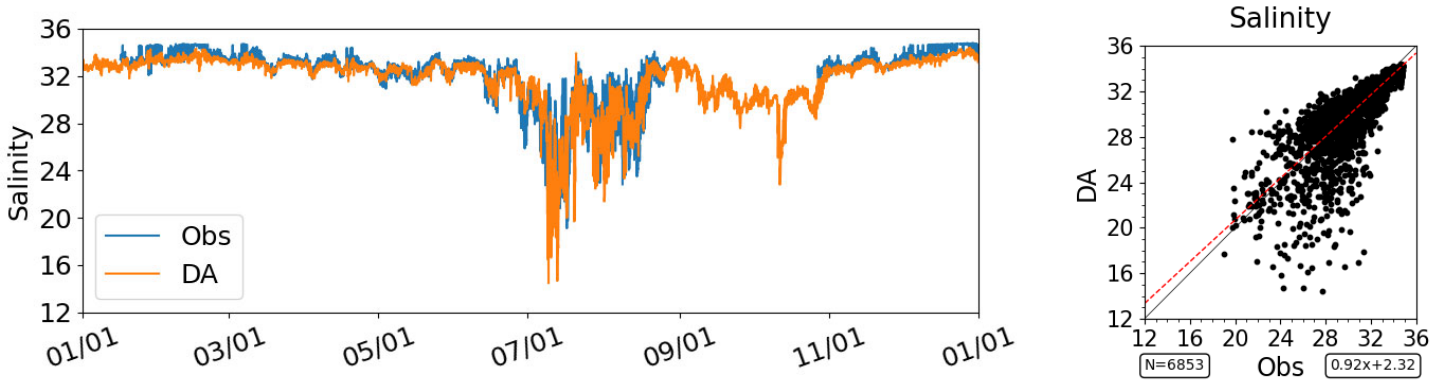


(b) Middle layer

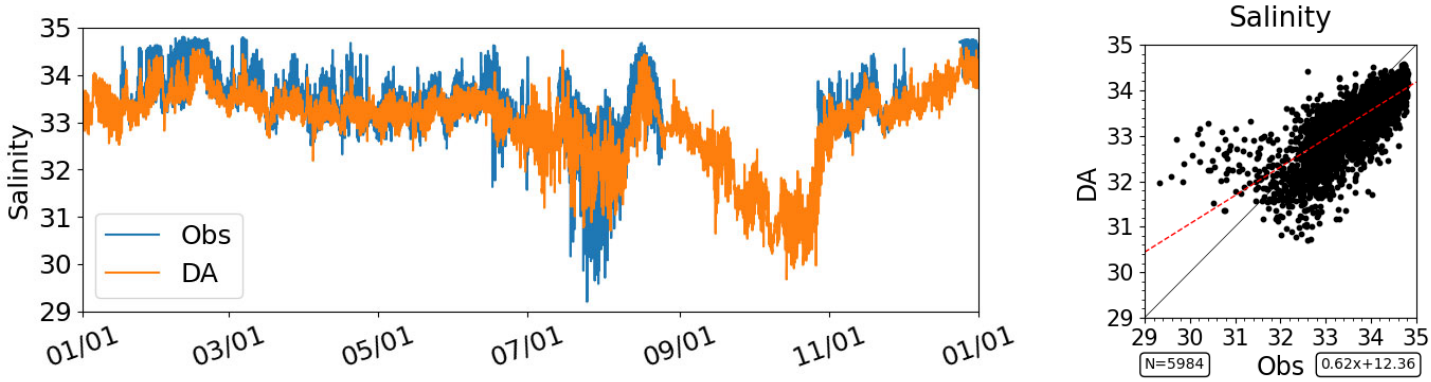


(c) Bottom layer

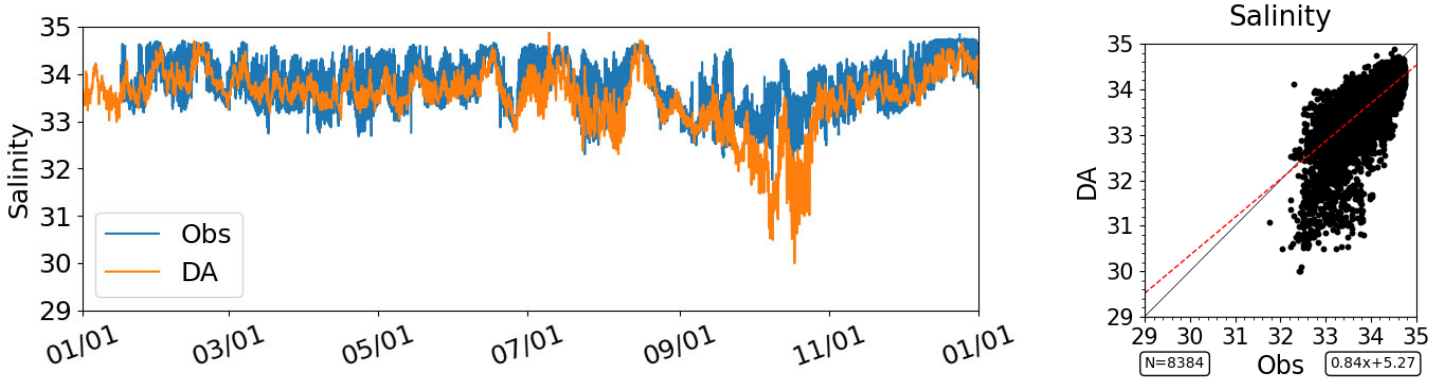
Figure S3.152 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2020



(a) Surface layer

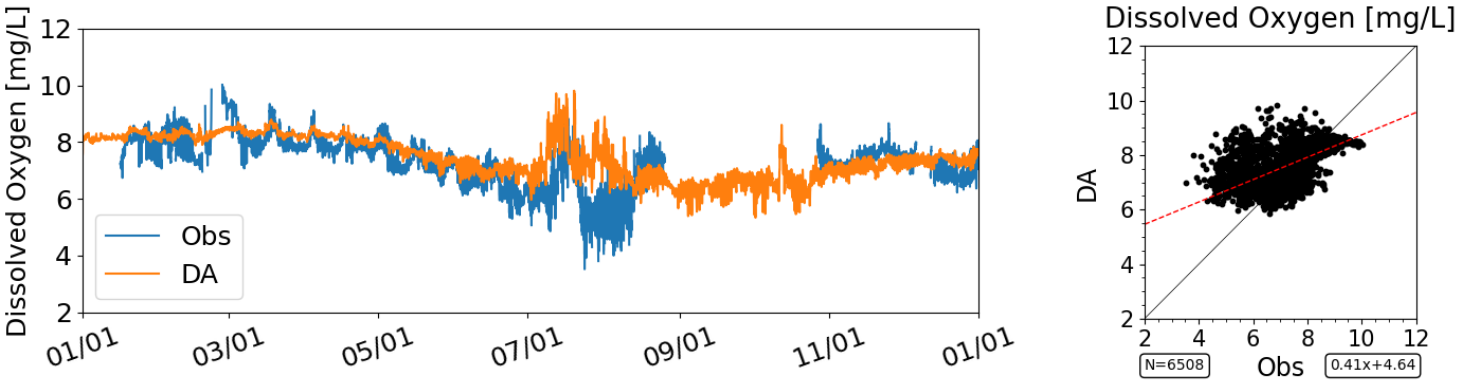


(b) Middle layer

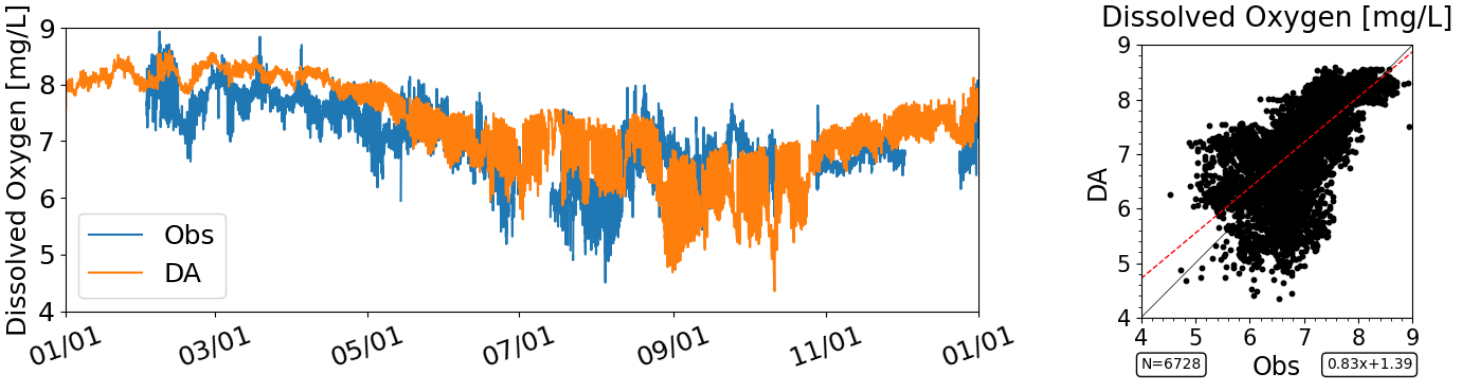


(c) Bottom layer

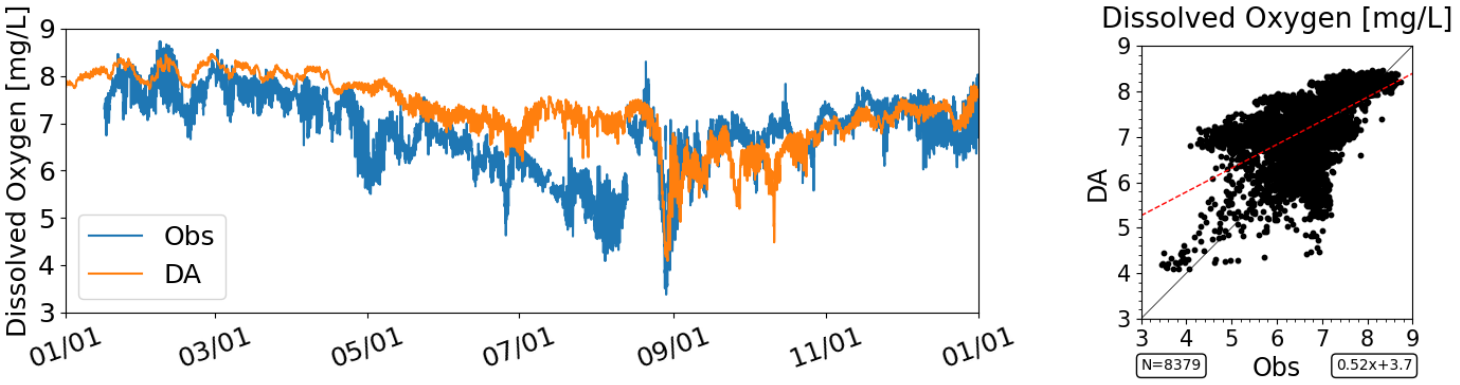
Figure S3.153 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2020



(a) Surface layer



(b) Middle layer

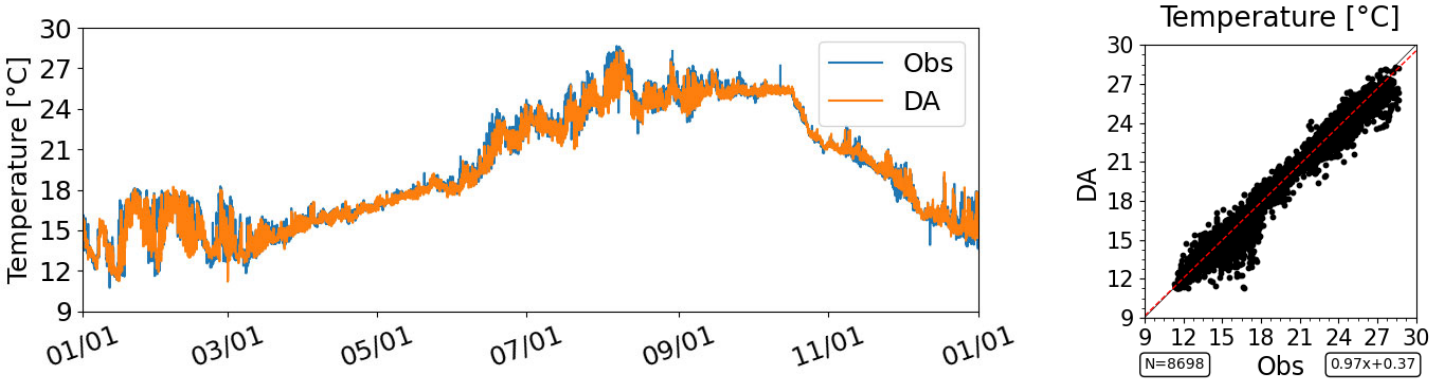


(c) Bottom layer

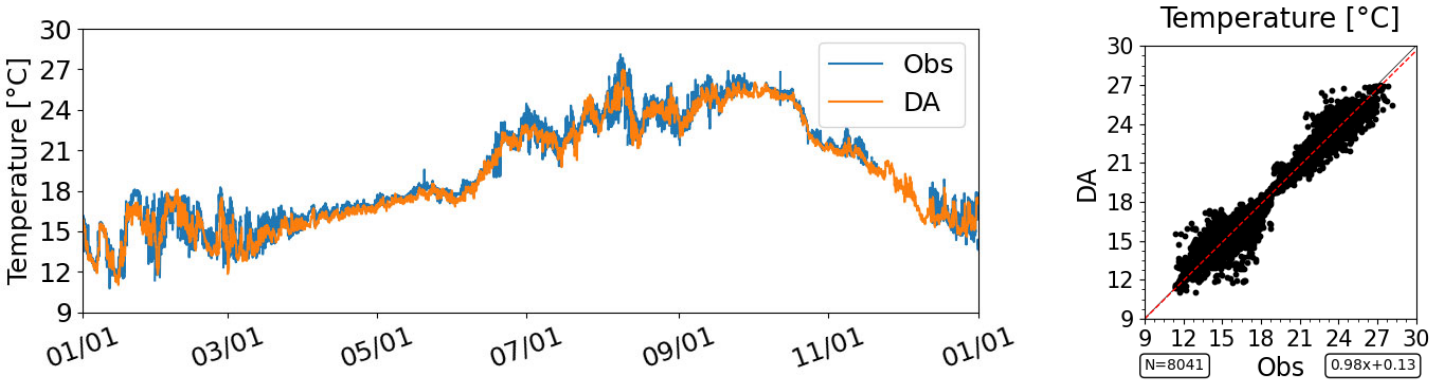
Figure S3.154 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2020



(a) Surface layer

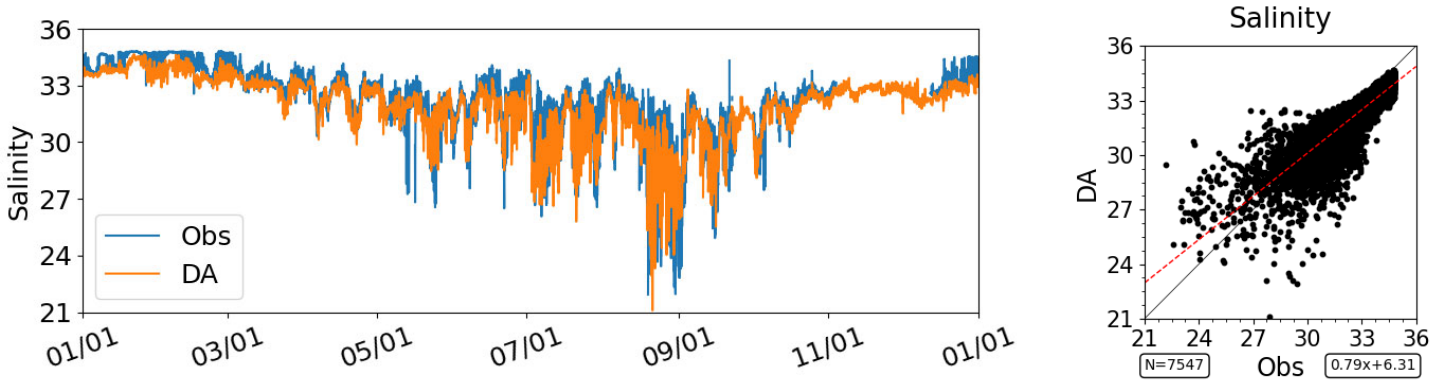


(b) Middle layer

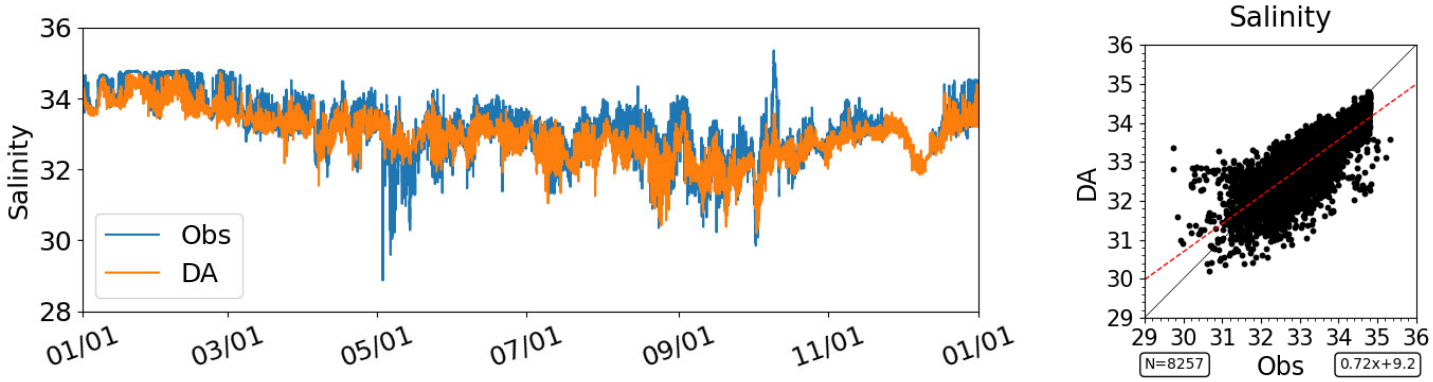


(c) Bottom layer

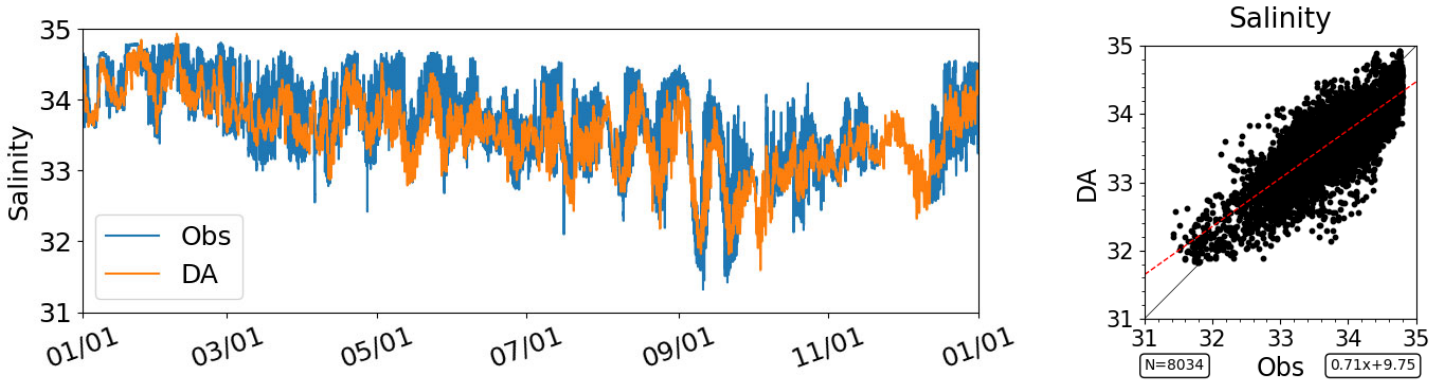
Figure S3.155 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2021



(a) Surface layer

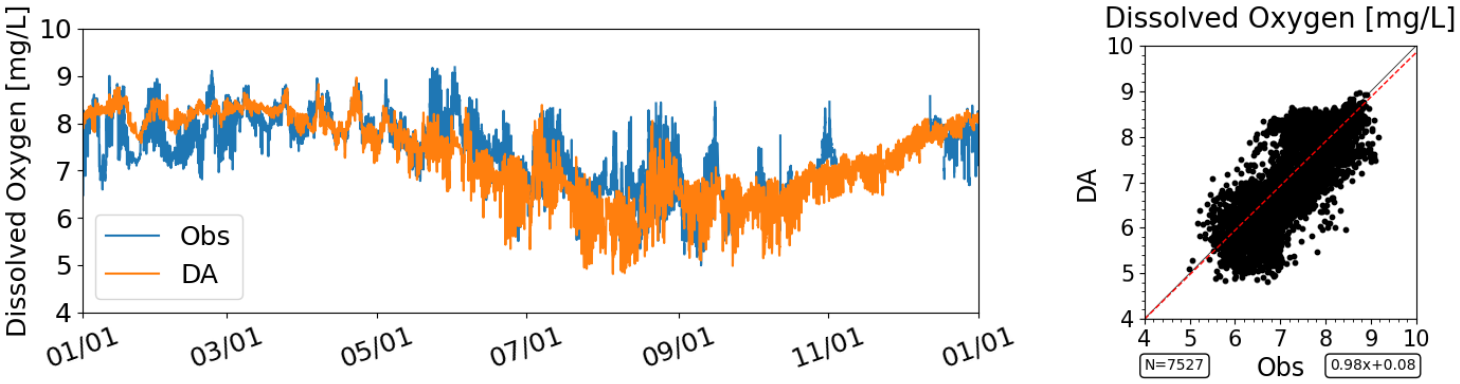


(b) Middle layer

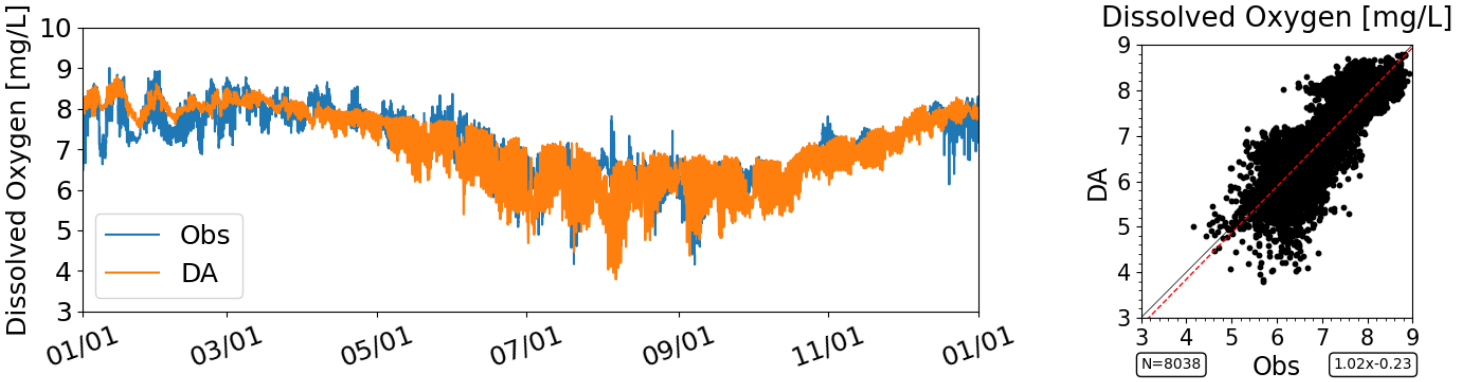


(c) Bottom layer

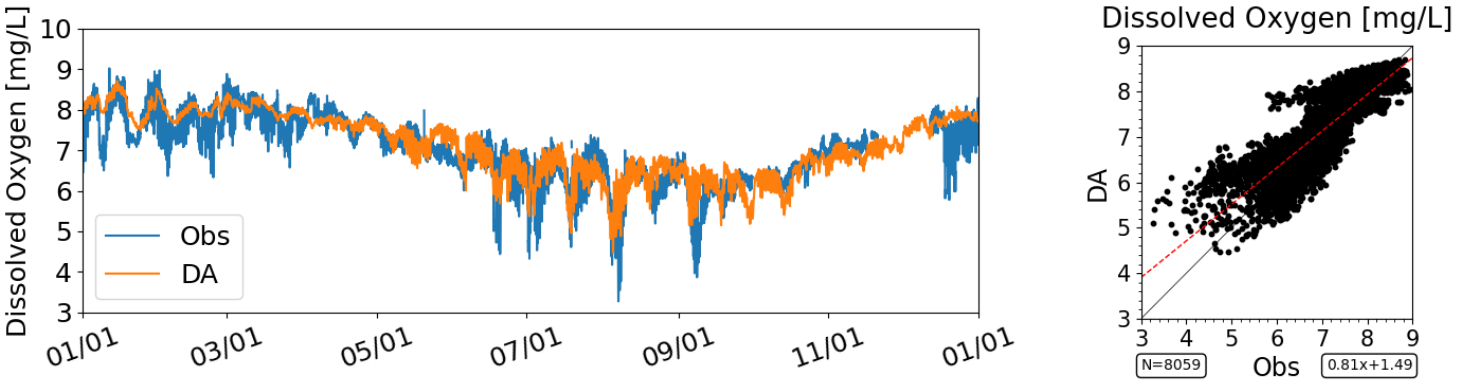
Figure S3.156 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2021



(a) Surface layer

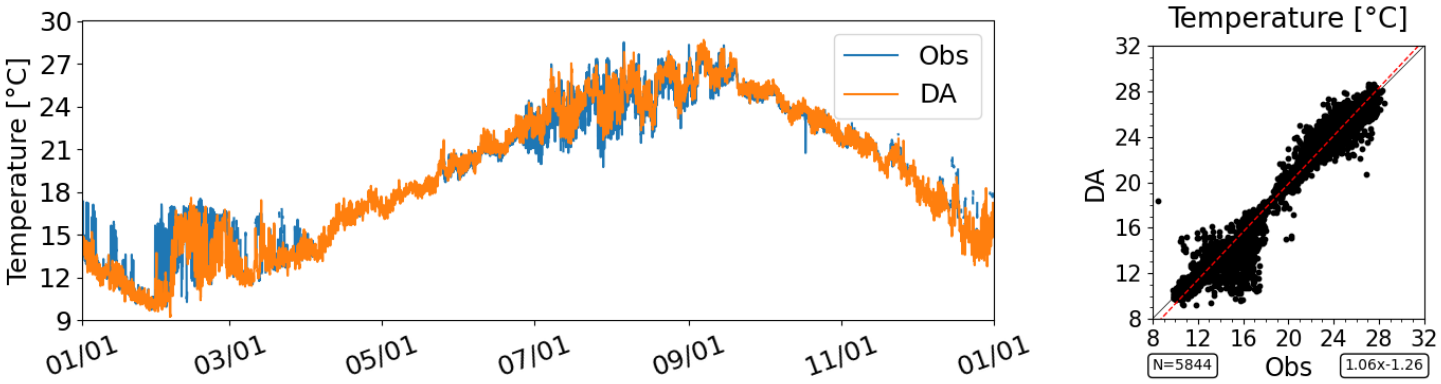


(b) Middle layer

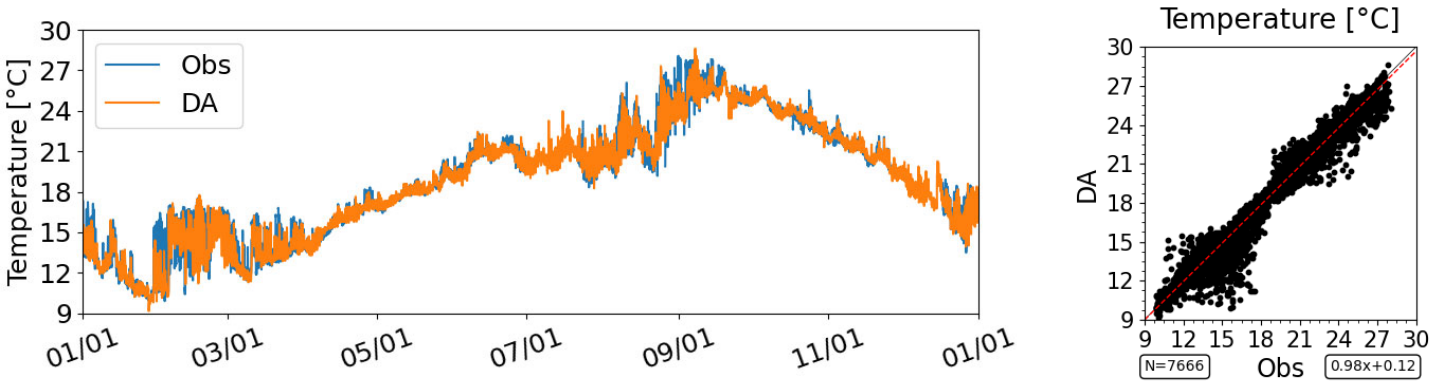


(c) Bottom layer

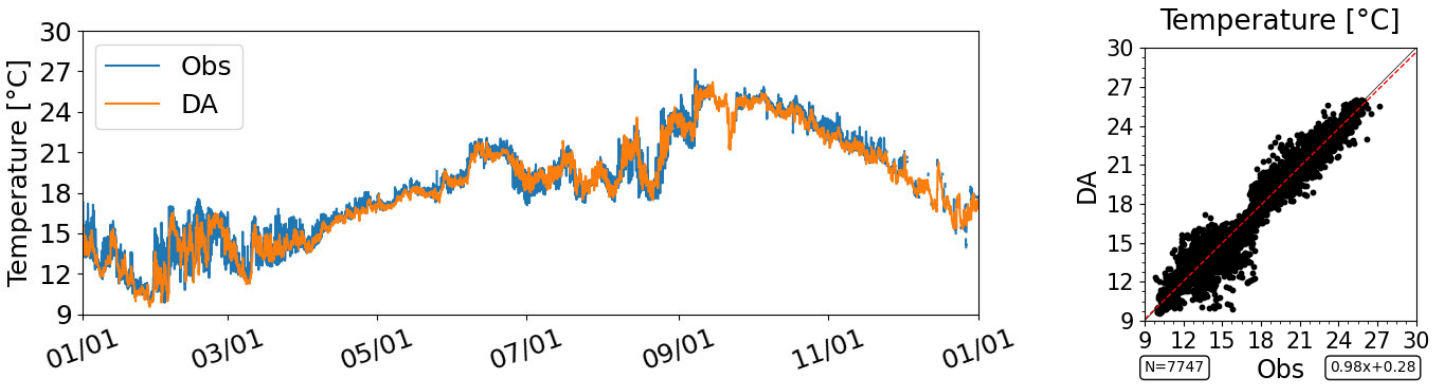
Figure S3.157 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2021



(a) Surface layer

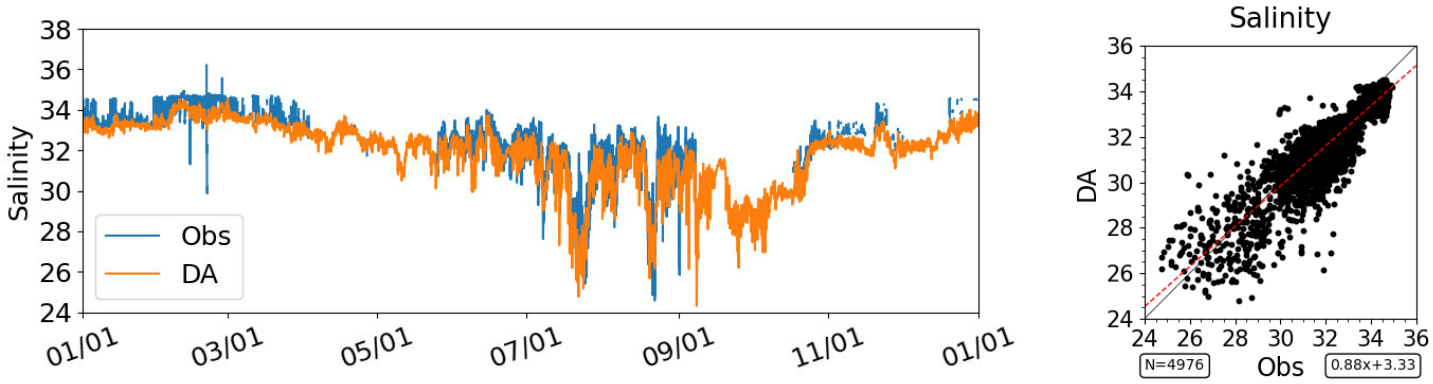


(b) Middle layer

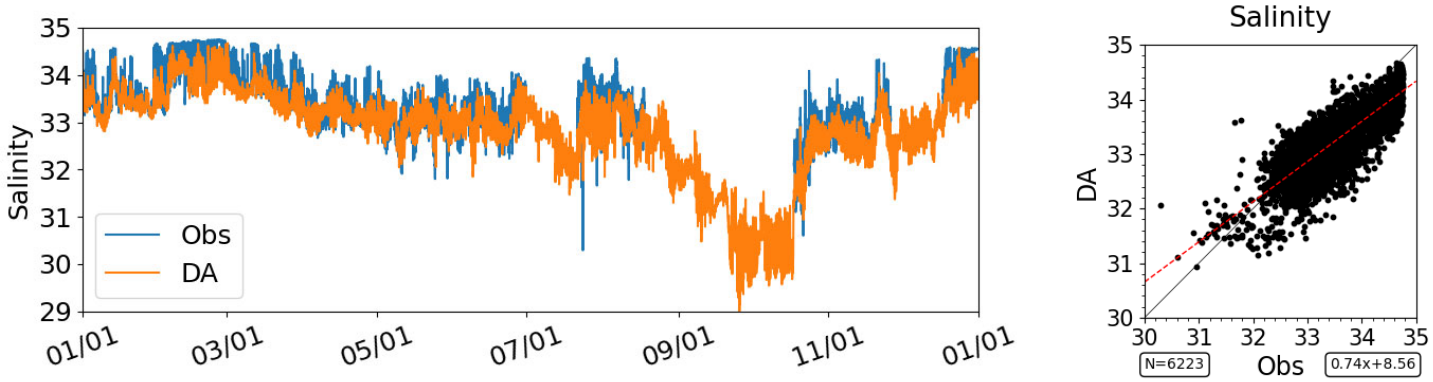


(c) Bottom layer

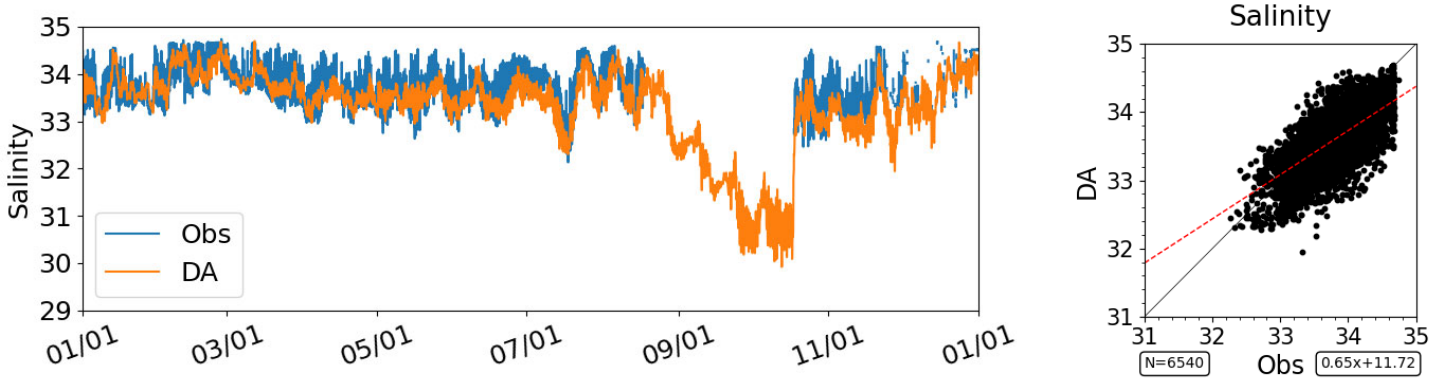
Figure S3.158 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2022



(a) Surface layer

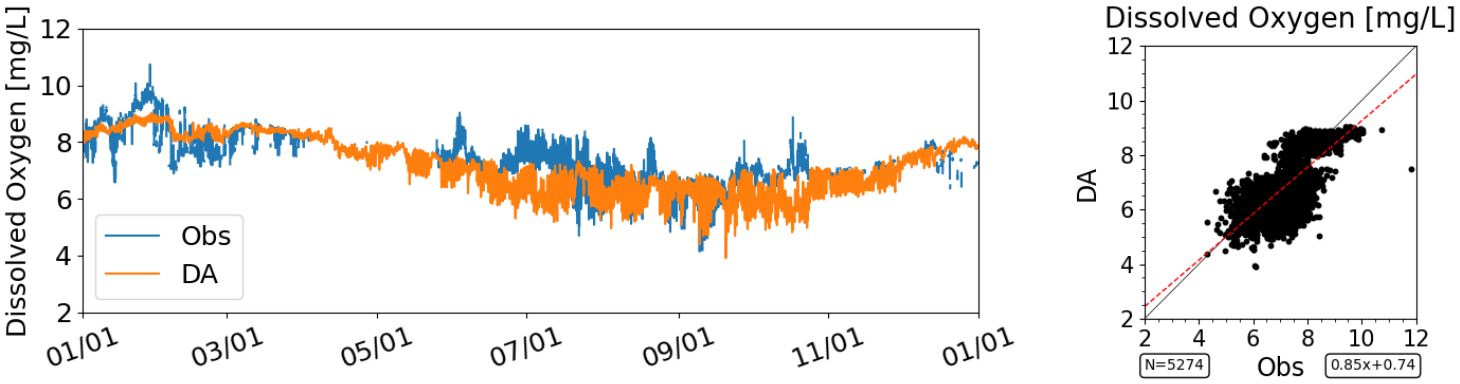


(b) Middle layer

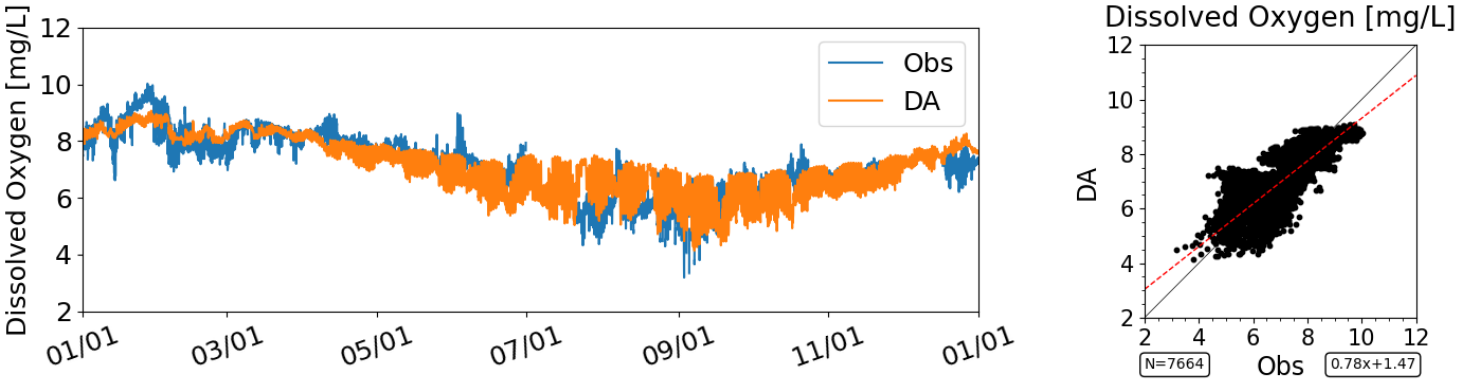


(c) Bottom layer

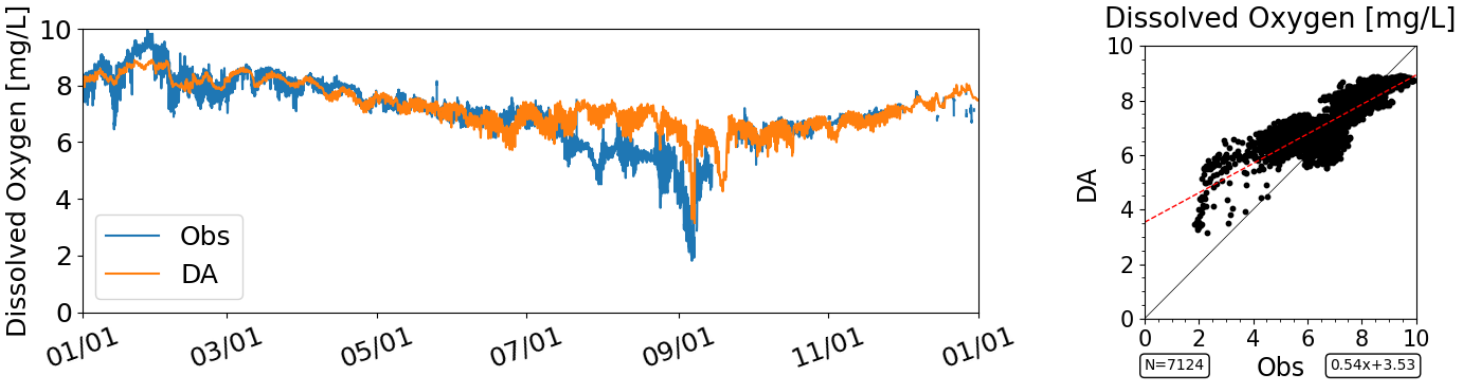
Figure S3.159 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2022



(a) Surface layer



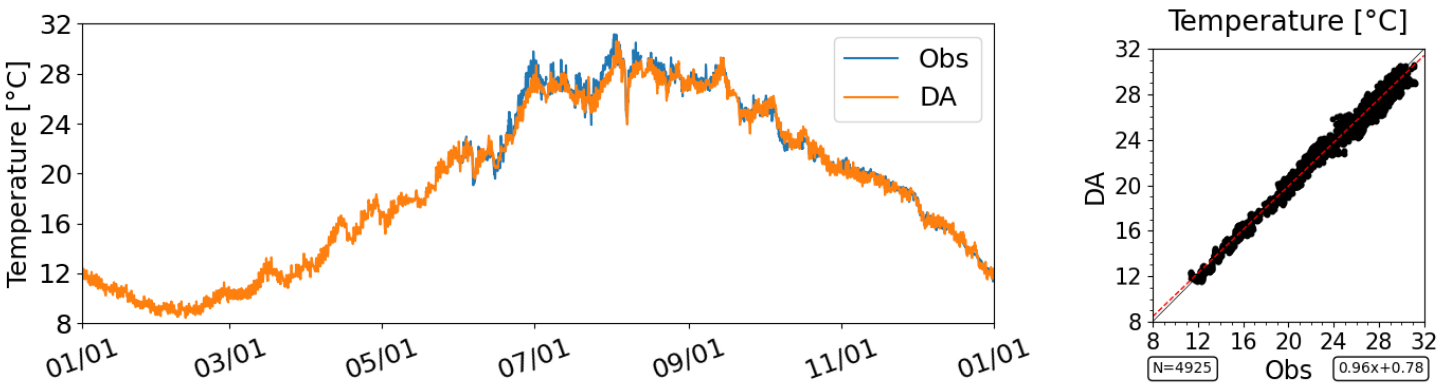
(b) Middle layer



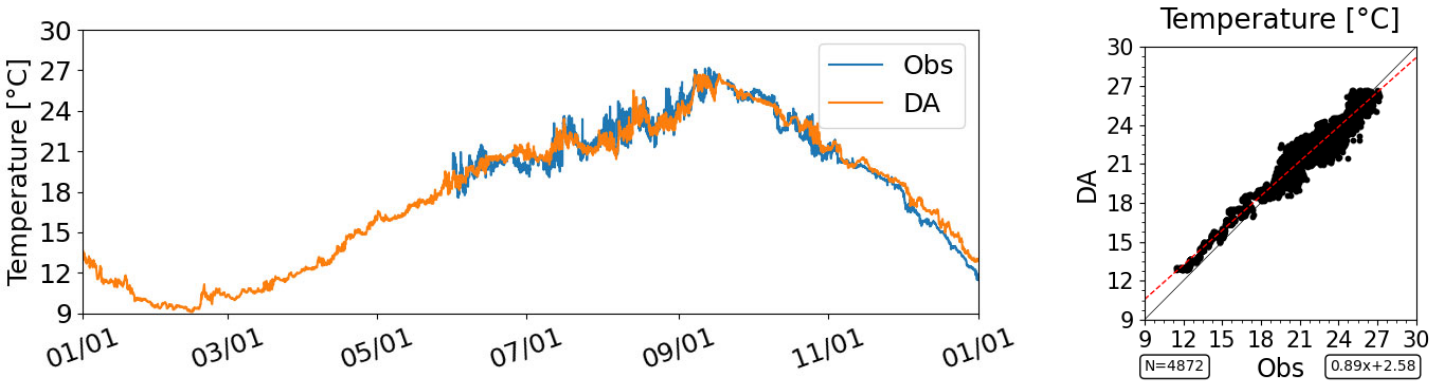
(c) Bottom layer

Figure S3.160 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2022

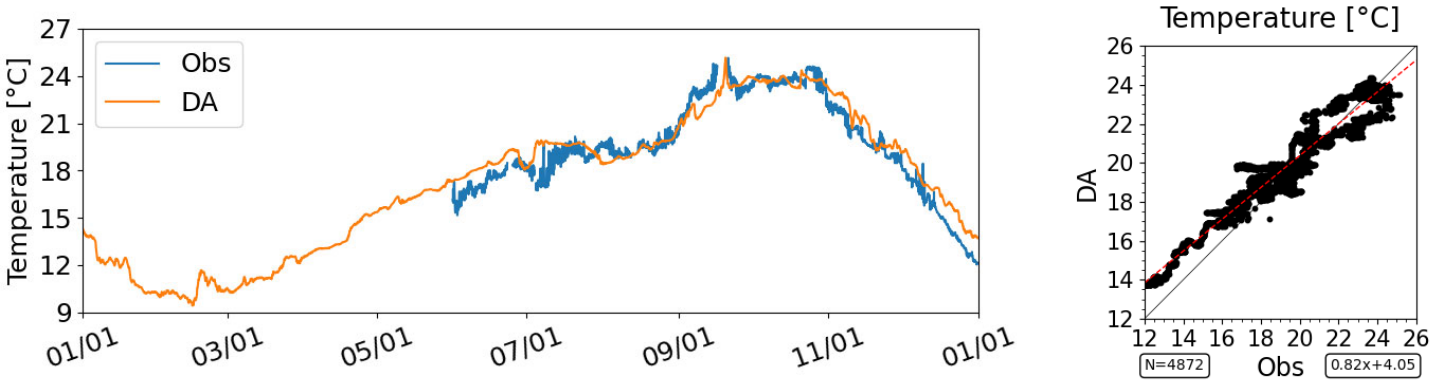
S3.10 Western Ise Bay: Timeseries and scatter plot



(a) Surface layer

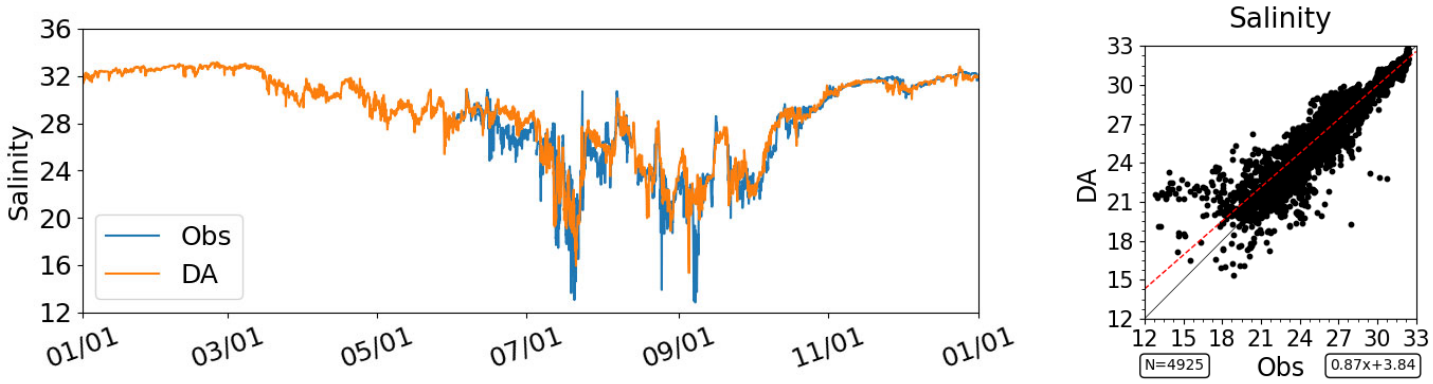


(b) Middle layer

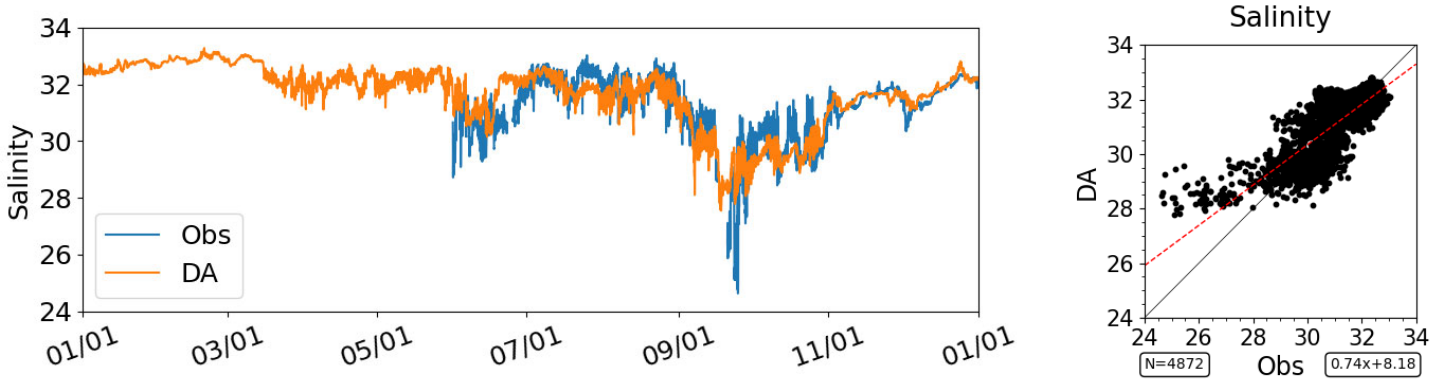


(c) Bottom layer

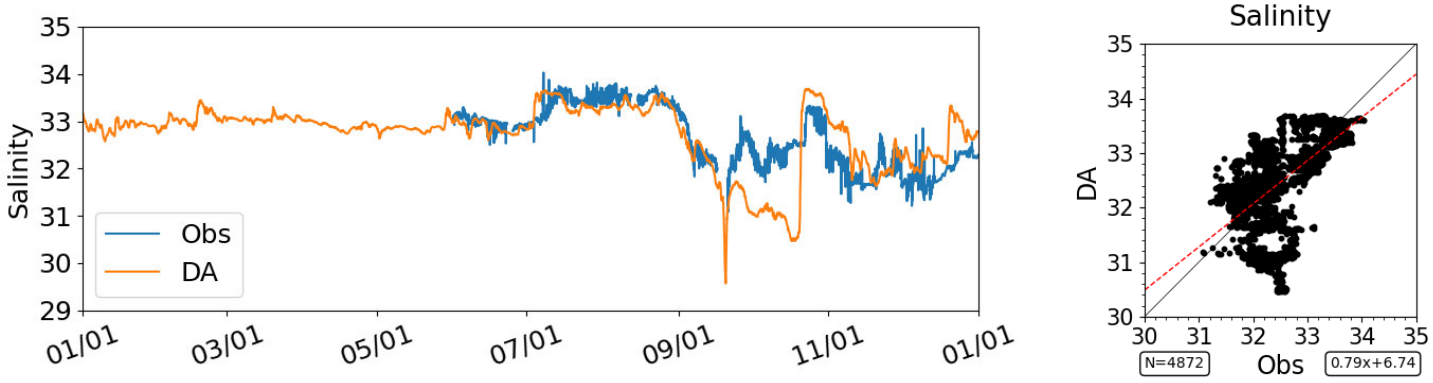
Figure S3.161 Timeseries and scatter plot for water temperature at Western Ise Bay in 2022



(a) Surface layer

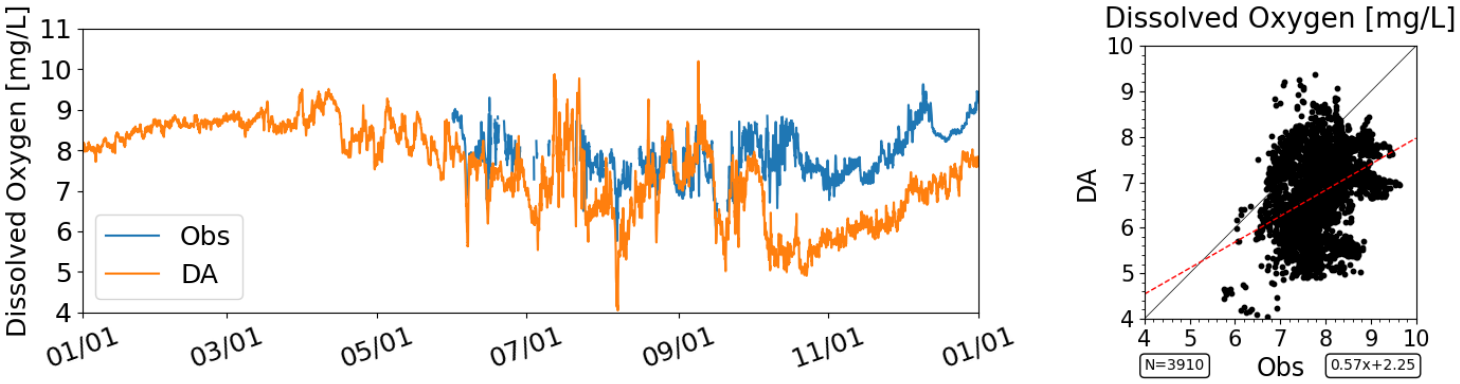


(b) Middle layer

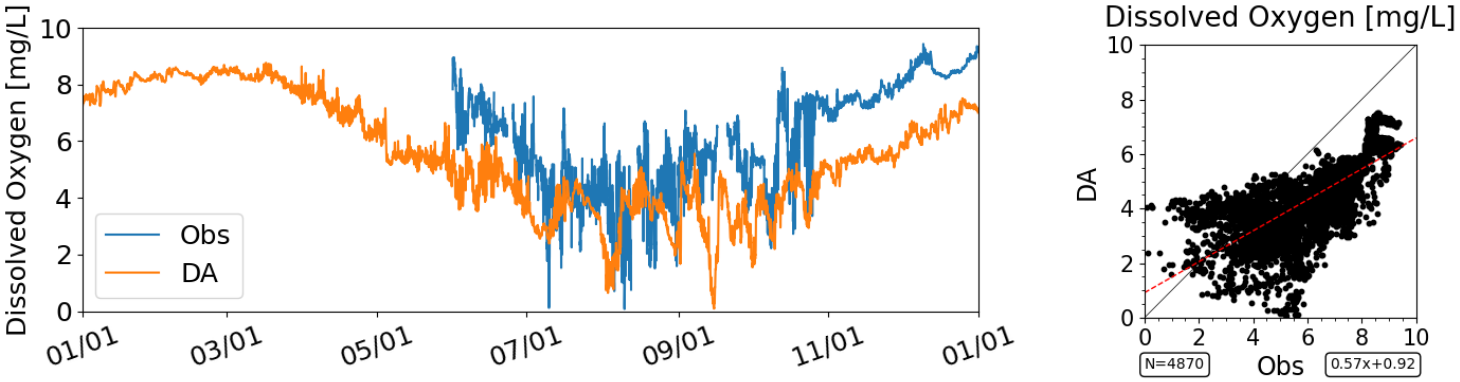


(c) Bottom layer

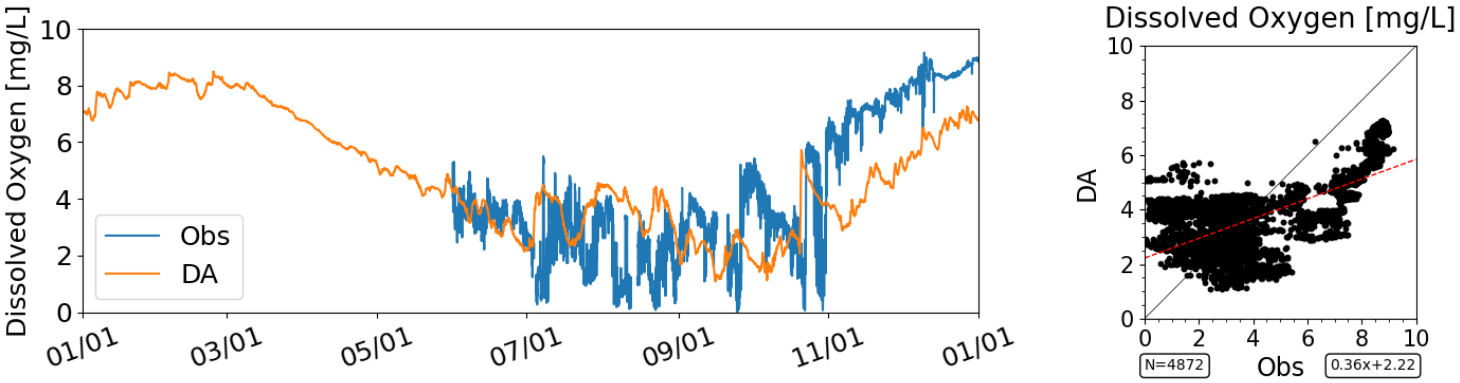
Figure S3.162 Timeseries and scatter plot for salinity at Western Ise Bay in 2022



(a) Surface layer



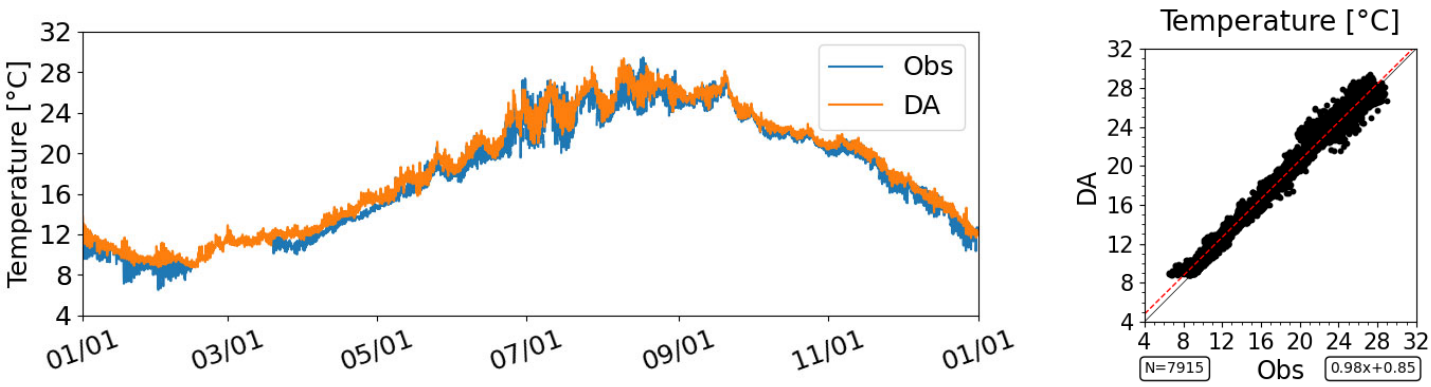
(b) Middle layer



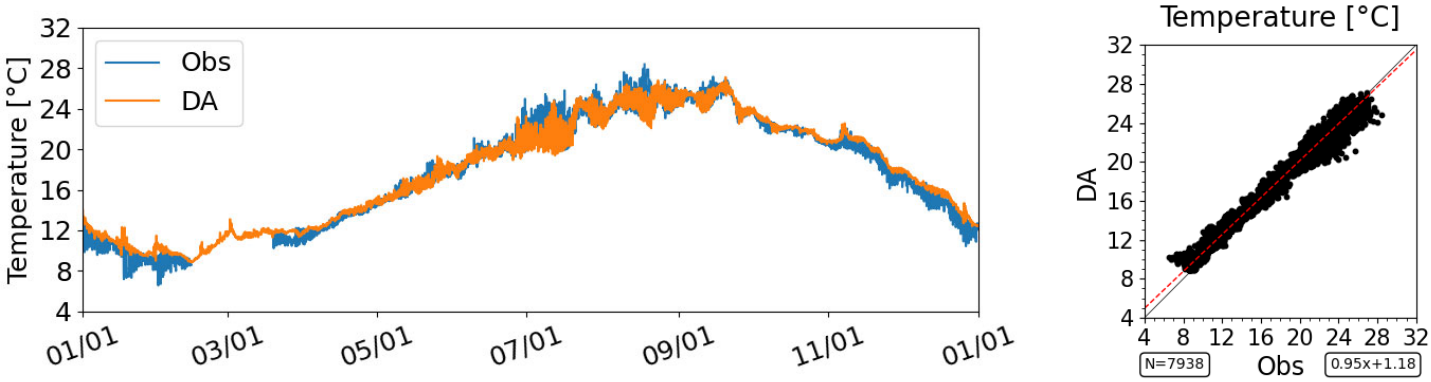
(c) Bottom layer

Figure S3.163 Timeseries and scatter plot for dissolved oxygen at Western Ise Bay in 2022

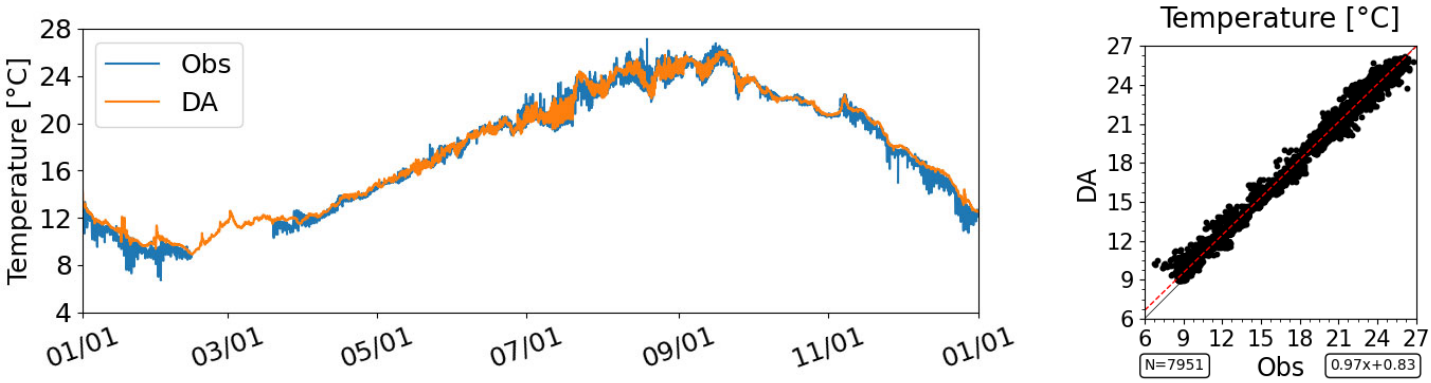
S3.11 Nakayama Channel: Timeseries and scatter plot



(a) Surface layer

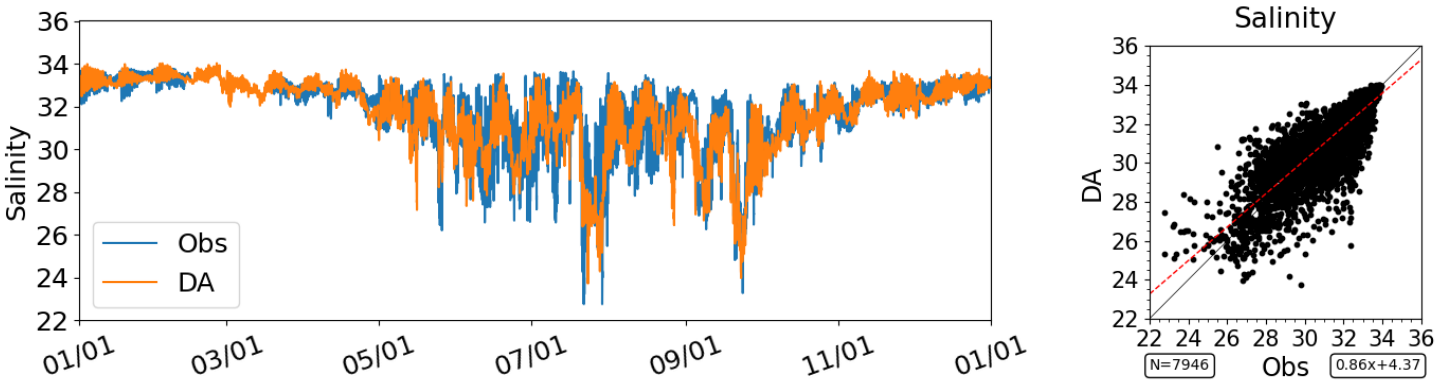


(b) Middle layer

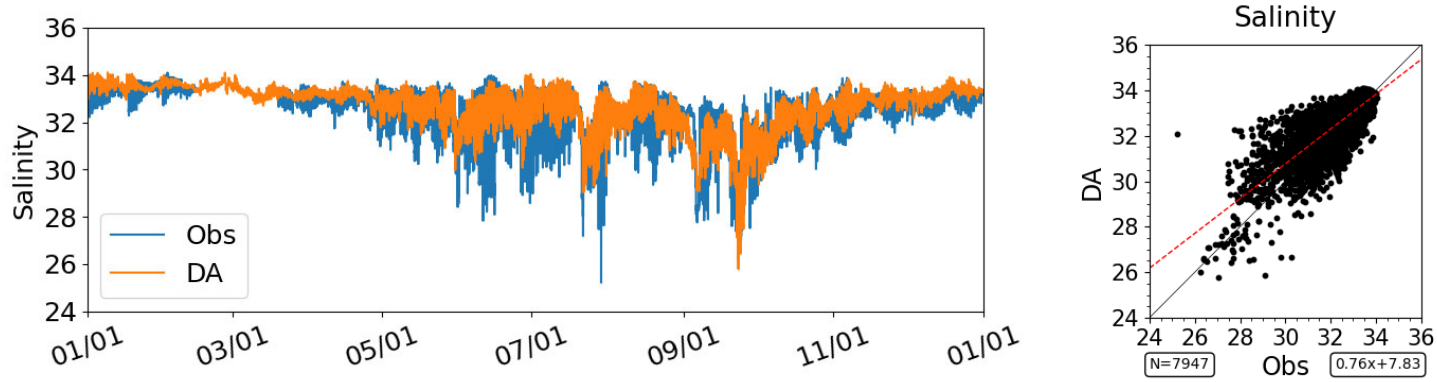


(c) Bottom layer

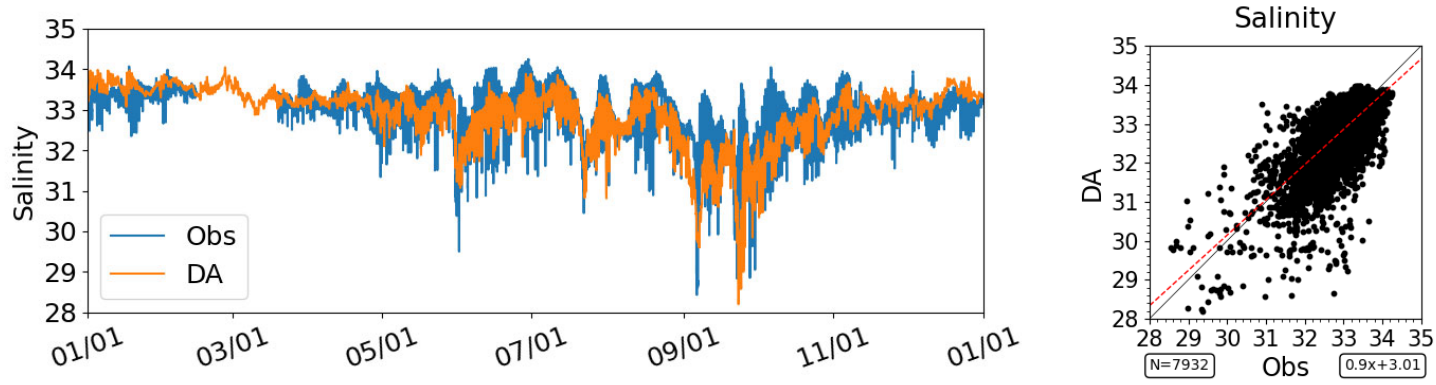
Figure S3.164 Timeseries and scatter plot for water temperature at Nakayama Channel in 2011



(a) Surface layer

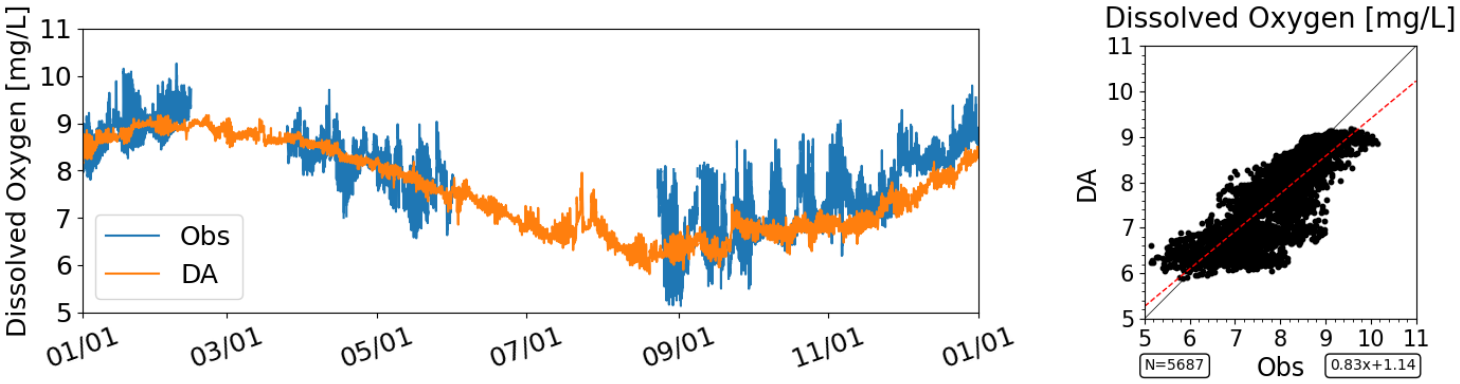


(b) Middle layer

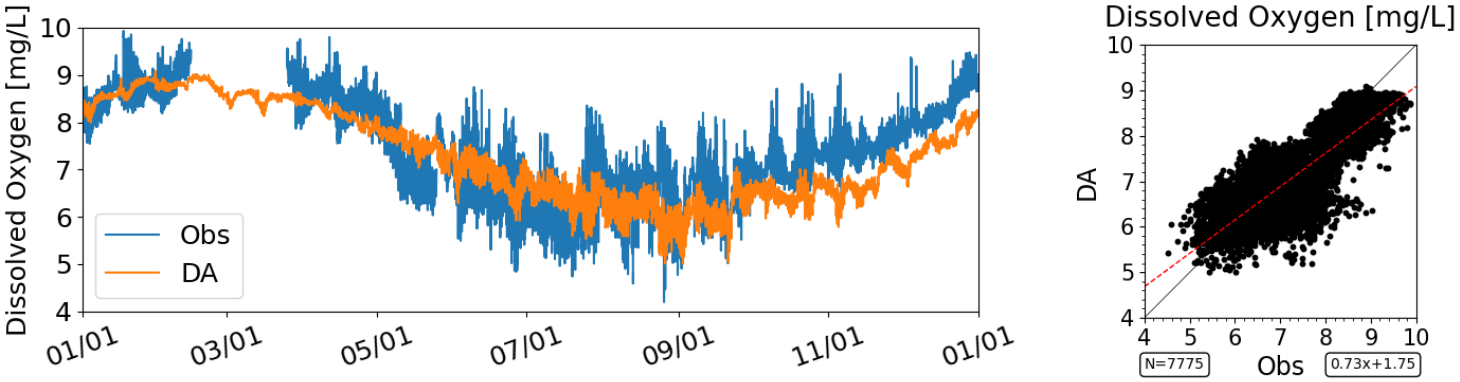


(c) Bottom layer

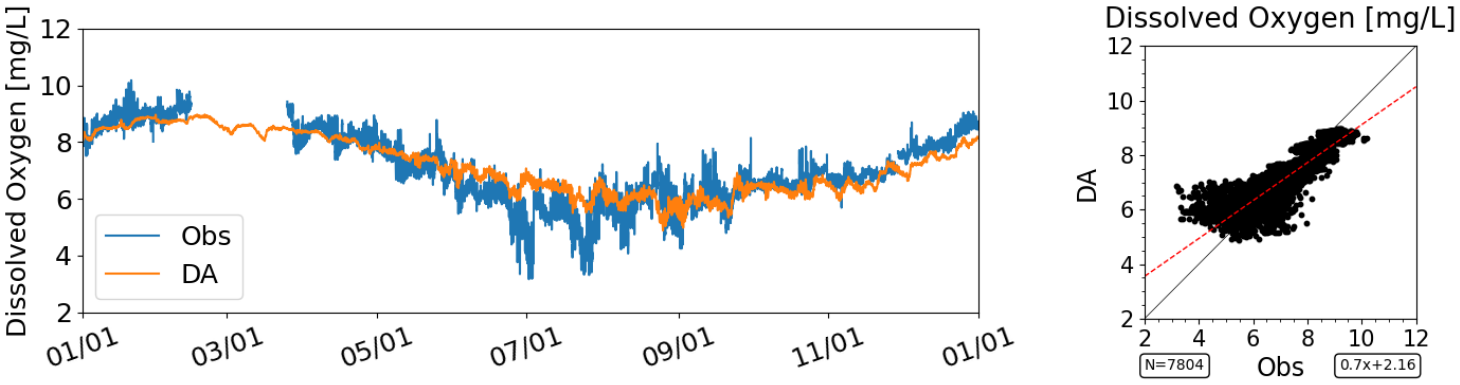
Figure S3.165 Timeseries and scatter plot for salinity at Nakayama Channel in 2011



(a) Surface layer

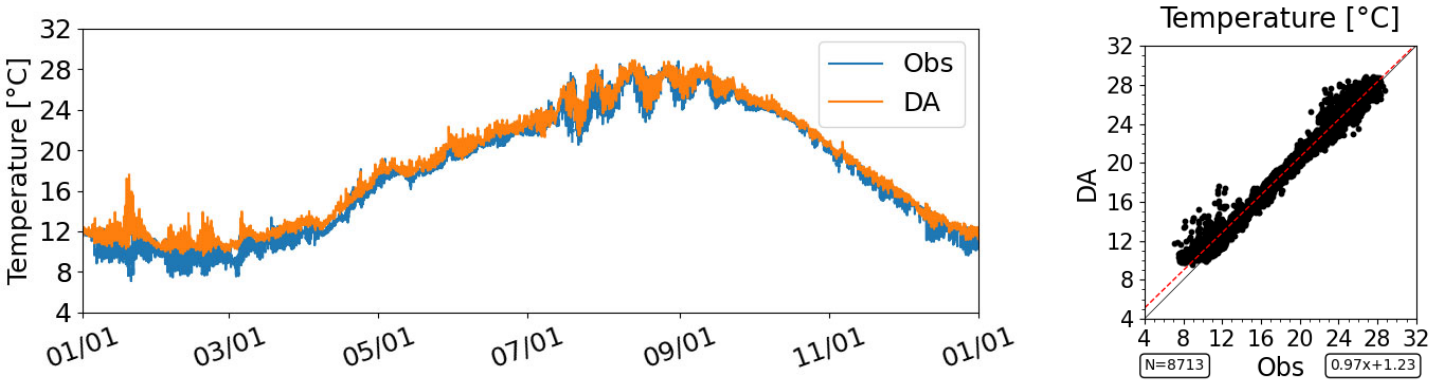


(b) Middle layer

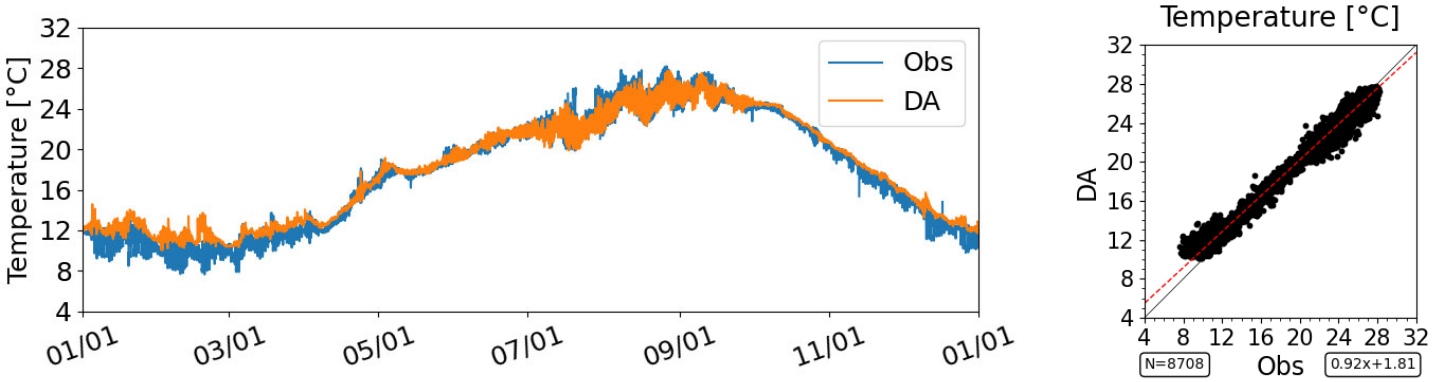


(c) Bottom layer

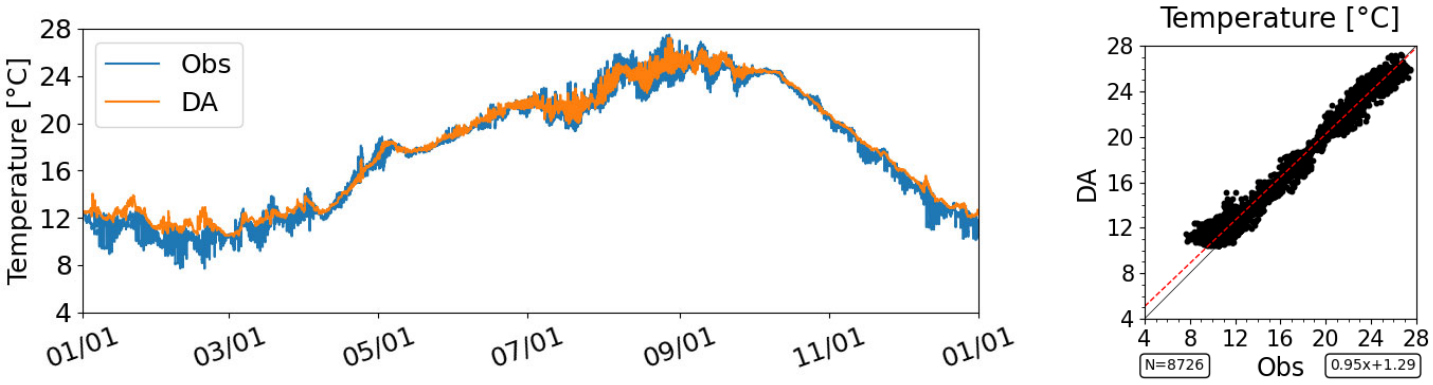
Figure S3.166 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2011



(a) Surface layer

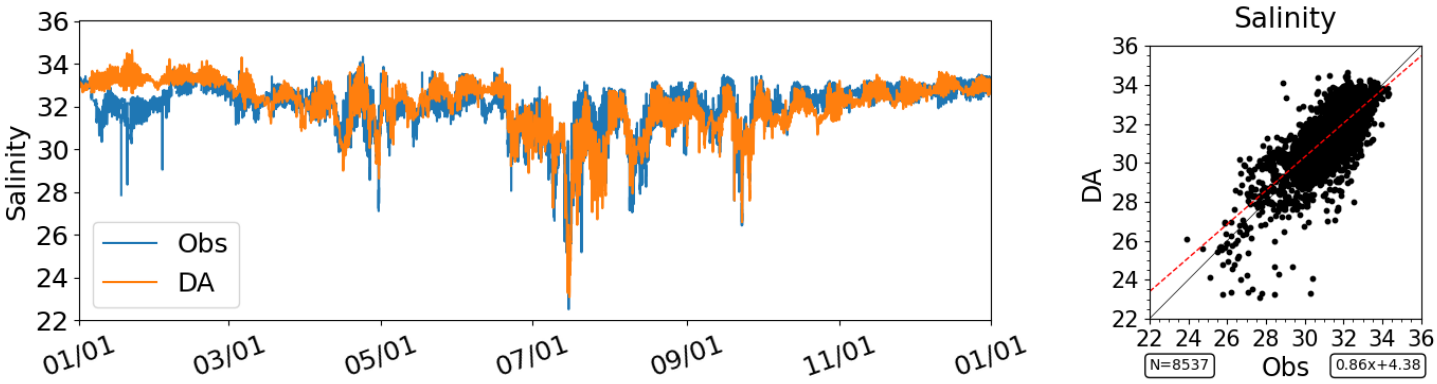


(b) Middle layer

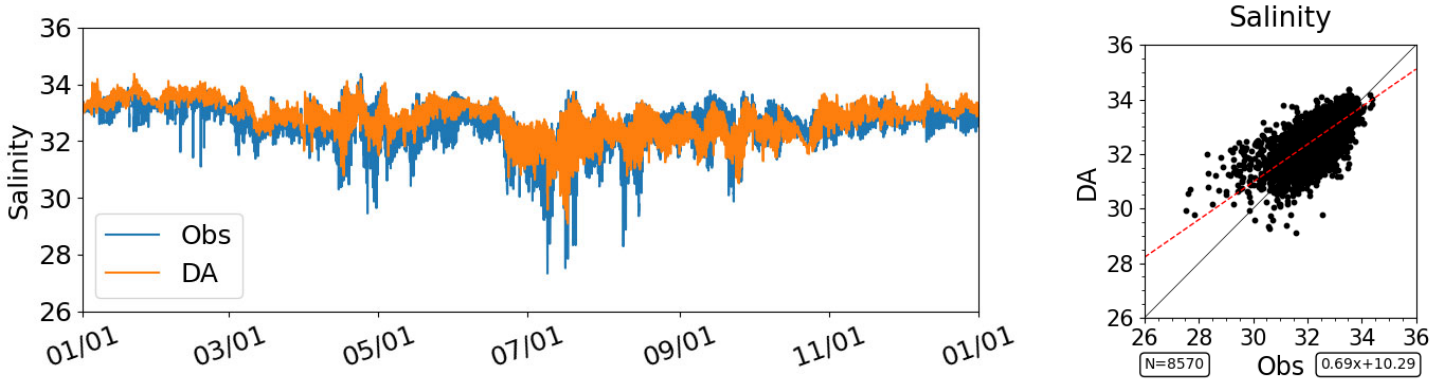


(c) Bottom layer

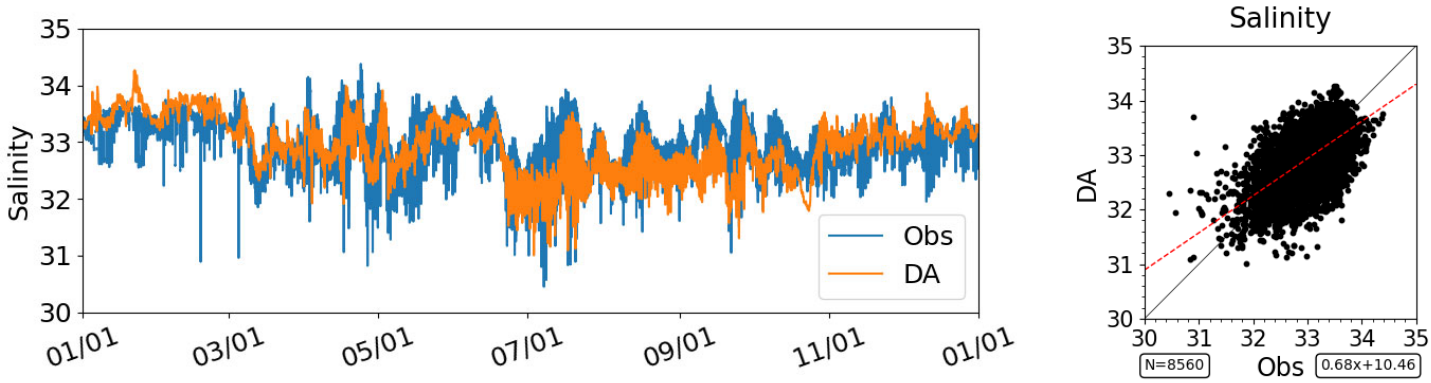
Figure S3.167 Timeseries and scatter plot for water temperature at Nakayama Channel in 2012



