

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).

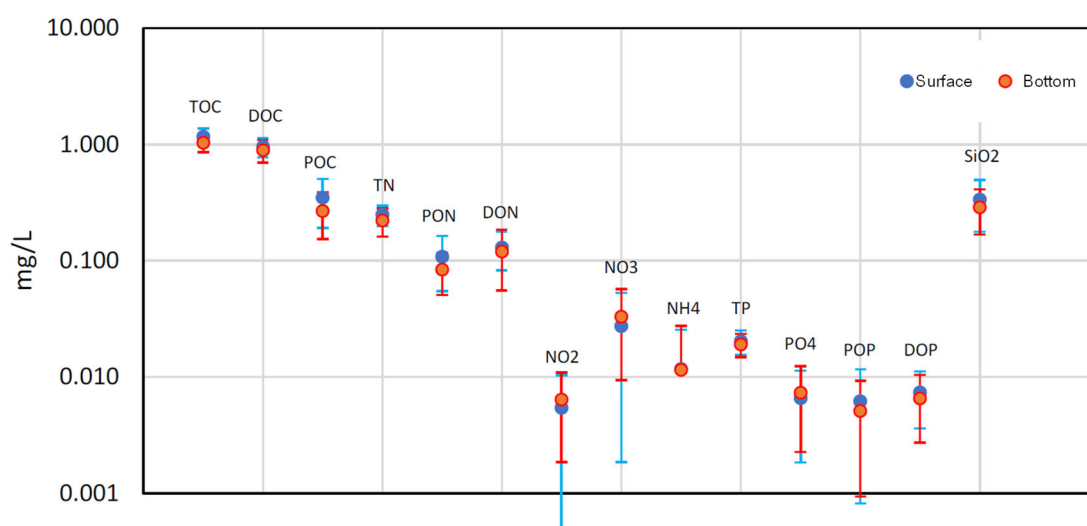


Figure S1 Two-year average concentrations of observed water quality parameters. Error bars indicate the standard deviation.

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
PO ₄	0.007
NH ₄	0.012
NO ₂	0.006
NO ₃	0.030
SiO ₂	0.312

Table S2 Microbial biomass set at lateral boundary.

Microbial biomass	Value [$\mu\text{gC/L}$]
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:

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

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

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

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 [m³ s⁻¹]; and A is the basin area [km²]. 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:

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

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.

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

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	Irigo	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	Irigo	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	Irigo	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	Irigo	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	Shinshira kawa Bridge	Irigo	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	Irigo	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	Irigo	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	Yoneduko Bridge	Irigo	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	Sawataririver	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

- 5 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

- 10 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	Shinhoru 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	Ohor River	36
97	Edo River	37
98	Horitooshi River	39
99	Kamisuki River	39

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[illegible]

20 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.

[illegible]

- 25 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.

[illegible]

30 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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		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.

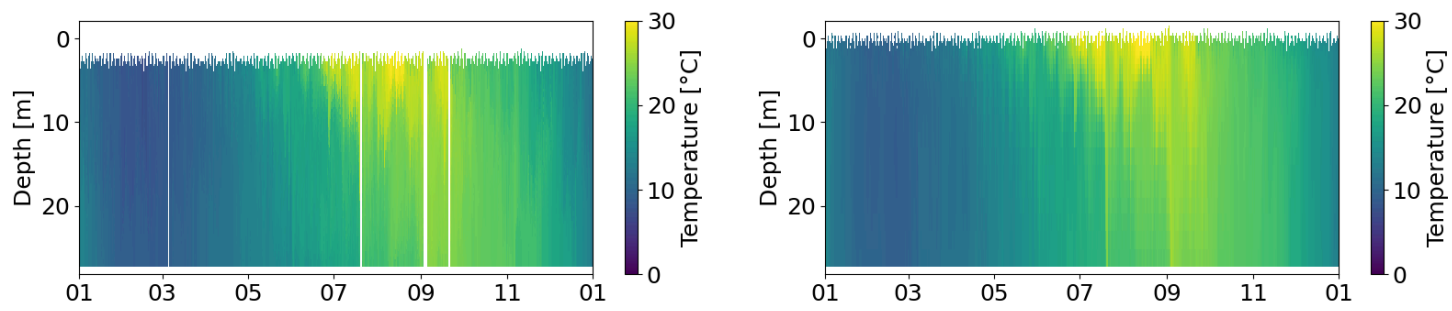
No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.61	0.89	1.00	-0.11	0.65	0.31	2.74	0.92	-0.07	2.72	-0.82	1.46	0.47	-0.03	1.20
	Middle	0.54	0.89	0.99	-0.43	0.71	0.40	0.71	0.83	-0.08	0.59	-1.60	1.91	0.89	-0.14	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.

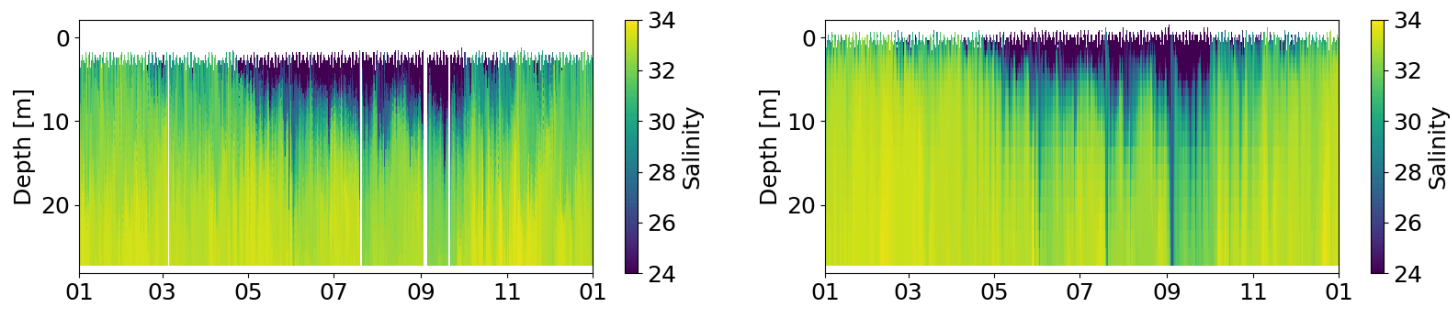
No.	Layer	Water temperature [°C]					Salinity					DO [mg/L]				
		ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE	ME	RMSE	CC	SDE	CRMSE
A1	Surface	0.40	0.77	1.00	-0.25	0.66	0.67	2.44	0.89	-0.21	2.35	-1.44	1.84	0.63	-0.06	1.15
	Middle	0.32	0.93	0.99	-0.54	0.87	0.21	0.73	0.74	0.09	0.70	-1.55	1.89	0.90	-0.28	1.08
	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

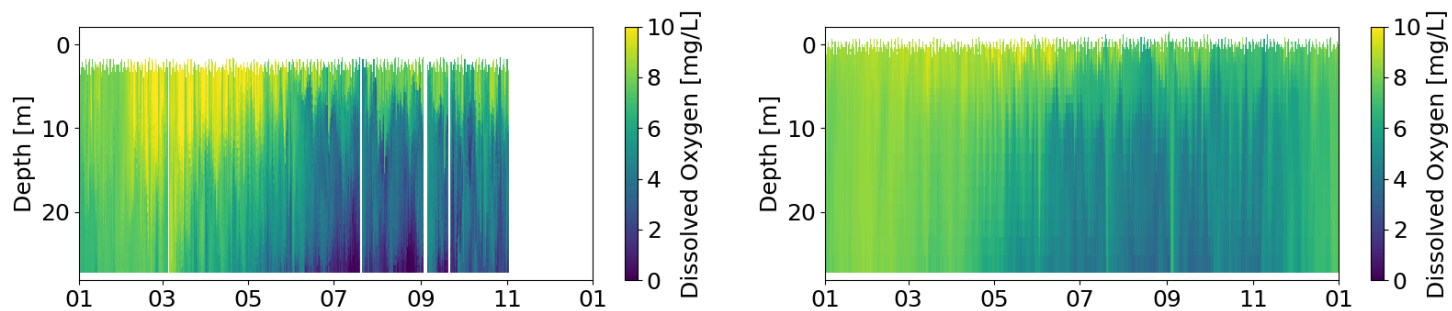
S3.1 Back of Ise Bay: Isopleths



(a) Water temperature

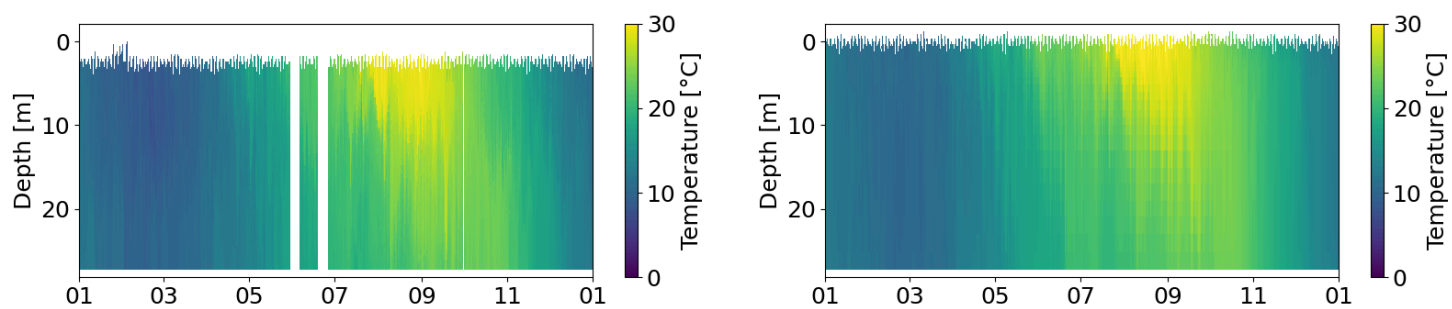


(b) Salinity

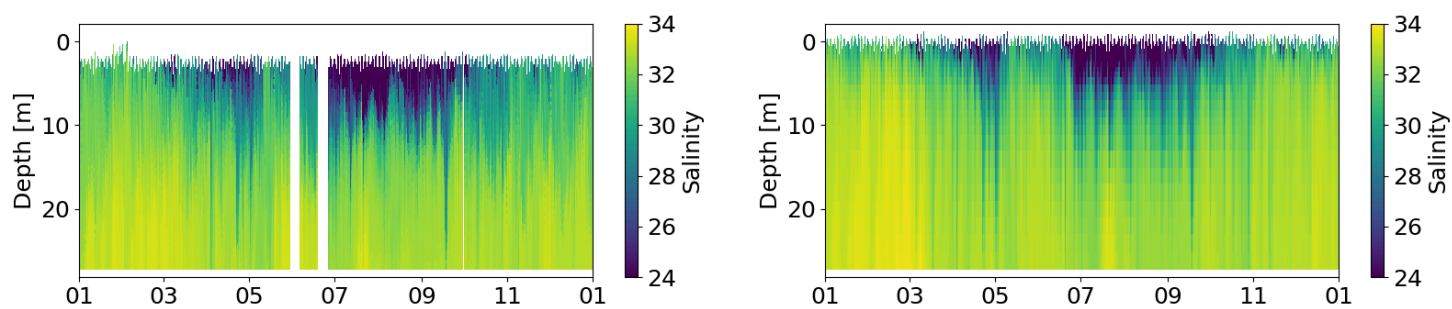


(c) Dissolved oxygen

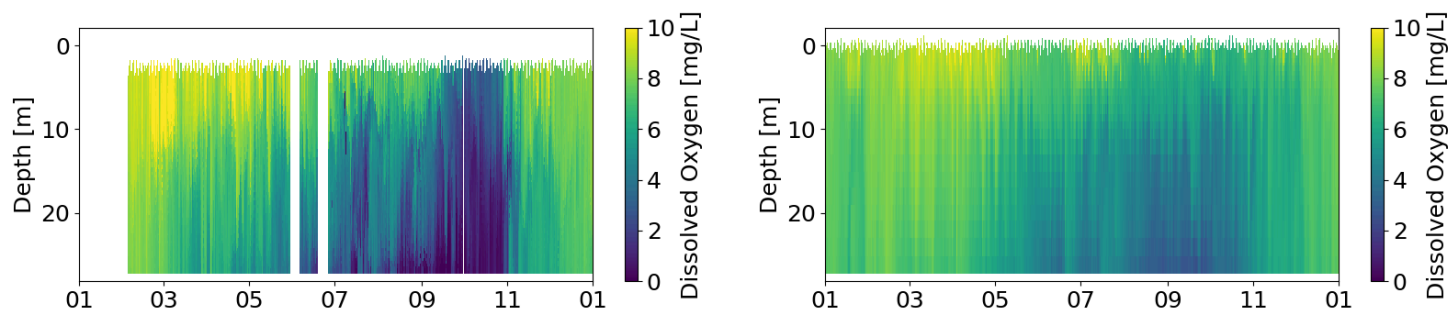
Figure S2 Isopleth plots at Back of Ise Bay in 2011
Left: Observations, Right: Data assimilation results.



(a) Water temperature

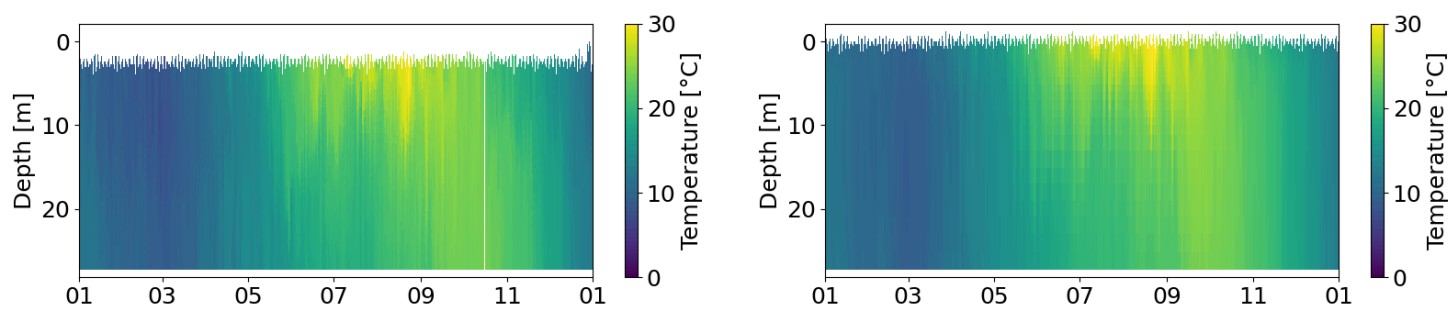


(b) Salinity

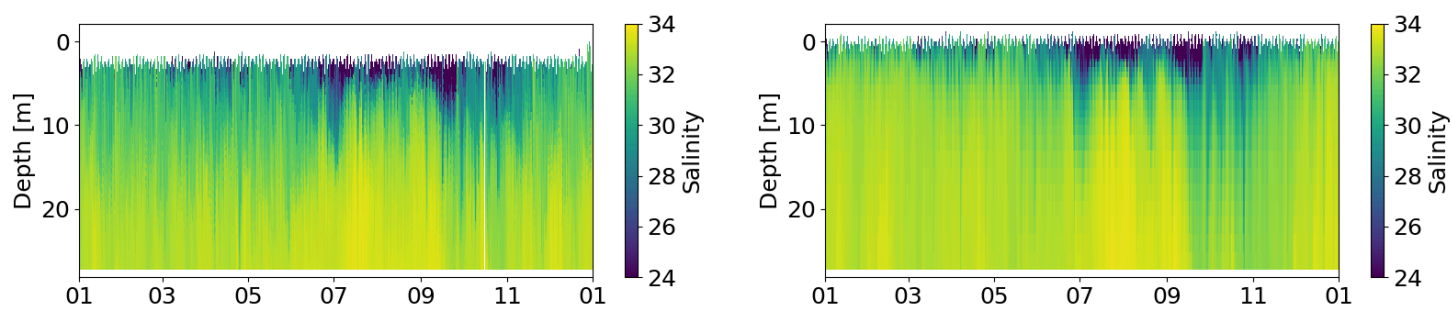


(c) Dissolved oxygen

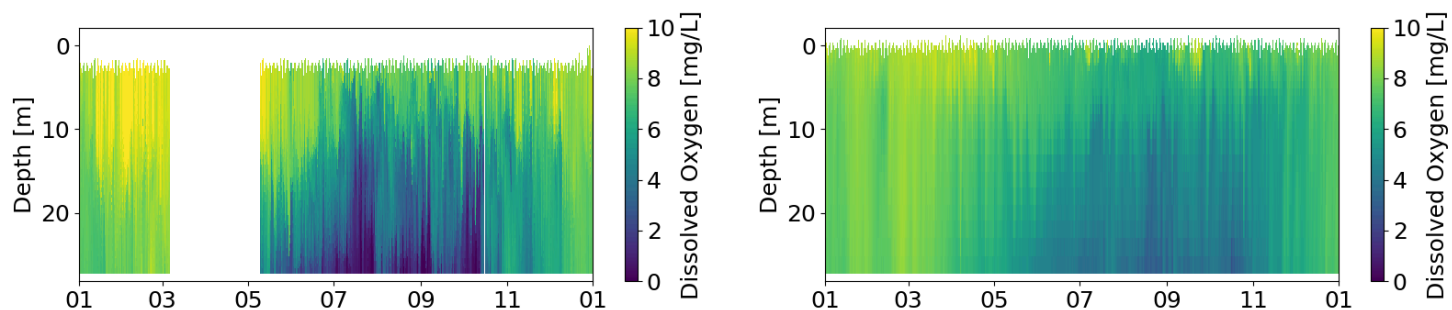
Figure S3 Isopleth plots at Back of Ise Bay in 2012
Left: Observations, Right: Data assimilation results.



(a) Water temperature

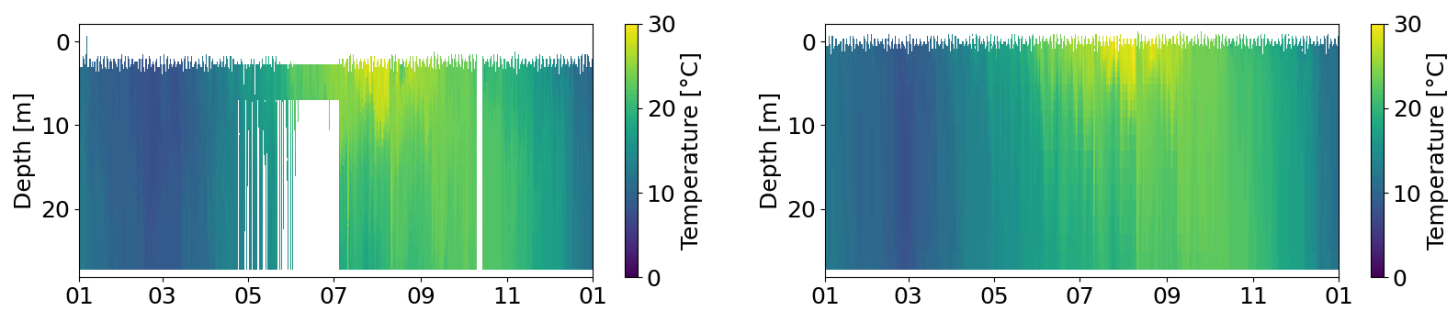


(b) Salinity

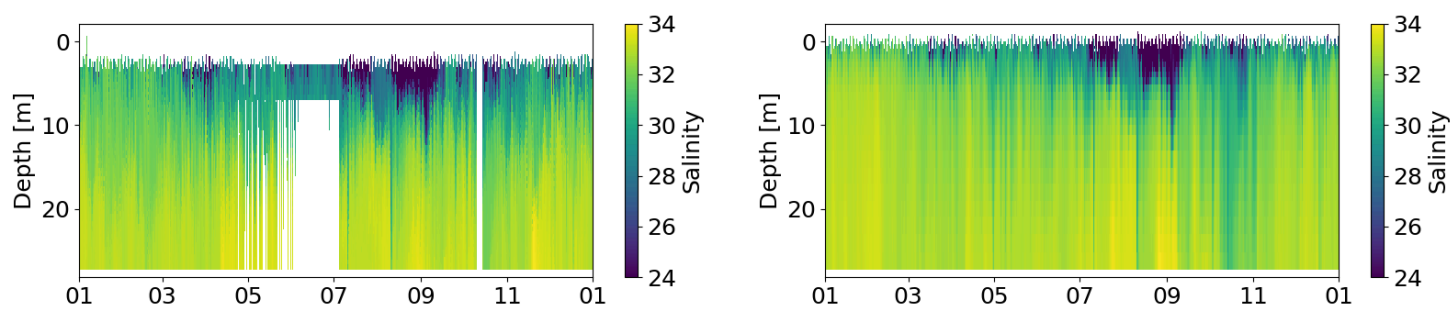


(c) Dissolved oxygen

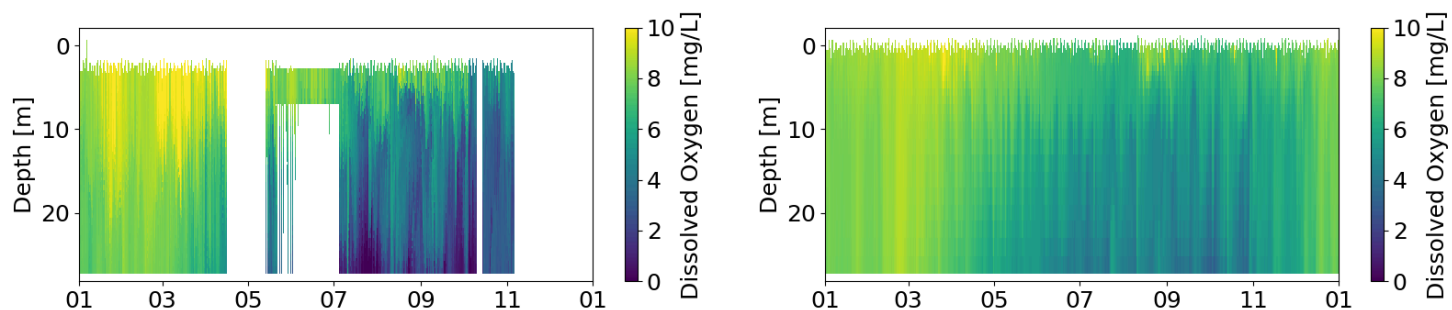
Figure S4 Isopleth plots at Back of Ise Bay in 2013
Left: Observations, Right: Data assimilation results.



(a) Water temperature

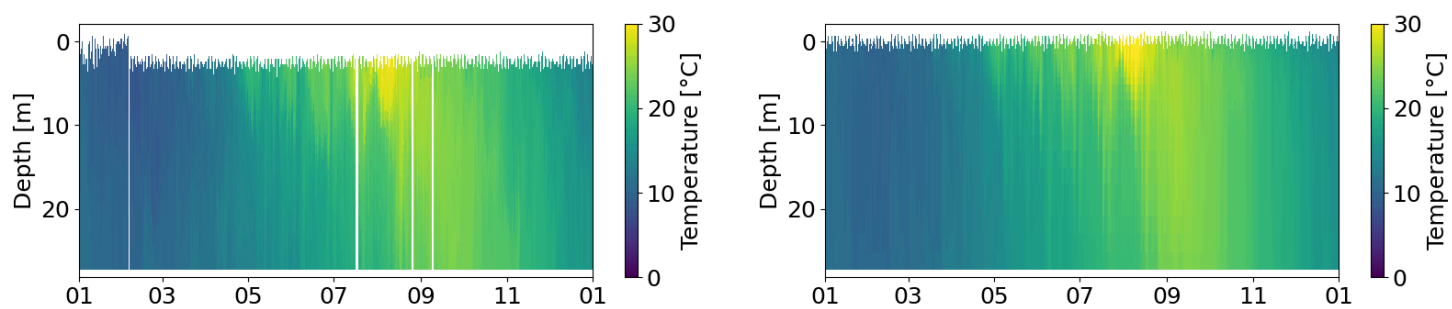


(b) Salinity

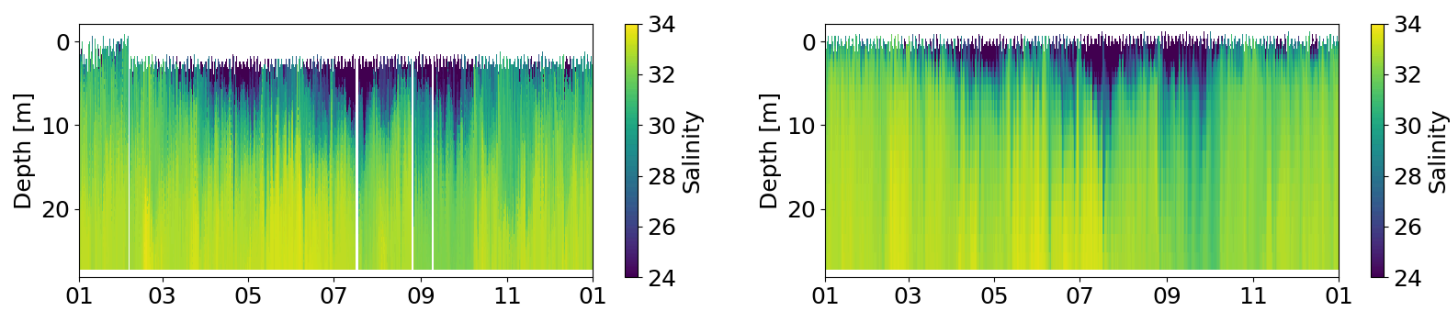


(c) Dissolved oxygen

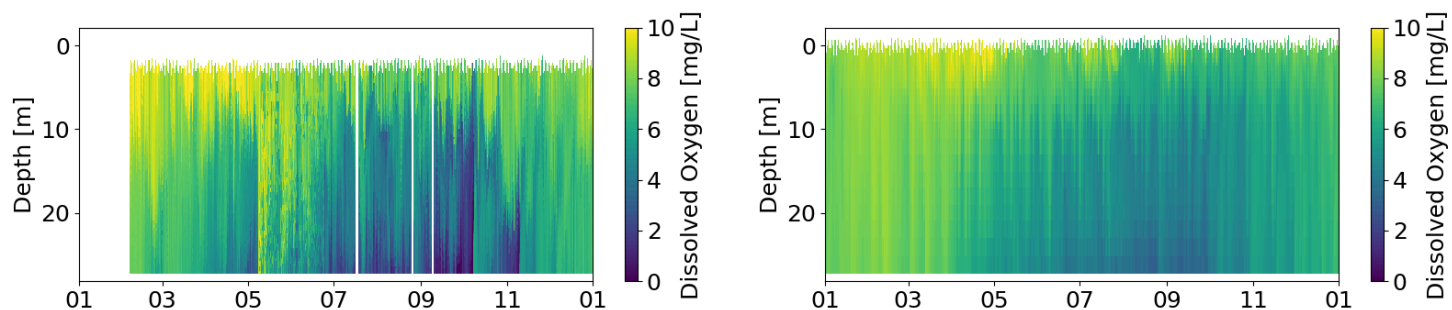
Figure S5 Isopleth plots at Back of Ise Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