(a) Surface layer

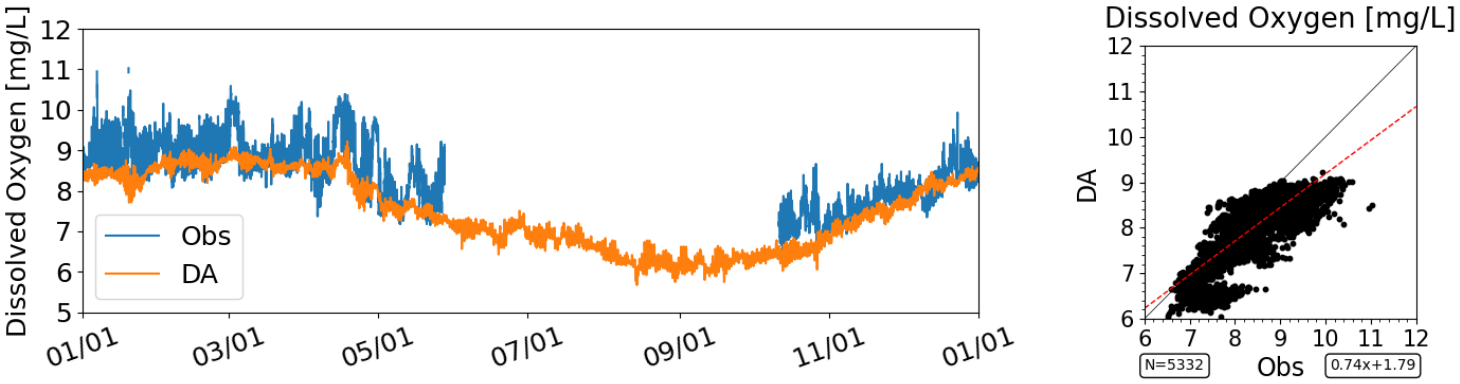


(b) Middle layer

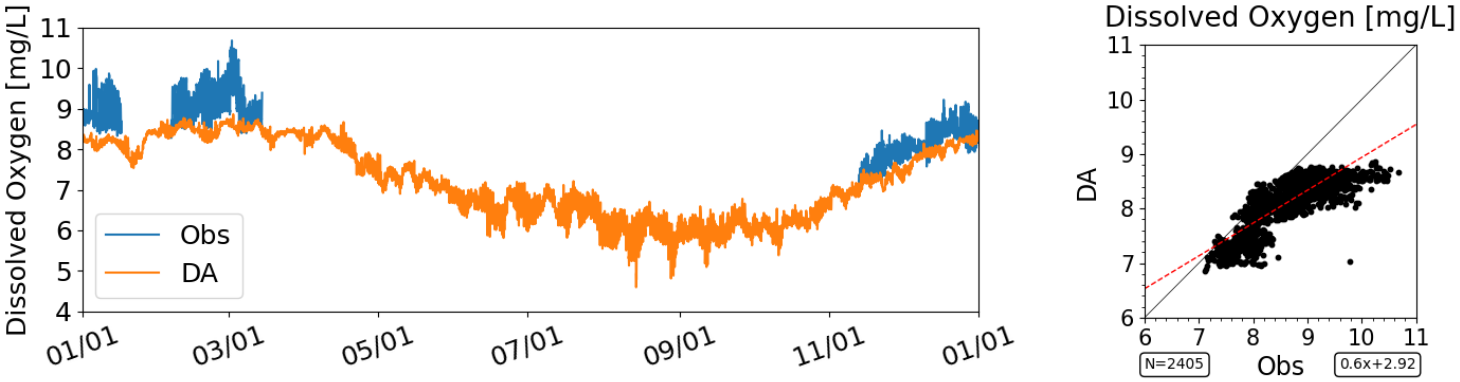


(c) Bottom layer

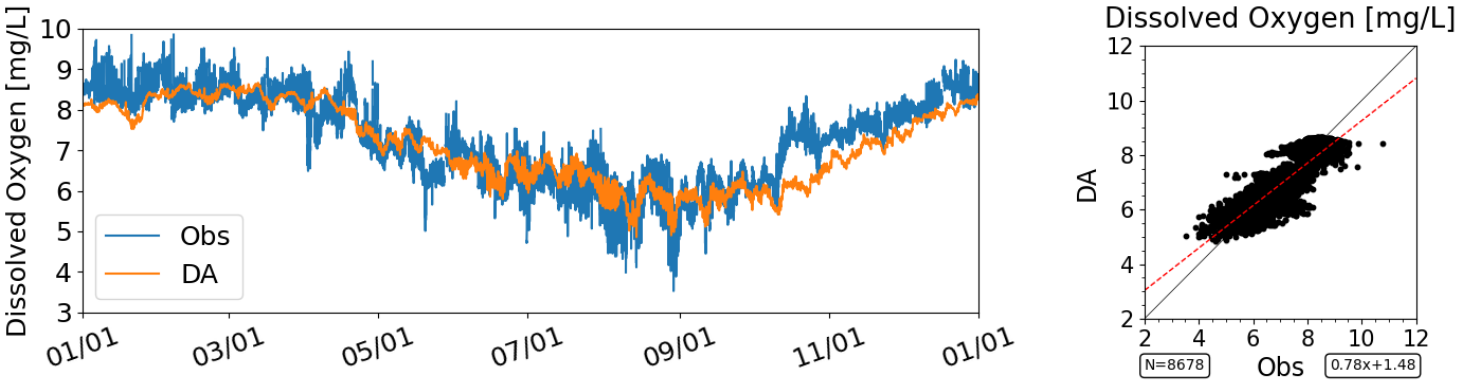
Figure S3.168 Timeseries and scatter plot for salinity at Nakayama Channel in 2012



(a) Surface layer

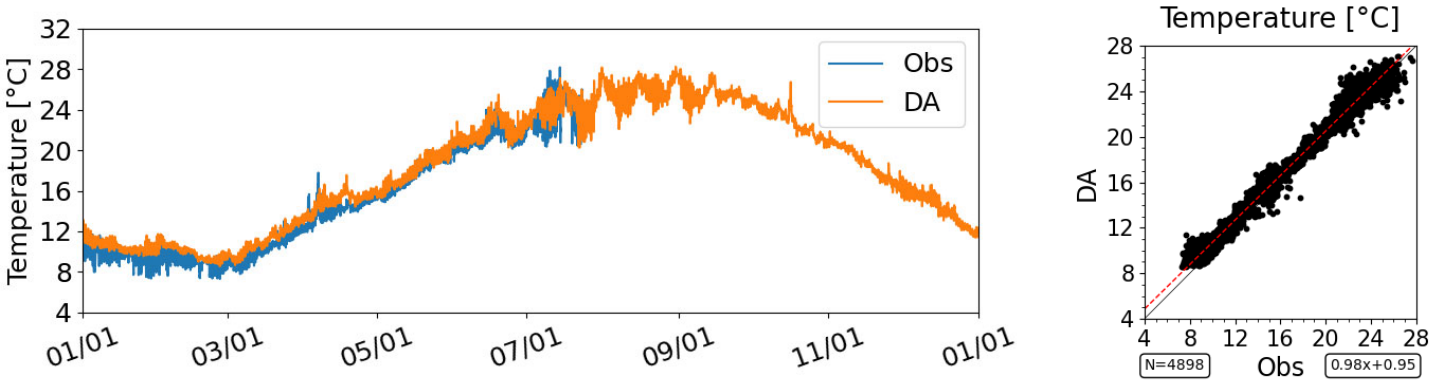


(b) Middle layer

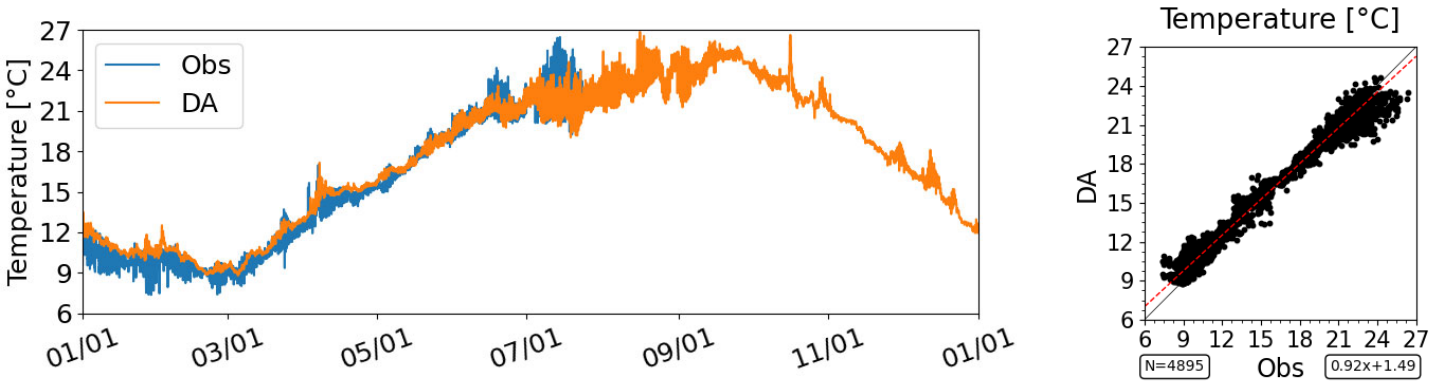


(c) Bottom layer

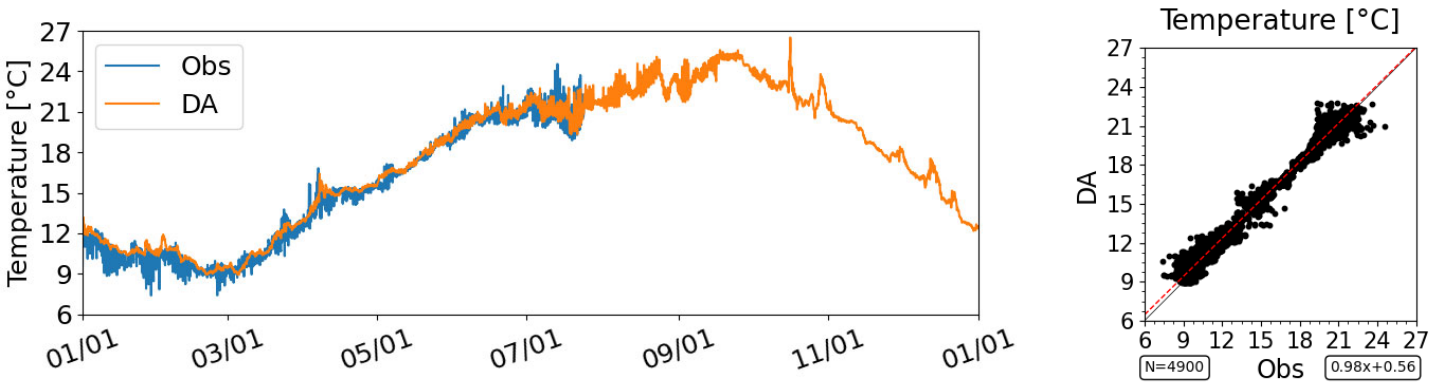
Figure S3.169 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2012



(a) Surface layer

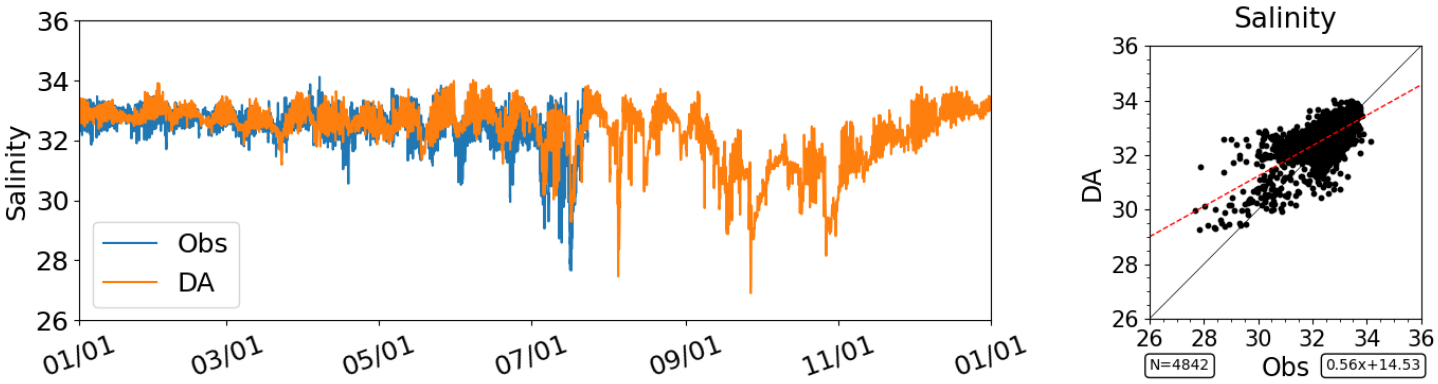


(b) Middle layer

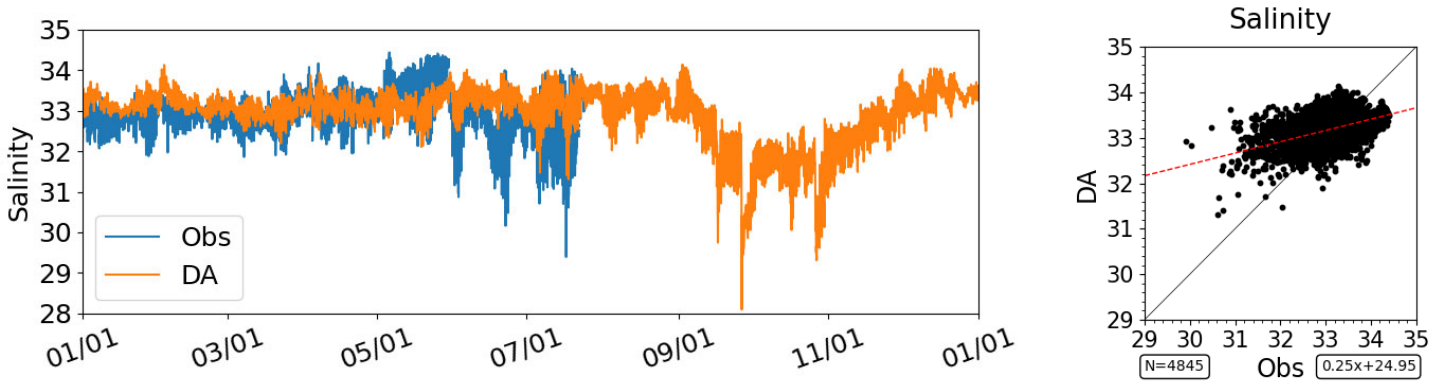


(c) Bottom layer

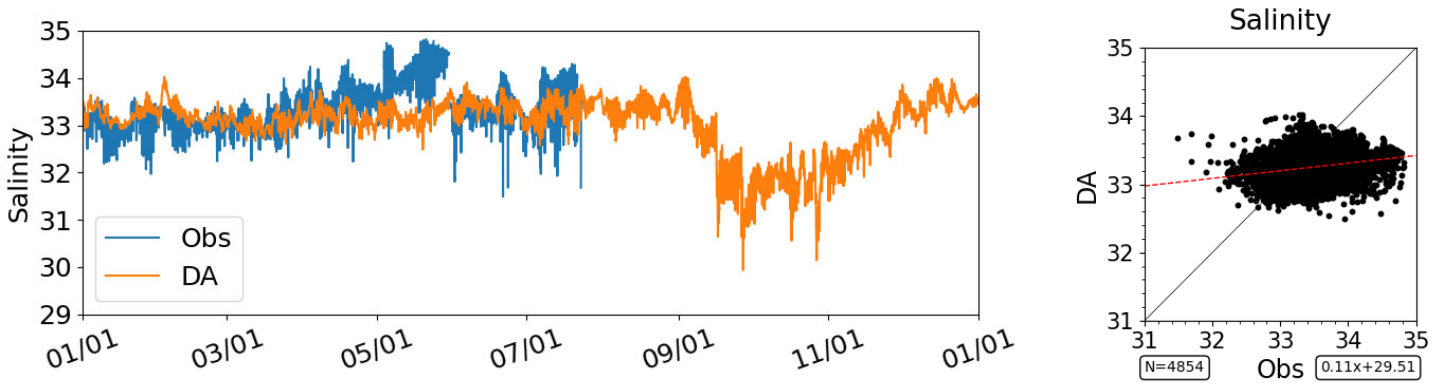
Figure S3.170 Timeseries and scatter plot for water temperature at Nakayama Channel in 2013



(a) Surface layer

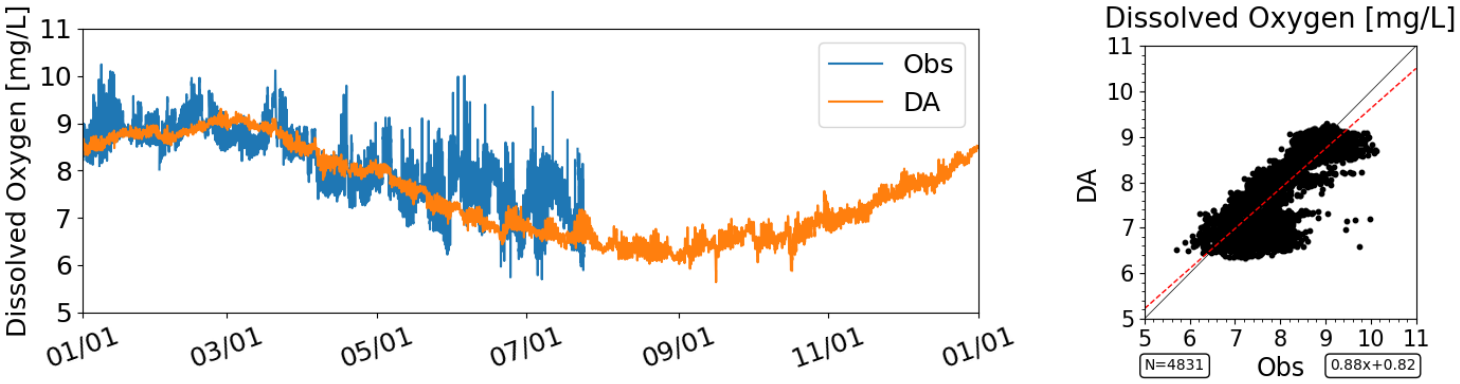


(b) Middle layer

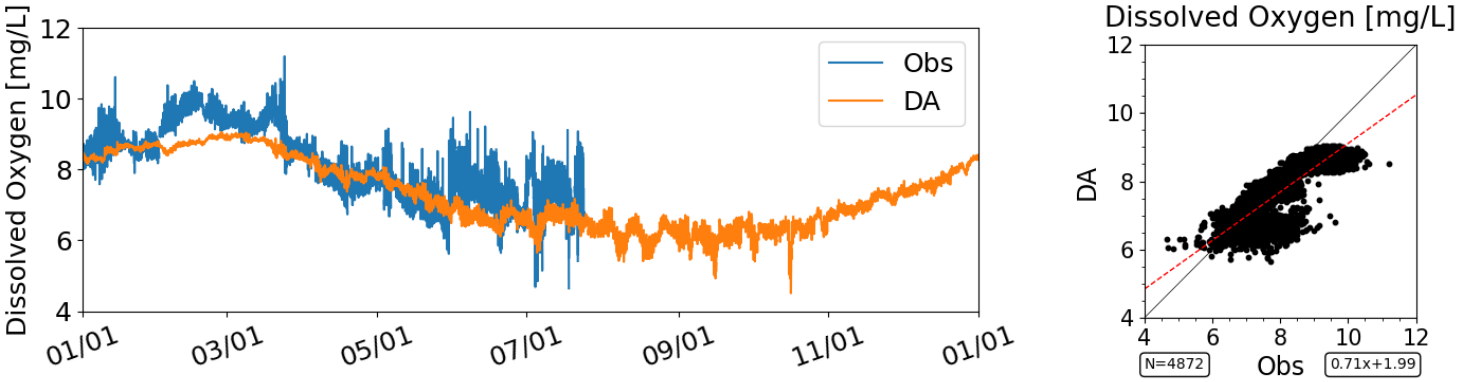


(c) Bottom layer

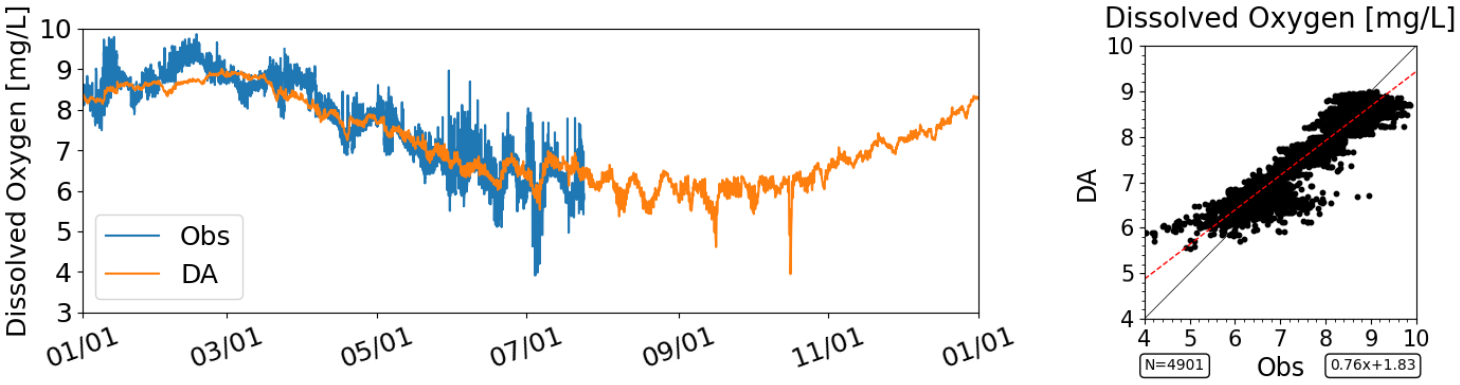
Figure S3.171 Timeseries and scatter plot for salinity at Nakayama Channel in 2013



(a) Surface layer

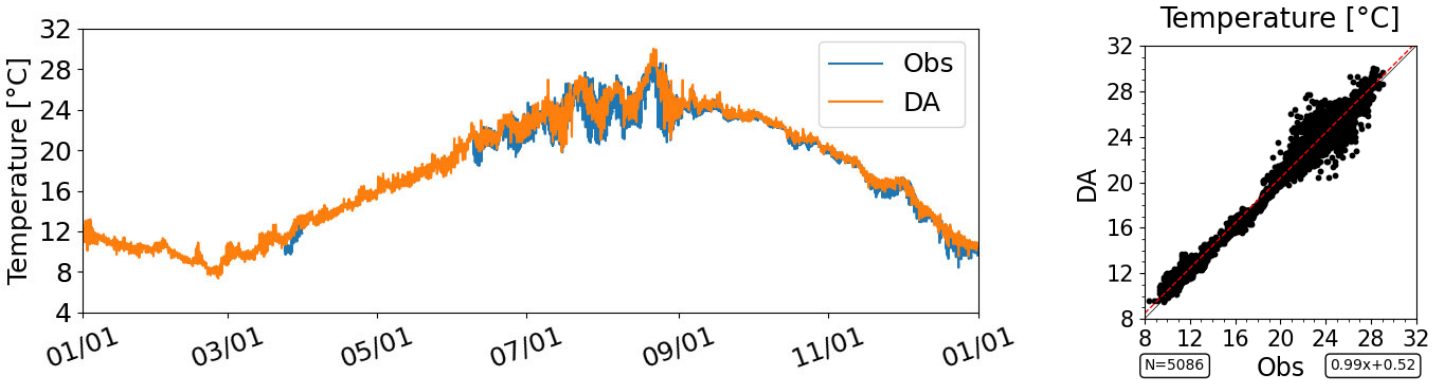


(b) Middle layer

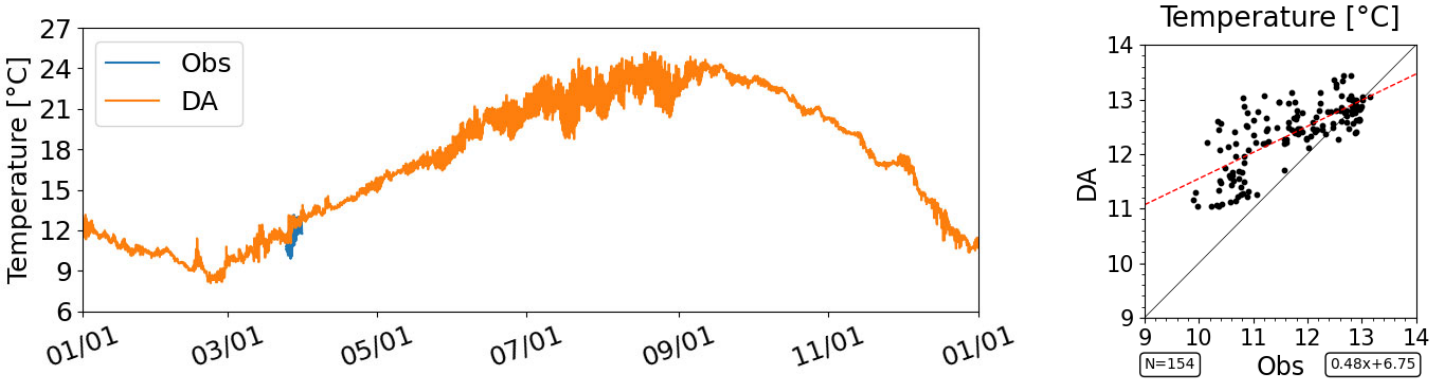


(c) Bottom layer

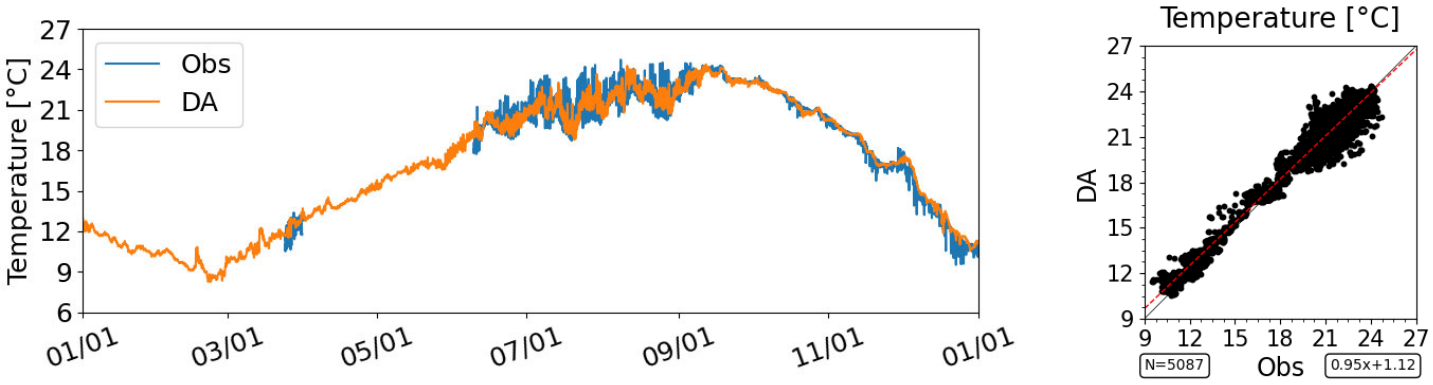
Figure S3.172 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2013



(a) Surface layer

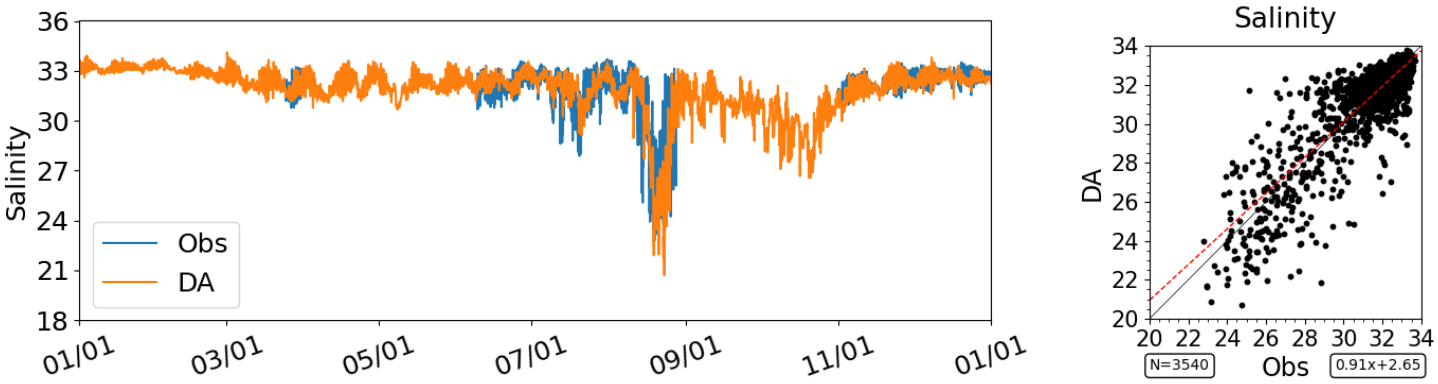


(b) Middle layer

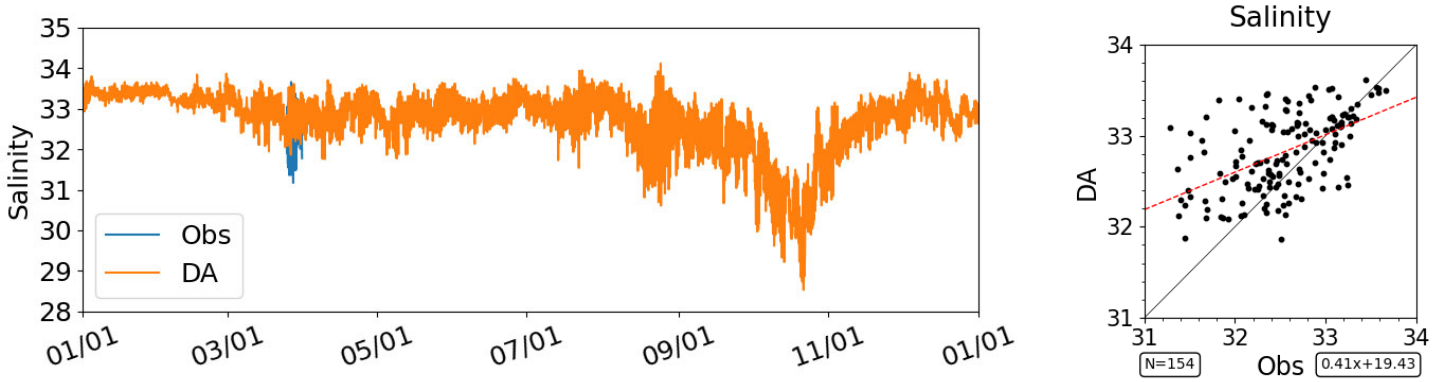


(c) Bottom layer

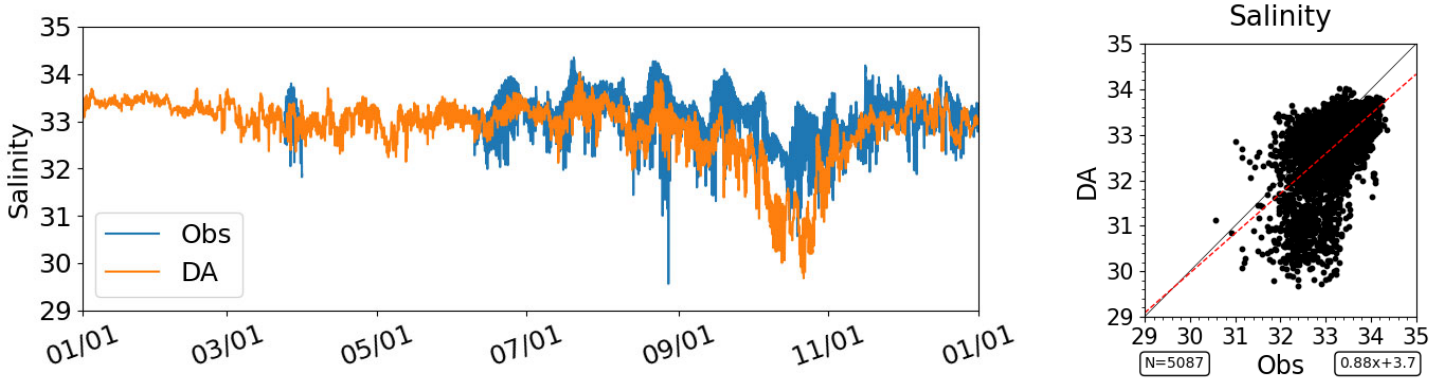
Figure S3.173 Timeseries and scatter plot for water temperature at Nakayama Channel in 2014



(a) Surface layer

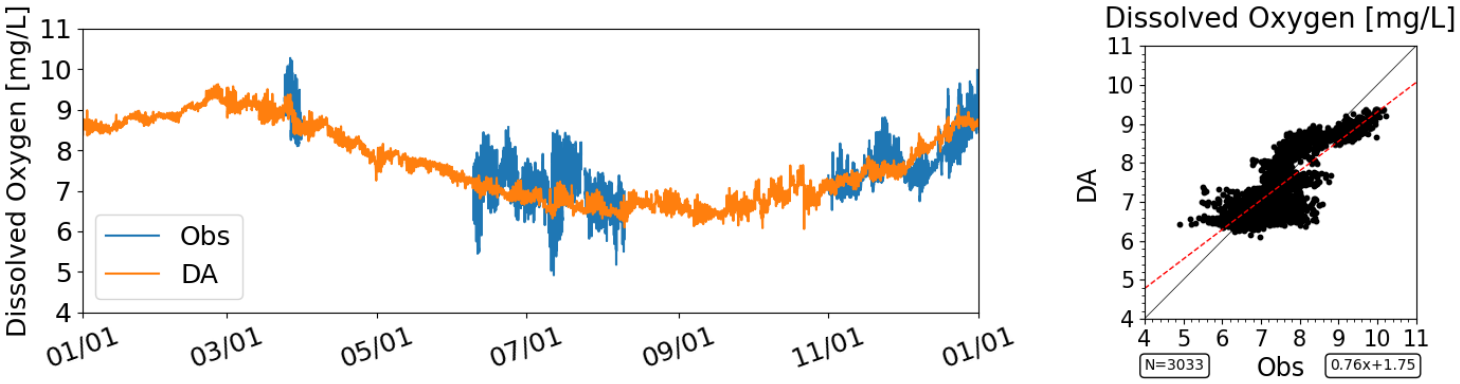


(b) Middle layer

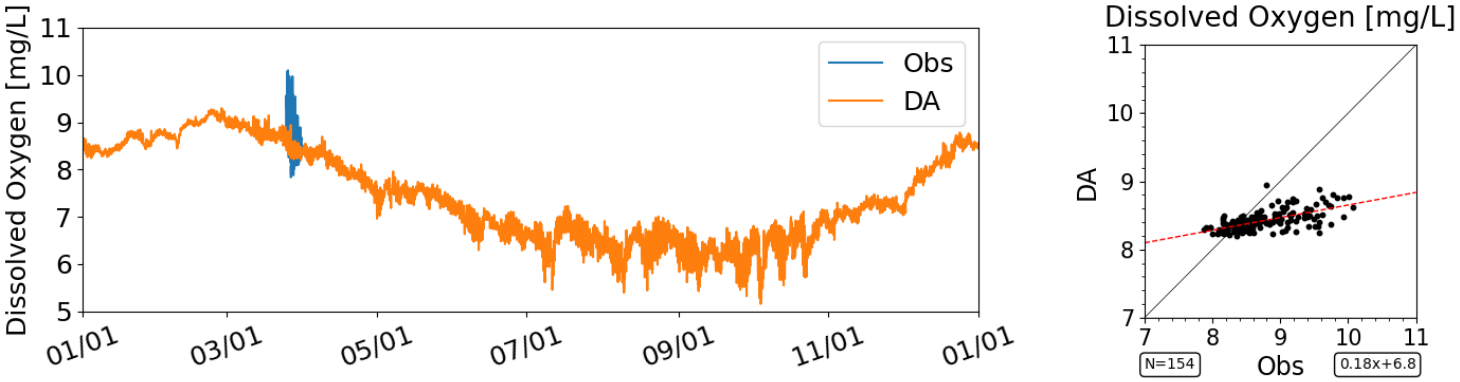


(c) Bottom layer

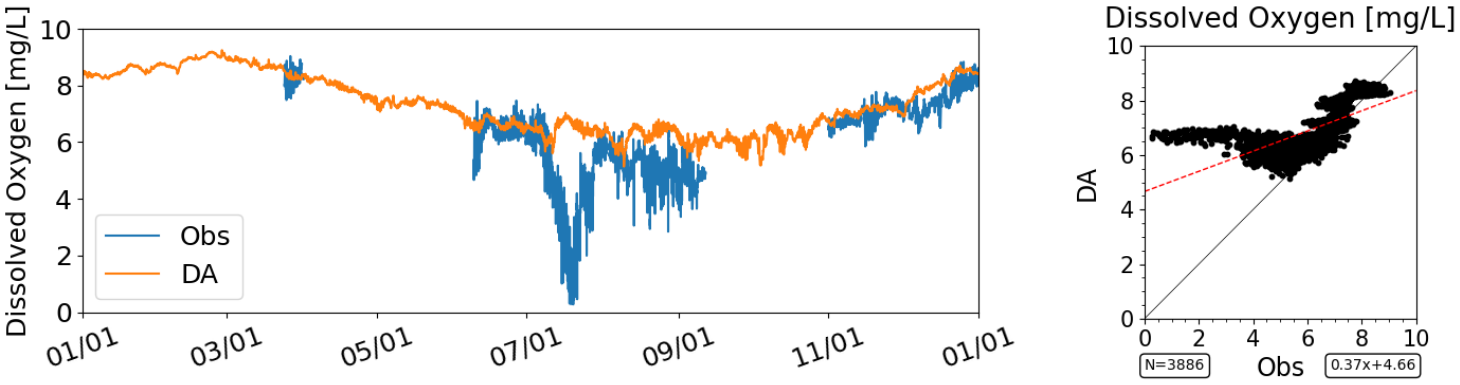
Figure S3.174 Timeseries and scatter plot for salinity at Nakayama Channel in 2014



(a) Surface layer

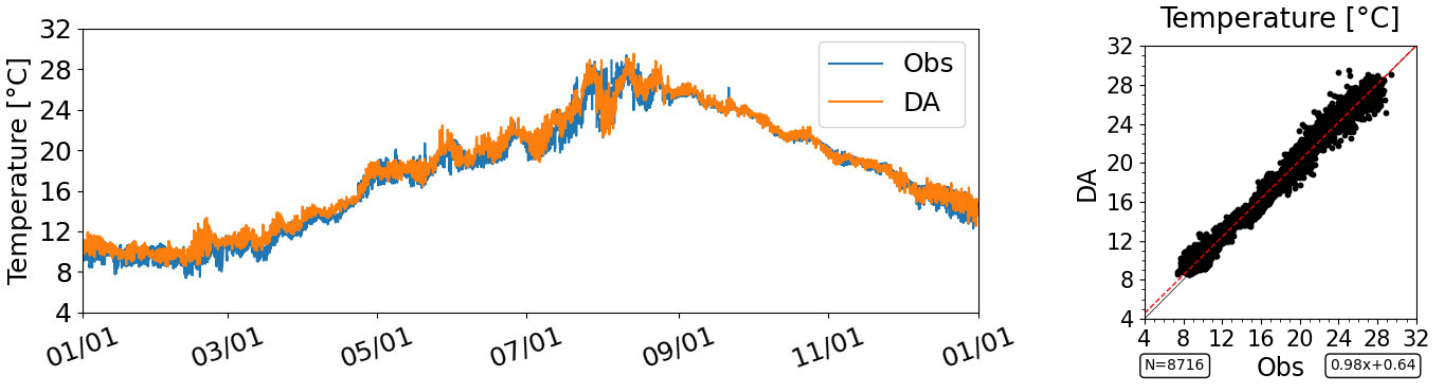


(b) Middle layer

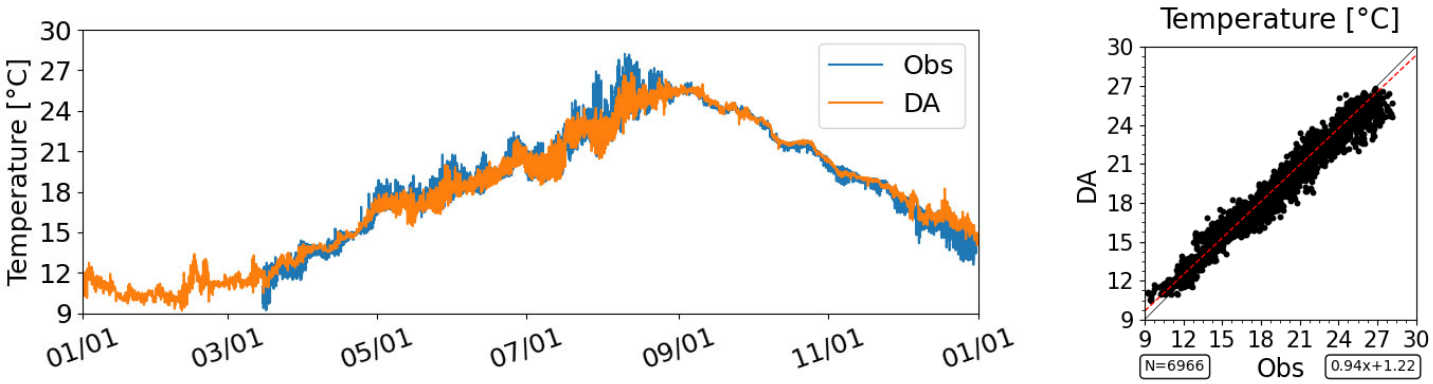


(c) Bottom layer

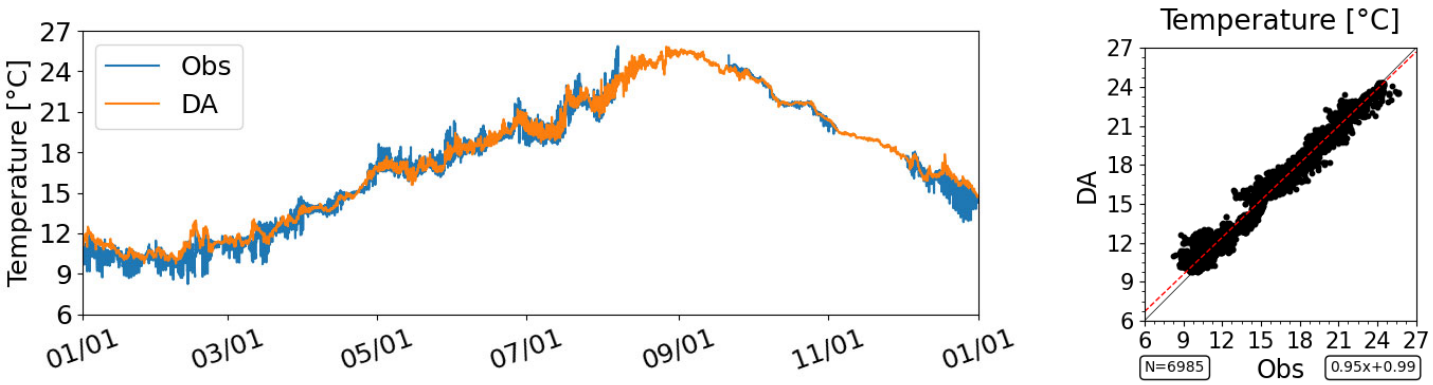
Figure S3.175 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2014



(a) Surface layer

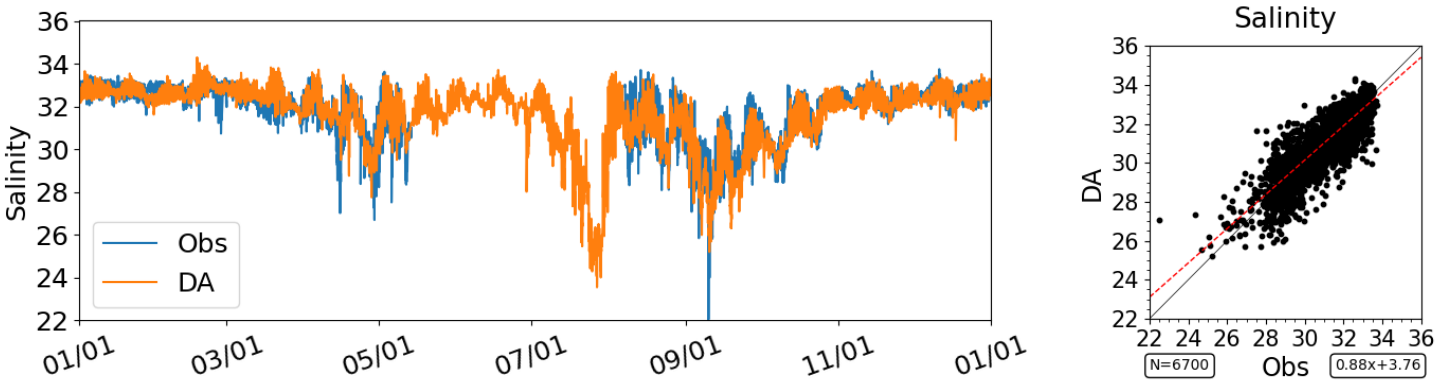


(b) Middle layer

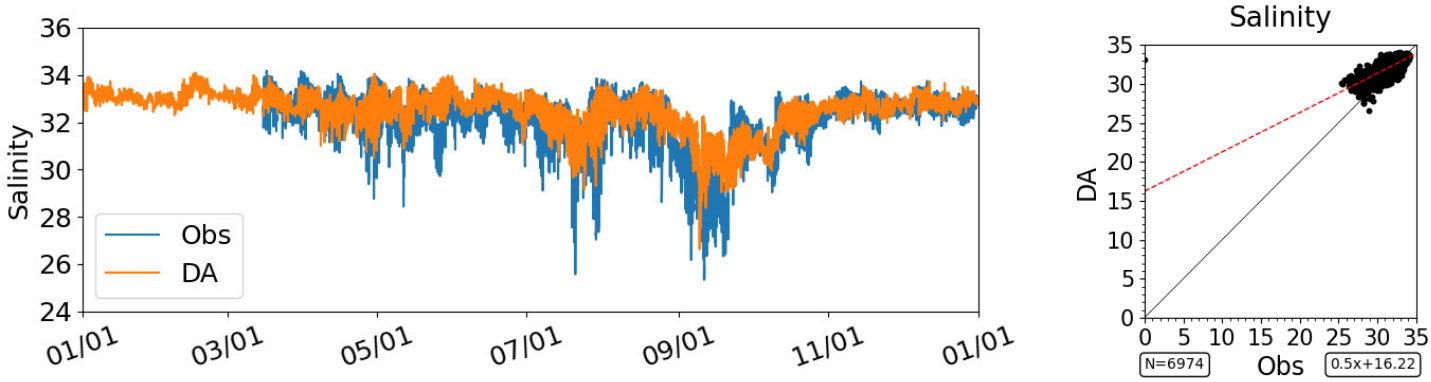


(c) Bottom layer

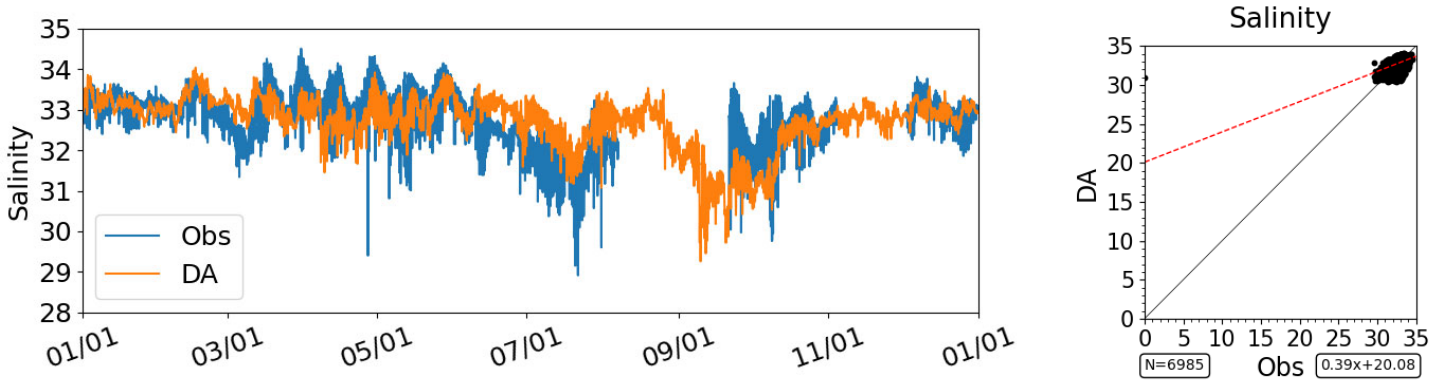
Figure S3.176 Timeseries and scatter plot for water temperature at Nakayama Channel in 2015



(a) Surface layer

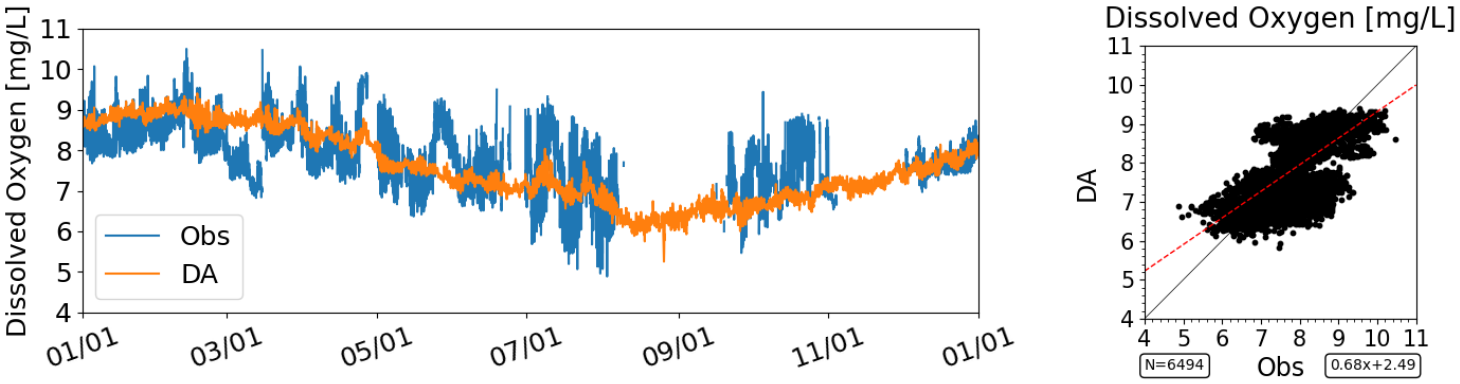


(b) Middle layer

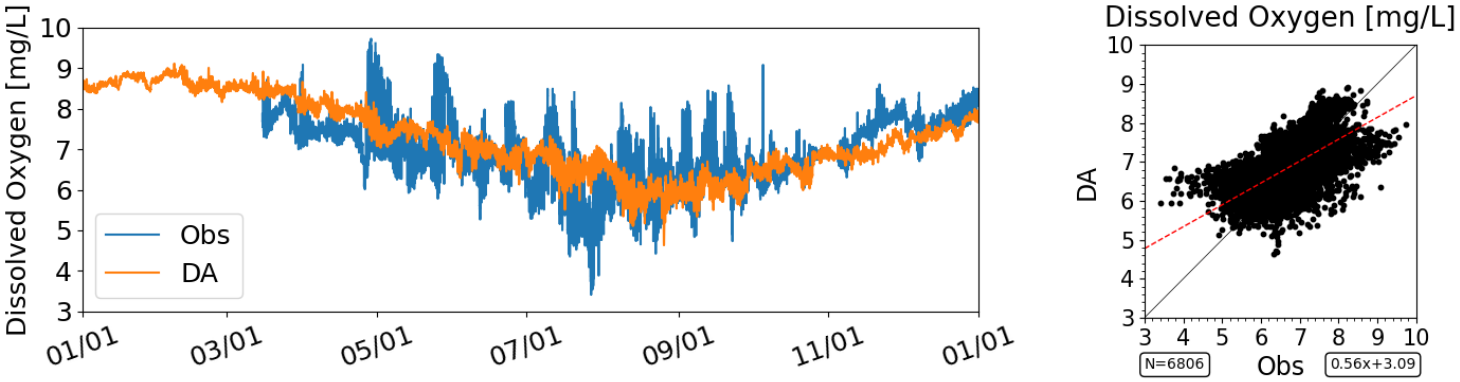


(c) Bottom layer

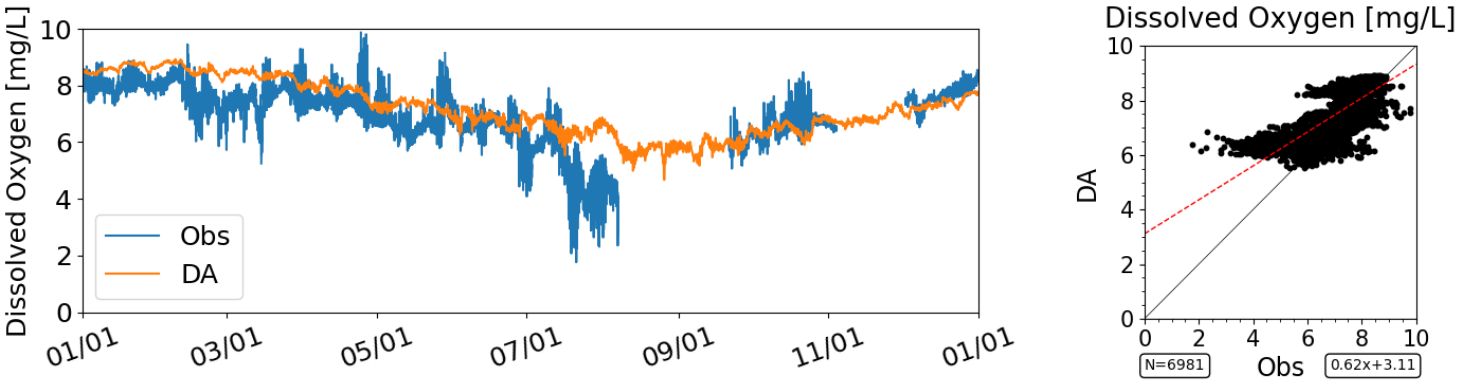
Figure S3.177 Timeseries and scatter plot for salinity at Nakayama Channel in 2015



(a) Surface layer

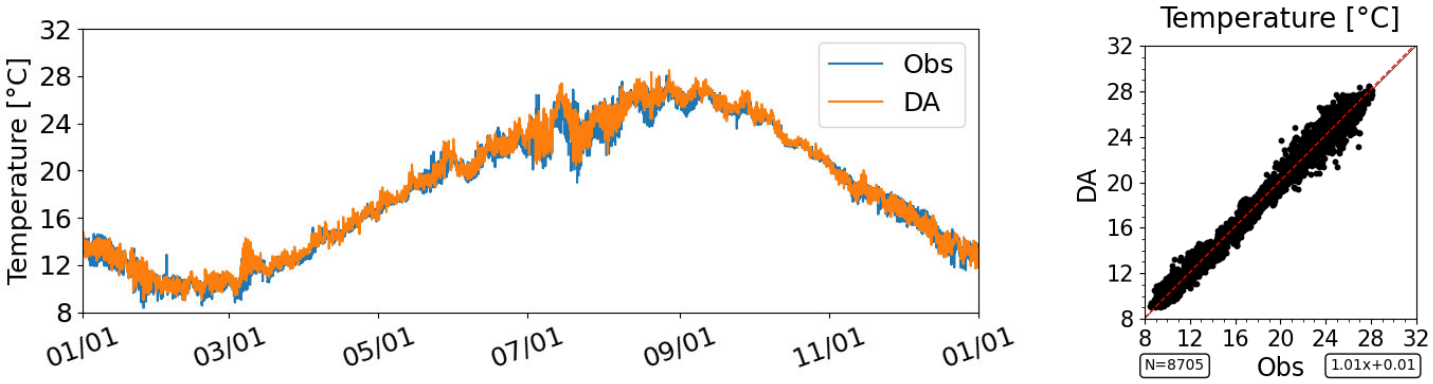


(b) Middle layer

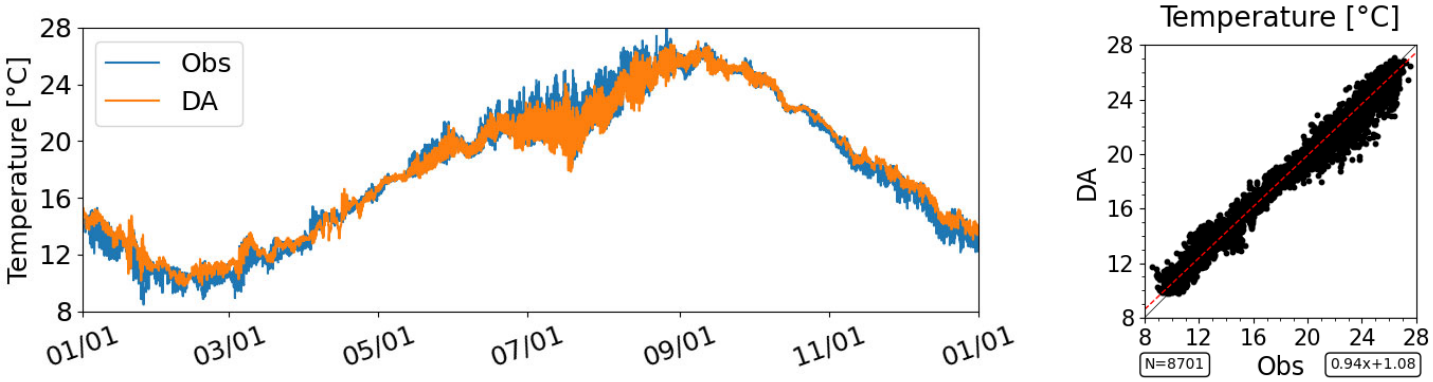


(c) Bottom layer

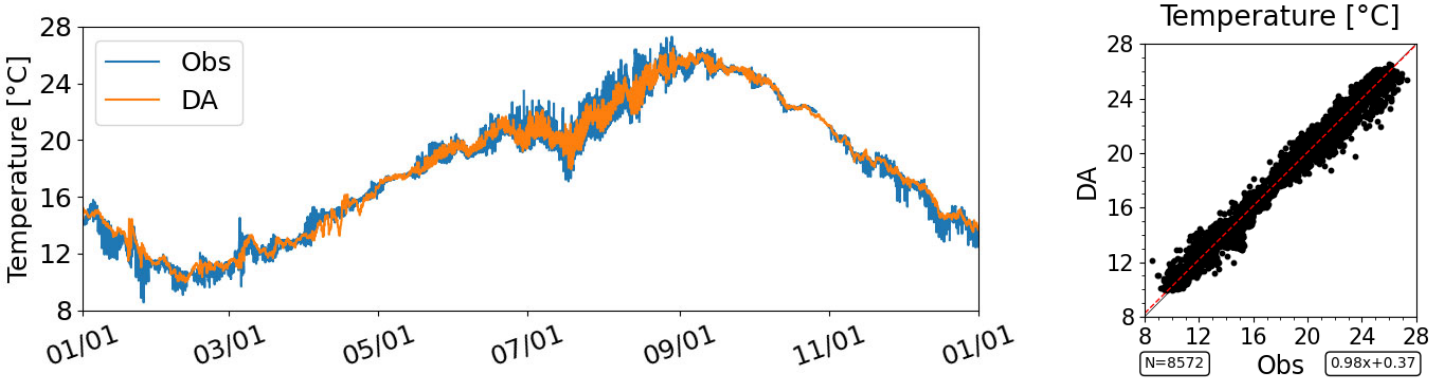
Figure S3.178 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2015



(a) Surface layer

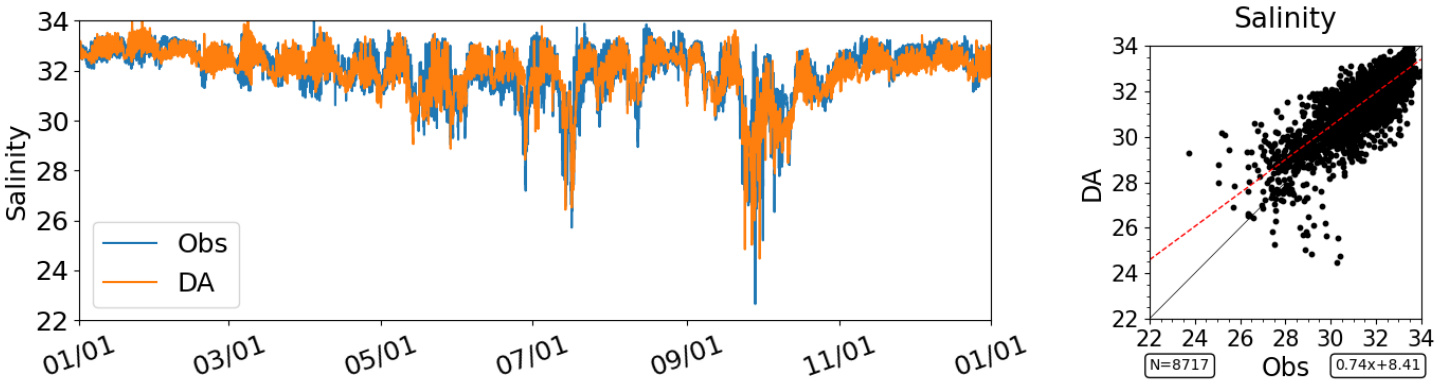


(b) Middle layer

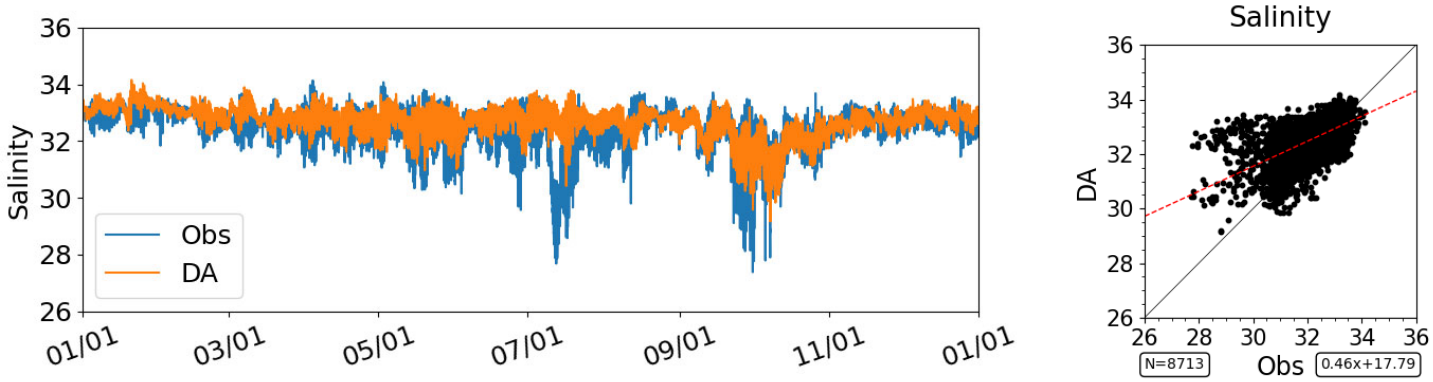


(c) Bottom layer

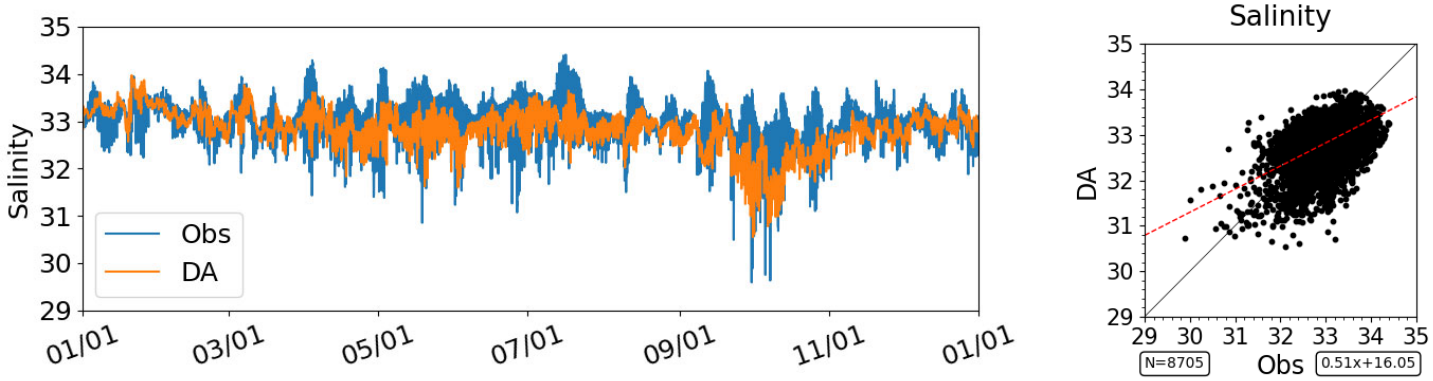
Figure S3.179 Timeseries and scatter plot for water temperature at Nakayama Channel in 2016



(a) Surface layer

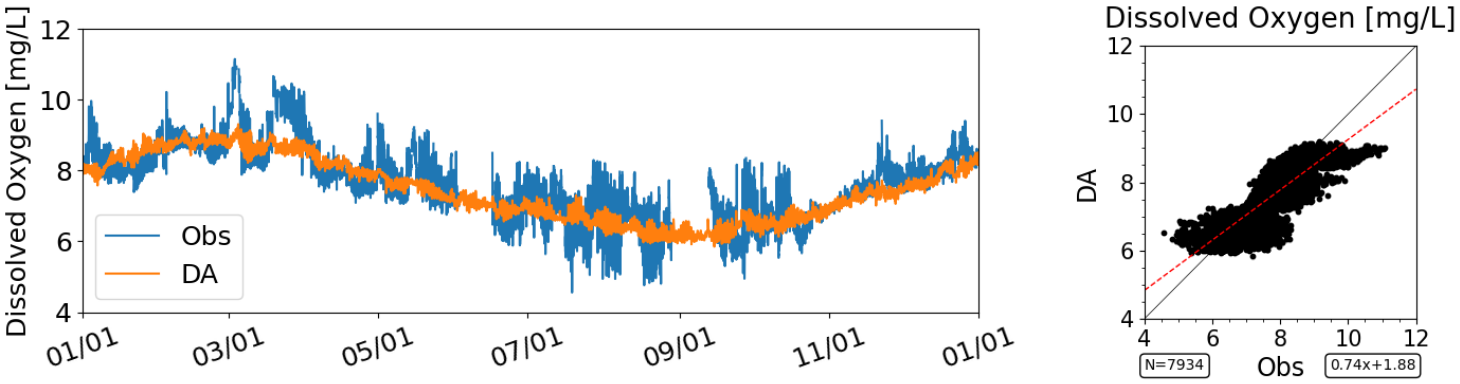


(b) Middle layer

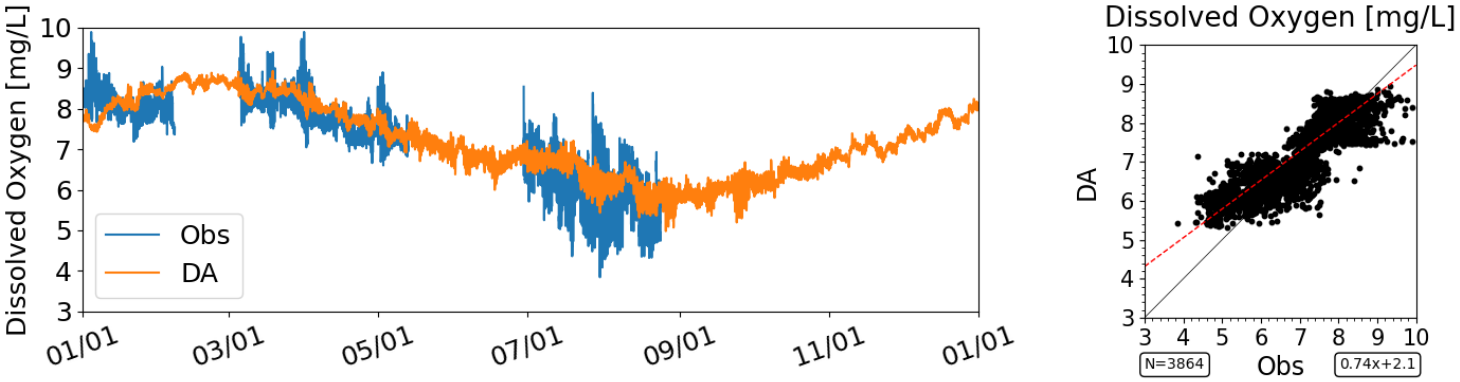


(c) Bottom layer

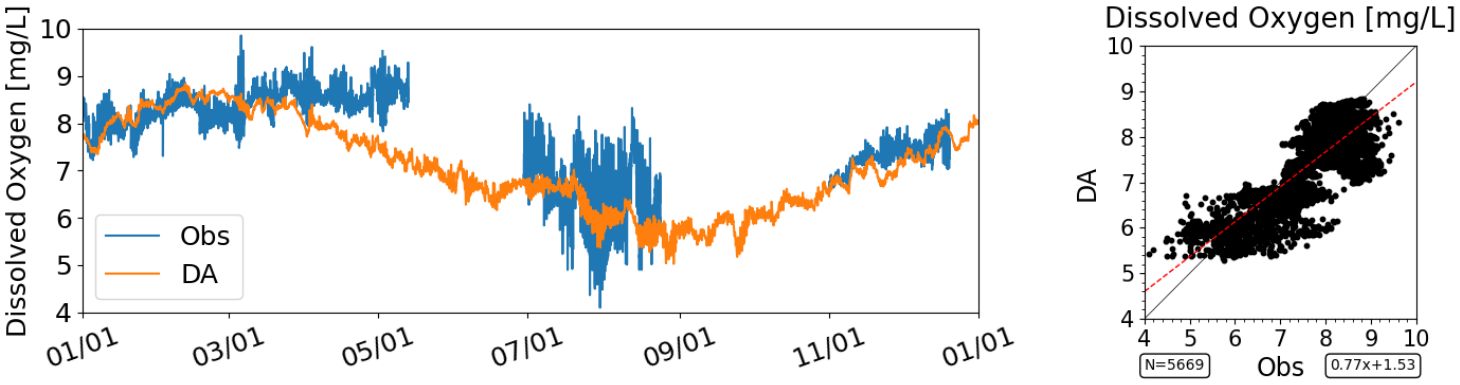
Figure S3.180 Timeseries and scatter plot for salinity at Nakayama Channel in 2016



(a) Surface layer

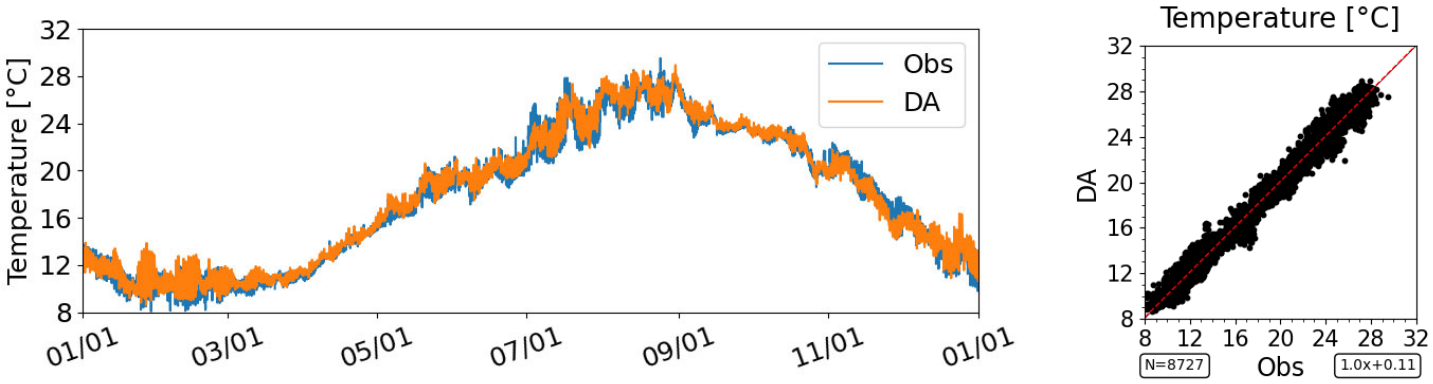


(b) Middle layer

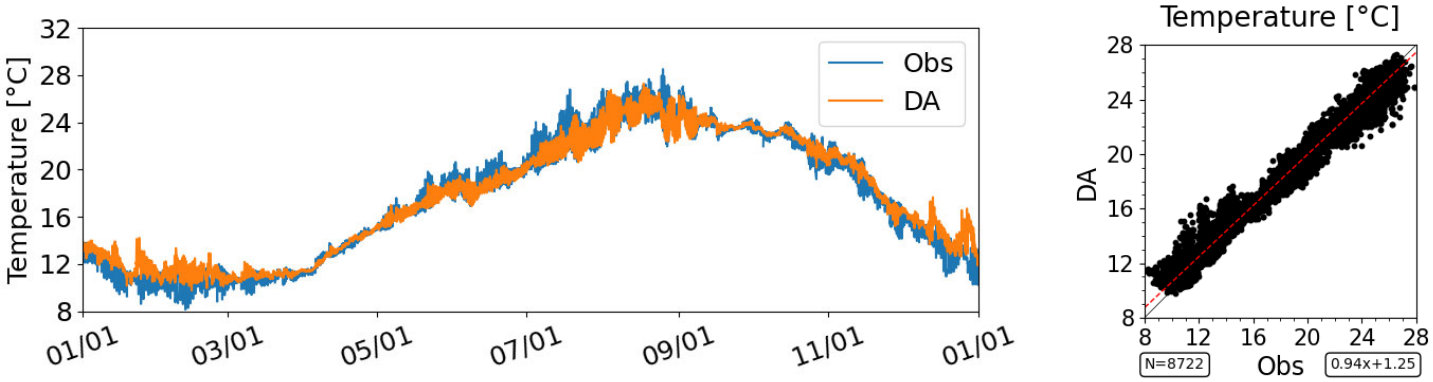


(c) Bottom layer

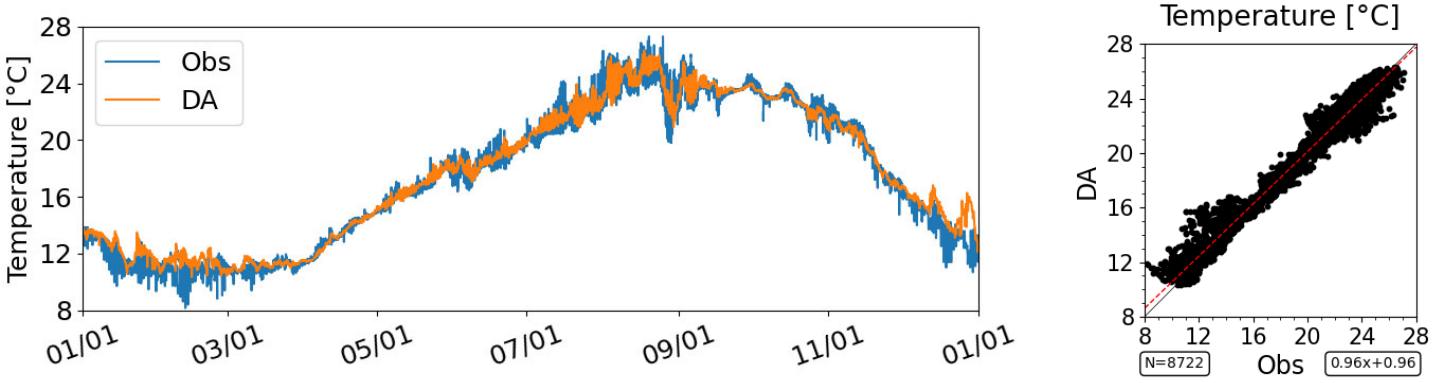
Figure S3.181 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2016



(a) Surface layer

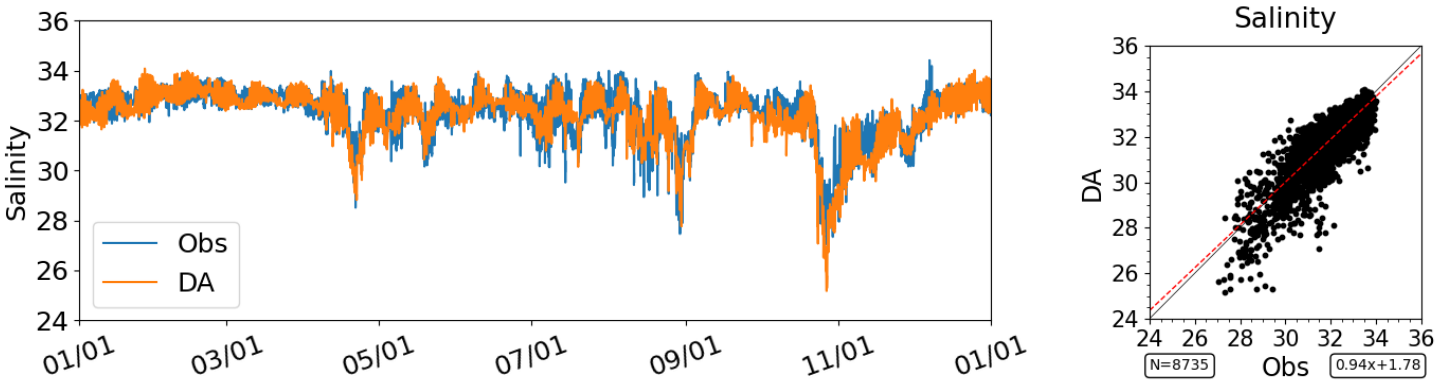


(b) Middle layer

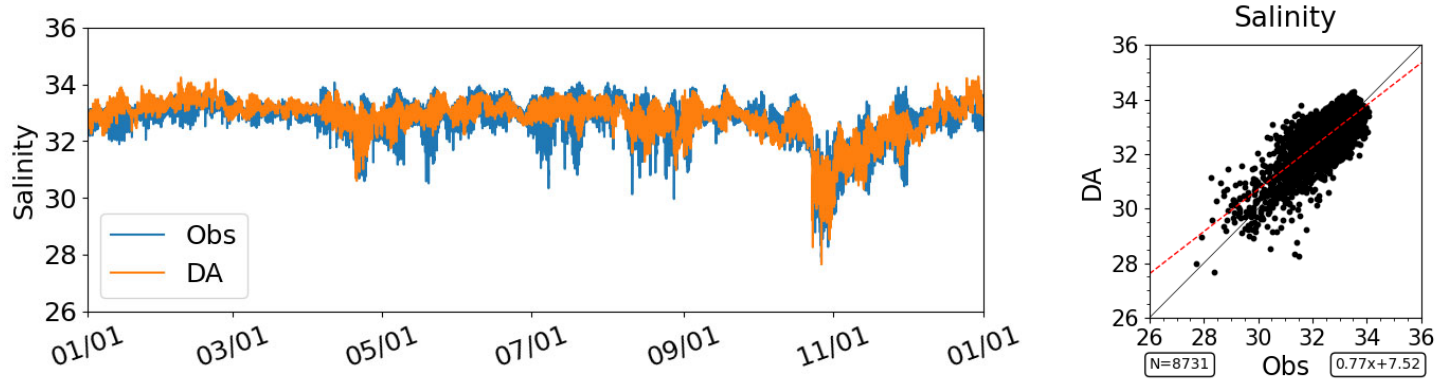


(c) Bottom layer

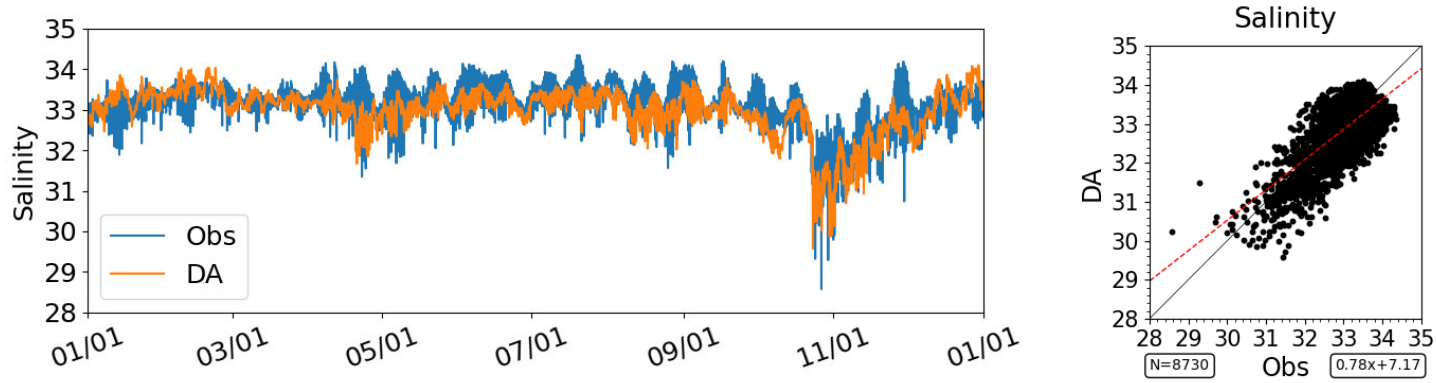
Figure S3.182 Timeseries and scatter plot for water temperature at Nakayama Channel in 2017



(a) Surface layer

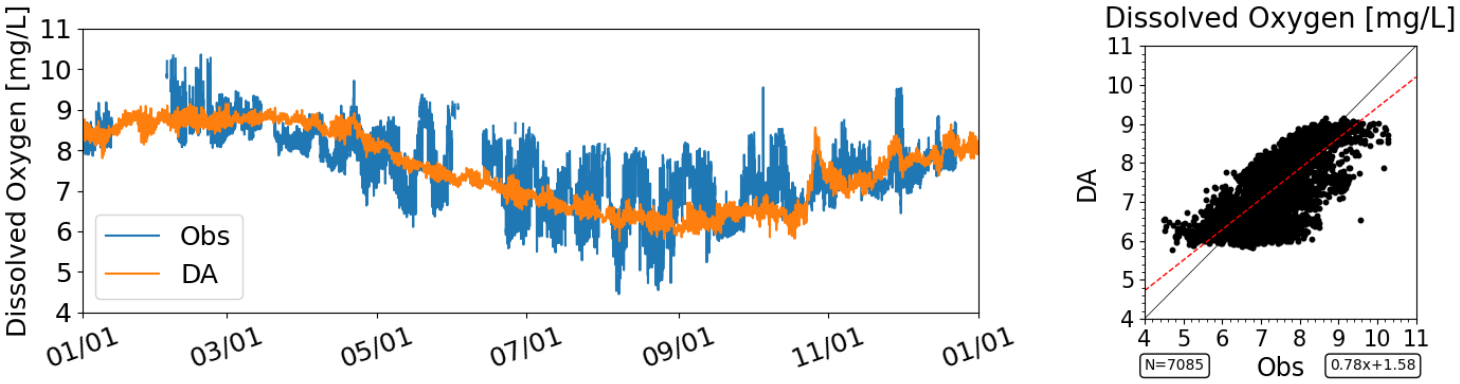


(b) Middle layer

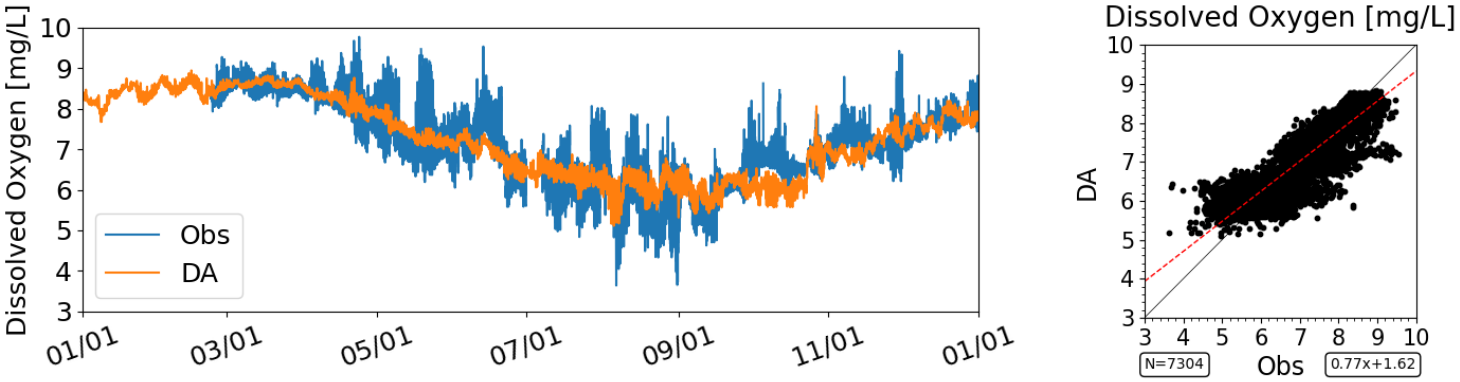


(c) Bottom layer

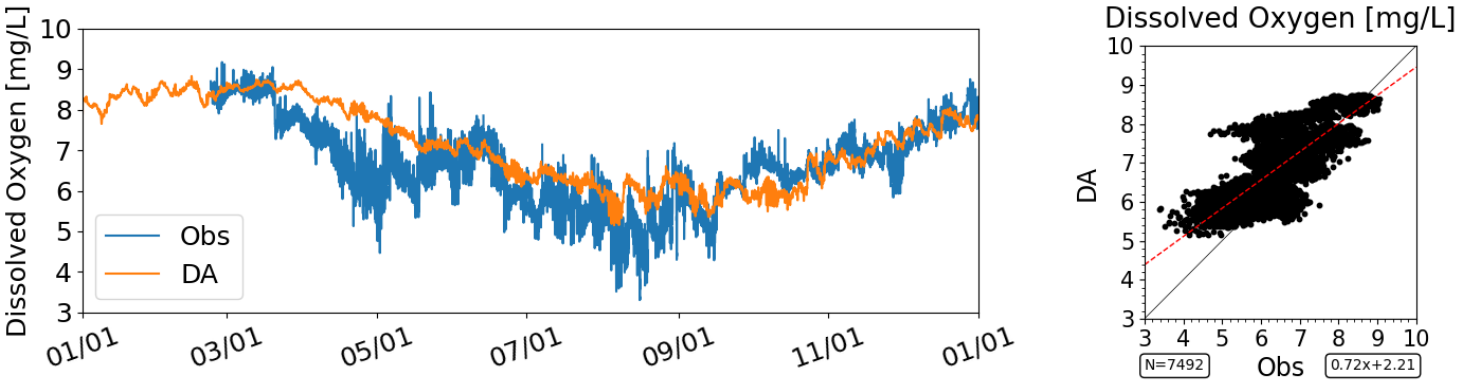
Figure S3.183 Timeseries and scatter plot for salinity at Nakayama Channel in 2017