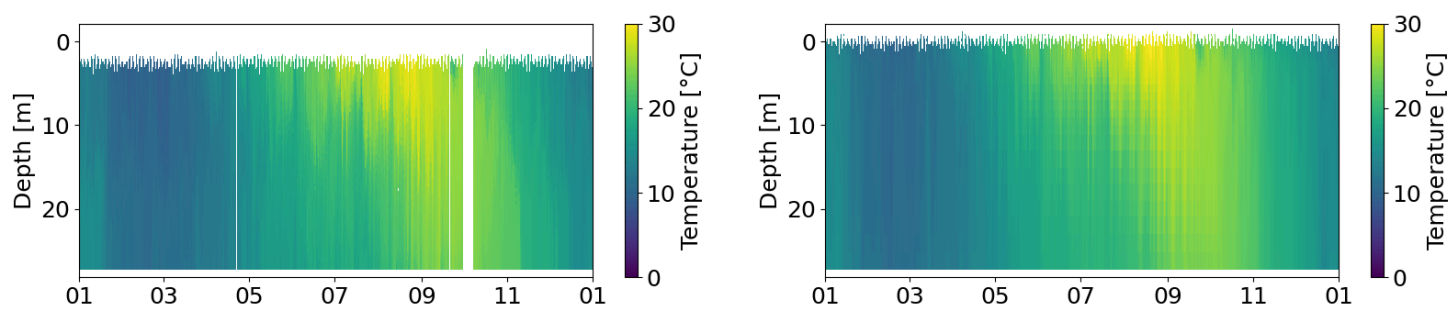


(b) Salinity

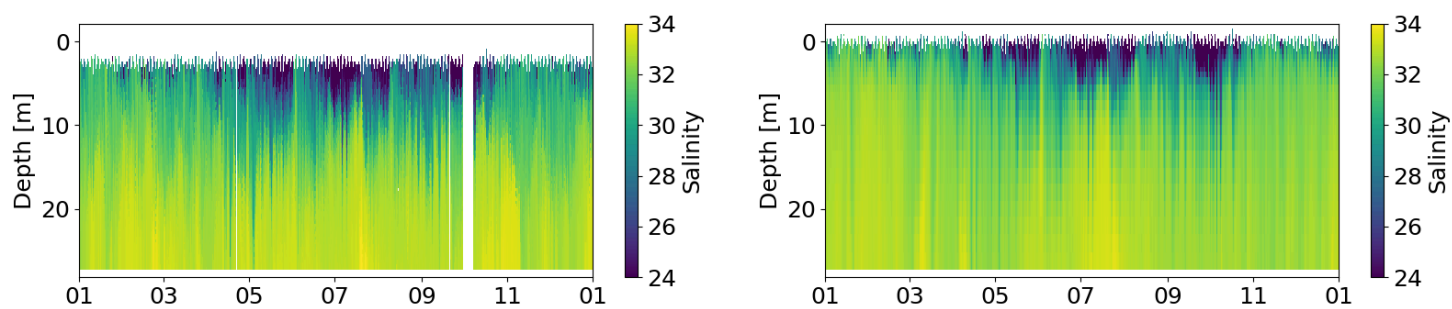


(c) Dissolved oxygen

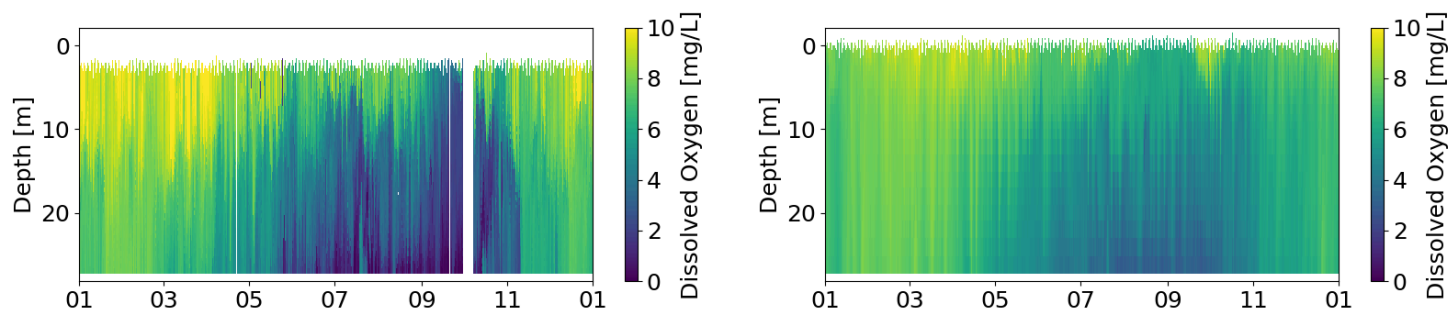
Figure S6 Isopleth plots at Back of Ise Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

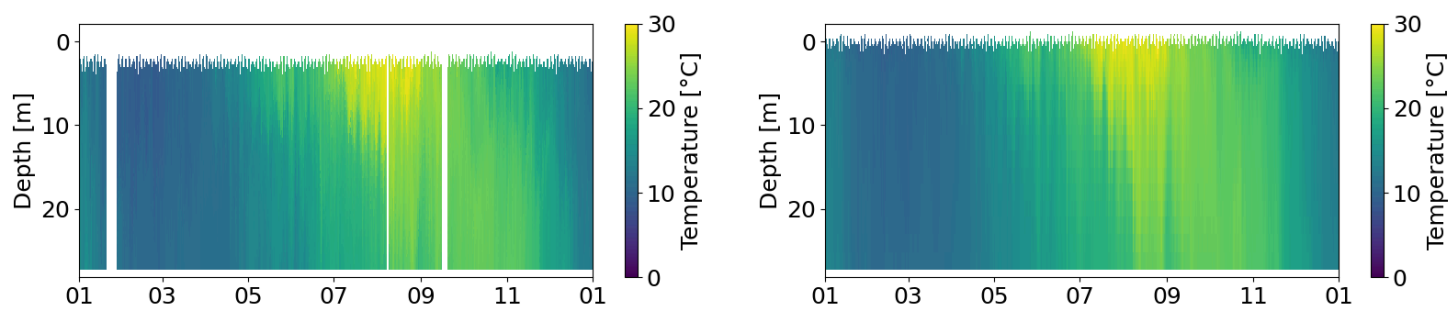


(b) Salinity

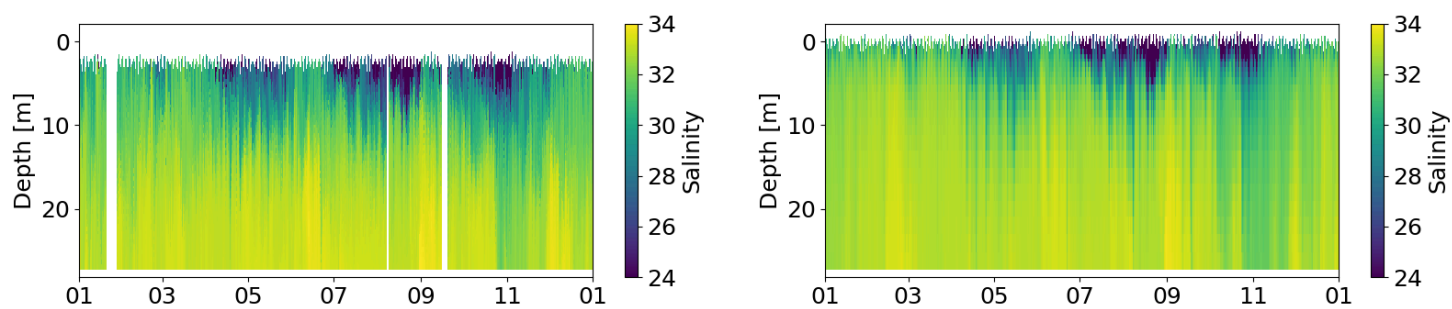


(c) Dissolved oxygen

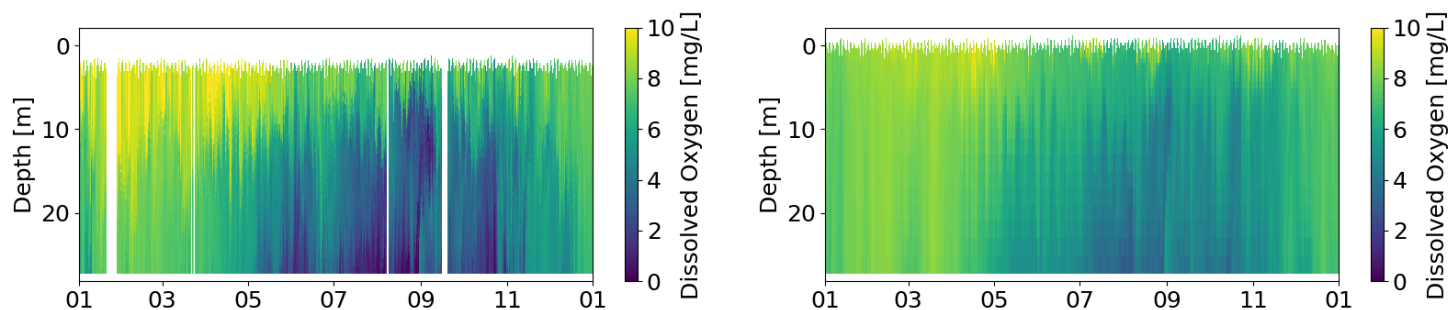
Figure S7 Isopleth plots at Back of Ise Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

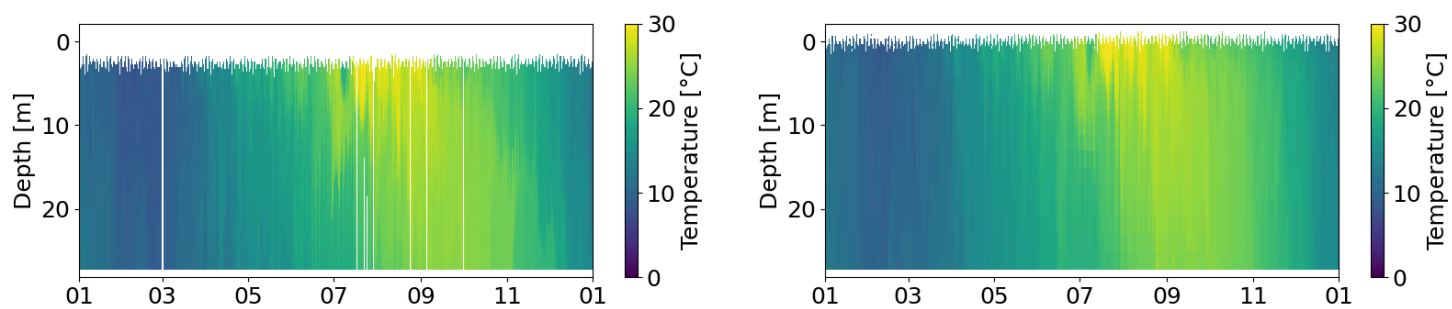


(b) Salinity

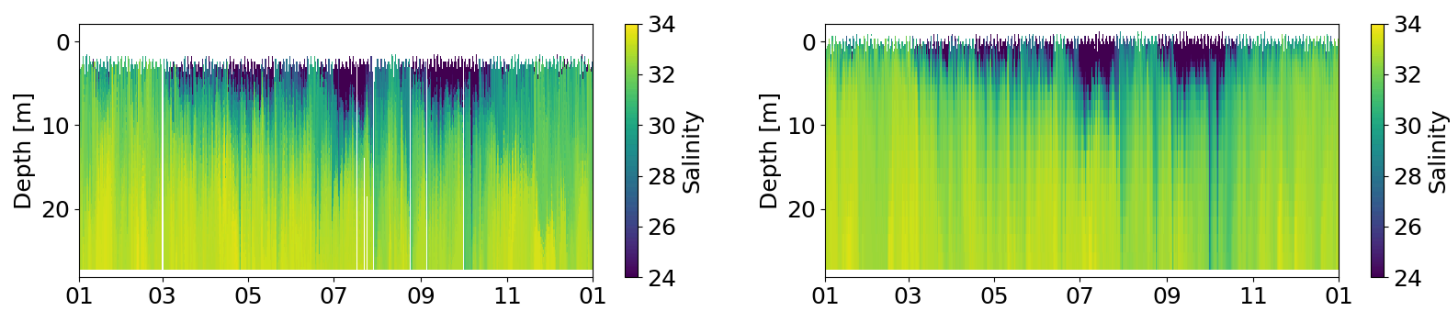


(c) Dissolved oxygen

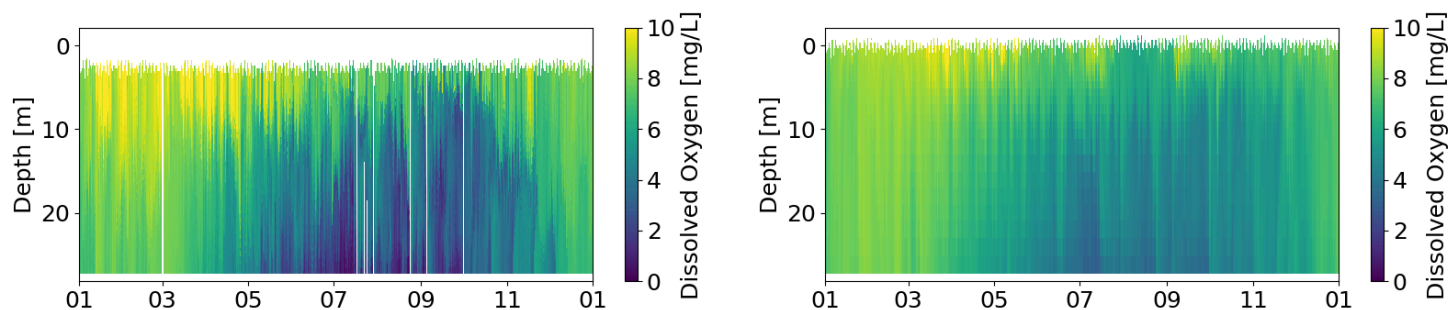
Figure S8 Isopleth plots at Back of Ise Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

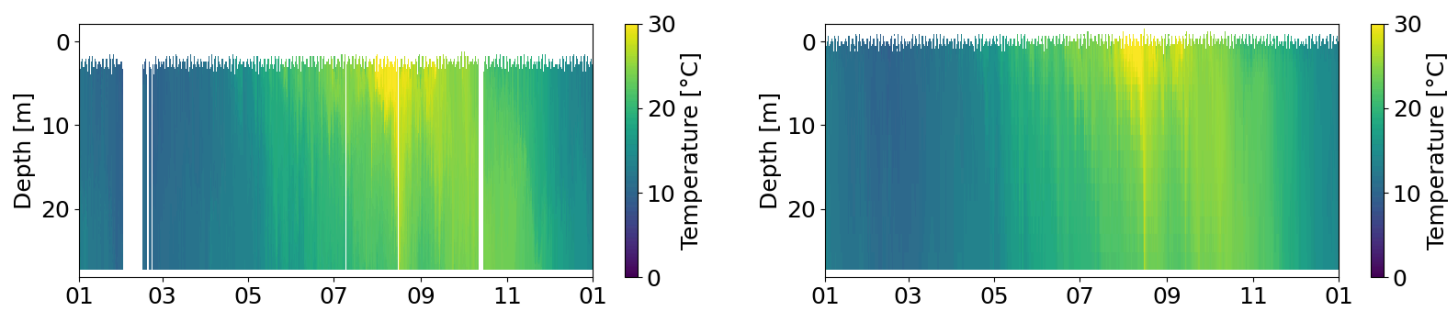


(b) Salinity

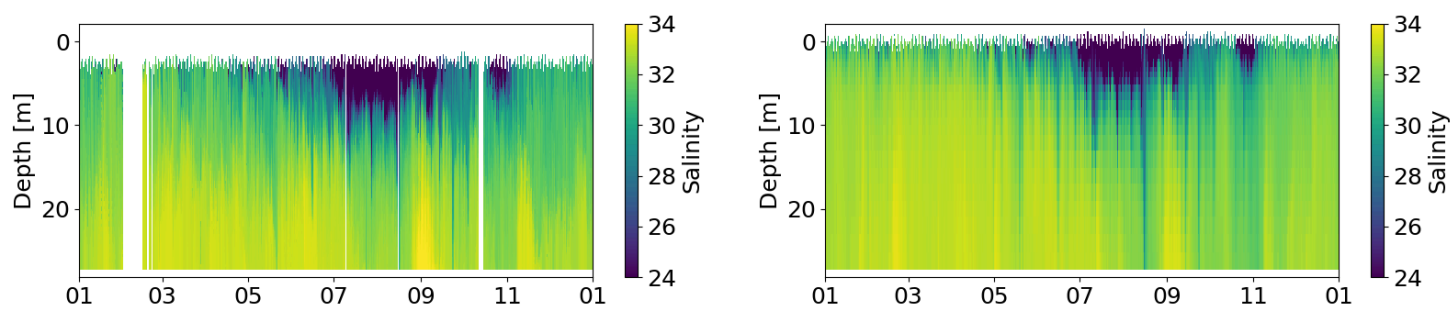


(c) Dissolved oxygen

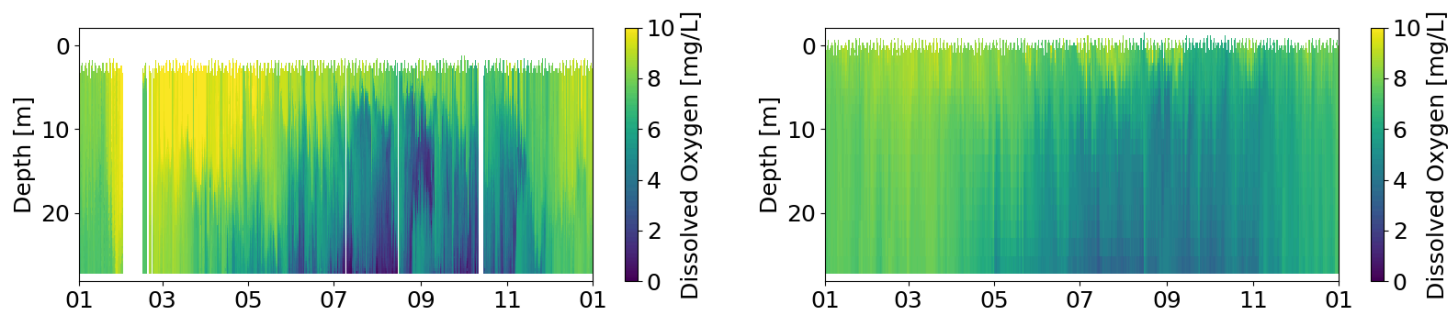
Figure S9 Isopleth plots at Back of Ise Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

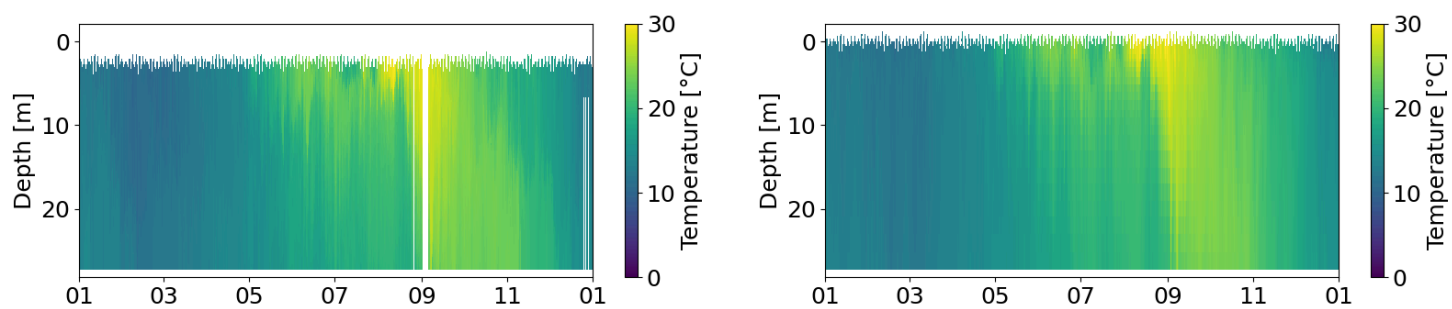


(b) Salinity

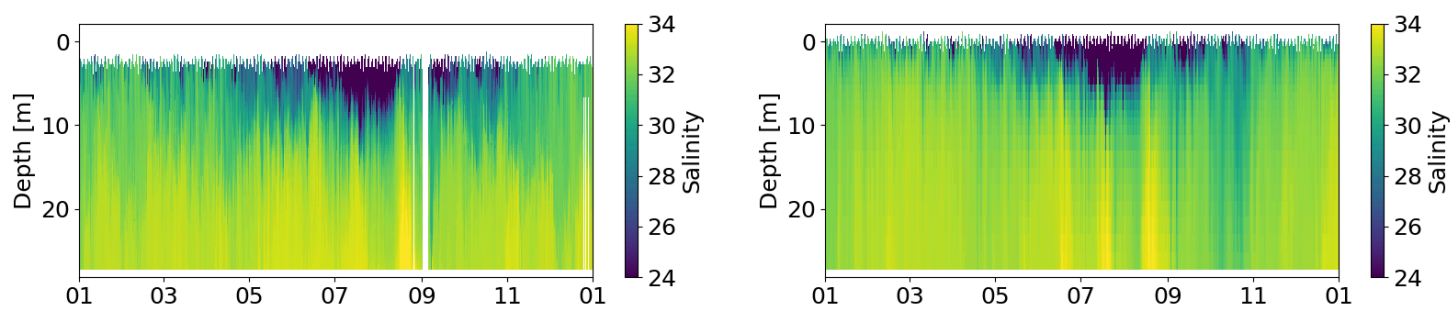


(c) Dissolved oxygen

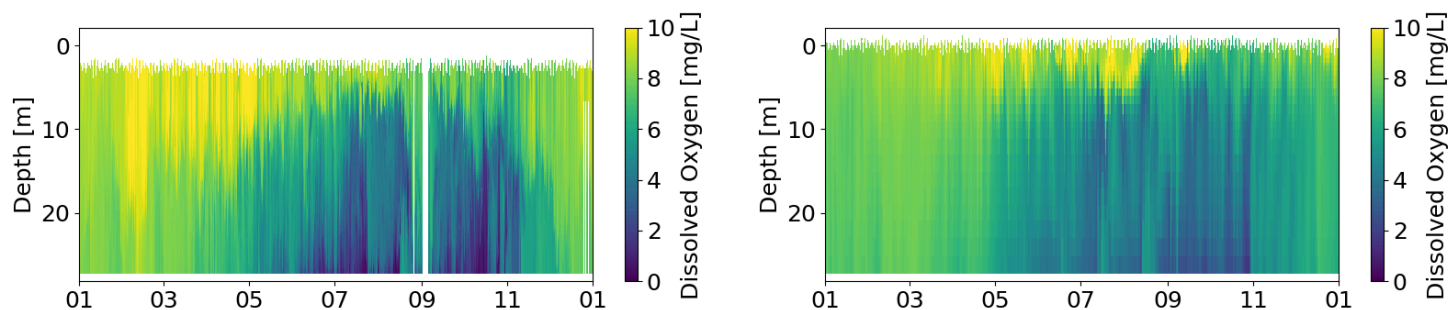
Figure S10 Isopleth plots at Back of Ise Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

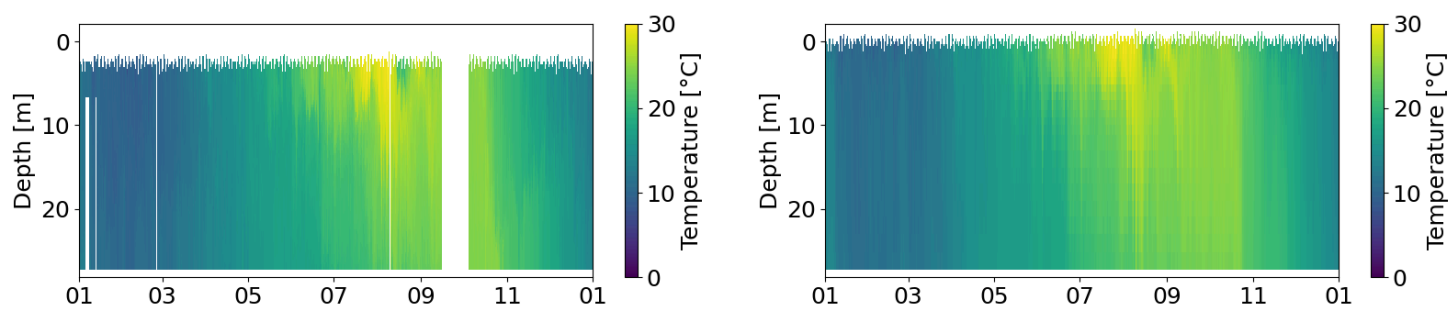


(b) Salinity

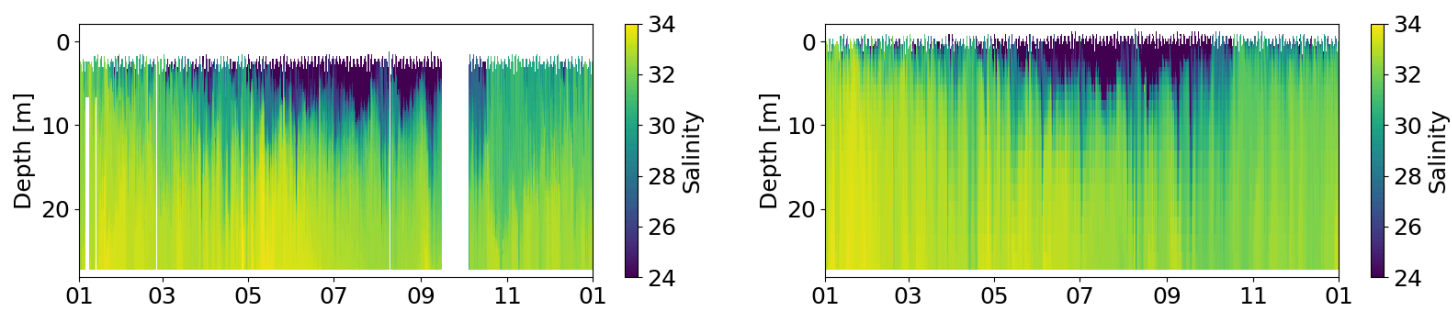


(c) Dissolved oxygen

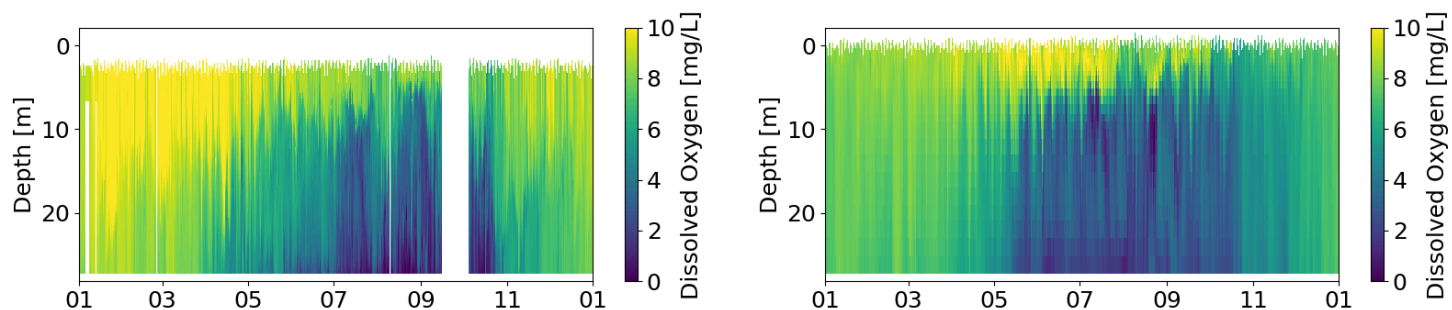
Figure S11 Isopleth plots at Back of Ise Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

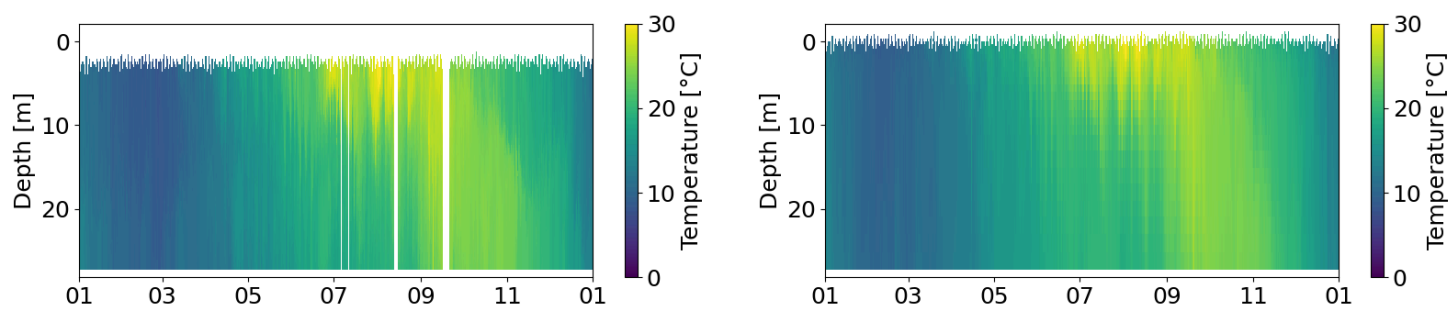


(b) Salinity

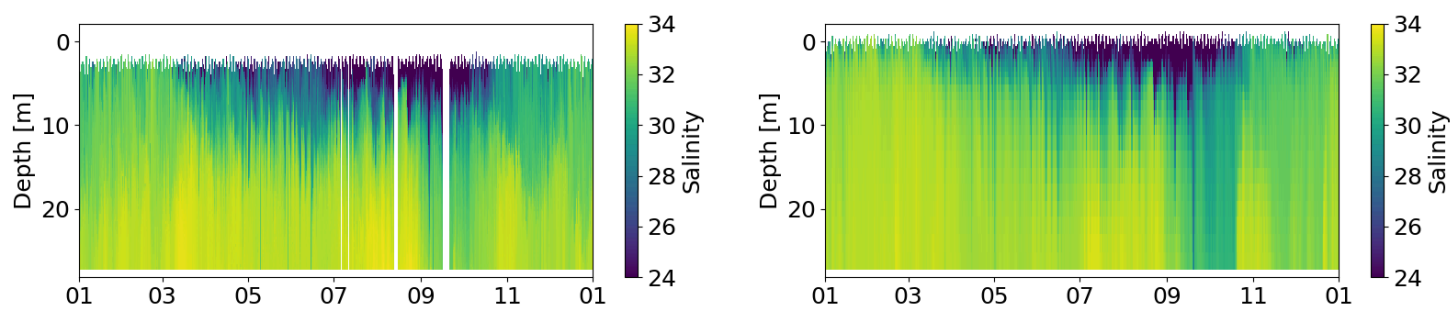


(c) Dissolved oxygen

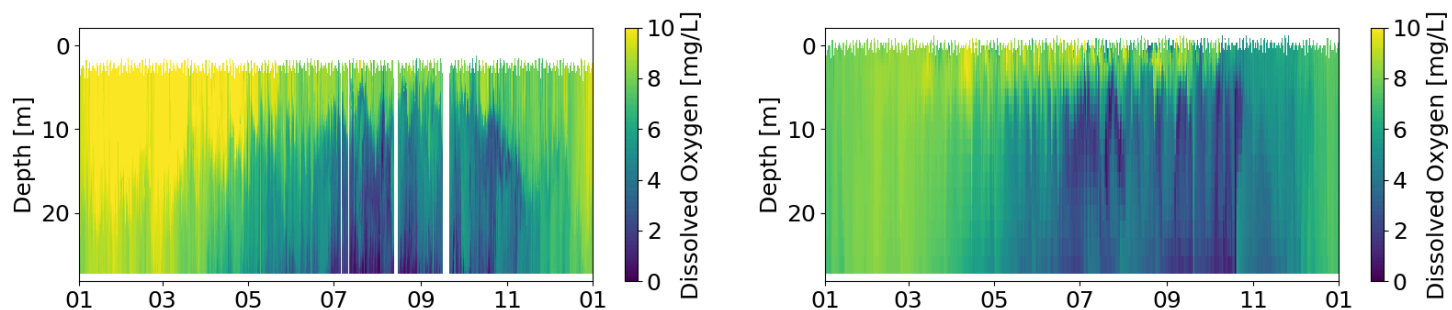
Figure S12 Isopleth plots at Back of Ise Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



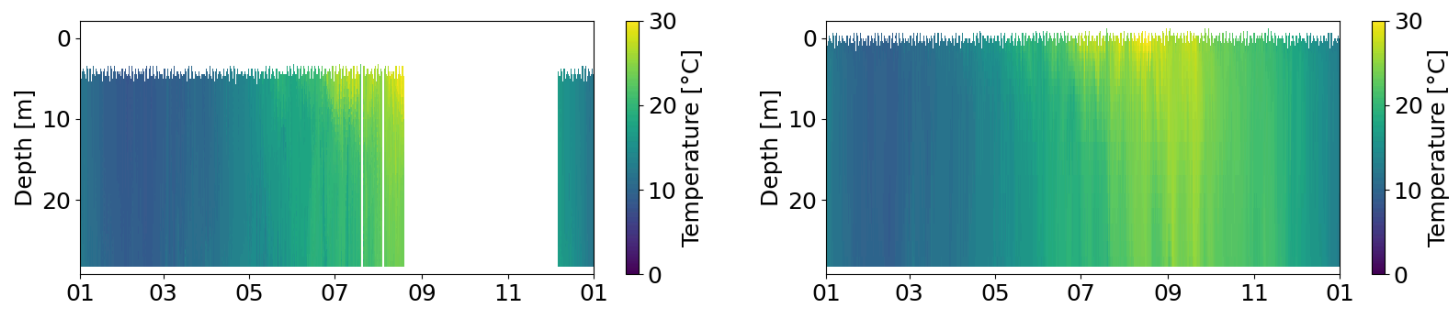
(b) Salinity



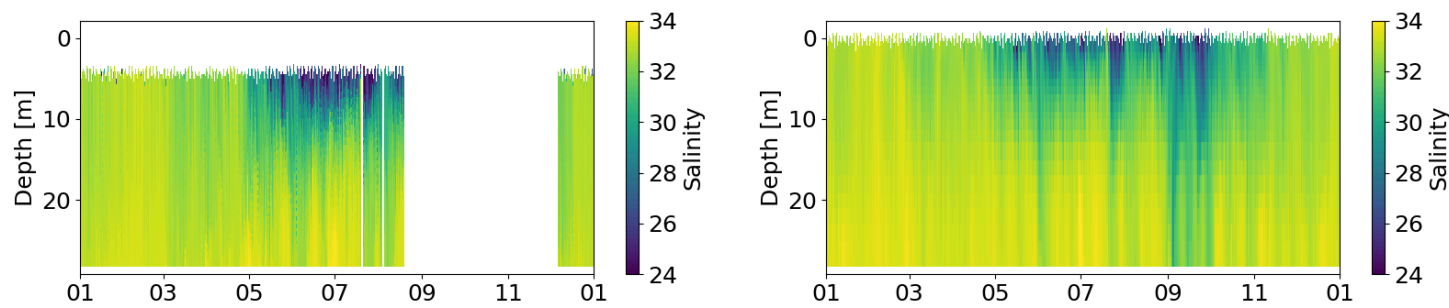
(c) Dissolved oxygen

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

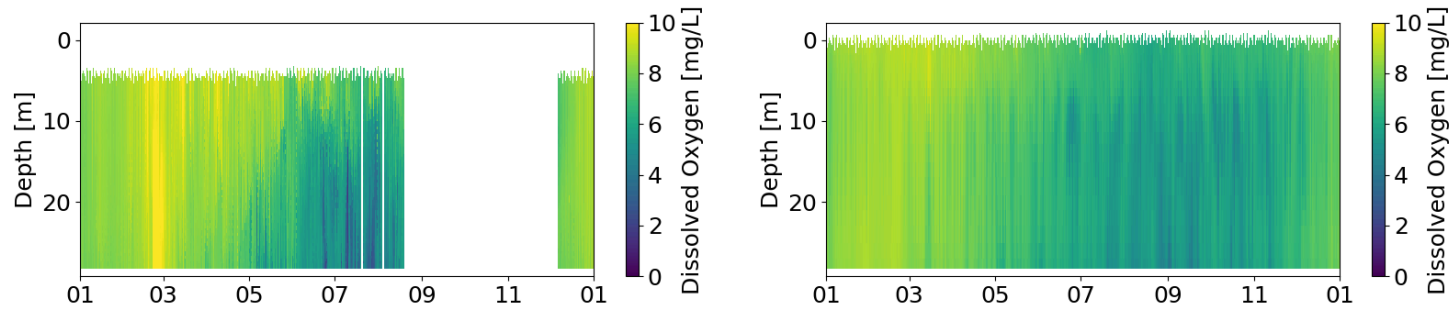
S3.2 Center of Ise Bay: Isopleths



(a) Water temperature

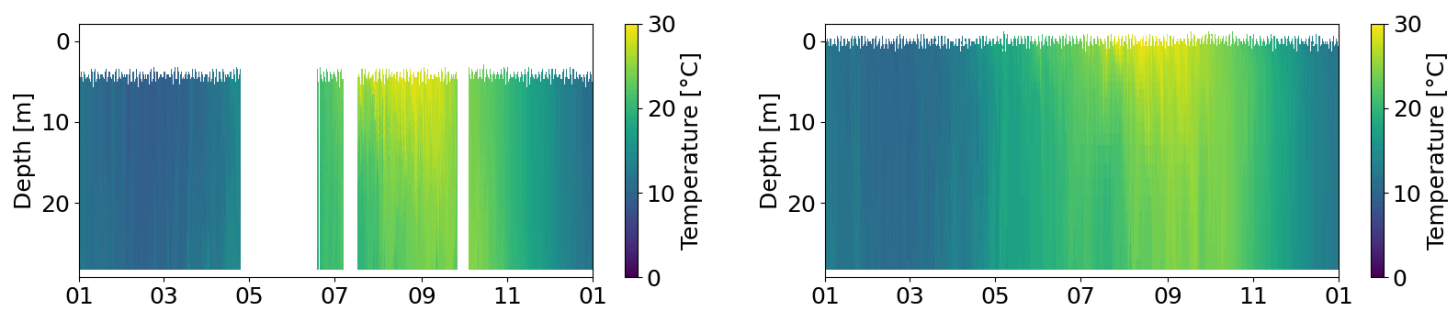


(b) Salinity

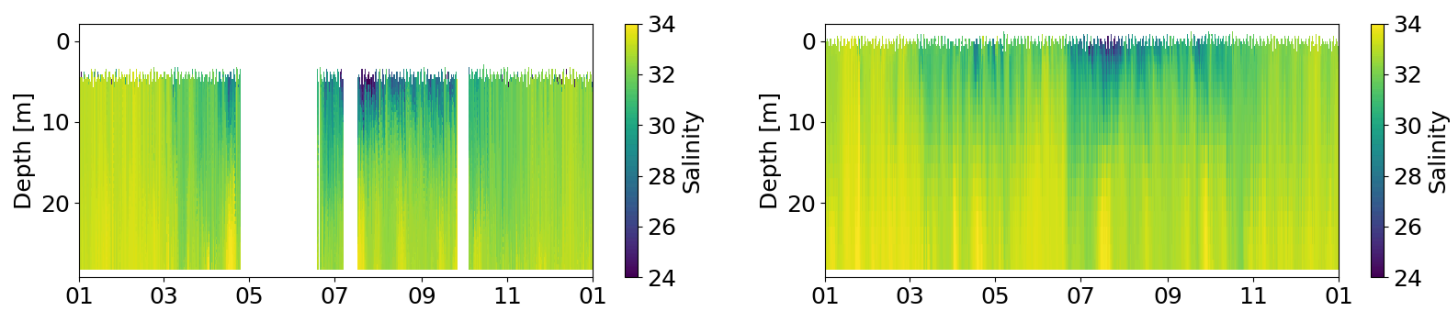


(c) Dissolved oxygen

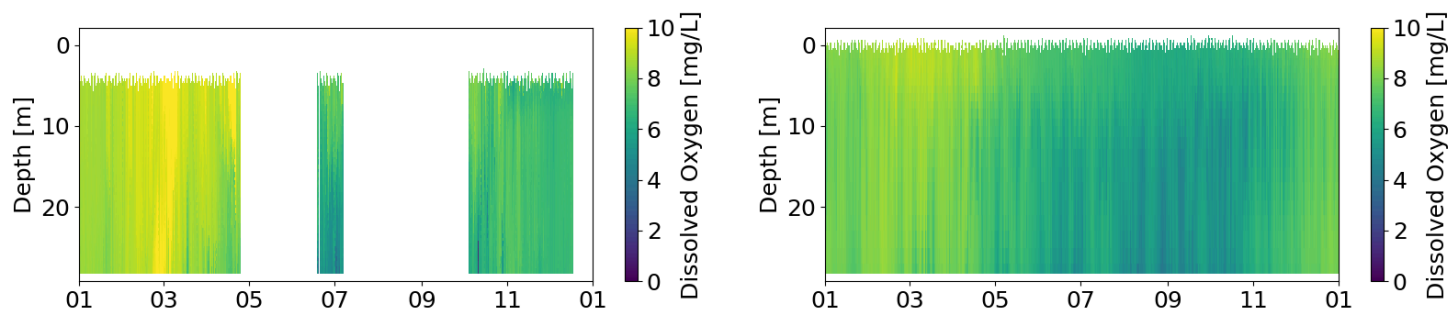
Figure S14 Isopleth plots at Center of Ise Bay in 2011
Left: Observations, Right: Data assimilation results.



(a) Water temperature

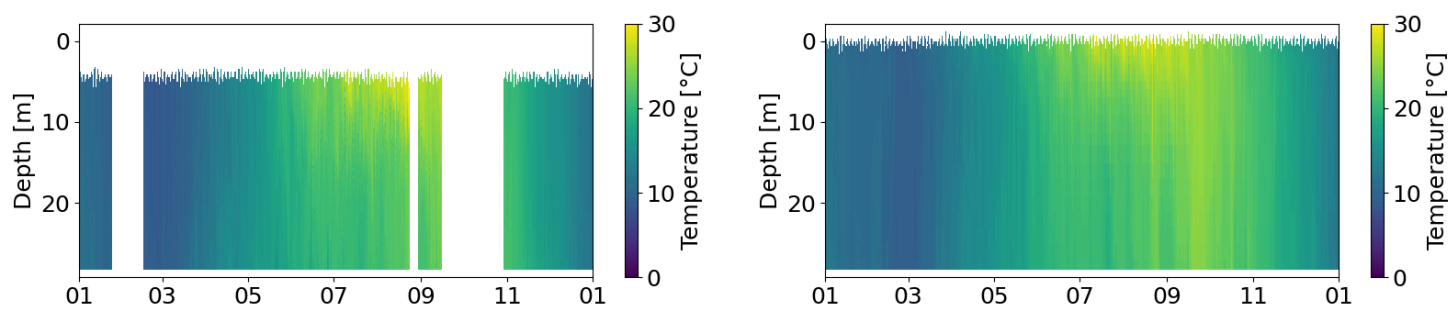


(b) Salinity

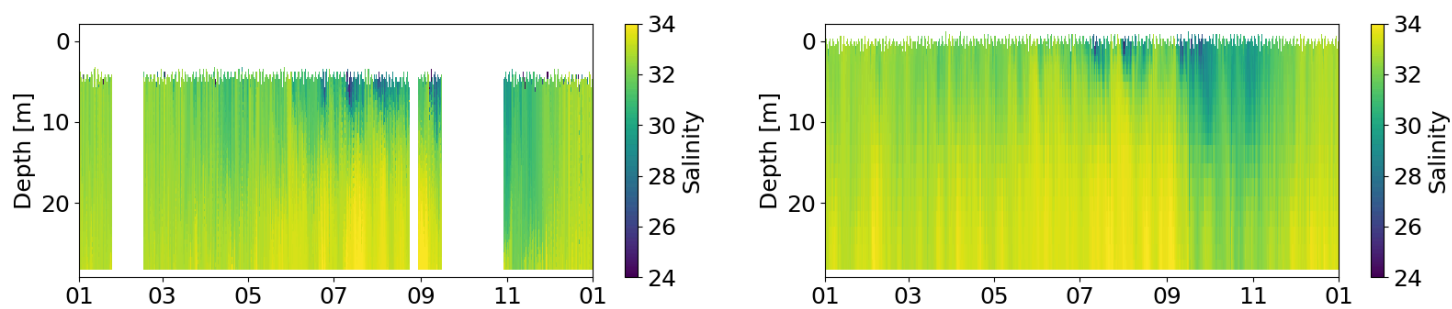


(c) Dissolved oxygen

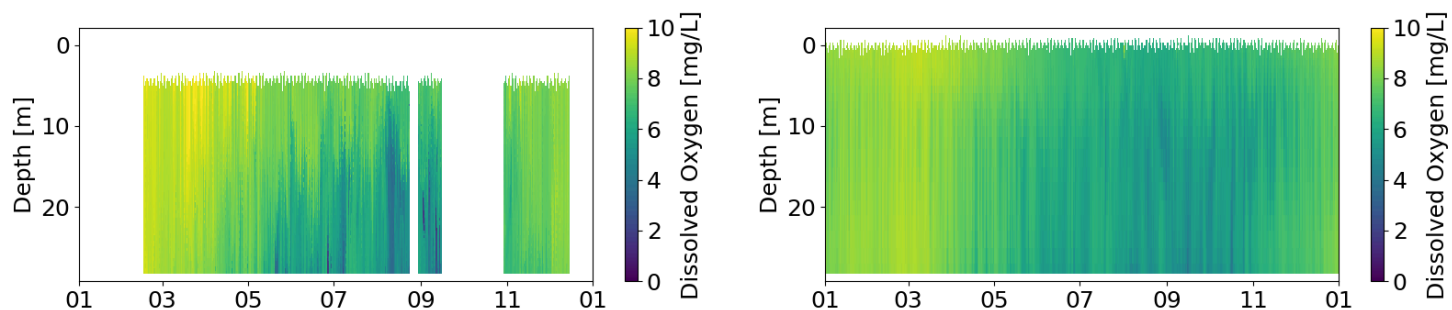
Figure S15 Isopleth plots at Center of Ise Bay in 2012
Left: Observations, Right: Data assimilation results.



(a) Water temperature

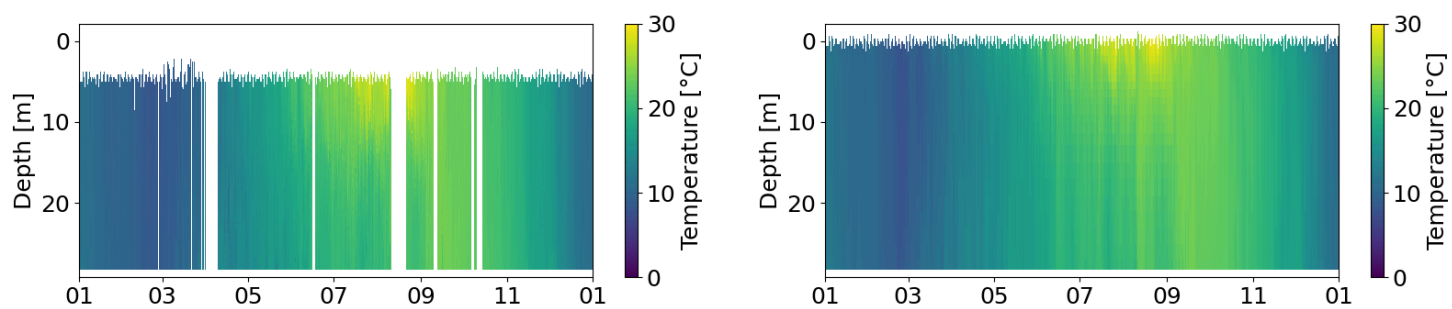


(b) Salinity

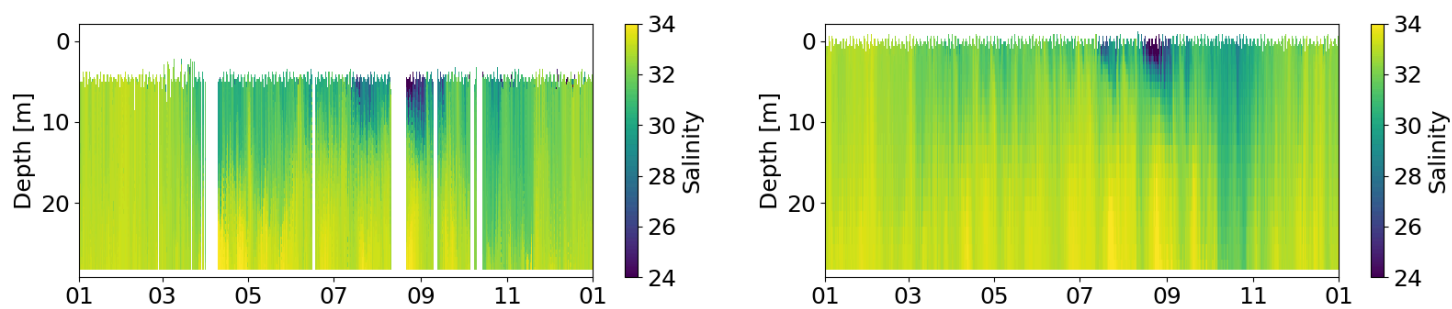


(c) Dissolved oxygen

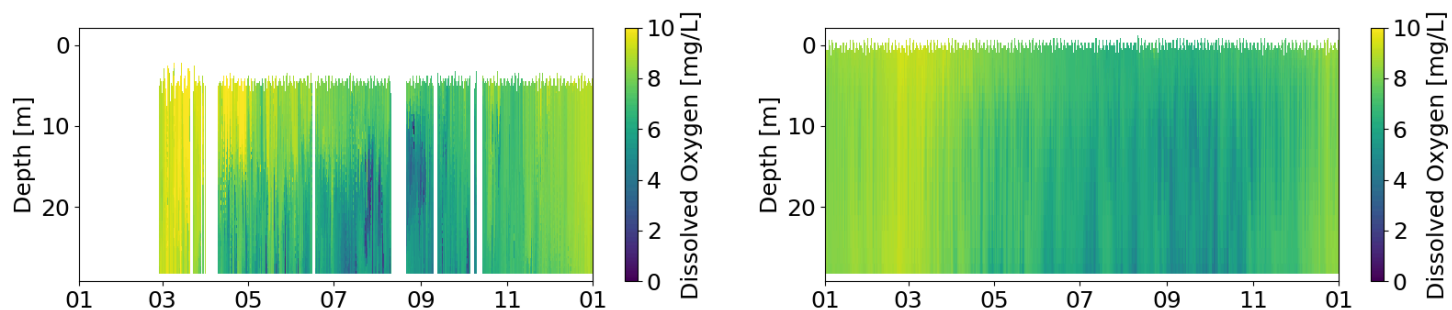
Figure S16 Isopleth plots at Center of Ise Bay in 2013
Left: Observations, Right: Data assimilation results.