(a) Surface layer

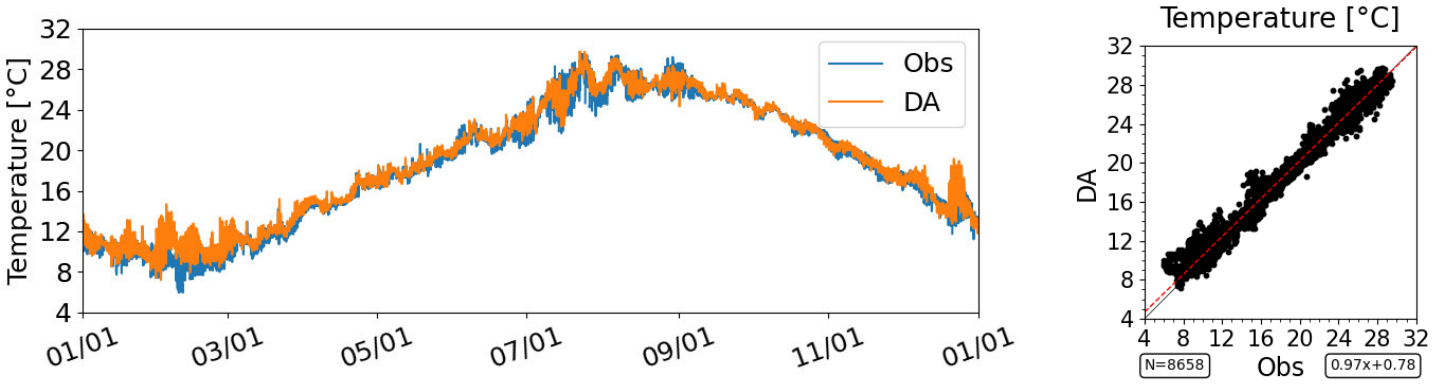


(b) Middle layer

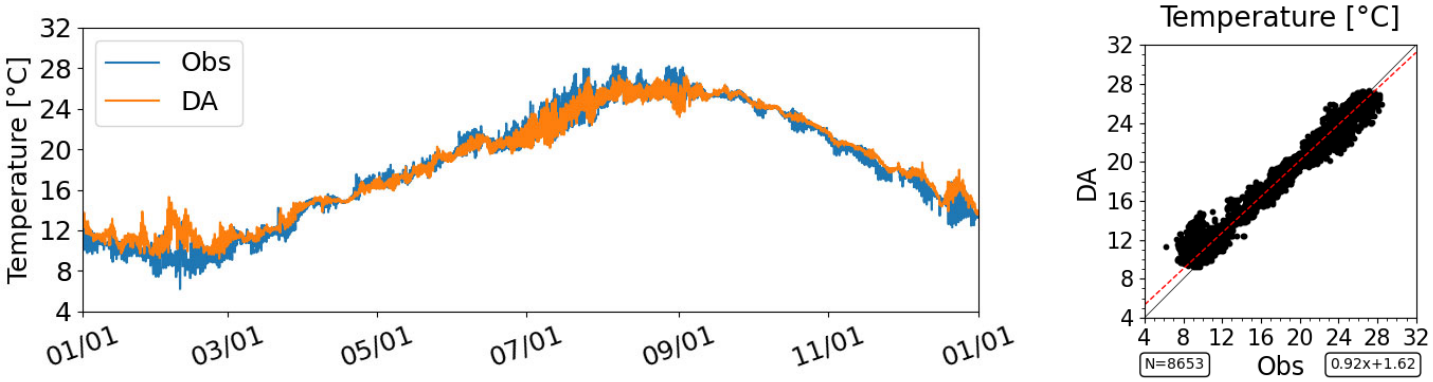


(c) Bottom layer

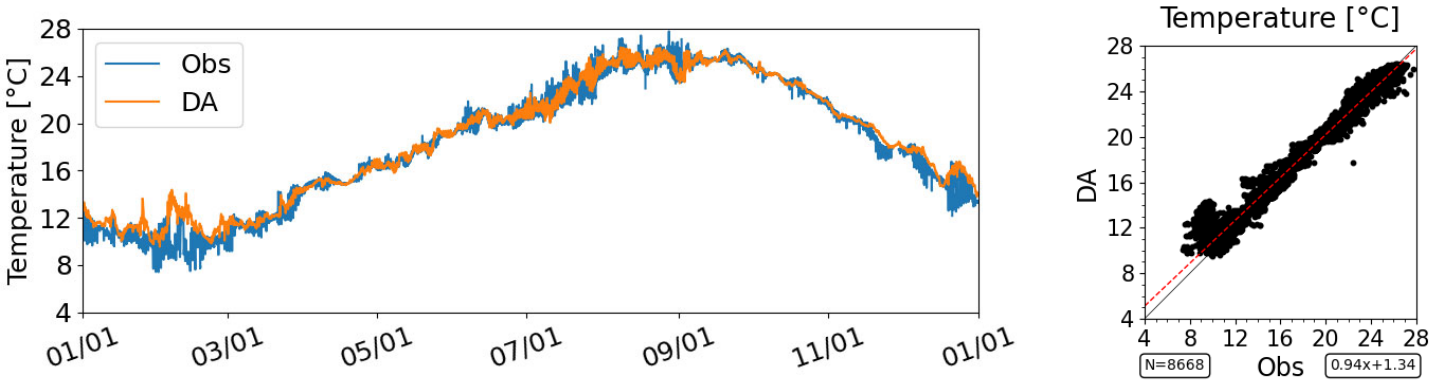
Figure S3.184 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2017



(a) Surface layer

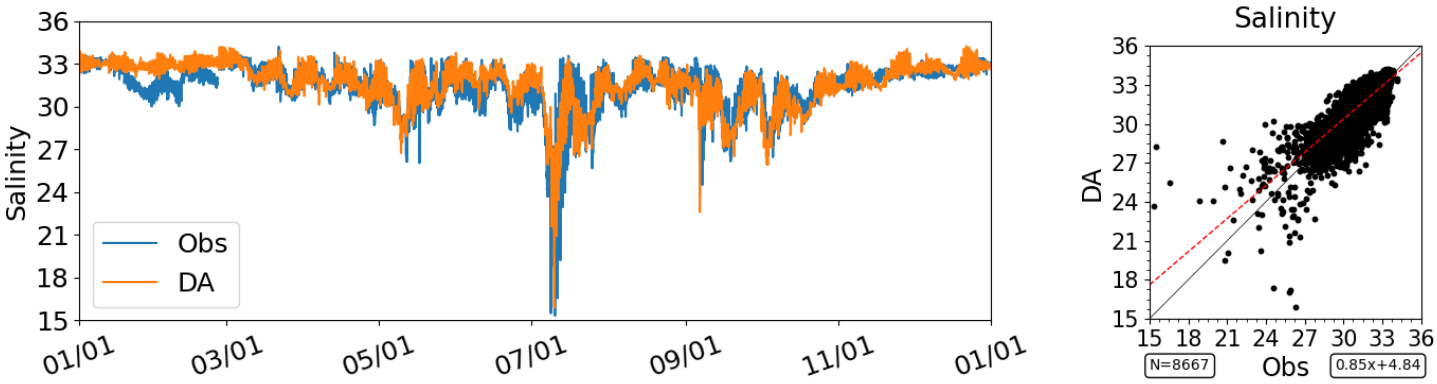


(b) Middle layer

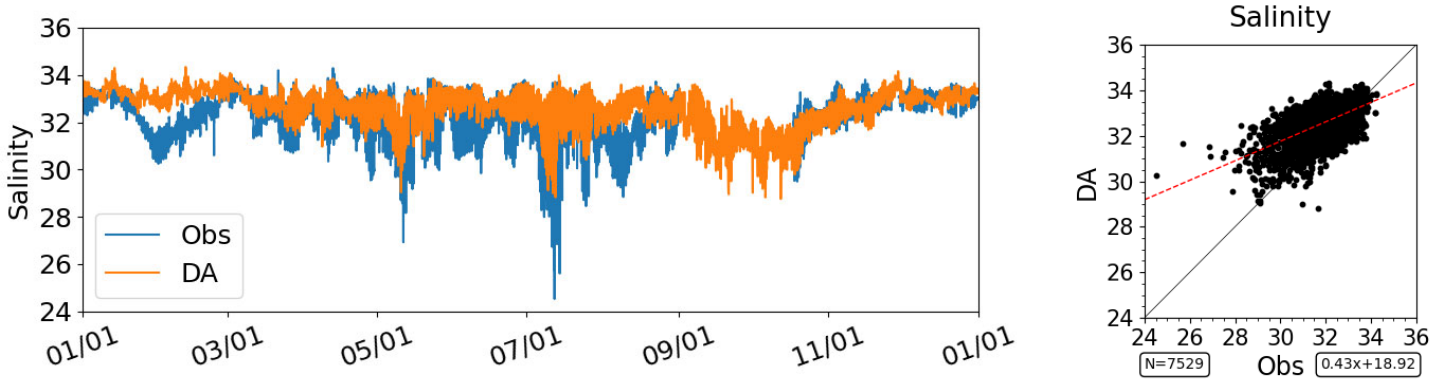


(c) Bottom layer

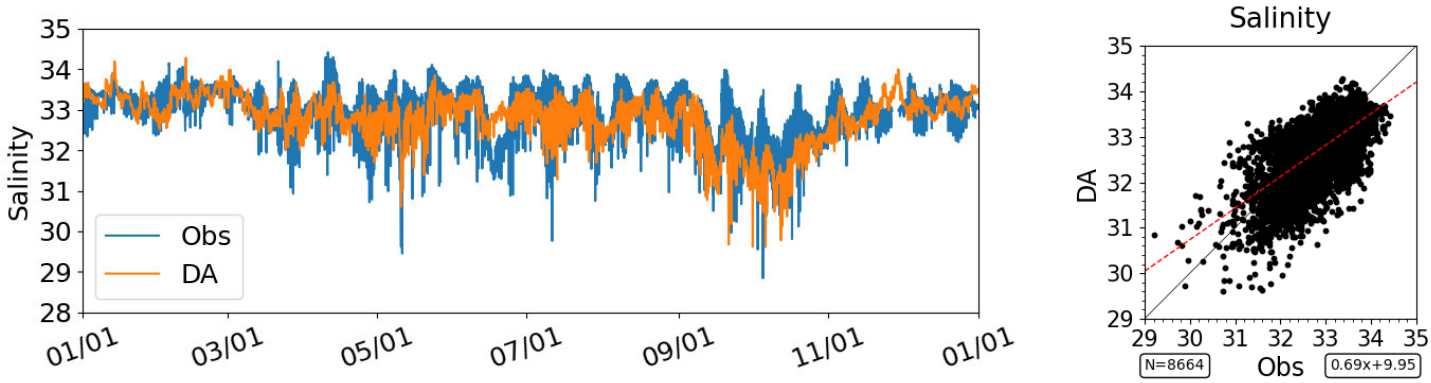
Figure S3.185 Timeseries and scatter plot for water temperature at Nakayama Channel in 2018



(a) Surface layer

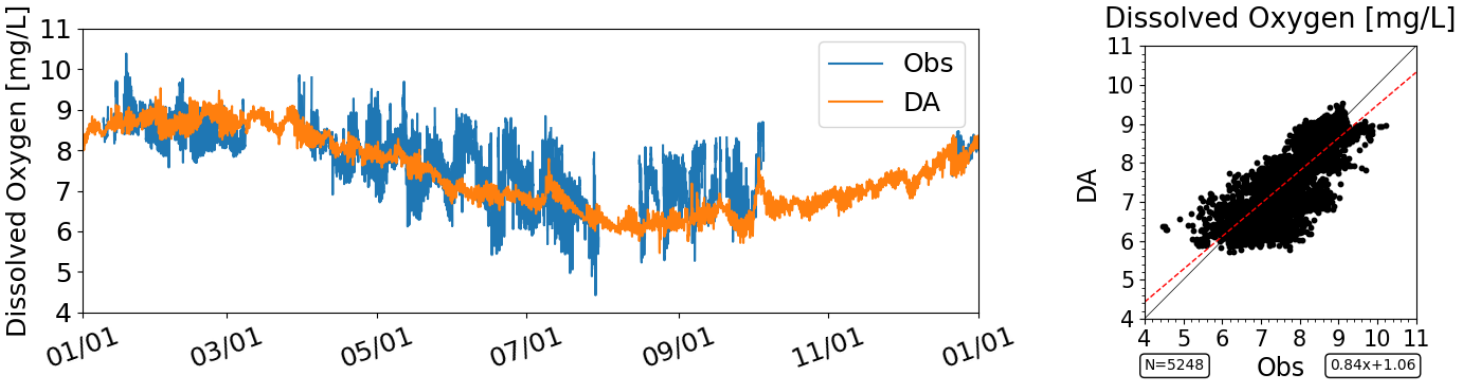


(b) Middle layer

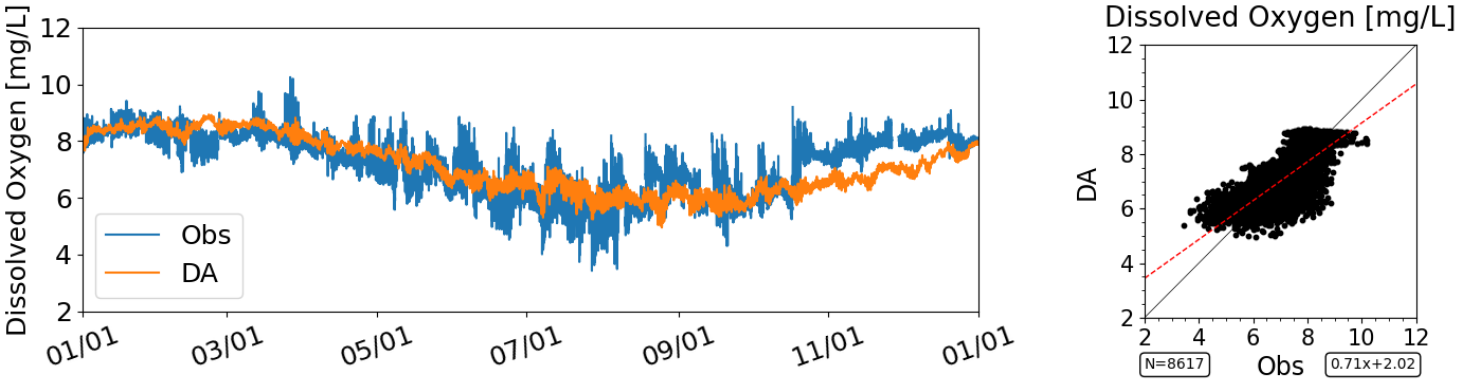


(c) Bottom layer

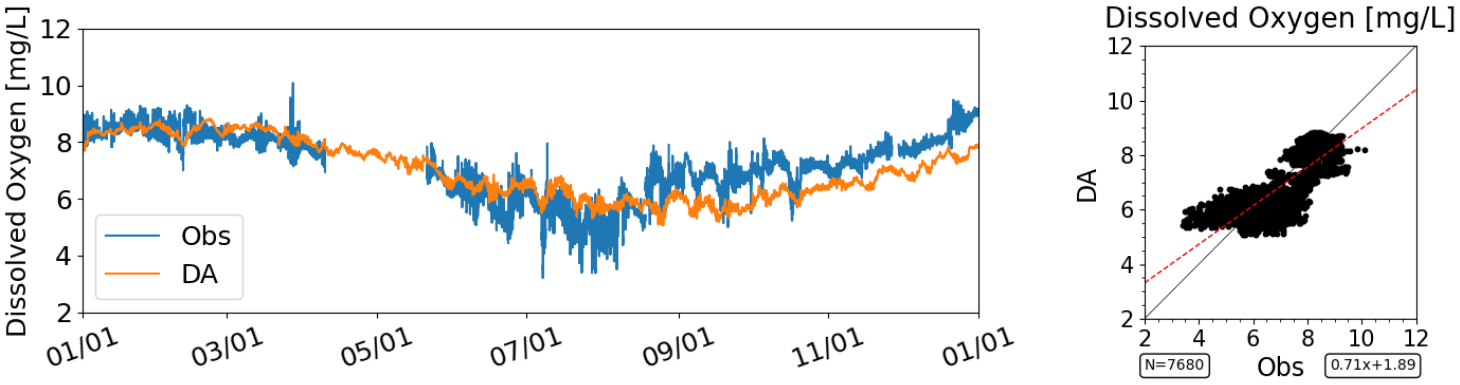
Figure S3.186 Timeseries and scatter plot for salinity at Nakayama Channel in 2018



(a) Surface layer

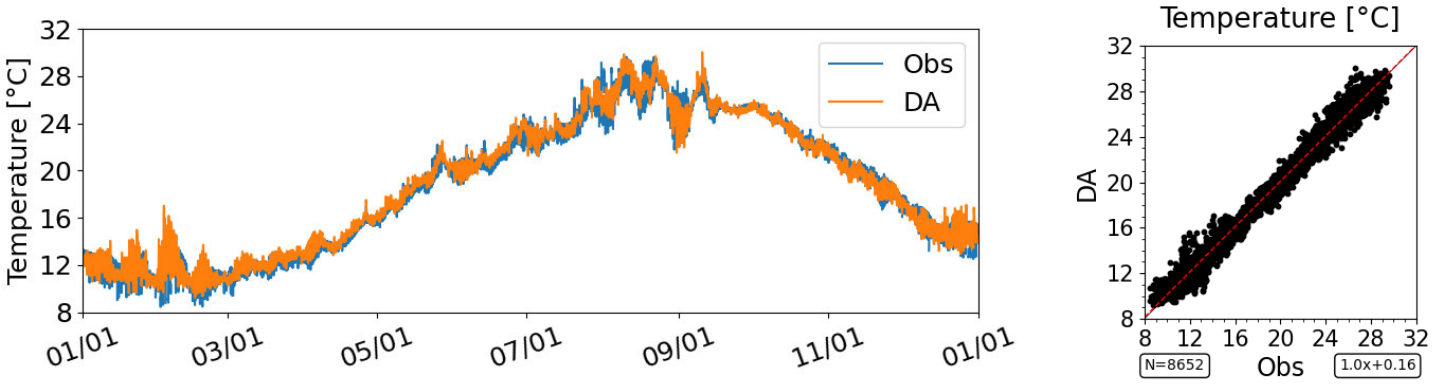


(b) Middle layer

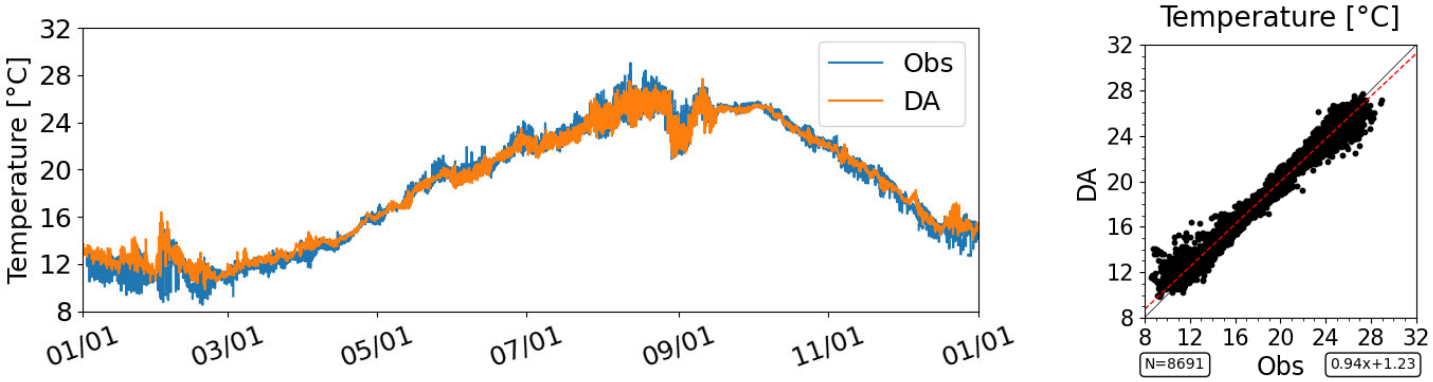


(c) Bottom layer

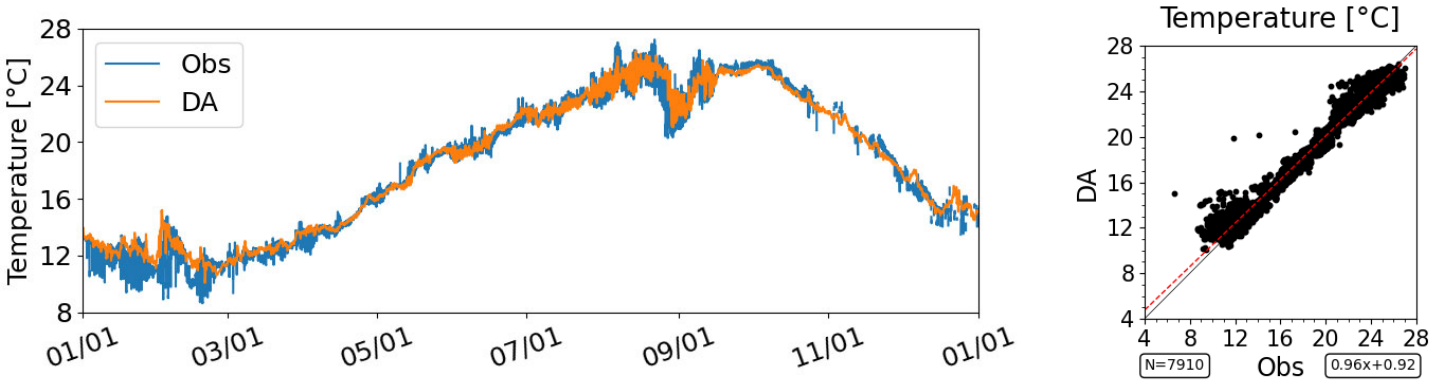
Figure S3.187 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2018



(a) Surface layer

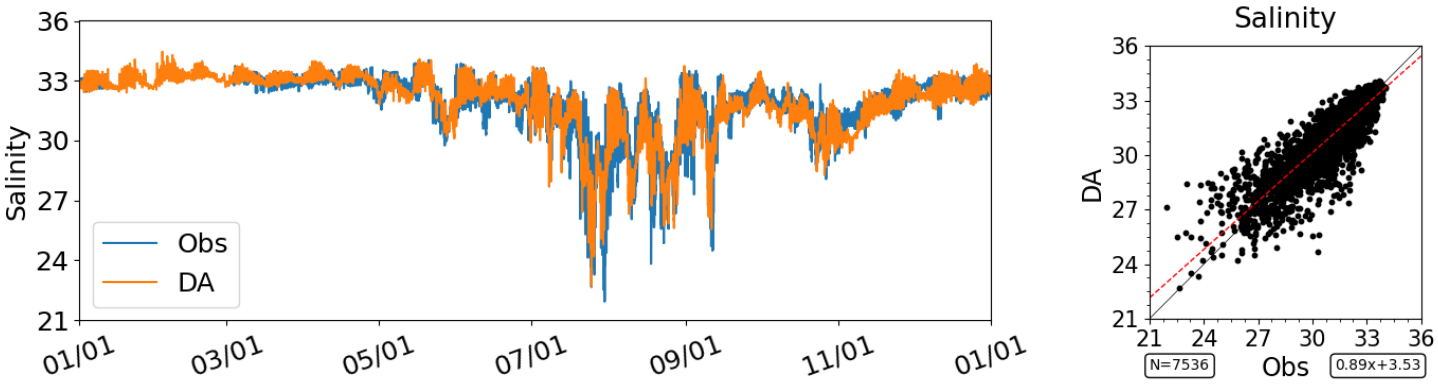


(b) Middle layer

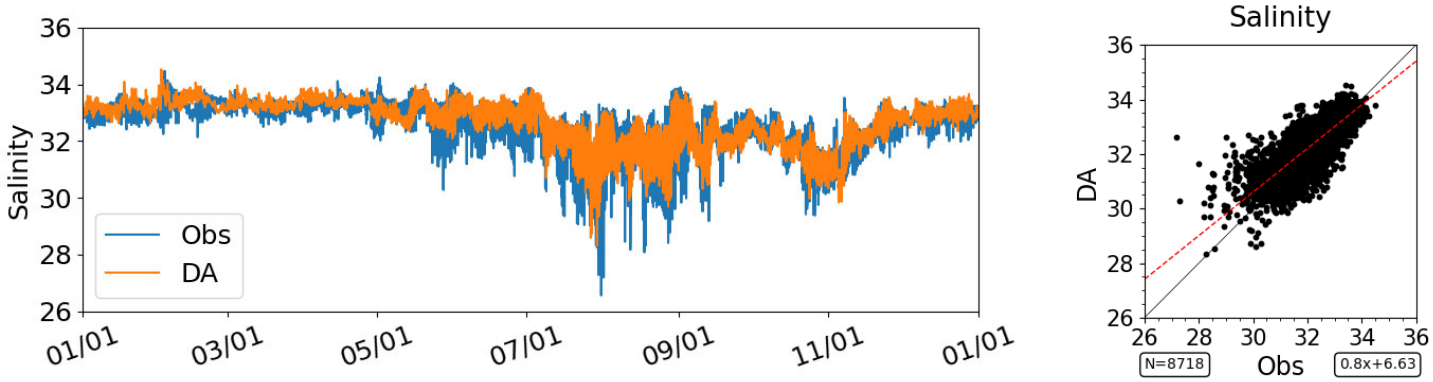


(c) Bottom layer

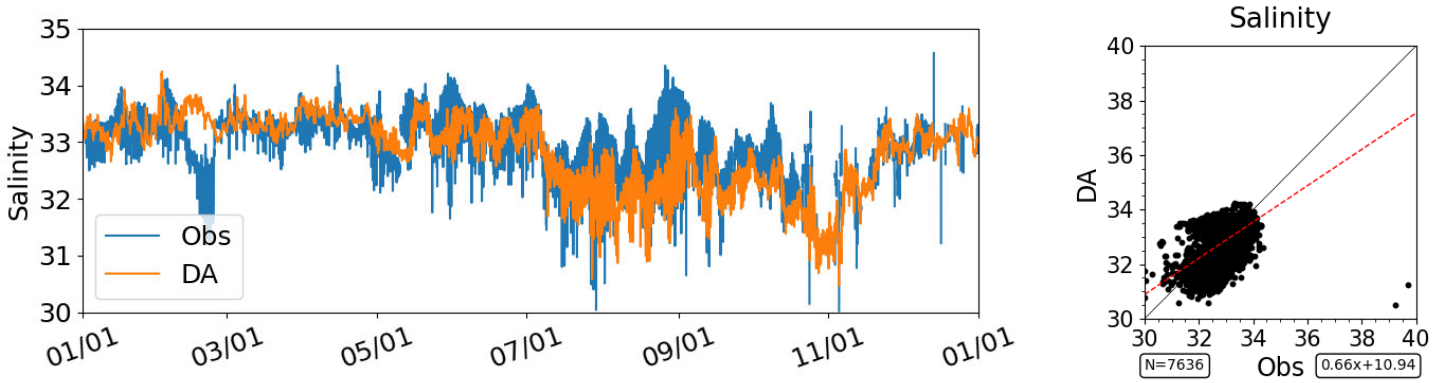
Figure S3.188 Timeseries and scatter plot for water temperature at Nakayama Channel in 2019



(a) Surface layer

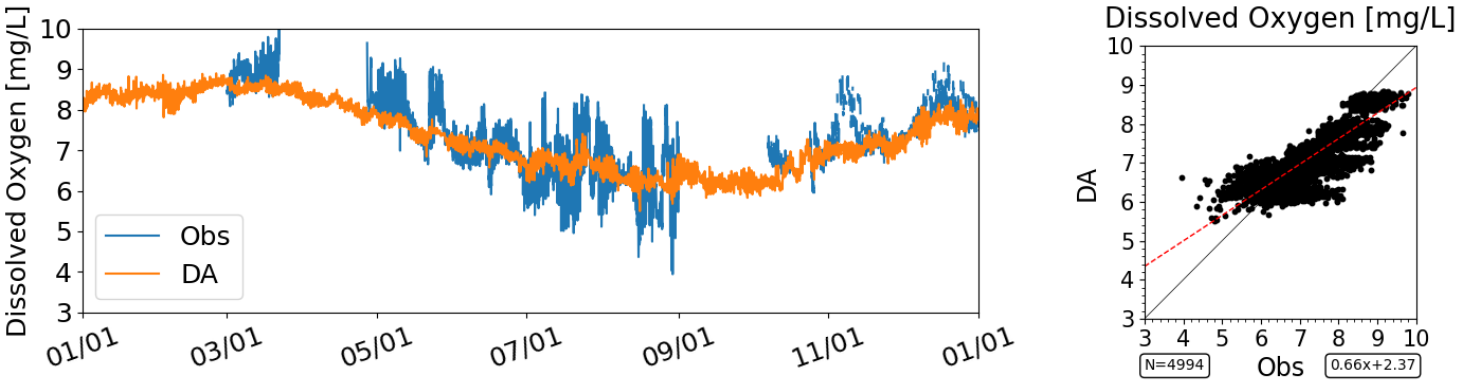


(b) Middle layer

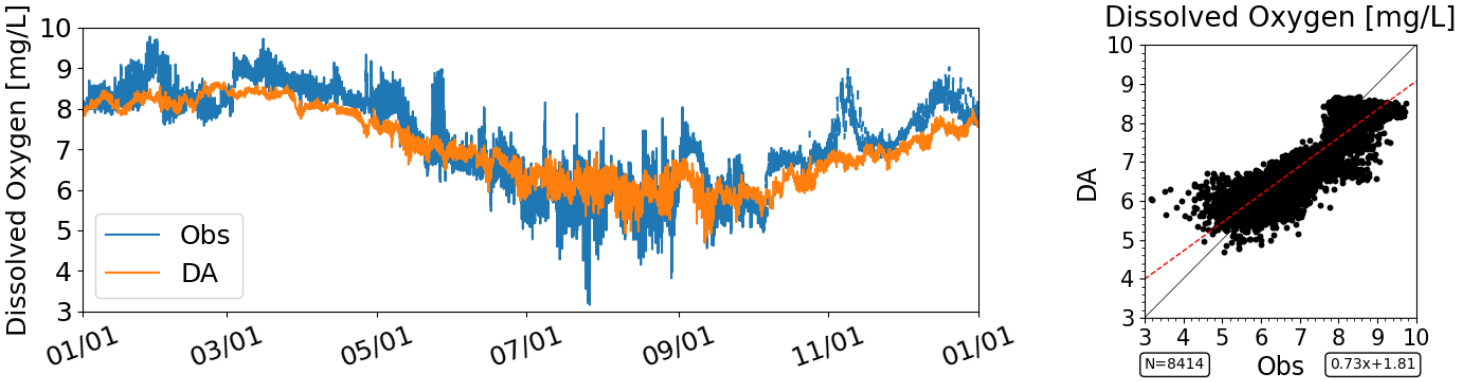


(c) Bottom layer

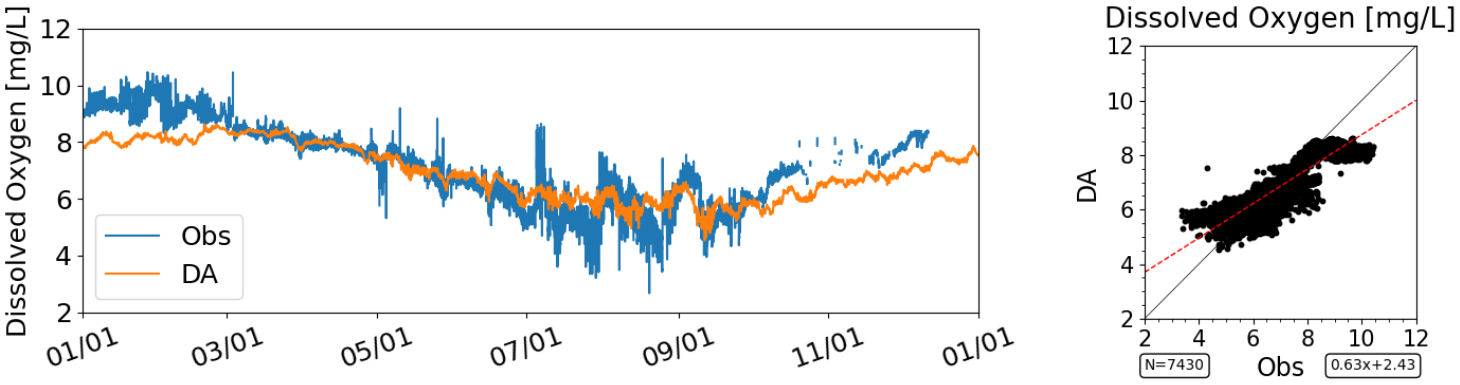
Figure S3.189 Timeseries and scatter plot for salinity at Nakayama Channel in 2019



(a) Surface layer

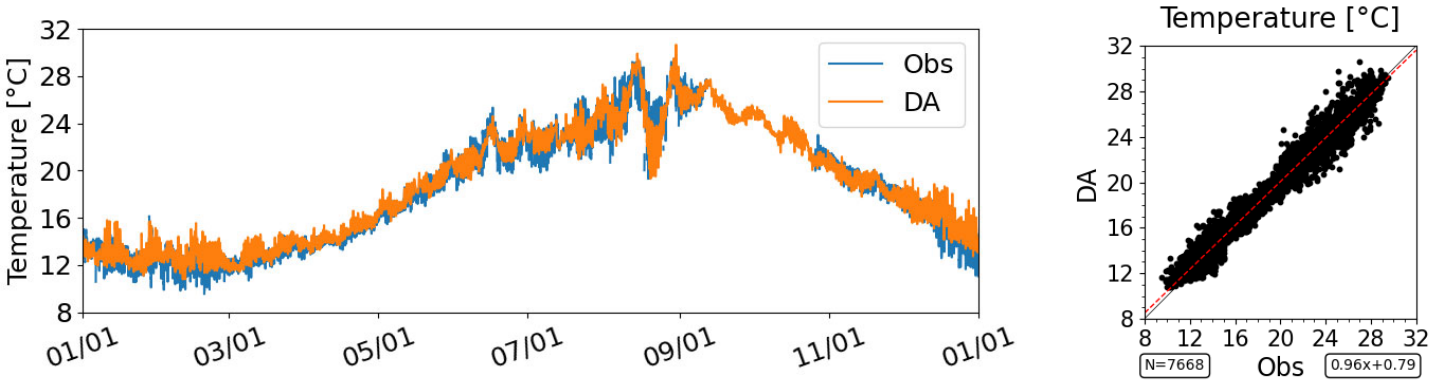


(b) Middle layer

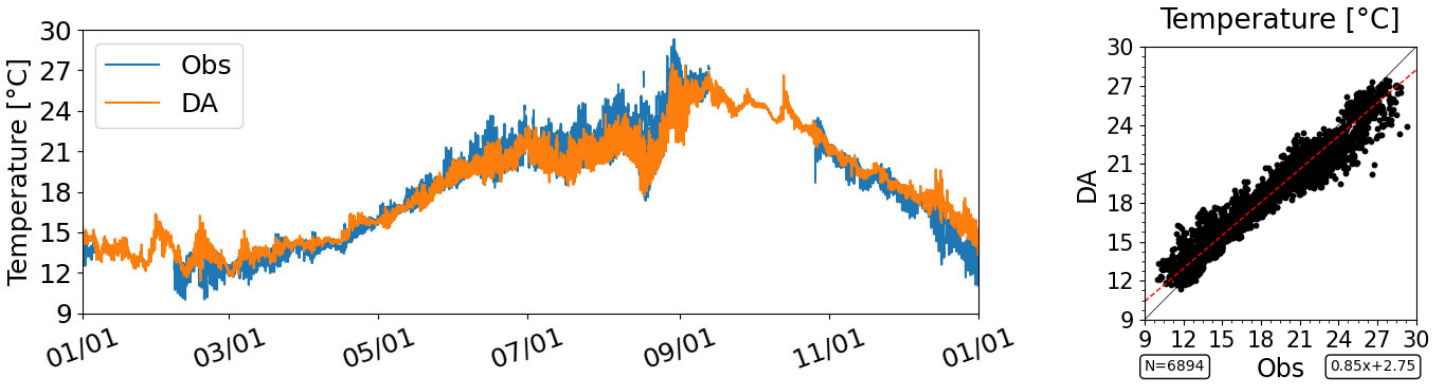


(c) Bottom layer

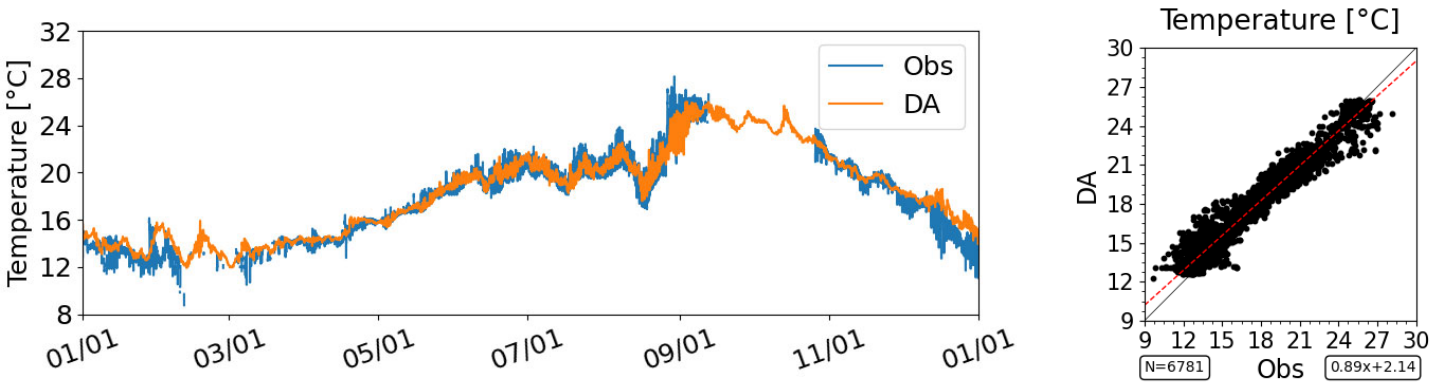
Figure S3.190 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2019



(a) Surface layer

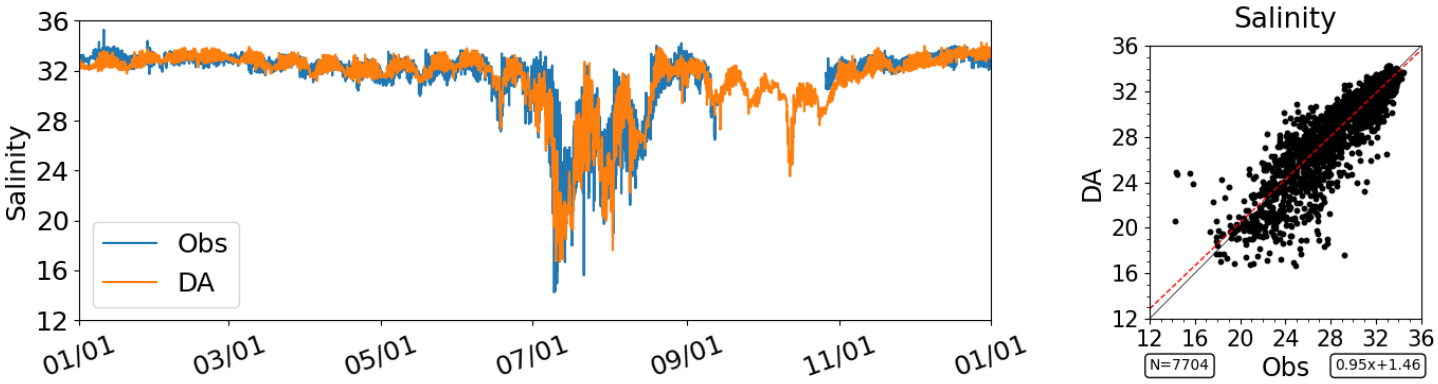


(b) Middle layer

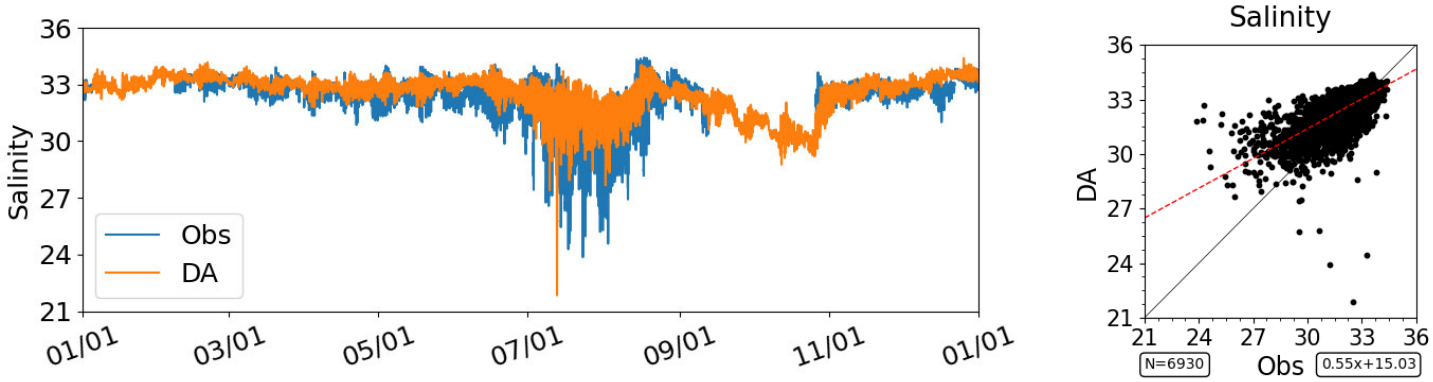


(c) Bottom layer

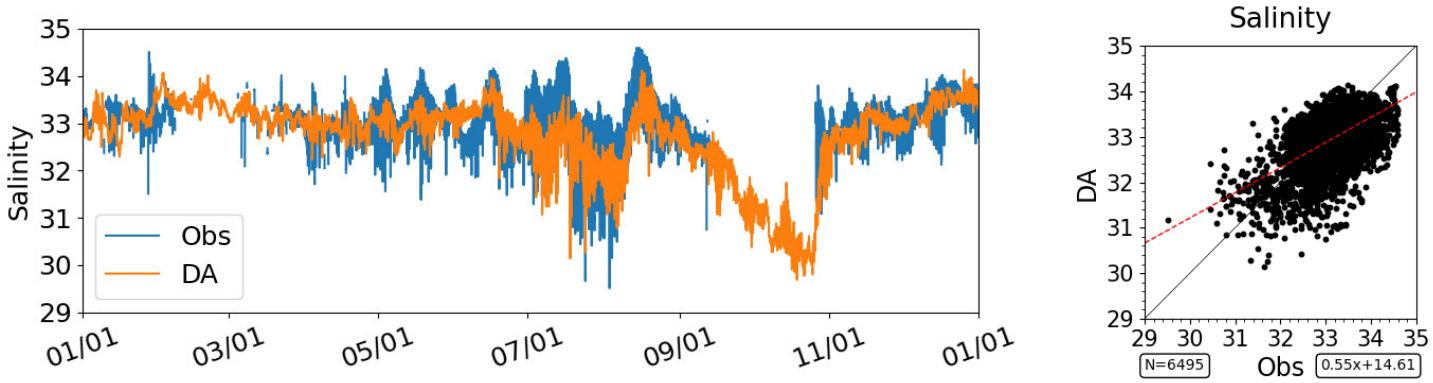
Figure S3.191 Timeseries and scatter plot for water temperature at Nakayama Channel in 2020



(a) Surface layer

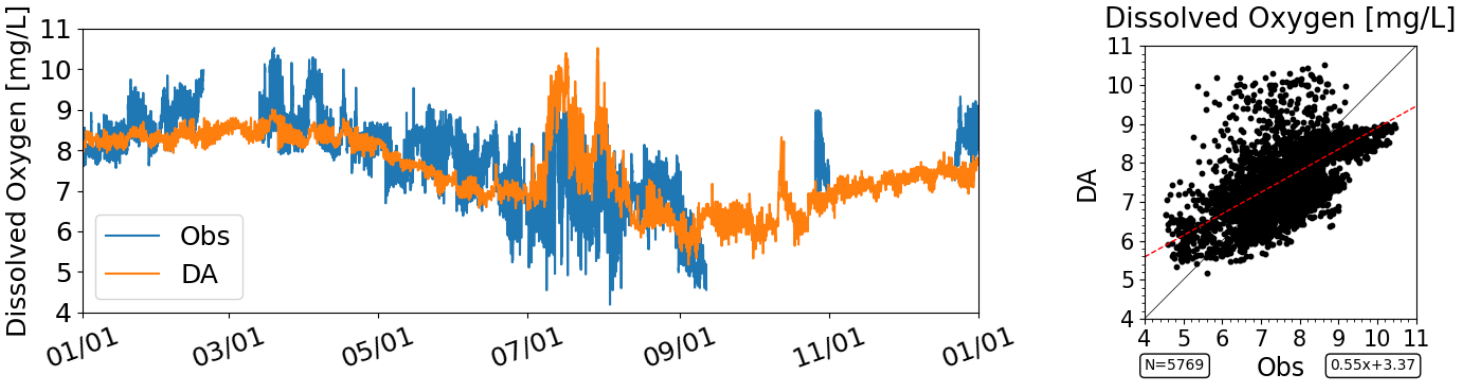


(b) Middle layer

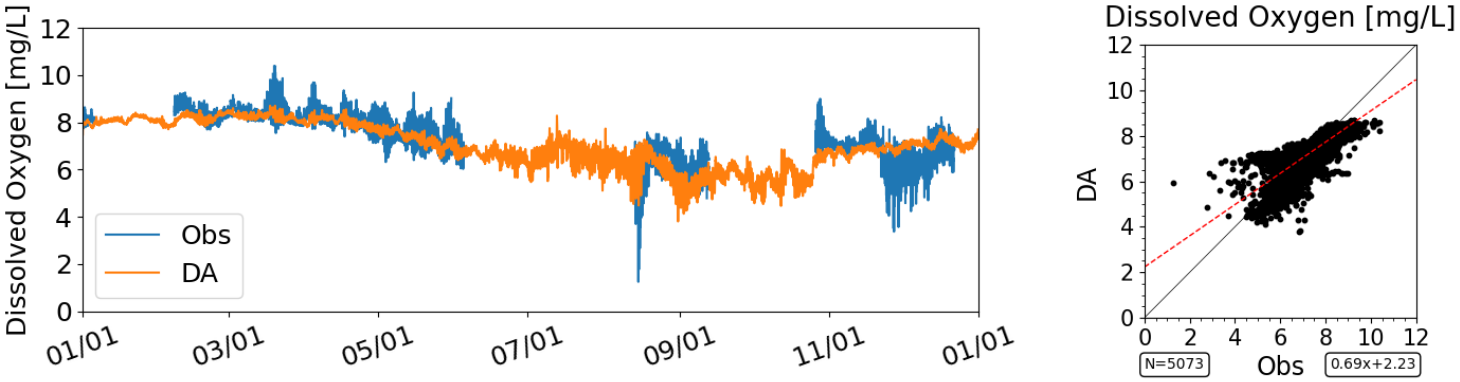


(c) Bottom layer

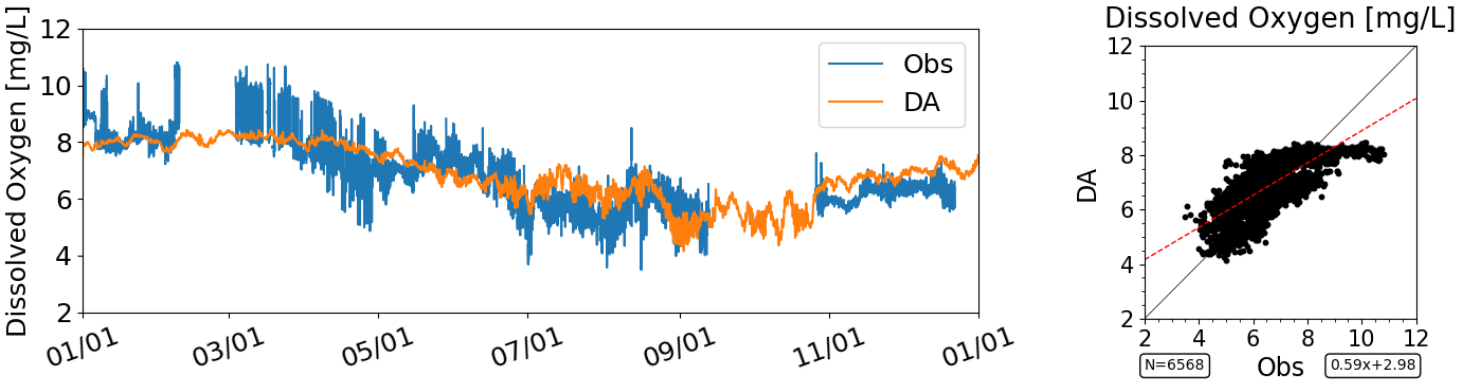
Figure S3.192 Timeseries and scatter plot for salinity at Nakayama Channel in 2020



(a) Surface layer

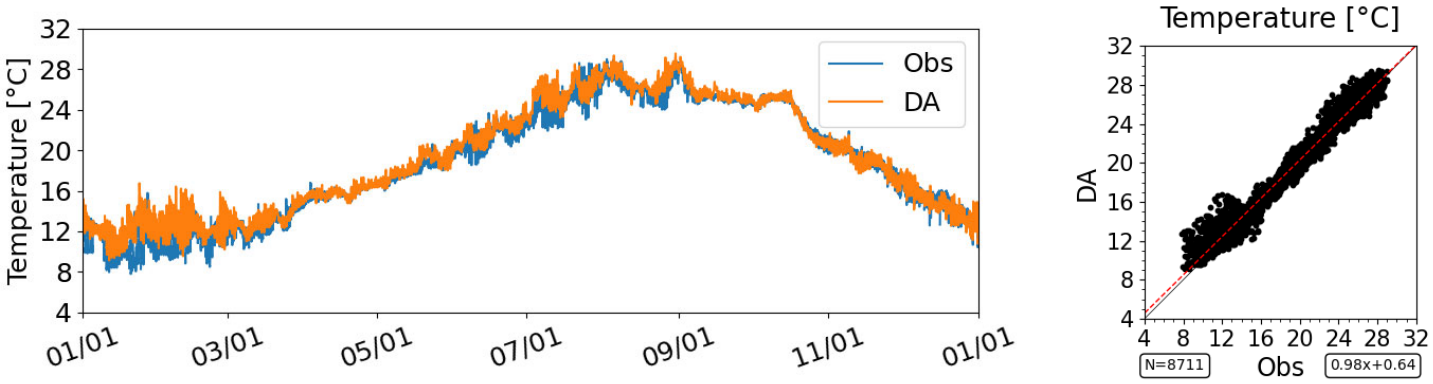


(b) Middle layer

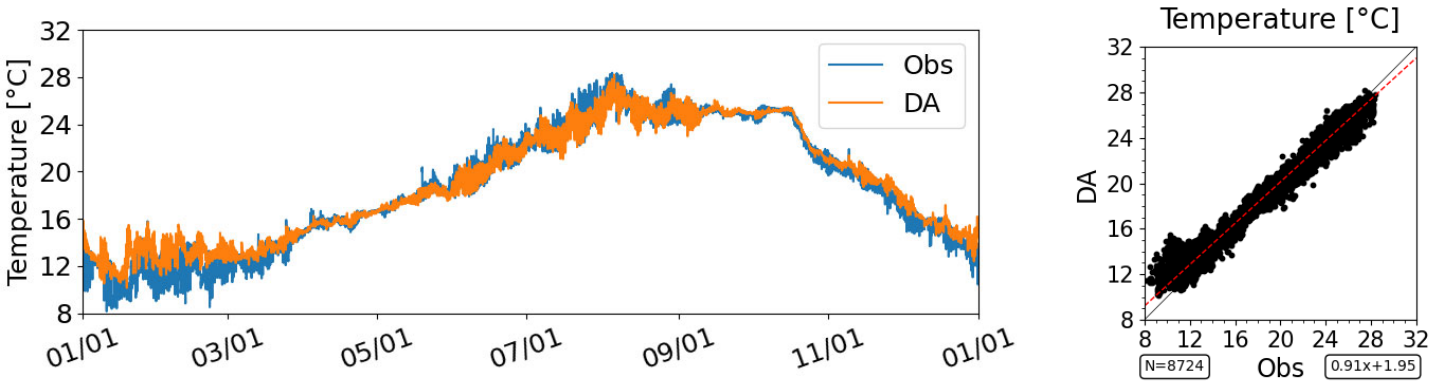


(c) Bottom layer

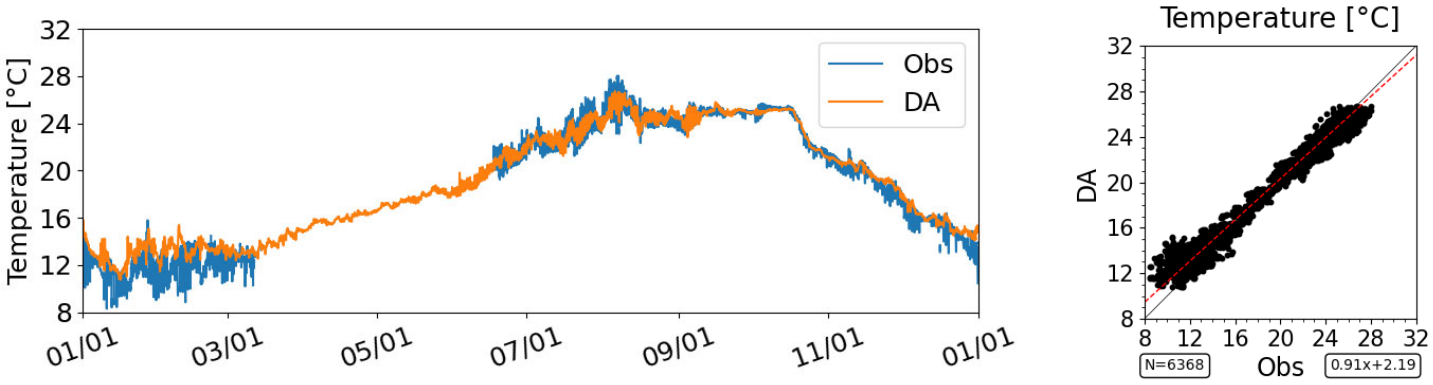
Figure S3.193 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2020



(a) Surface layer

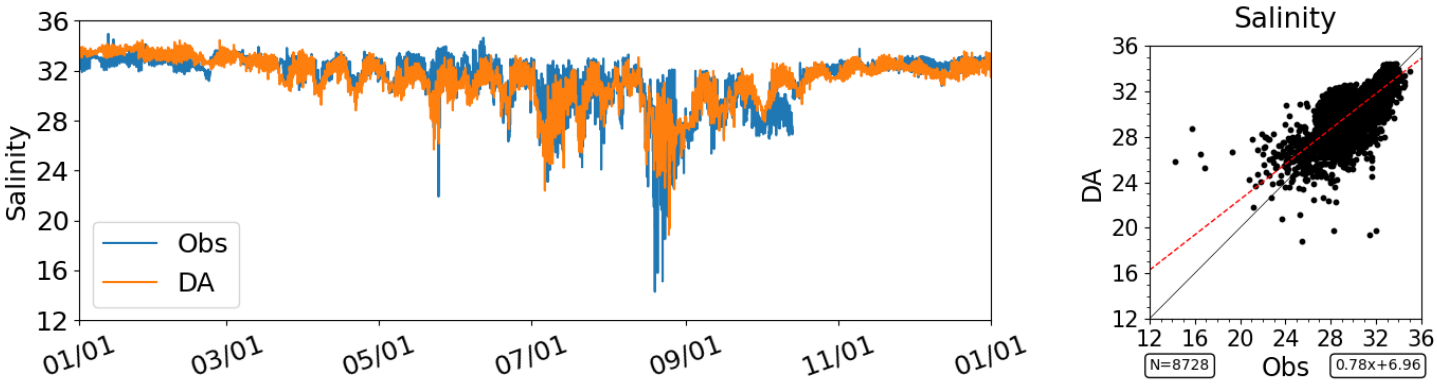


(b) Middle layer

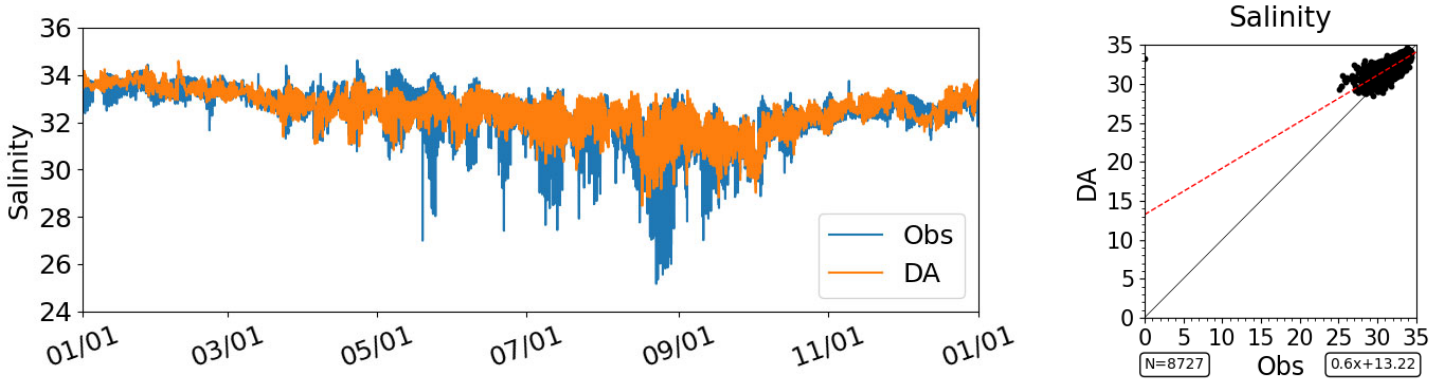


(c) Bottom layer

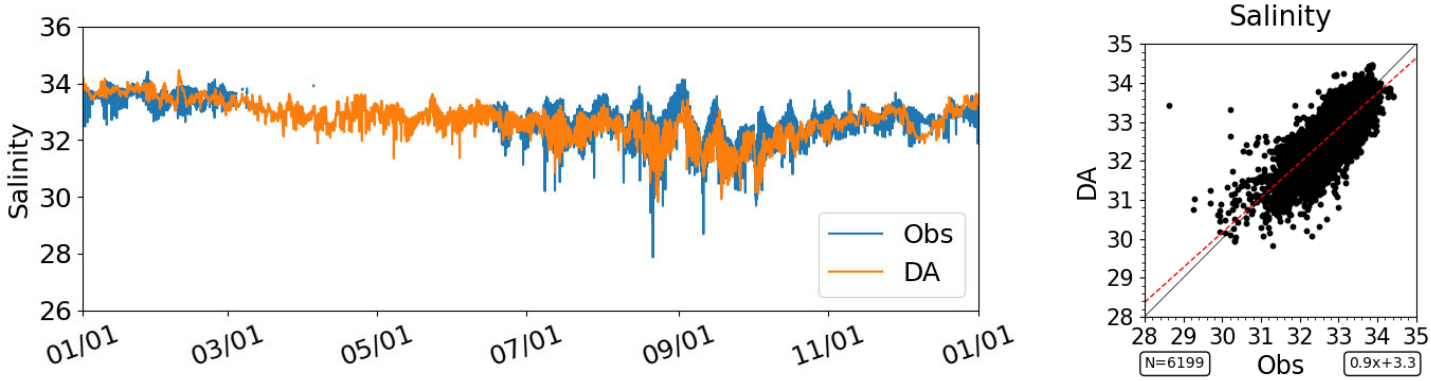
Figure S3.194 Timeseries and scatter plot for water temperature at Nakayama Channel in 2021



(a) Surface layer

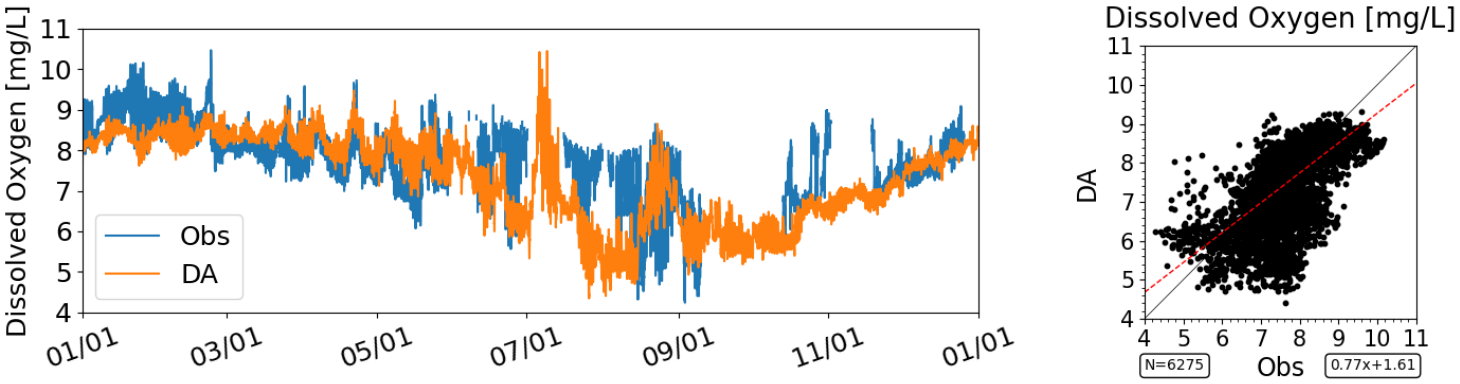


(b) Middle layer

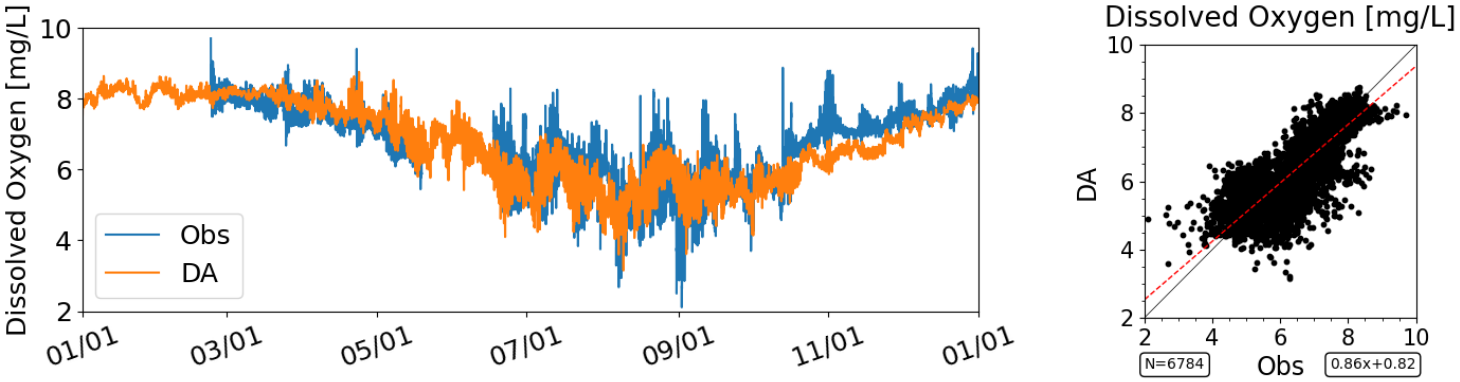


(c) Bottom layer

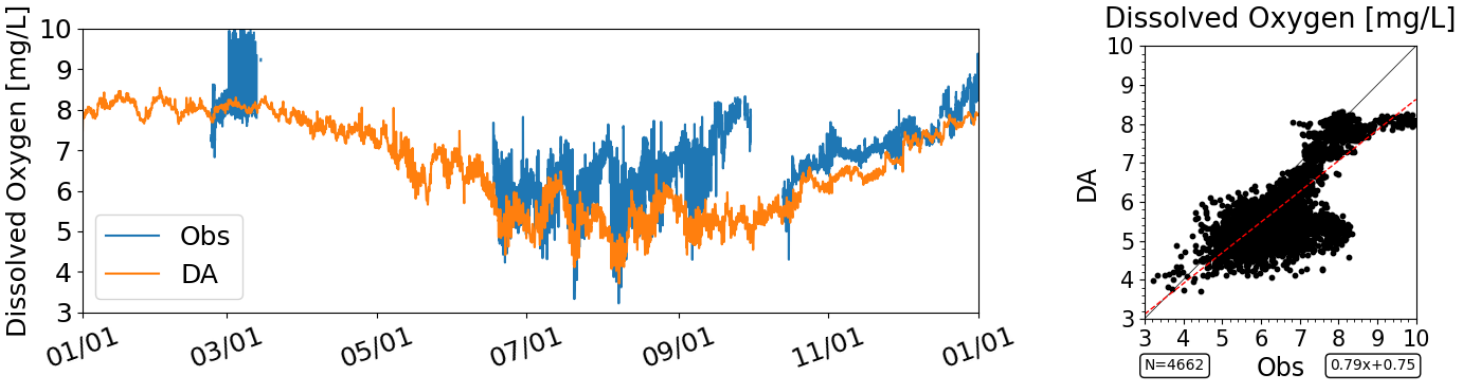
Figure S3.195 Timeseries and scatter plot for salinity at Nakayama Channel in 2021



(a) Surface layer

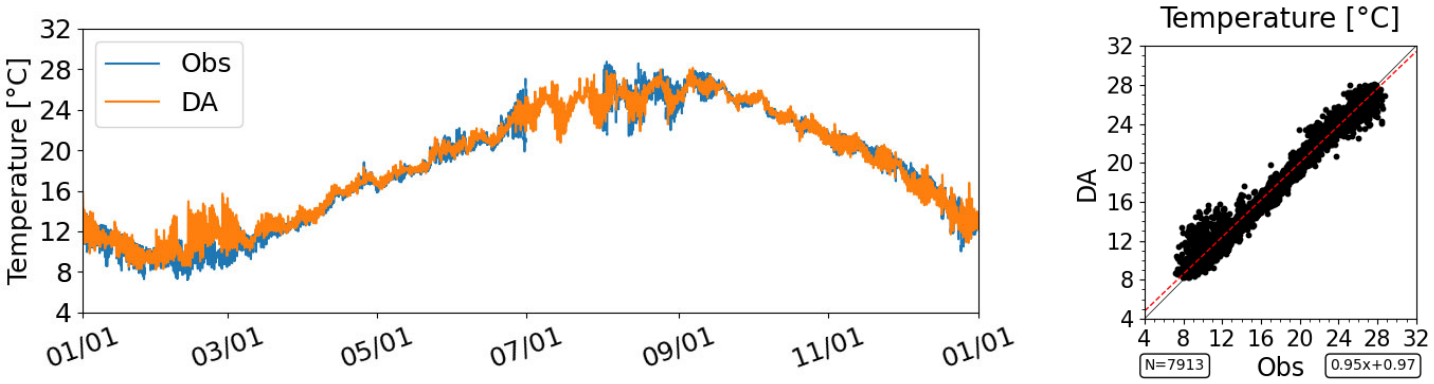


(b) Middle layer

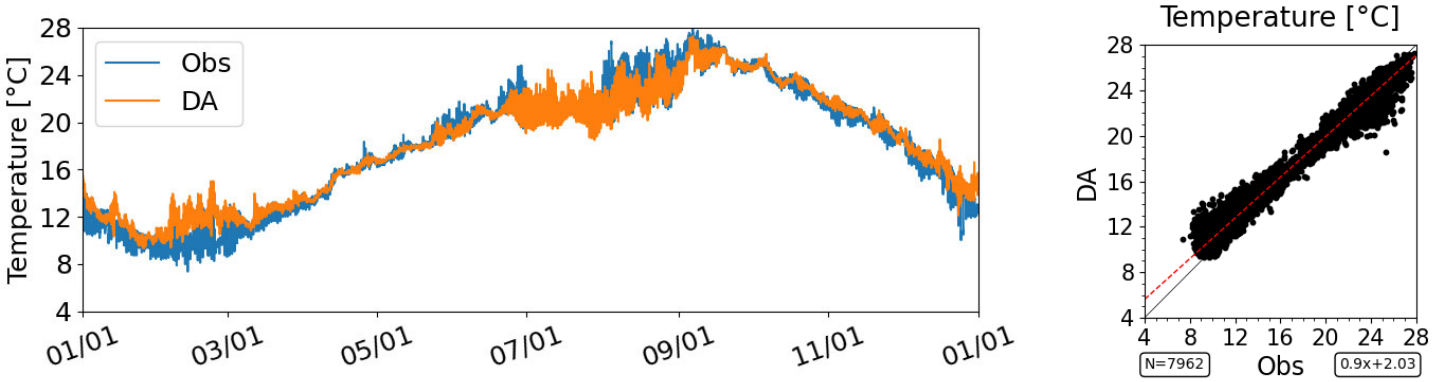


(c) Bottom layer

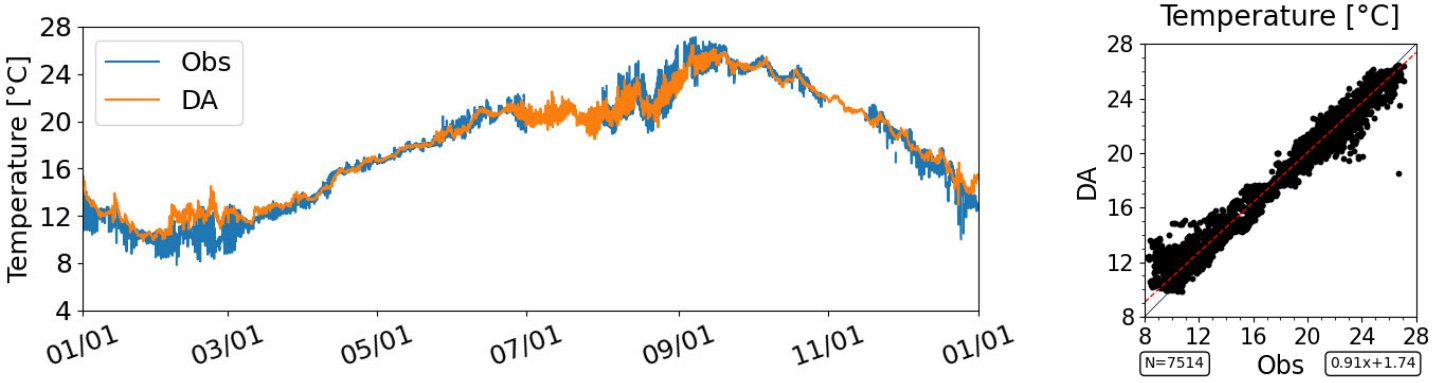
Figure S3.196 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2021



(a) Surface layer

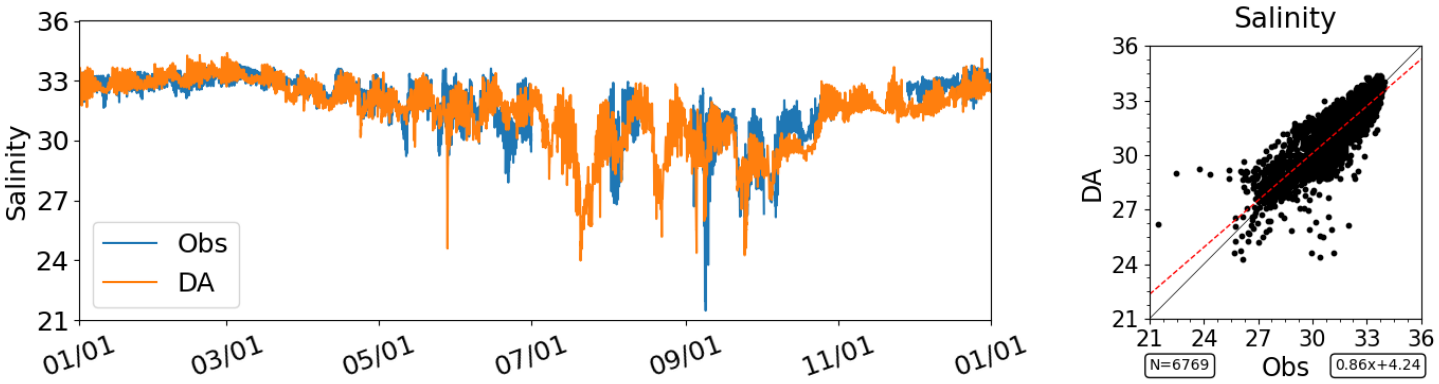


(b) Middle layer

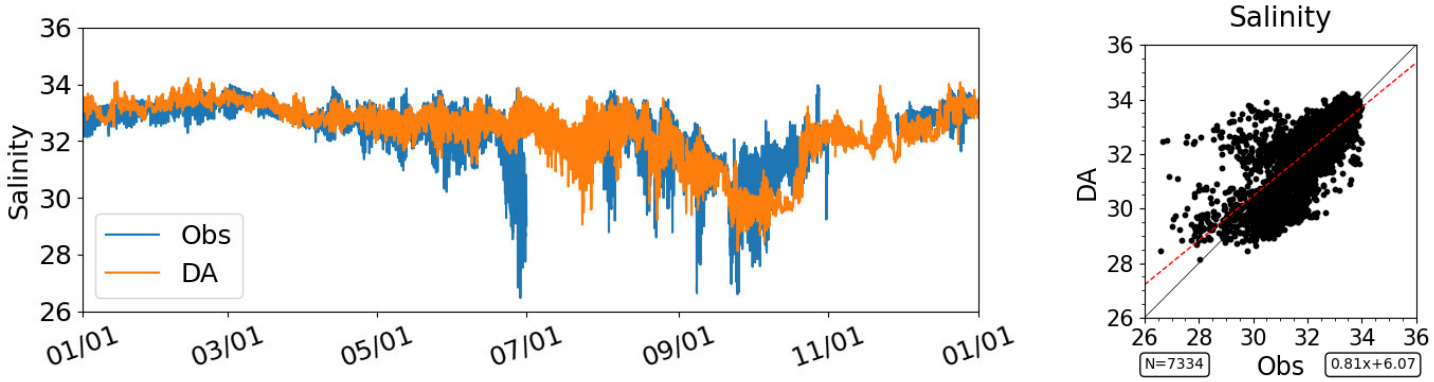


(c) Bottom layer

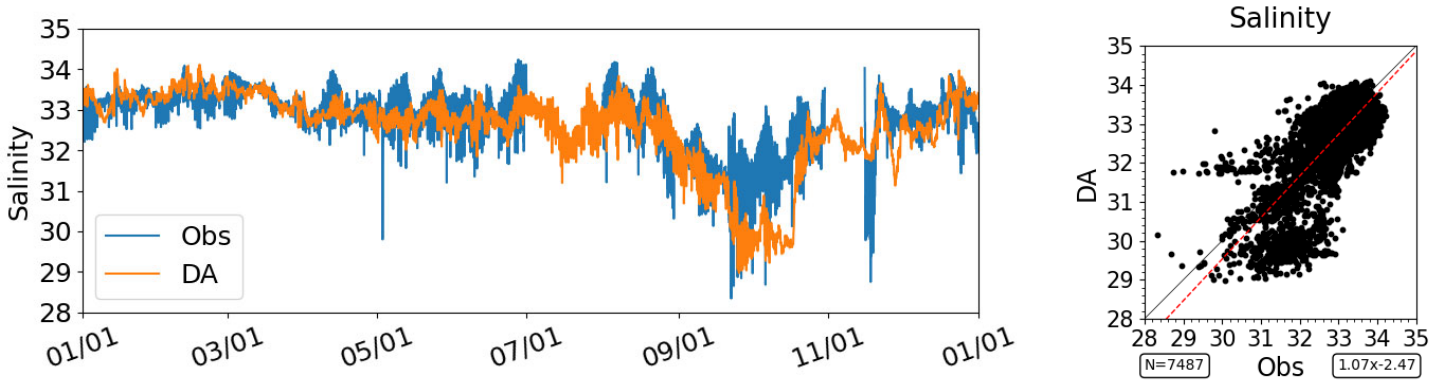
Figure S3.197 Timeseries and scatter plot for water temperature at Nakayama Channel in 2022



(a) Surface layer

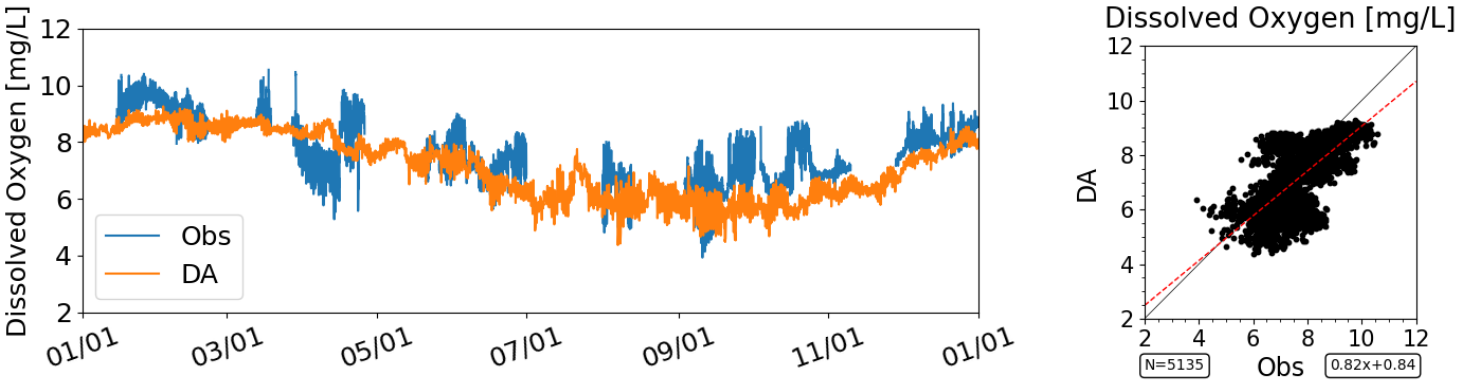


(b) Middle layer

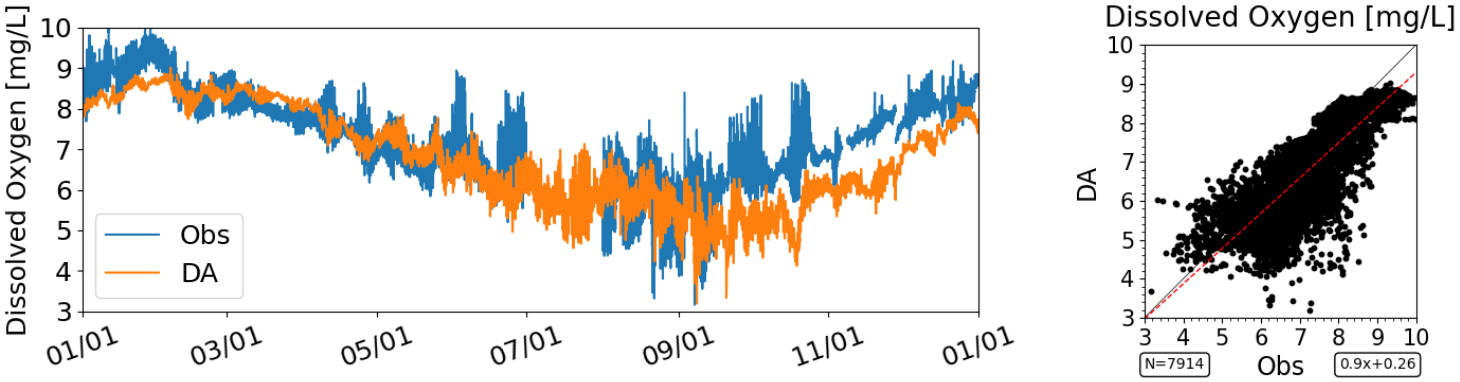


(c) Bottom layer

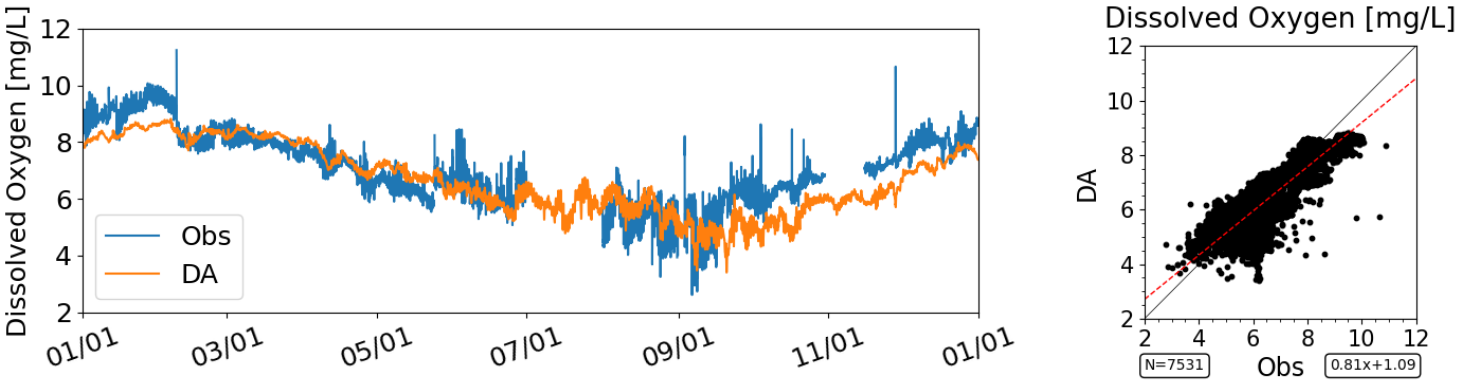
Figure S3.198 Timeseries and scatter plot for salinity at Nakayama Channel in 2022



(a) Surface layer



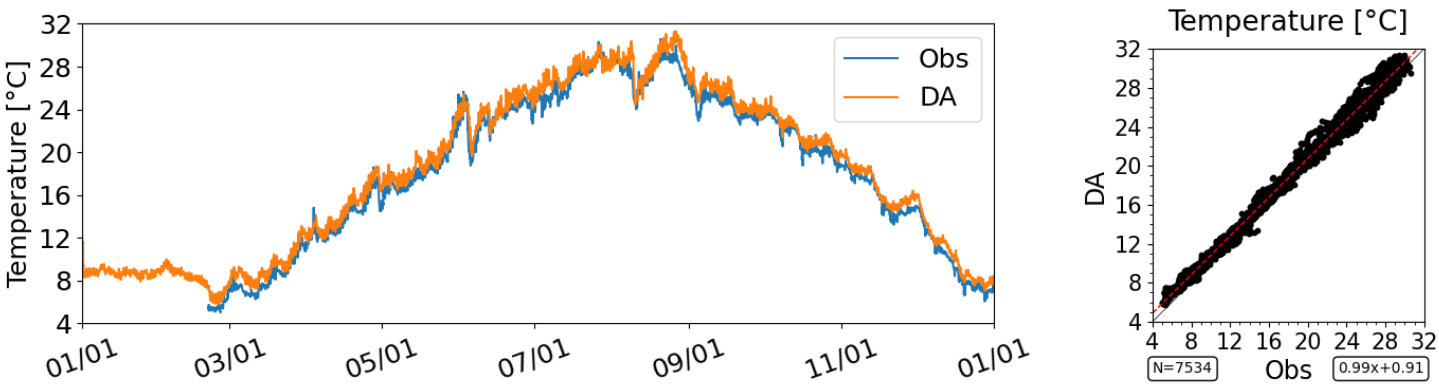
(b) Middle layer



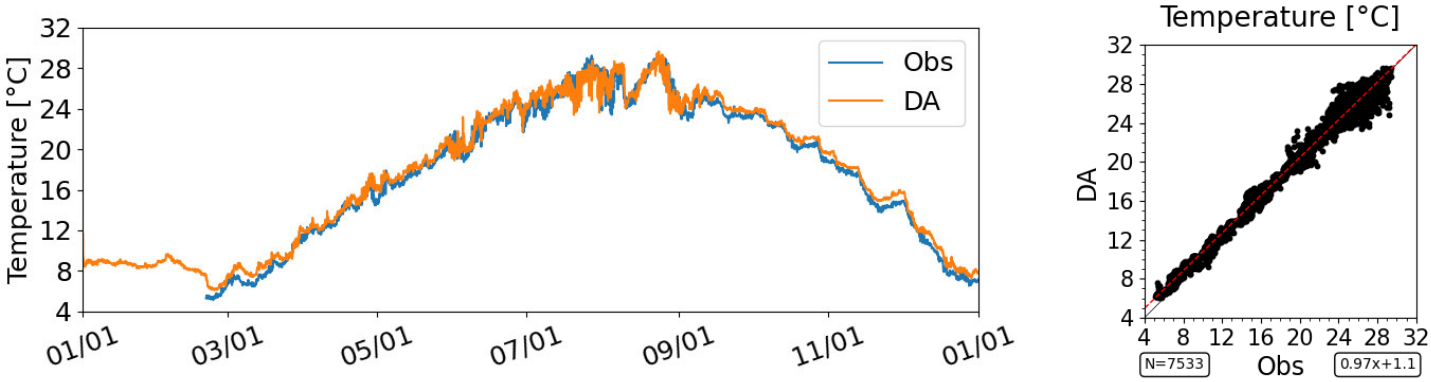
(c) Bottom layer

Figure S3.199 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2022

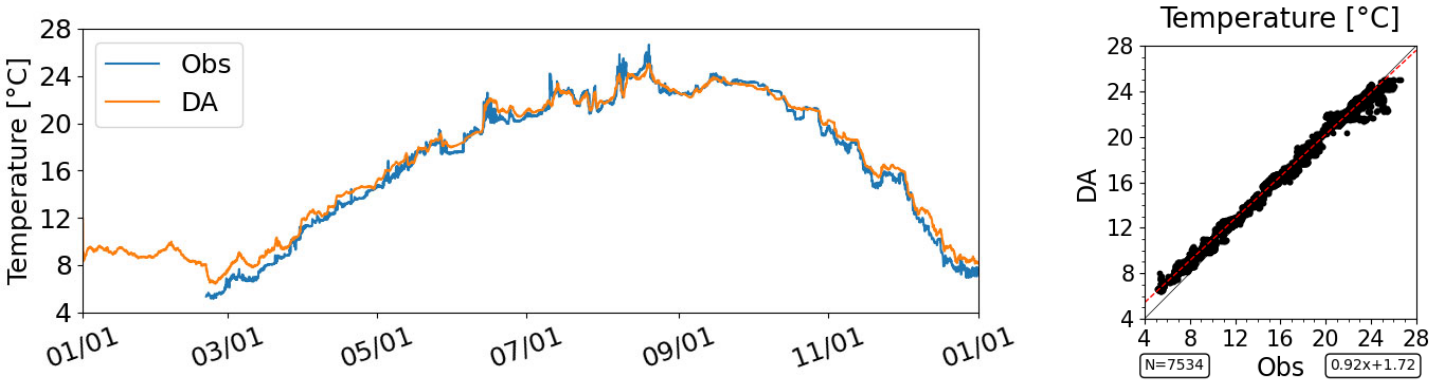
S3.12 Back of Mikawa Bay: Timeseries and scatter plot