(a) Water temperature

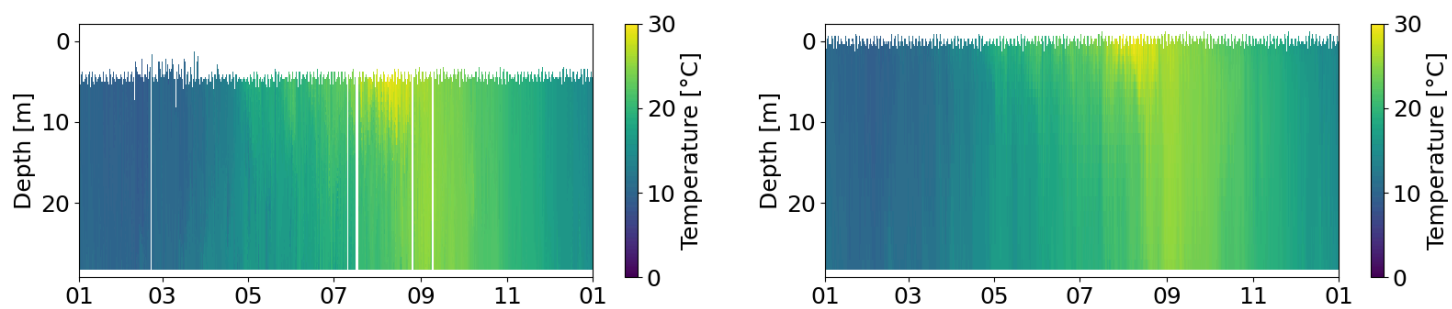


(b) Salinity

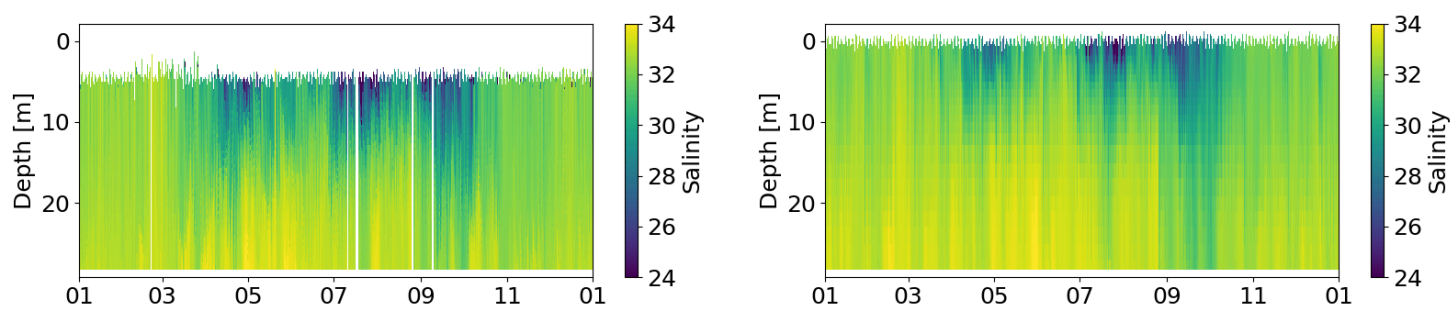


(c) Dissolved oxygen

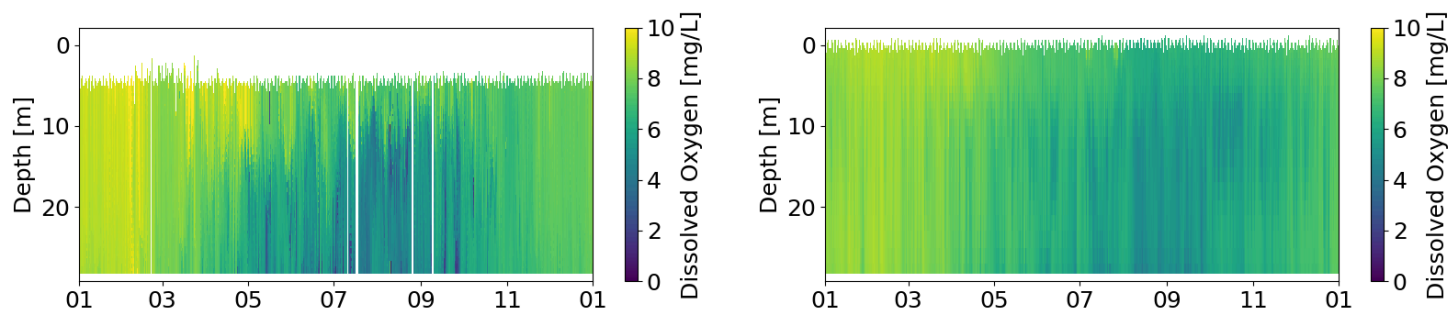
Figure S17 Isopleth plots at Center of Ise Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

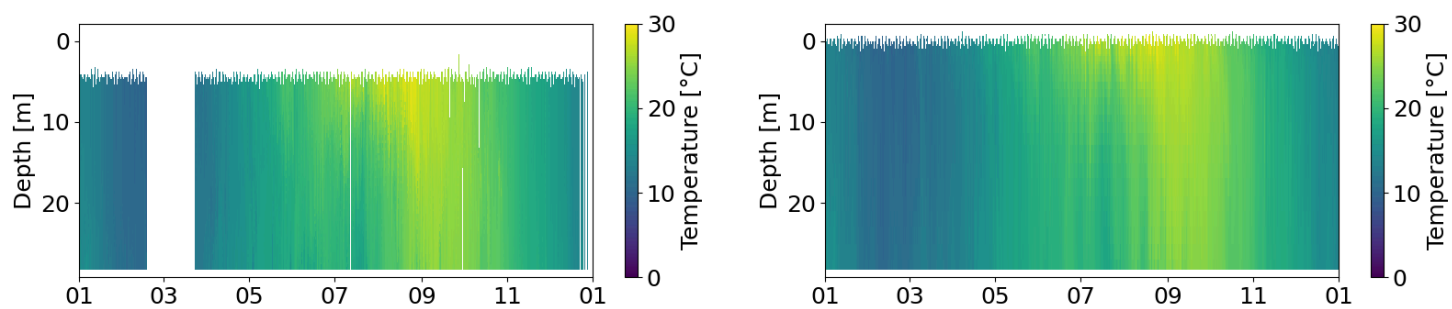


(b) Salinity

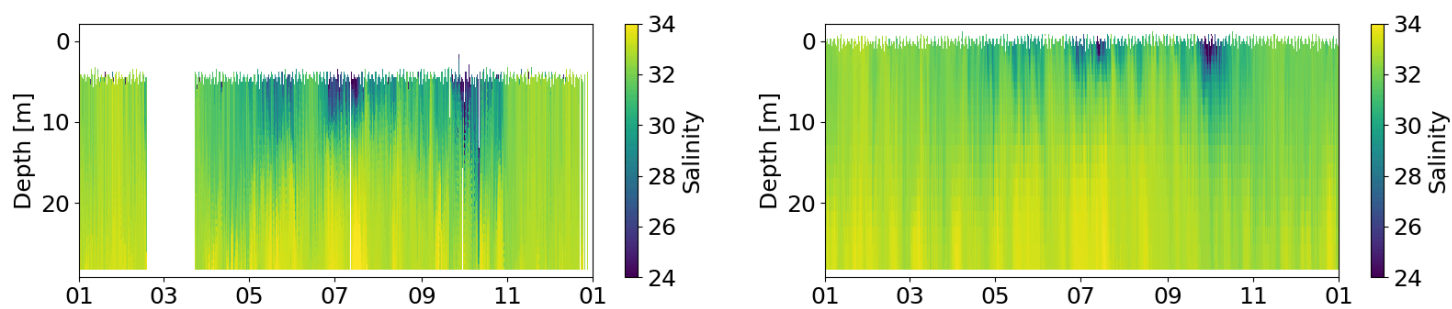


(c) Dissolved oxygen

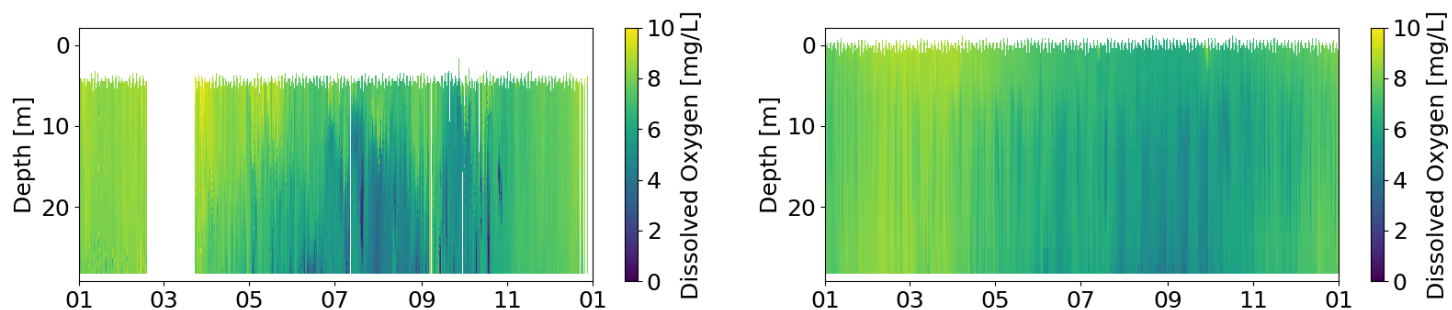
Figure S18 Isopleth plots at Center of Ise Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

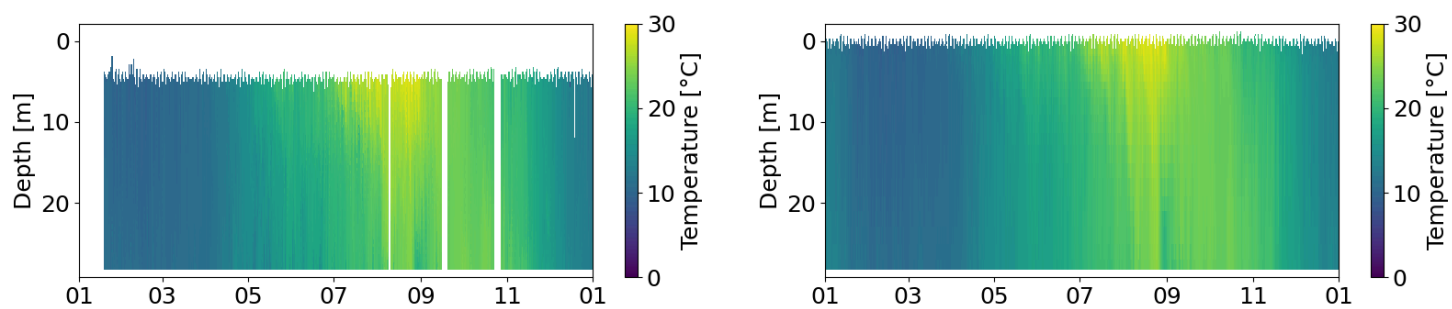


(b) Salinity

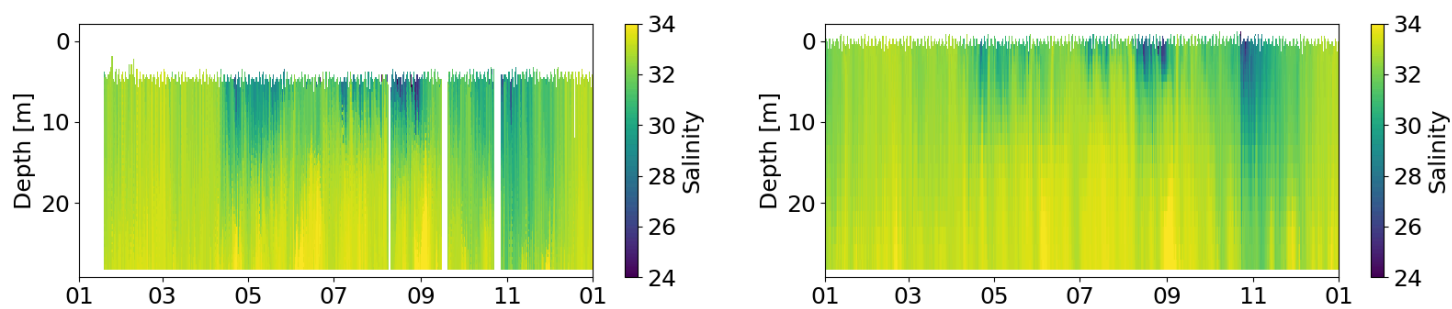


(c) Dissolved oxygen

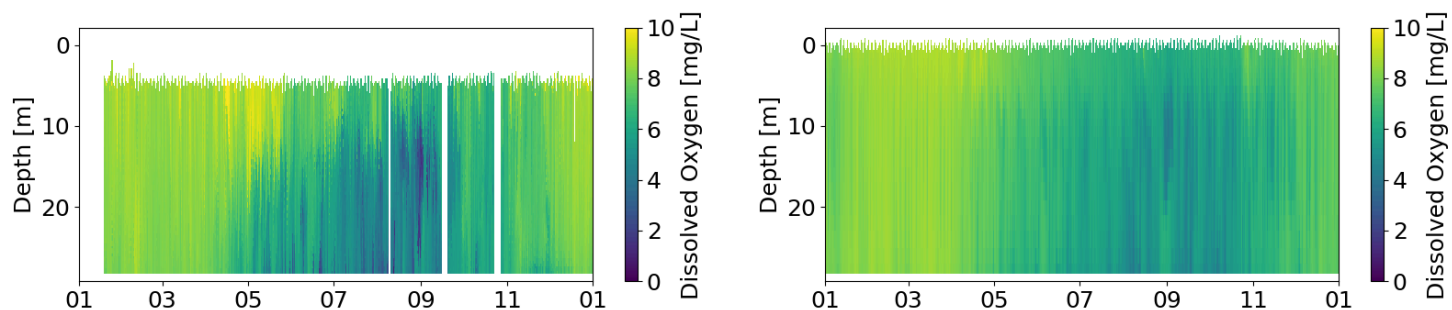
Figure S19 Isopleth plots at Center of Ise Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

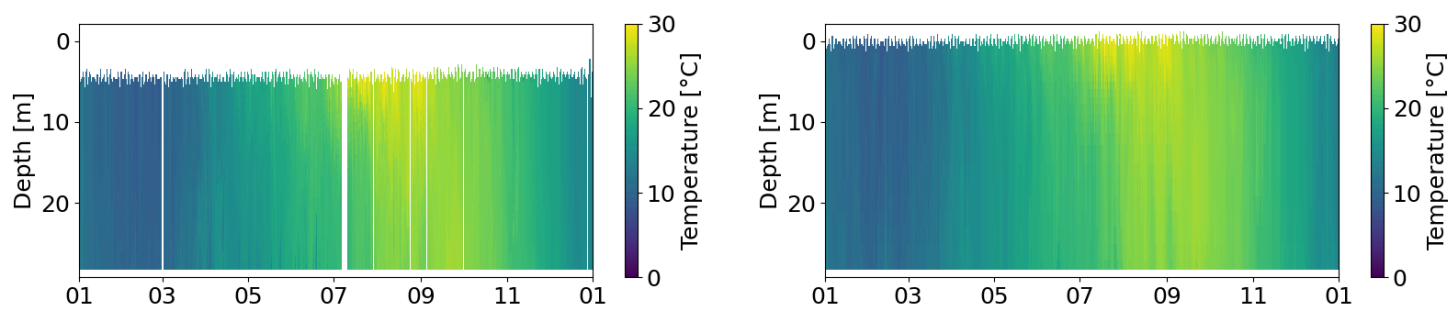


(b) Salinity

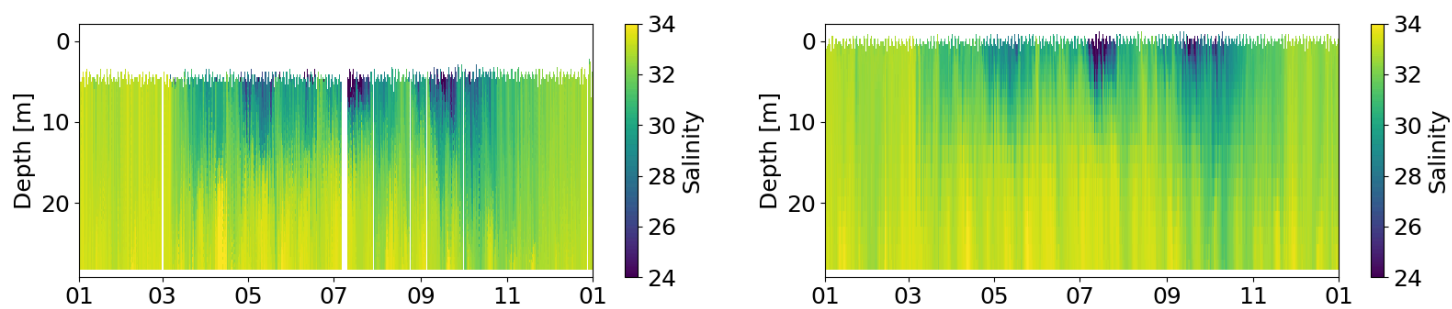


(c) Dissolved oxygen

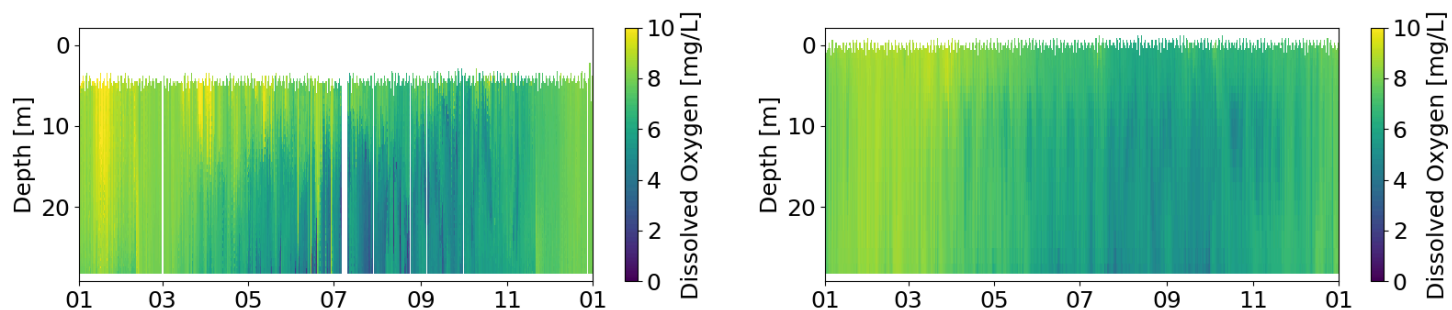
Figure S20 Isopleth plots at Center of Ise Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

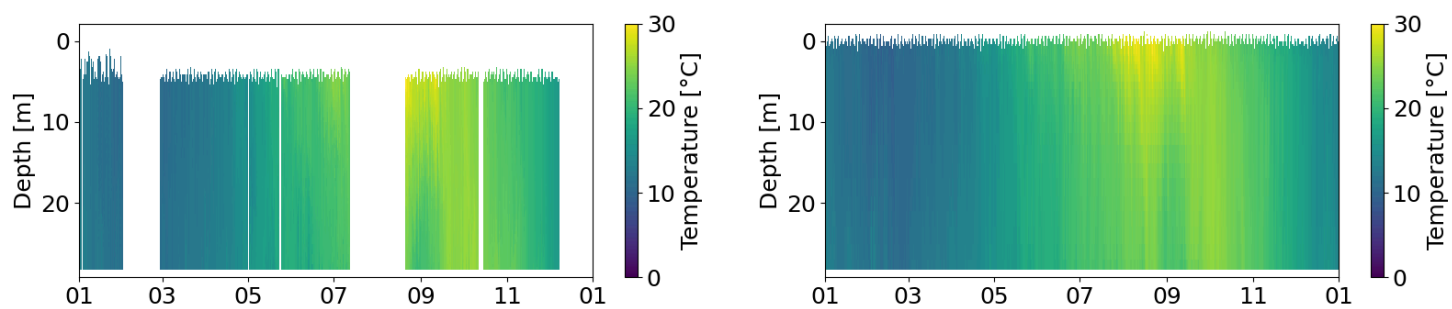


(b) Salinity

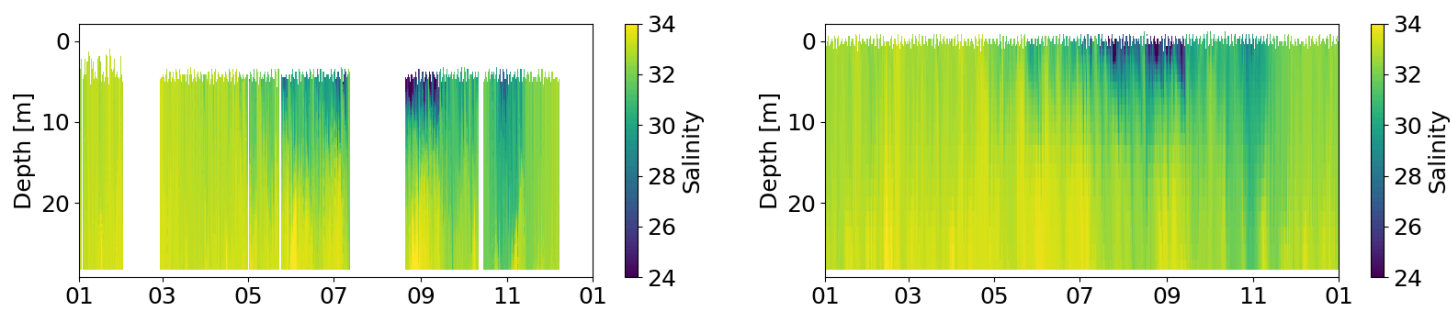


(c) Dissolved oxygen

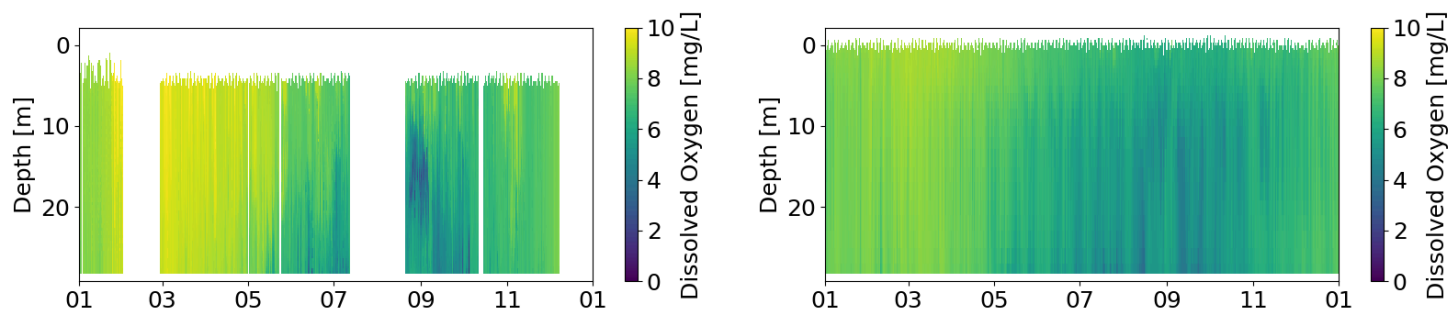
Figure S21 Isopleth plots at Center of Ise Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

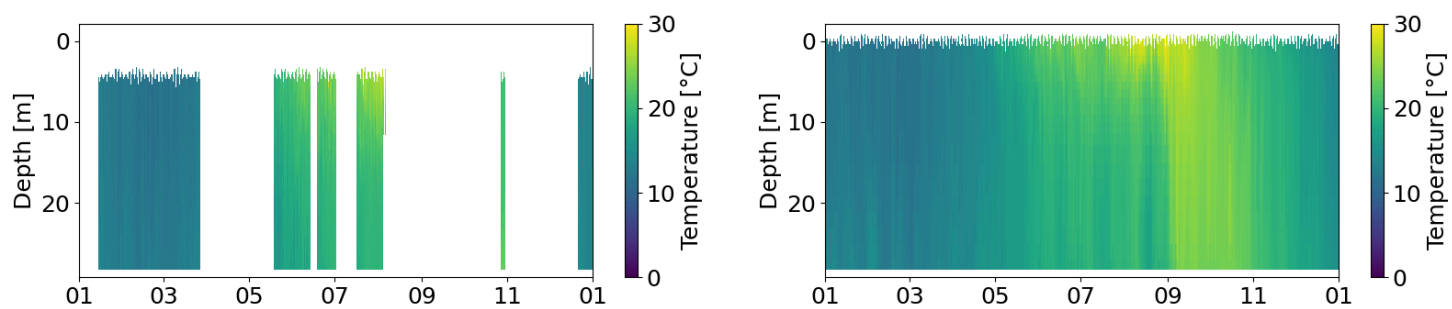


(b) Salinity

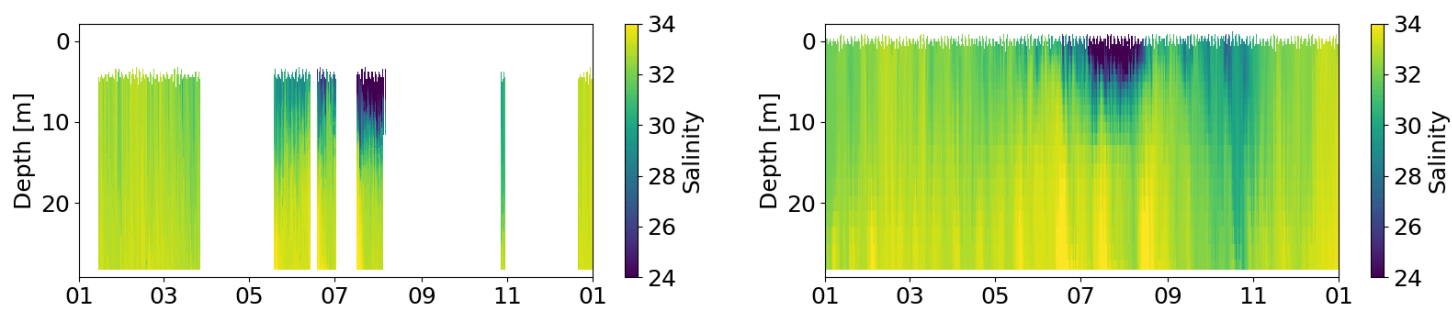


(c) Dissolved oxygen

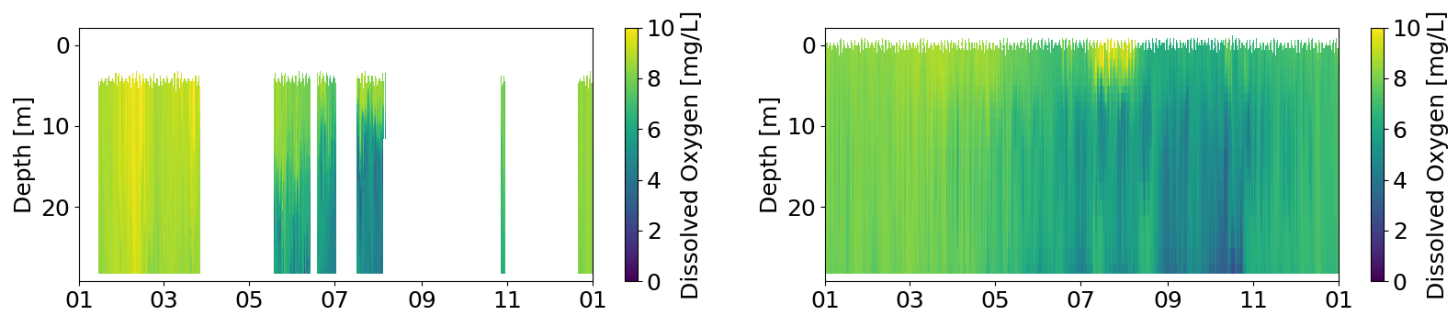
Figure S22 Isopleth plots at Center of Ise Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

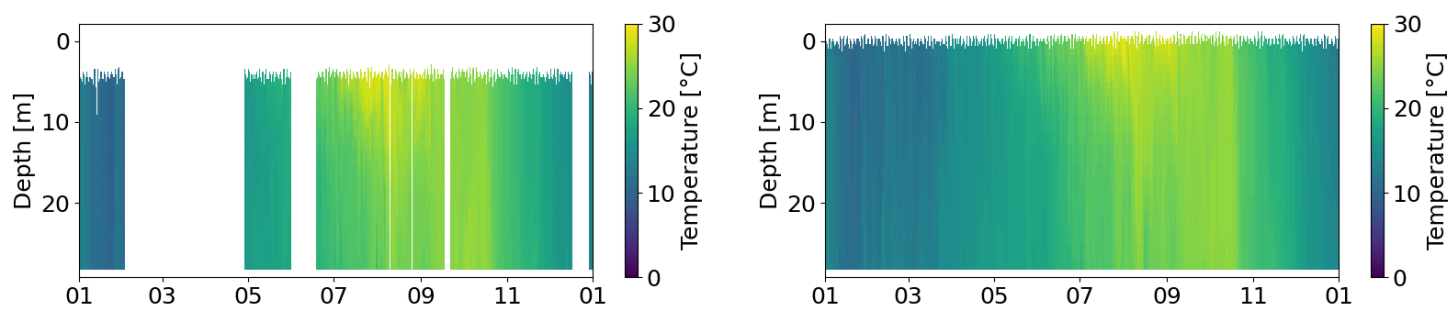


(b) Salinity

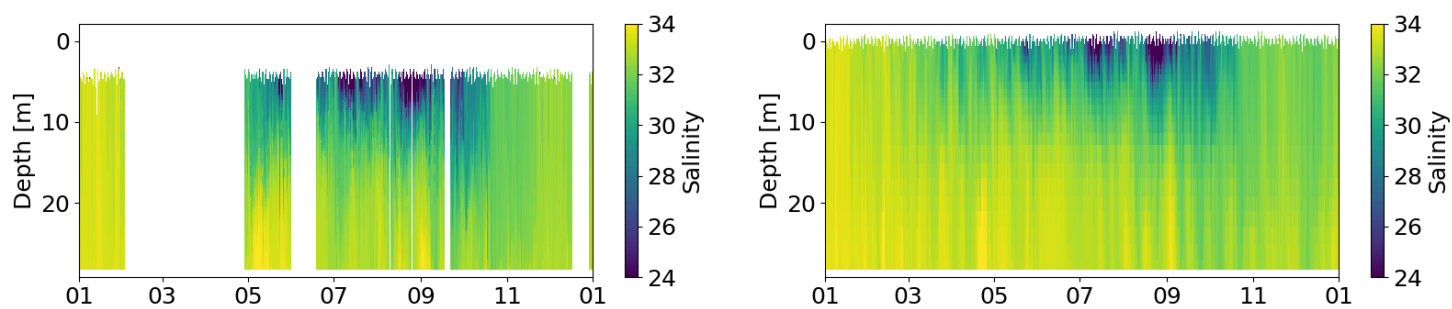


(c) Dissolved oxygen

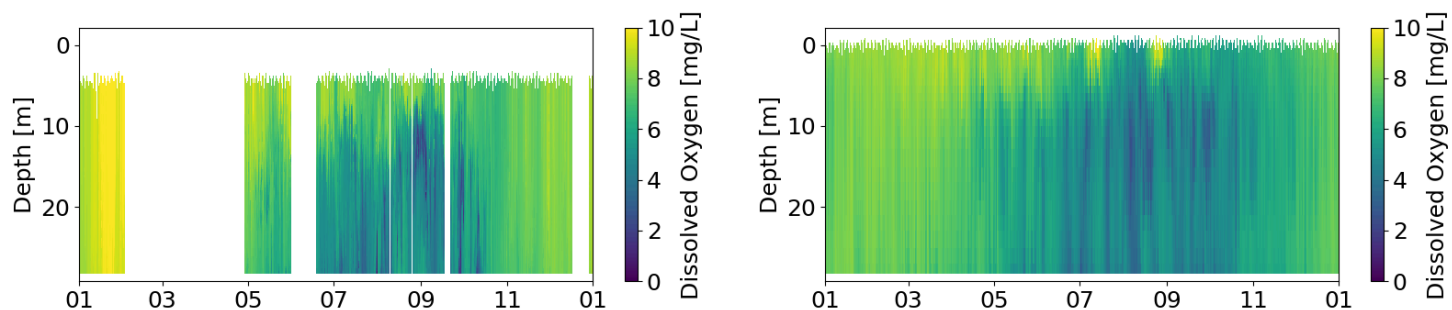
Figure S23 Isopleth plots at Center of Ise Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

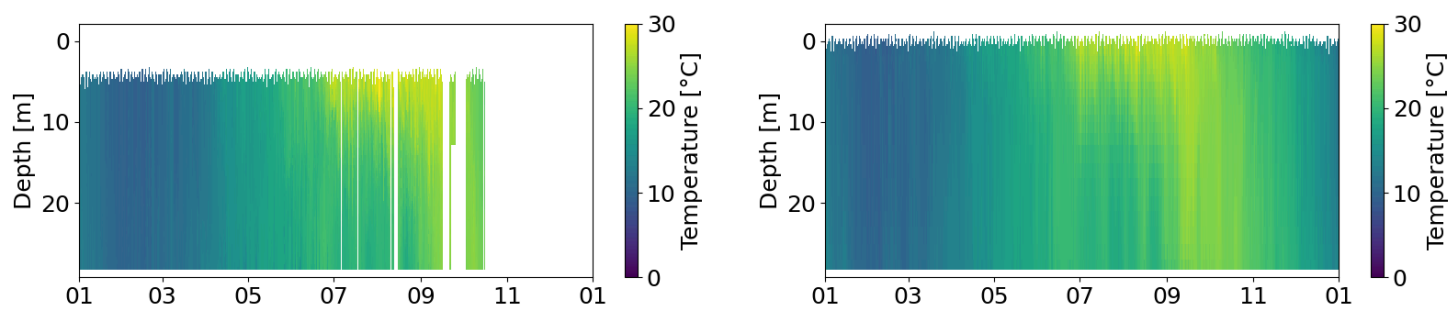


(b) Salinity

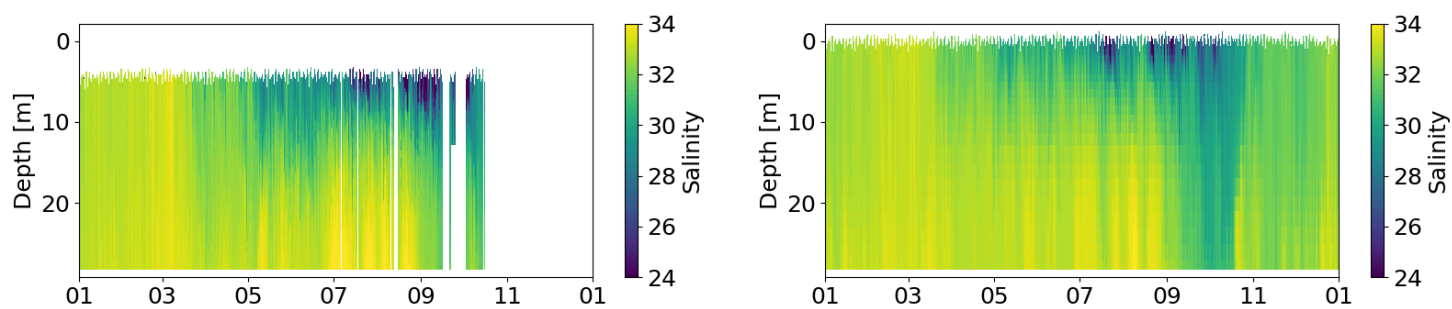


(c) Dissolved oxygen

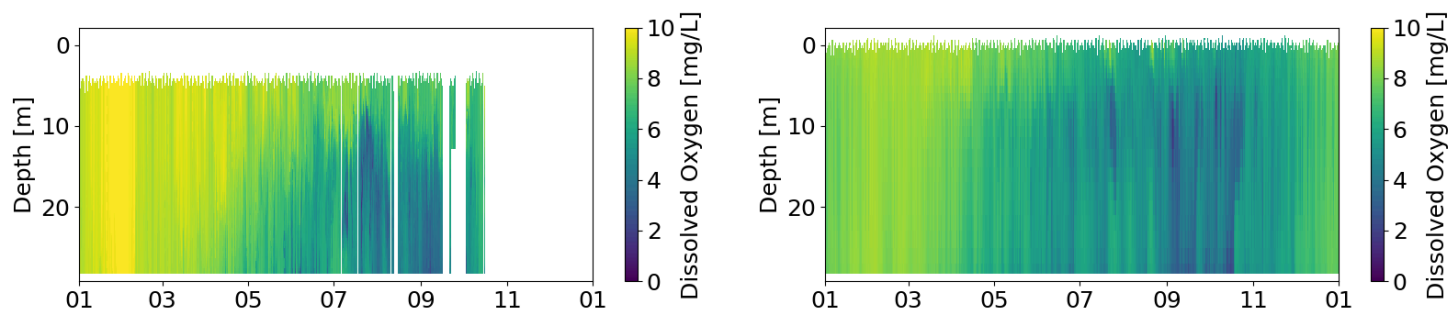
Figure S24 Isopleth plots at Center of Ise Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



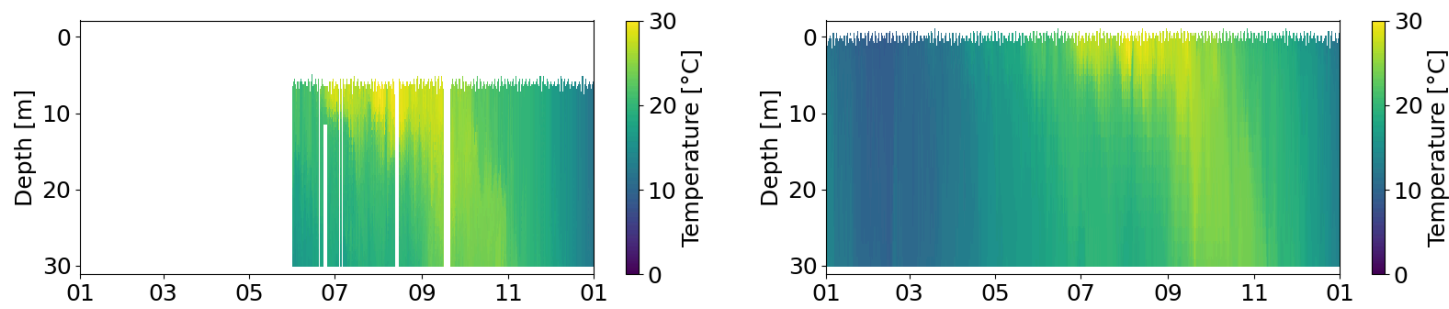
(b) Salinity



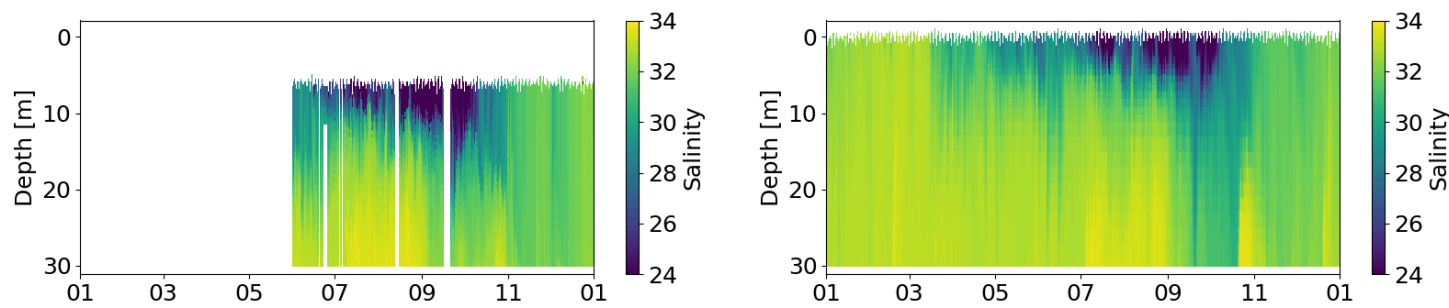
(c) Dissolved oxygen

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

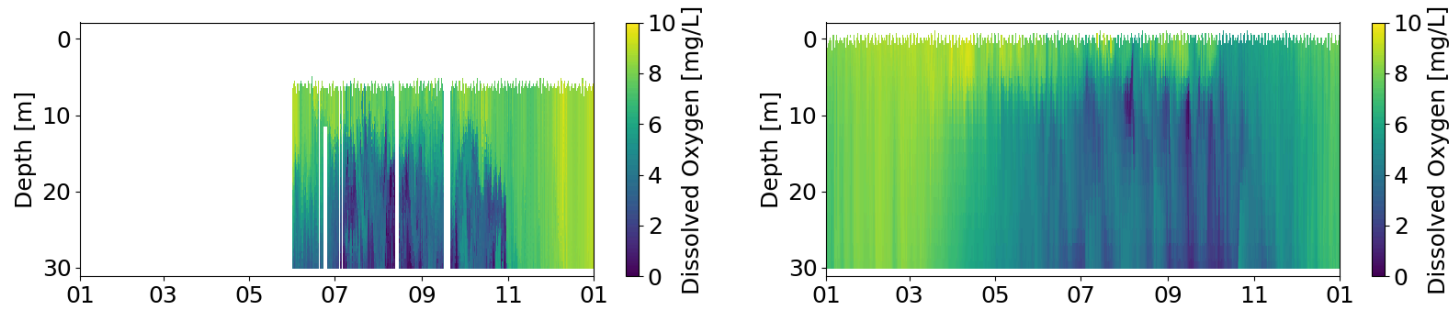
S3.3 Western Ise Bay: Isopleths



(a) Water temperature



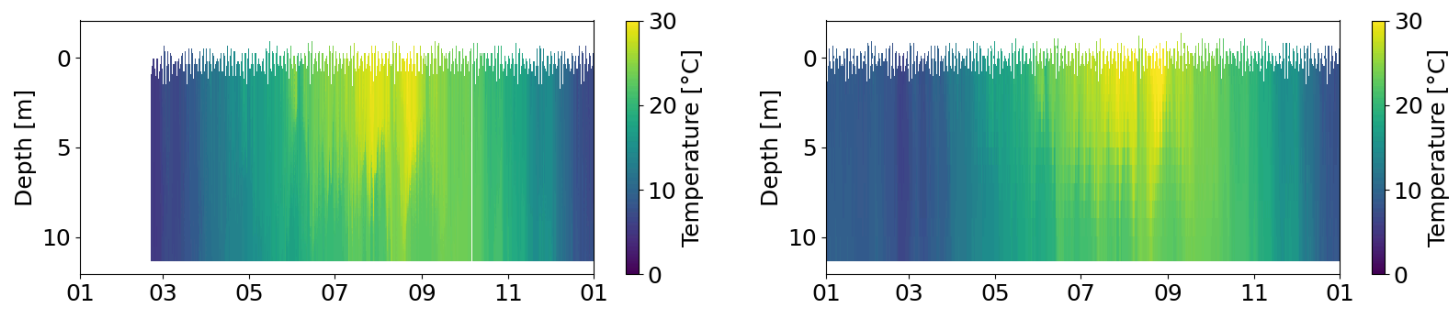
(b) Salinity



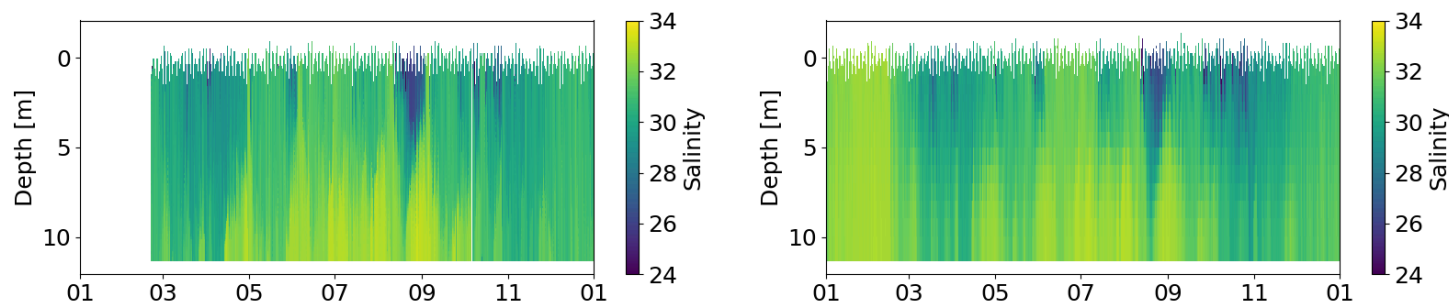
(c) Dissolved oxygen

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

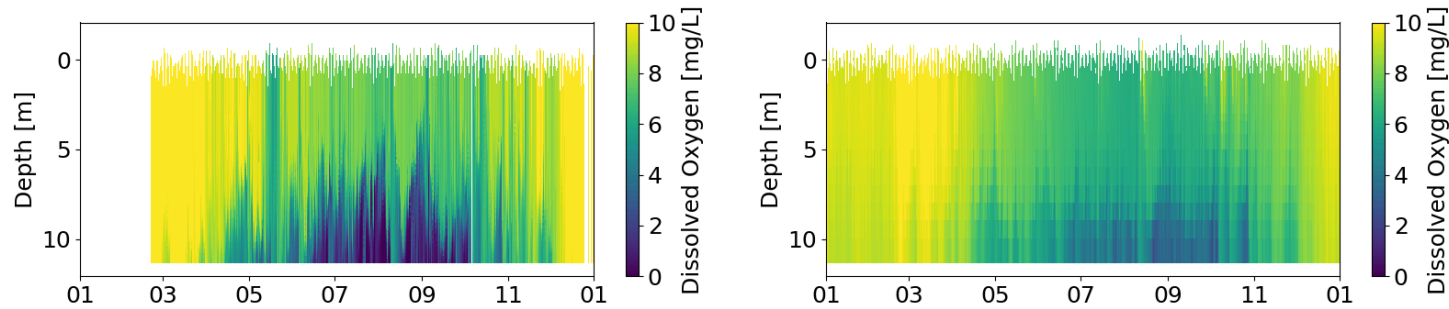
S3.4 Back of Mikawa Bay: Isopleths



(a) Water temperature

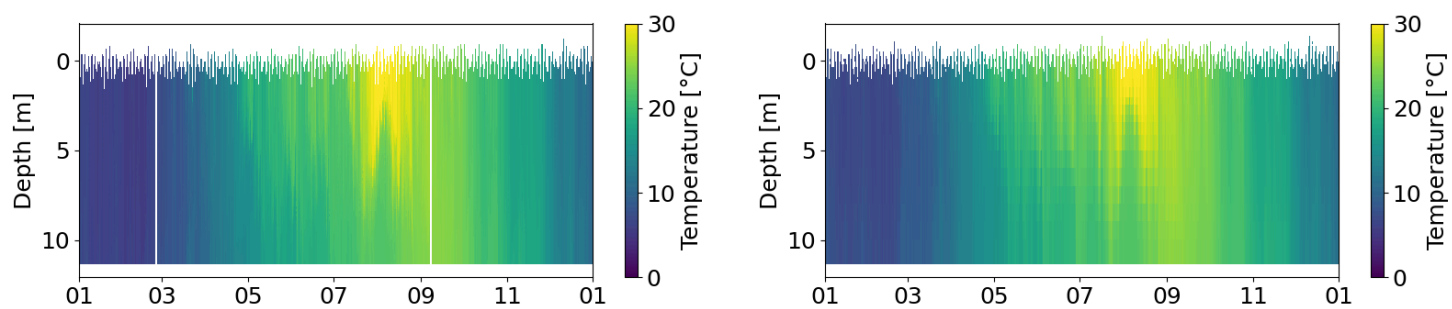


(b) Salinity

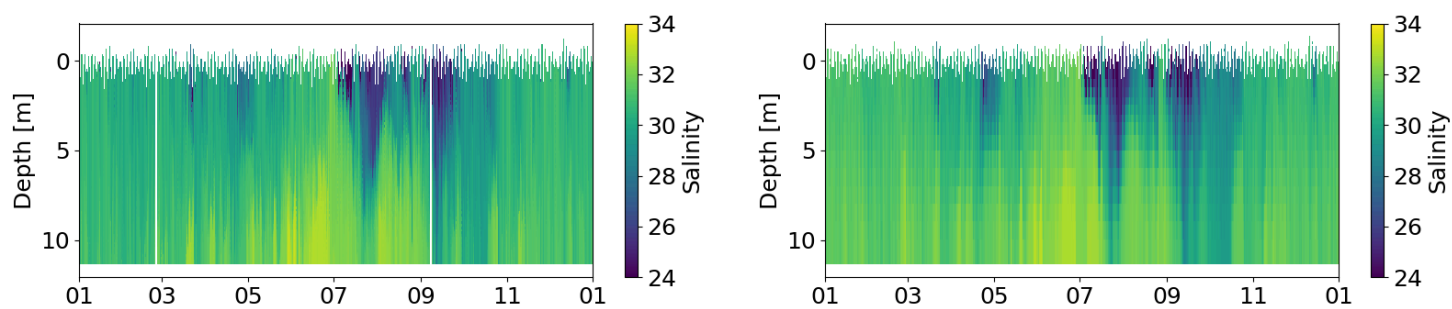


(c) Dissolved oxygen

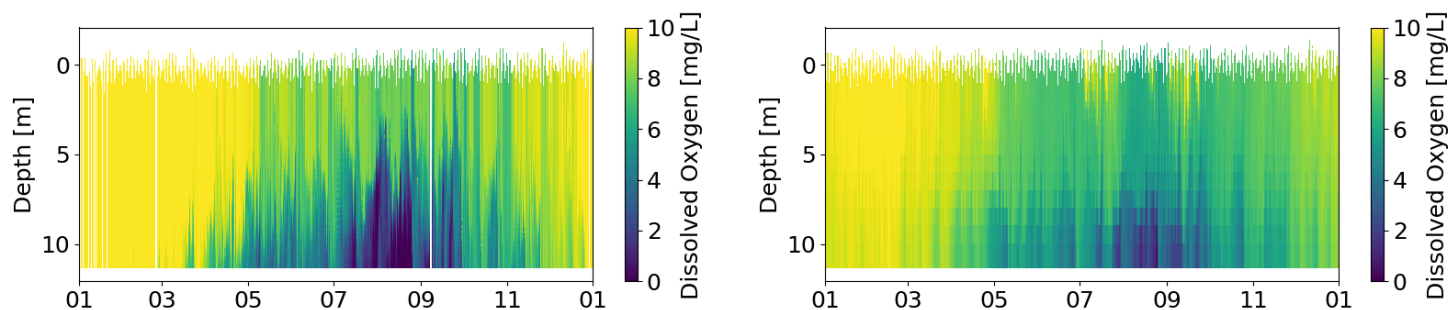
Figure S27 Isopleth plots at Back of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

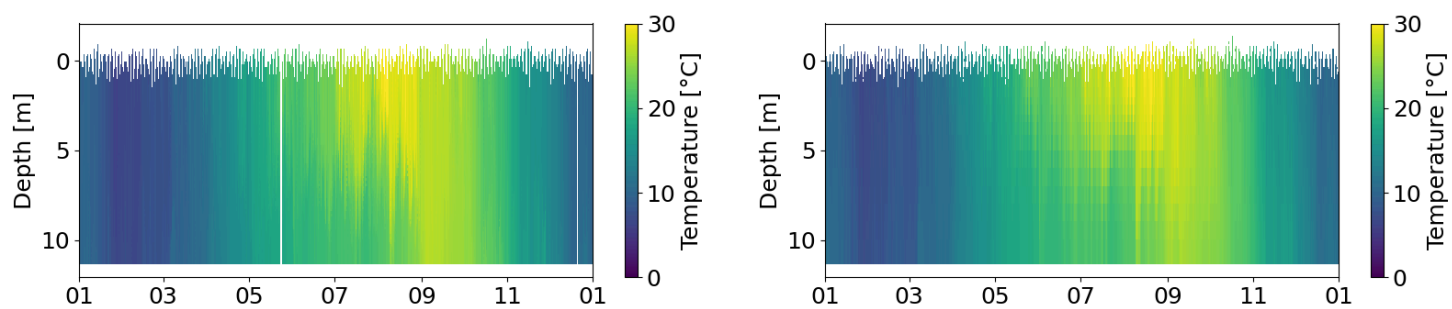


(b) Salinity

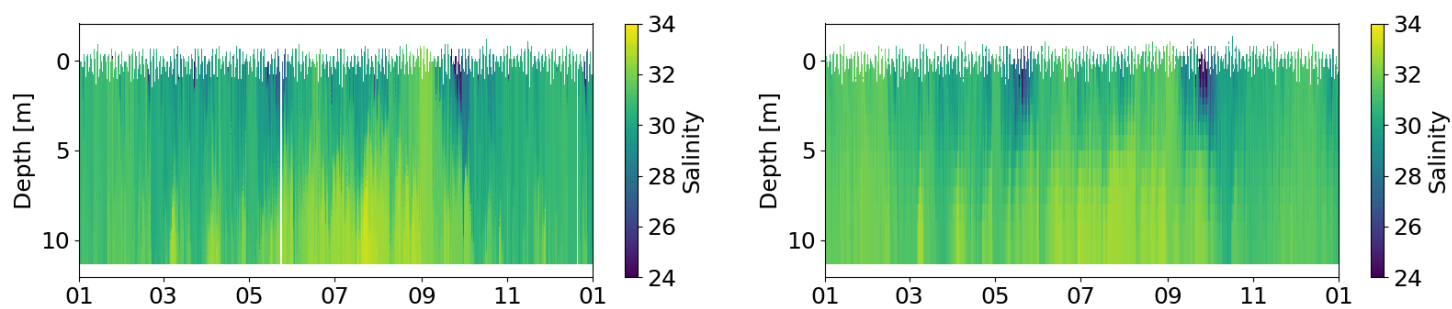


(c) Dissolved oxygen

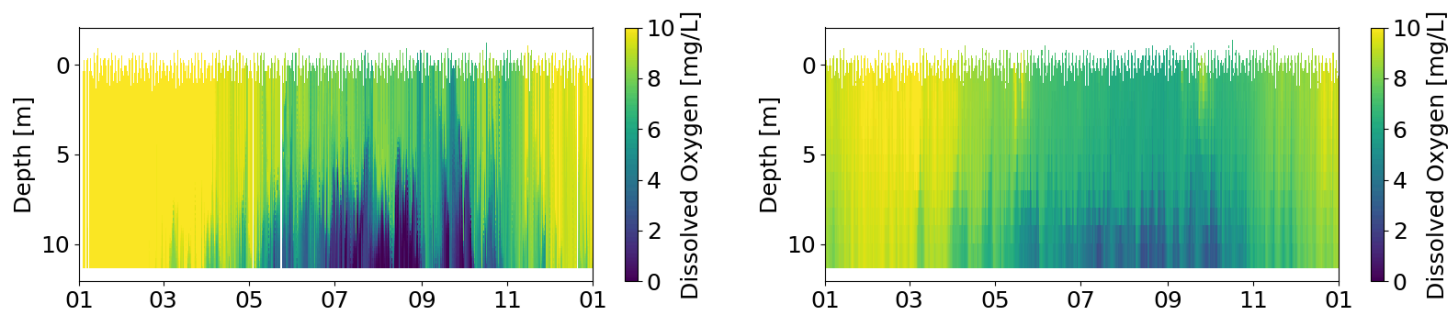
Figure S28 Isopleth plots at Back of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