(a) Surface layer

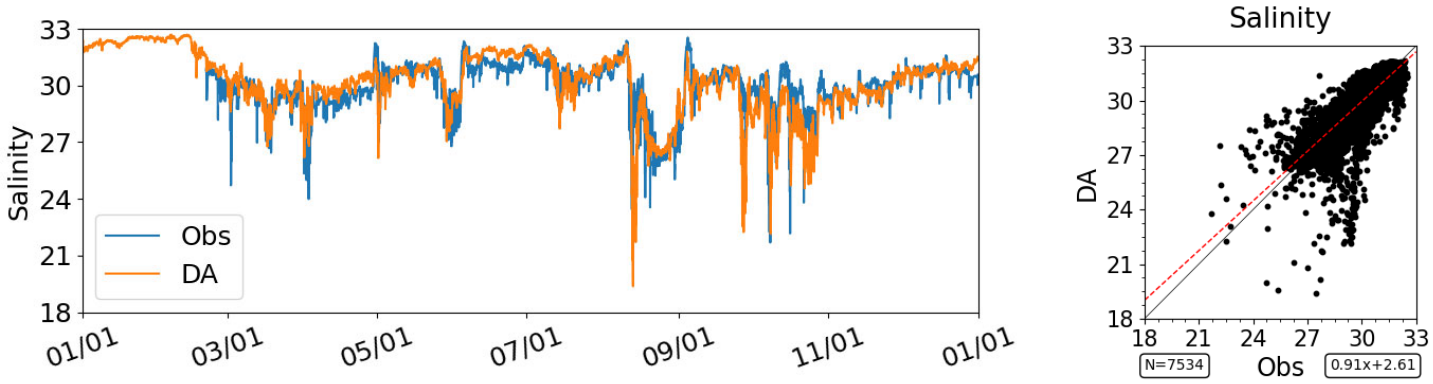


(b) Middle layer

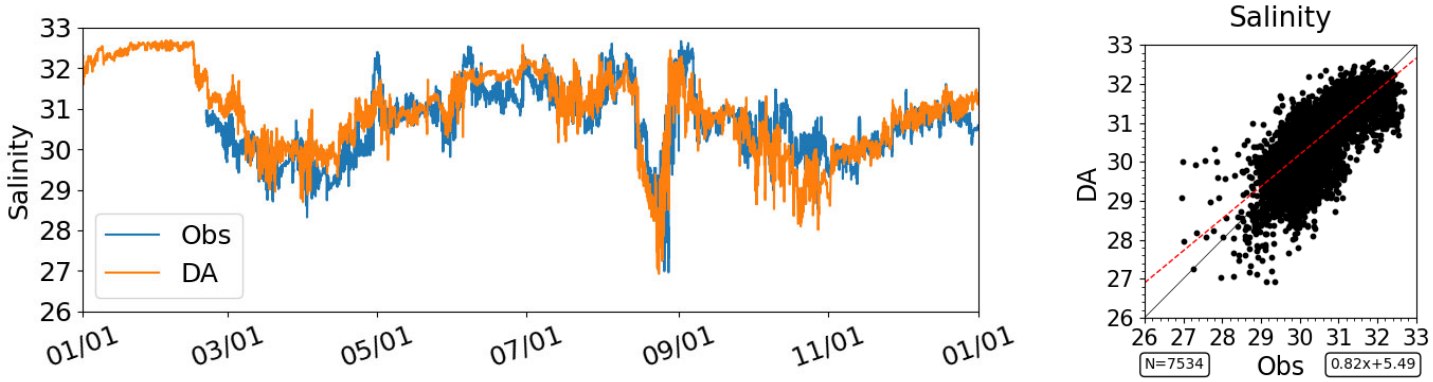


(c) Bottom layer

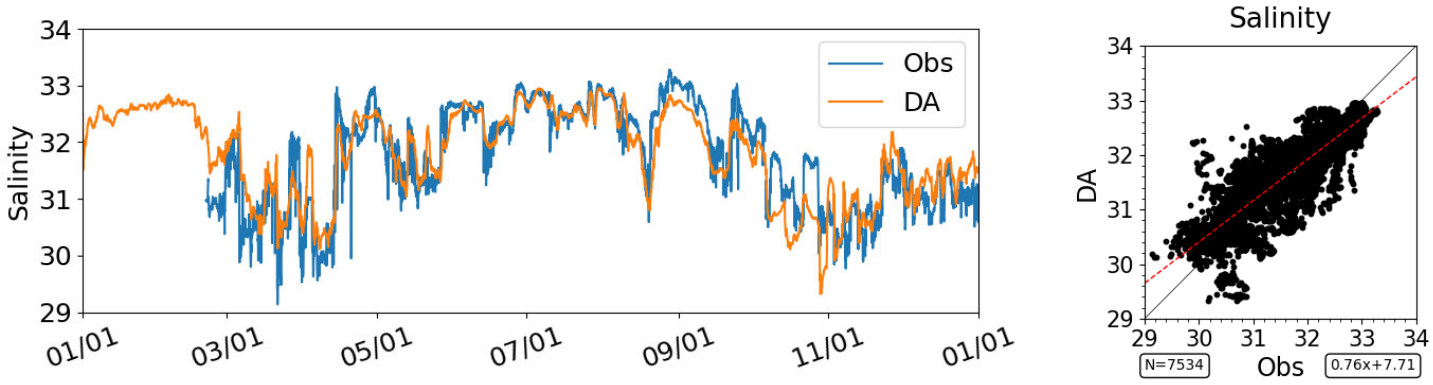
Figure S3.200 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2014



(a) Surface layer

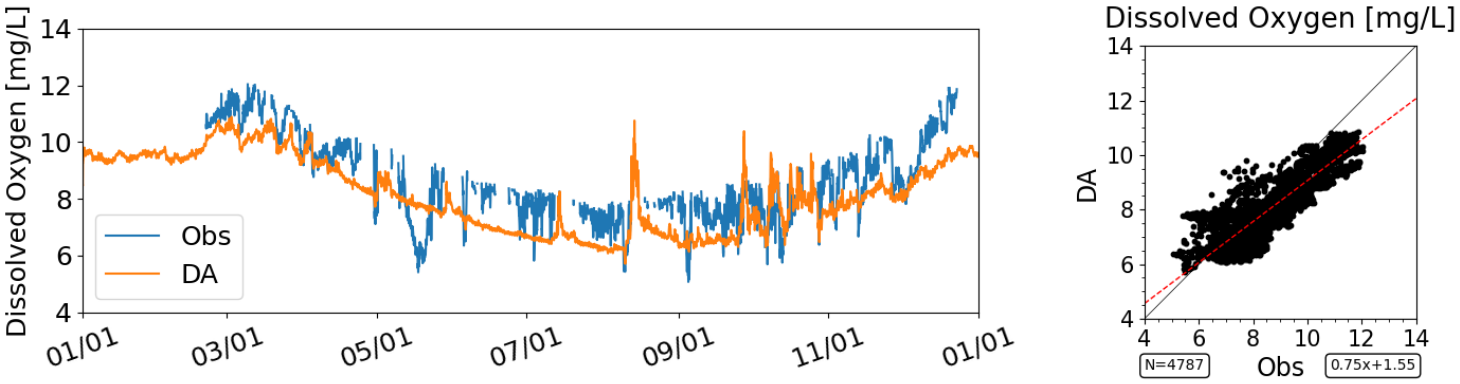


(b) Middle layer

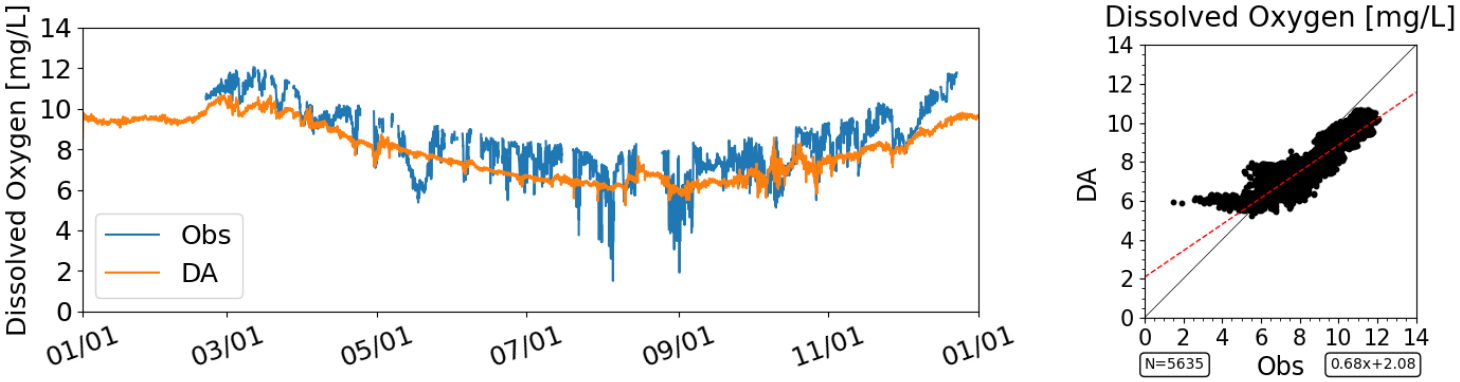


(c) Bottom layer

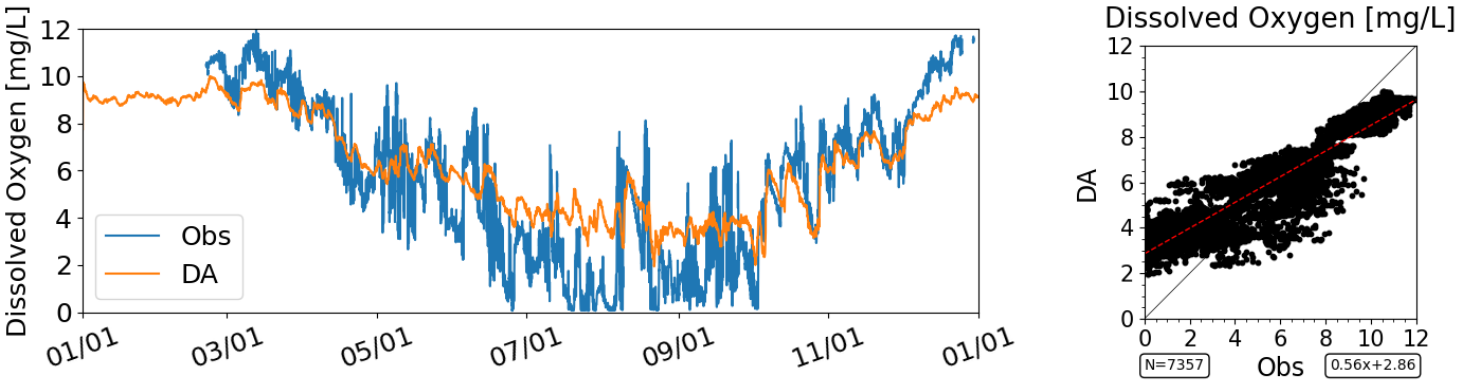
Figure S3.201 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer

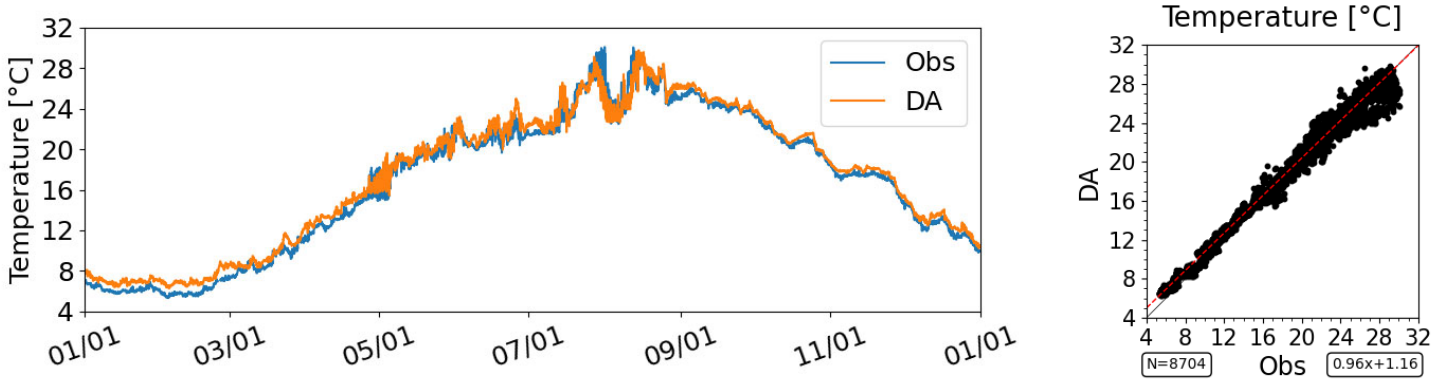


(c) Bottom layer

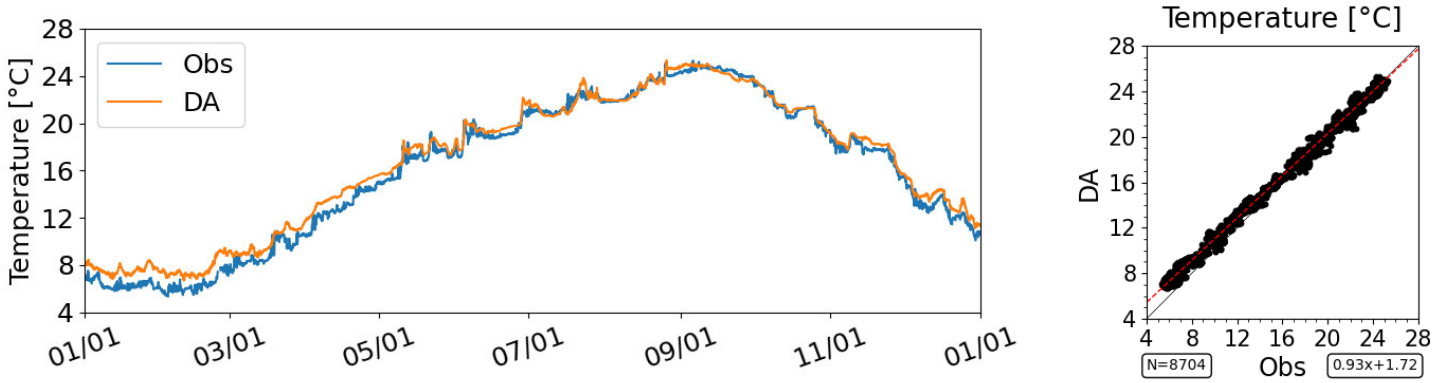
Figure S3.202 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2014



(a) Surface layer

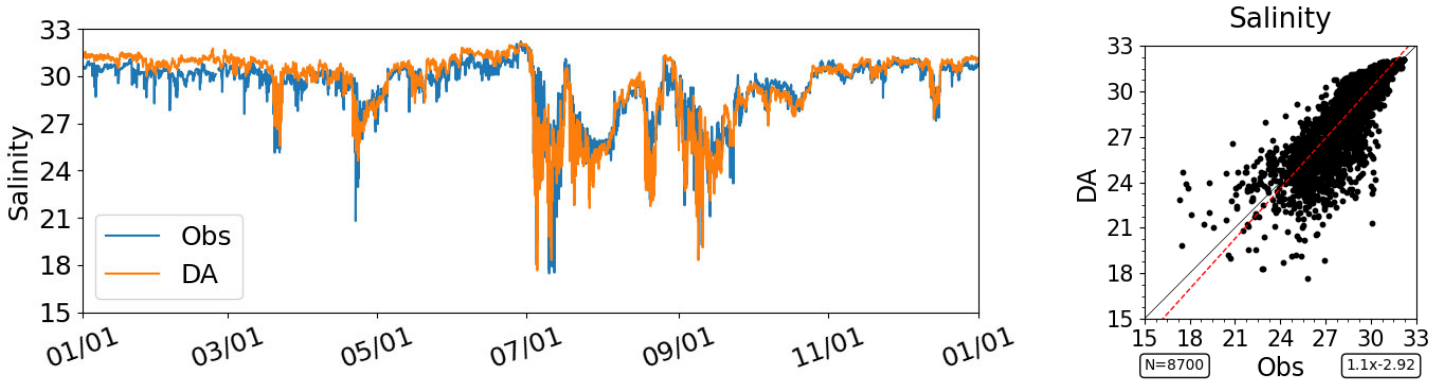


(b) Middle layer

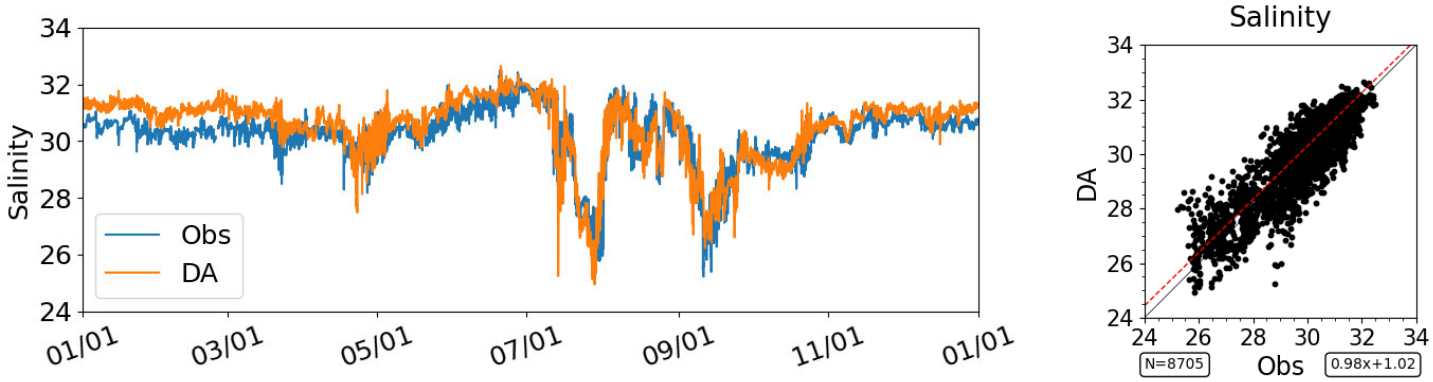


(c) Bottom layer

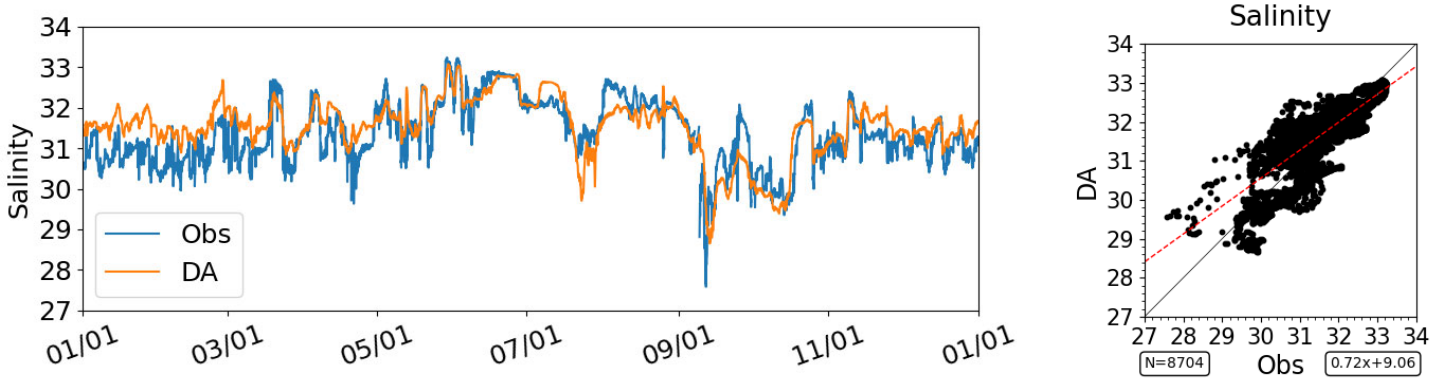
Figure S3.203 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2015



(a) Surface layer

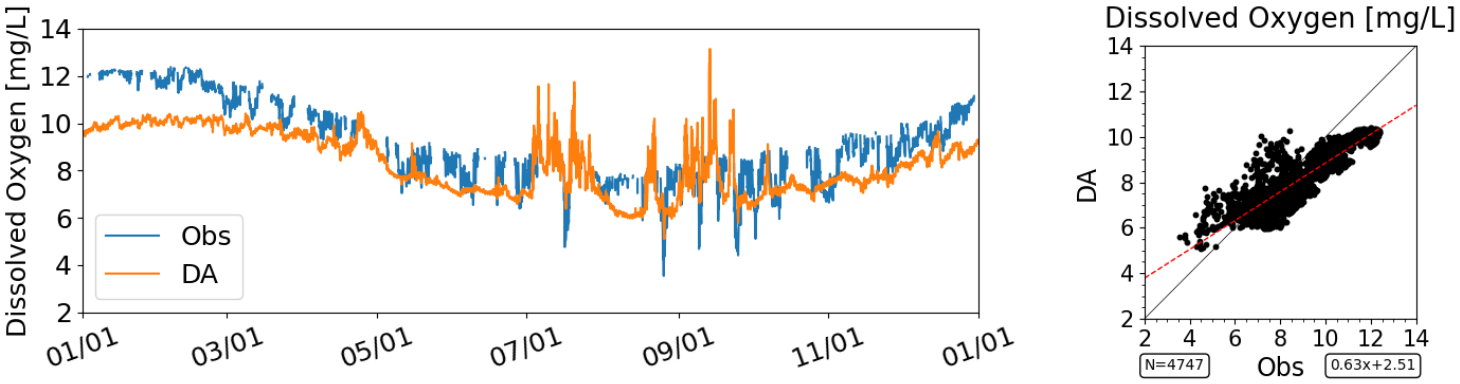


(b) Middle layer

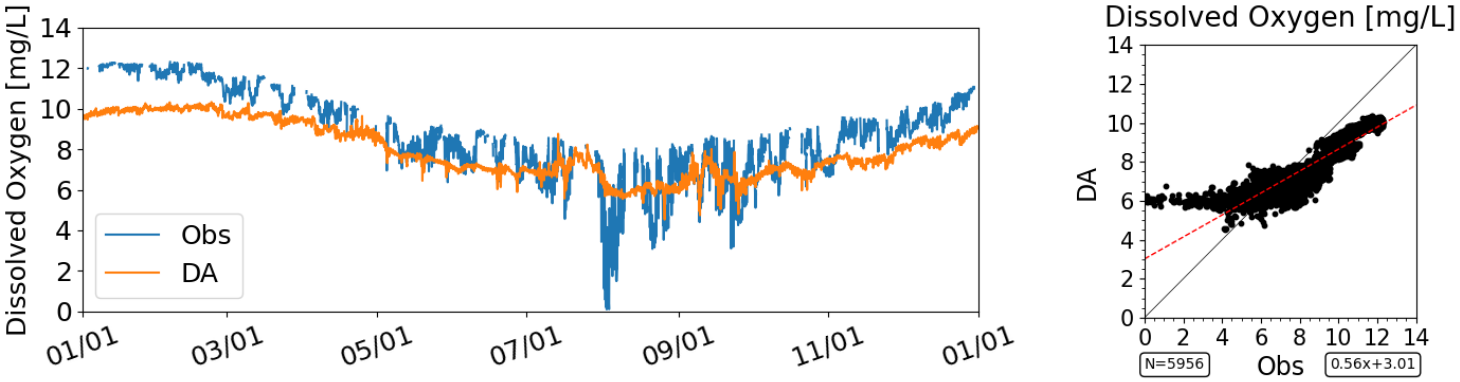


(c) Bottom layer

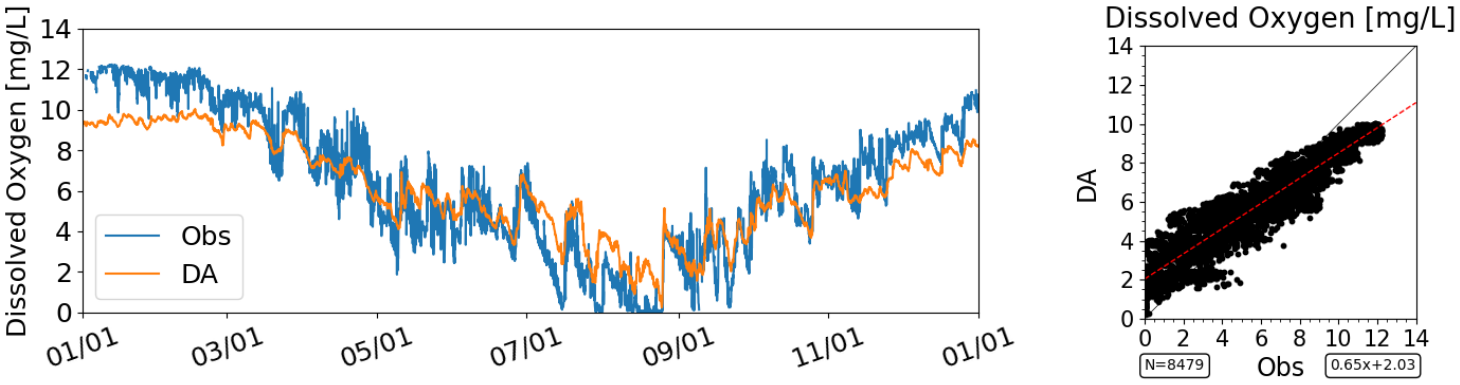
Figure S3.204 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2015



(a) Surface layer

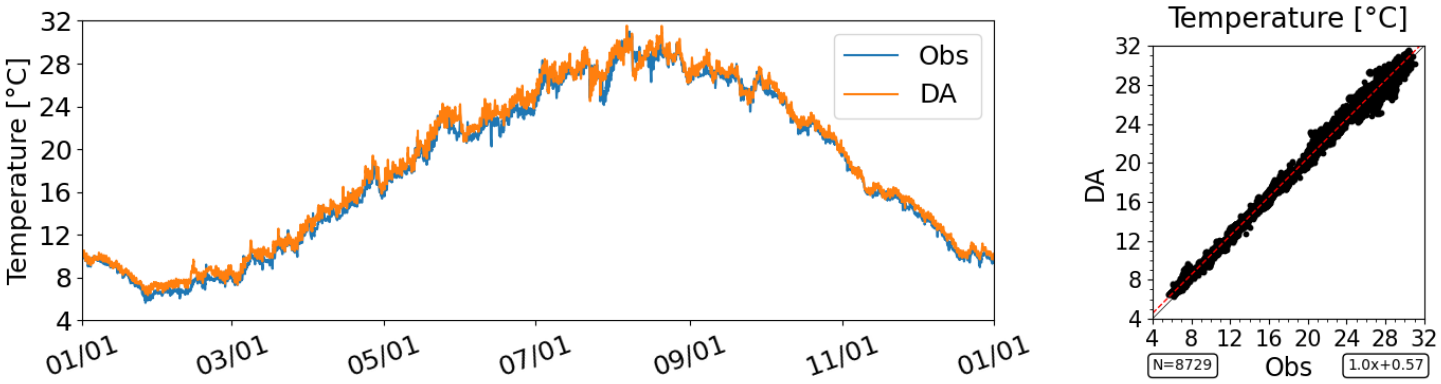


(b) Middle layer

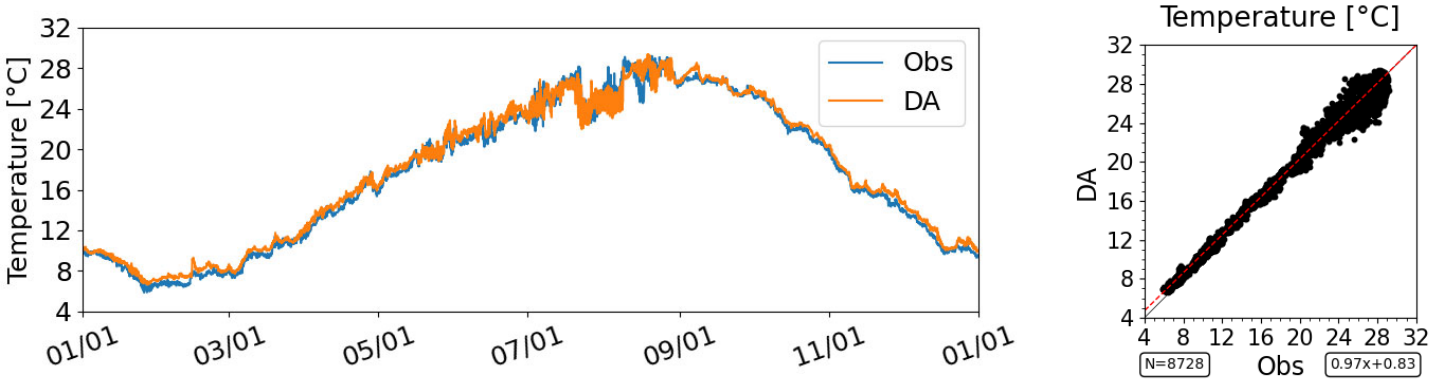


(c) Bottom layer

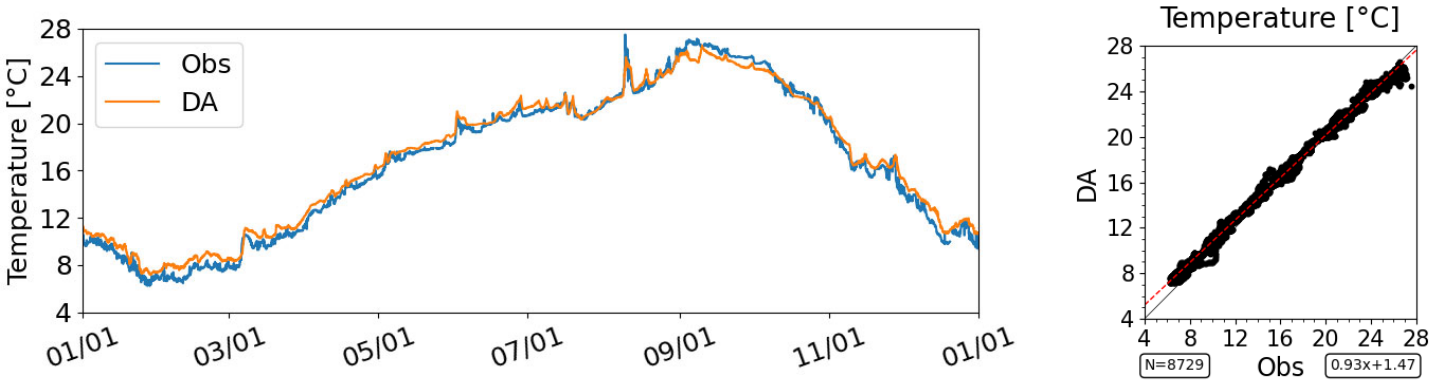
Figure S3.205 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2015



(a) Surface layer

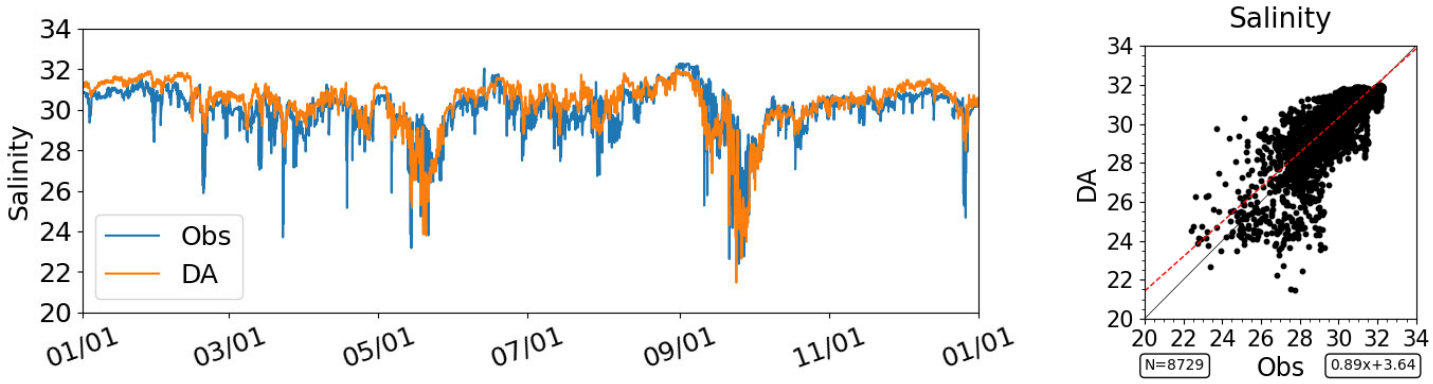


(b) Middle layer

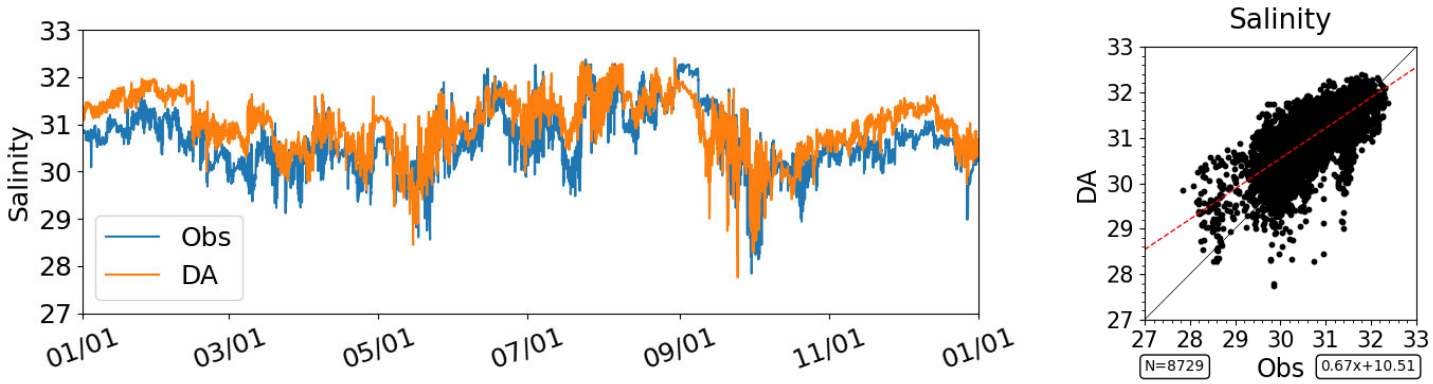


(c) Bottom layer

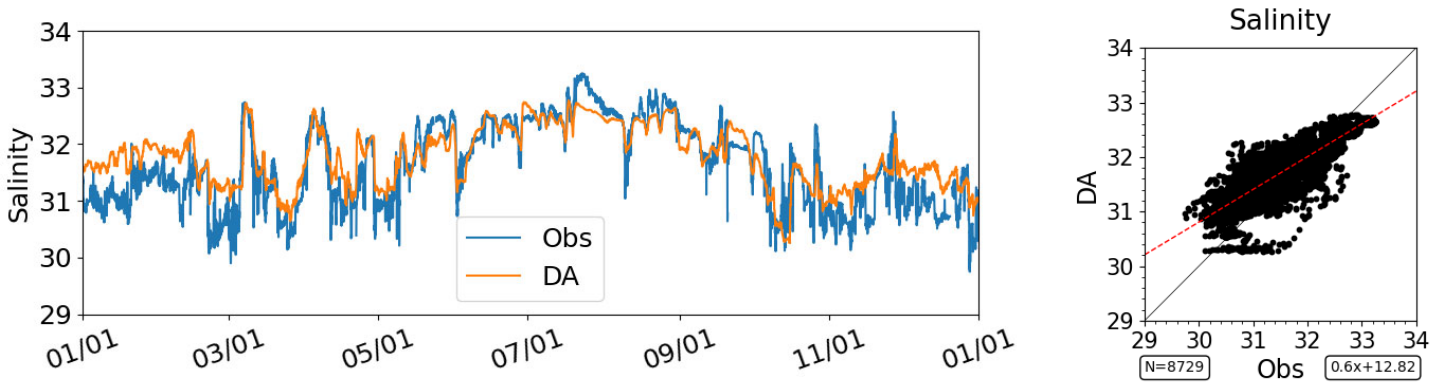
Figure S3.206 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2016



(a) Surface layer

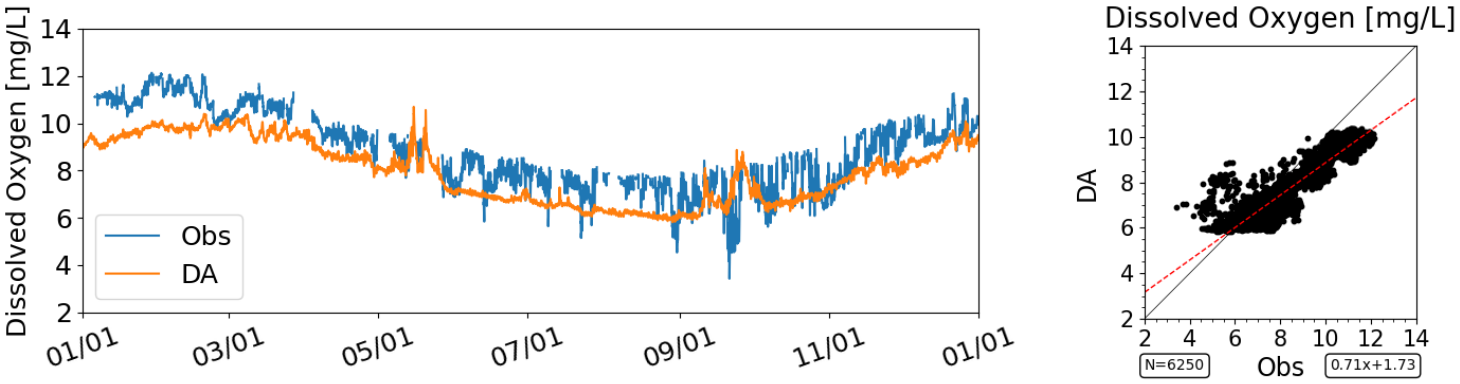


(b) Middle layer

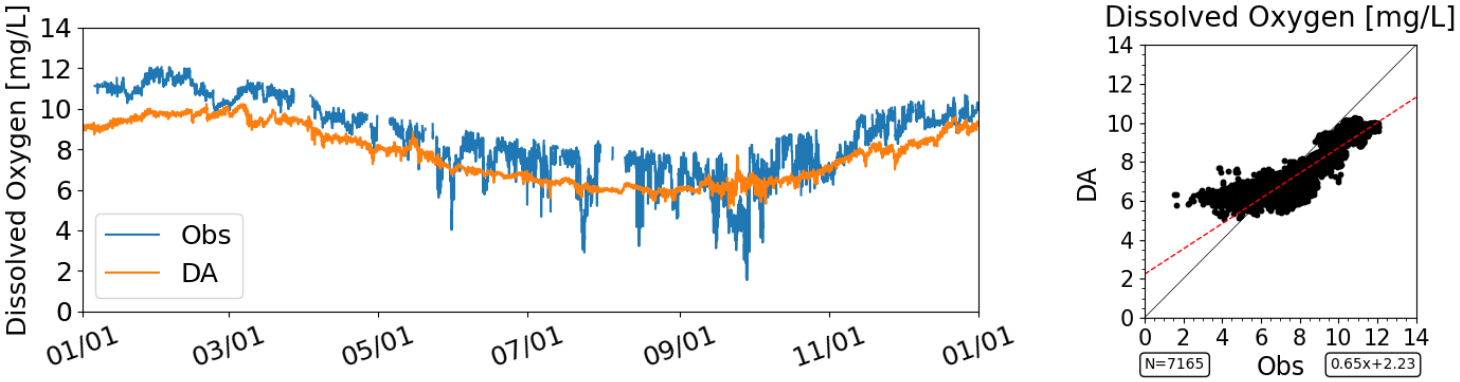


(c) Bottom layer

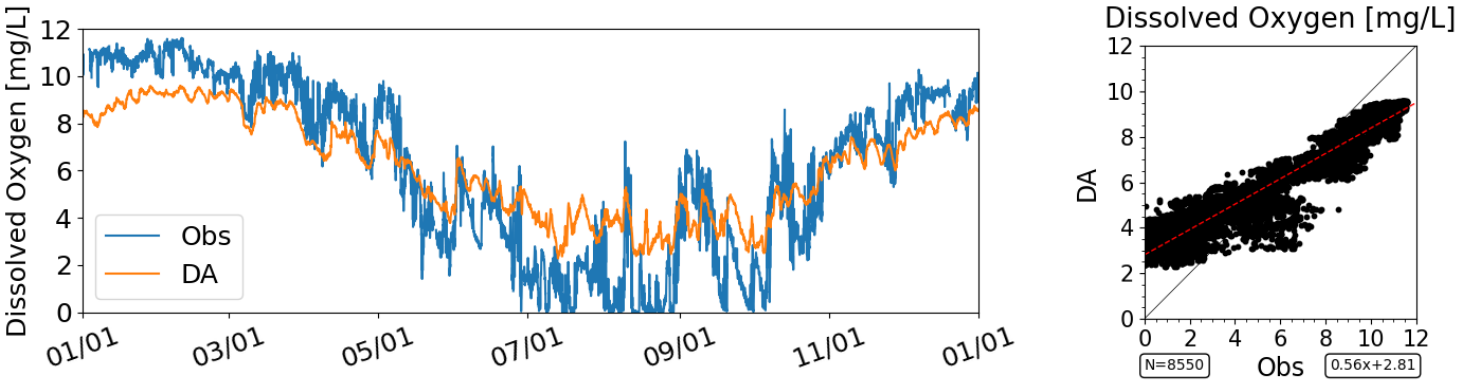
Figure S3.207 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2016



(a) Surface layer

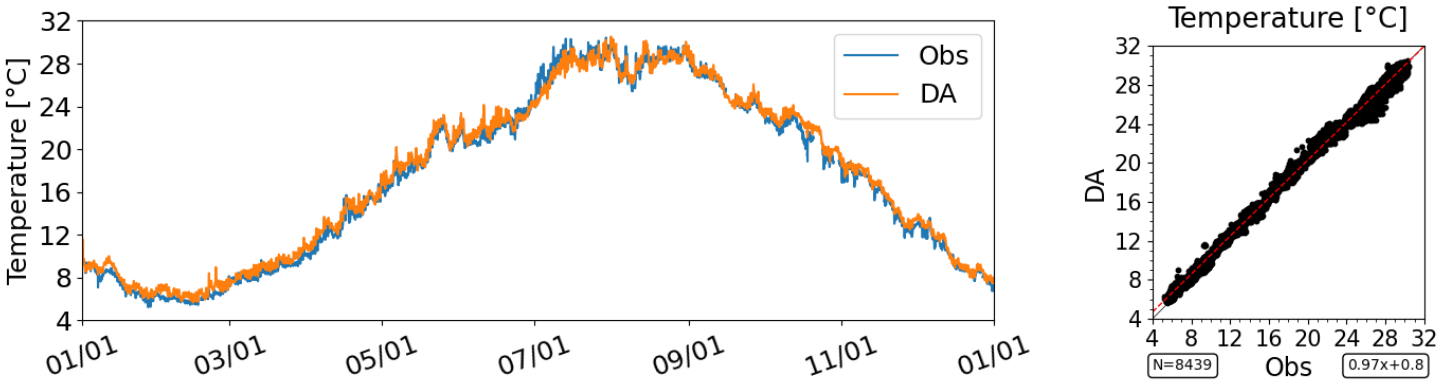


(b) Middle layer

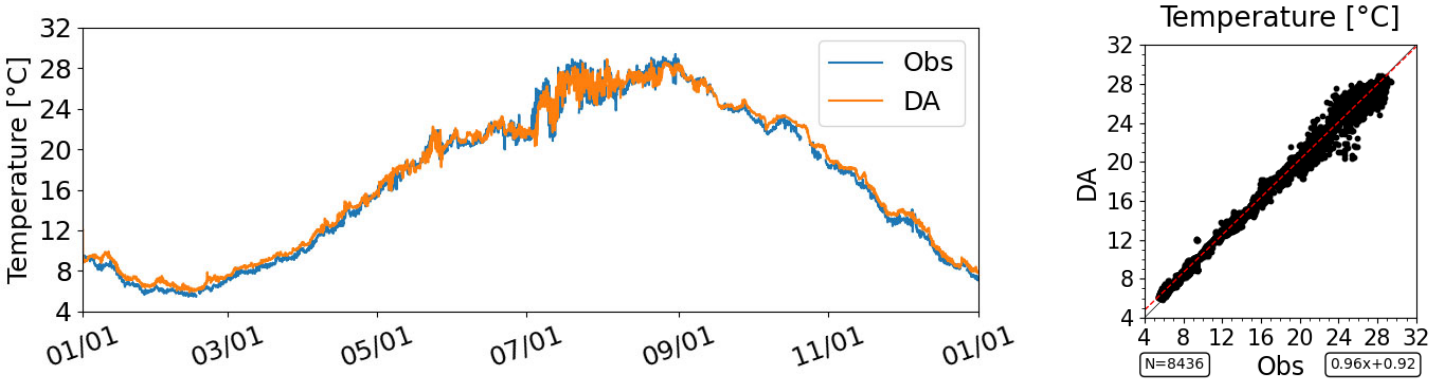


(c) Bottom layer

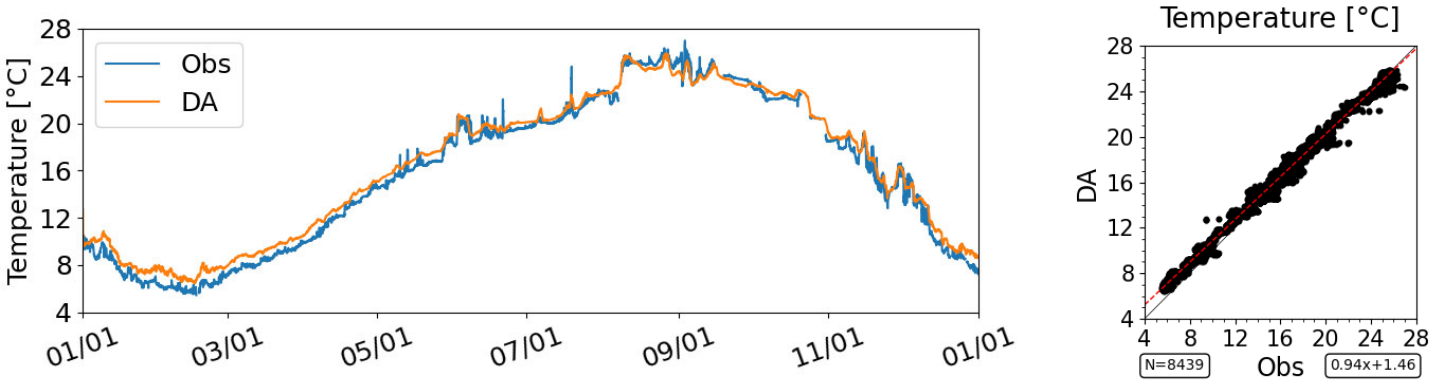
Figure S3.208 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2016



(a) Surface layer

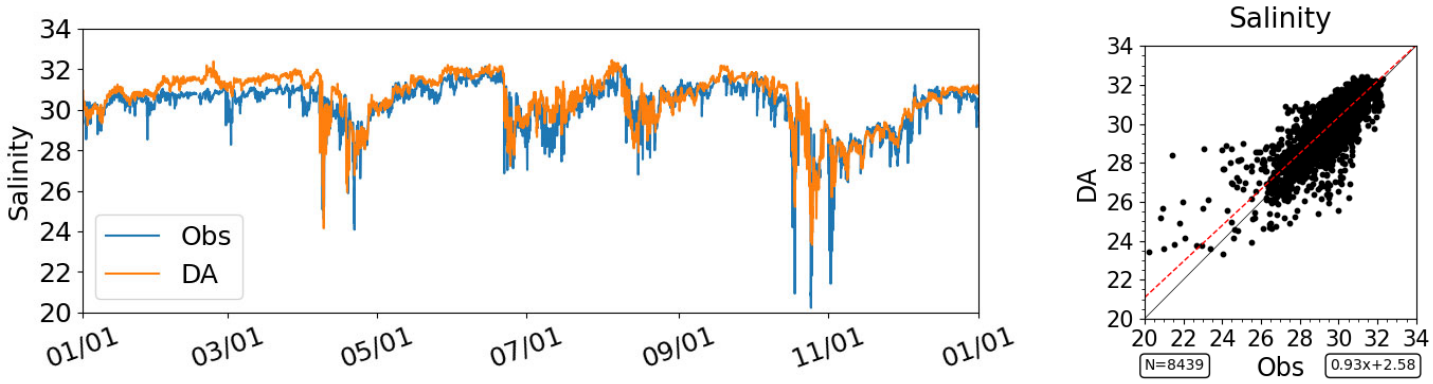


(b) Middle layer

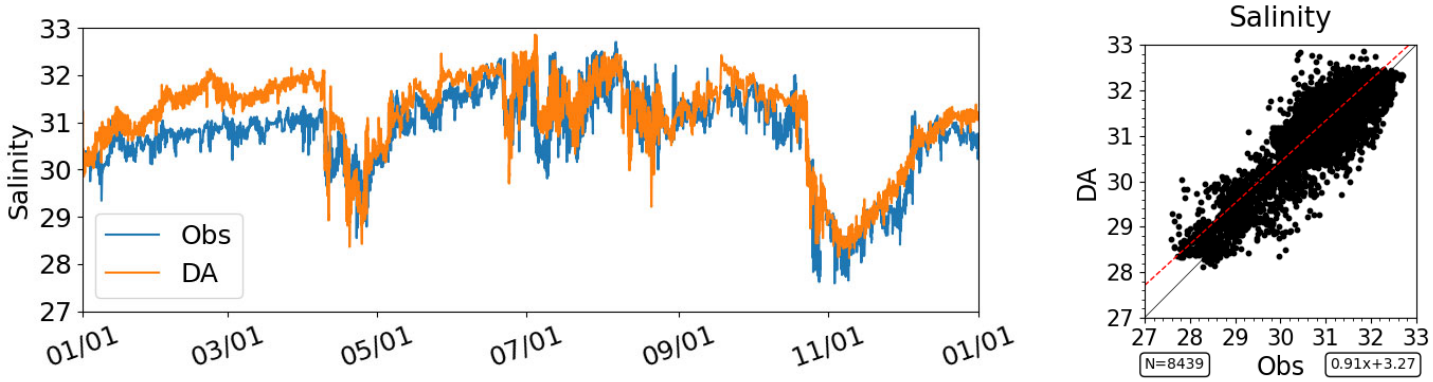


(c) Bottom layer

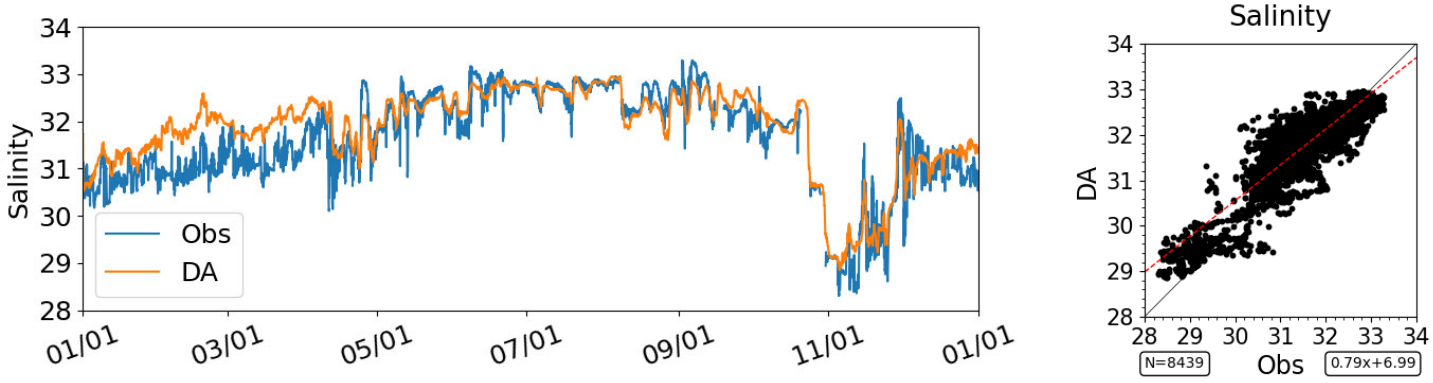
Figure S3.209 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2017



(a) Surface layer

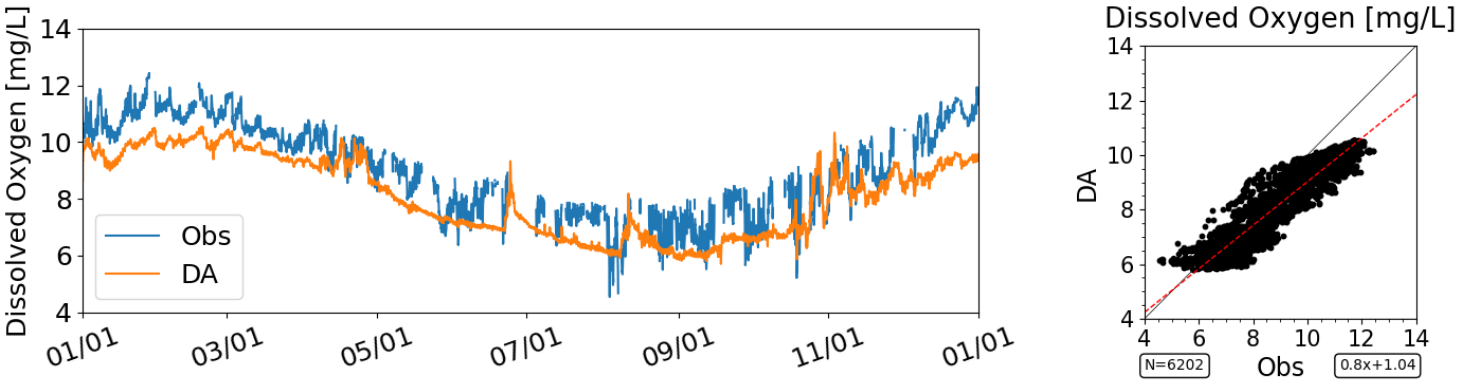


(b) Middle layer

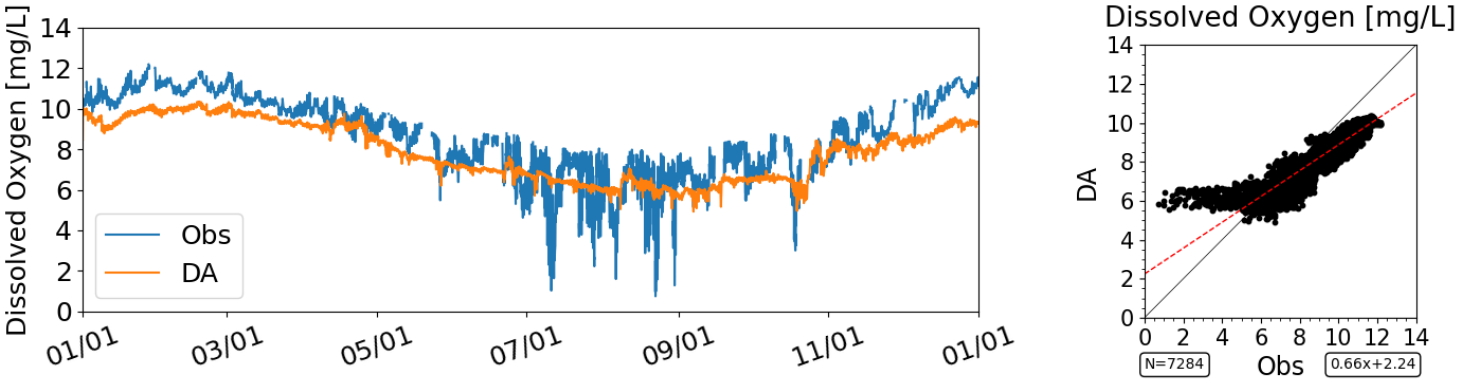


(c) Bottom layer

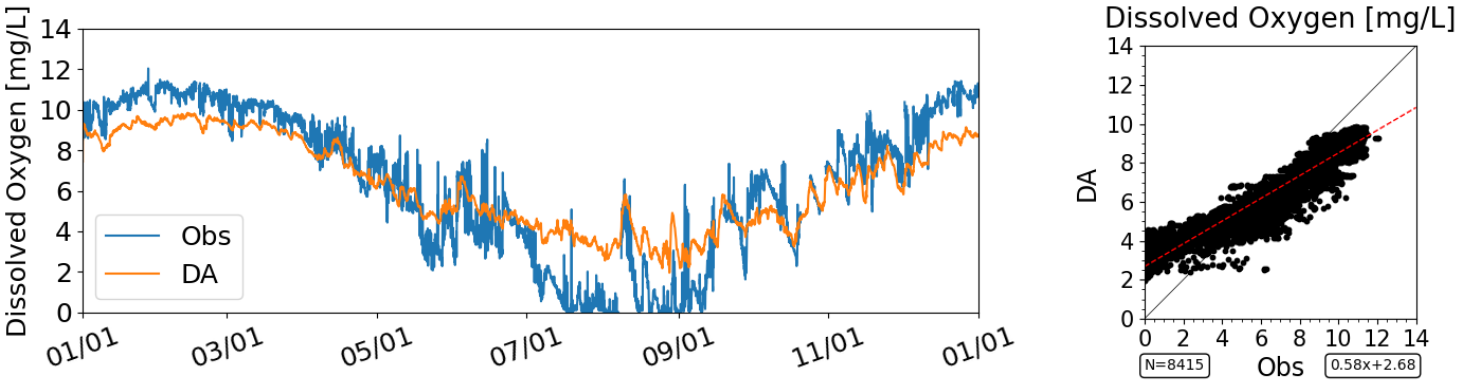
Figure S3.210 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2017



(a) Surface layer

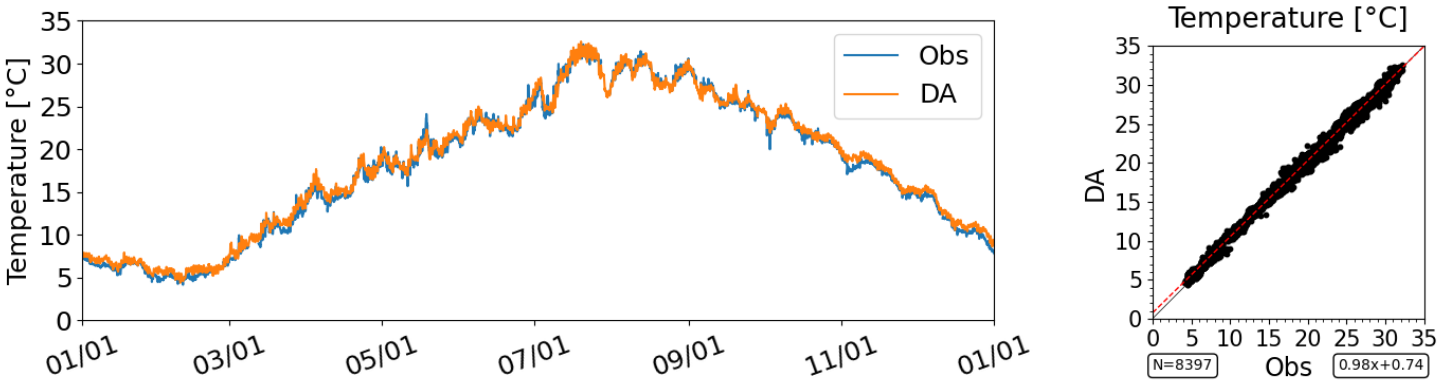


(b) Middle layer

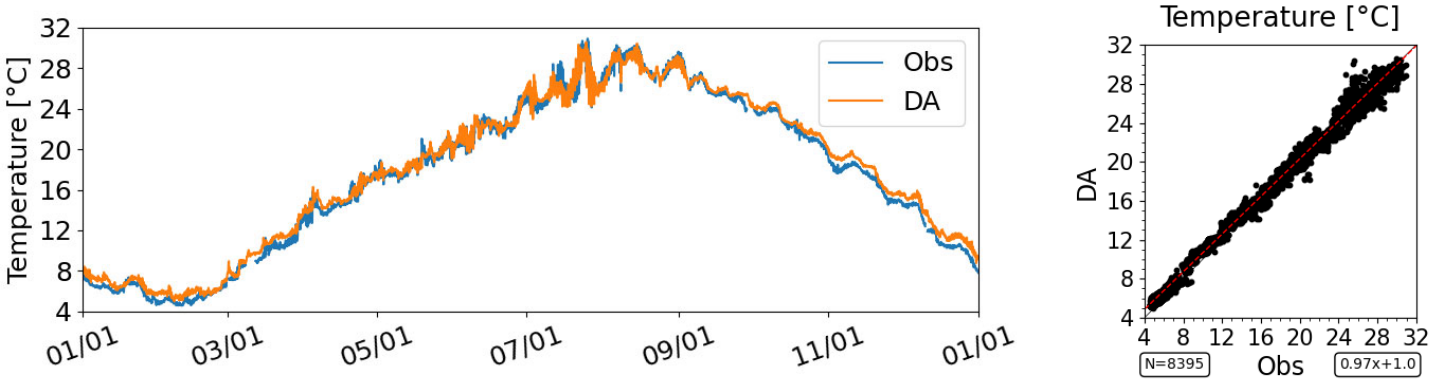


(c) Bottom layer

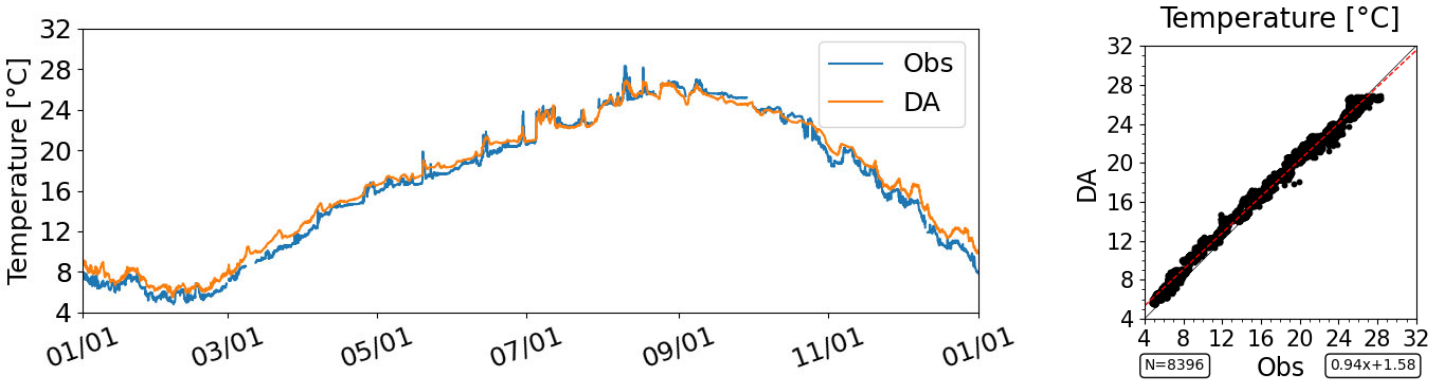
Figure S3.211 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2017



(a) Surface layer

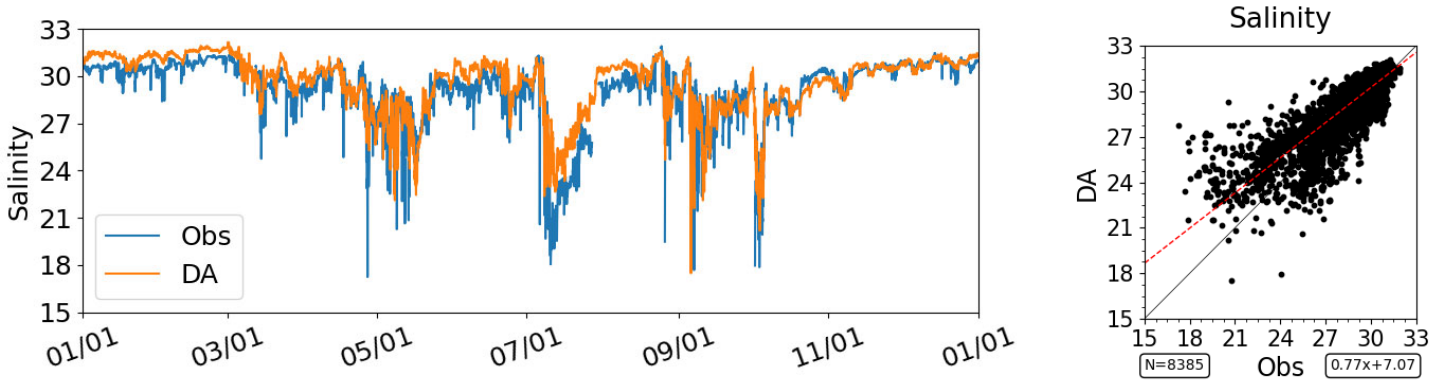


(b) Middle layer

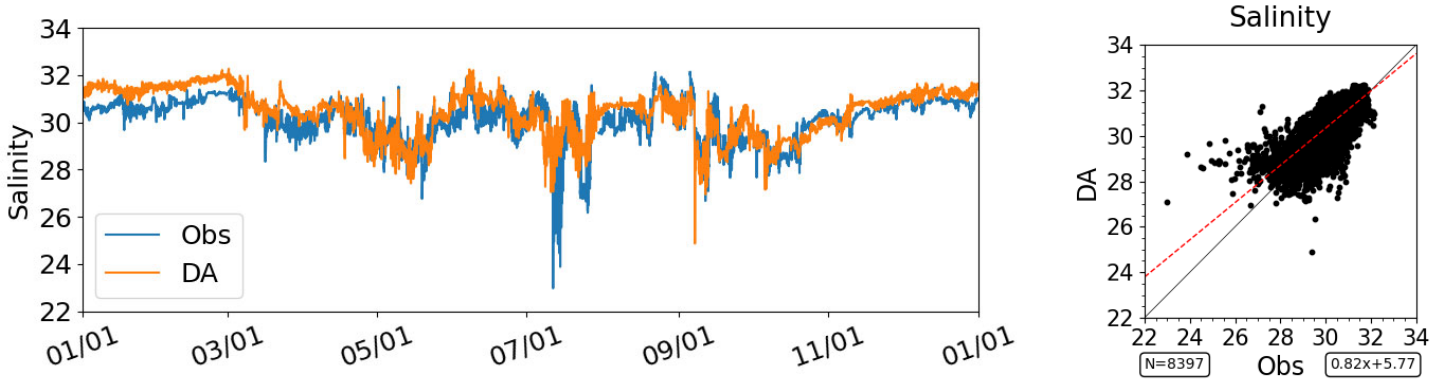


(c) Bottom layer

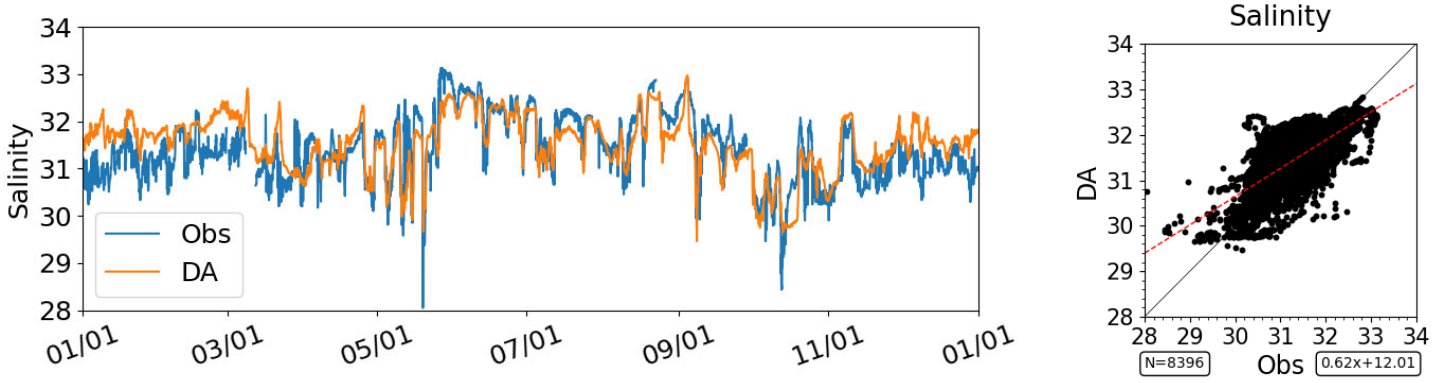
Figure S3.212 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2018



(a) Surface layer

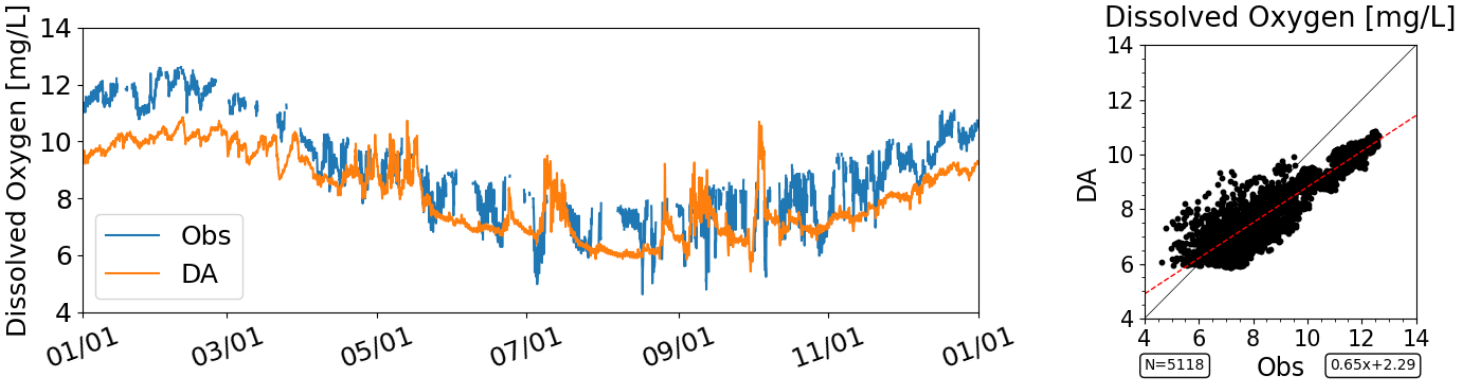


(b) Middle layer

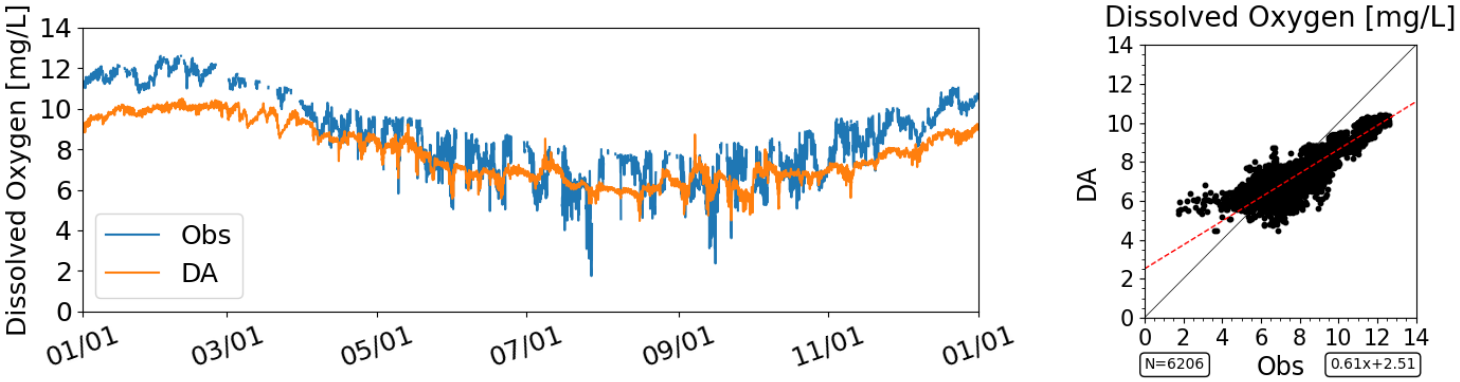


(c) Bottom layer

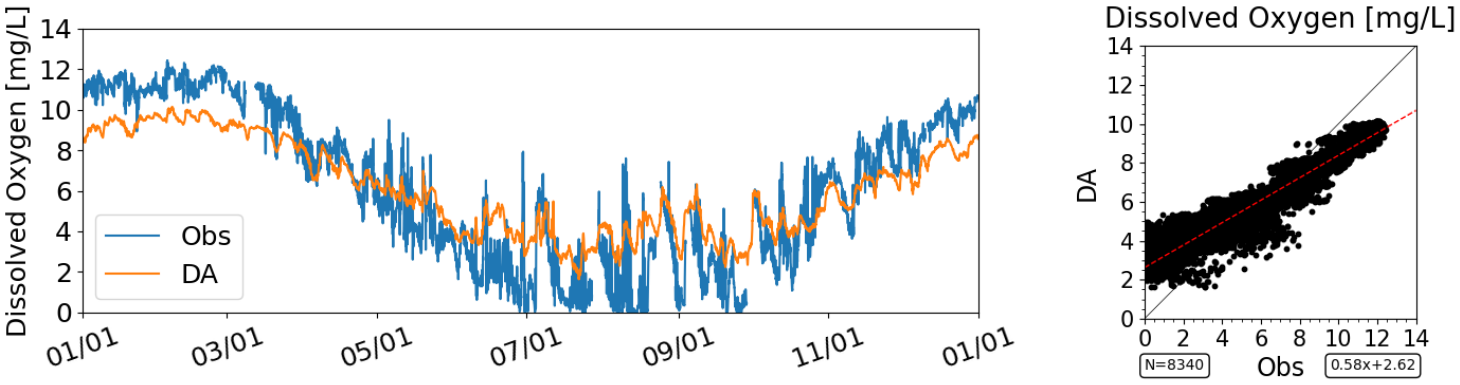
Figure S3.213 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2018



(a) Surface layer

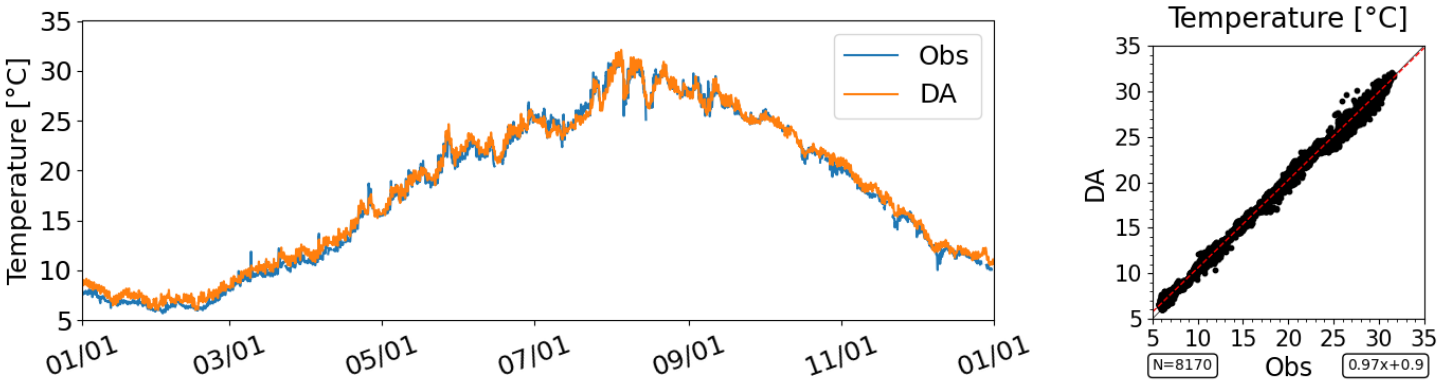


(b) Middle layer

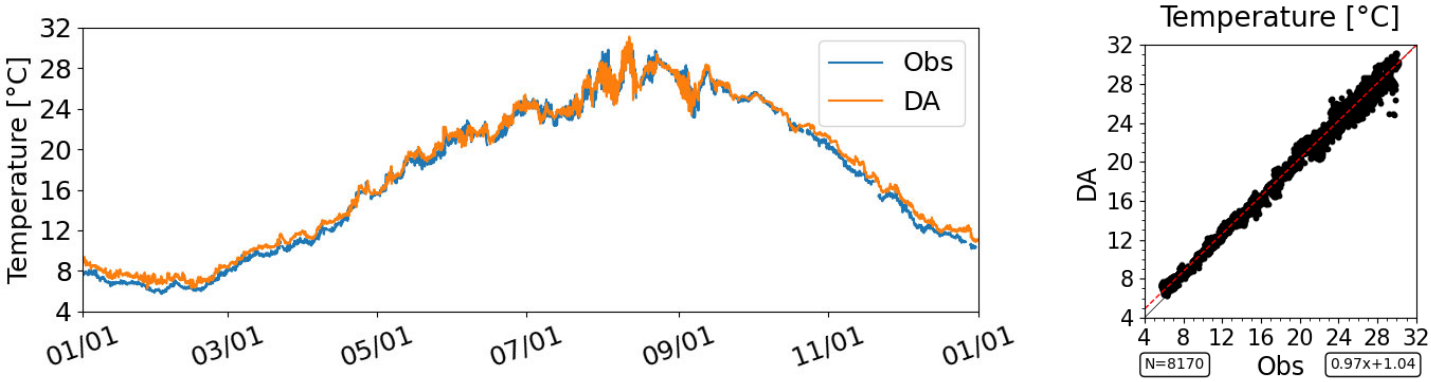


(c) Bottom layer

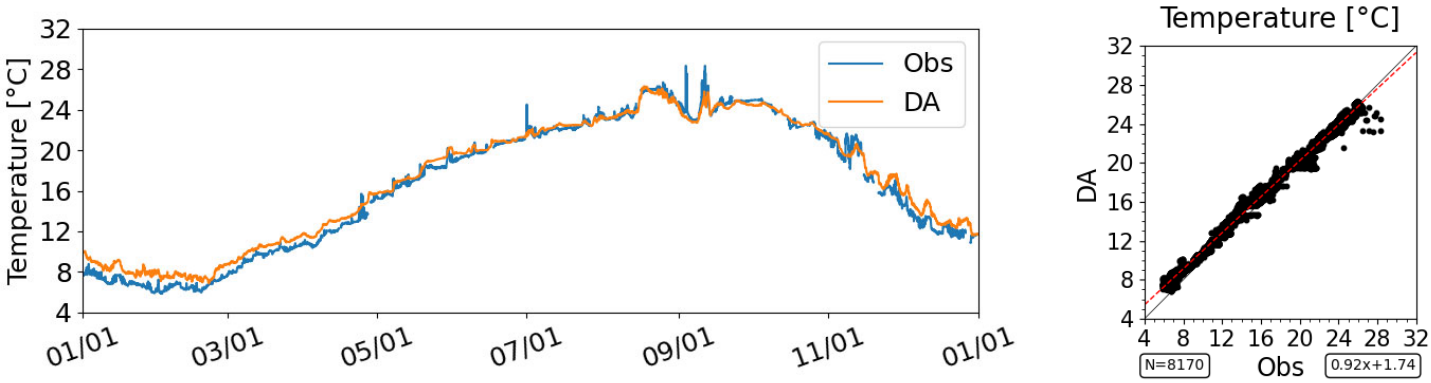
Figure S3.214 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2018



(a) Surface layer

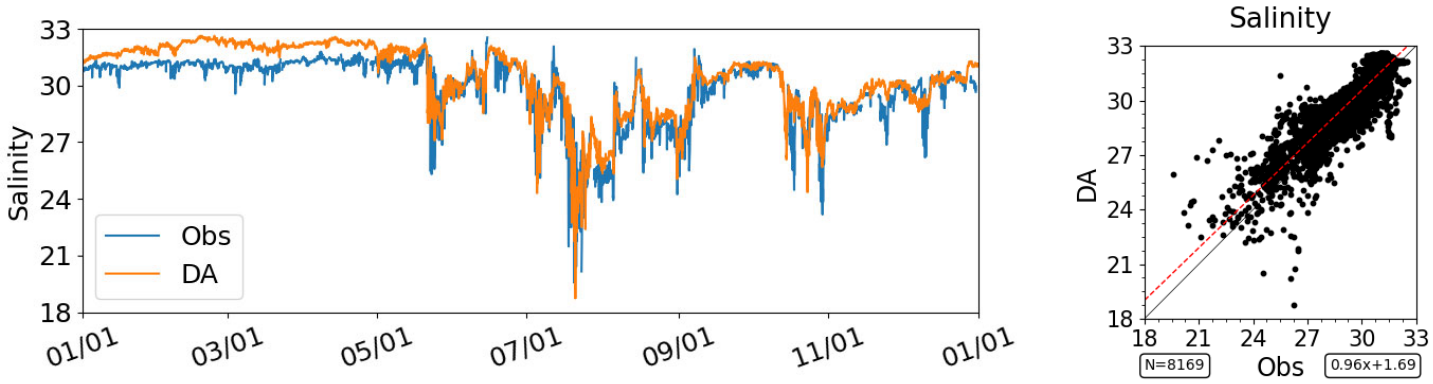


(b) Middle layer

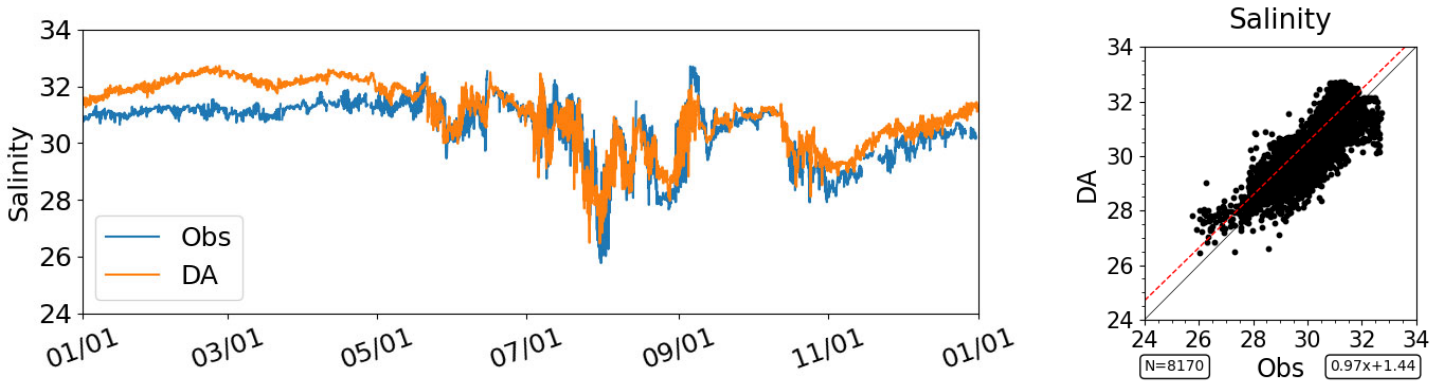


(c) Bottom layer

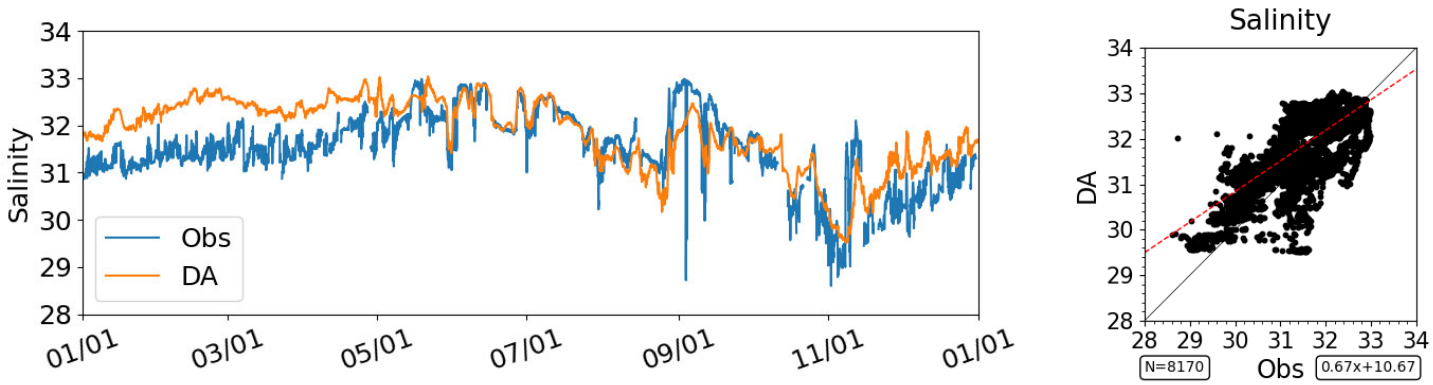
Figure S3.215 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2019