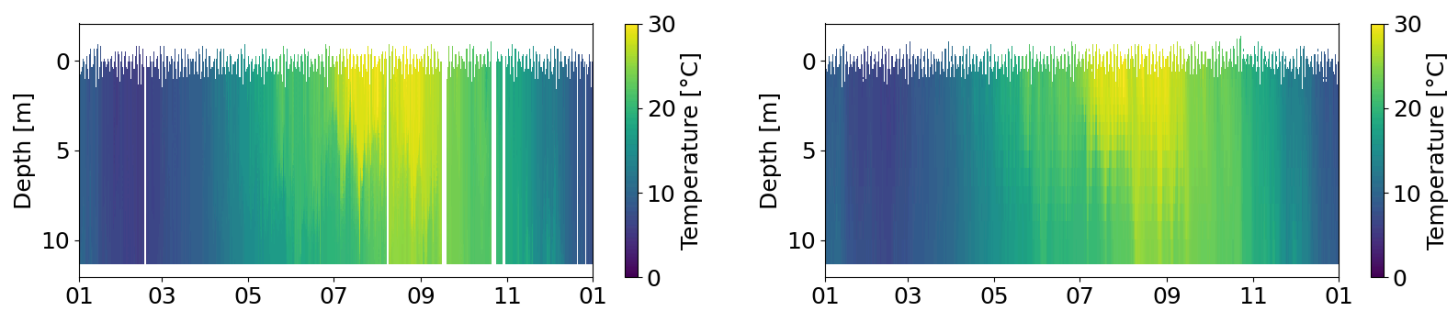


(b) Salinity

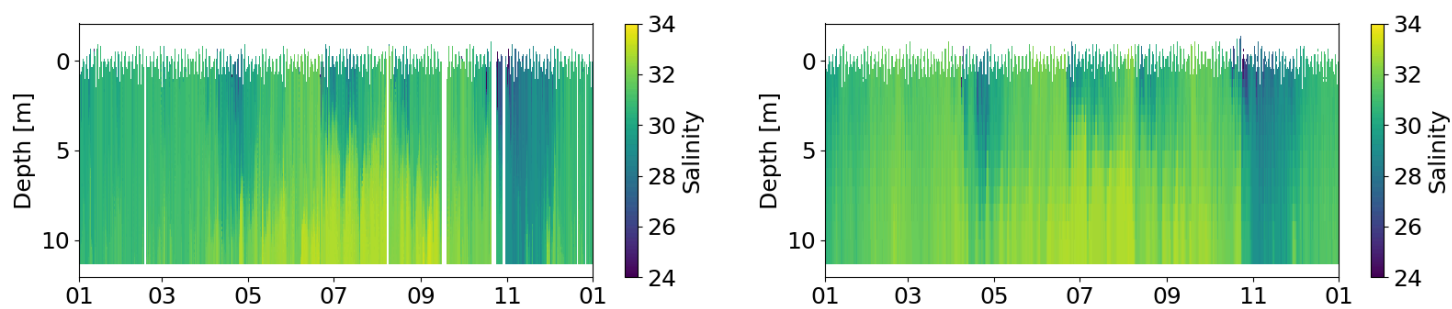


(c) Dissolved oxygen

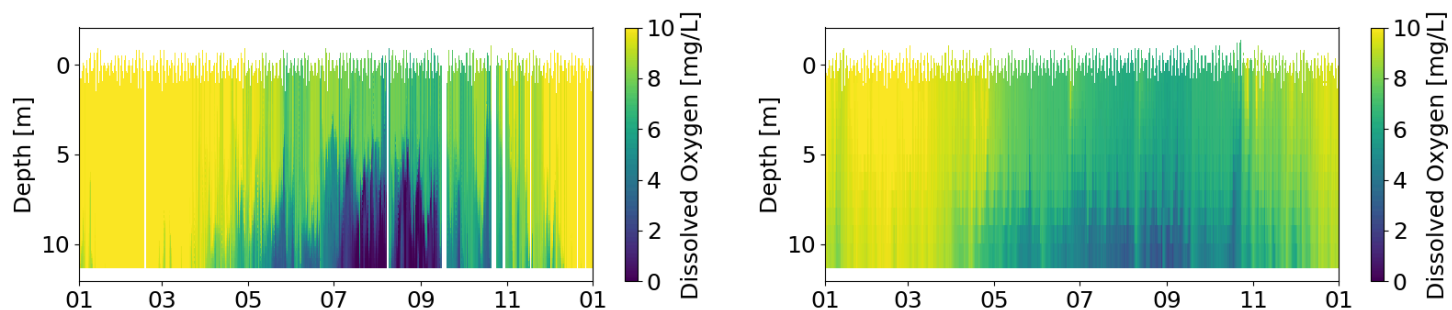
Figure S29 Isopleth plots at Back of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

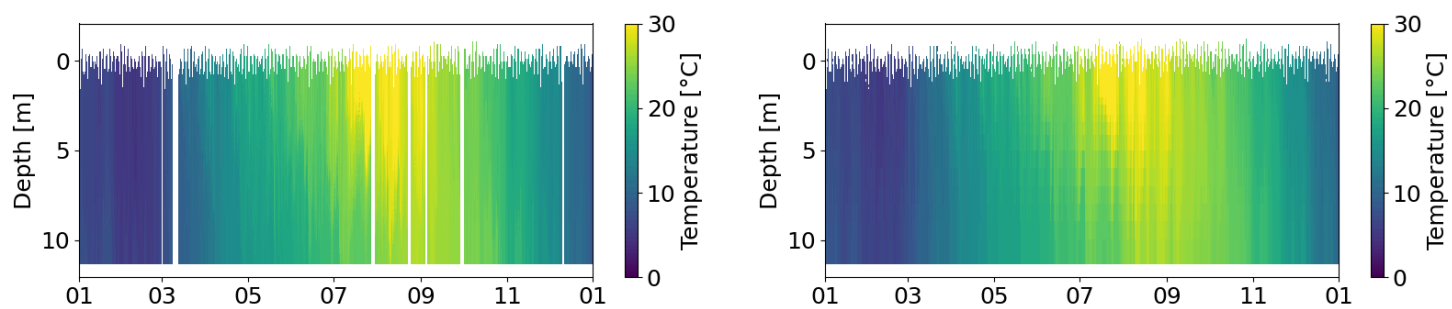


(b) Salinity

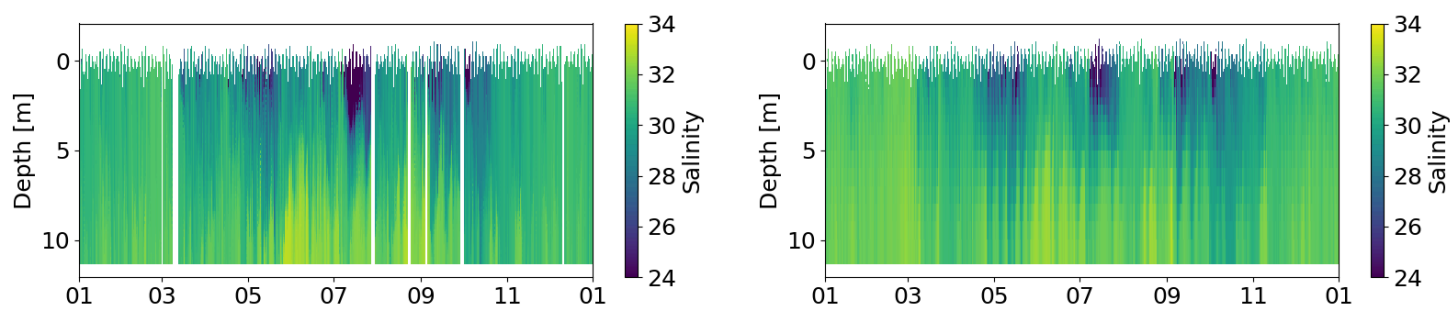


(c) Dissolved oxygen

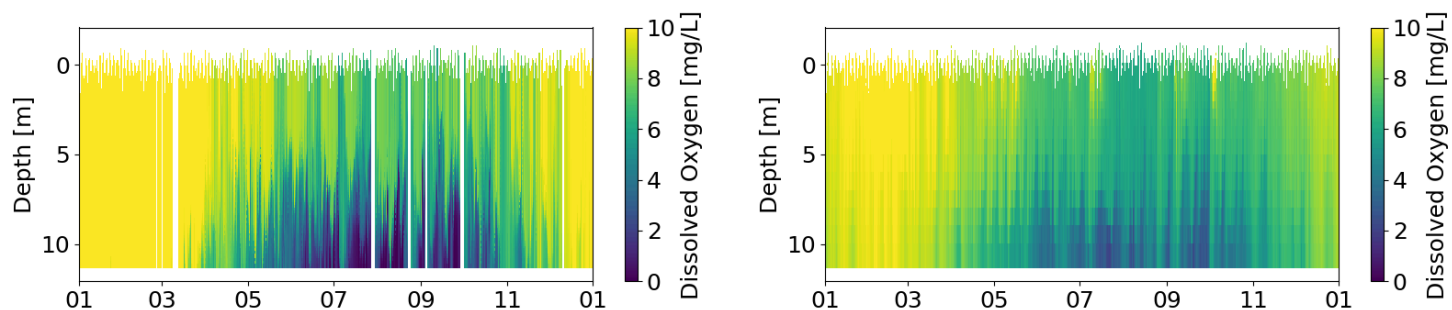
Figure S30 Isopleth plots at Back of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

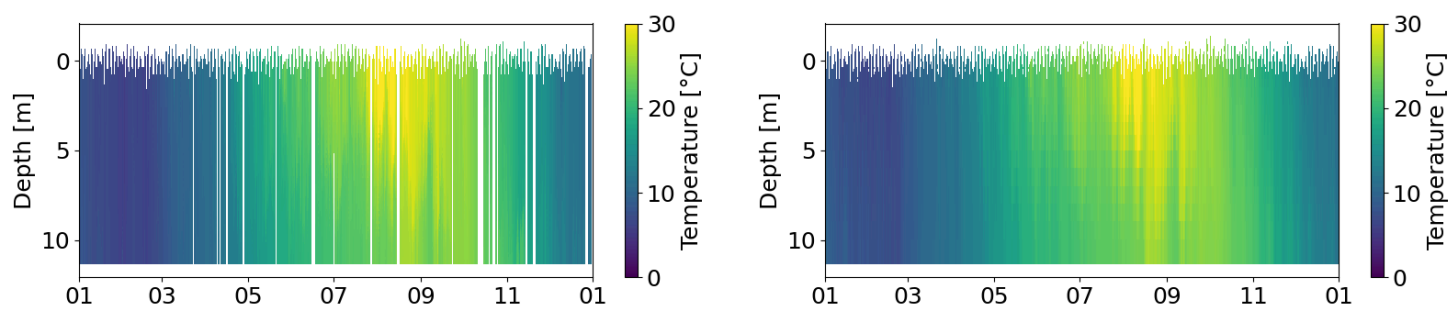


(b) Salinity

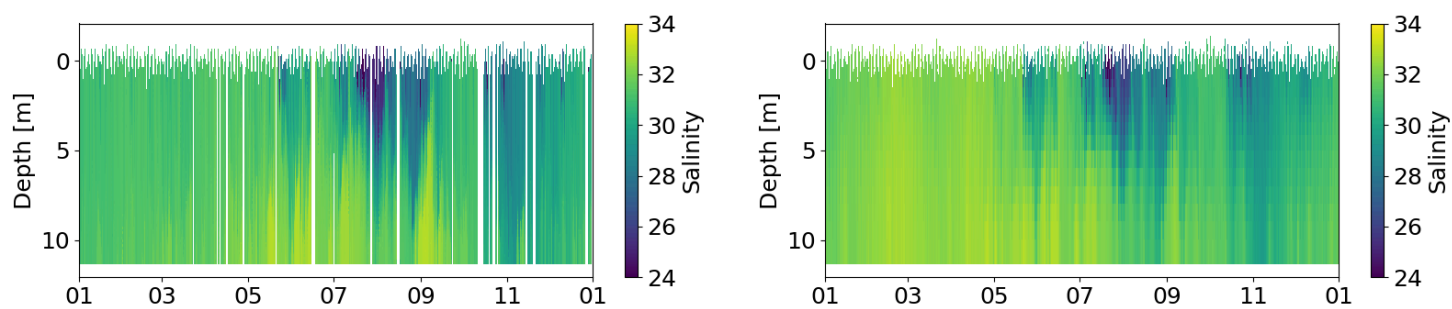


(c) Dissolved oxygen

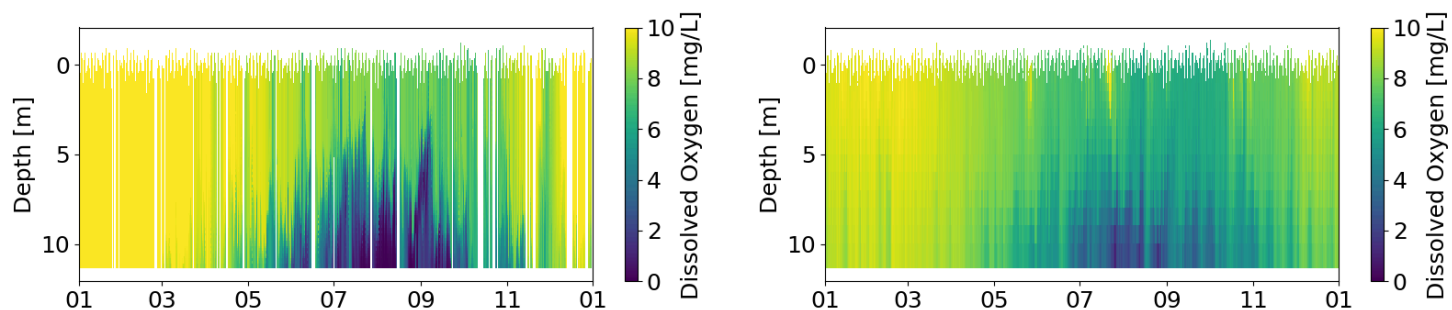
Figure S31 Isopleth plots at Back of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

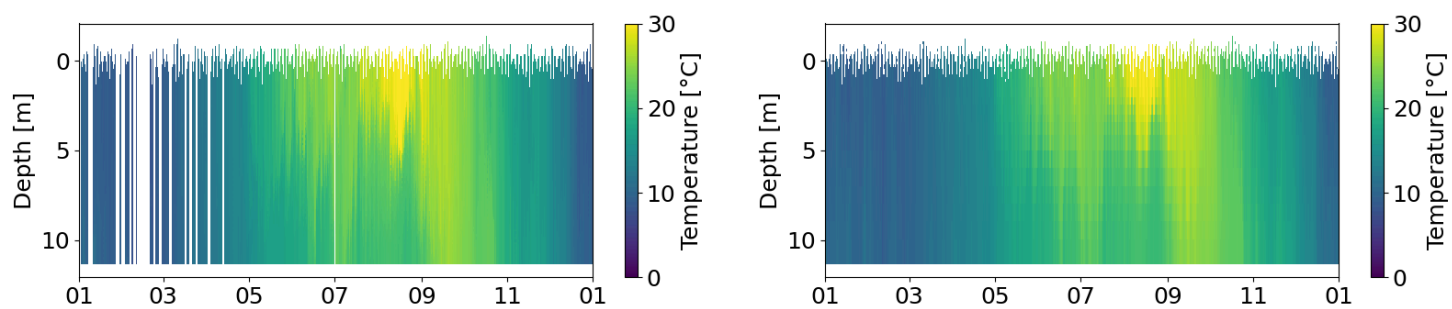


(b) Salinity

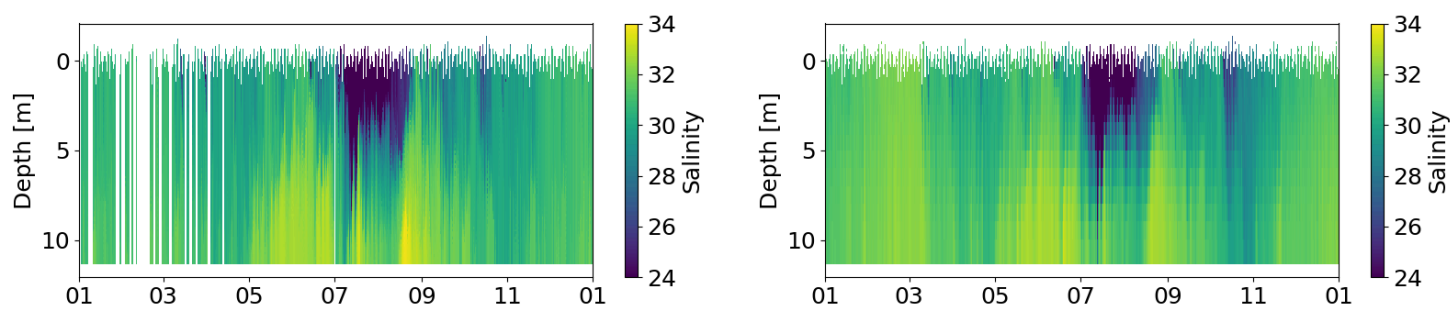


(c) Dissolved oxygen

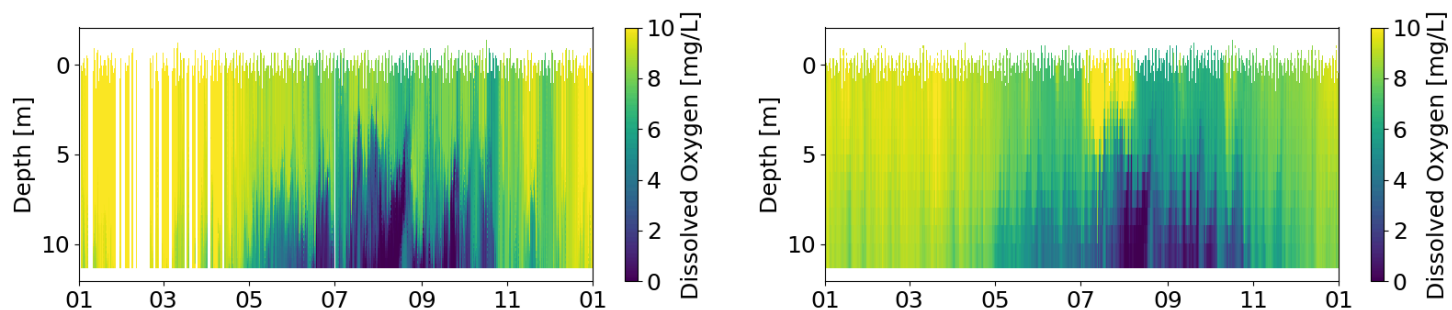
Figure S32 Isopleth plots at Back of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

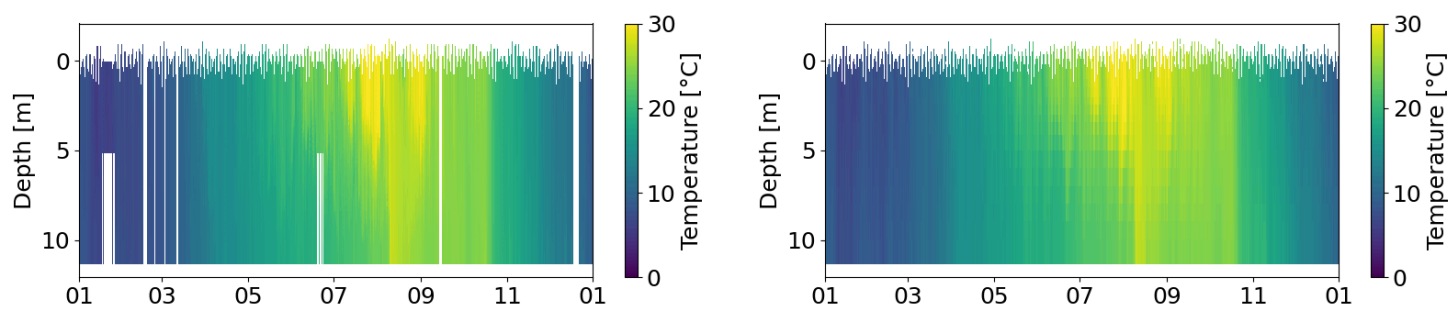


(b) Salinity

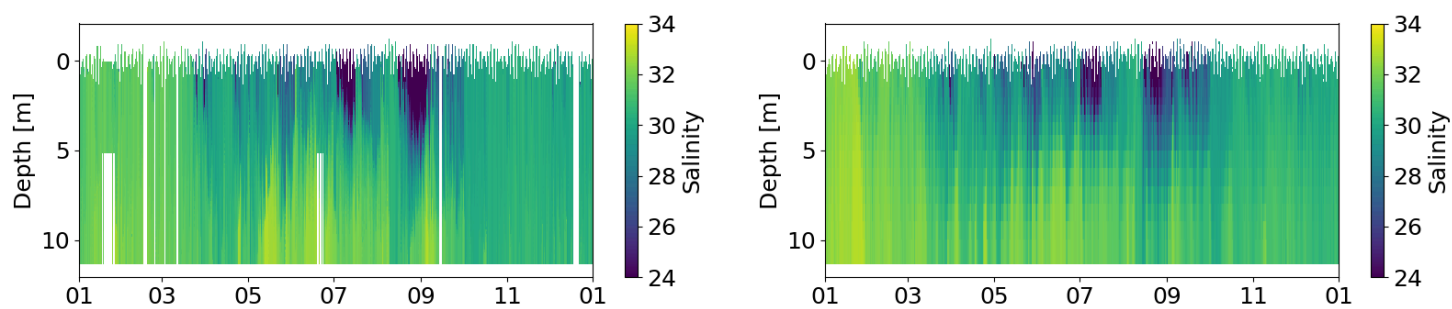


(c) Dissolved oxygen

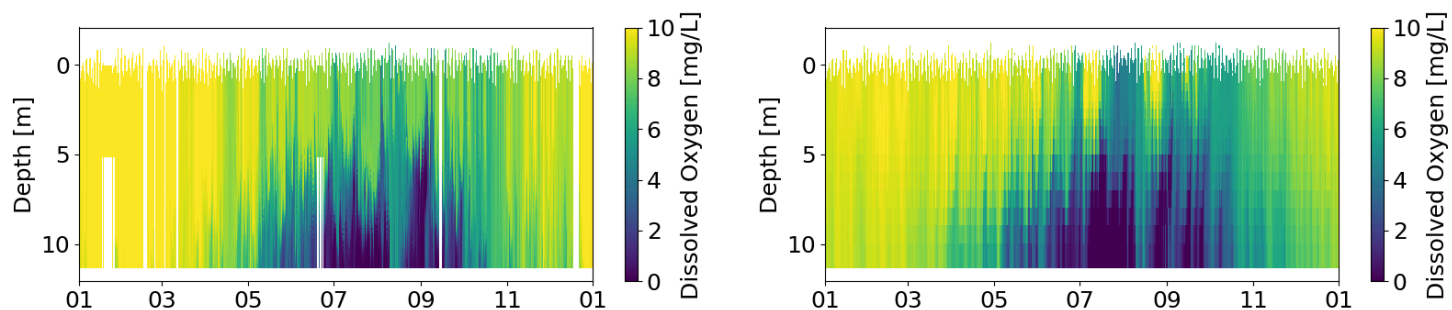
Figure S33 Isopleth plots at Back of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