(a) Surface layer

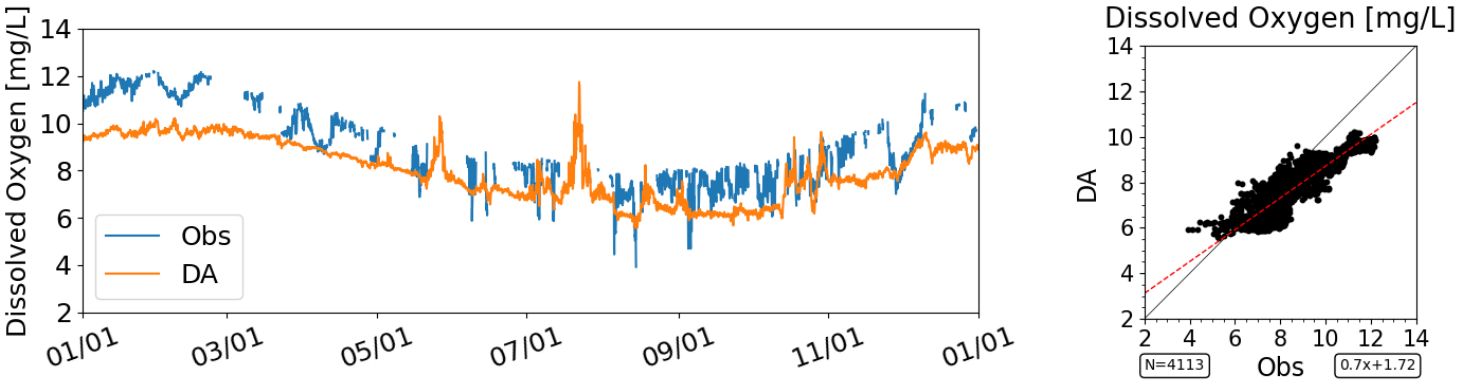


(b) Middle layer

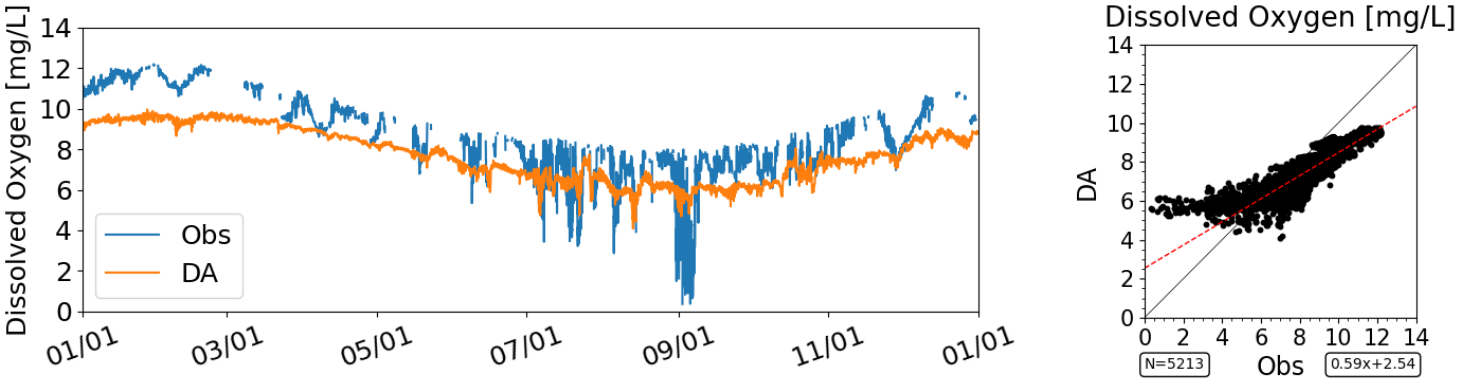


(c) Bottom layer

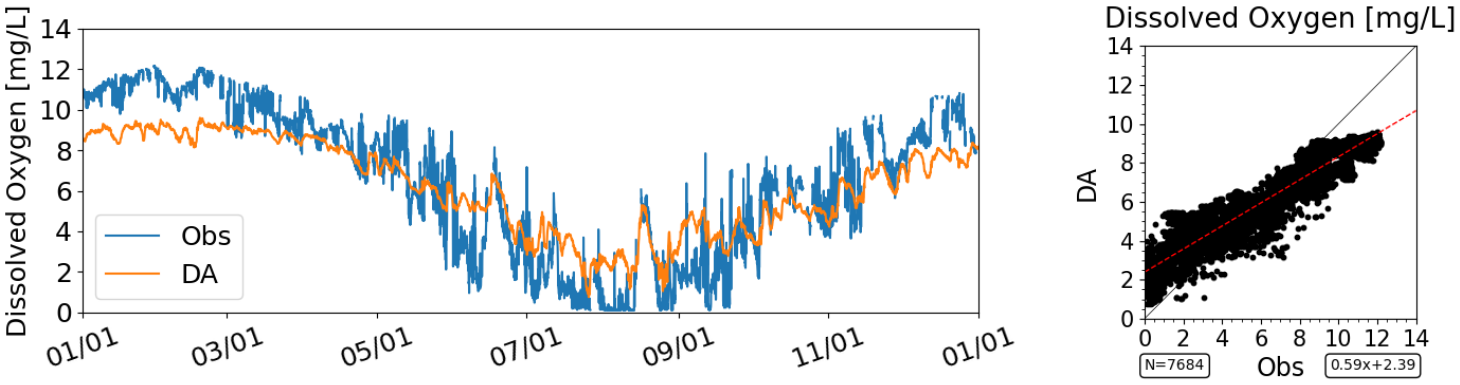
Figure S3.216 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2019



(a) Surface layer

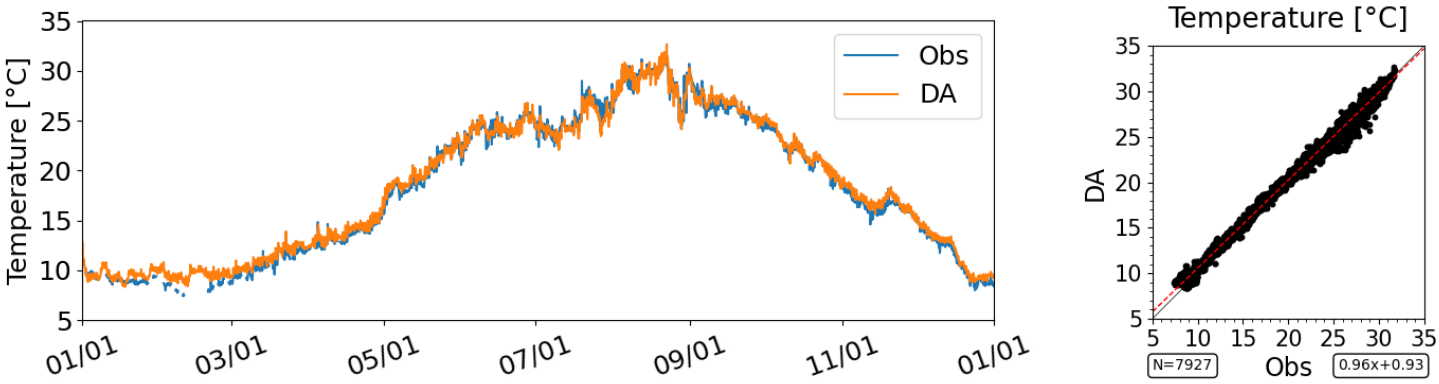


(b) Middle layer

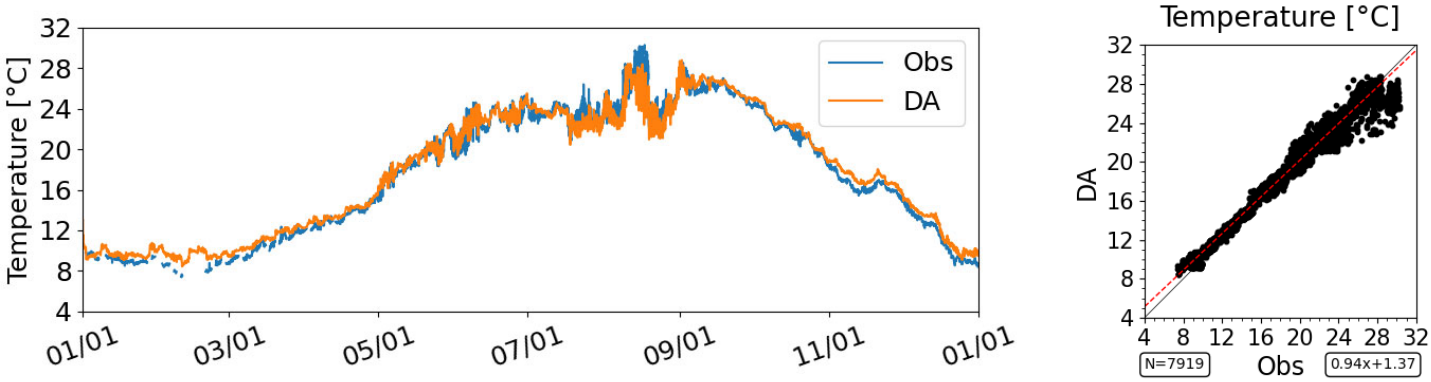


(c) Bottom layer

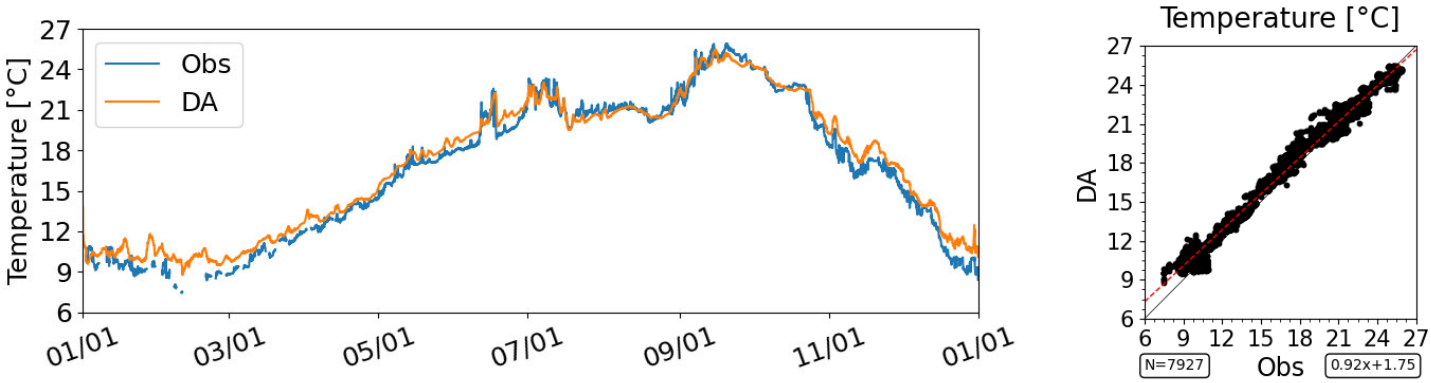
Figure S3.217 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2019



(a) Surface layer

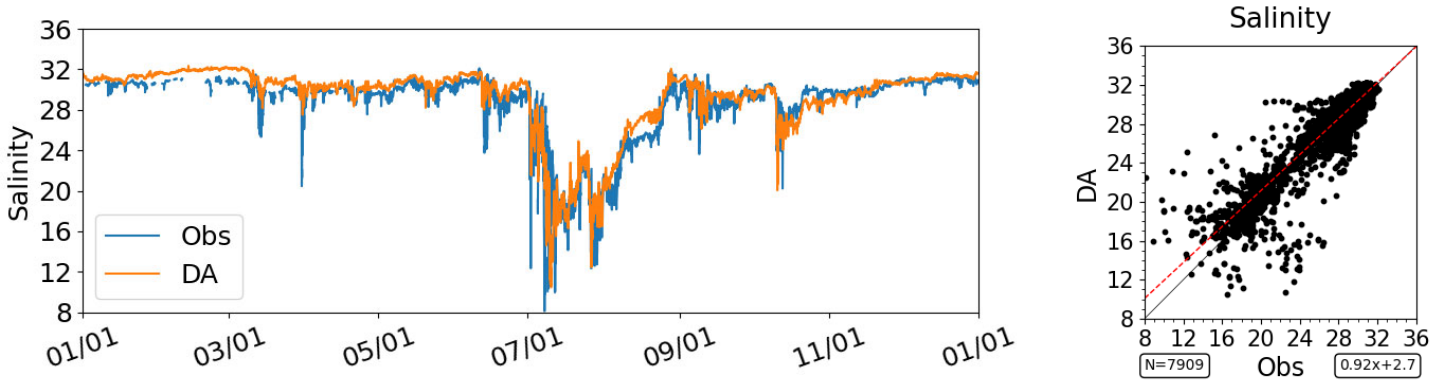


(b) Middle layer

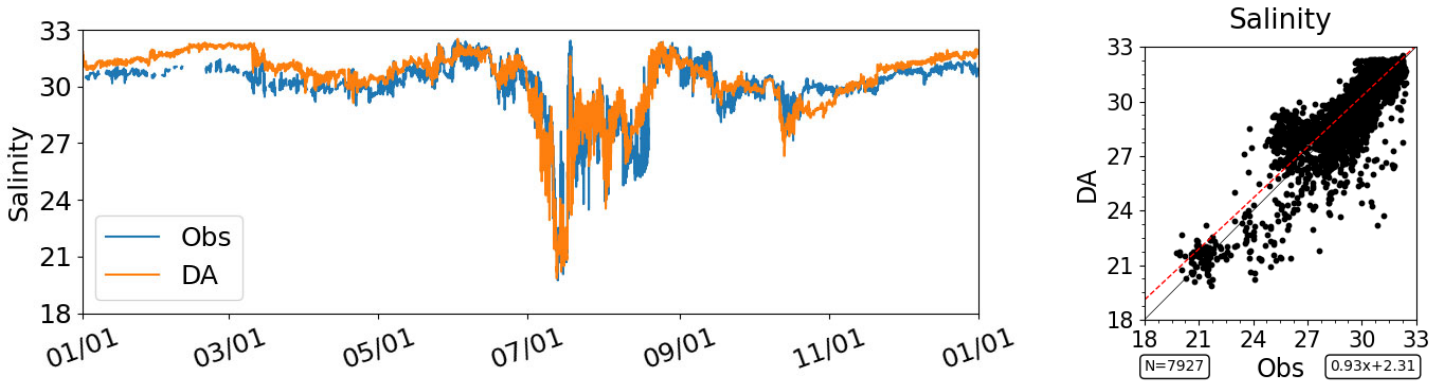


(c) Bottom layer

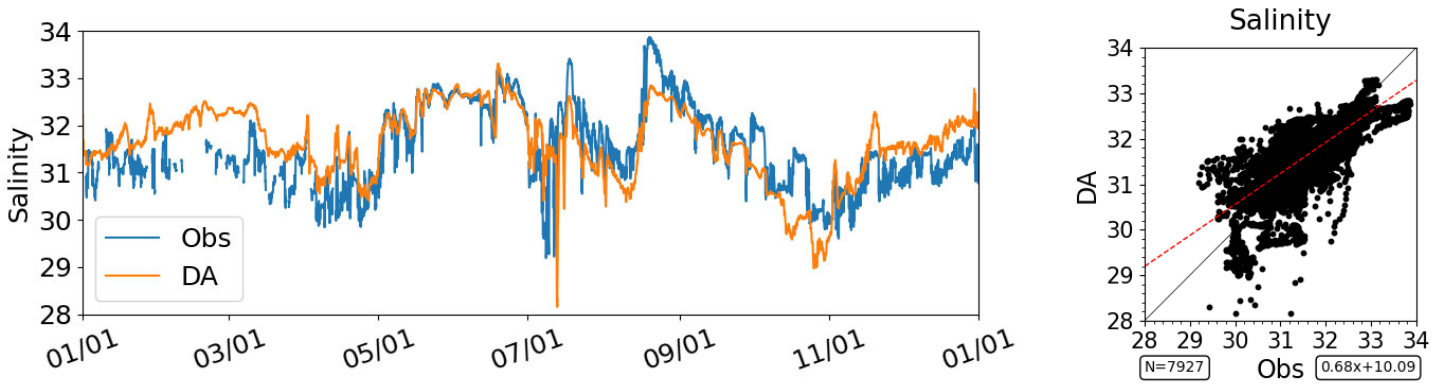
Figure S3.218 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2020



(a) Surface layer

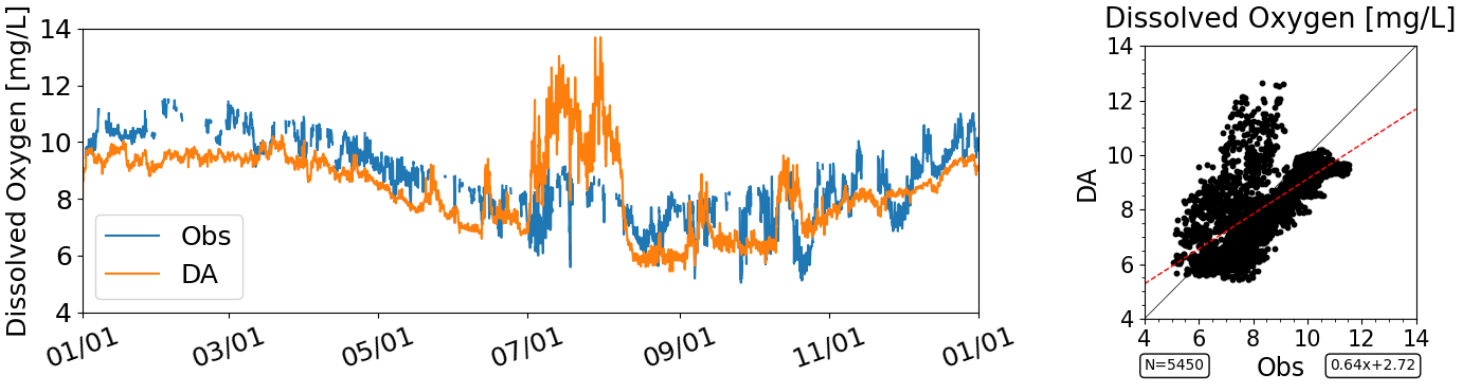


(b) Middle layer

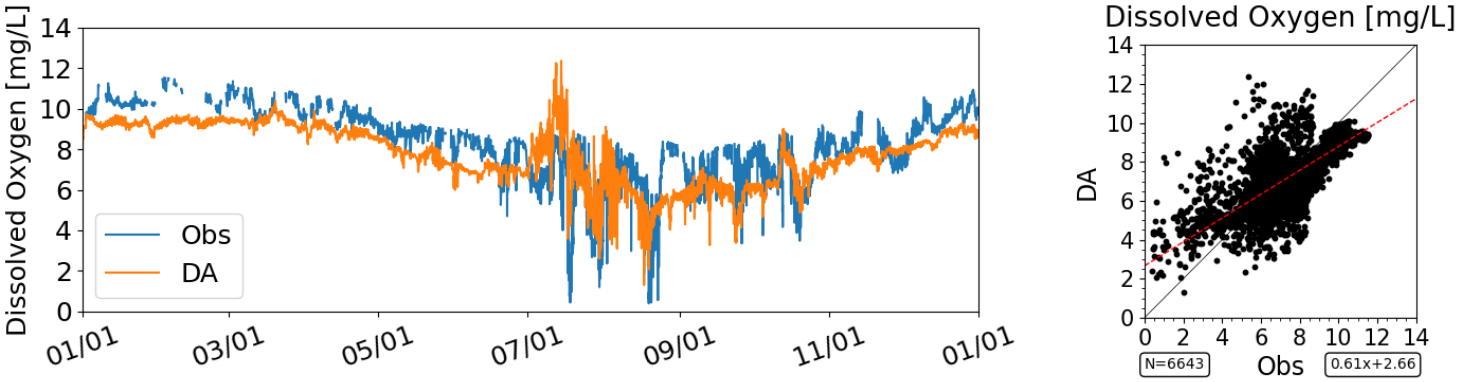


(c) Bottom layer

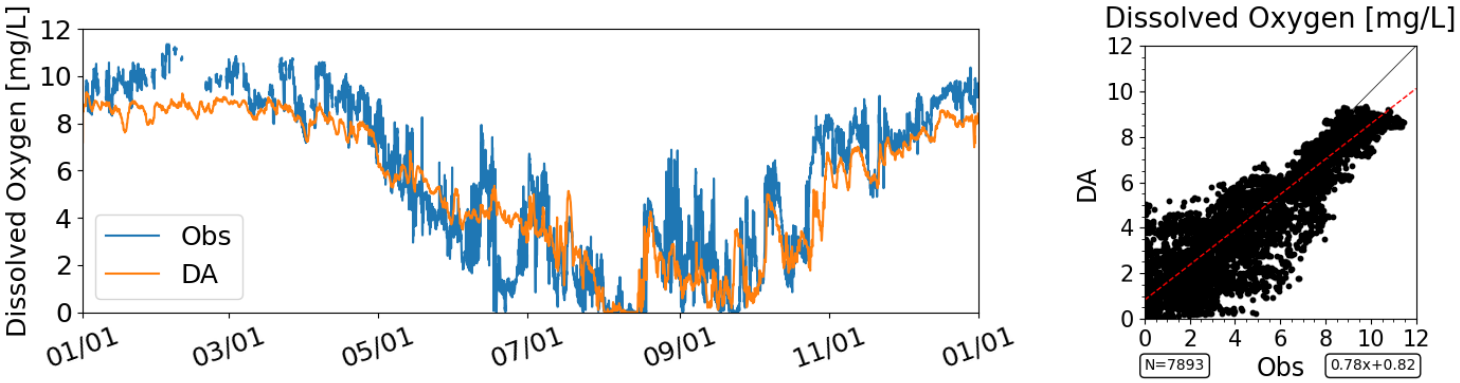
Figure S3.219 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2020



(a) Surface layer

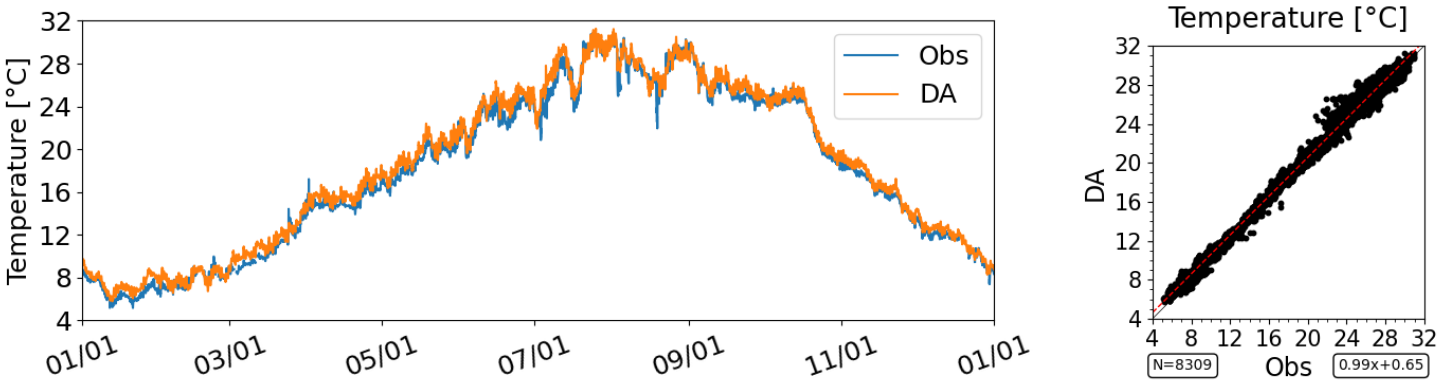


(b) Middle layer

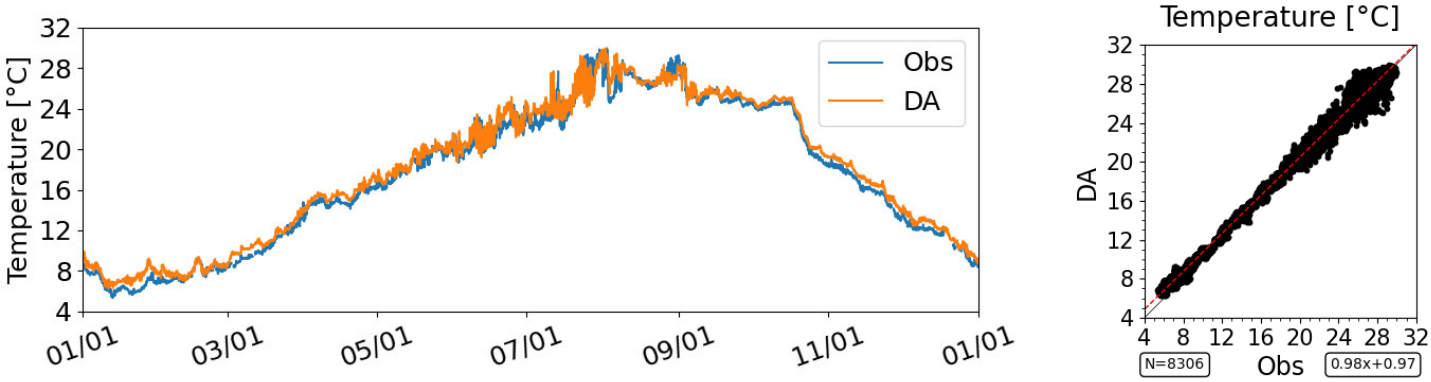


(c) Bottom layer

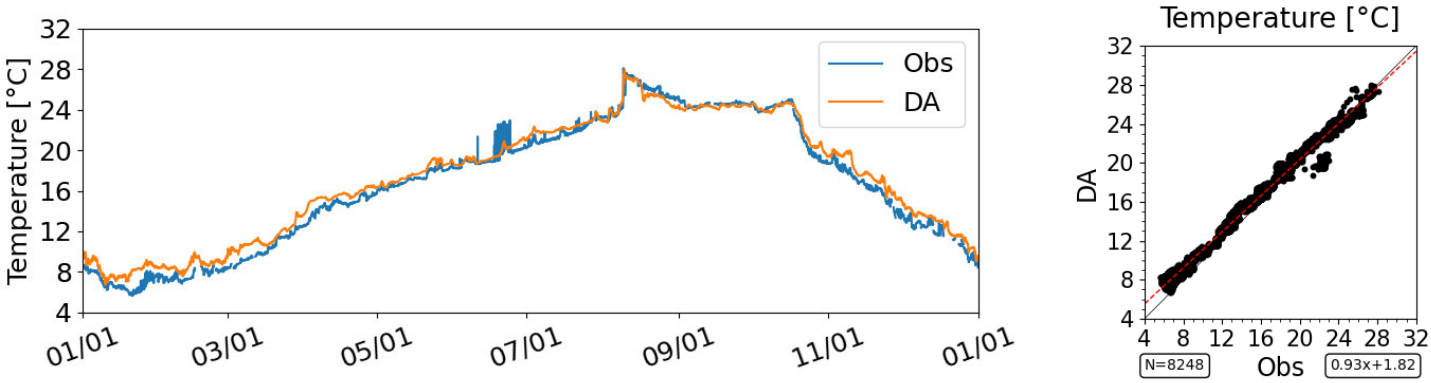
Figure S3.220 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2020



(a) Surface layer

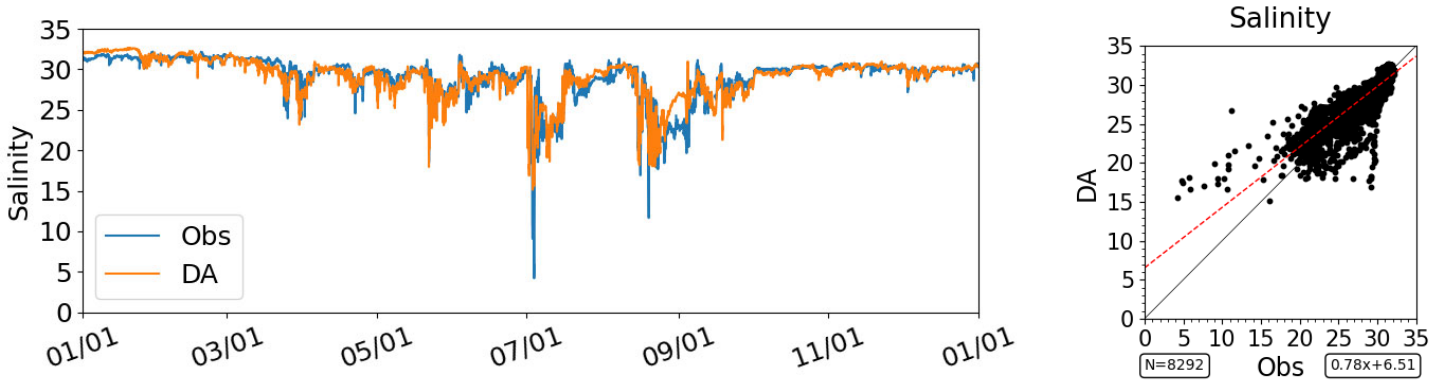


(b) Middle layer

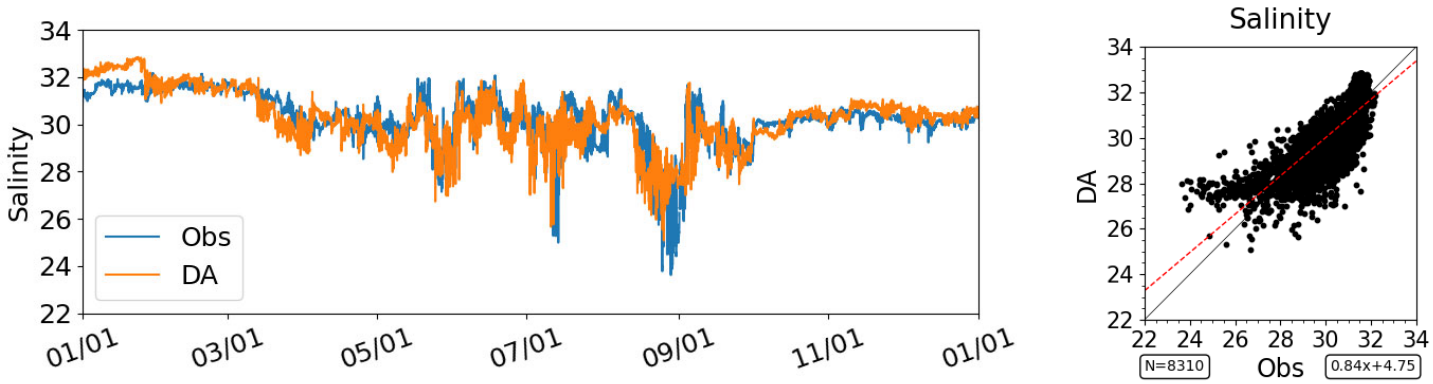


(c) Bottom layer

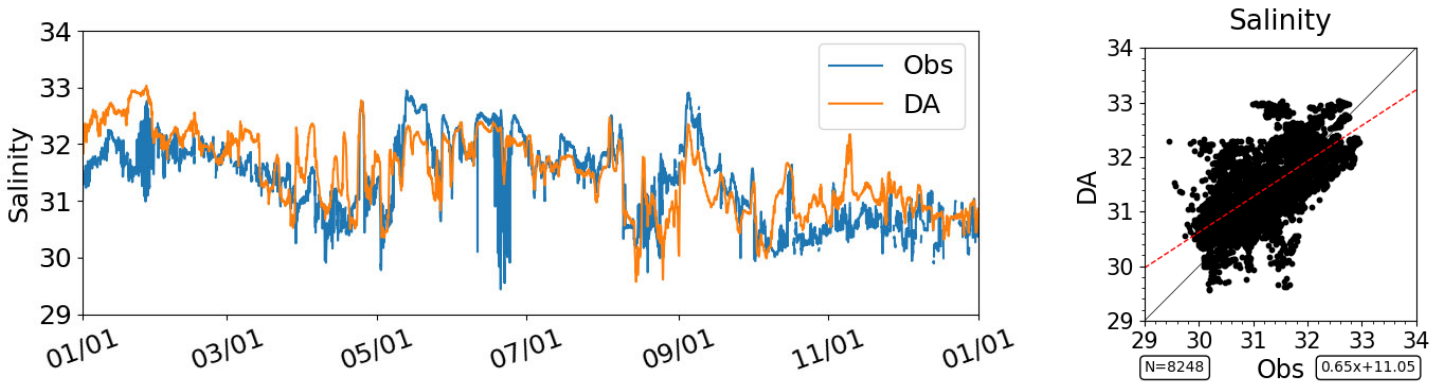
Figure S3.221 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2021



(a) Surface layer

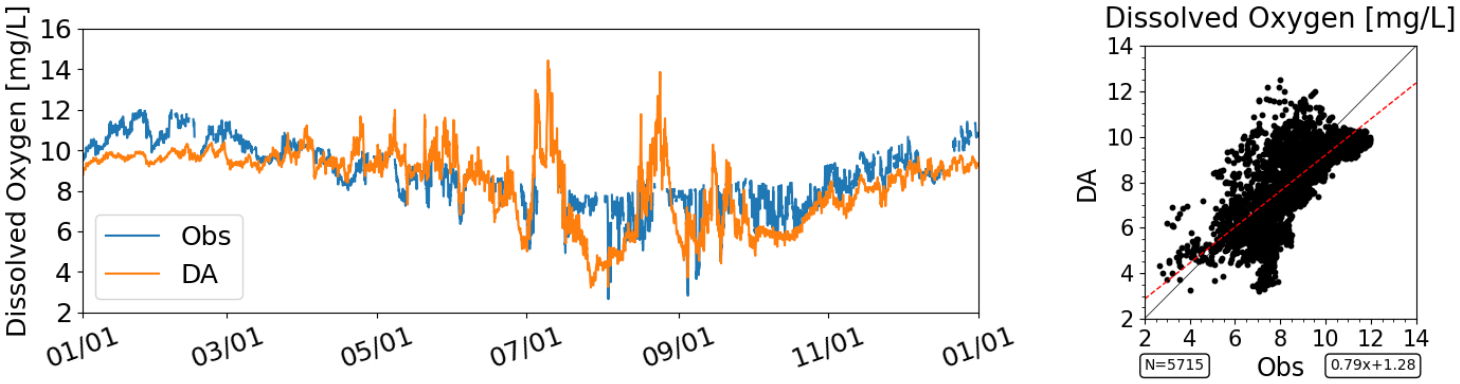


(b) Middle layer

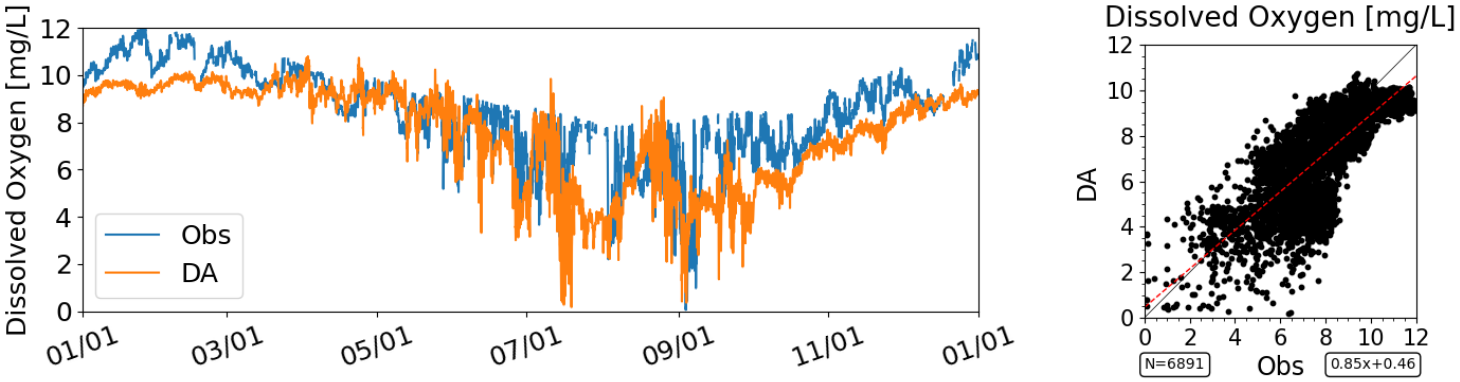


(c) Bottom layer

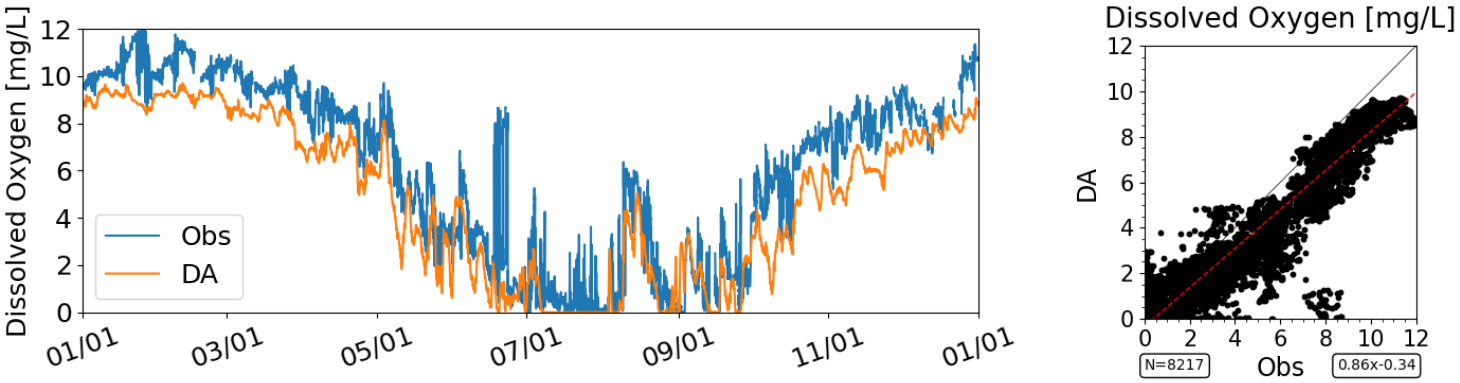
Figure S3.222 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2021



(a) Surface layer

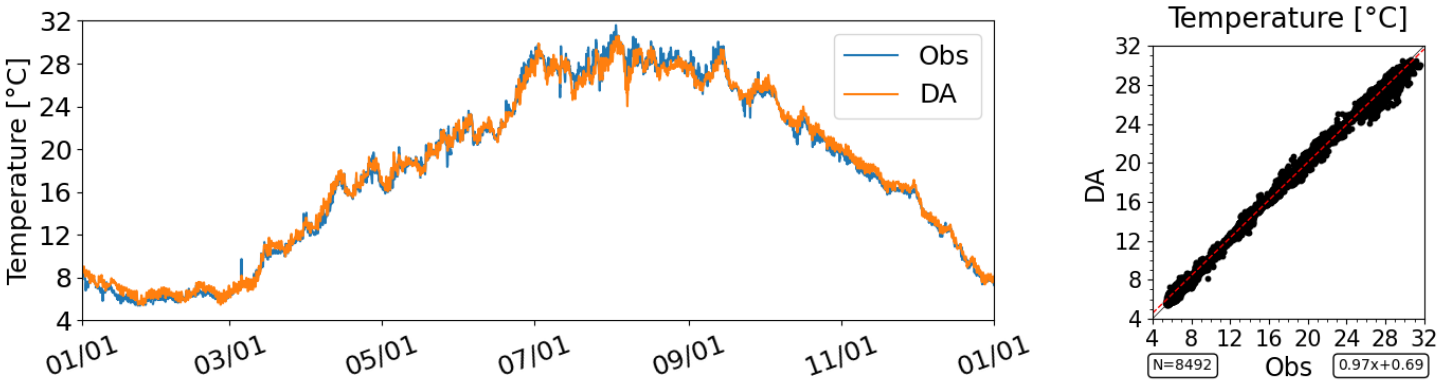


(b) Middle layer

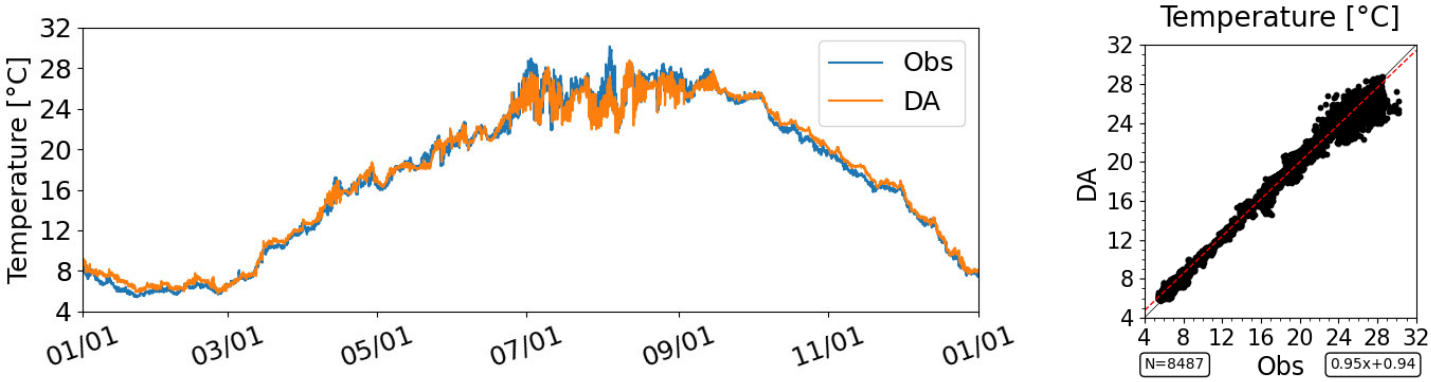


(c) Bottom layer

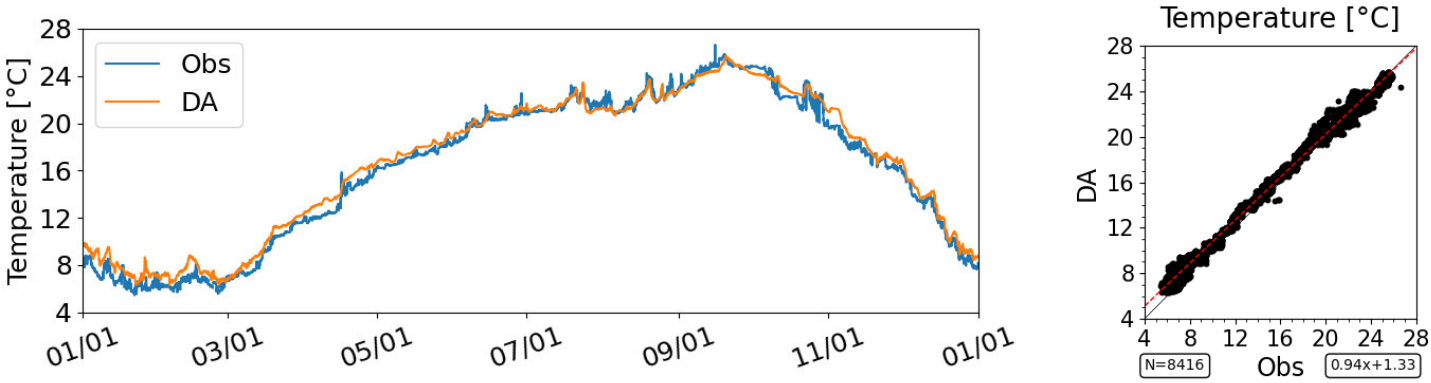
Figure S3.223 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2021



(a) Surface layer

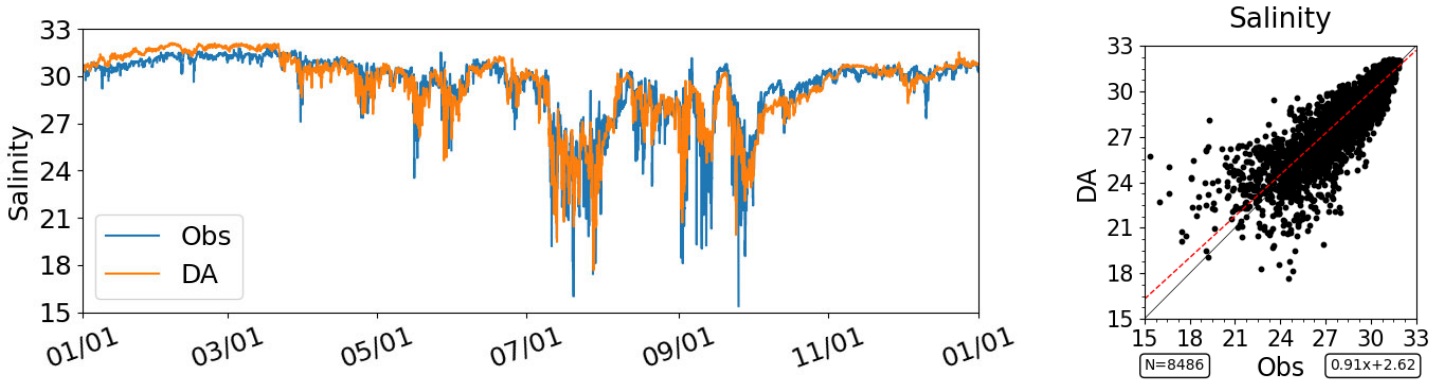


(b) Middle layer

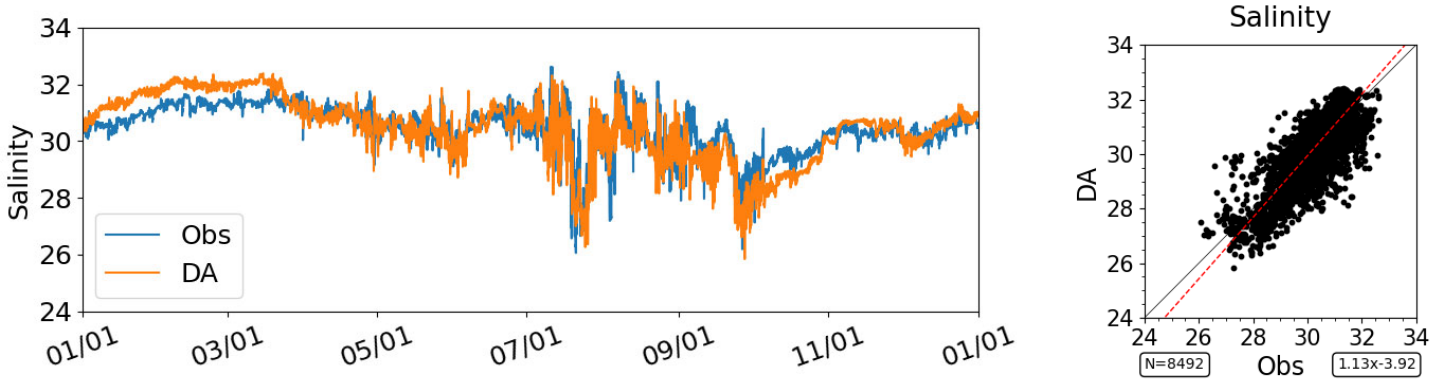


(c) Bottom layer

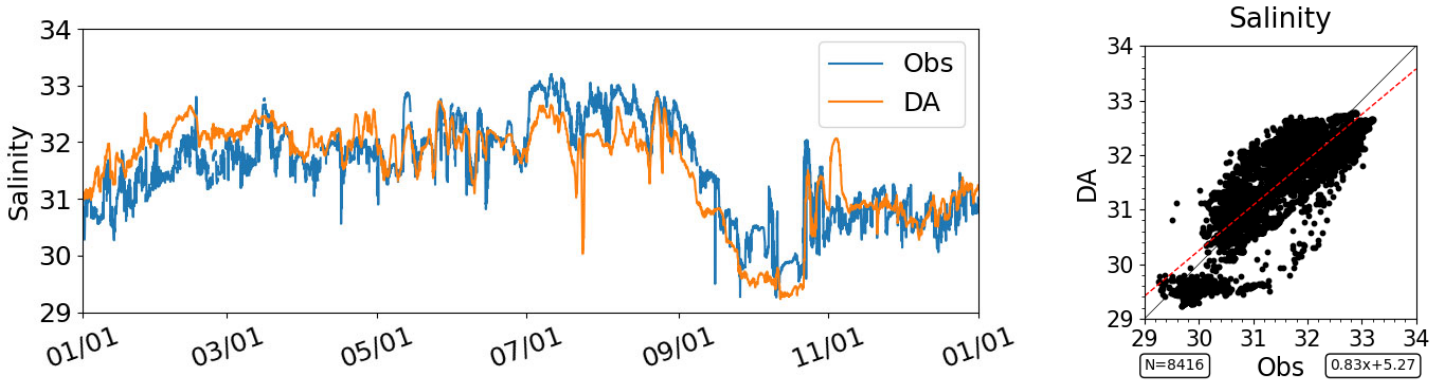
Figure S3.224 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2022



(a) Surface layer

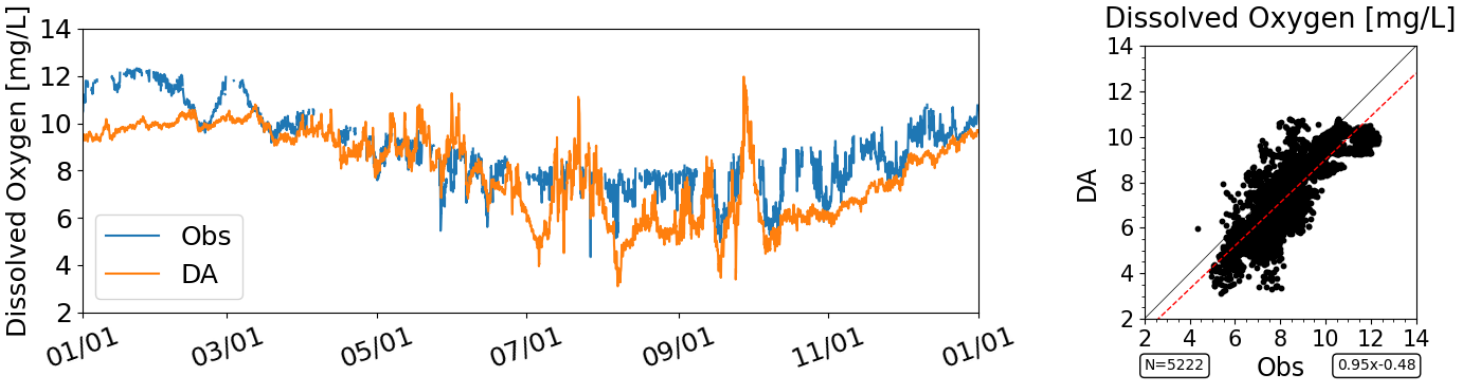


(b) Middle layer

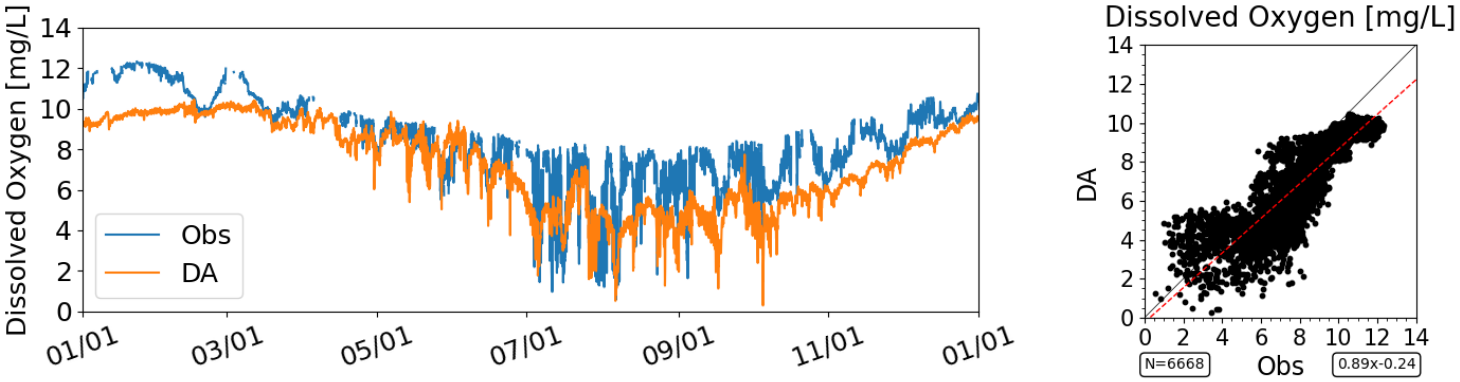


(c) Bottom layer

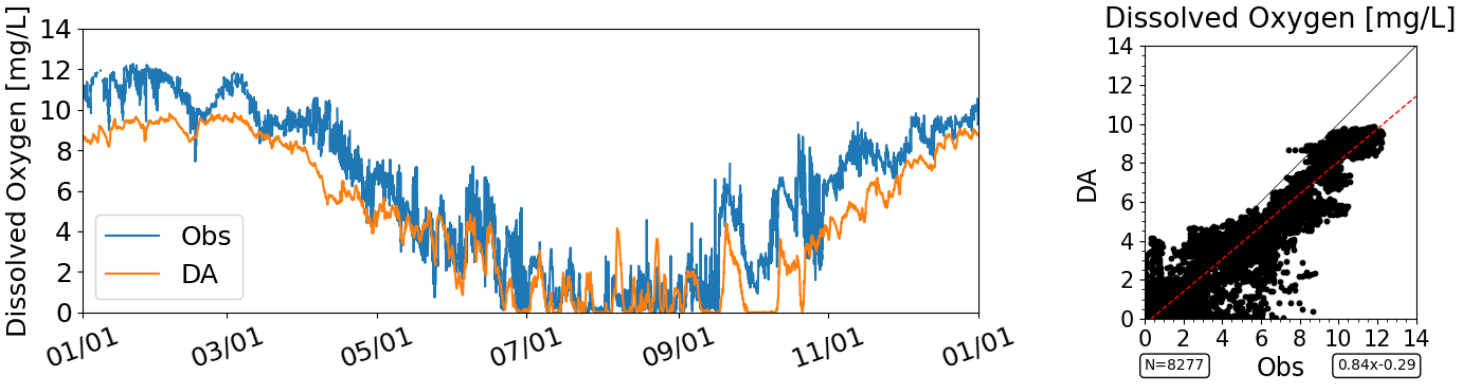
Figure S3.225 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2022



(a) Surface layer



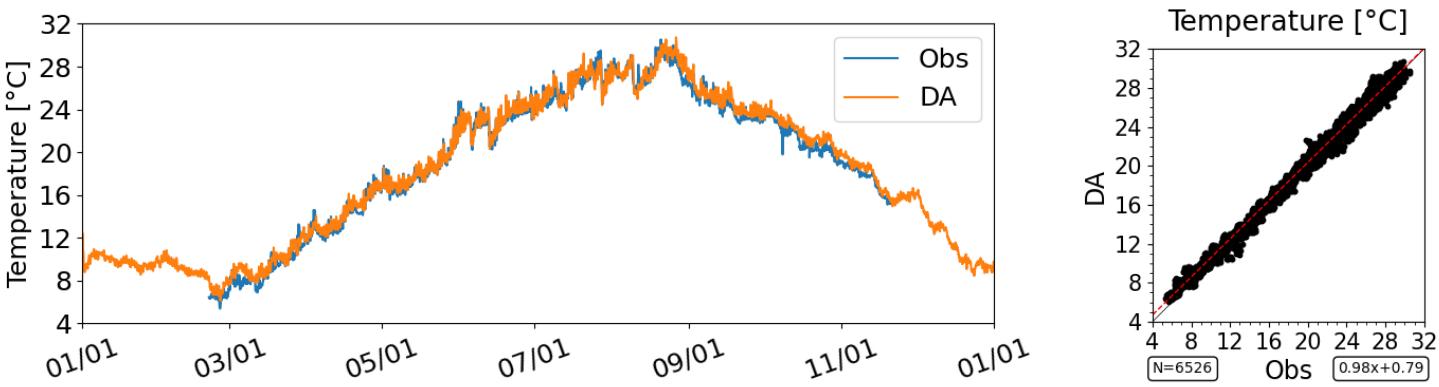
(b) Middle layer



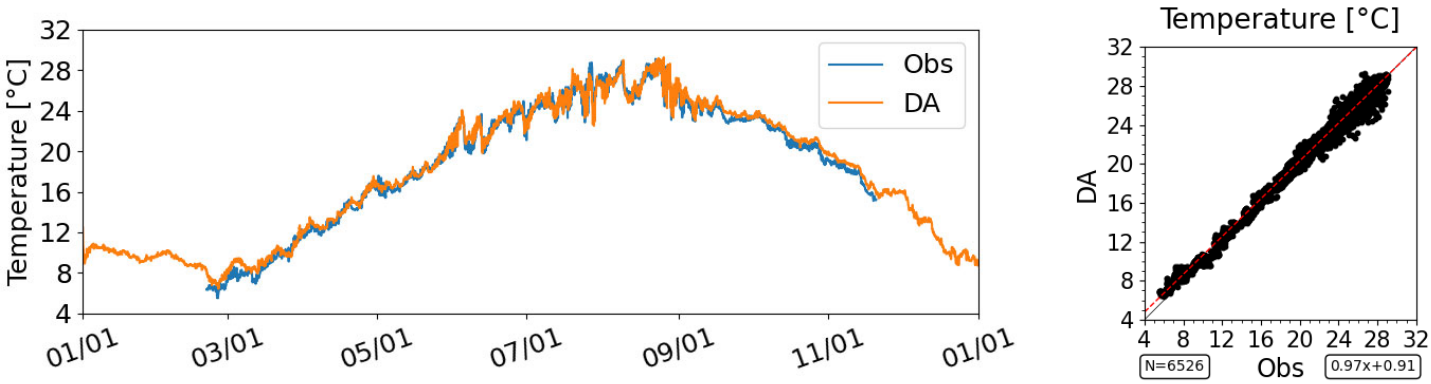
(c) Bottom layer

Figure S3.226 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2022

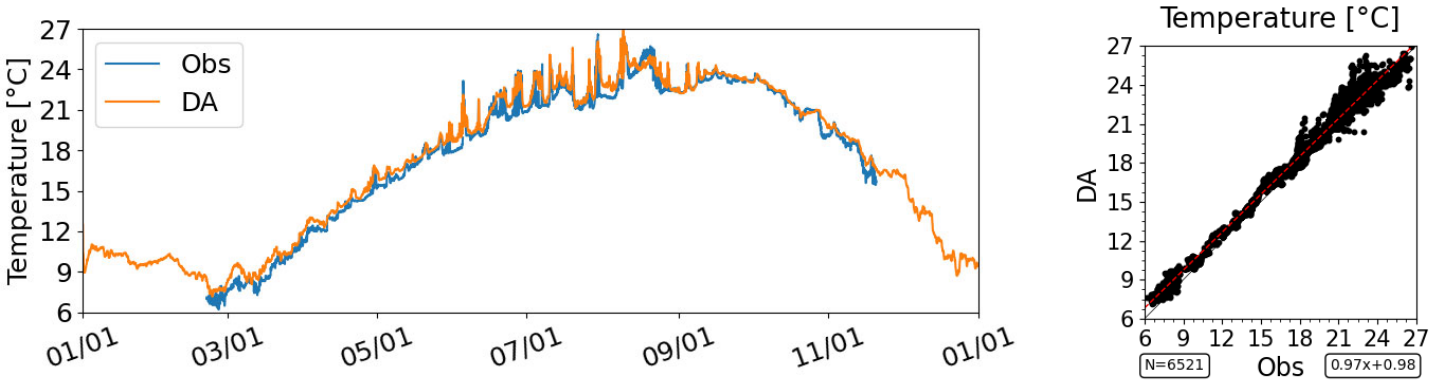
S3.13 Center of Mikawa Bay: Timeseries and scatter plot



(a) Surface layer

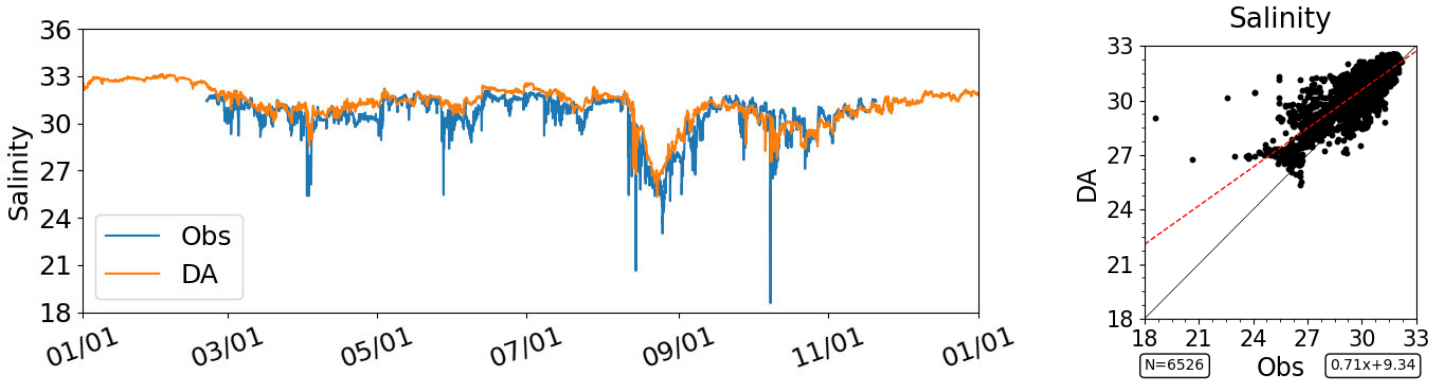


(b) Middle layer

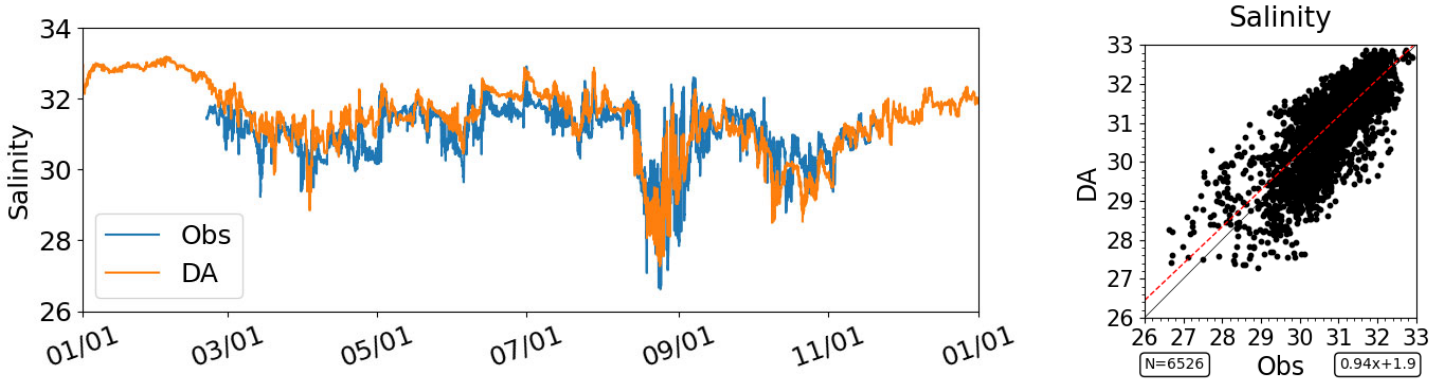


(c) Bottom layer

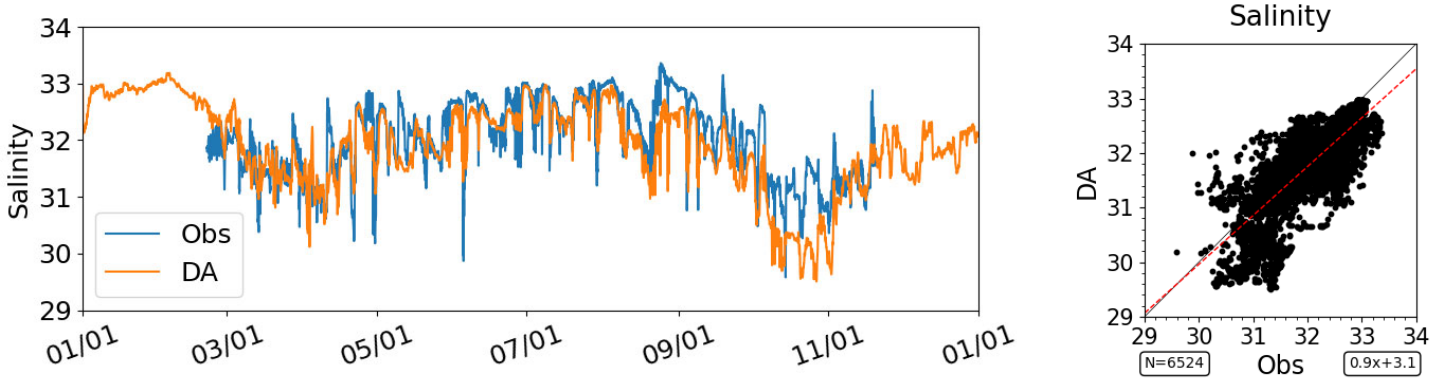
Figure S3.227 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2014



(a) Surface layer

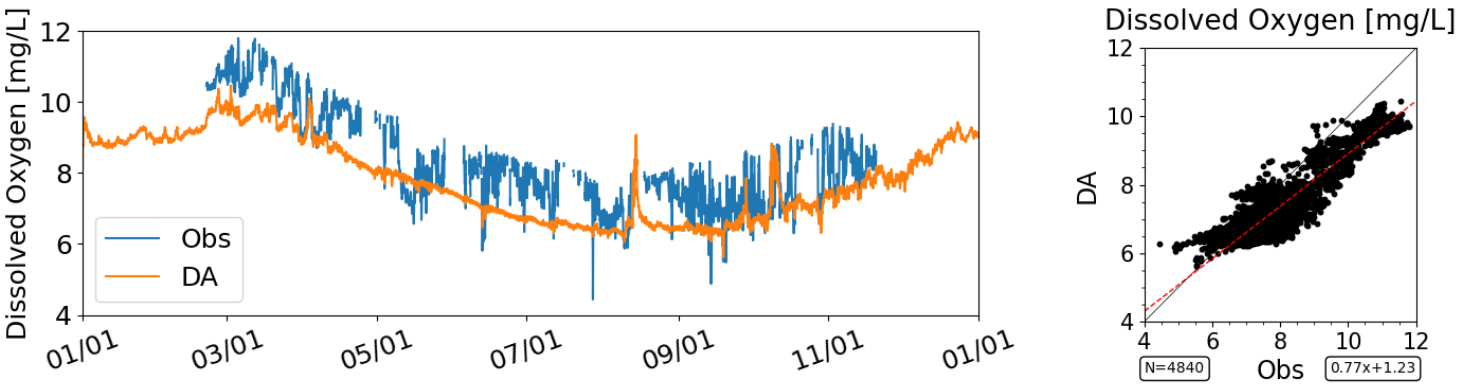


(b) Middle layer

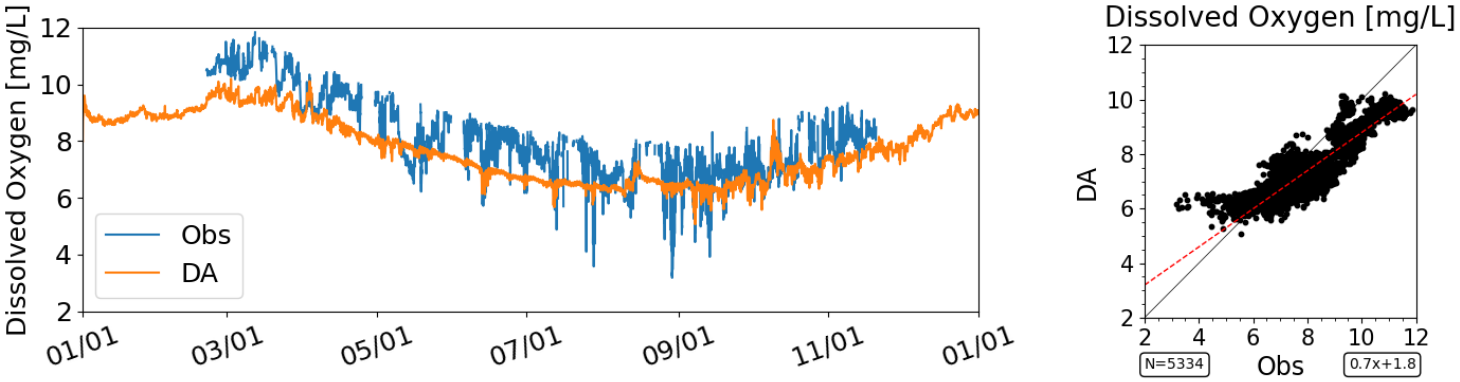


(c) Bottom layer

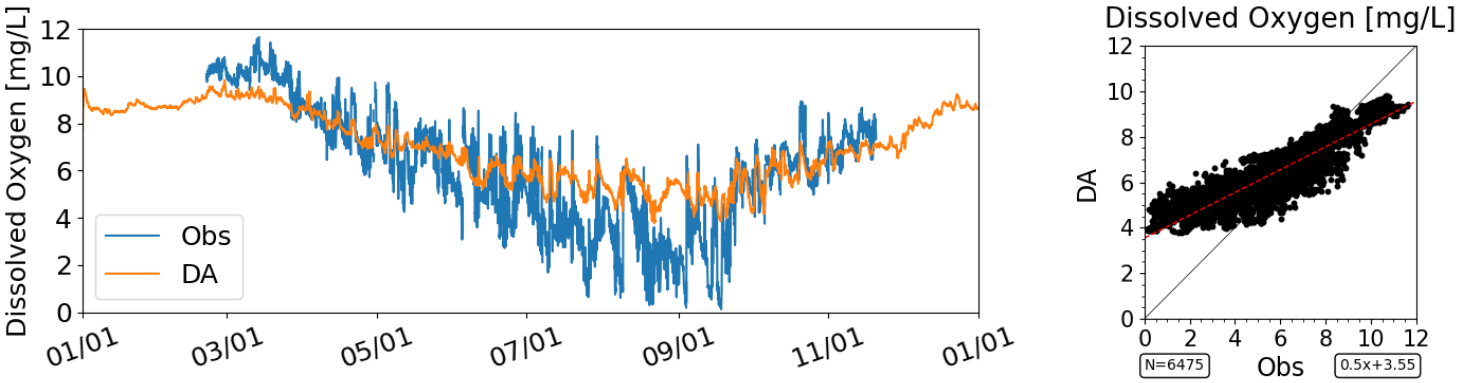
Figure S3.228 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2014



(a) Surface layer

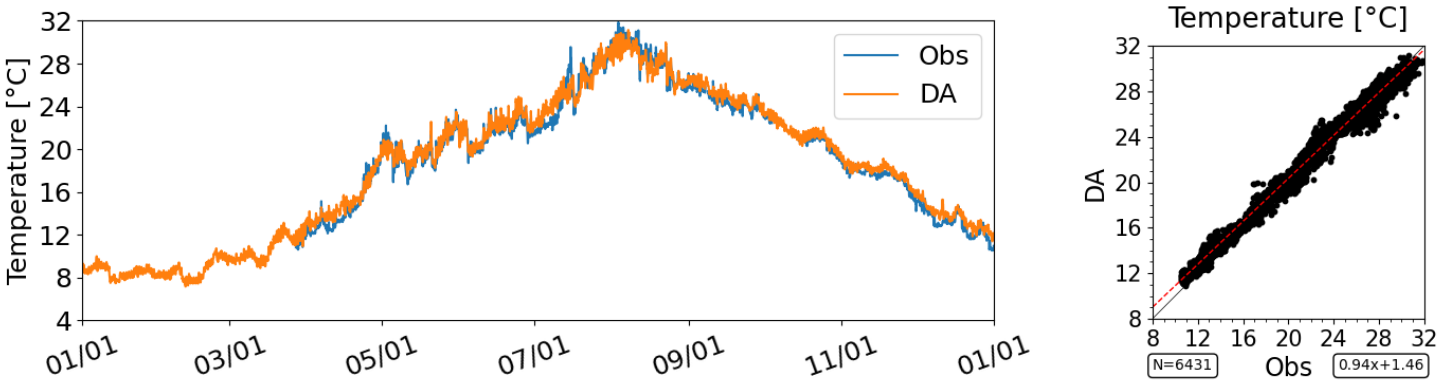


(b) Middle layer

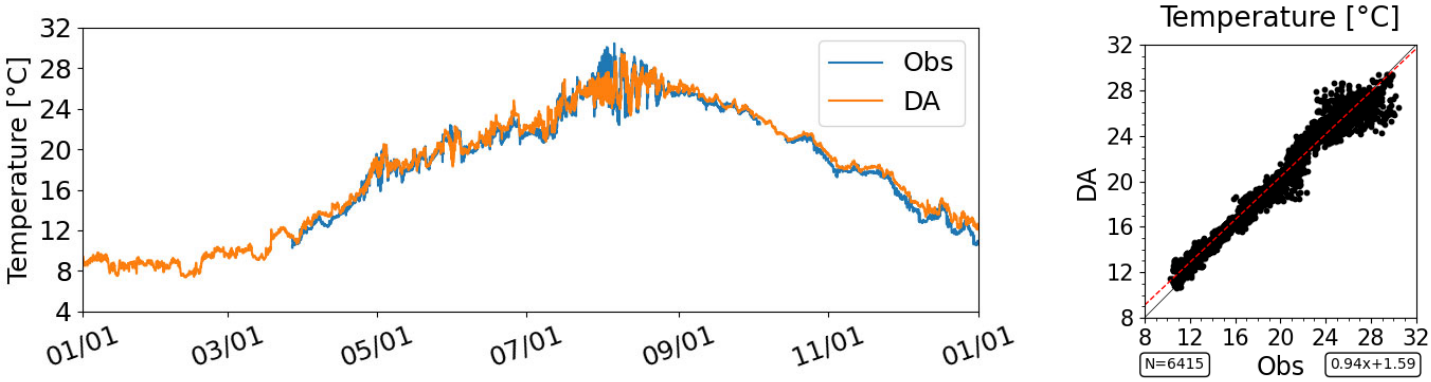


(c) Bottom layer

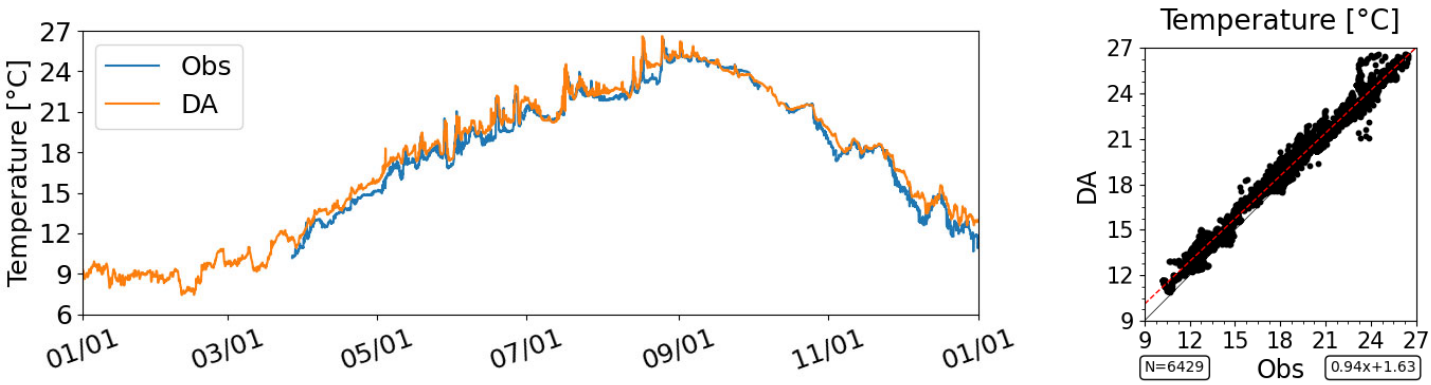
Figure S3.229 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2014



(a) Surface layer

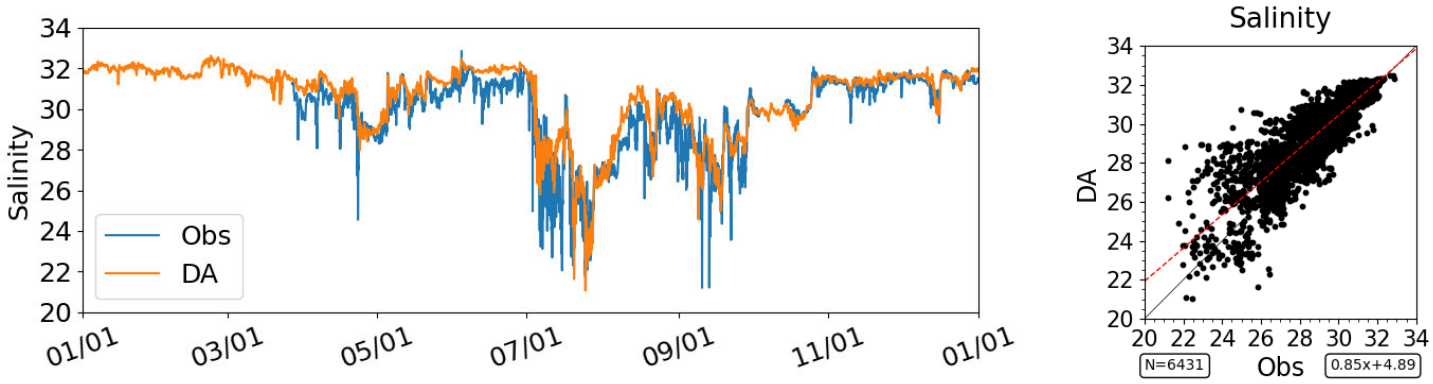


(b) Middle layer

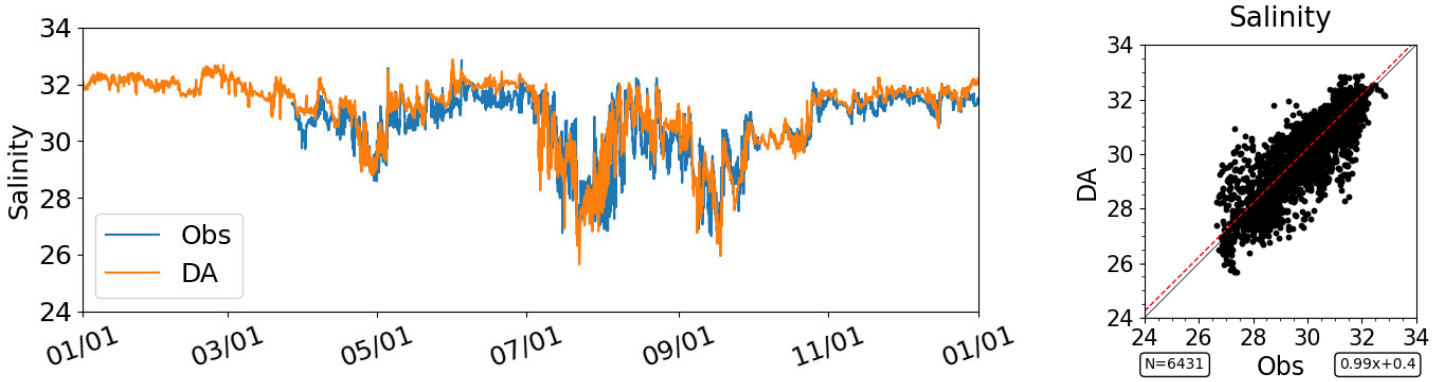


(c) Bottom layer

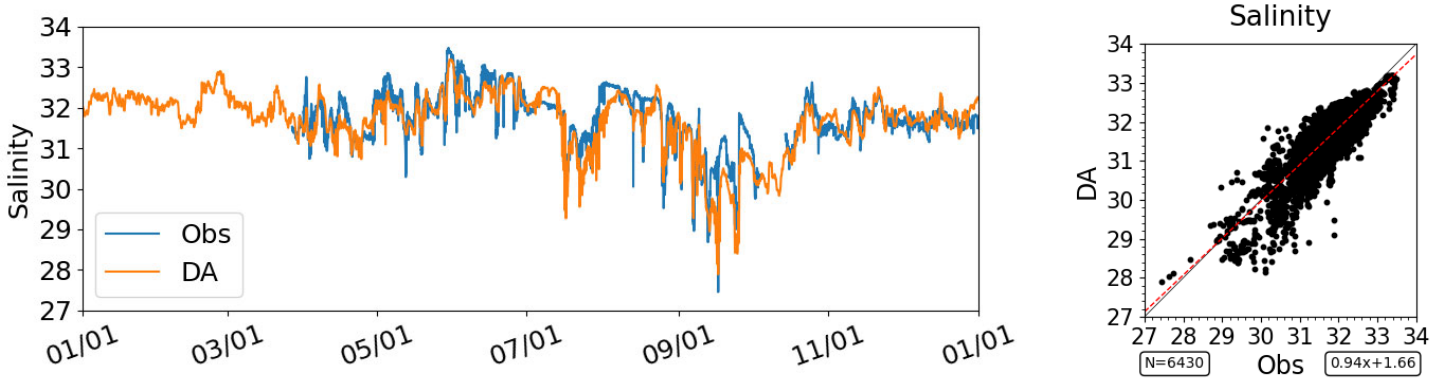
Figure S3.230 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2015



(a) Surface layer

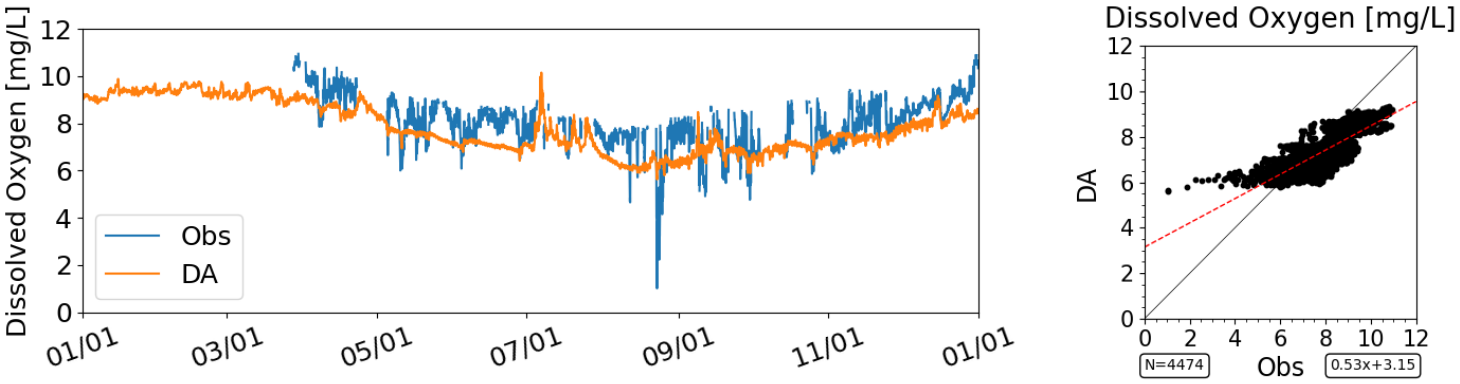


(b) Middle layer

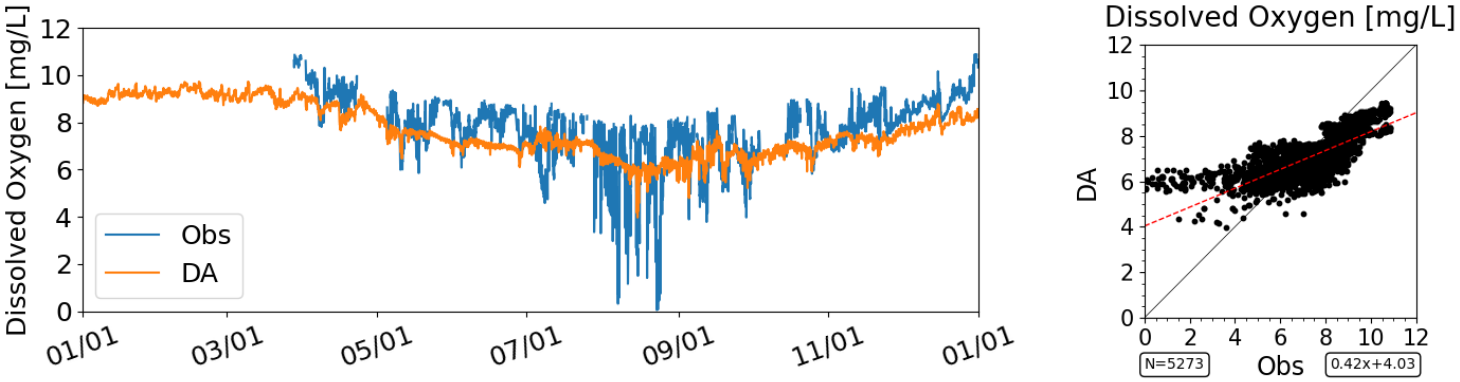


(c) Bottom layer

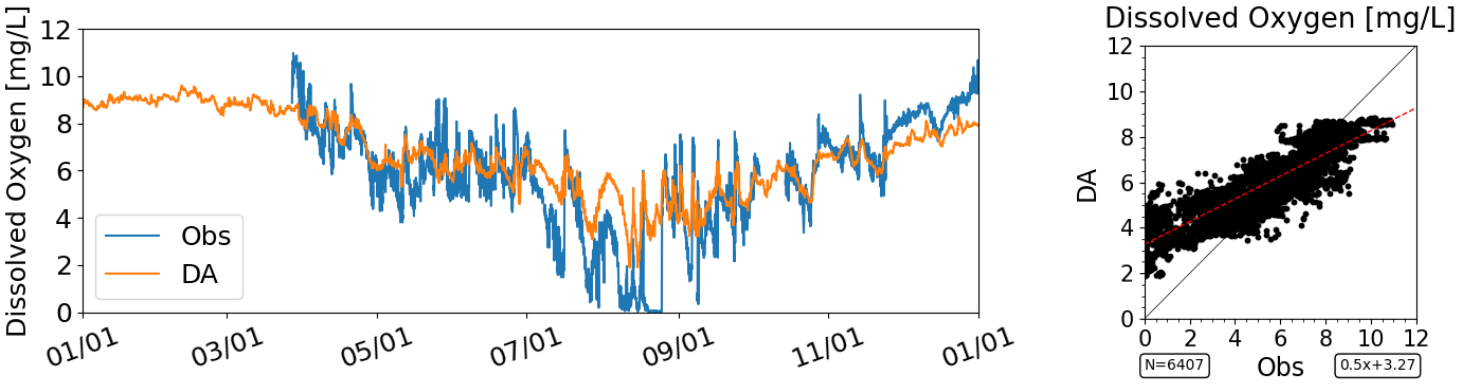
Figure S3.231 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2015