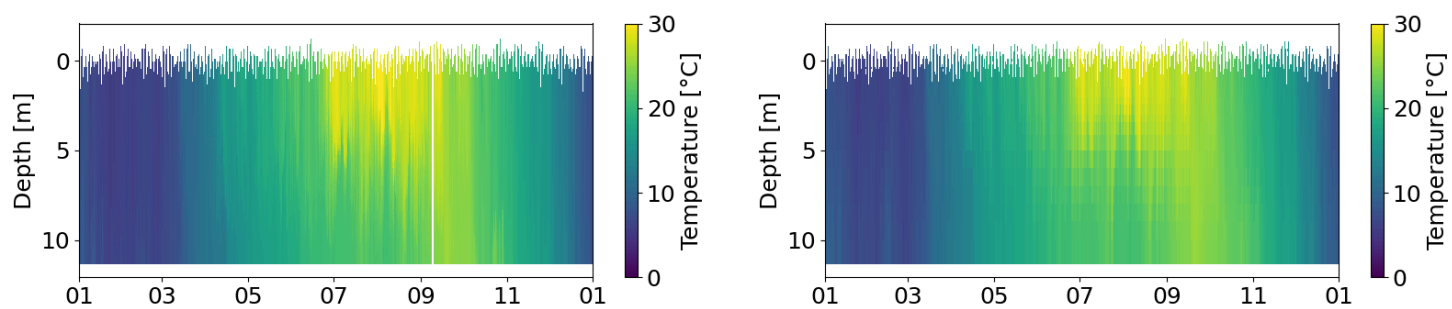


(b) Salinity

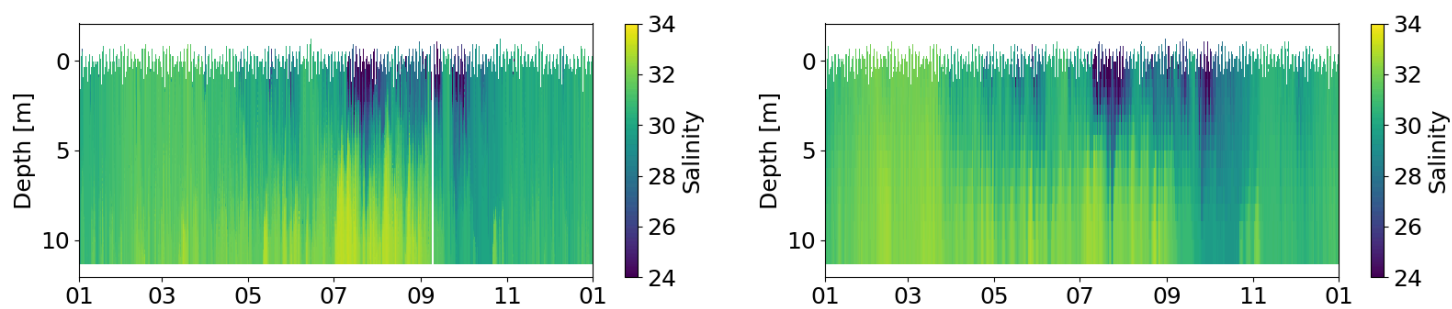


(c) Dissolved oxygen

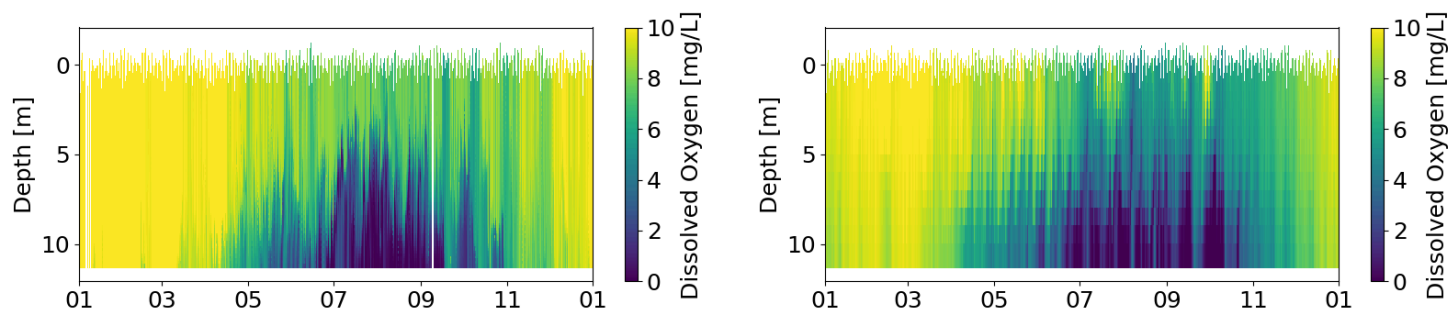
Figure S34 Isopleth plots at Back of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



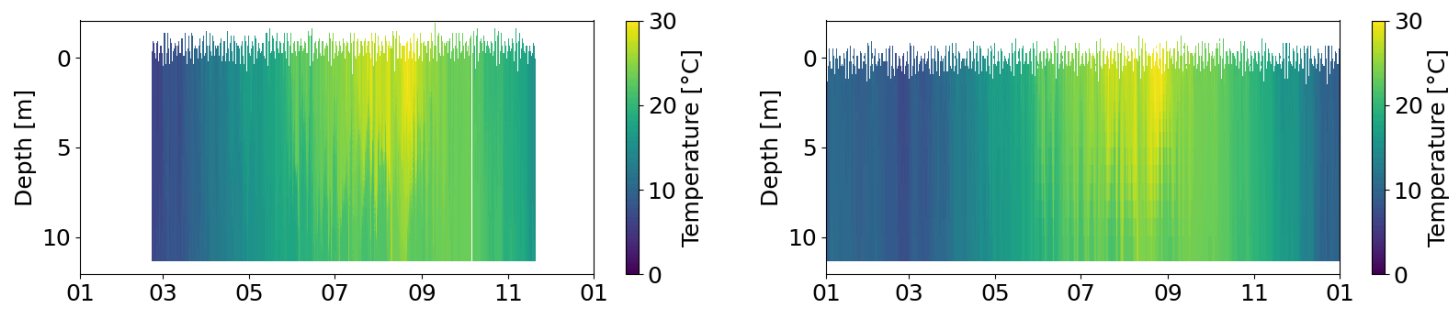
(b) Salinity



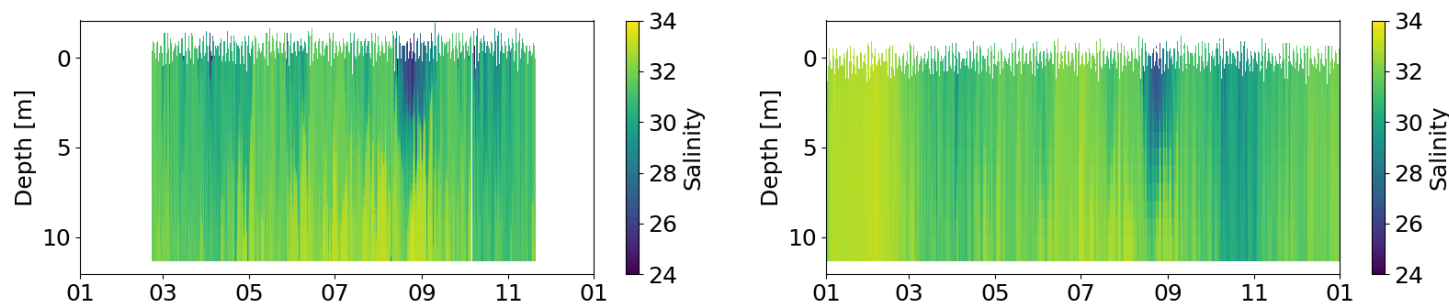
(c) Dissolved oxygen

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

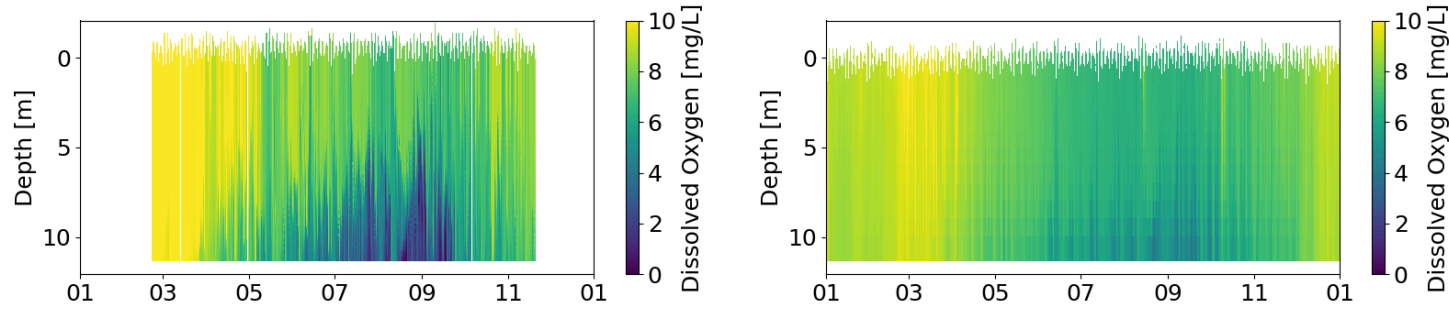
S3.5 Center of Mikawa Bay: Isopleths



(a) Water temperature

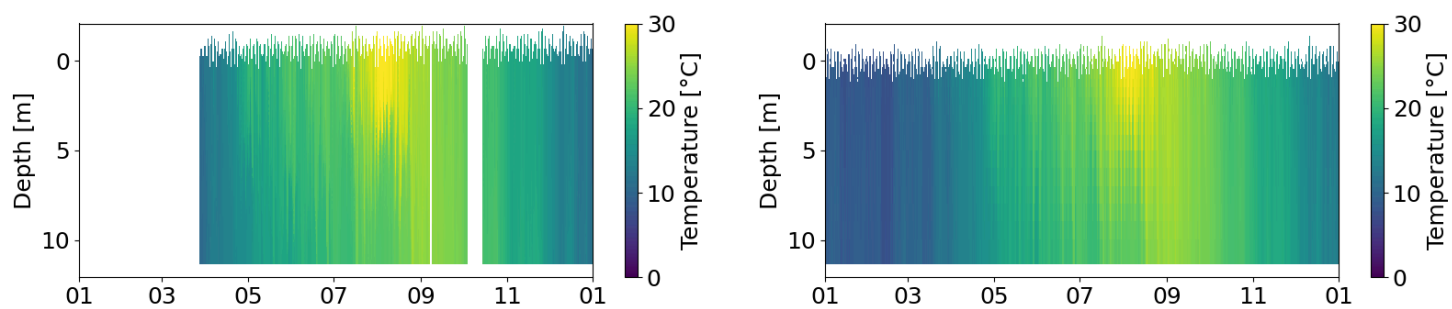


(b) Salinity

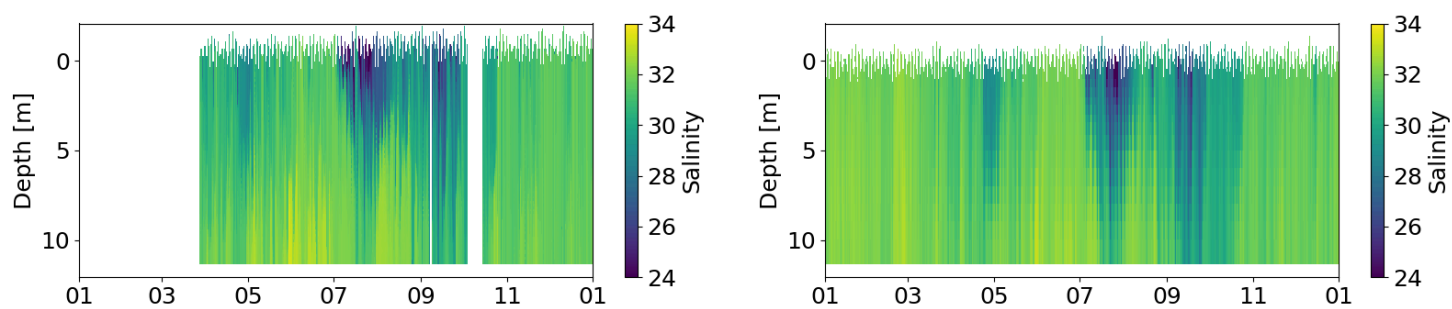


(c) Dissolved oxygen

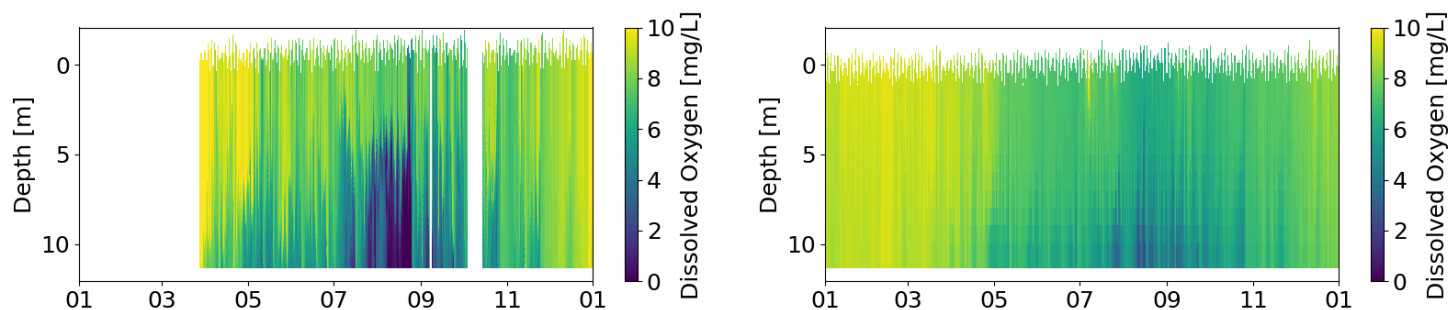
Figure S36 Isopleth plots at Center of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

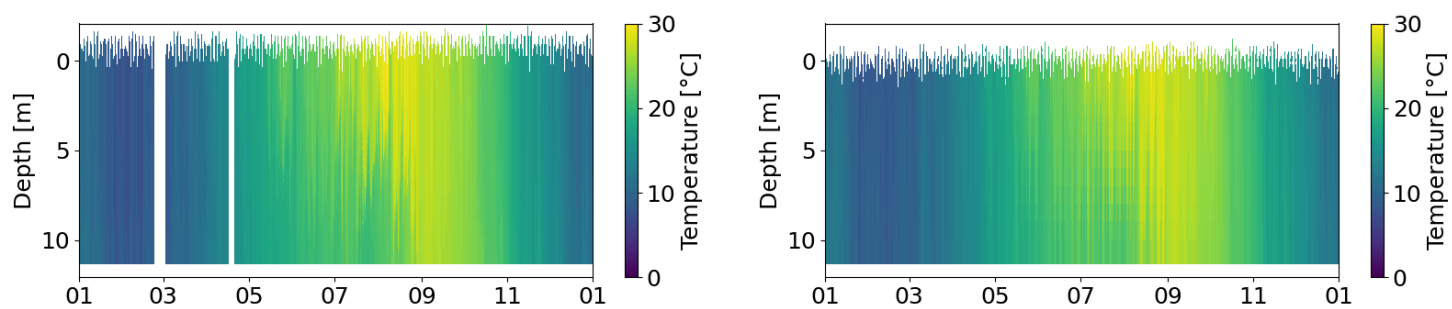


(b) Salinity

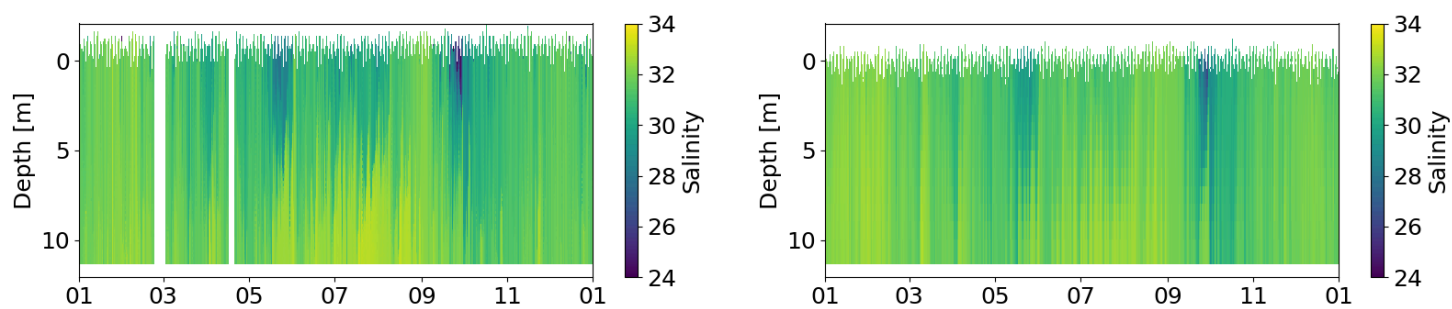


(c) Dissolved oxygen

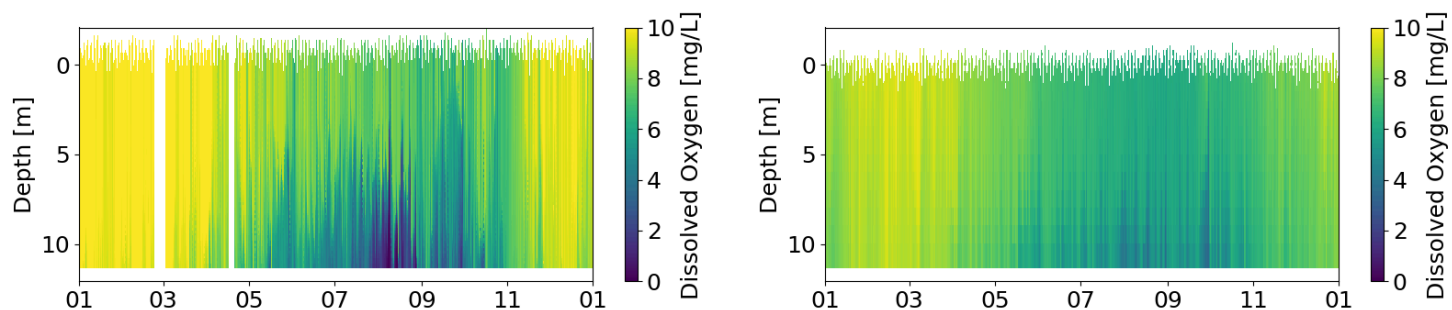
Figure S37 Isopleth plots at Center of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

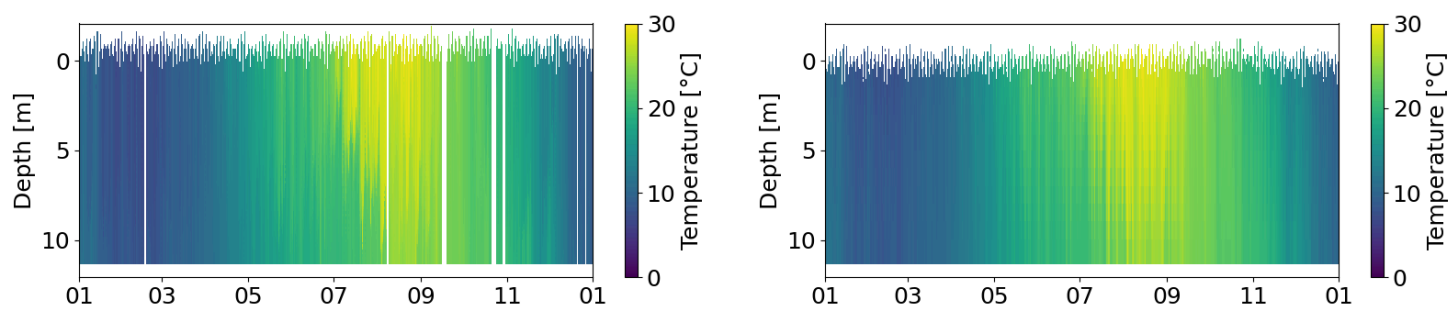


(b) Salinity

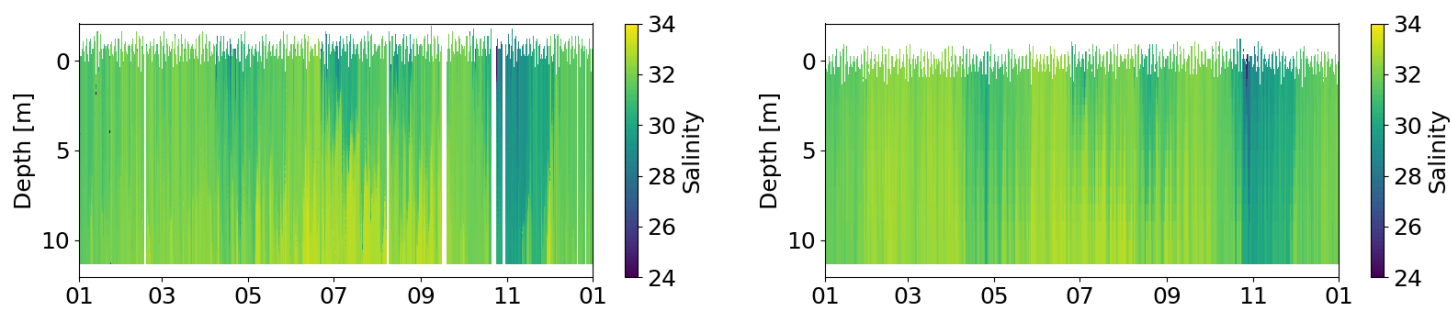


(c) Dissolved oxygen

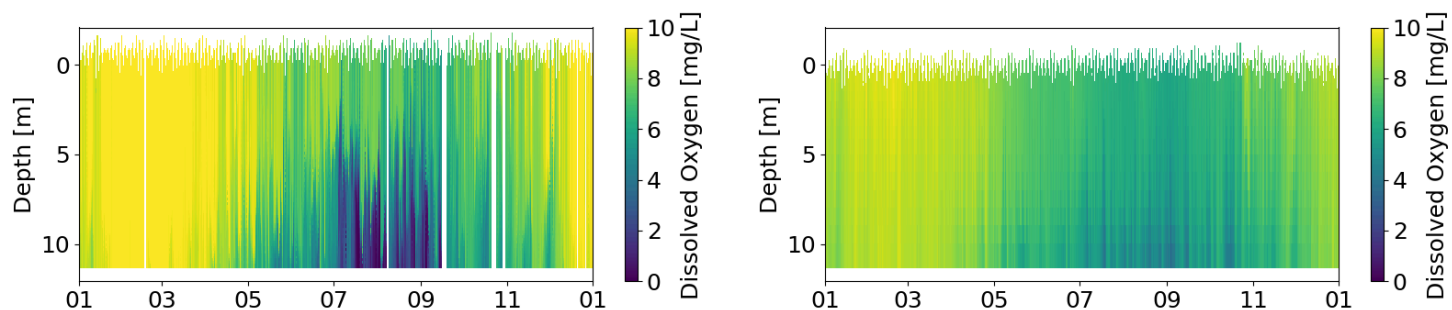
Figure S38 Isopleth plots at Center of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

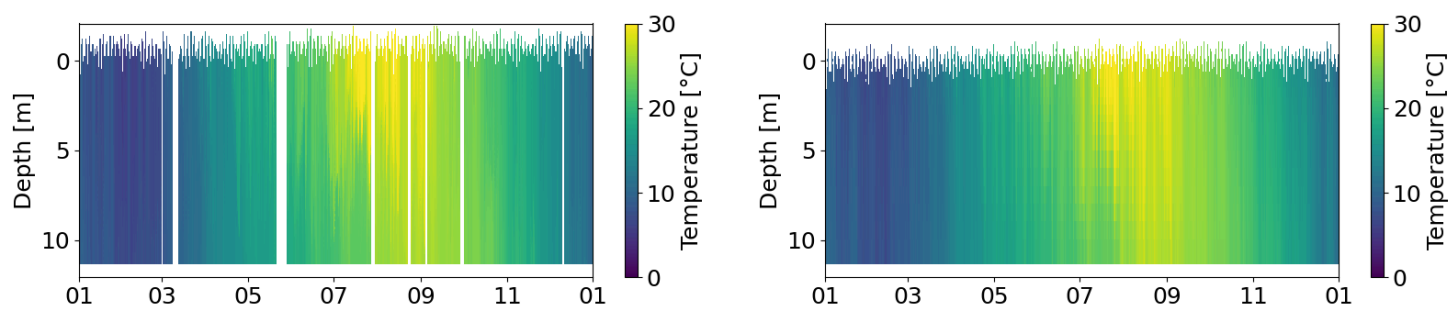


(b) Salinity

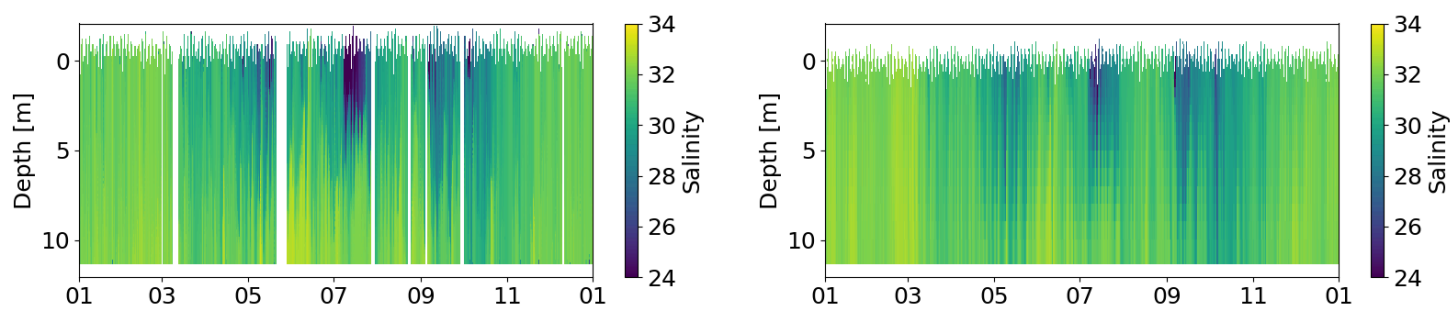


(c) Dissolved oxygen

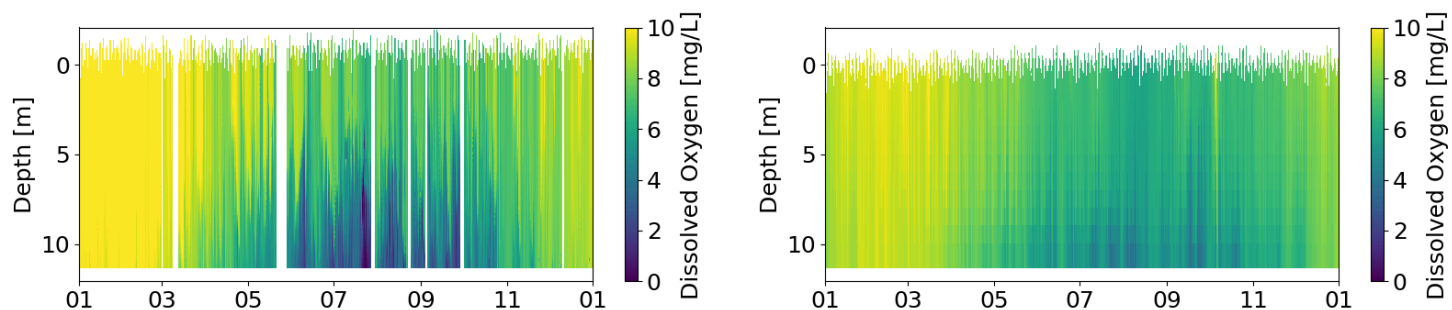
Figure S39 Isopleth plots at Center of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