(a) Surface layer

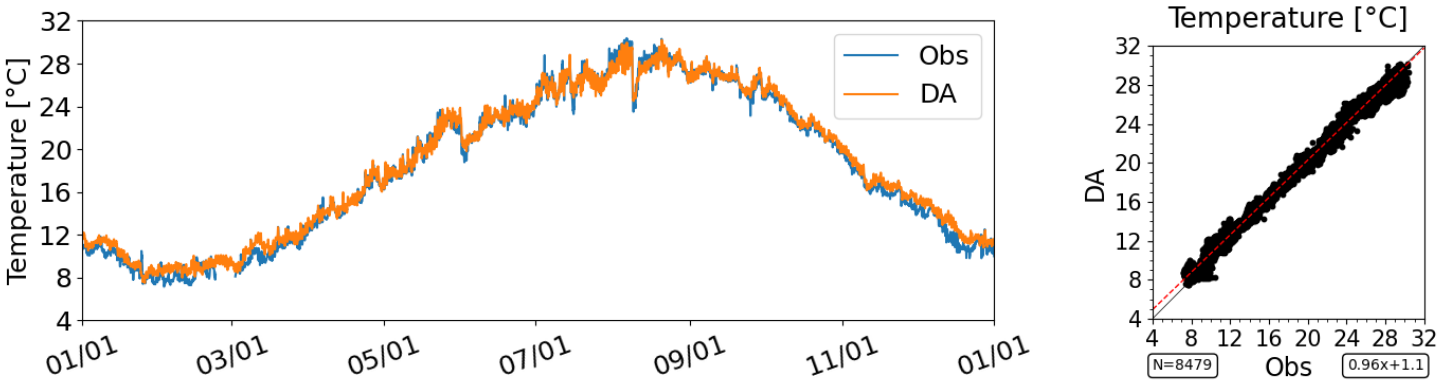


(b) Middle layer

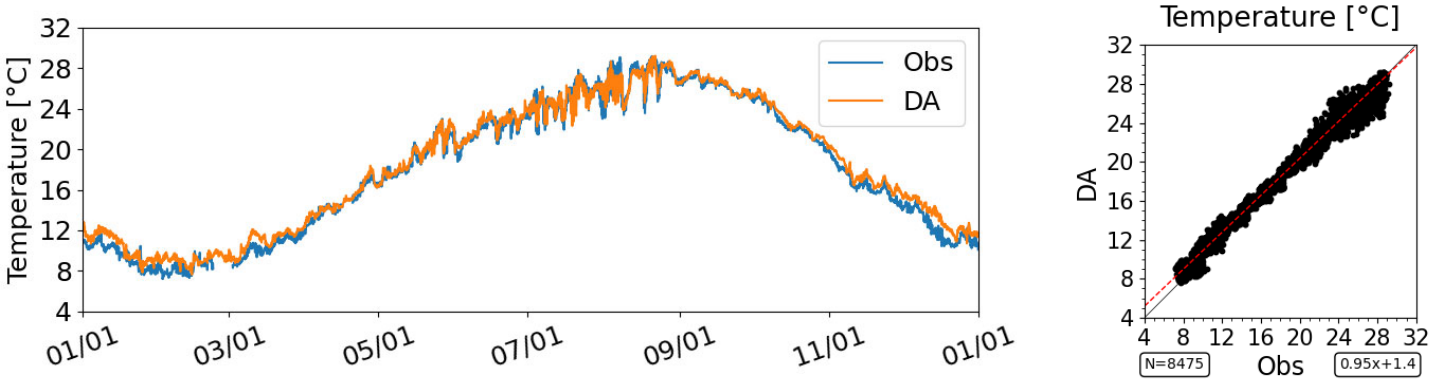


(c) Bottom layer

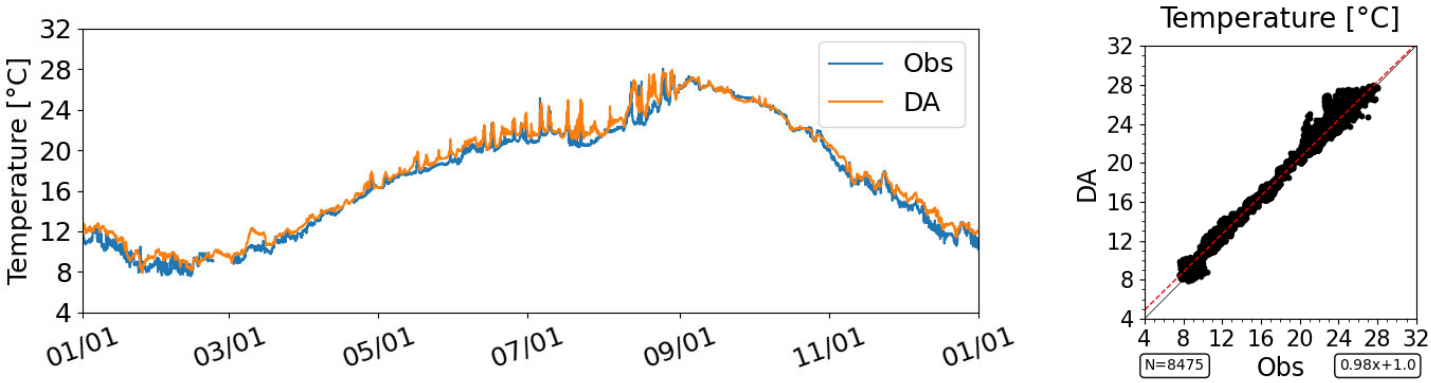
Figure S3.232 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2015



(a) Surface layer

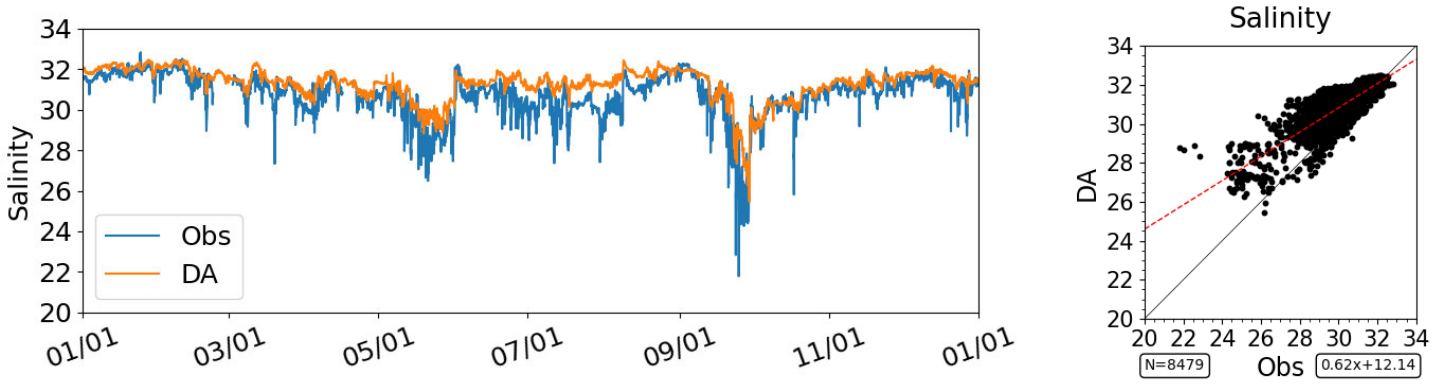


(b) Middle layer

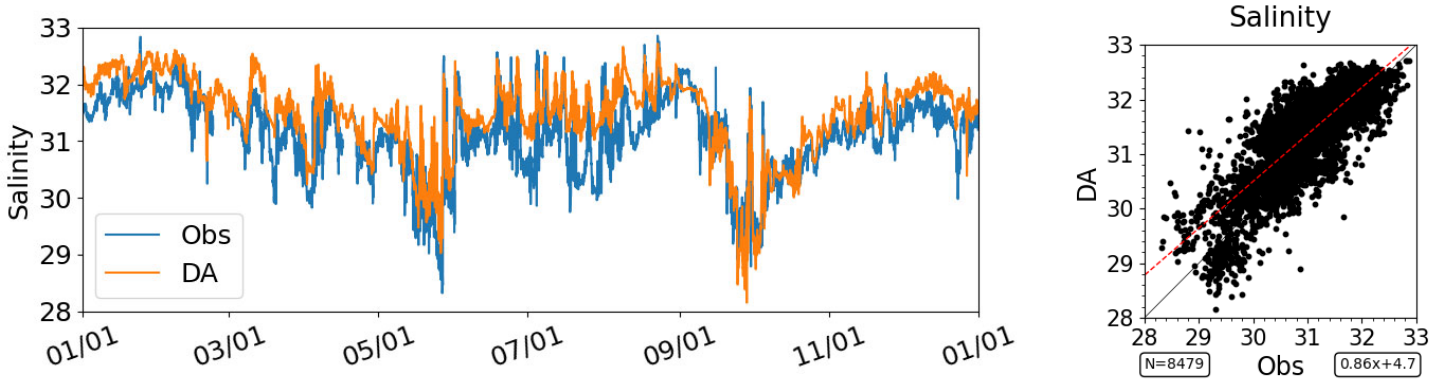


(c) Bottom layer

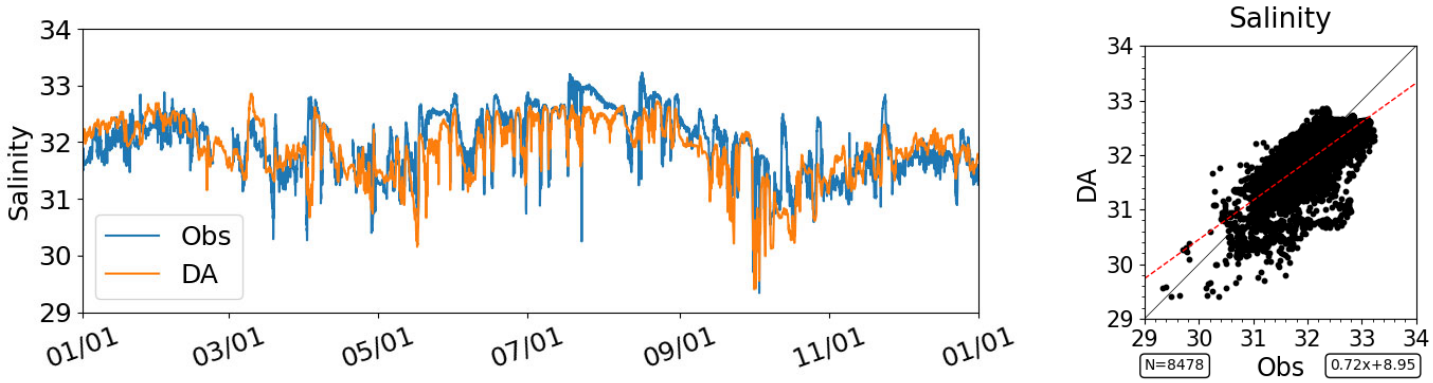
Figure S3.233 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2016



(a) Surface layer

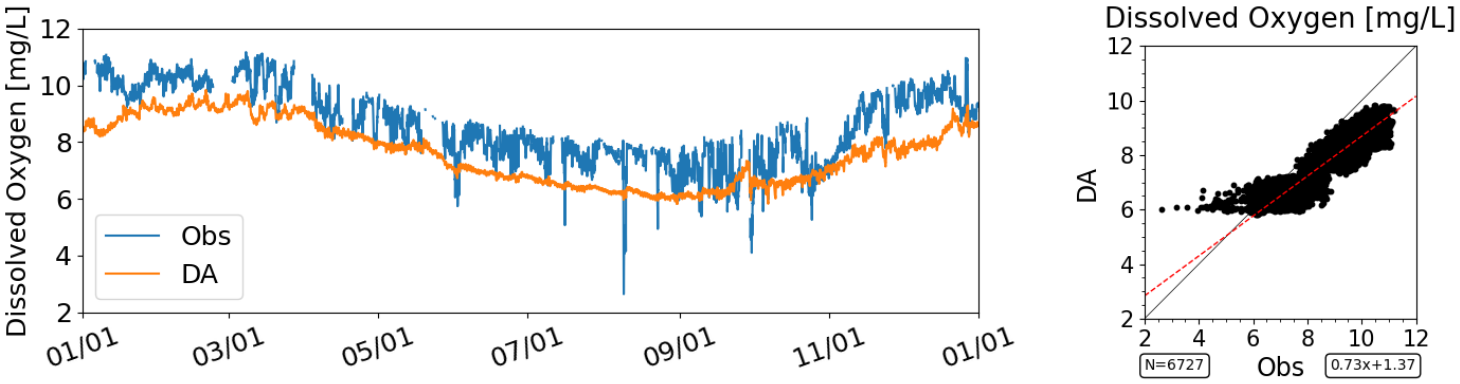


(b) Middle layer

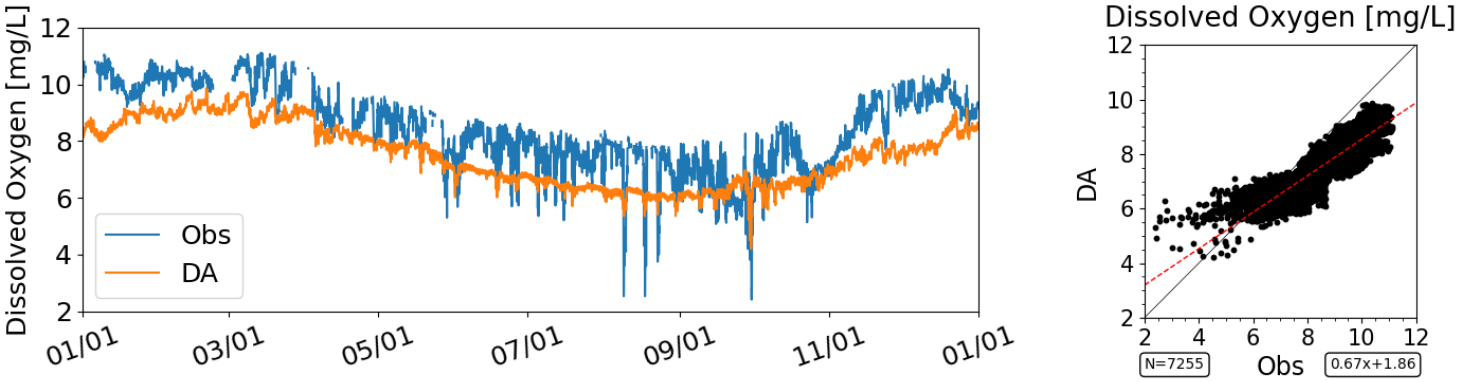


(c) Bottom layer

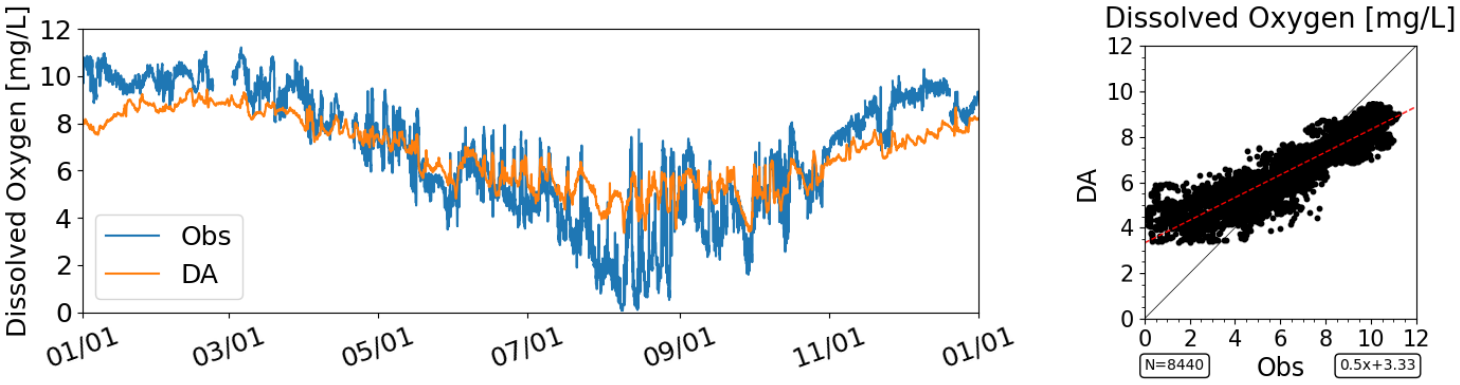
Figure S3.234 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2016



(a) Surface layer

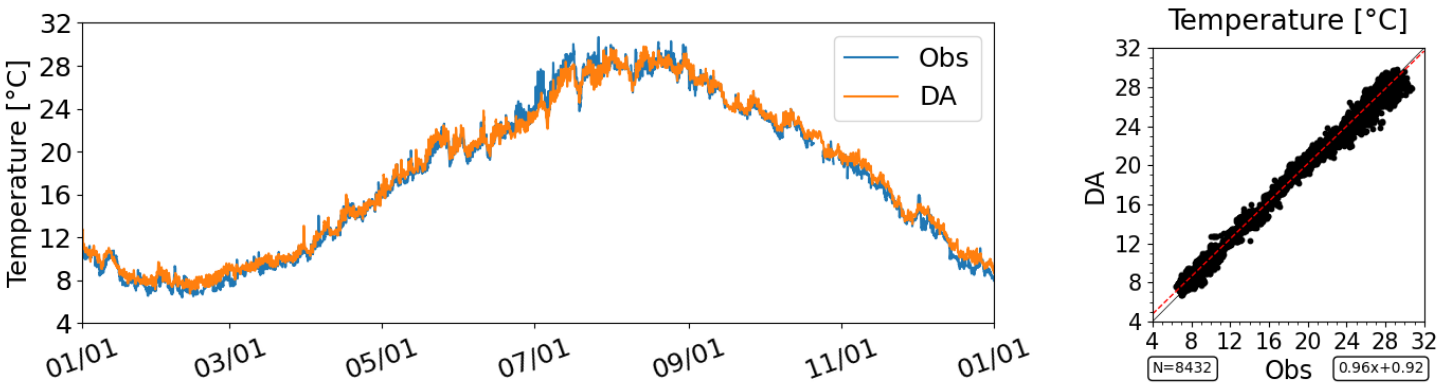


(b) Middle layer

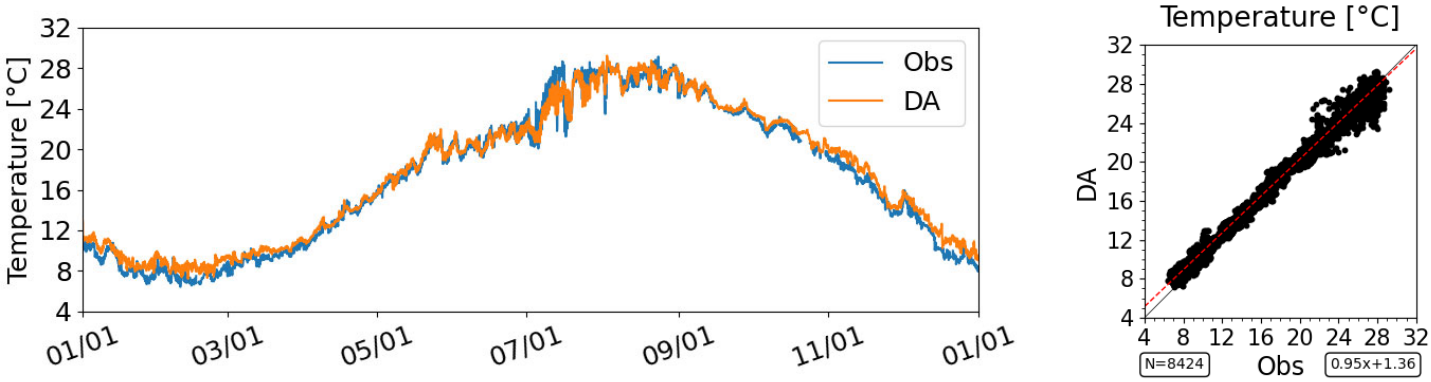


(c) Bottom layer

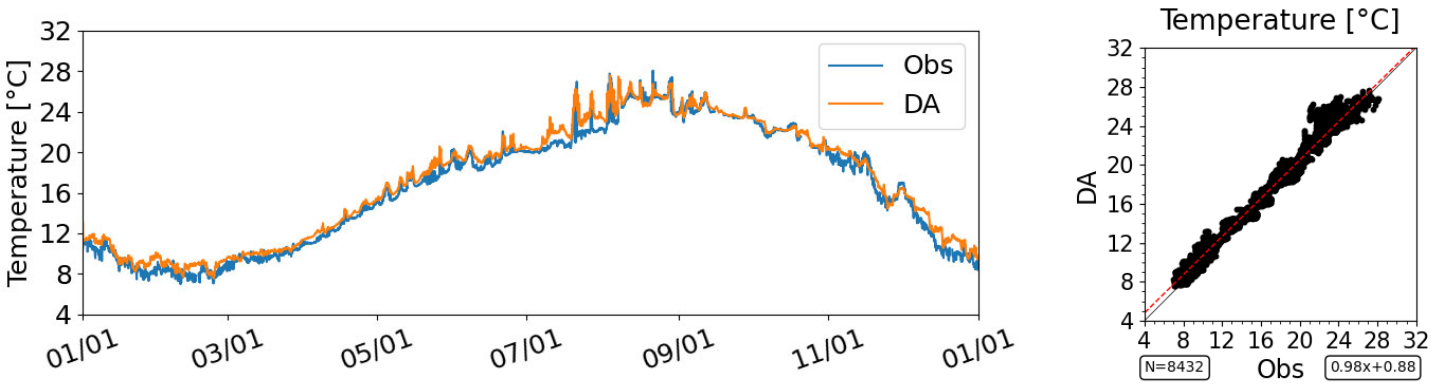
Figure S3.235 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2016



(a) Surface layer

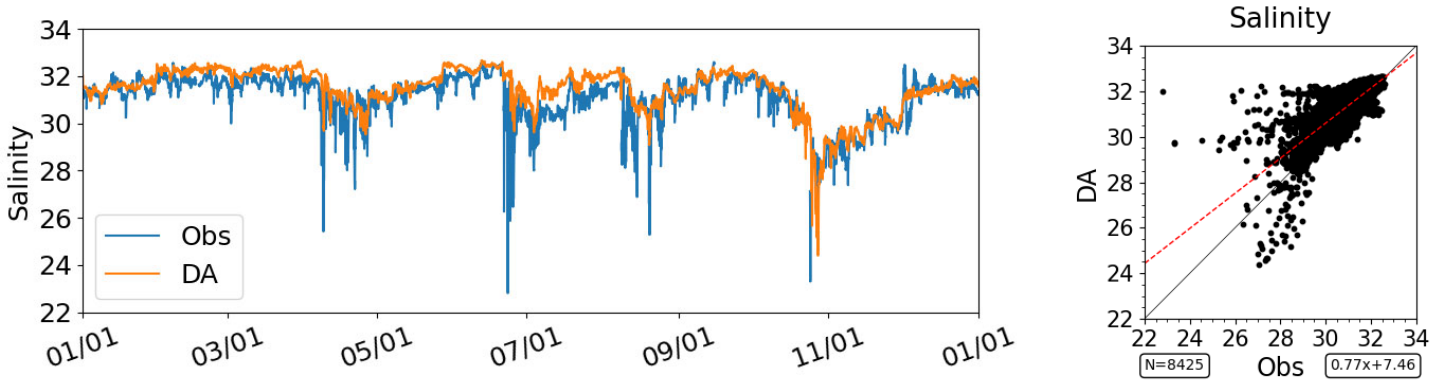


(b) Middle layer

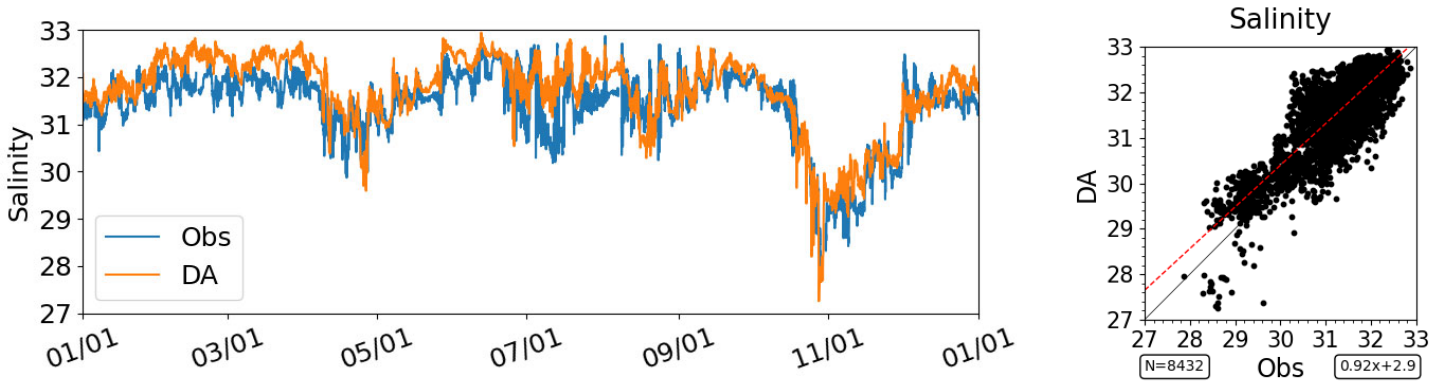


(c) Bottom layer

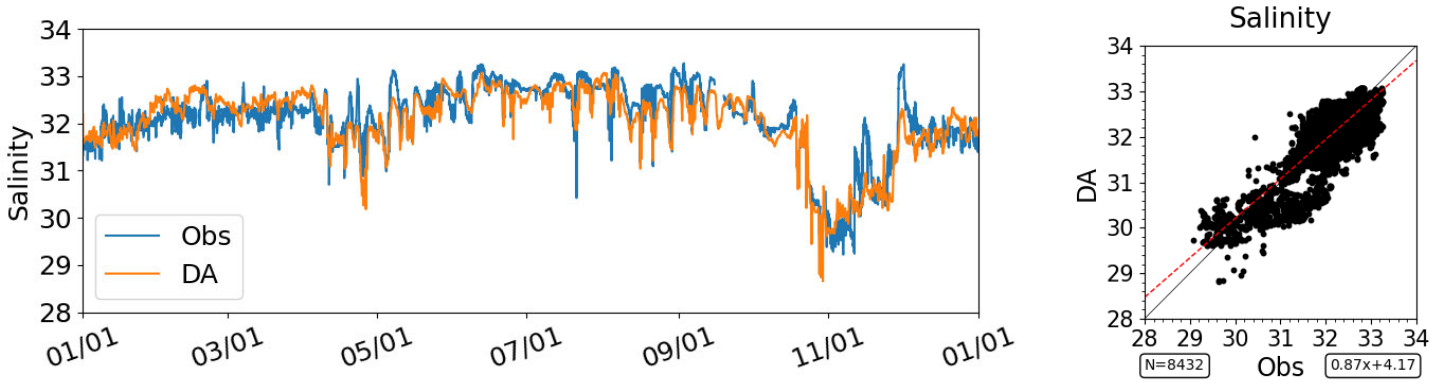
Figure S3.236 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2017



(a) Surface layer

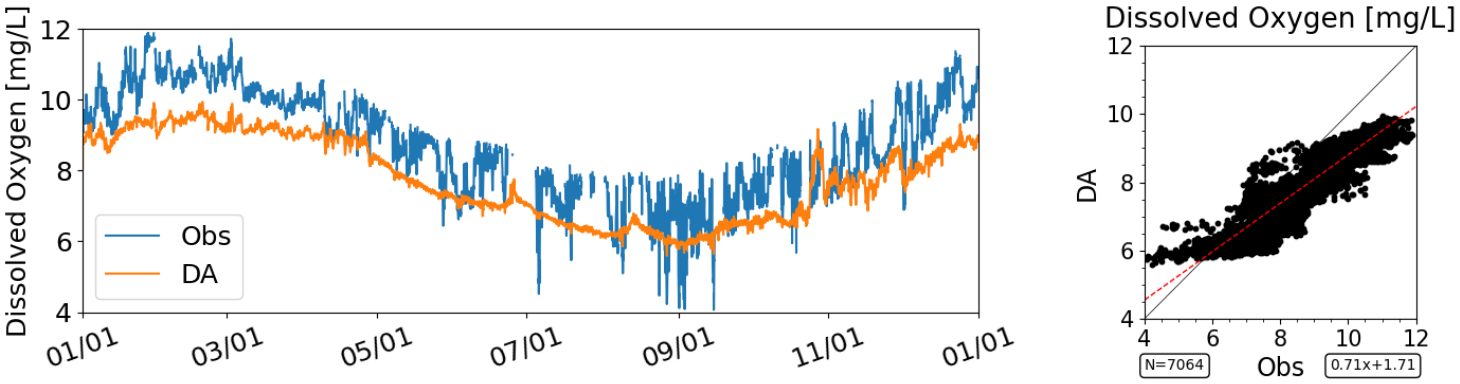


(b) Middle layer

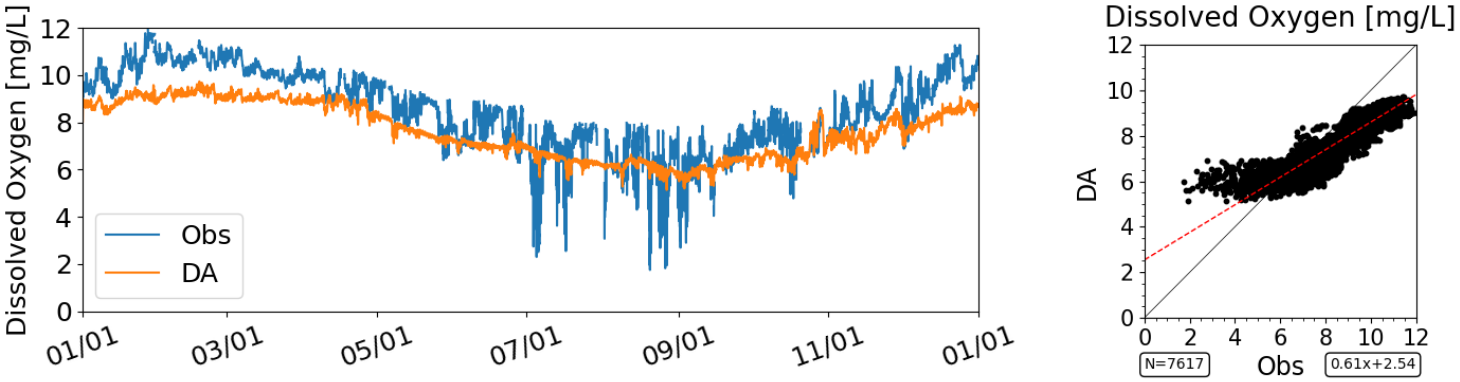


(c) Bottom layer

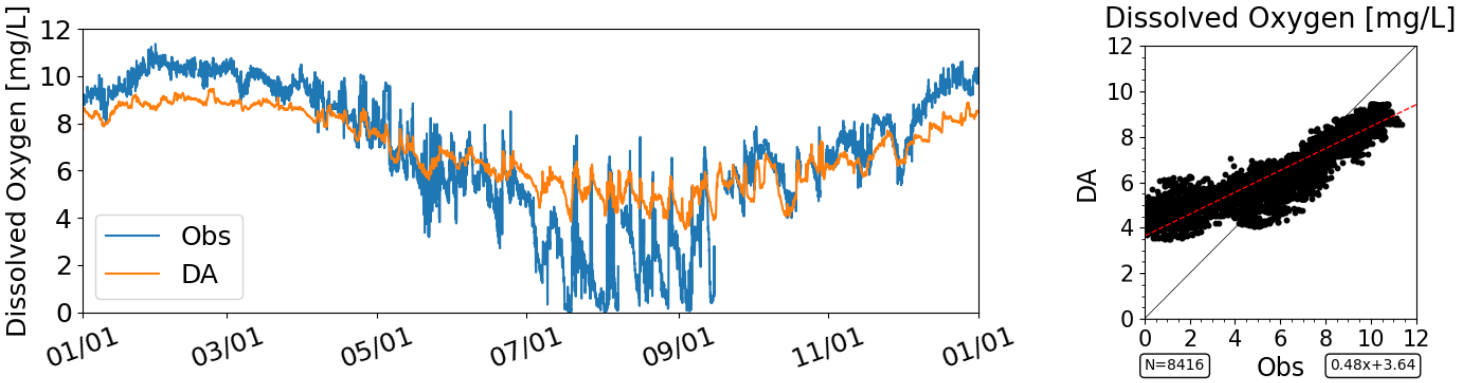
Figure S3.237 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2017



(a) Surface layer

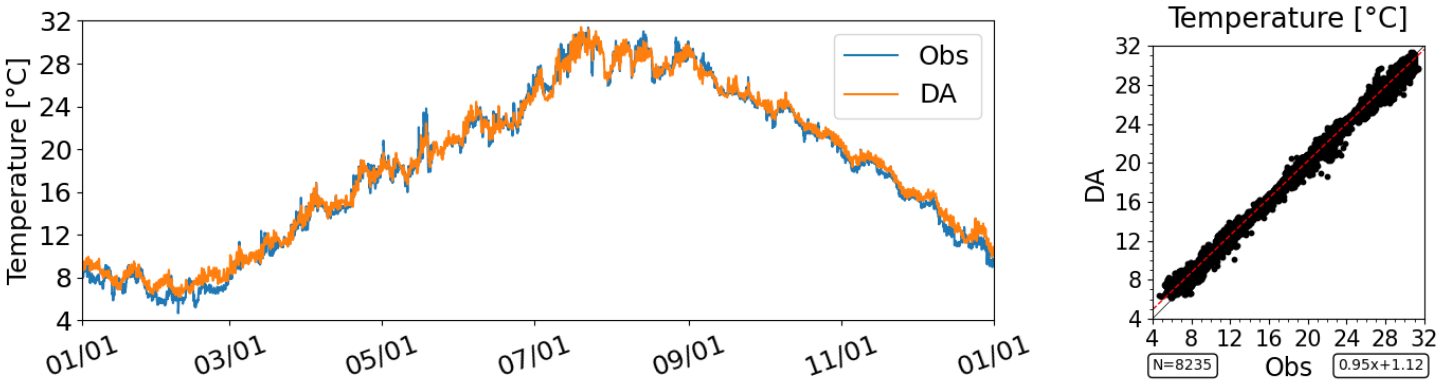


(b) Middle layer

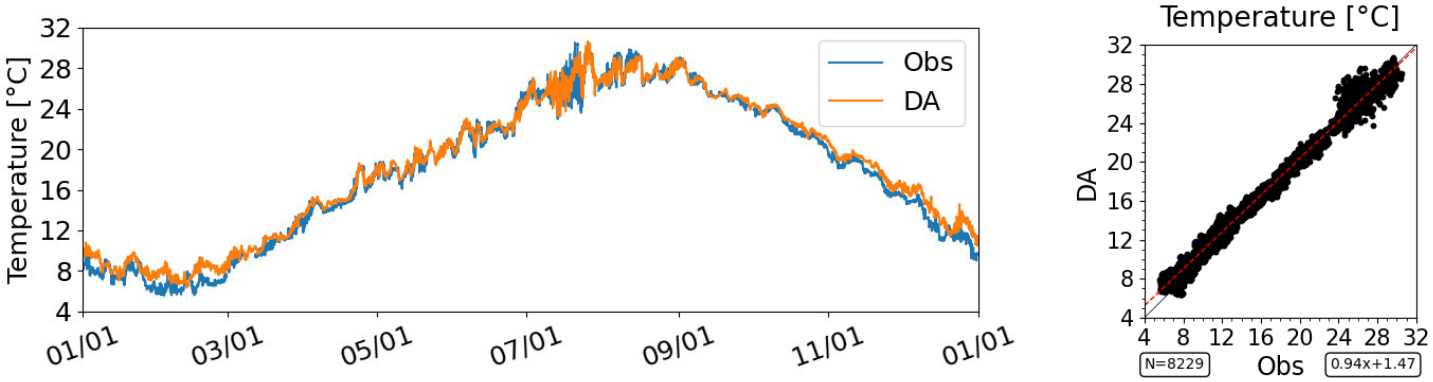


(c) Bottom layer

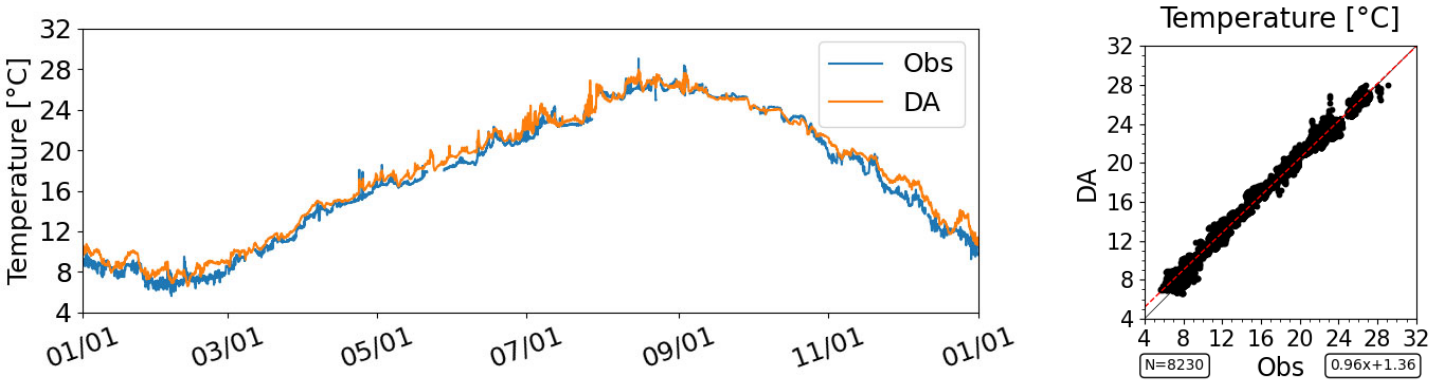
Figure S3.238 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2017



(a) Surface layer

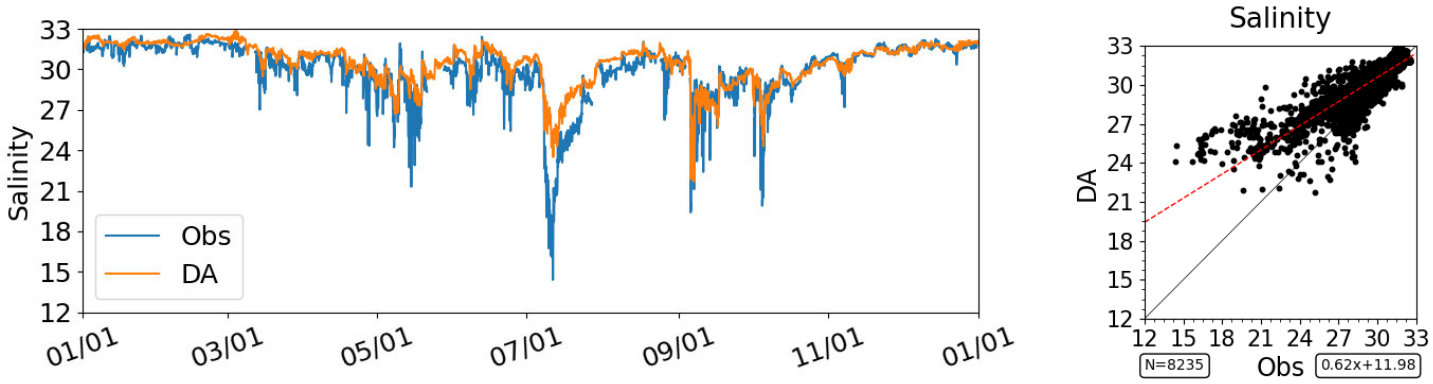


(b) Middle layer

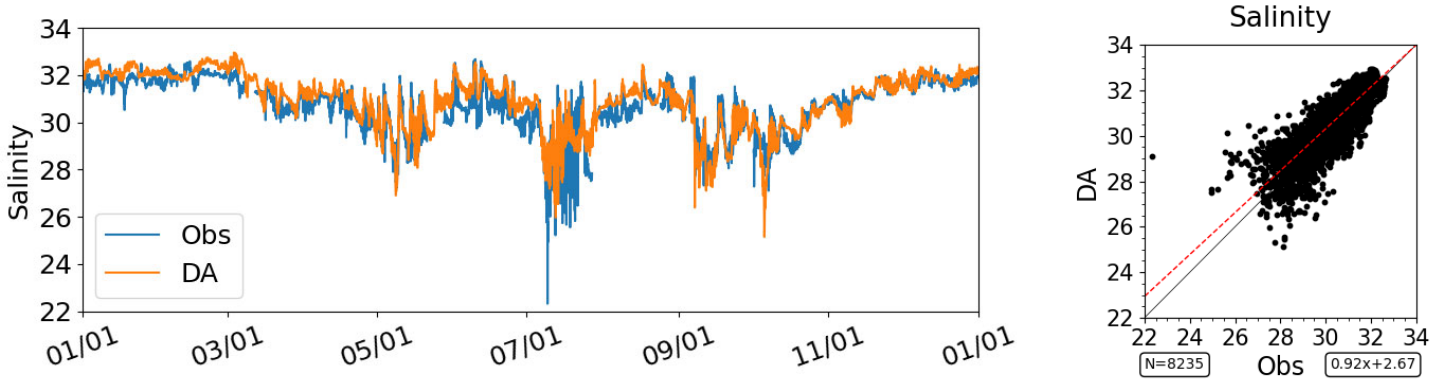


(c) Bottom layer

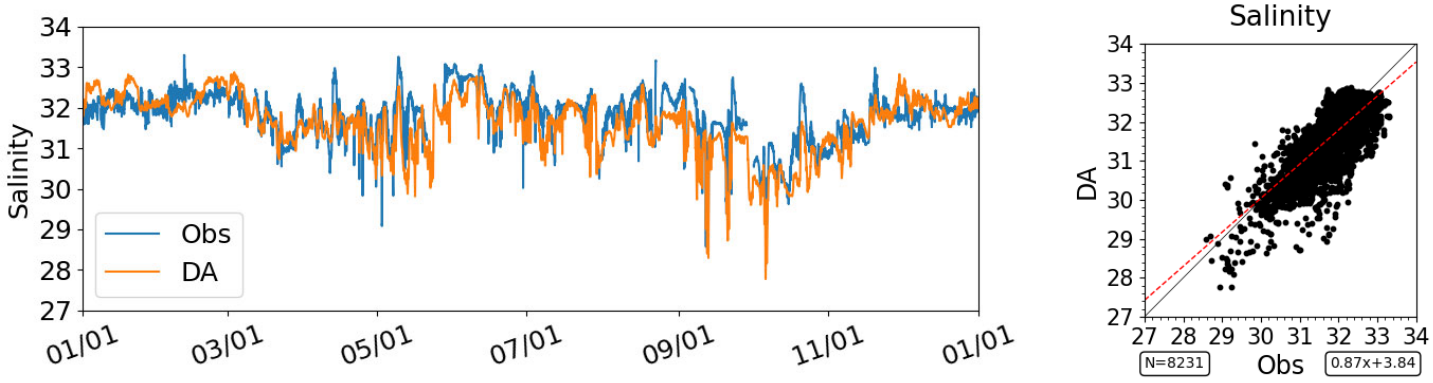
Figure S3.239 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2018



(a) Surface layer

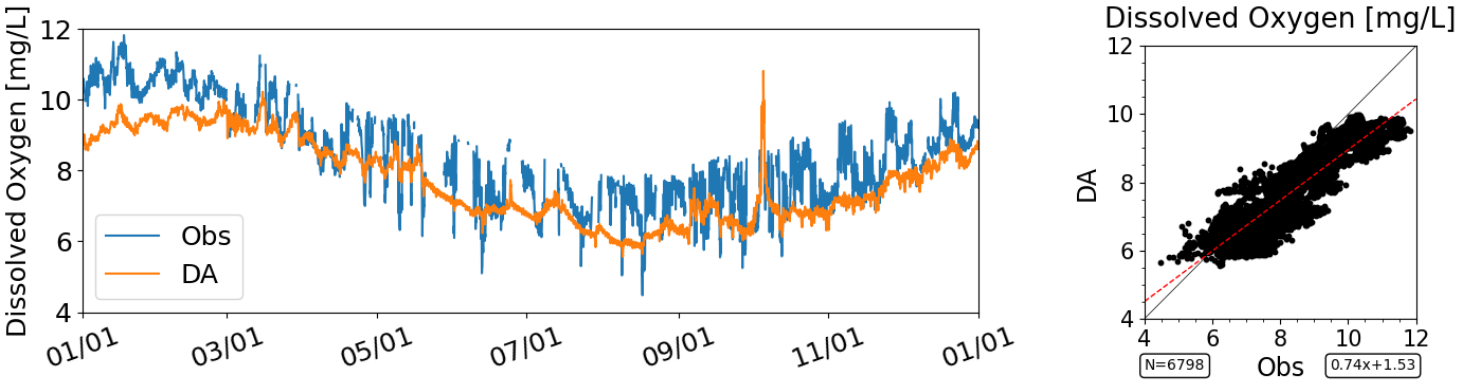


(b) Middle layer

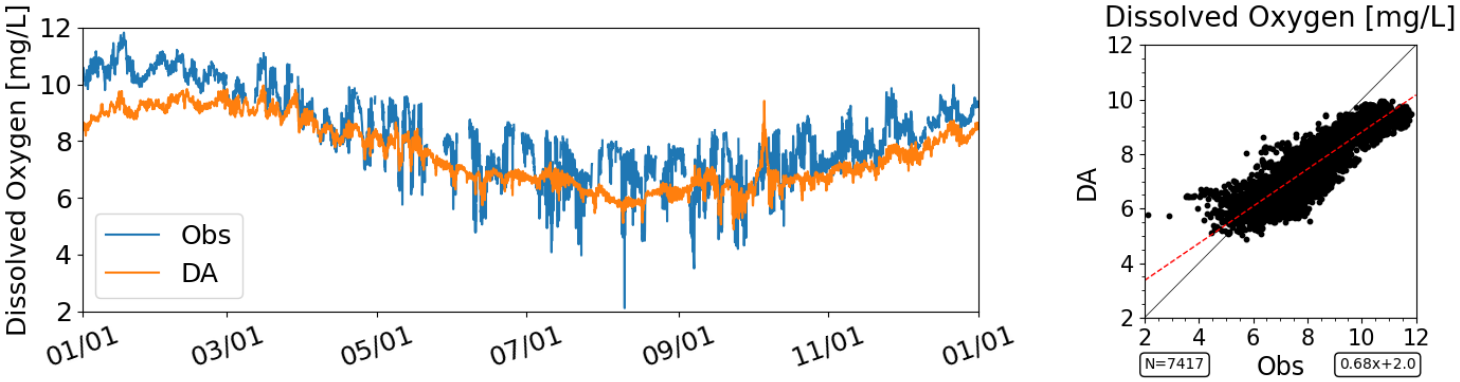


(c) Bottom layer

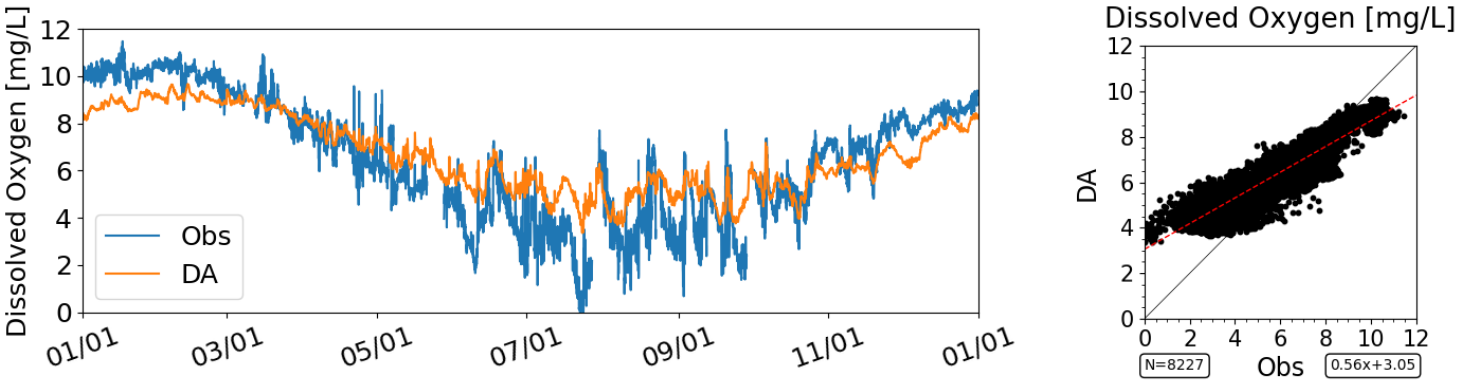
Figure S3.240 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2018



(a) Surface layer

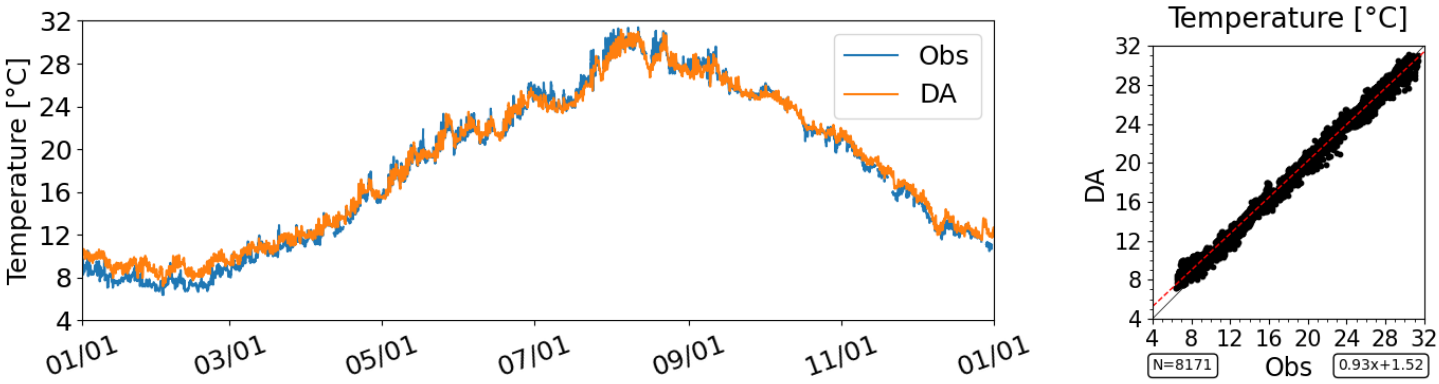


(b) Middle layer

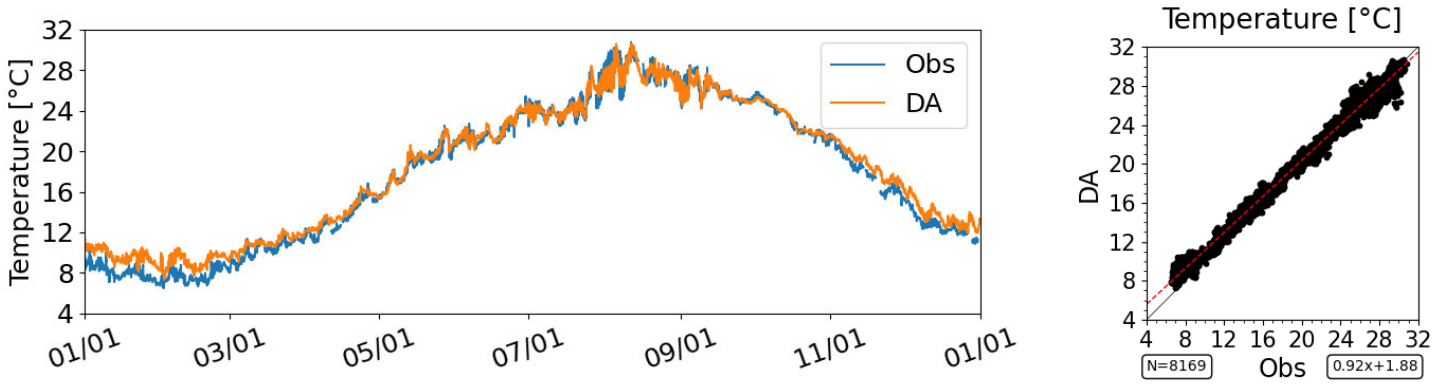


(c) Bottom layer

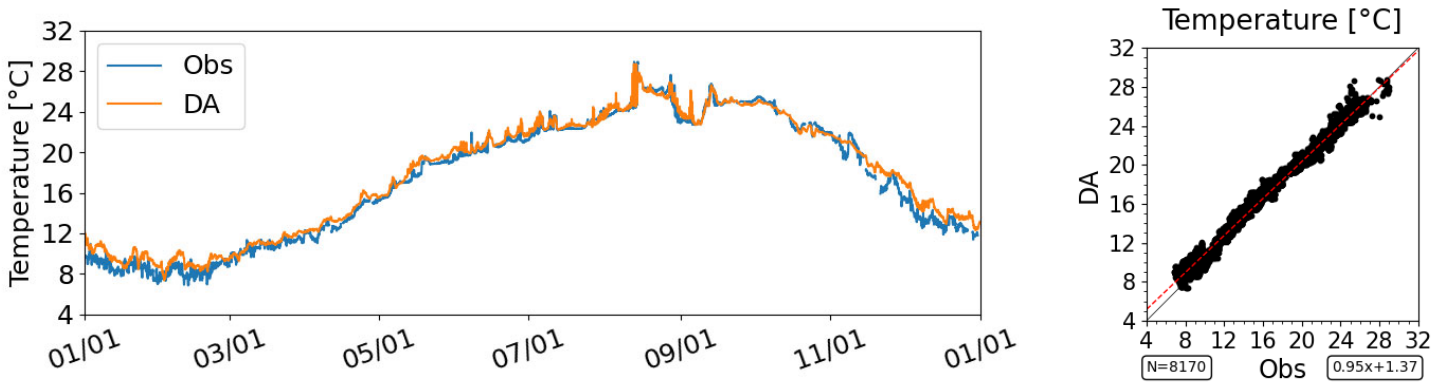
Figure S3.241 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2018



(a) Surface layer

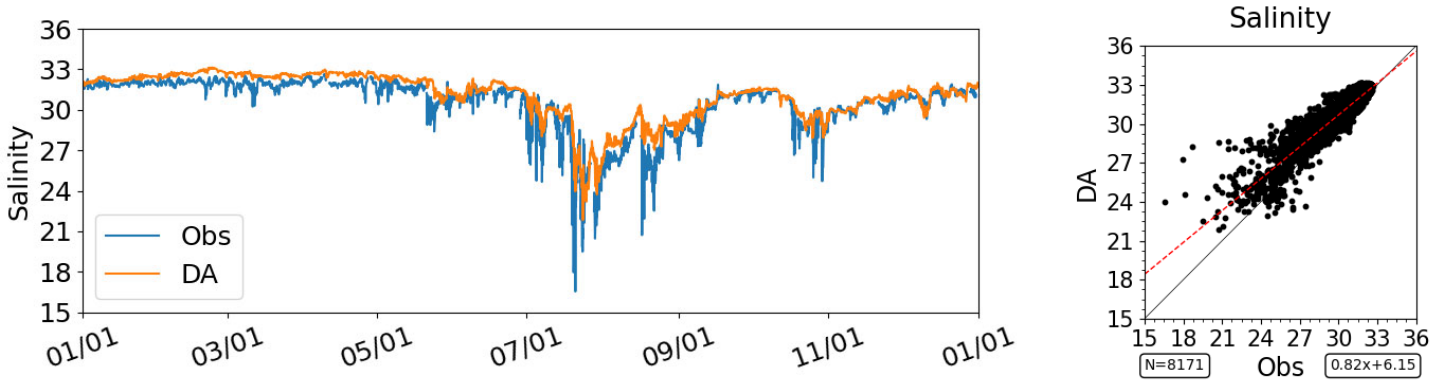


(b) Middle layer

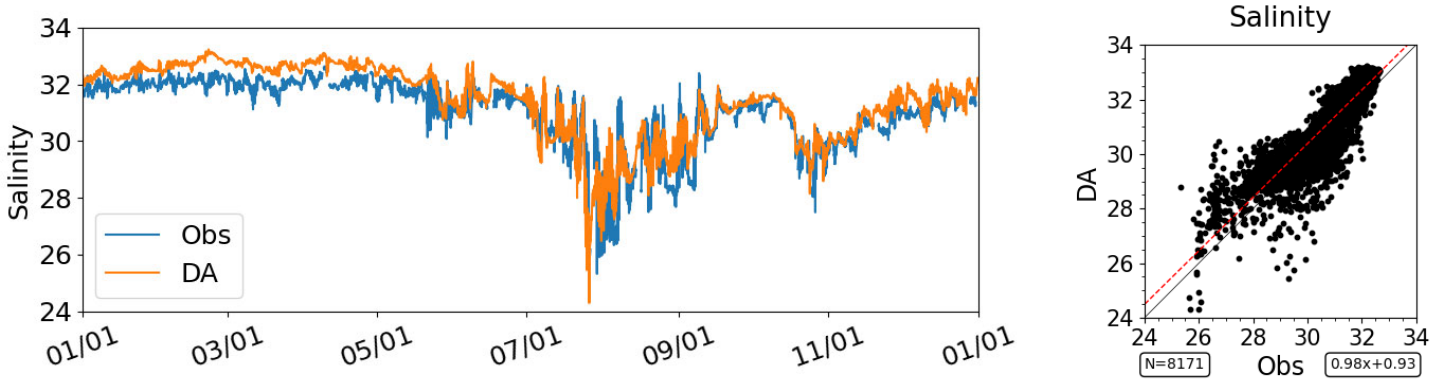


(c) Bottom layer

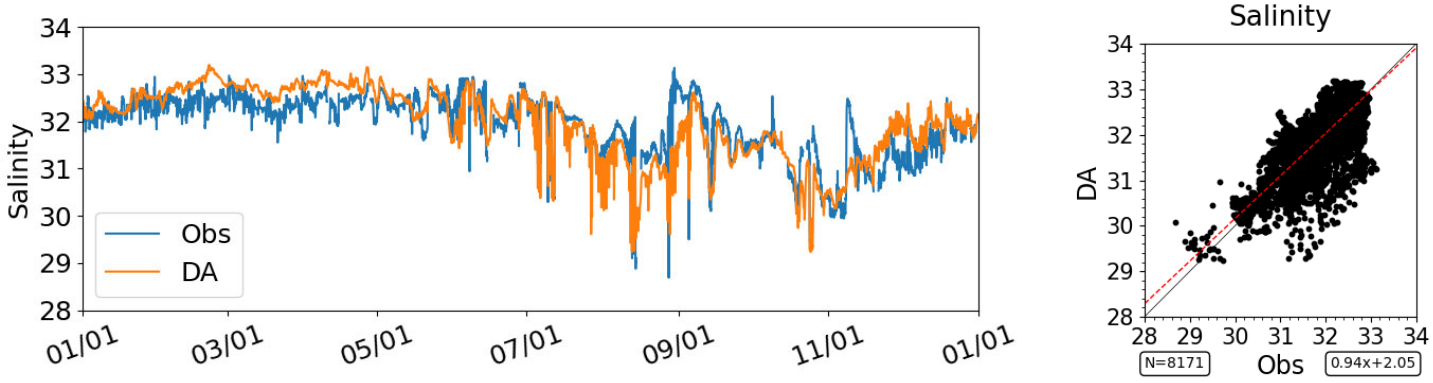
Figure S3.242 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2019



(a) Surface layer

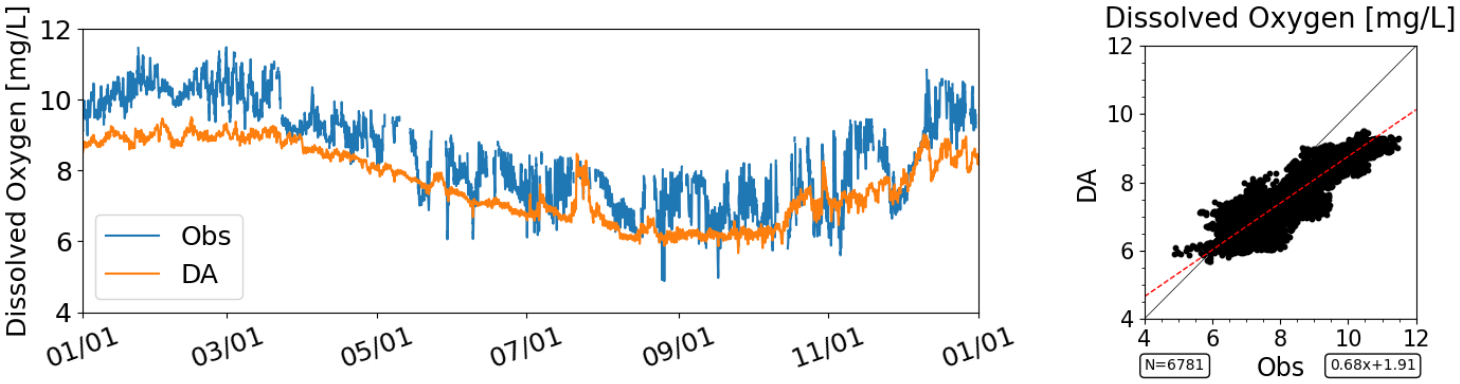


(b) Middle layer

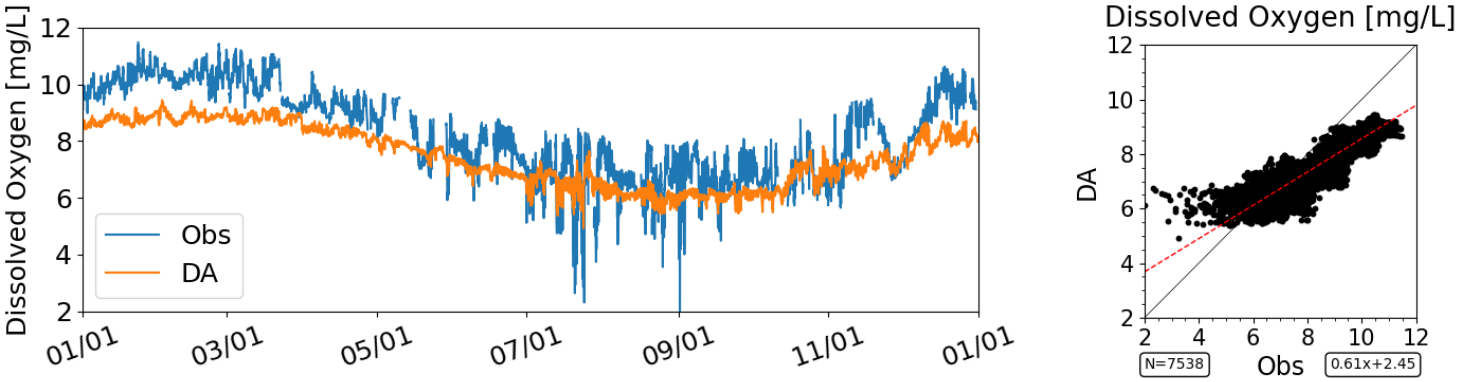


(c) Bottom layer

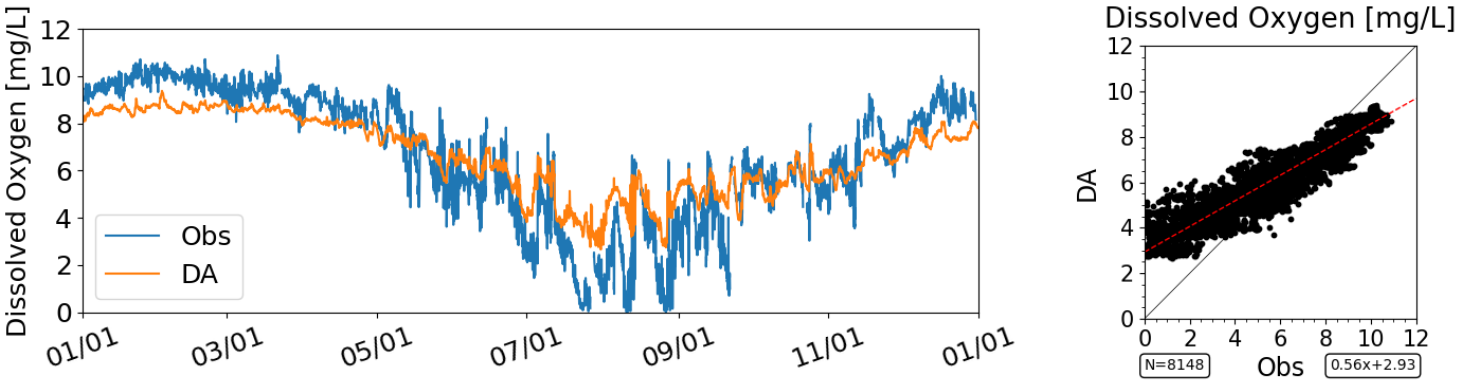
Figure S3.243 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2019



(a) Surface layer

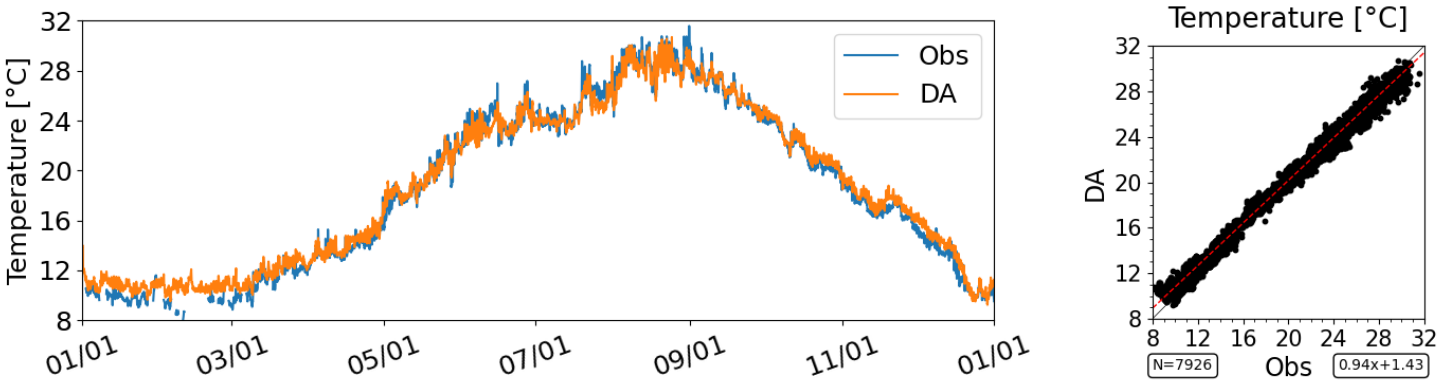


(b) Middle layer

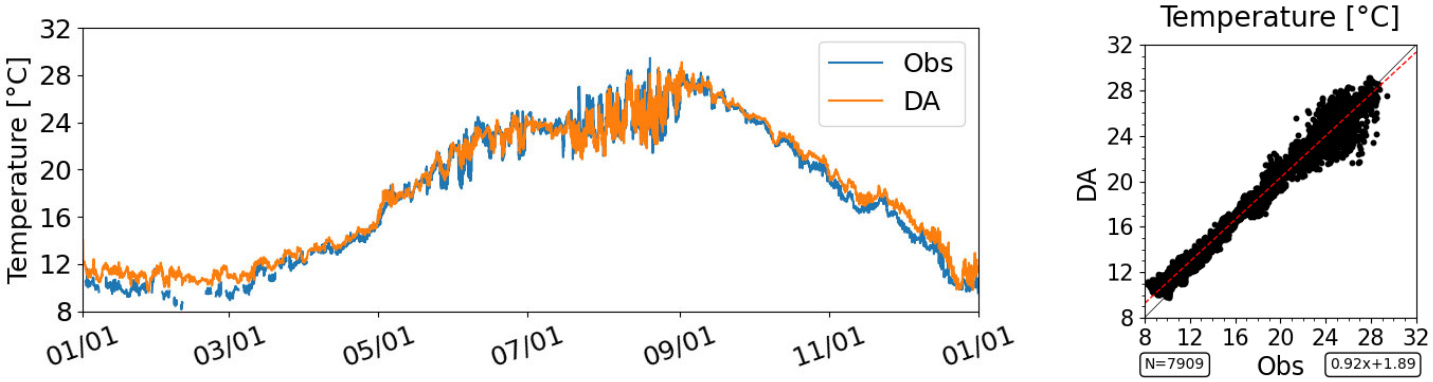


(c) Bottom layer

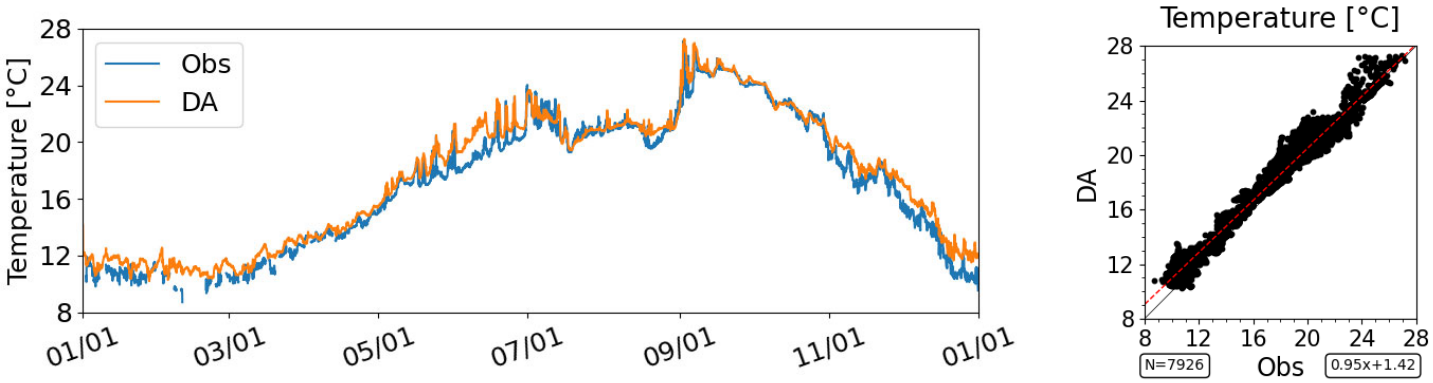
Figure S3.244 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2019



(a) Surface layer

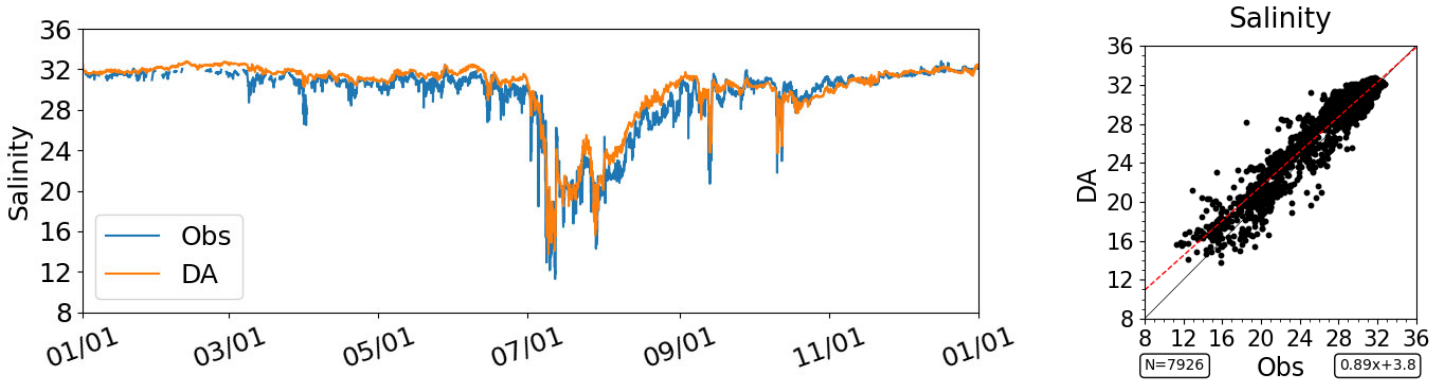


(b) Middle layer

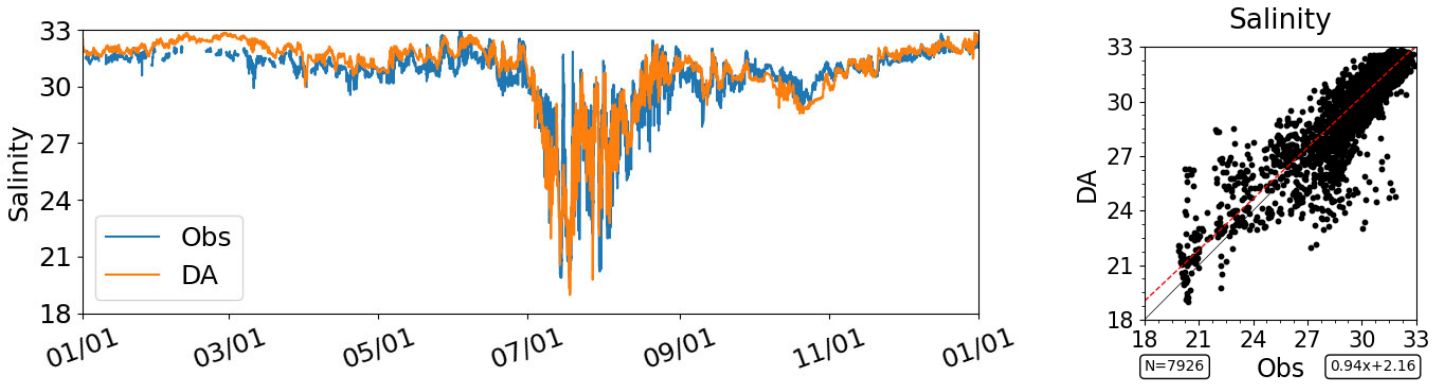


(c) Bottom layer

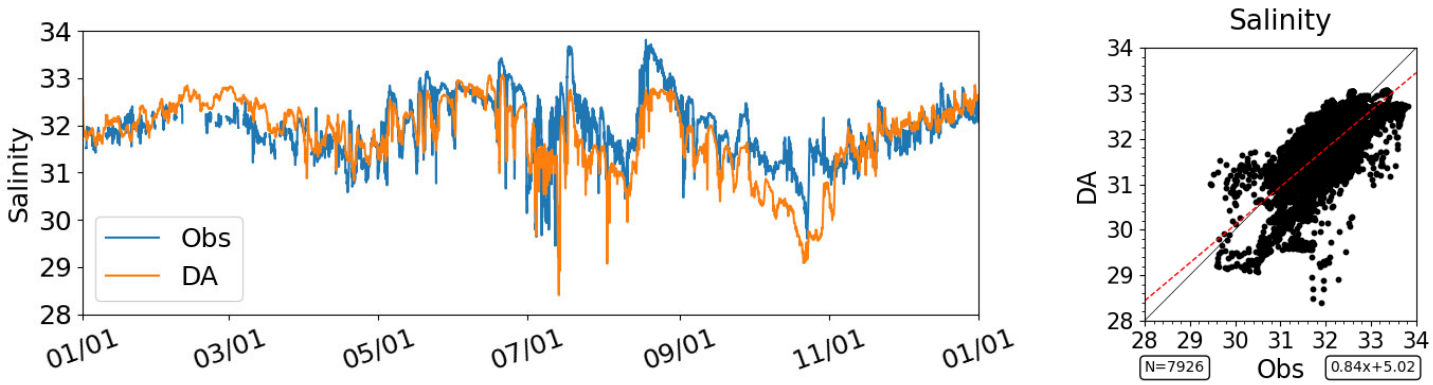
Figure S3.245 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2020



(a) Surface layer

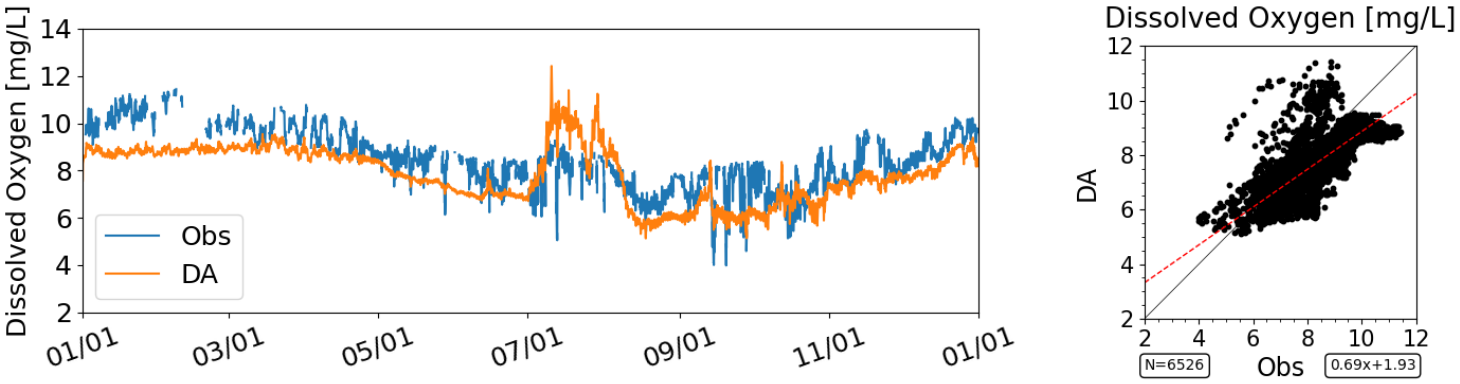


(b) Middle layer

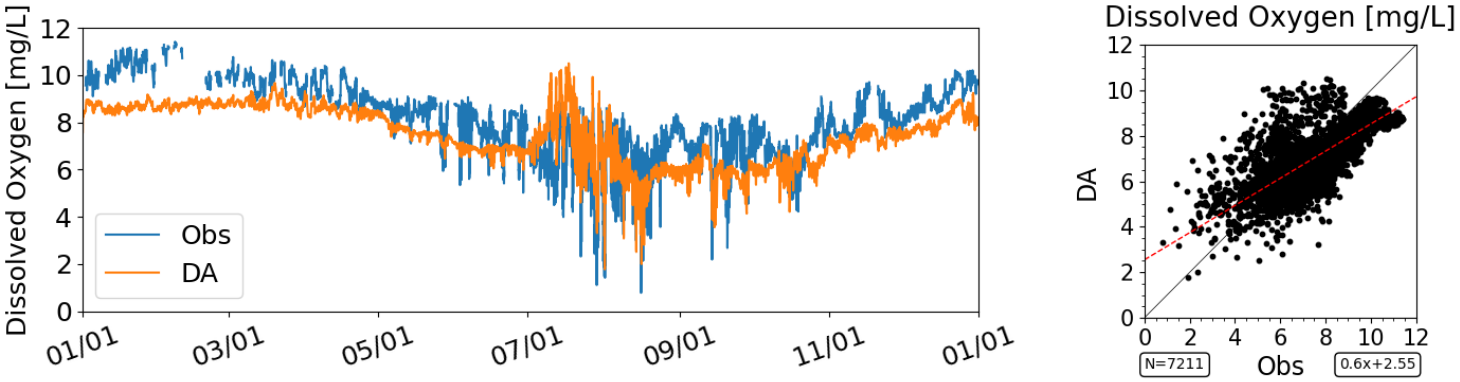


(c) Bottom layer

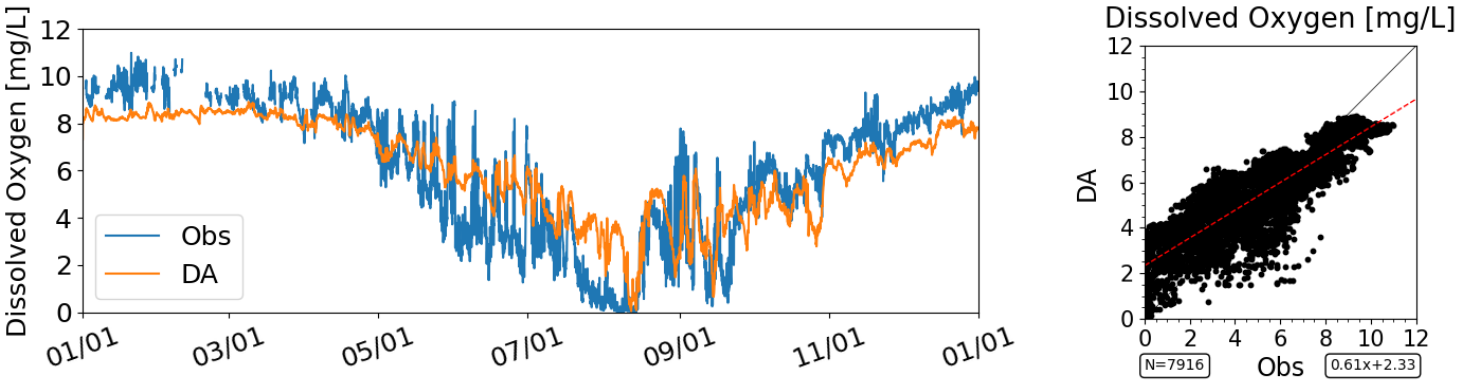
Figure S3.246 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer

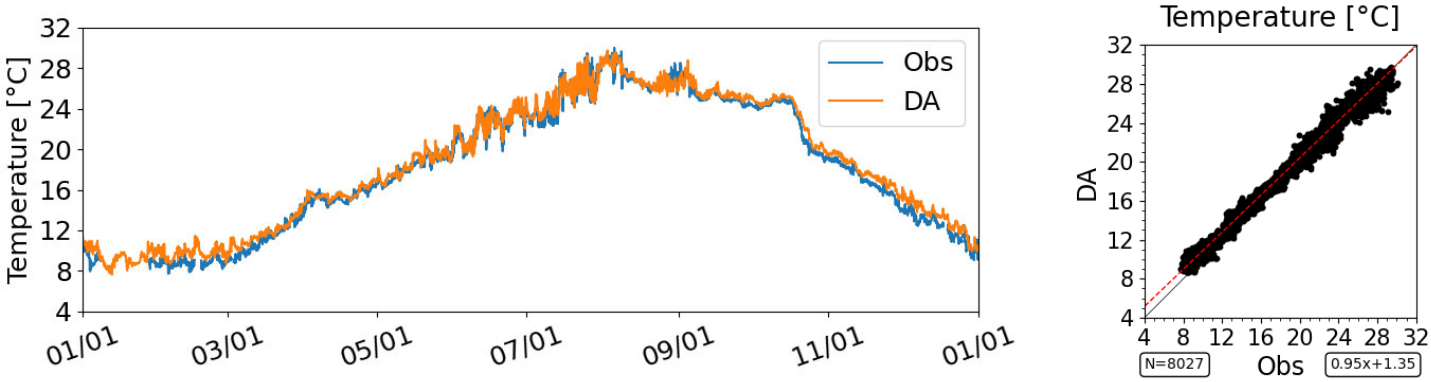


(c) Bottom layer

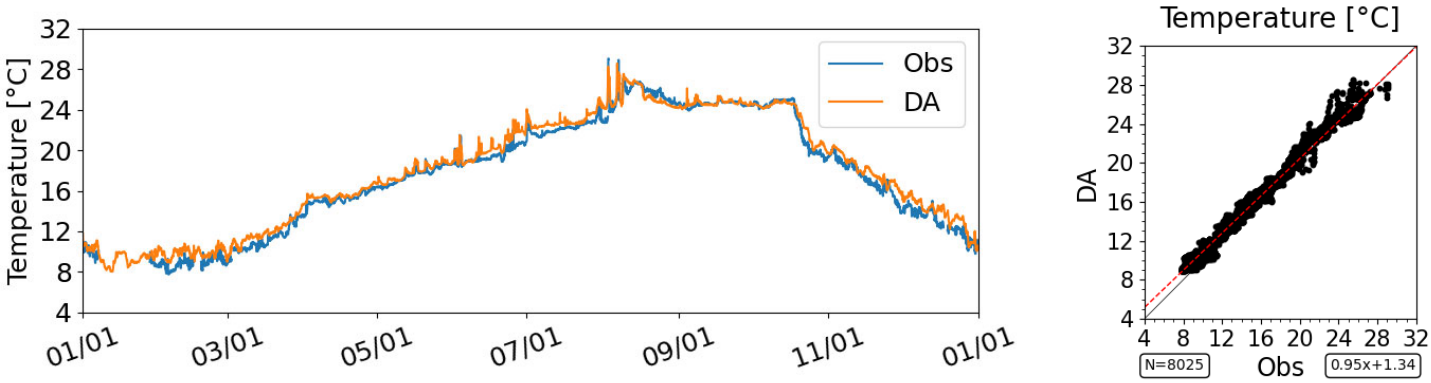
Figure S3.247 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2020



(a) Surface layer

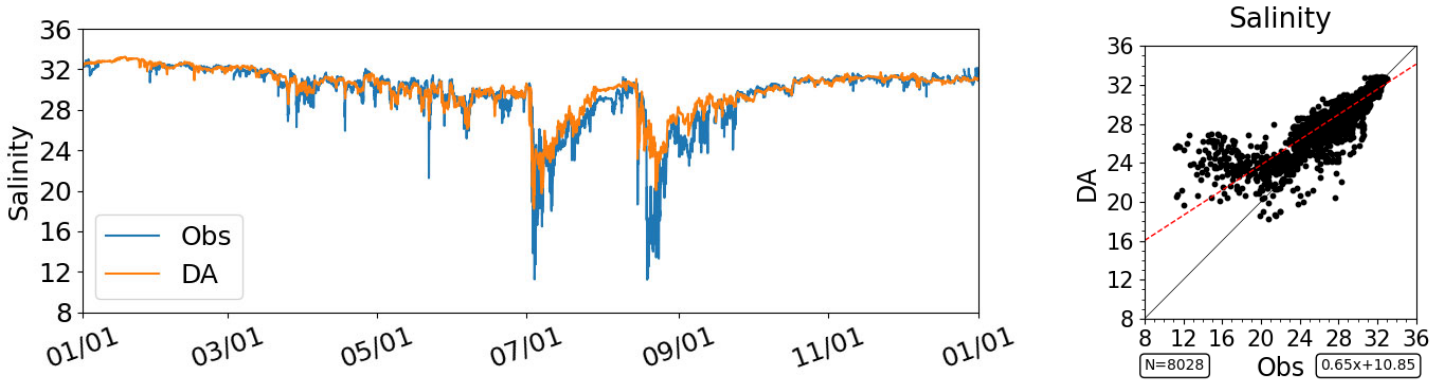


(b) Middle layer

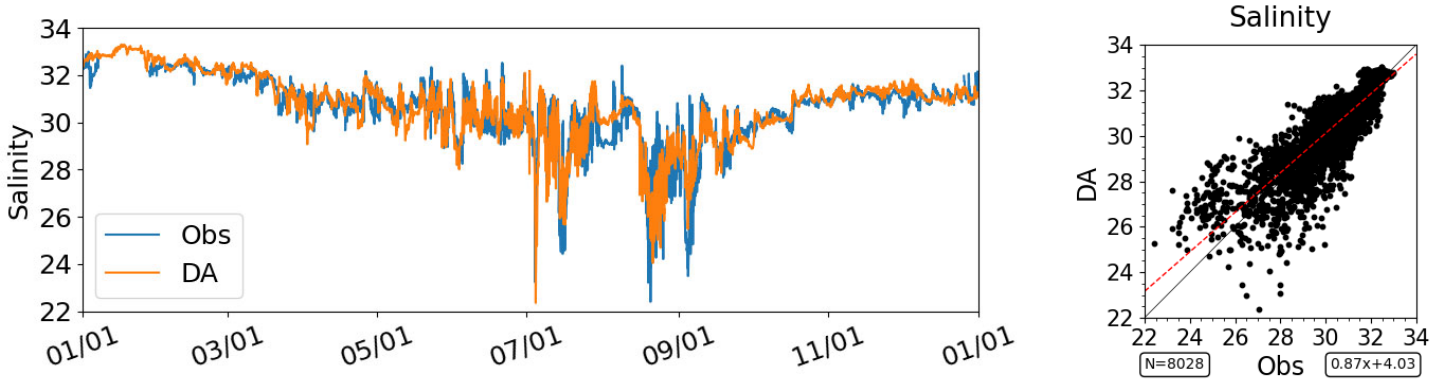


(c) Bottom layer

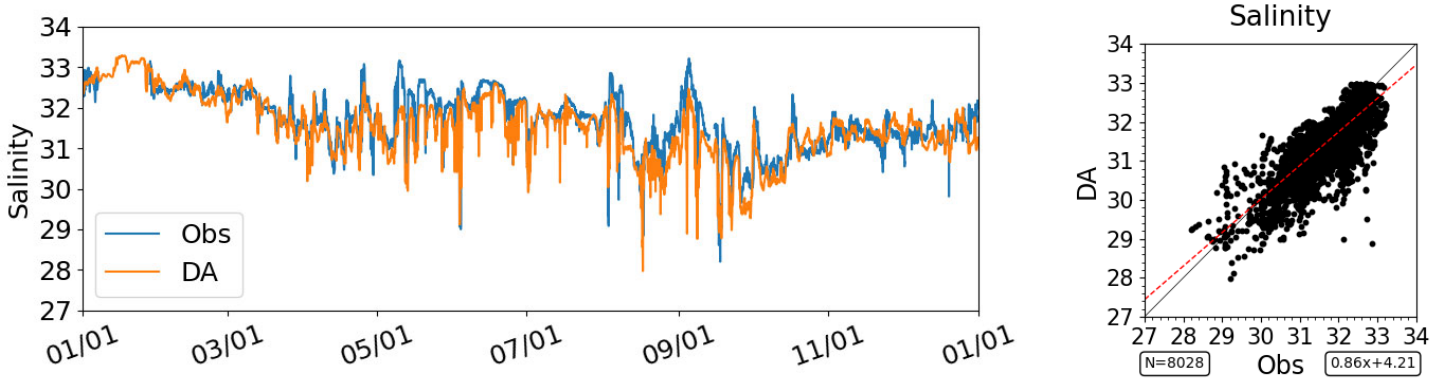
Figure S3.248 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2021



(a) Surface layer

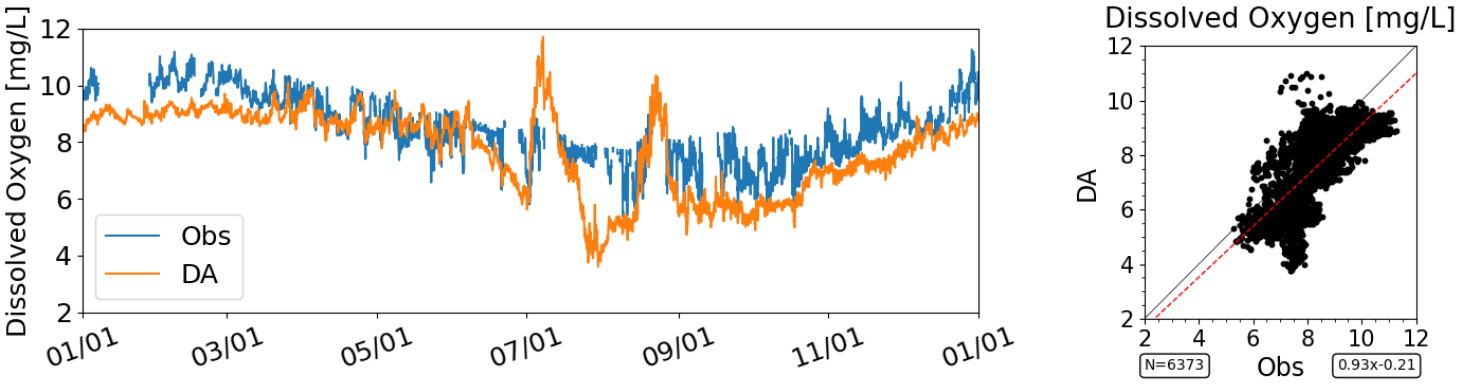


(b) Middle layer

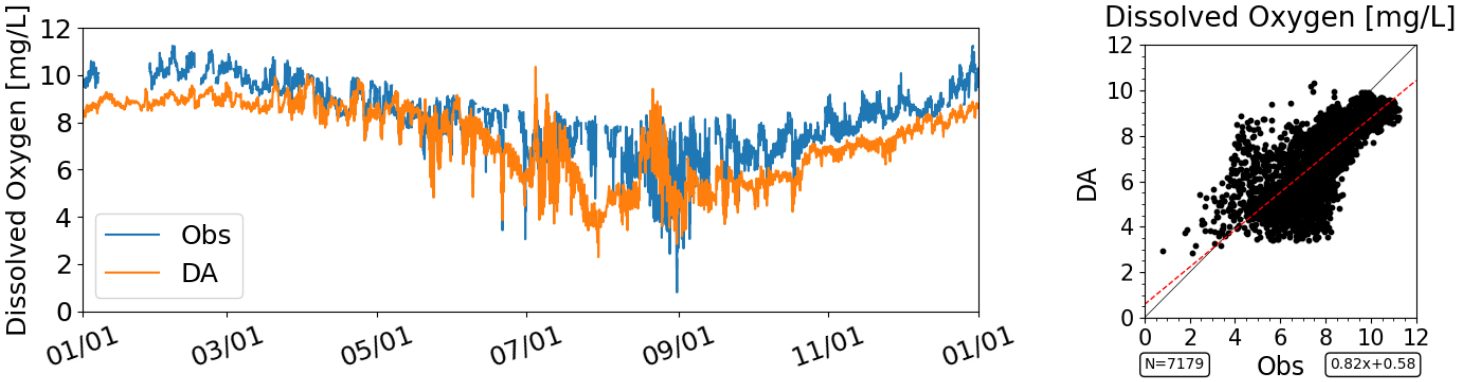


(c) Bottom layer

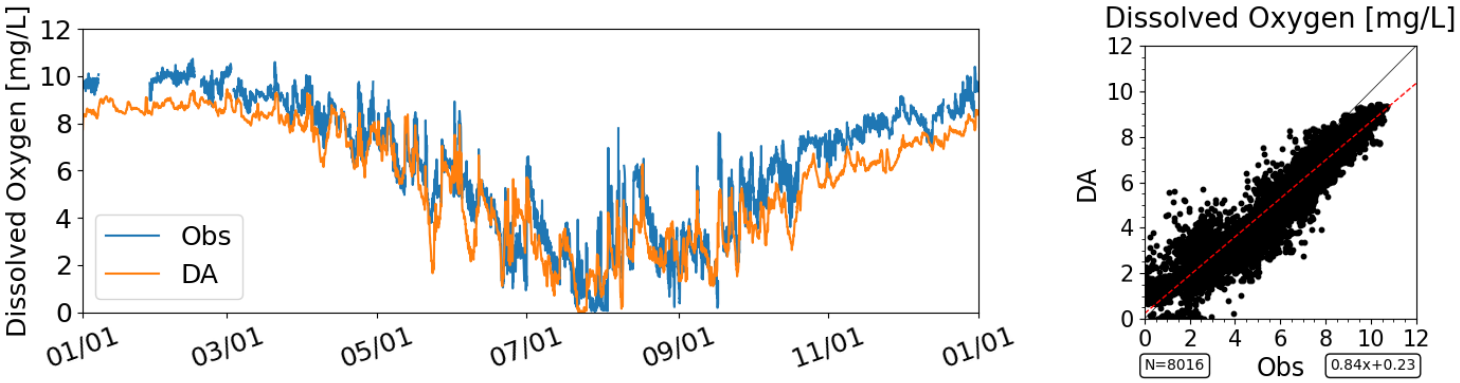
Figure S3.249 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2021



(a) Surface layer

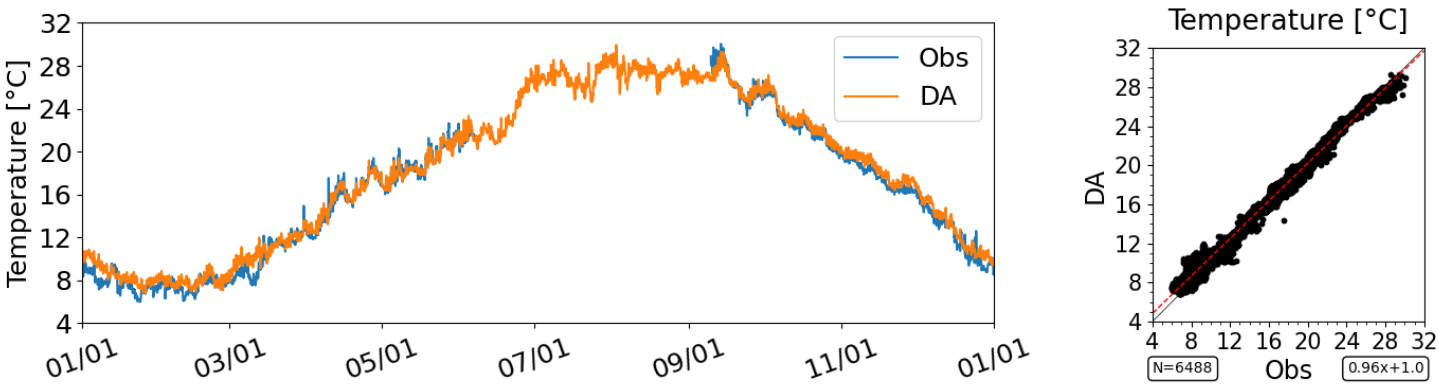


(b) Middle layer

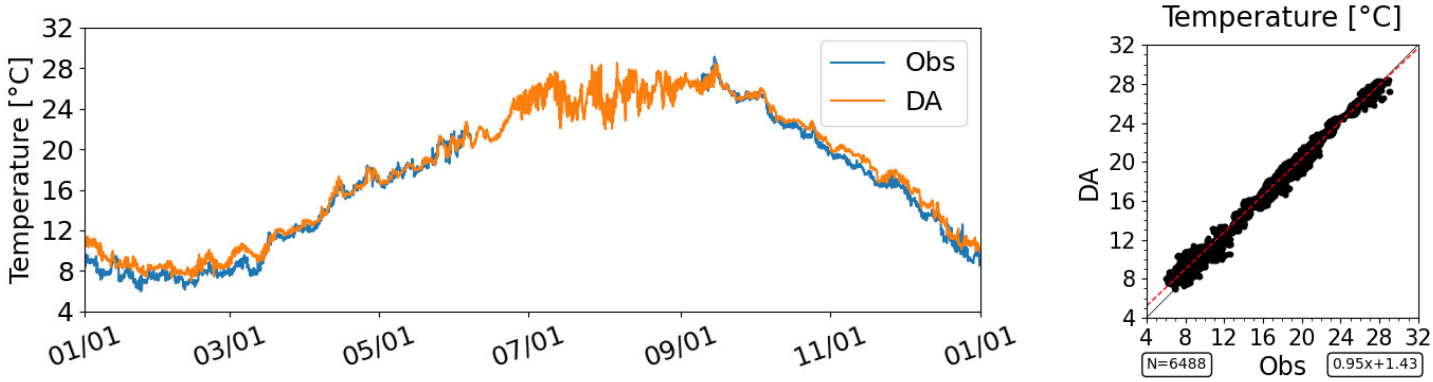


(c) Bottom layer

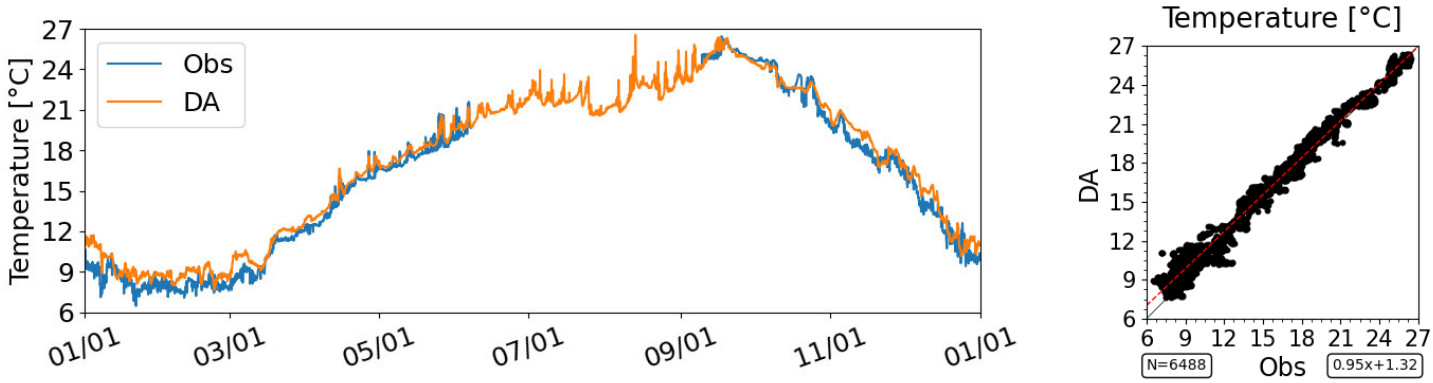
Figure S3.250 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2021



(a) Surface layer

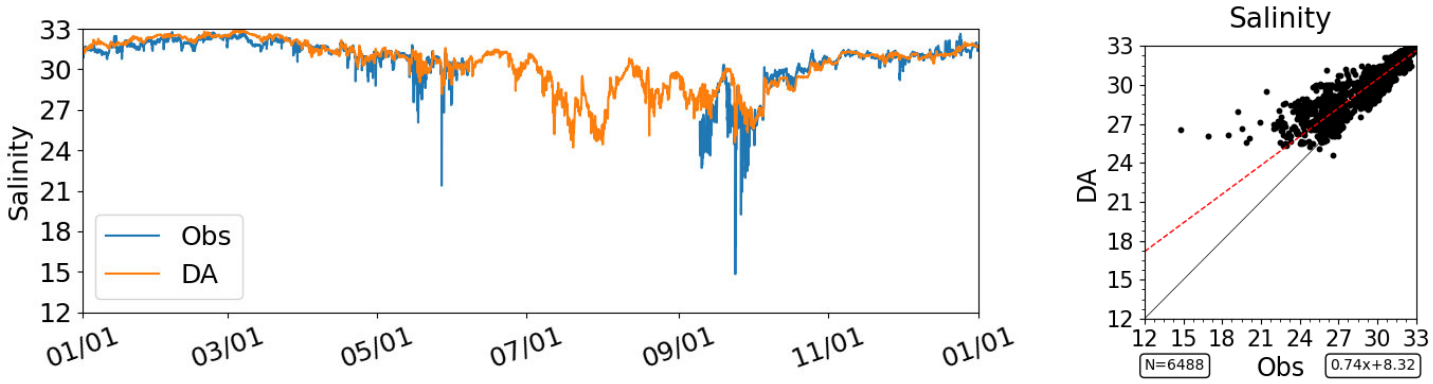


(b) Middle layer

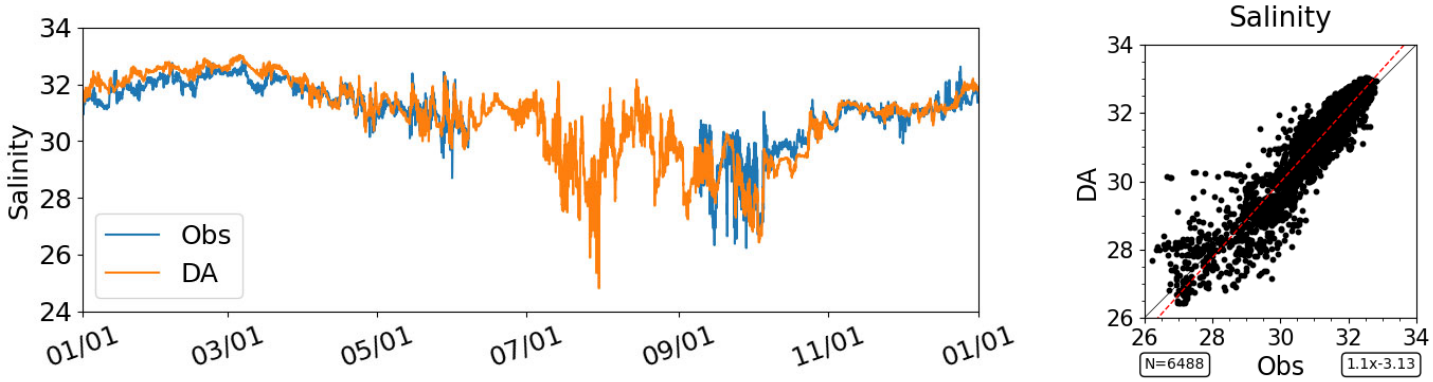


(c) Bottom layer

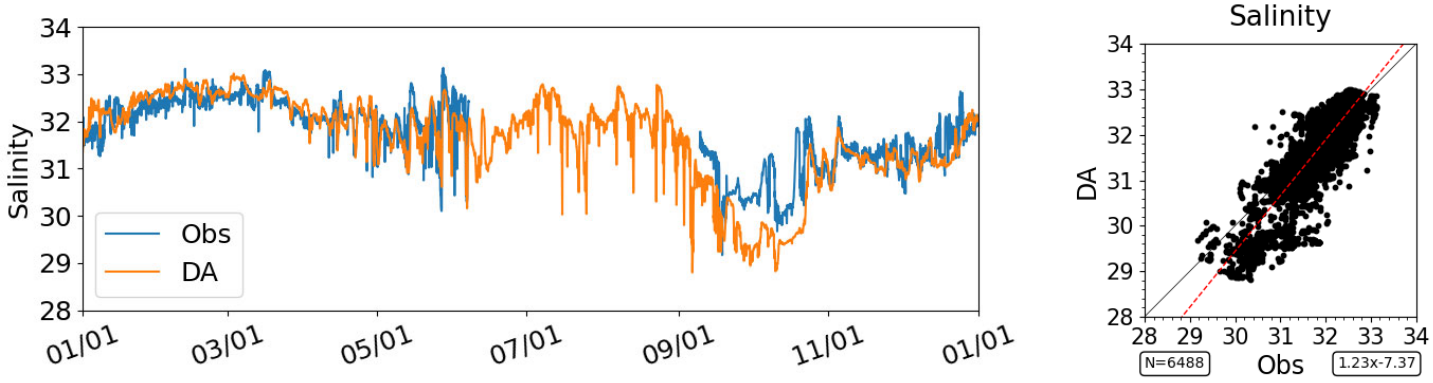
Figure S3.251 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2022



(a) Surface layer

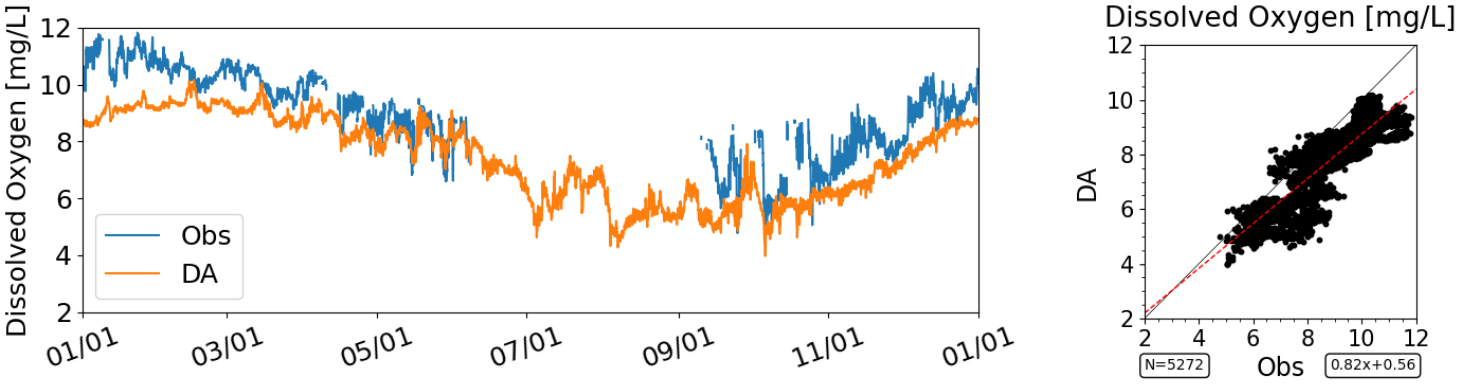


(b) Middle layer

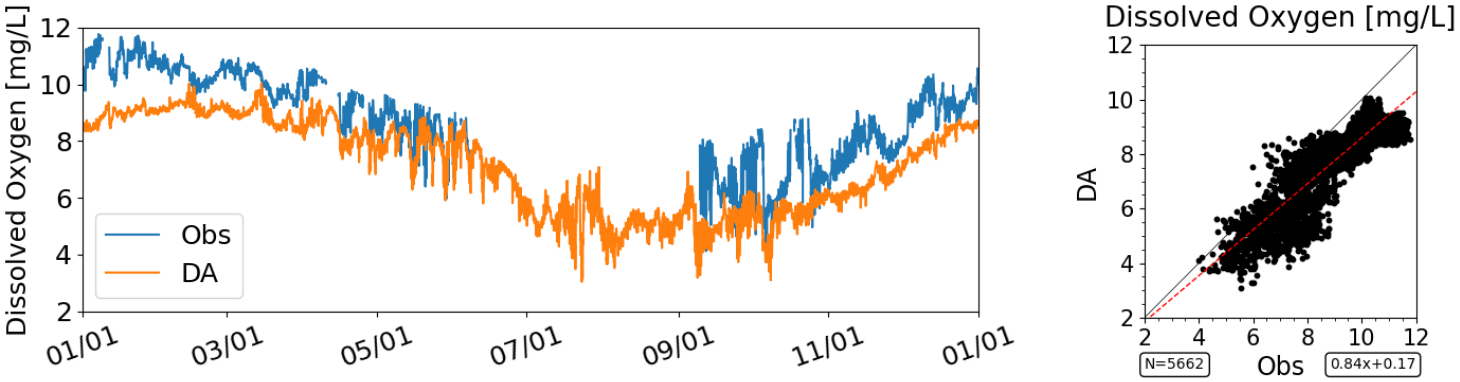


(c) Bottom layer

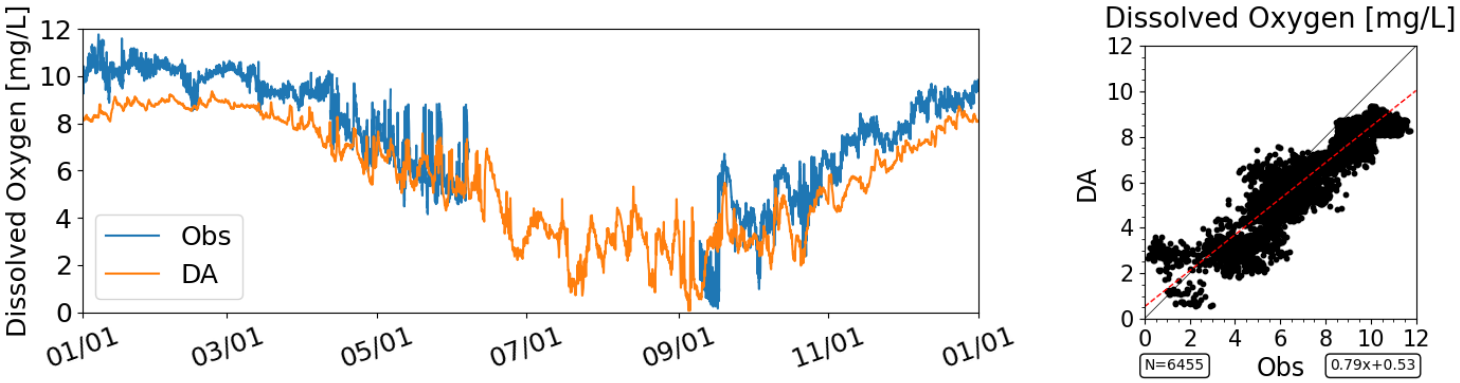
Figure S3.252 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2022



(a) Surface layer



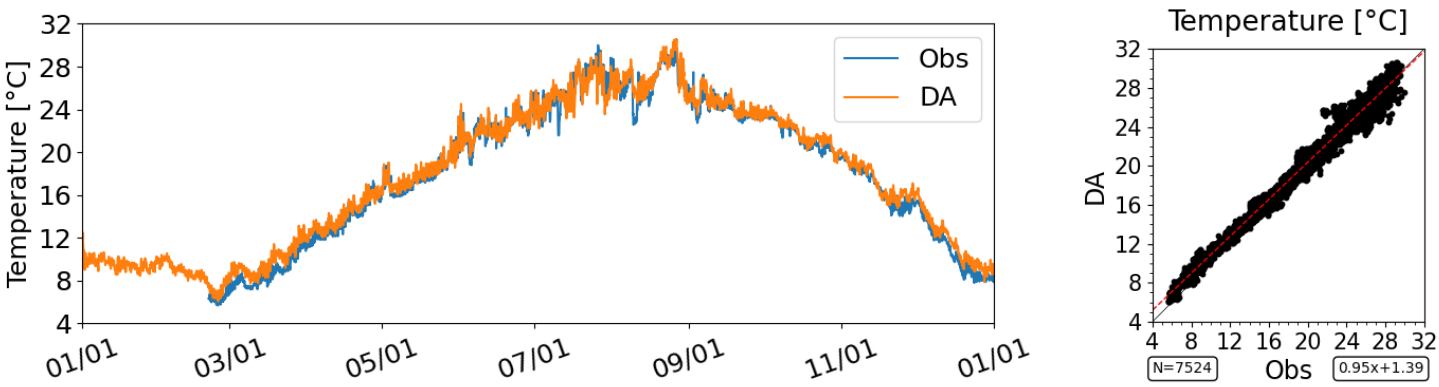
(b) Middle layer



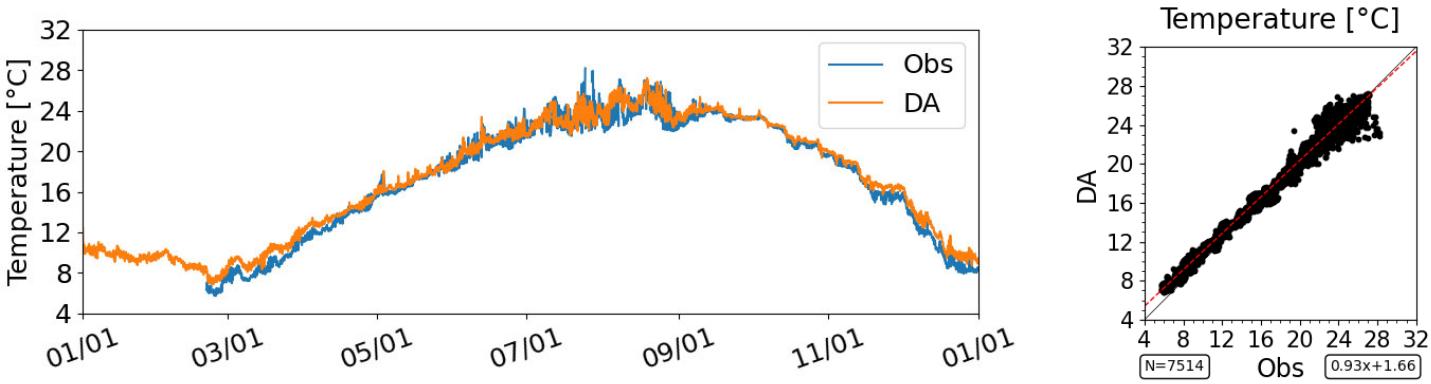
(c) Bottom layer

Figure S3.253 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2022

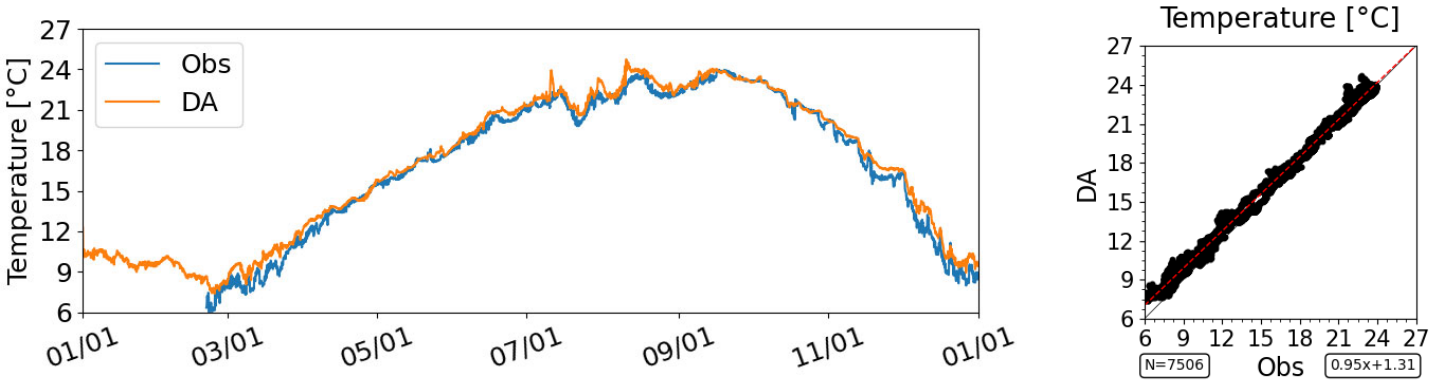
S3.14 Mouth of Mikawa Bay: Timeseries and scatter plot



(a) Surface layer

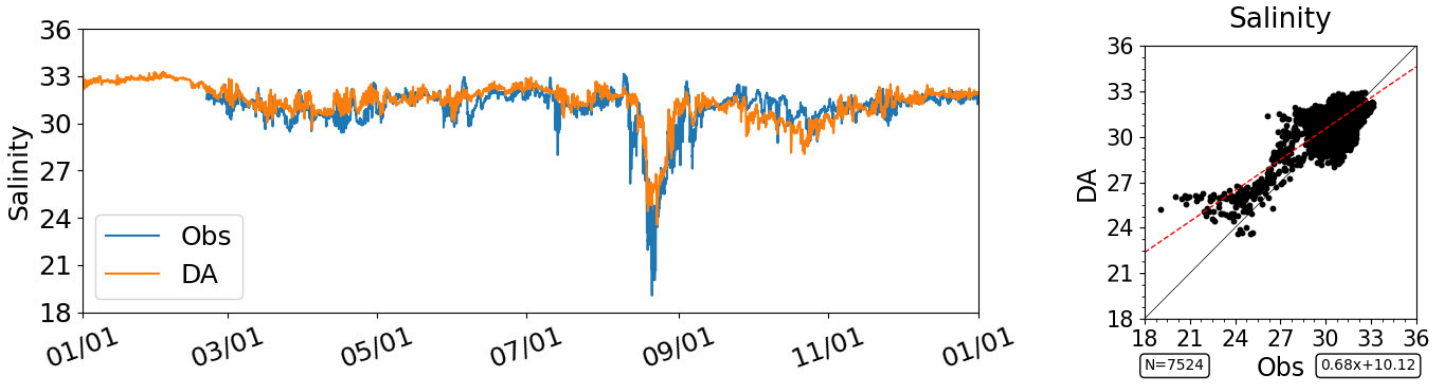


(b) Middle layer

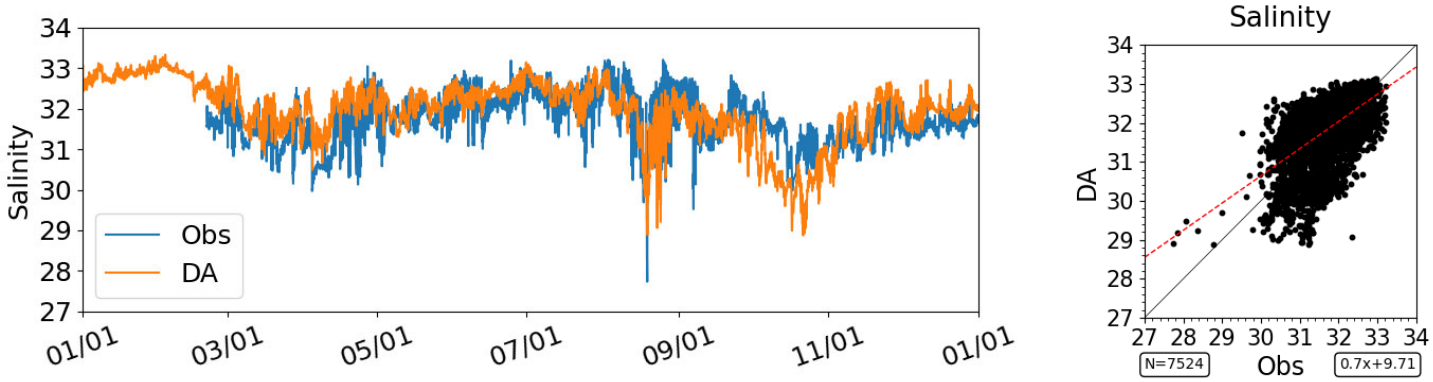


(c) Bottom layer

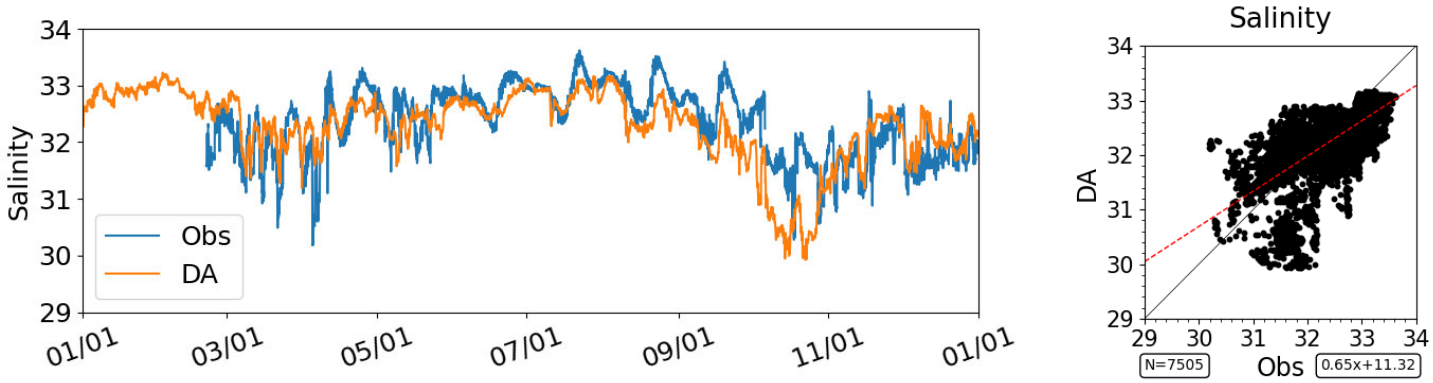
Figure S3.254 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2014



(a) Surface layer

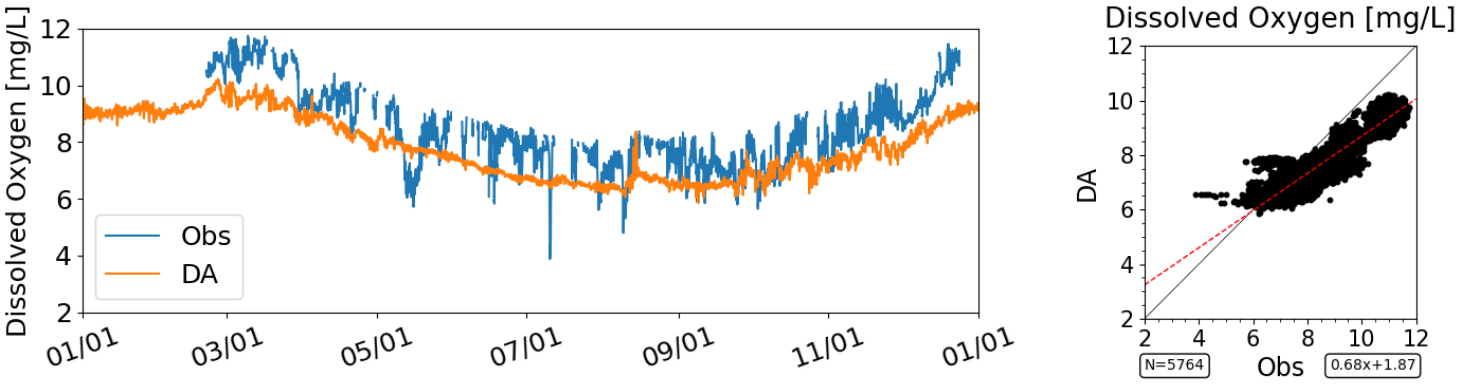


(b) Middle layer

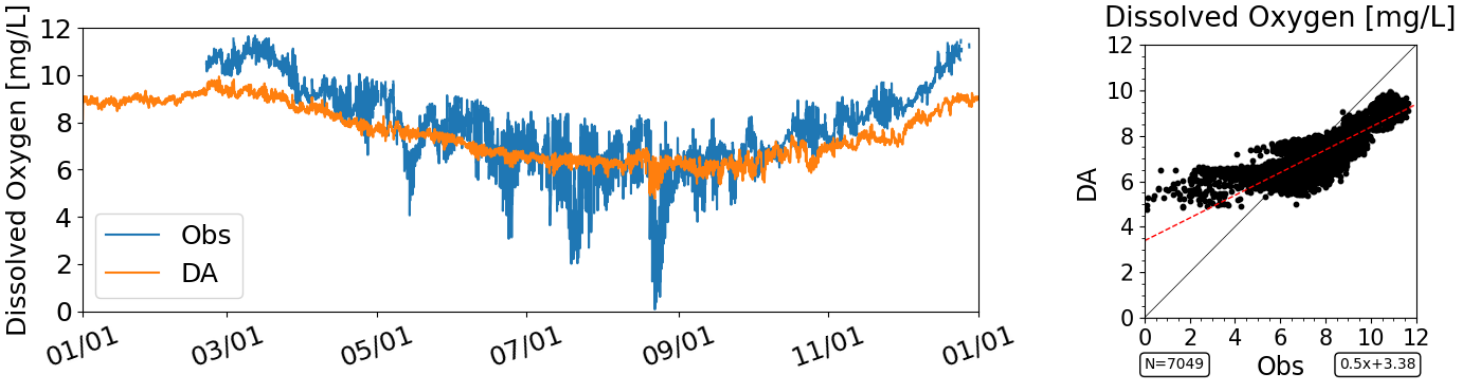


(c) Bottom layer

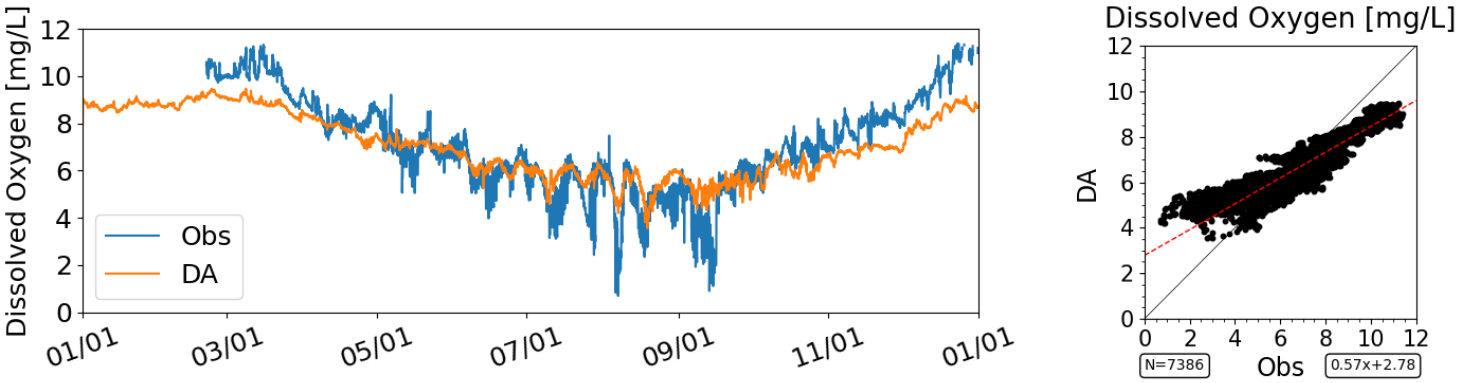
Figure S3.255 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2014



(a) Surface layer

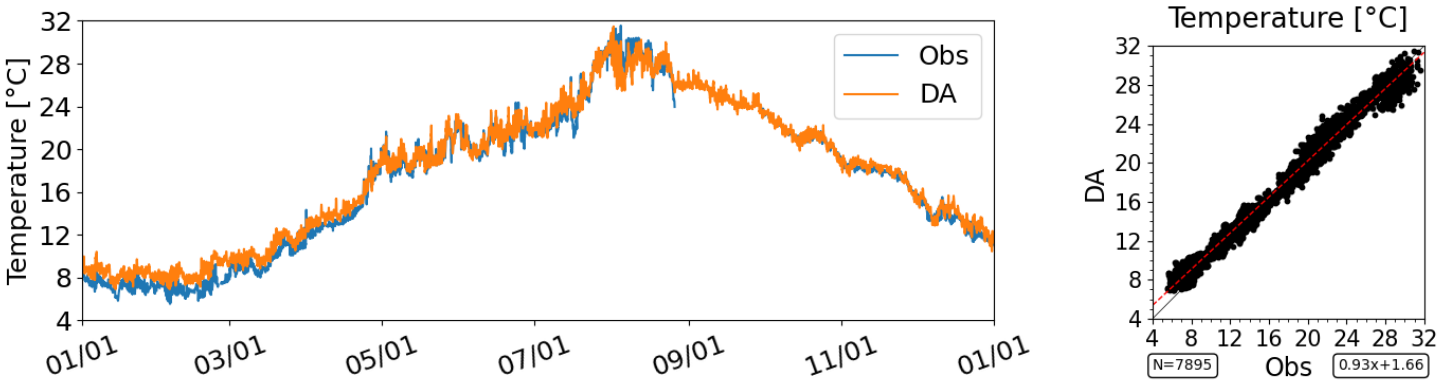


(b) Middle layer

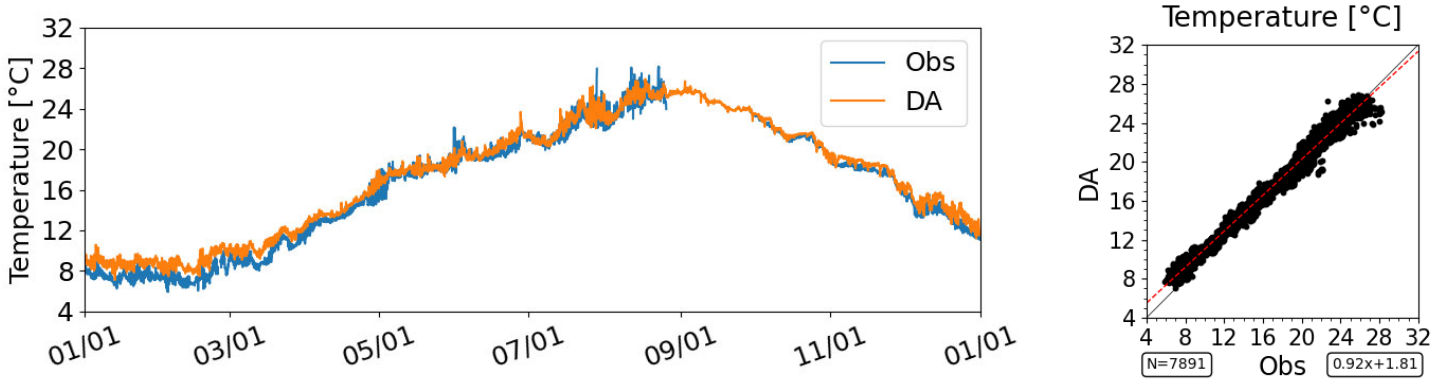


(c) Bottom layer

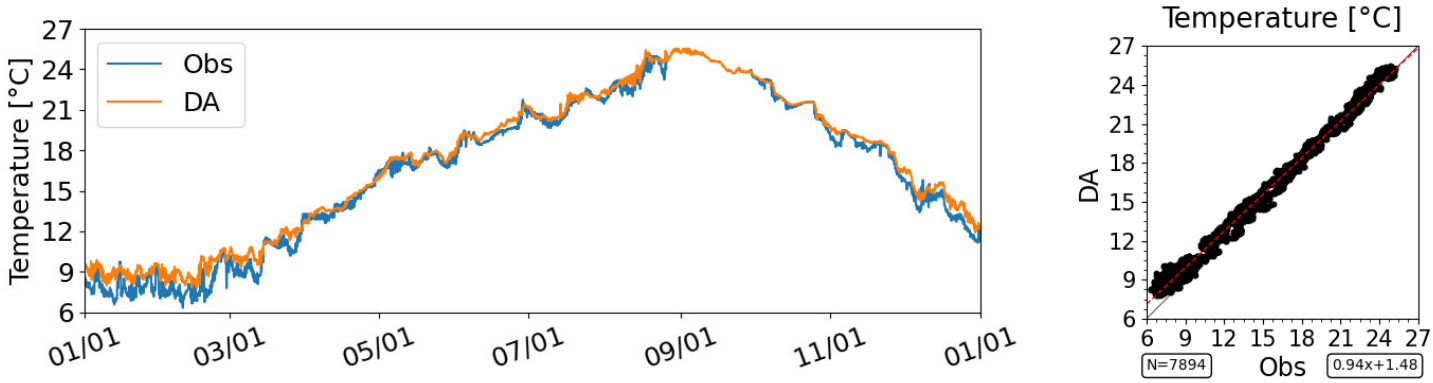
Figure S3.256 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2014



(a) Surface layer

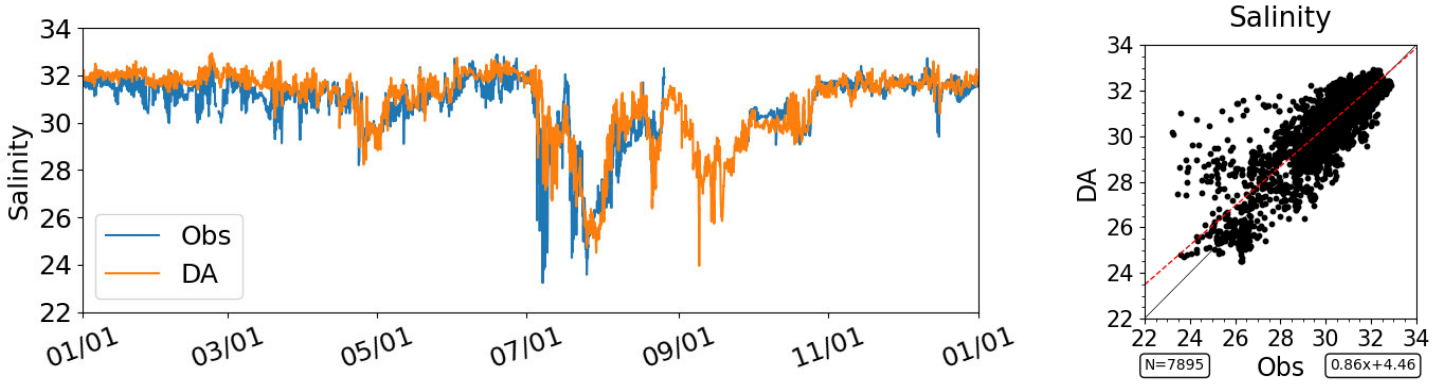


(b) Middle layer

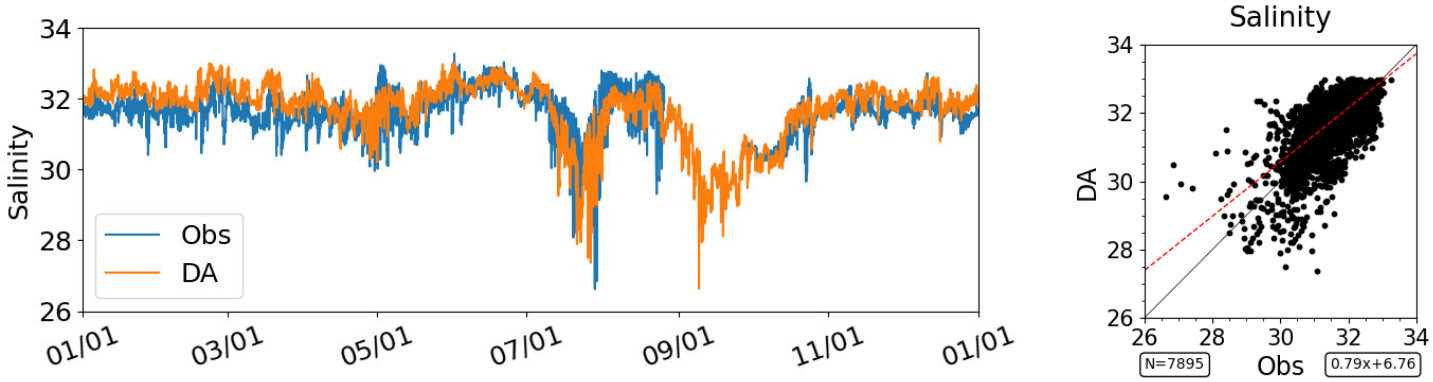


(c) Bottom layer

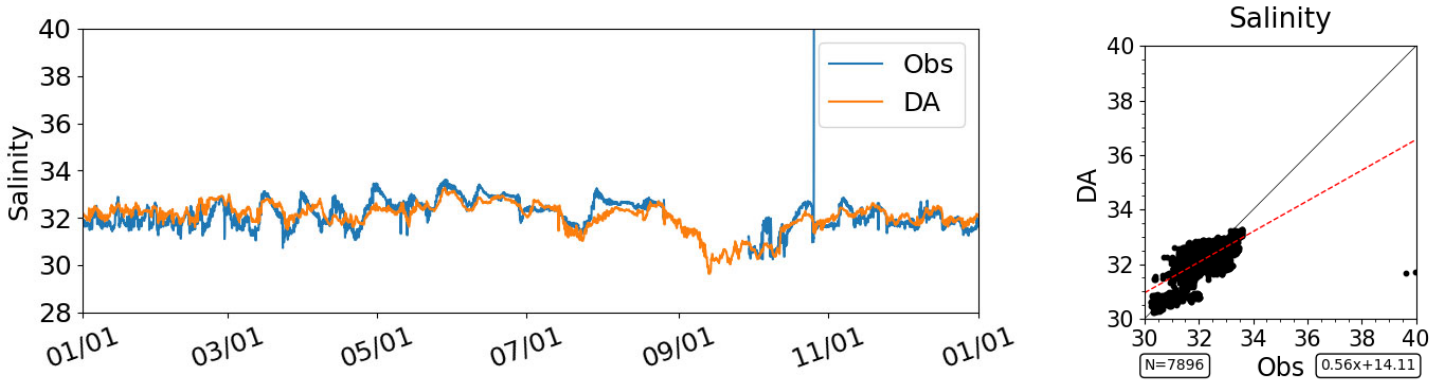
Figure S3.257 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2015



(a) Surface layer

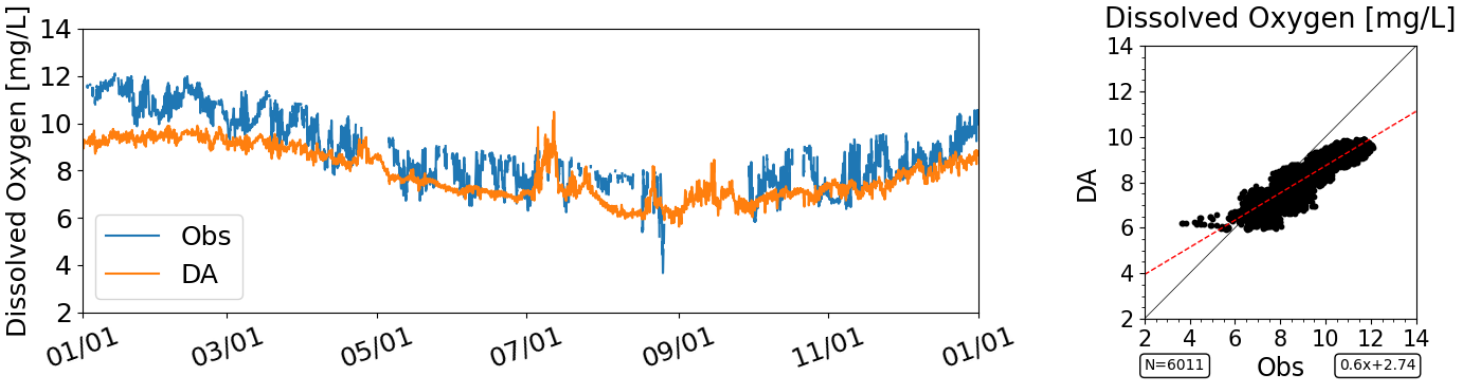


(b) Middle layer

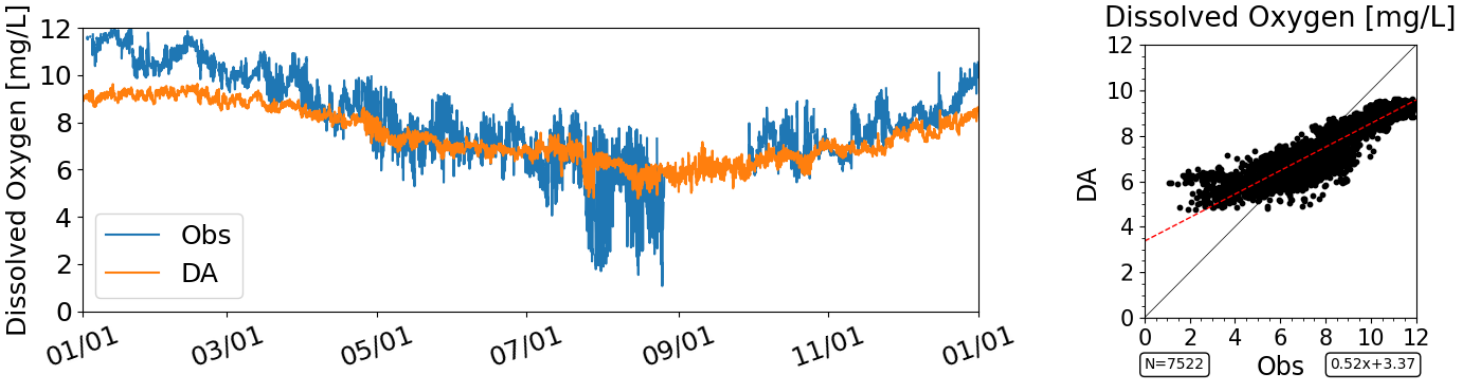


(c) Bottom layer

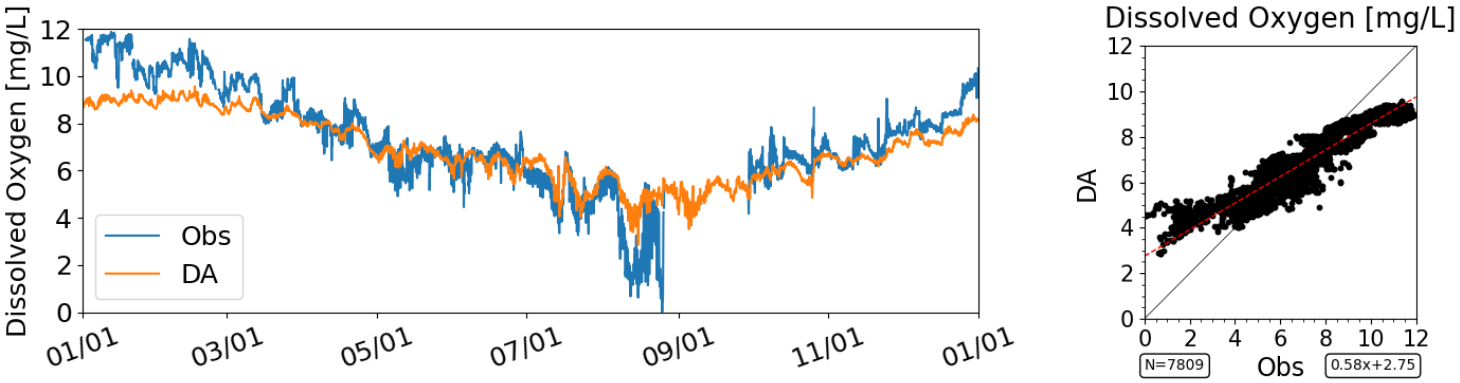
Figure S3.258 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2015



(a) Surface layer

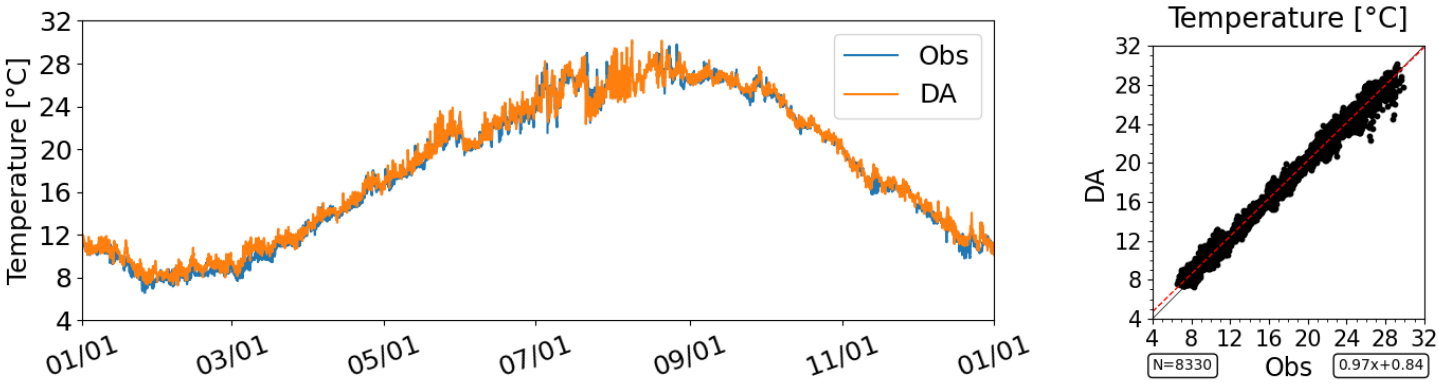


(b) Middle layer

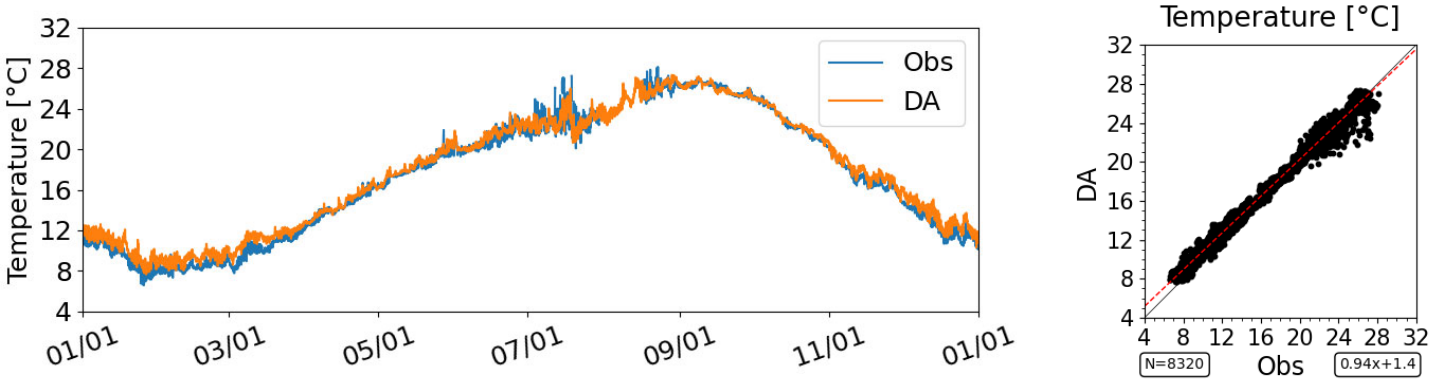


(c) Bottom layer

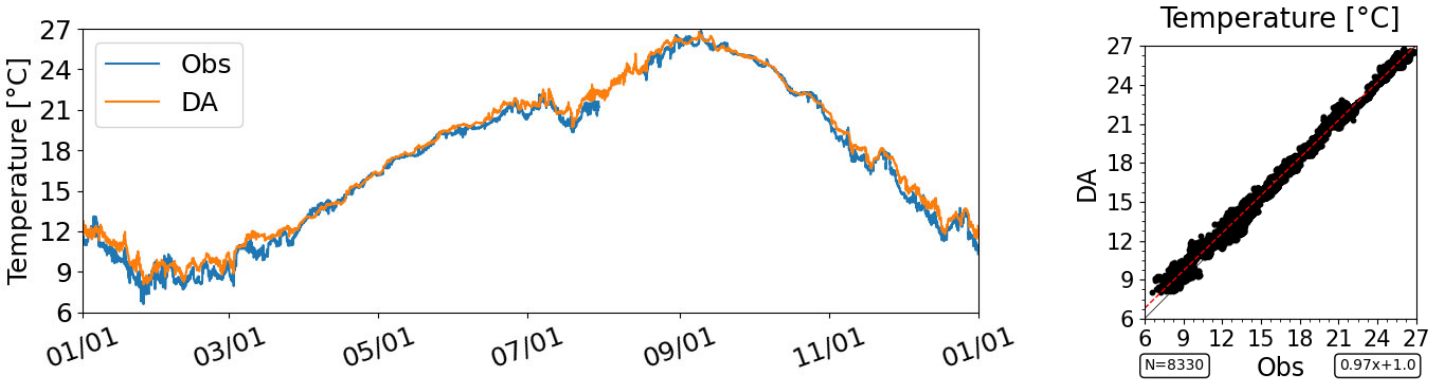
Figure S3.259 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2015



(a) Surface layer

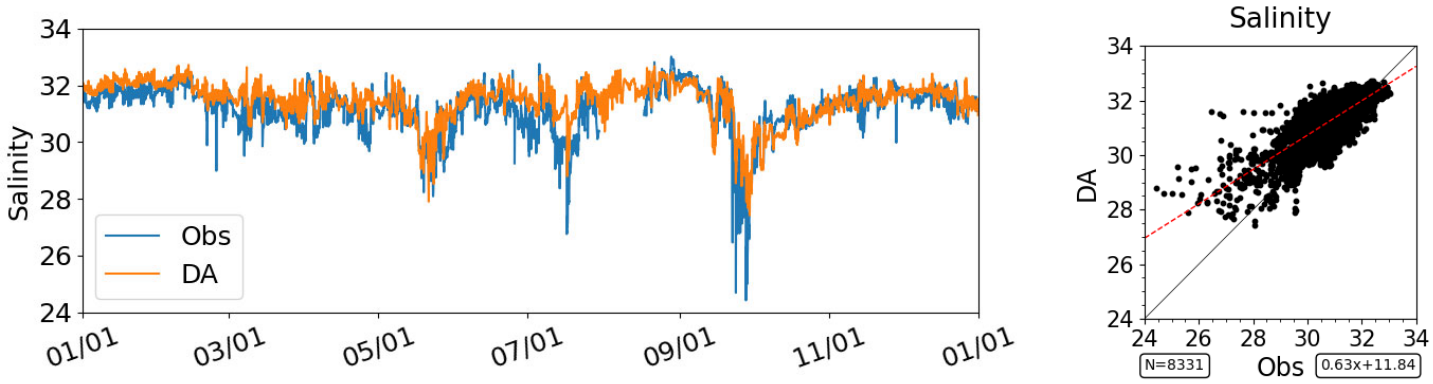


(b) Middle layer

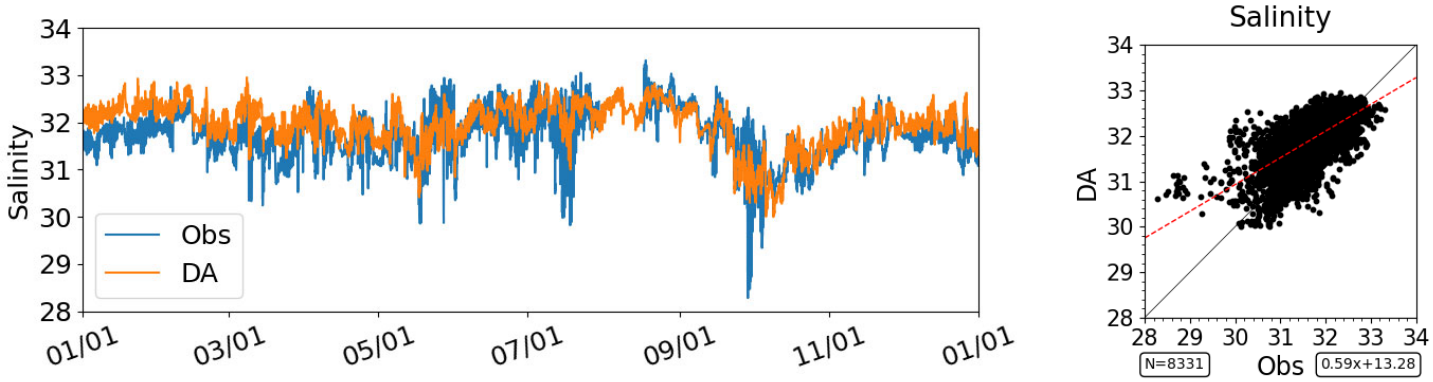


(c) Bottom layer

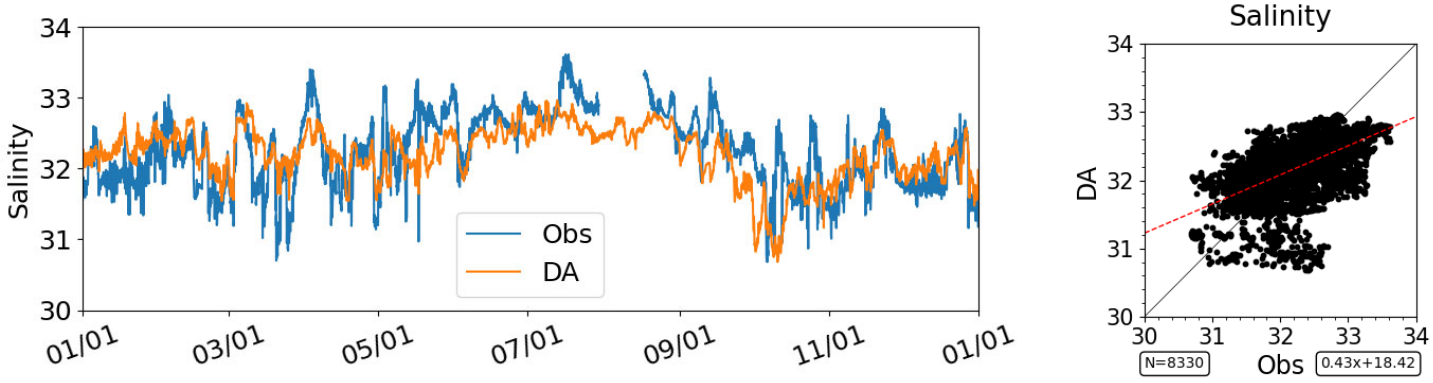
Figure S3.260 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2016



(a) Surface layer

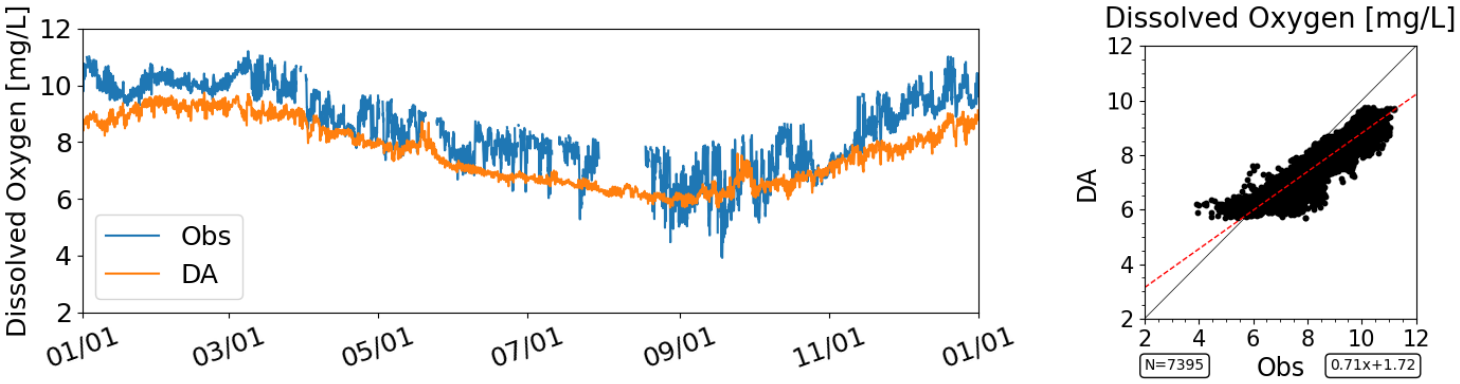


(b) Middle layer

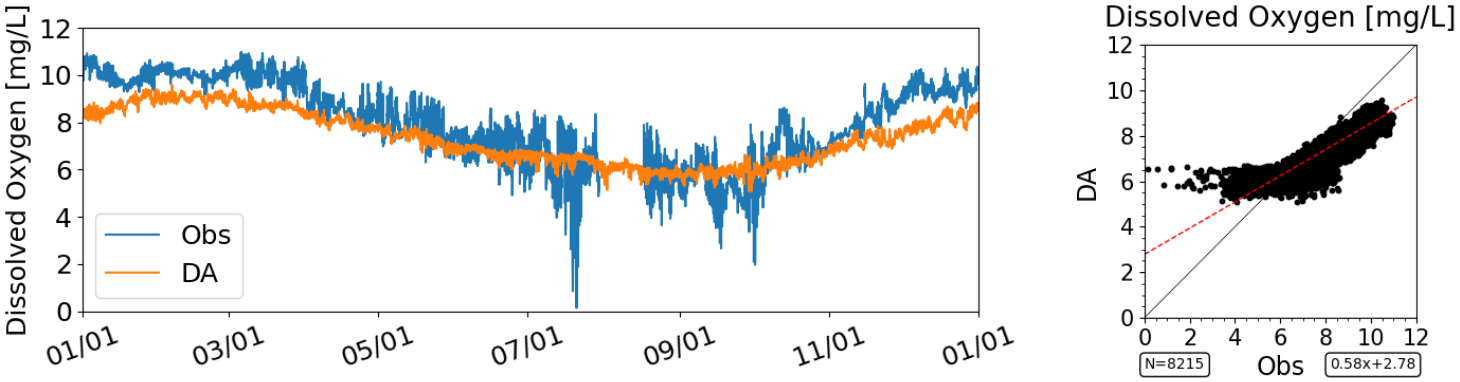


(c) Bottom layer

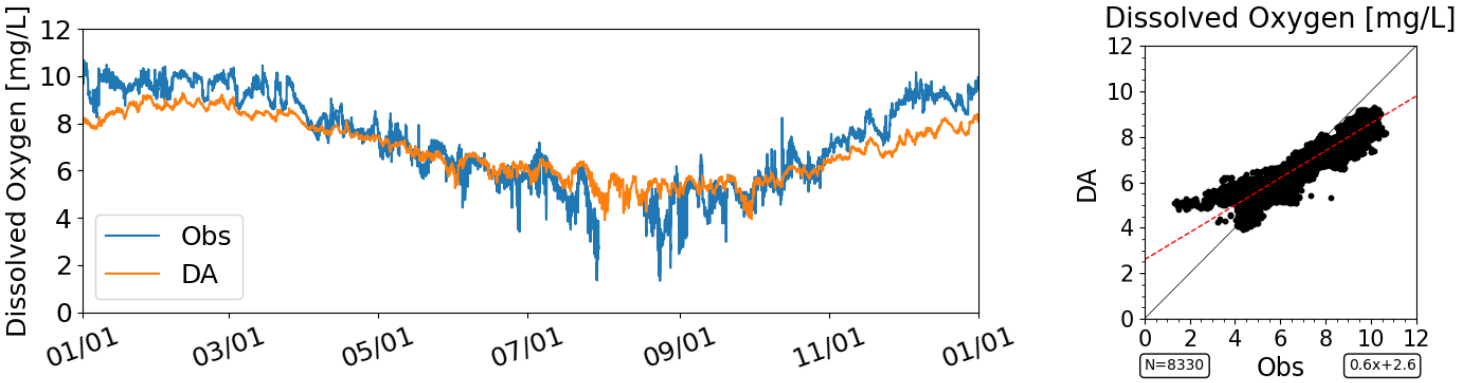
Figure S3.261 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2016



(a) Surface layer

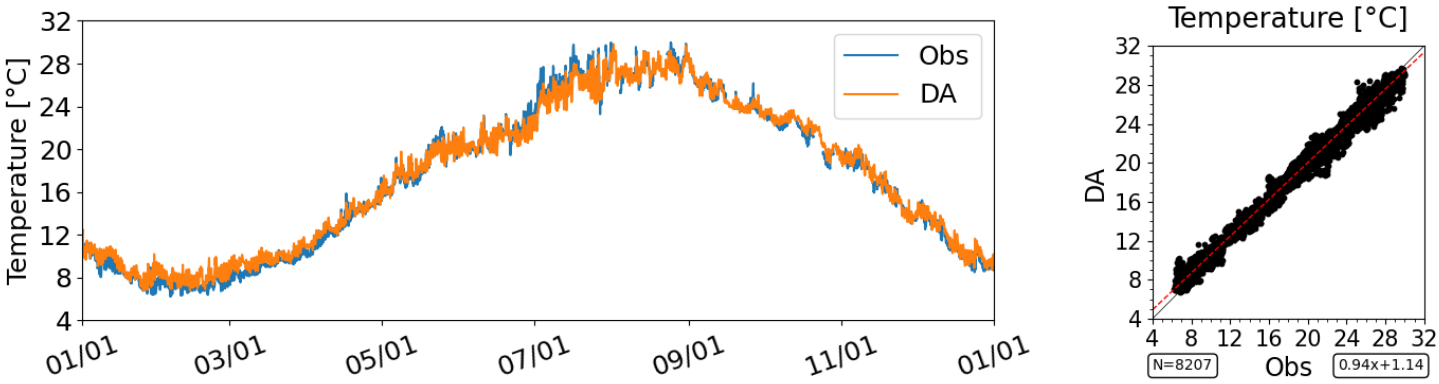


(b) Middle layer

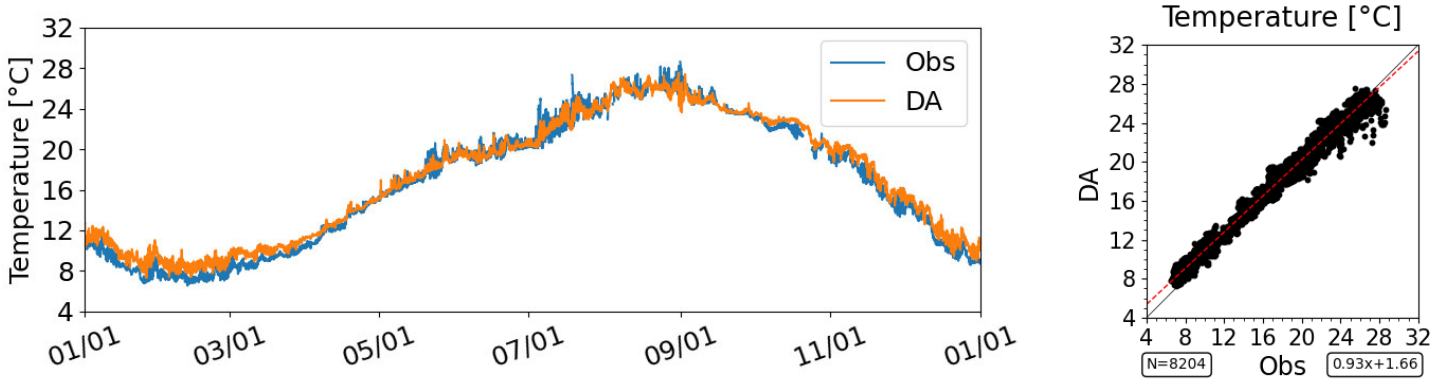


(c) Bottom layer

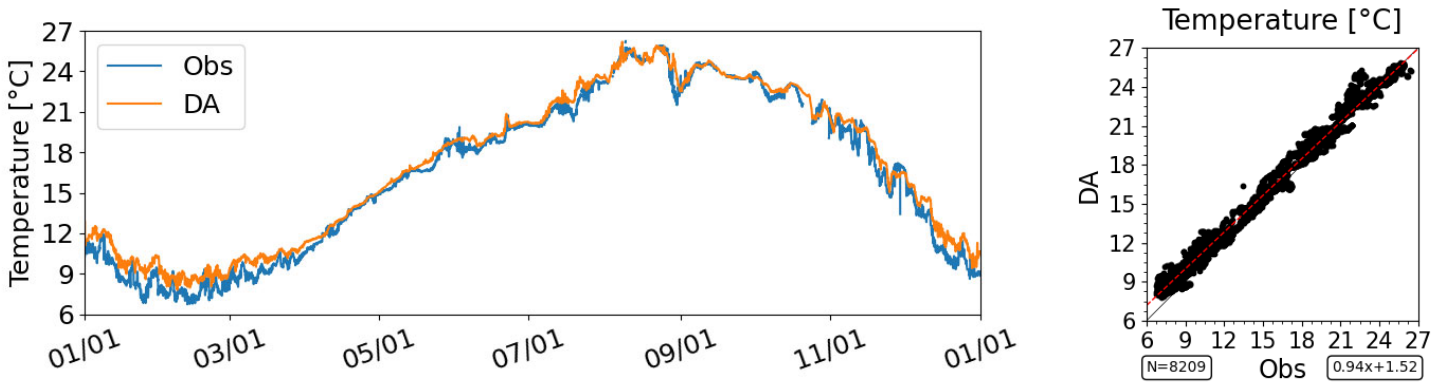
Figure S3.262 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2016



(a) Surface layer

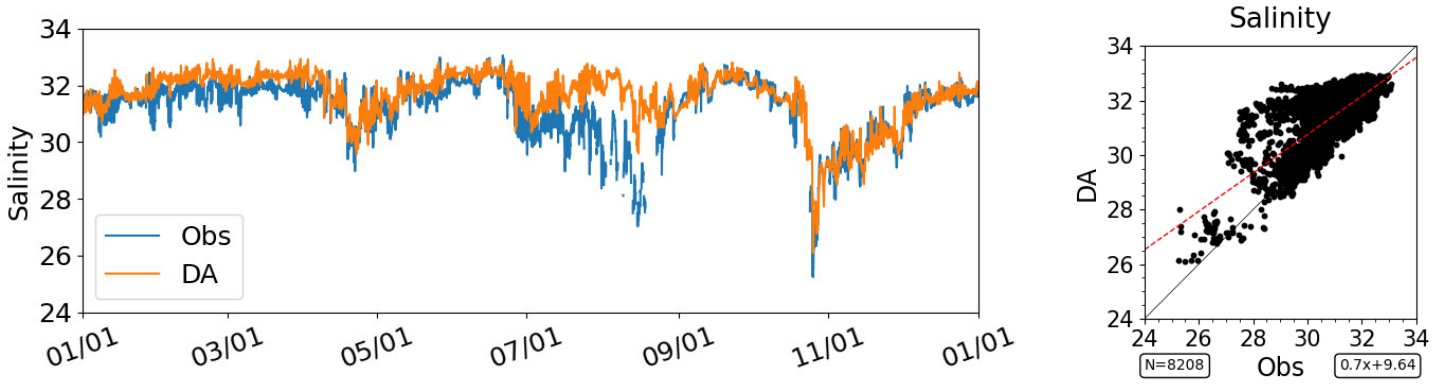


(b) Middle layer

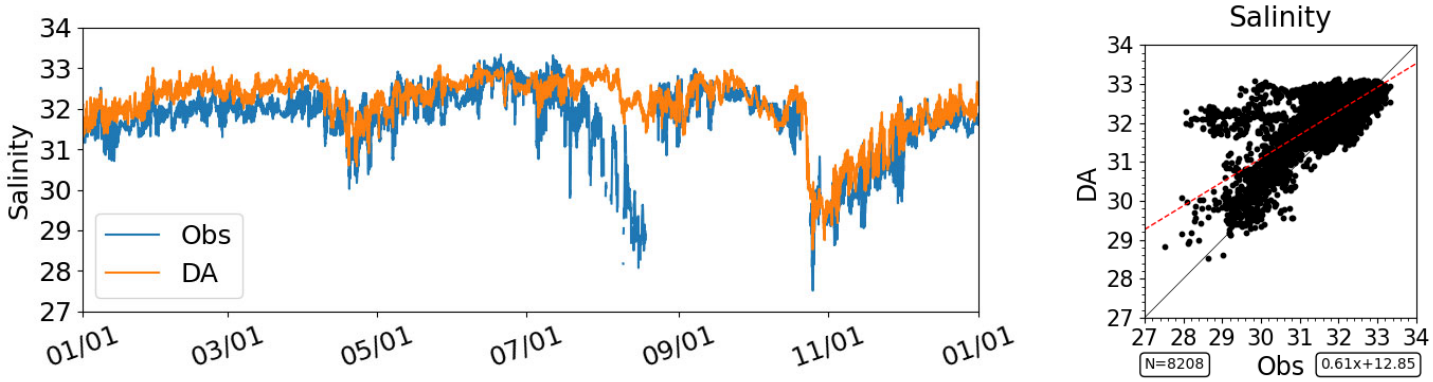


(c) Bottom layer

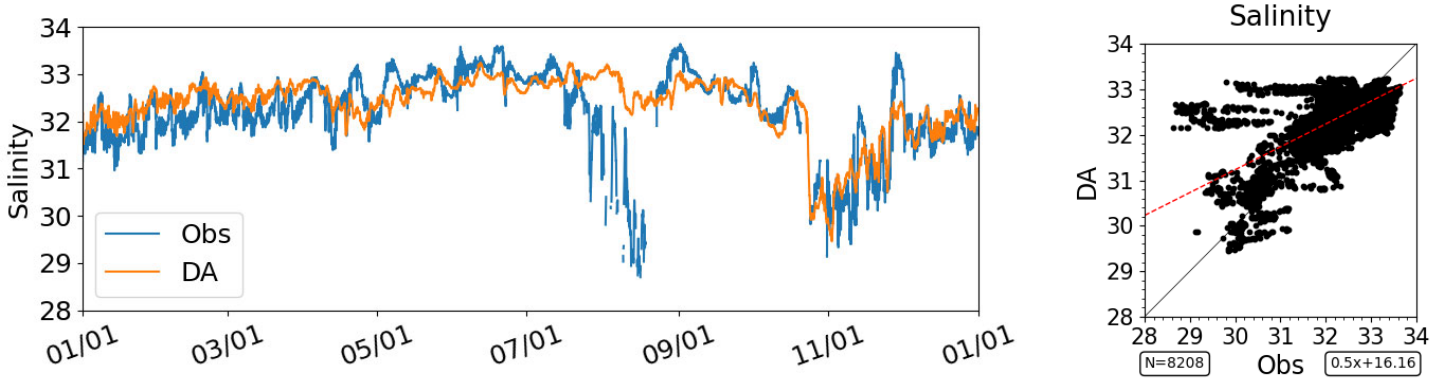
Figure S3.263 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2017



(a) Surface layer

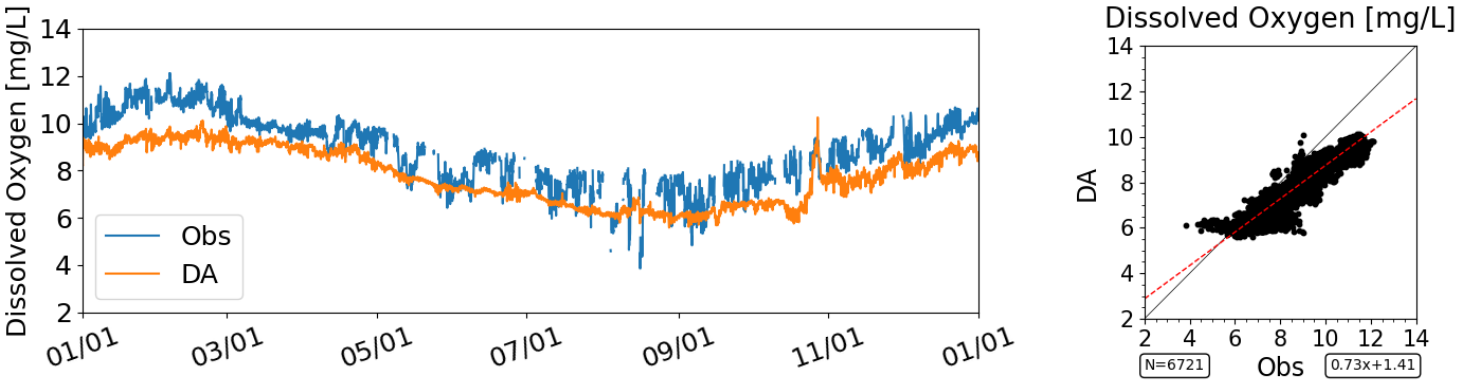


(b) Middle layer

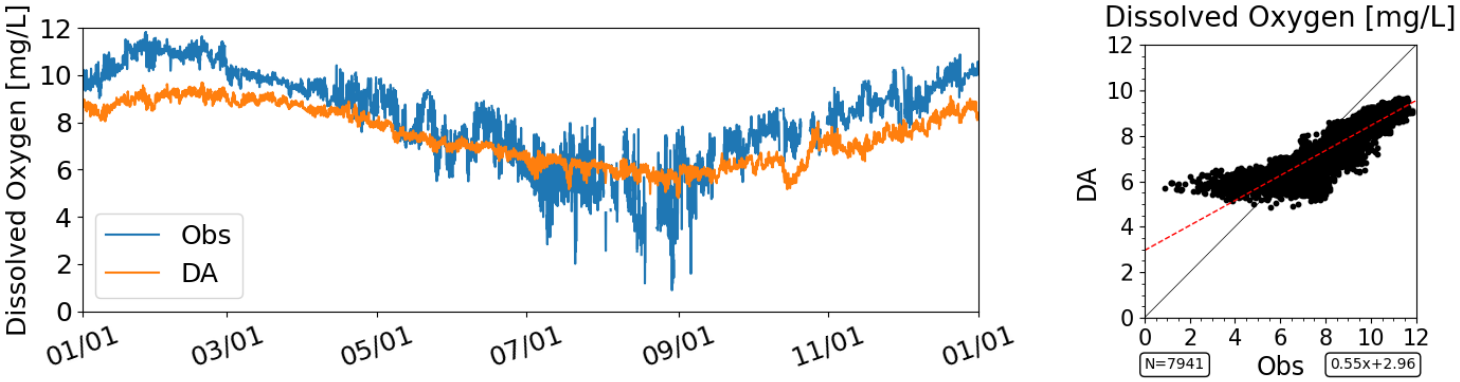


(c) Bottom layer

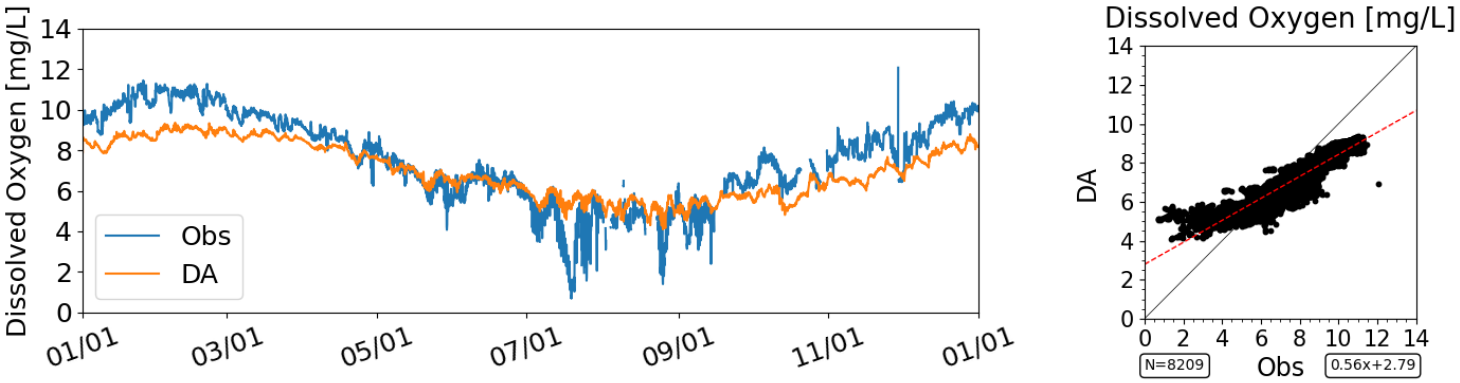
Figure S3.264 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2017



(a) Surface layer



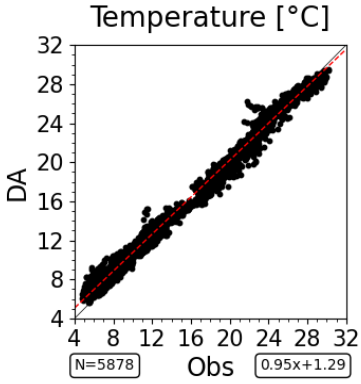
(b) Middle layer



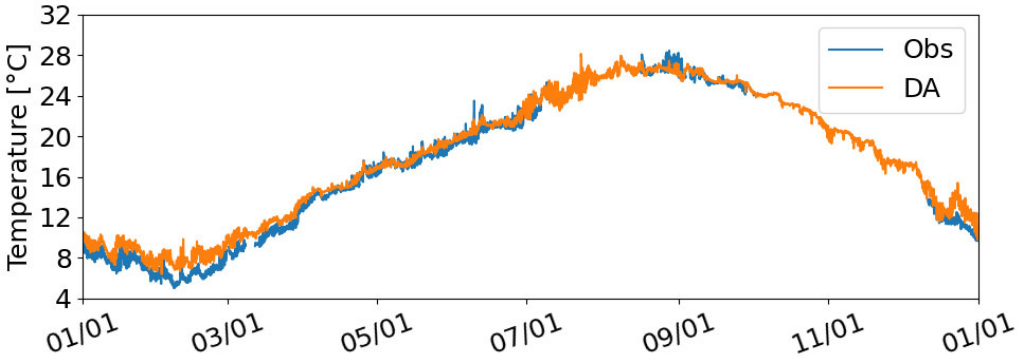
(c) Bottom layer

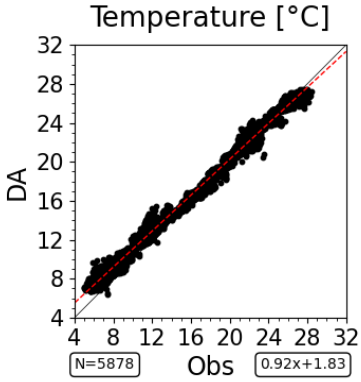
Figure S3.265 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2017



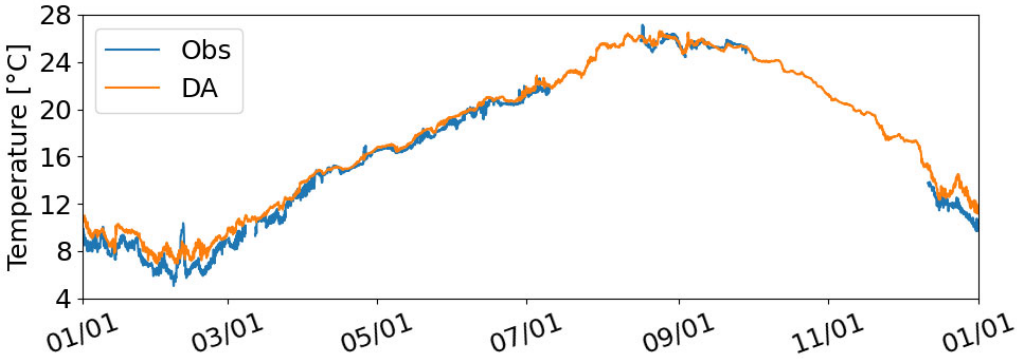


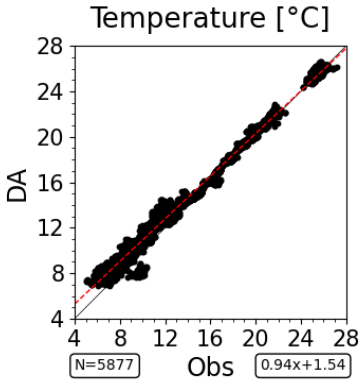
(a) Surface layer





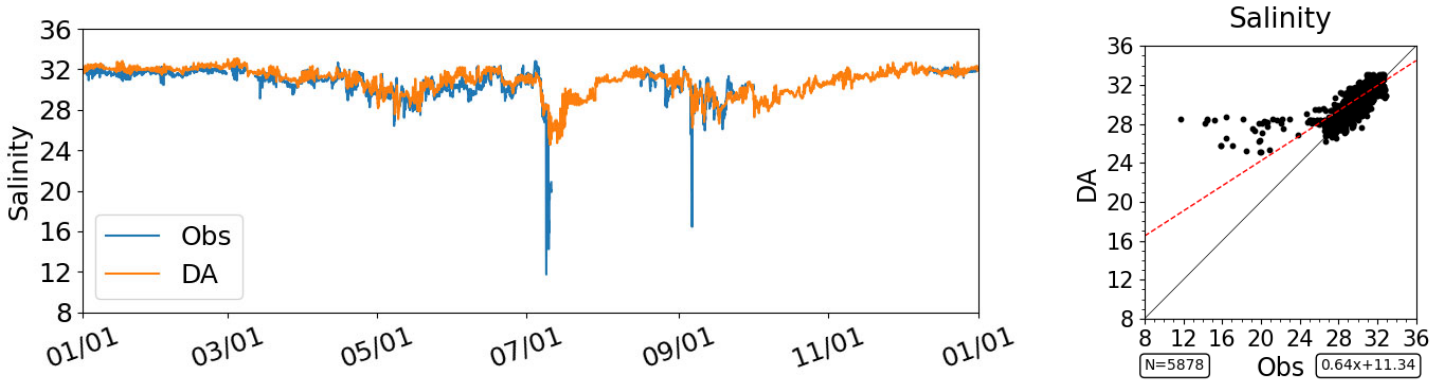
(b) Middle layer



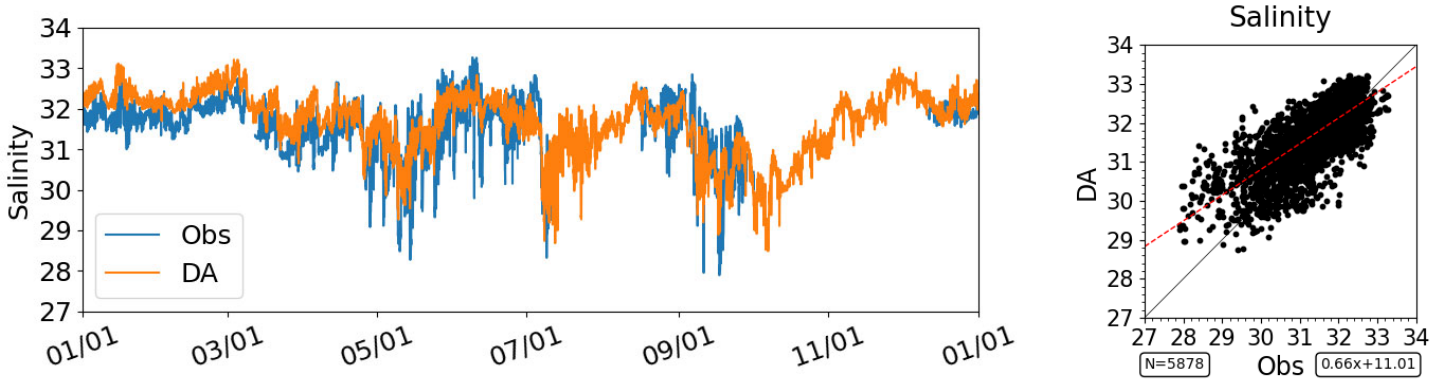


(c) Bottom layer

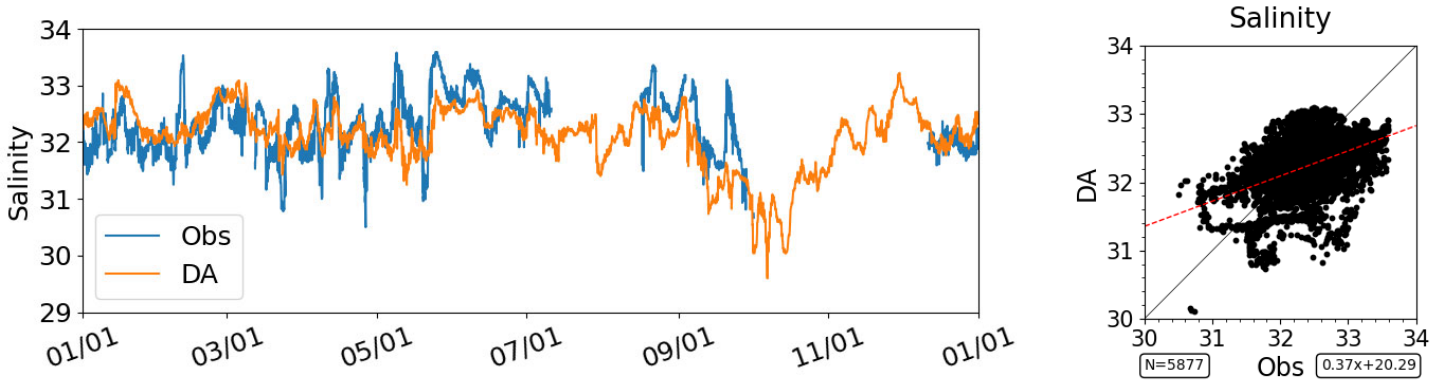
Figure S3.266 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2018



(a) Surface layer

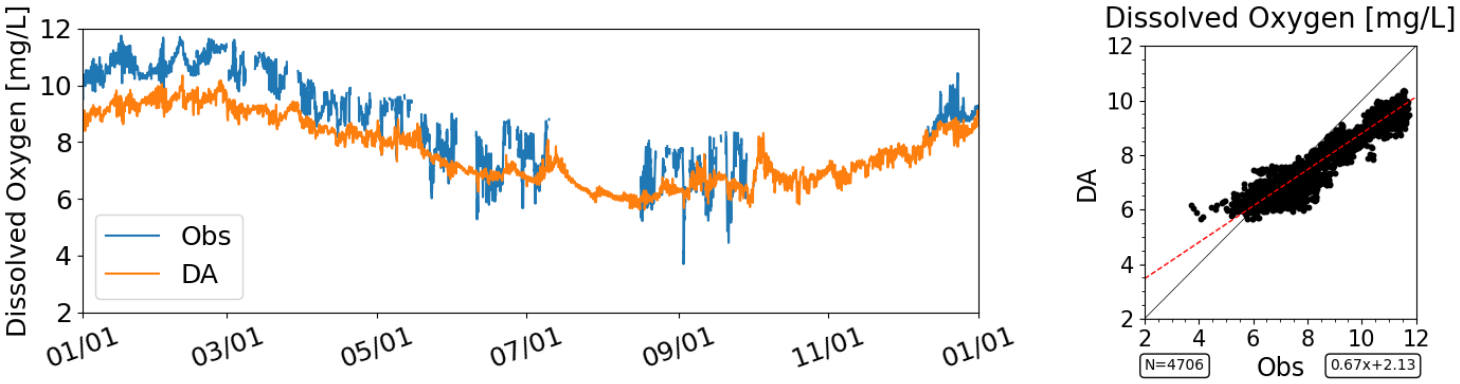


(b) Middle layer

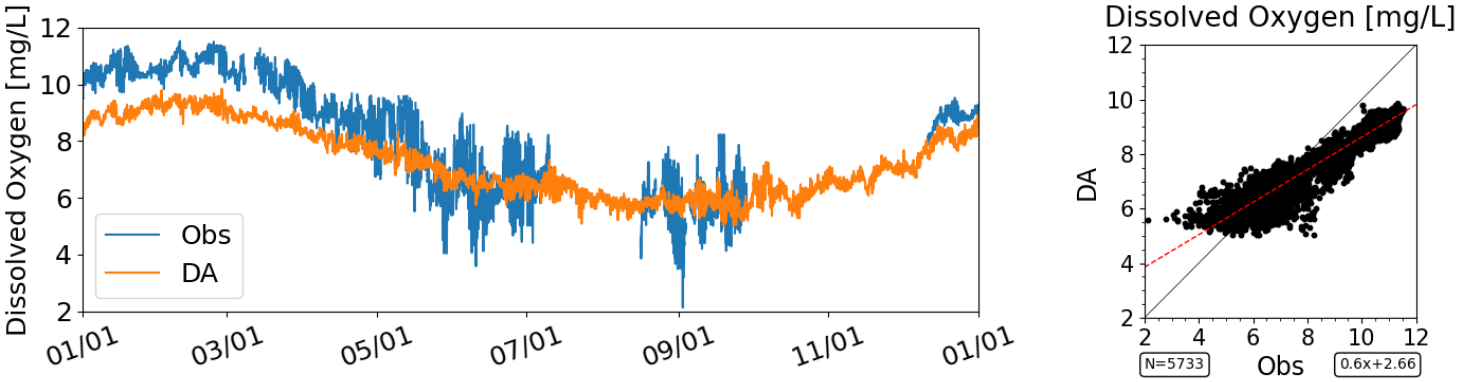


(c) Bottom layer

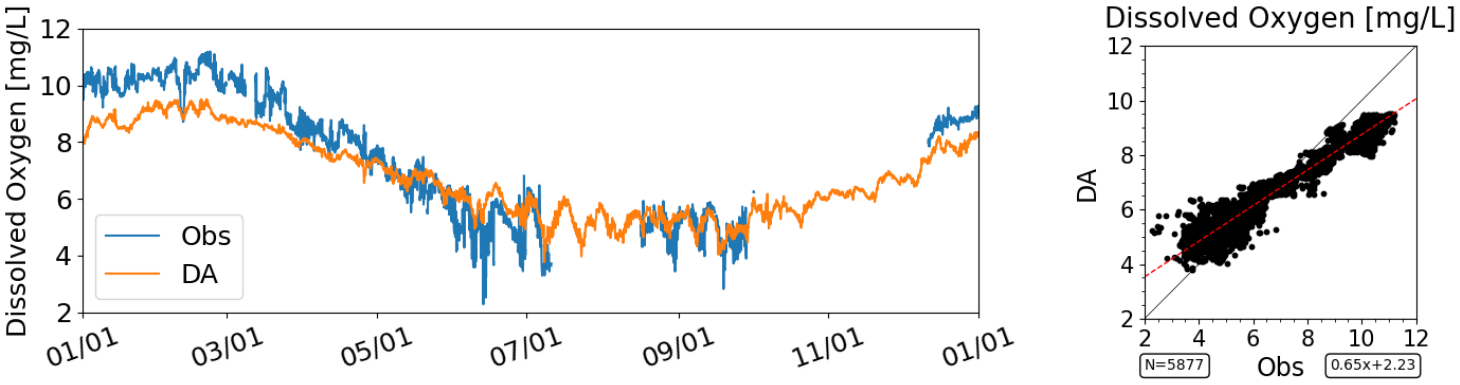
Figure S3.267 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2018



(a) Surface layer

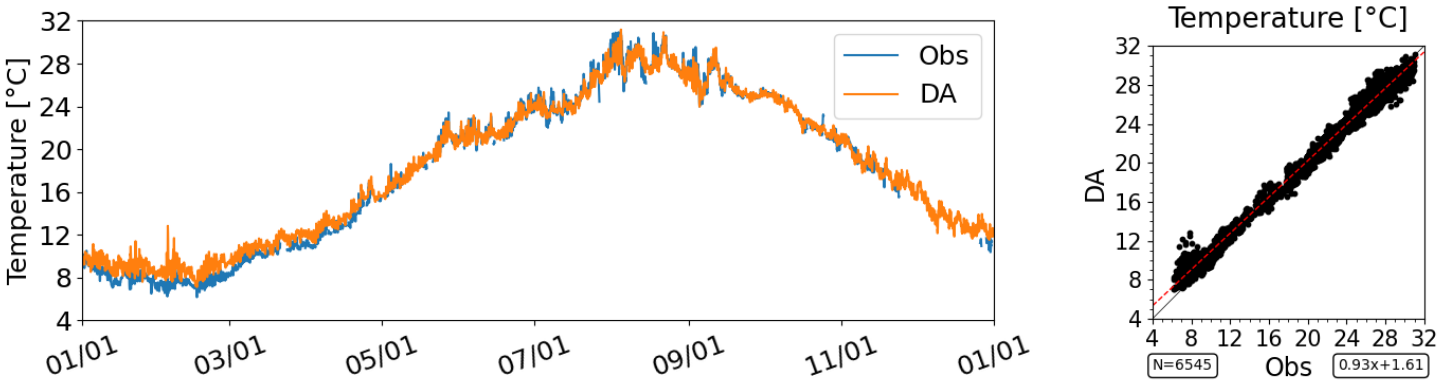


(b) Middle layer

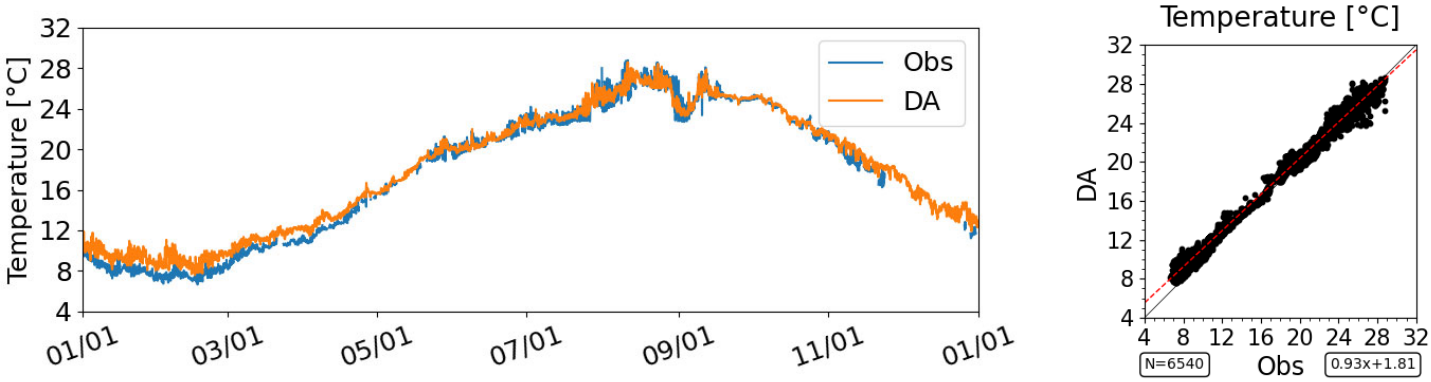


(c) Bottom layer

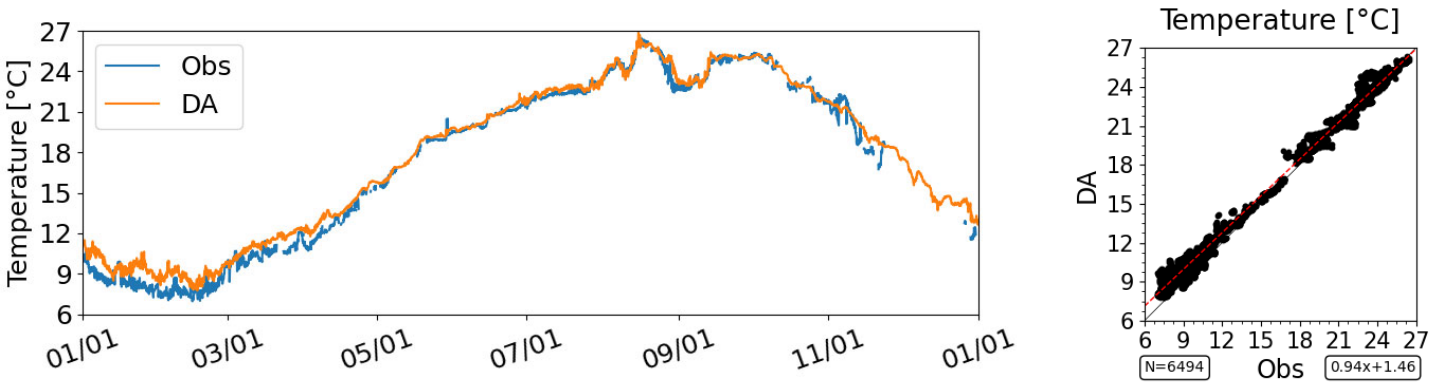
Figure S3.268 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2018



(a) Surface layer

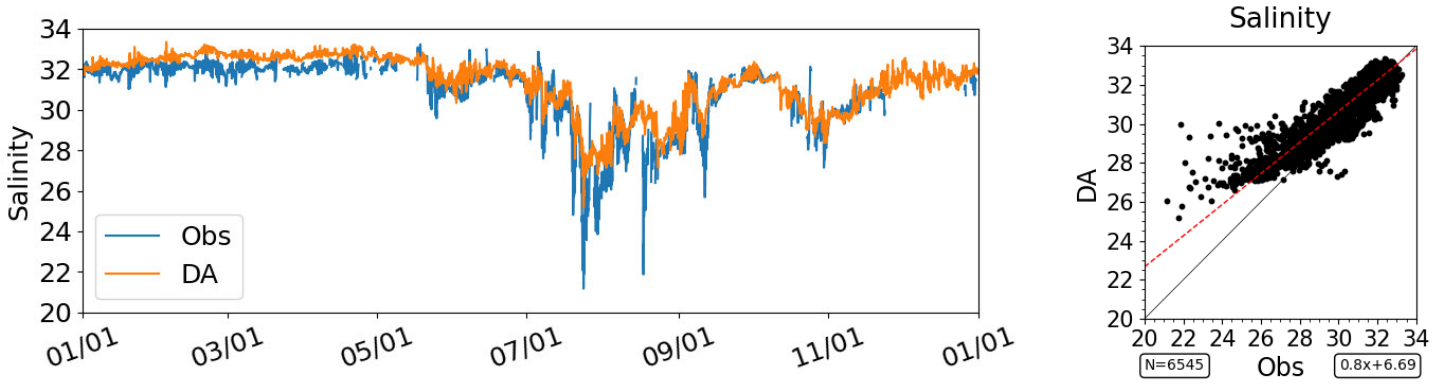


(b) Middle layer

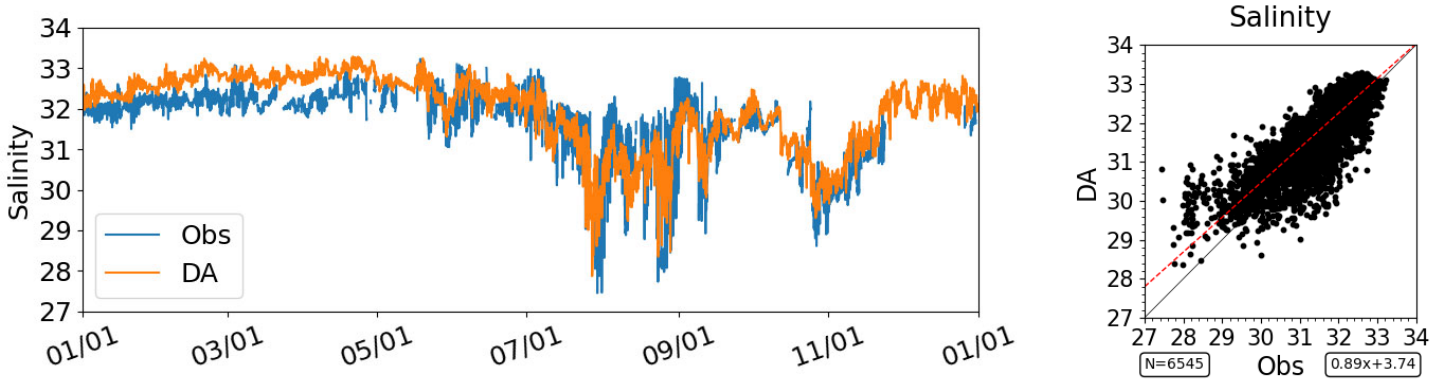


(c) Bottom layer

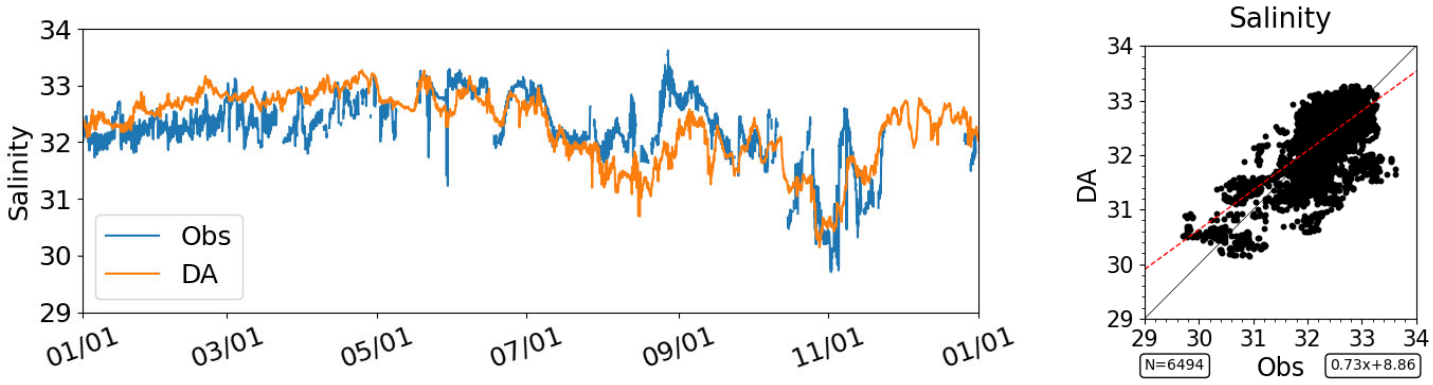
Figure S3.269 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2019



(a) Surface layer

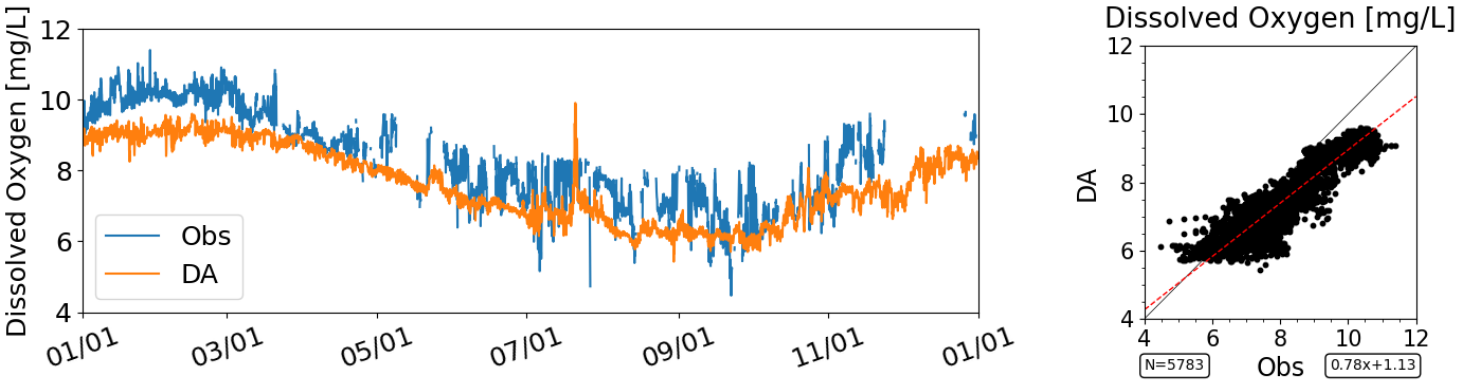


(b) Middle layer

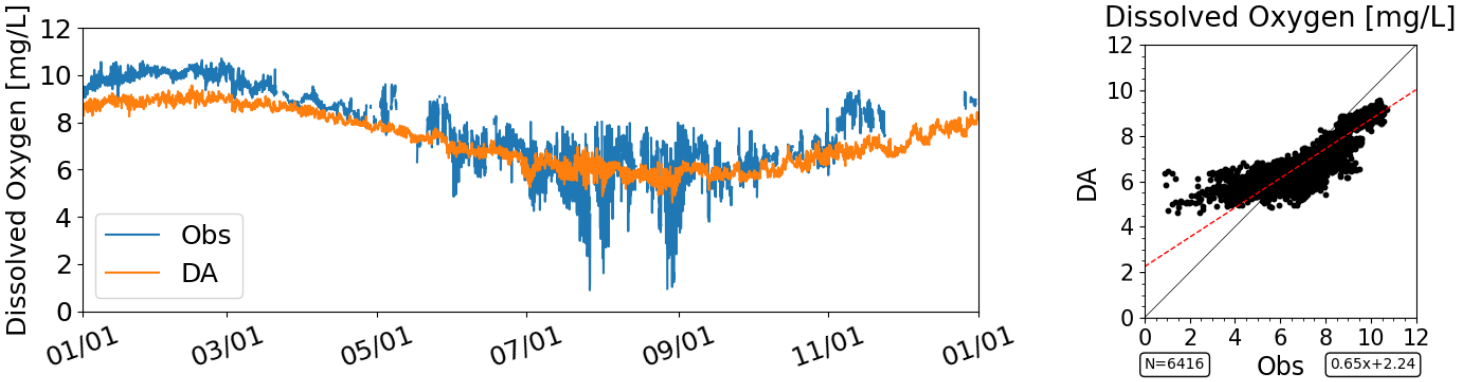


(c) Bottom layer

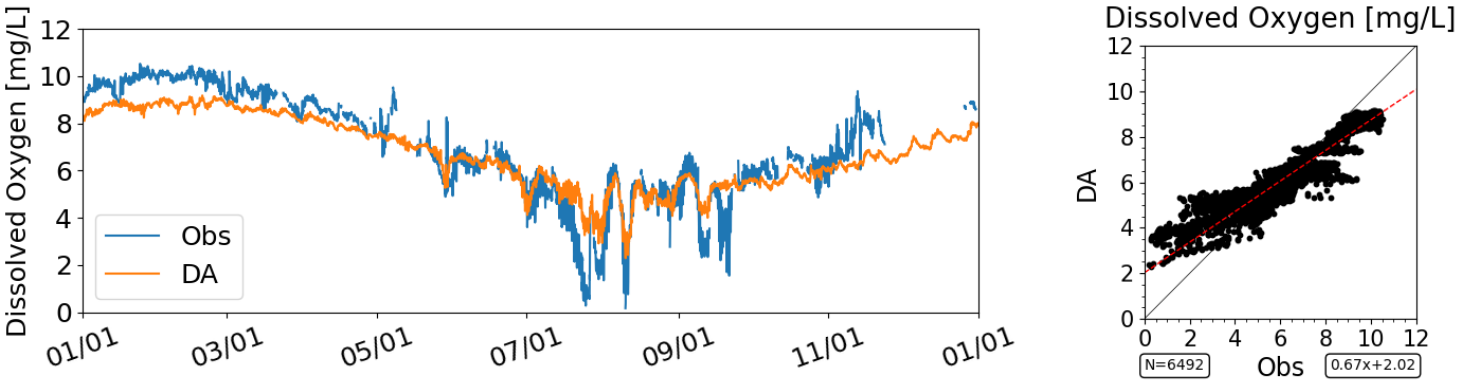
Figure S3.270 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2019



(a) Surface layer

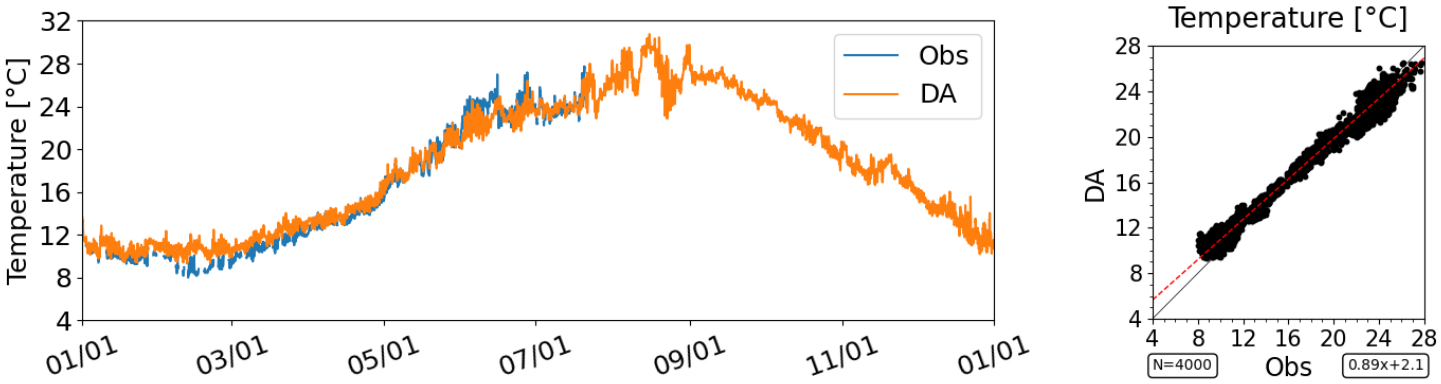


(b) Middle layer

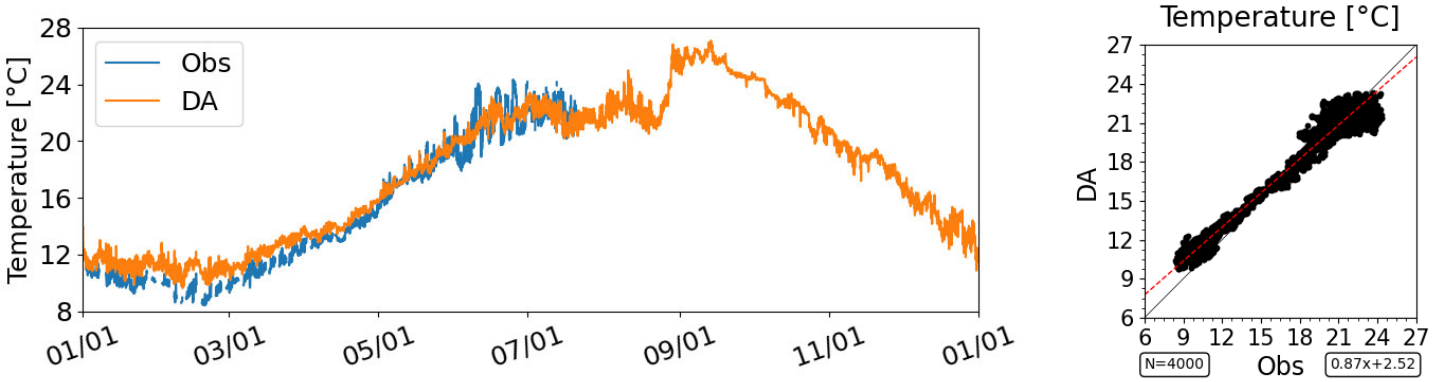


(c) Bottom layer

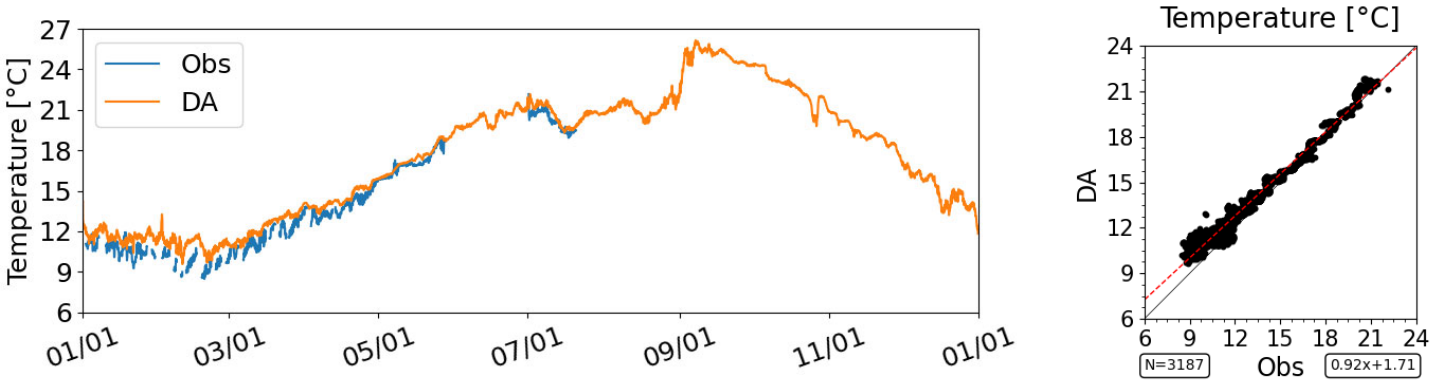
Figure S3.271 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2019



(a) Surface layer

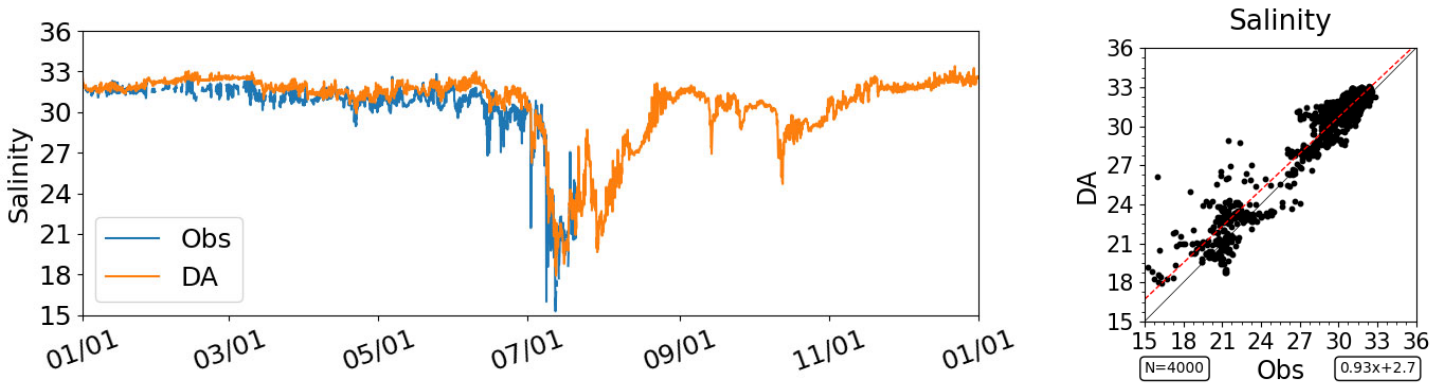


(b) Middle layer

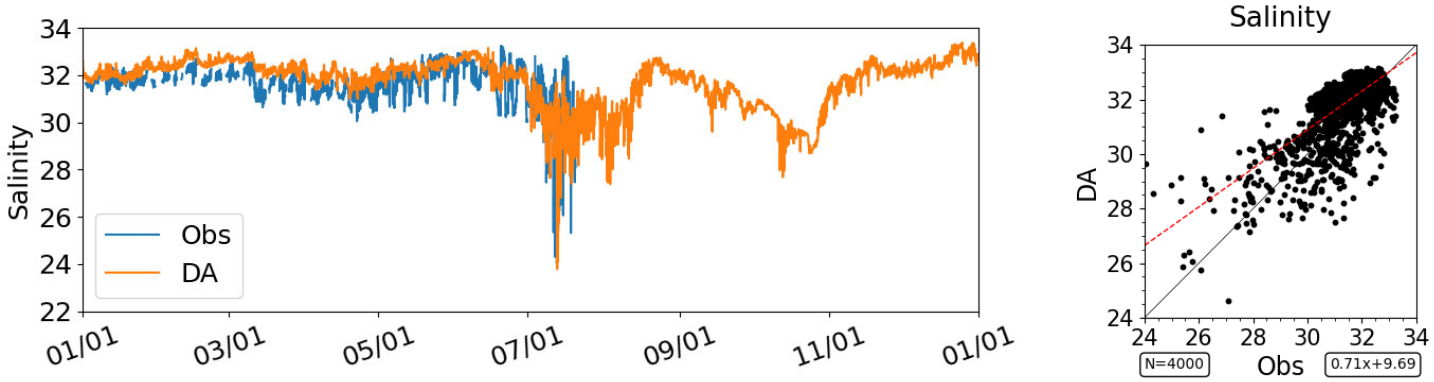


(c) Bottom layer

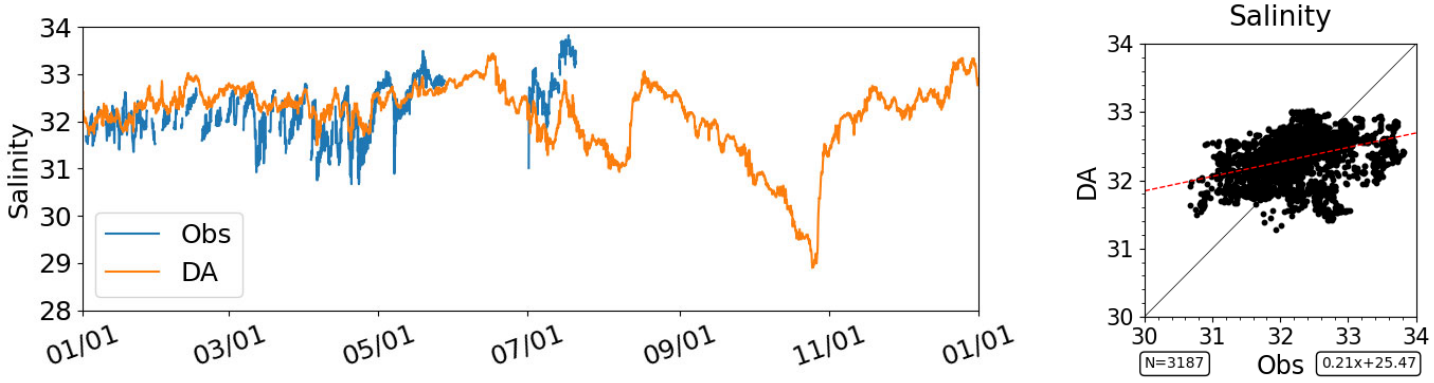
Figure S3.272 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2020



(a) Surface layer

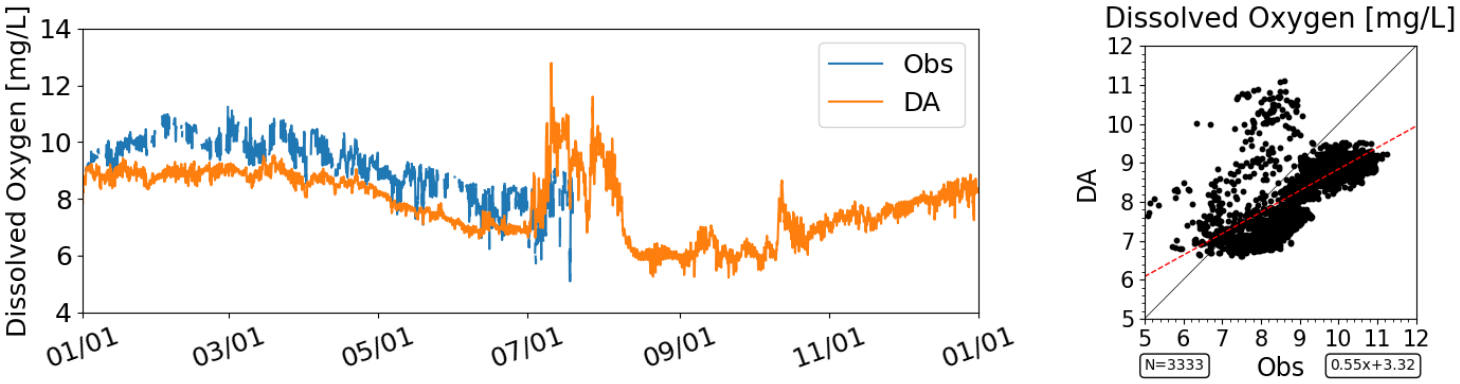


(b) Middle layer

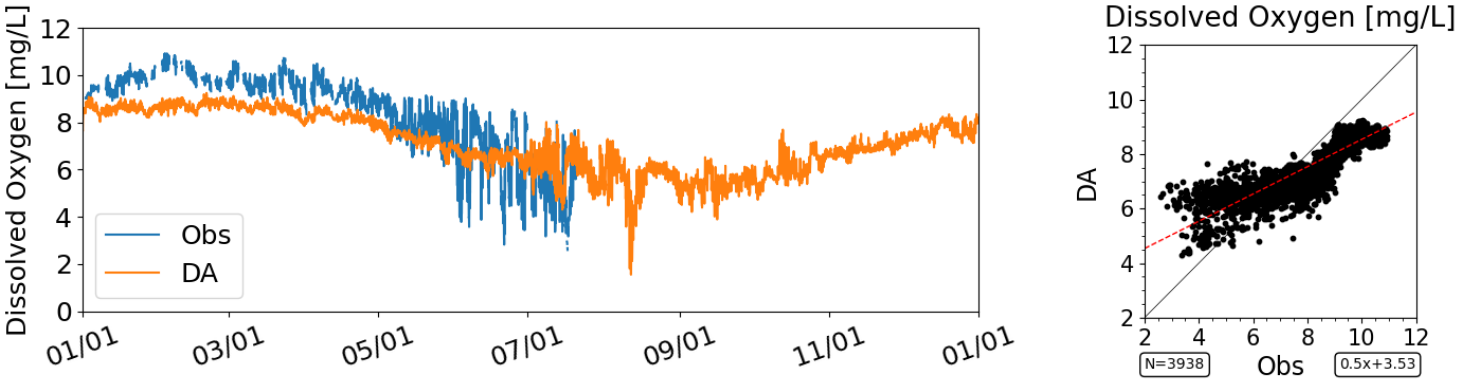


(c) Bottom layer

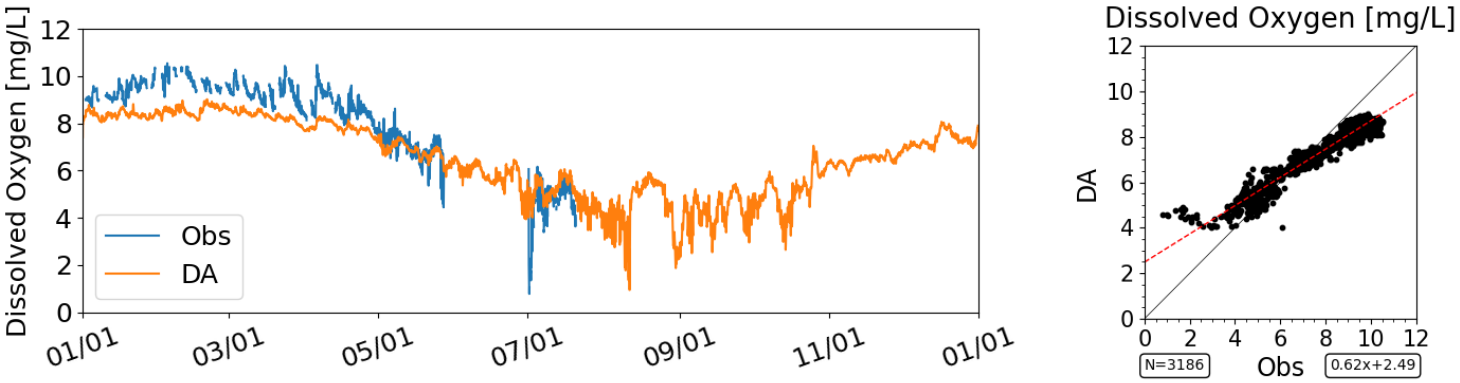
Figure S3.273 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2020



(a) Surface layer

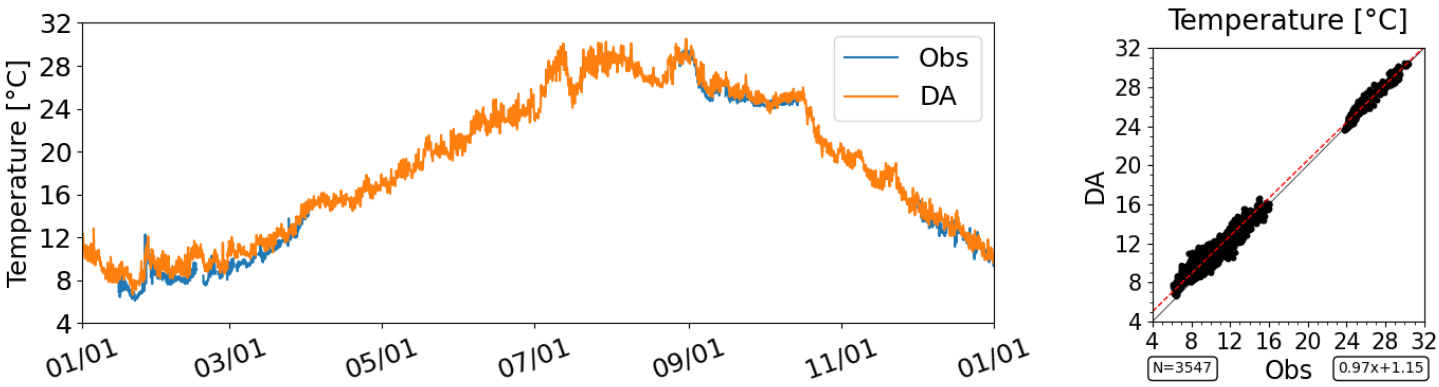


(b) Middle layer

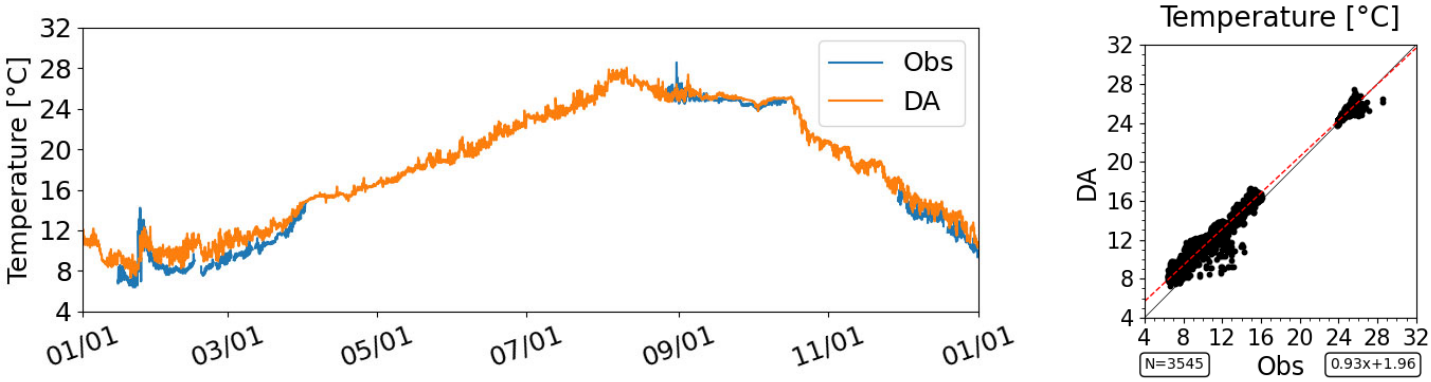


(c) Bottom layer

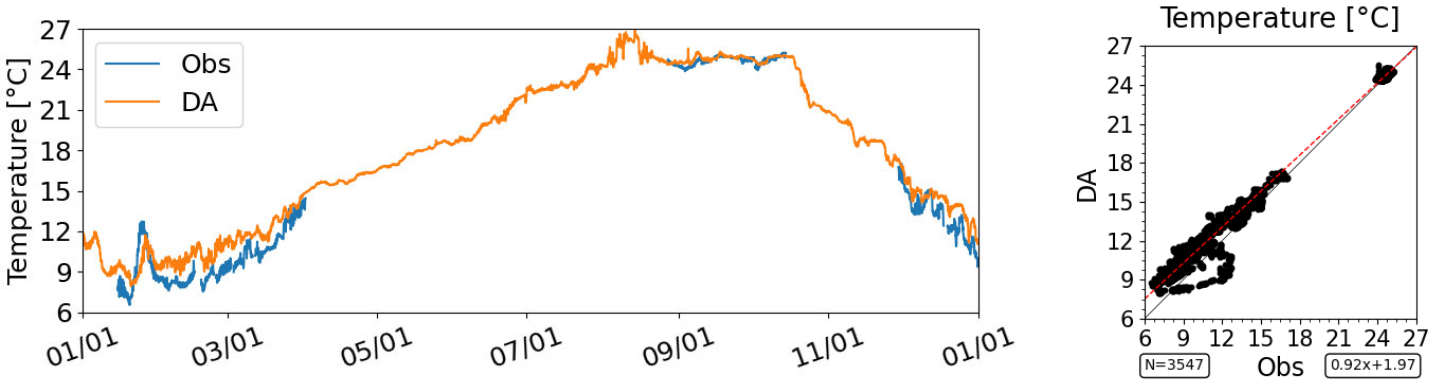
Figure S3.274 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2020



(a) Surface layer

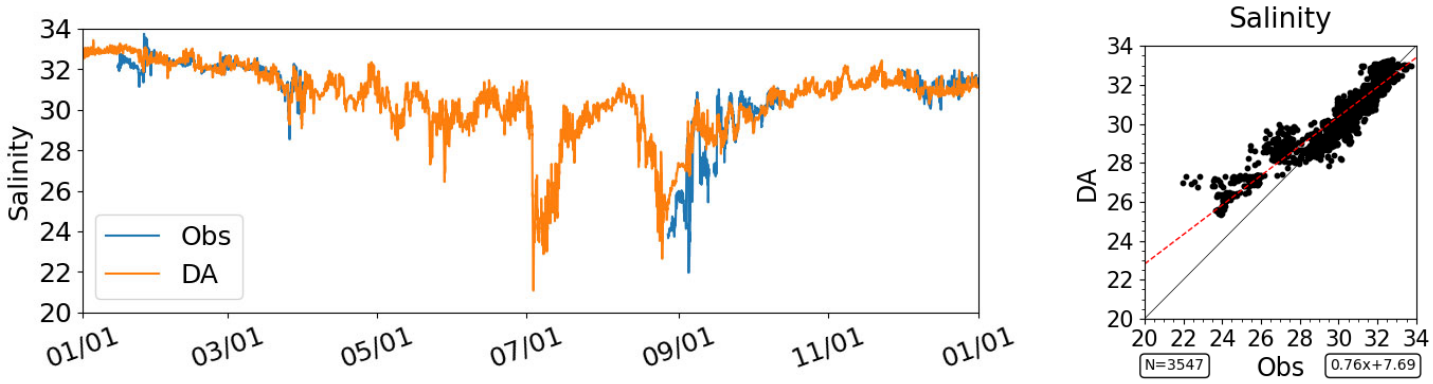


(b) Middle layer

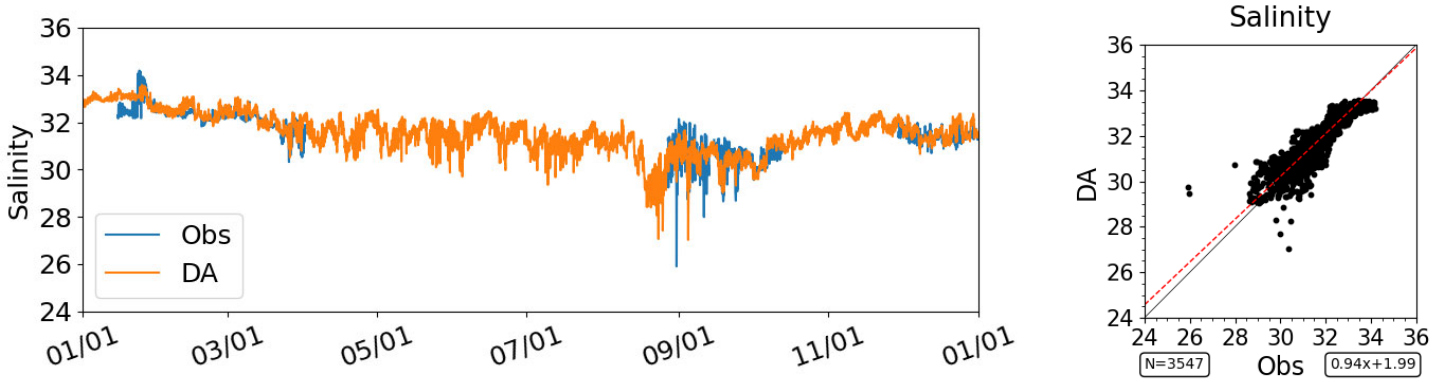


(c) Bottom layer

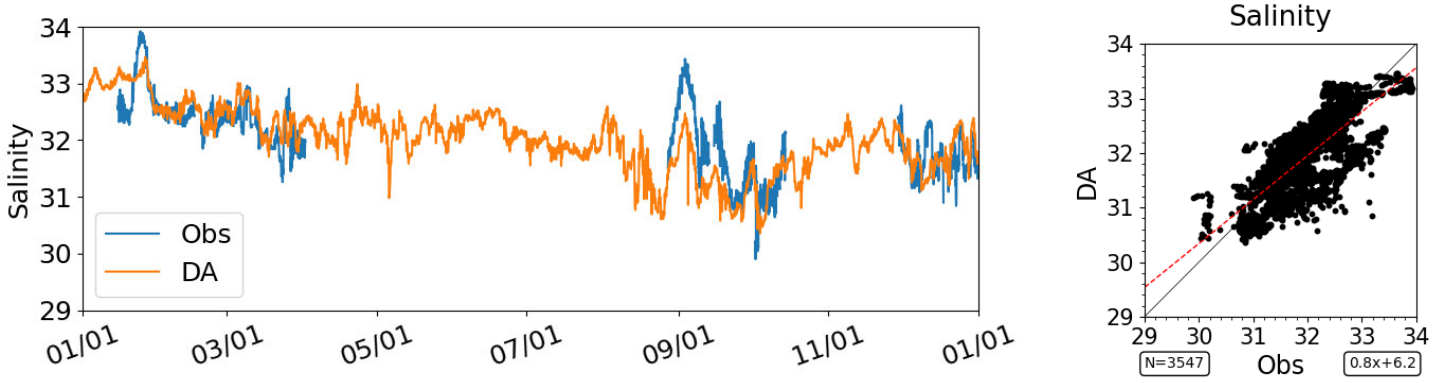
Figure S3.275 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2021



(a) Surface layer

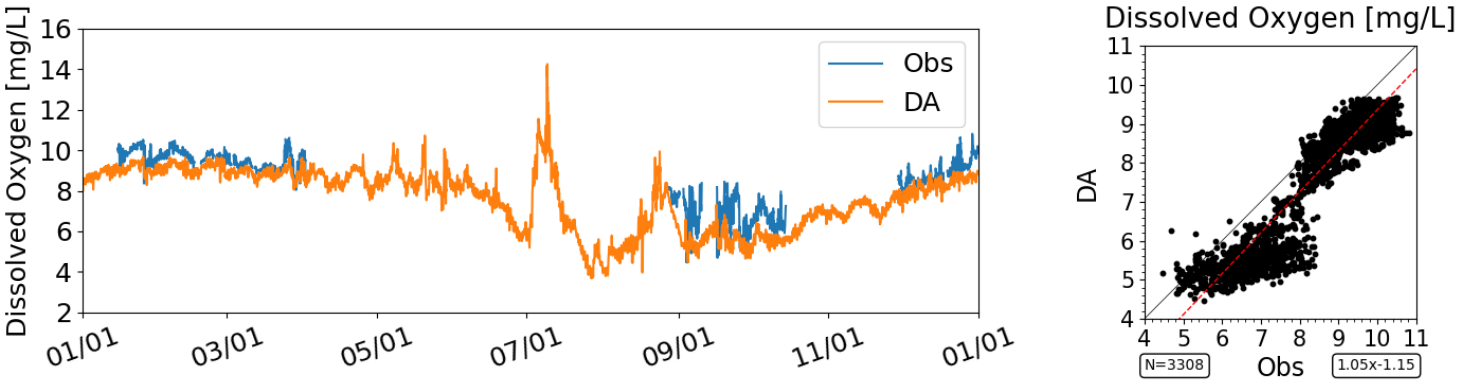


(b) Middle layer

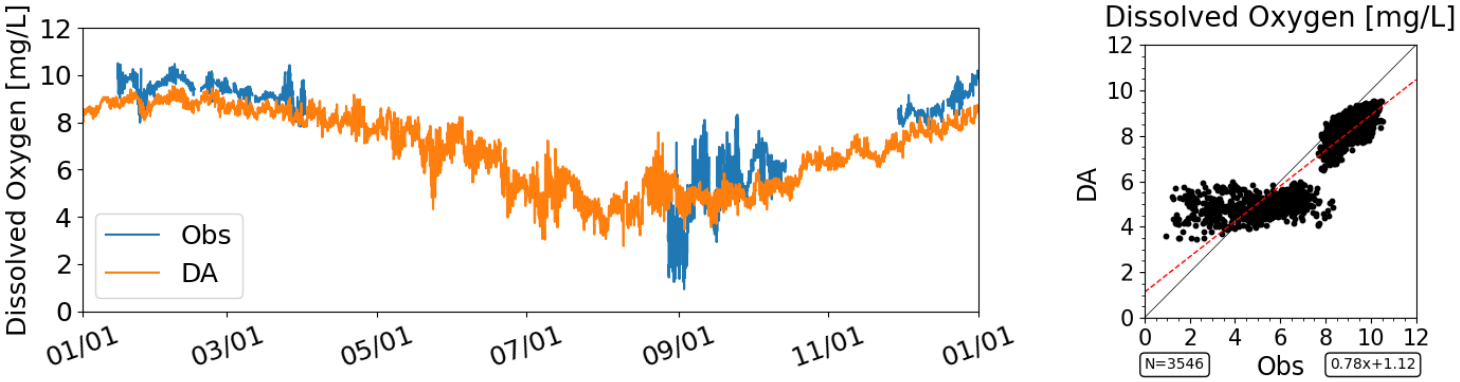


(c) Bottom layer

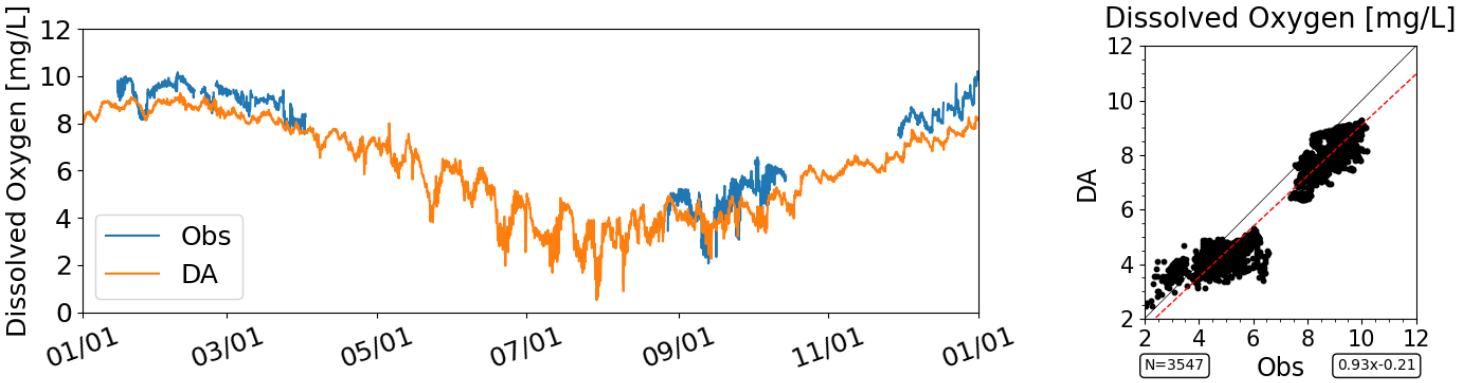
Figure S3.276 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2021



(a) Surface layer

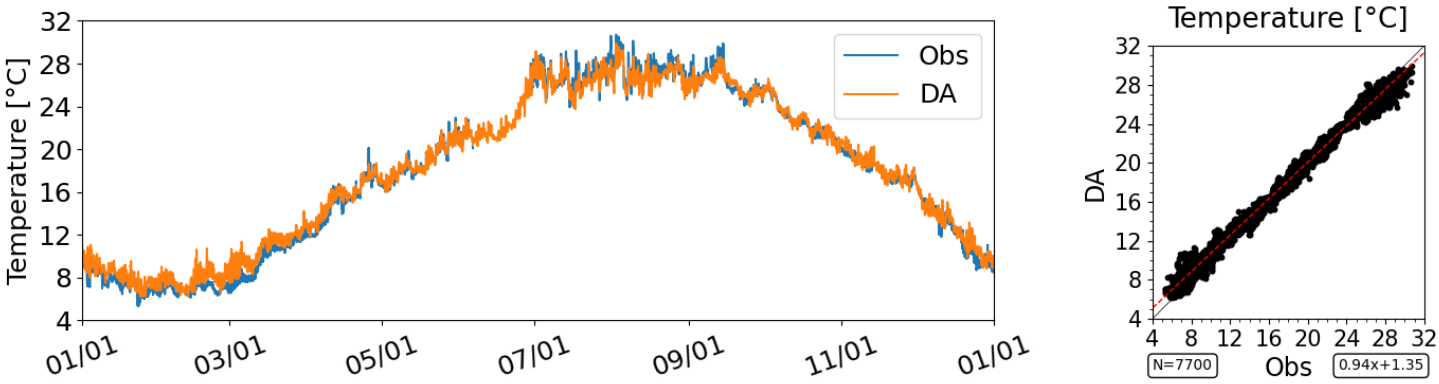


(b) Middle layer

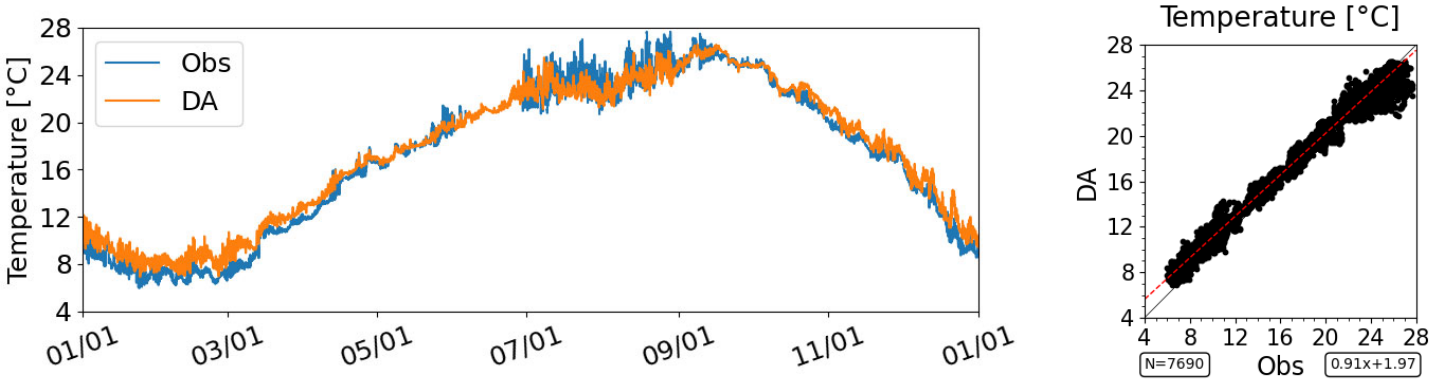


(c) Bottom layer

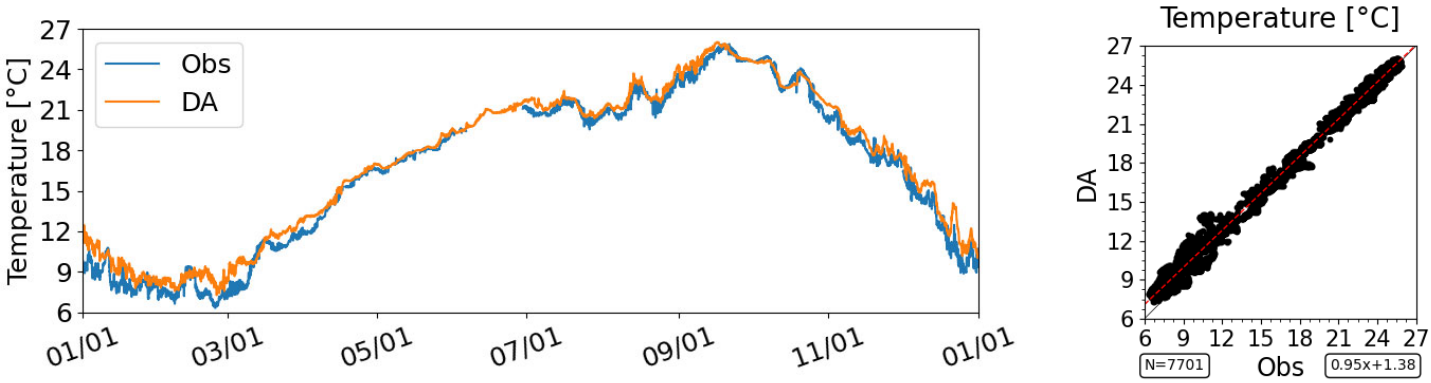
Figure S3.277 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2021



(a) Surface layer

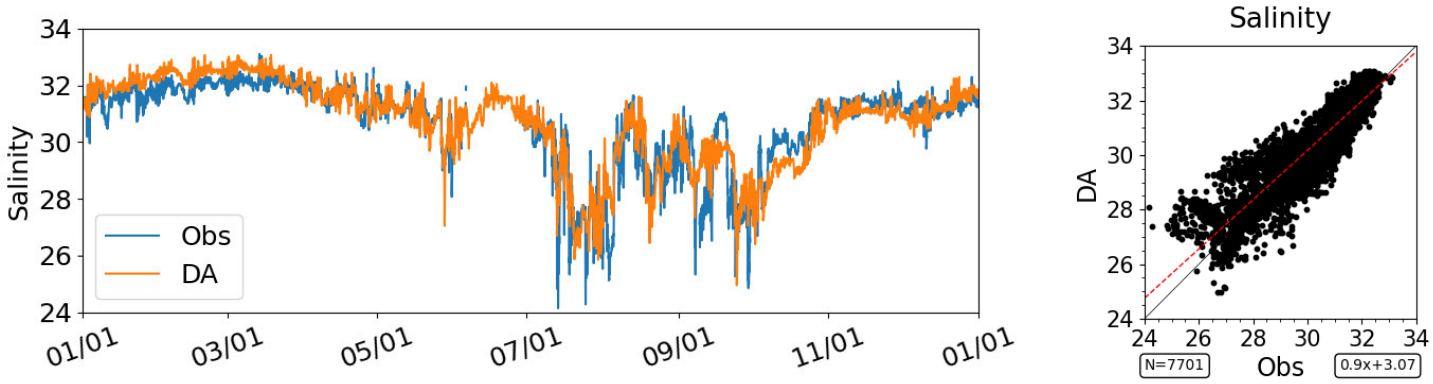


(b) Middle layer

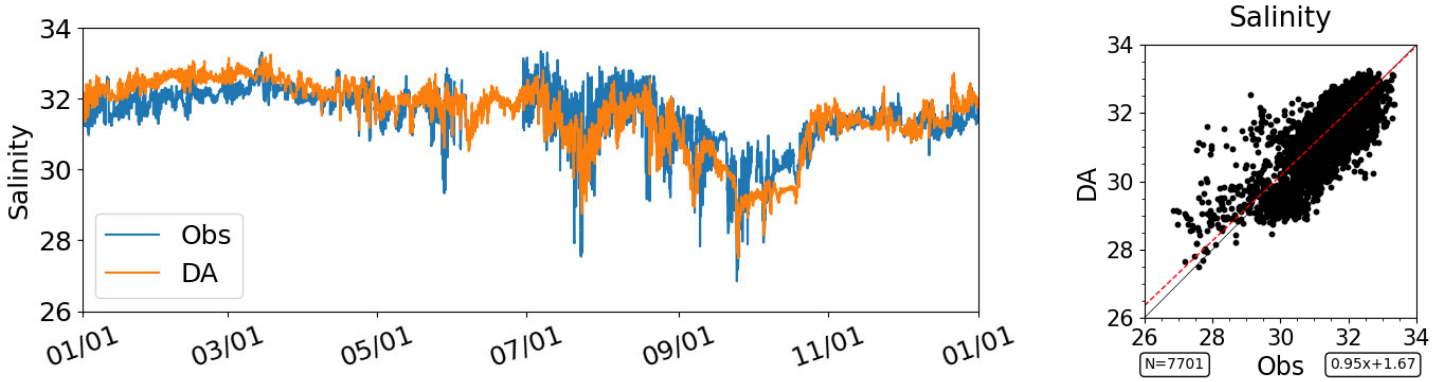


(c) Bottom layer

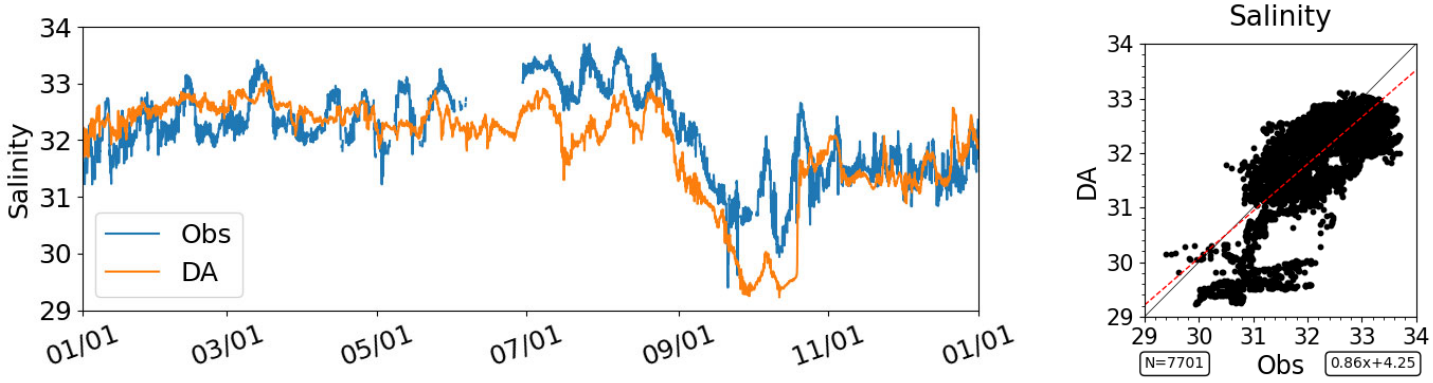
Figure S3.278 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2022



(a) Surface layer

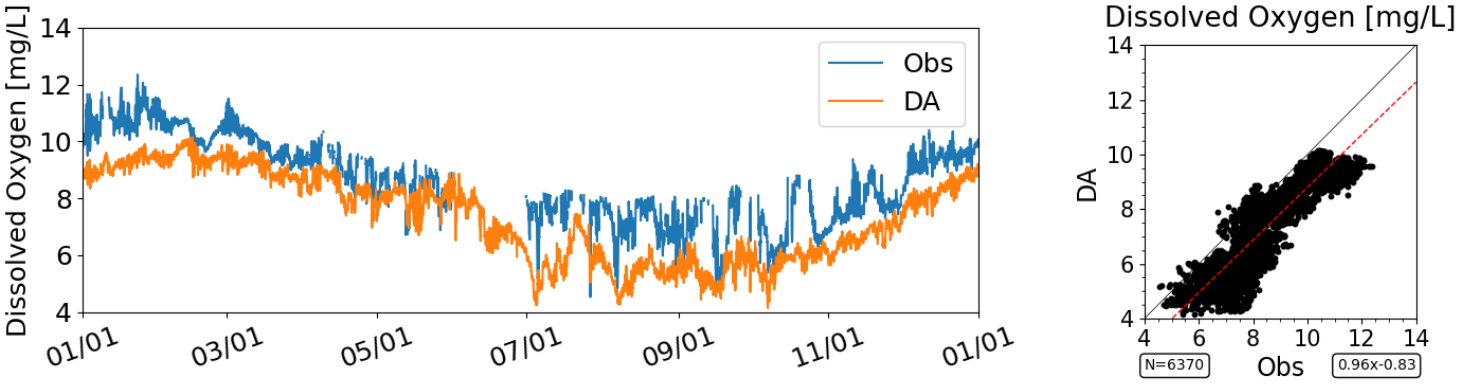


(b) Middle layer

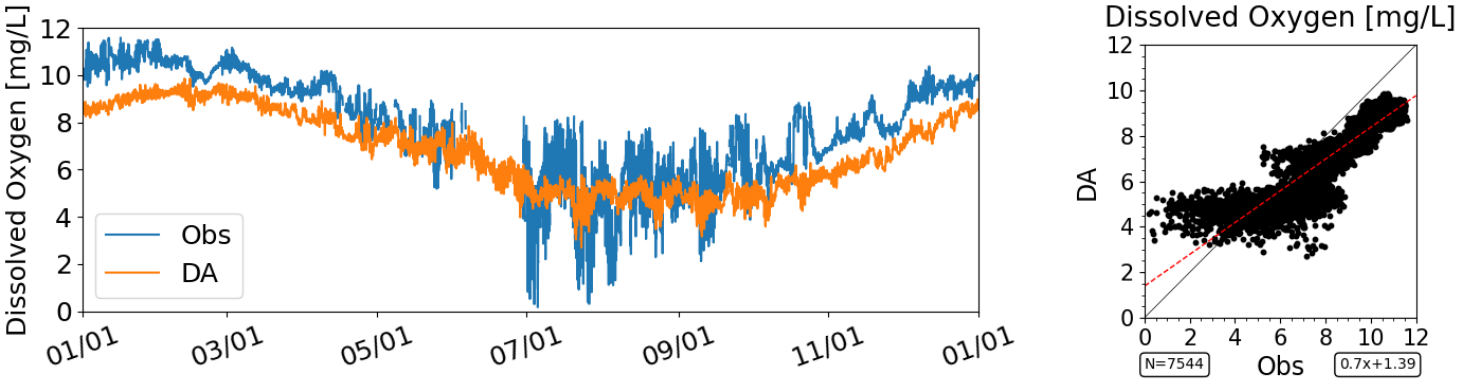


(c) Bottom layer

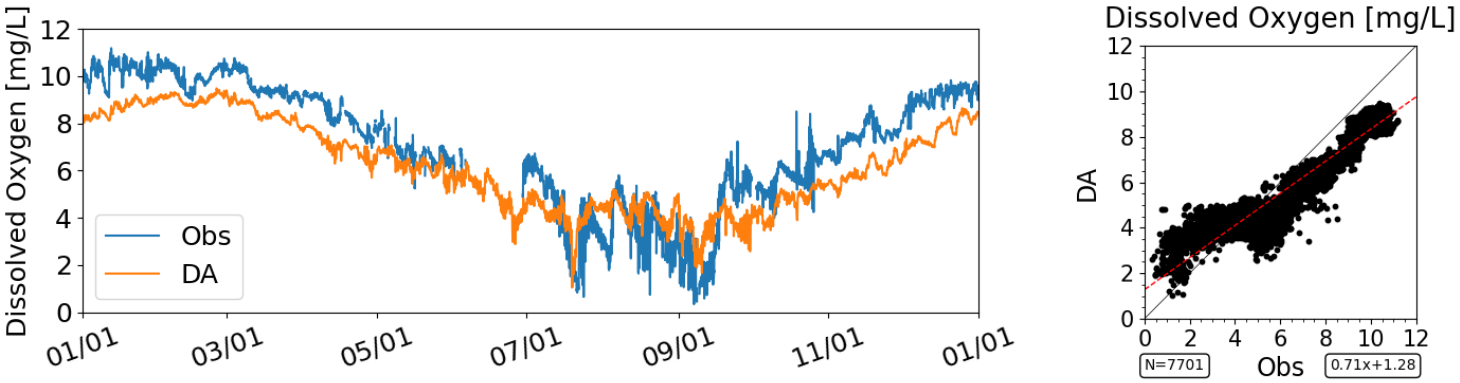
Figure S3.279 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

Figure S3.280 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2022