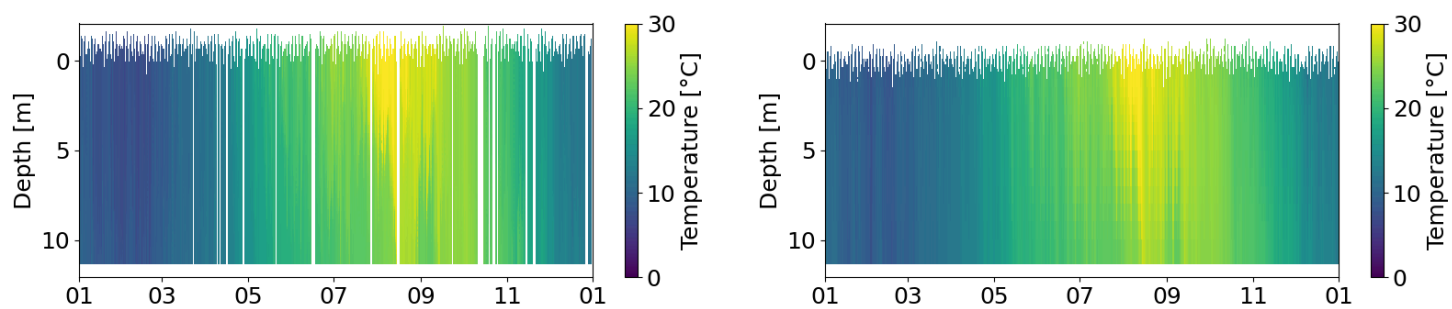


(b) Salinity

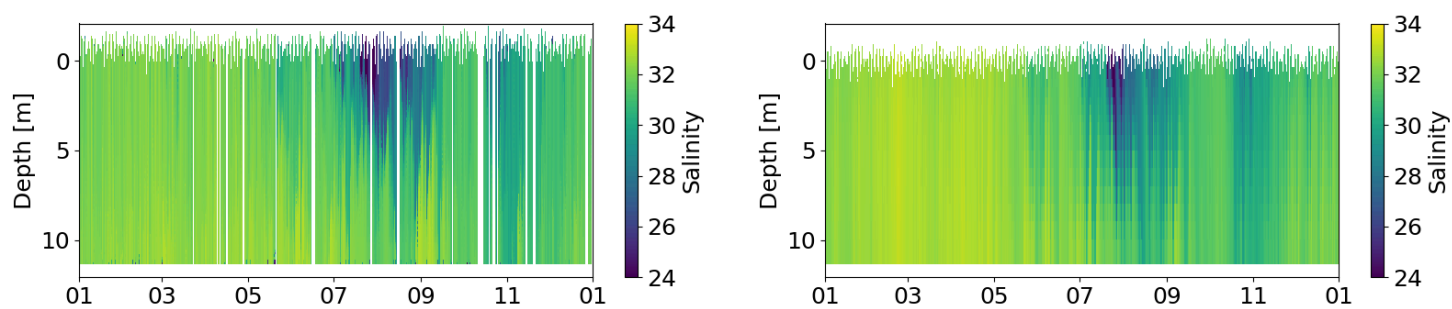


(c) Dissolved oxygen

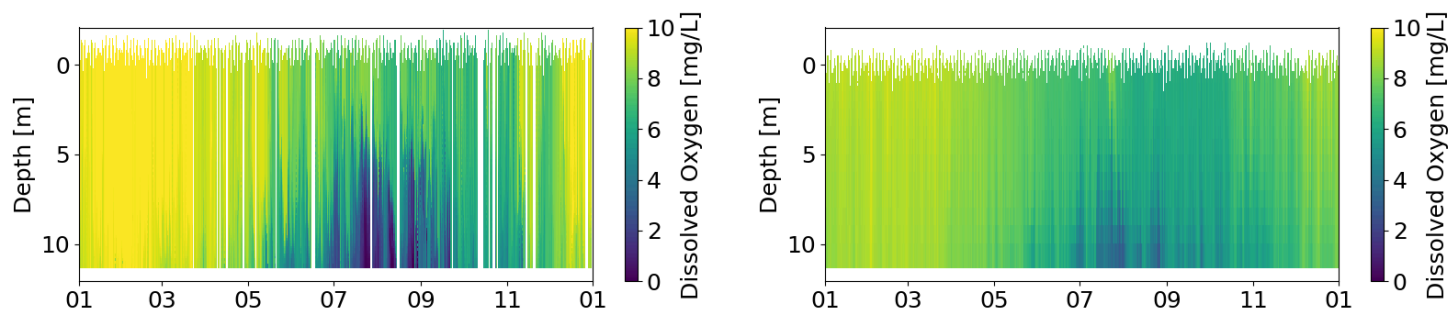
Figure S40 Isopleth plots at Center of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

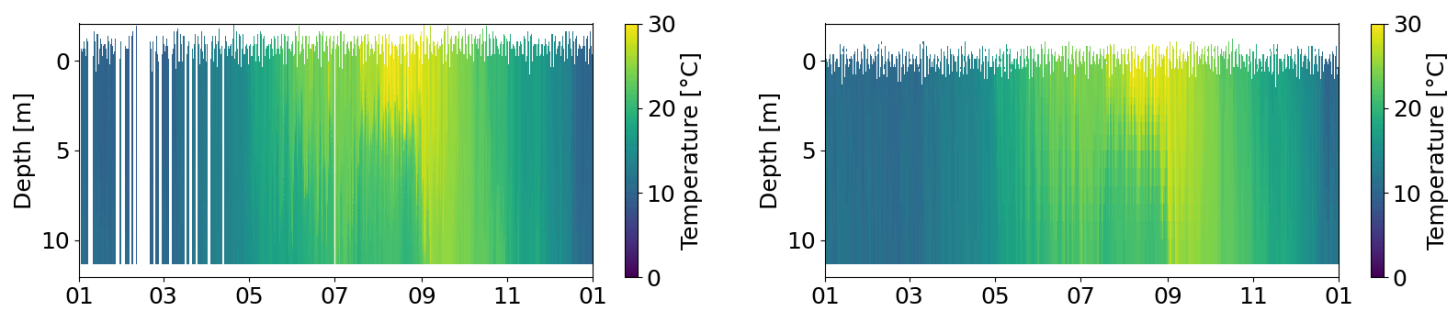


(b) Salinity

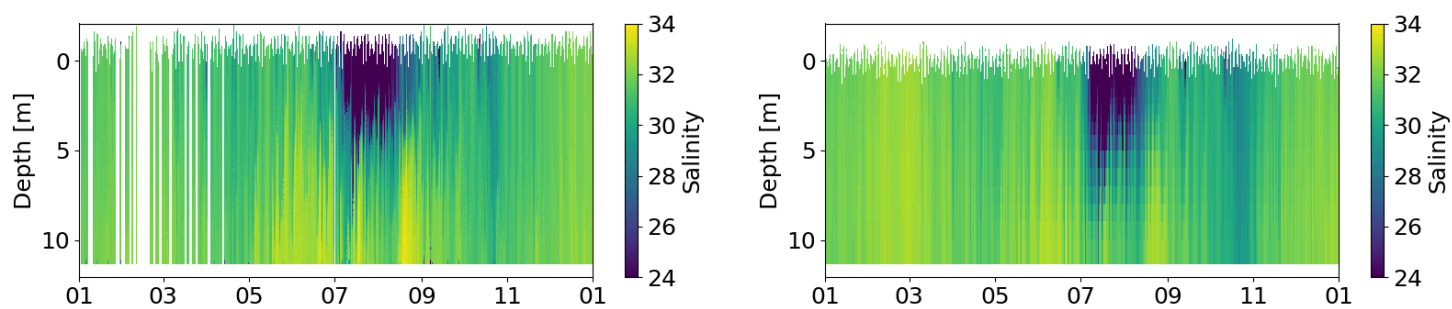


(c) Dissolved oxygen

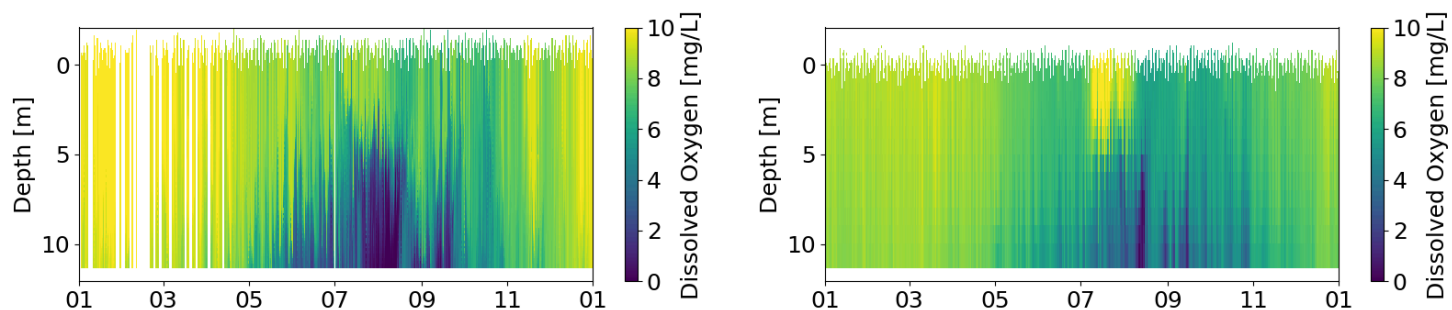
Figure S41 Isopleth plots at Center of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

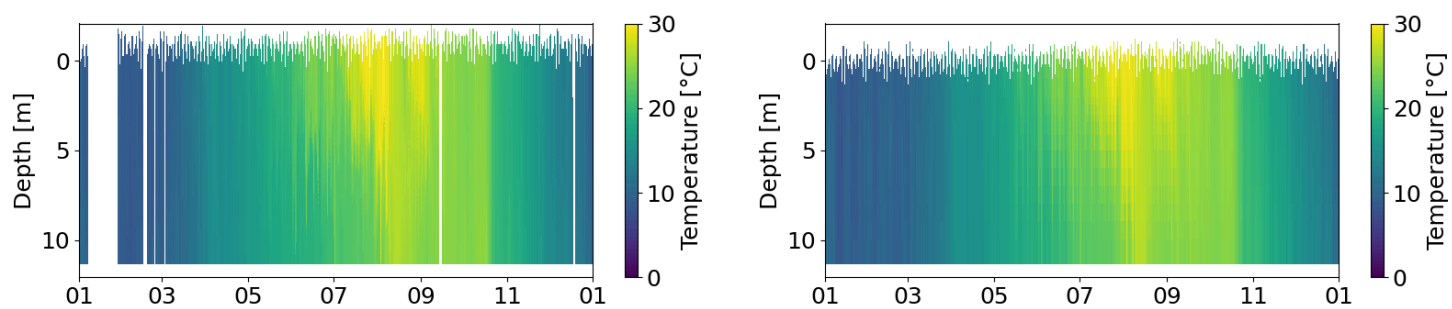


(b) Salinity

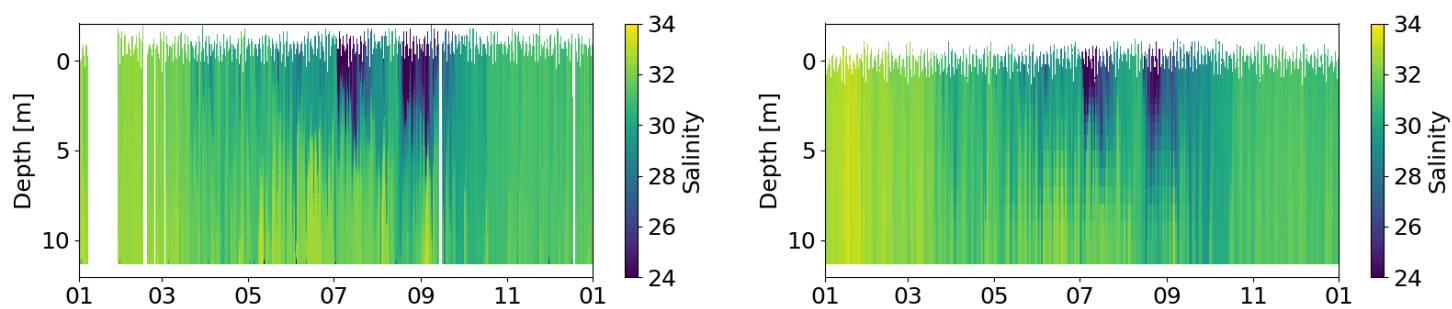


(c) Dissolved oxygen

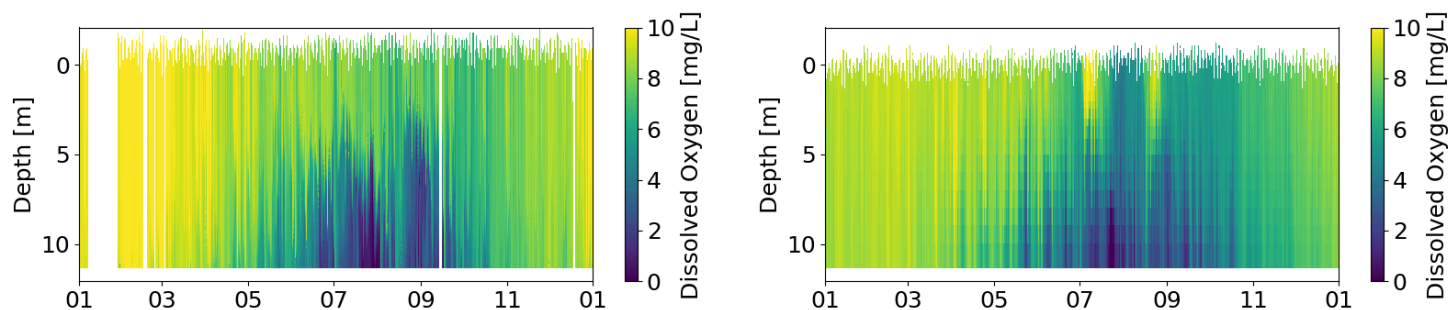
Figure S42 Isopleth plots at Center of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

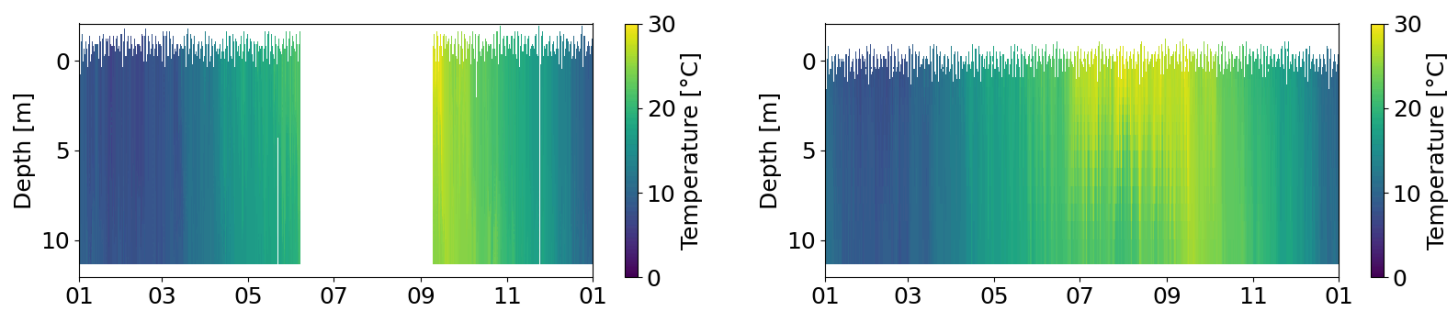


(b) Salinity

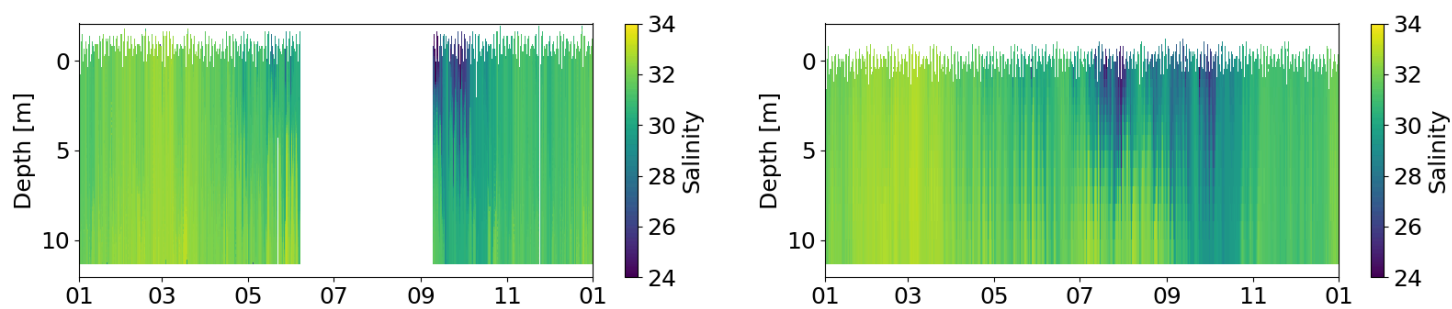


(c) Dissolved oxygen

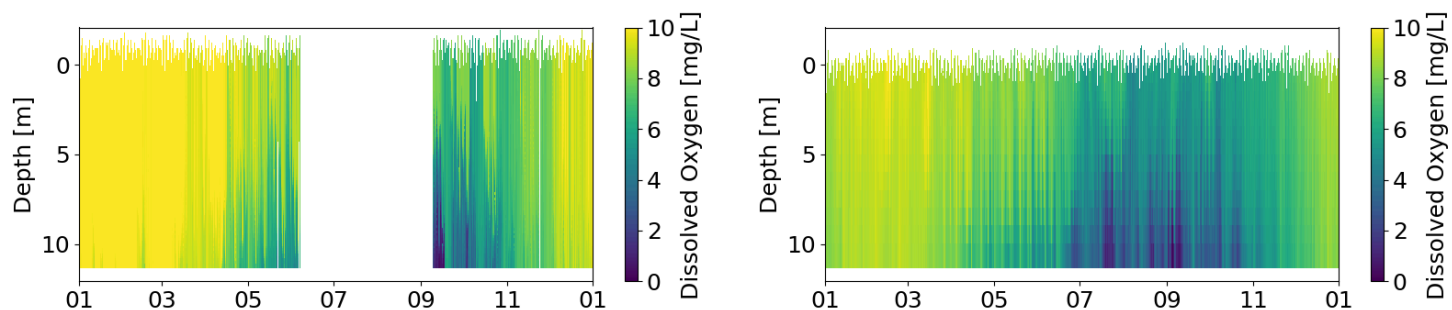
Figure S43 Isopleth plots at Center of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(a) Water temperature



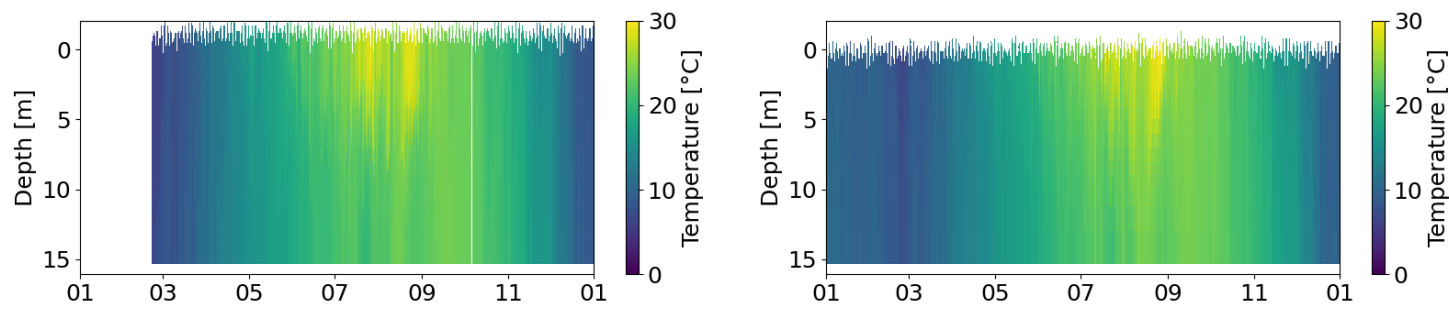
(b) Salinity



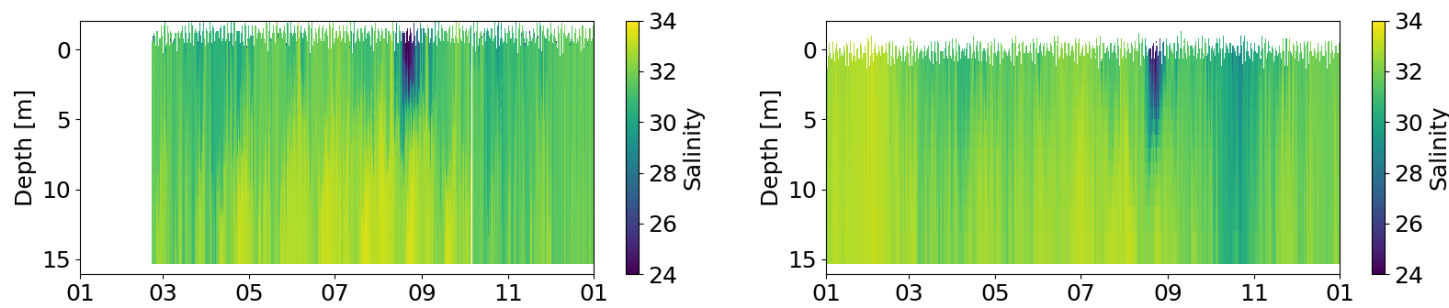
(c) Dissolved oxygen

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

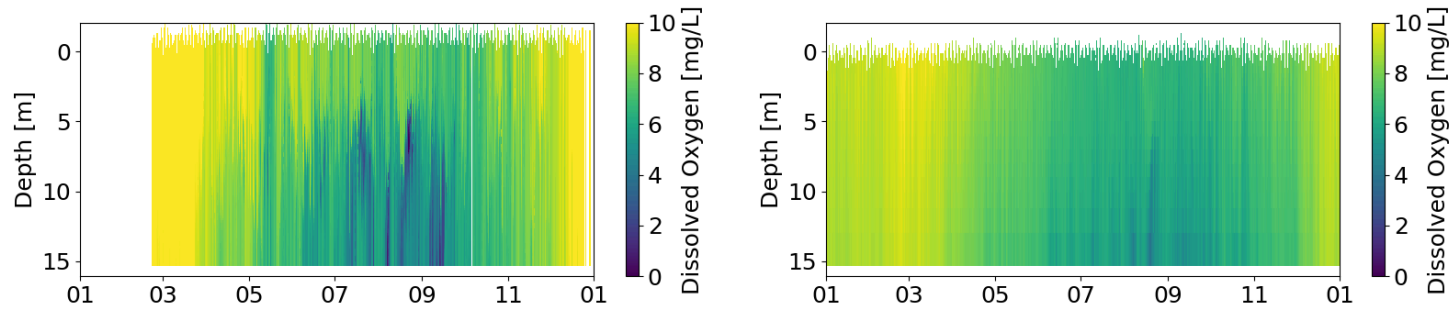
S3.6 Mouth of Mikawa Bay: Isopleths



(a) Water temperature

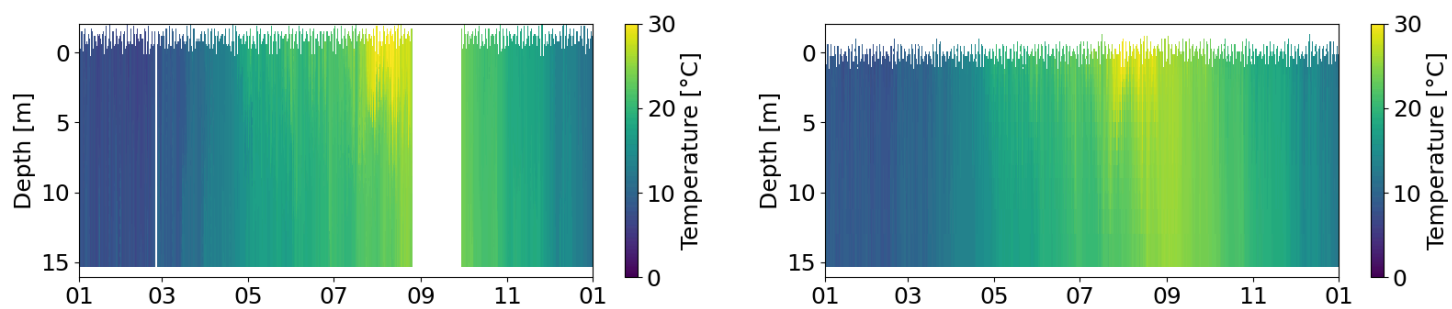


(b) Salinity

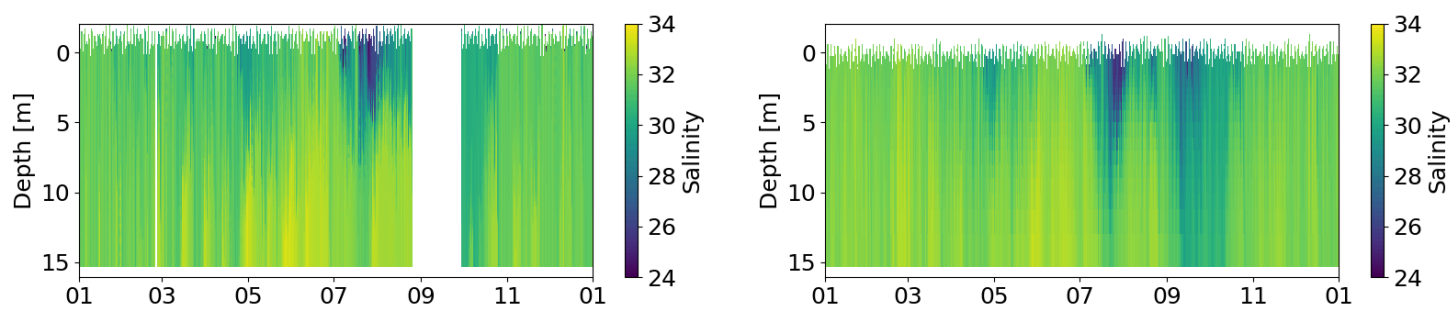


(c) Dissolved oxygen

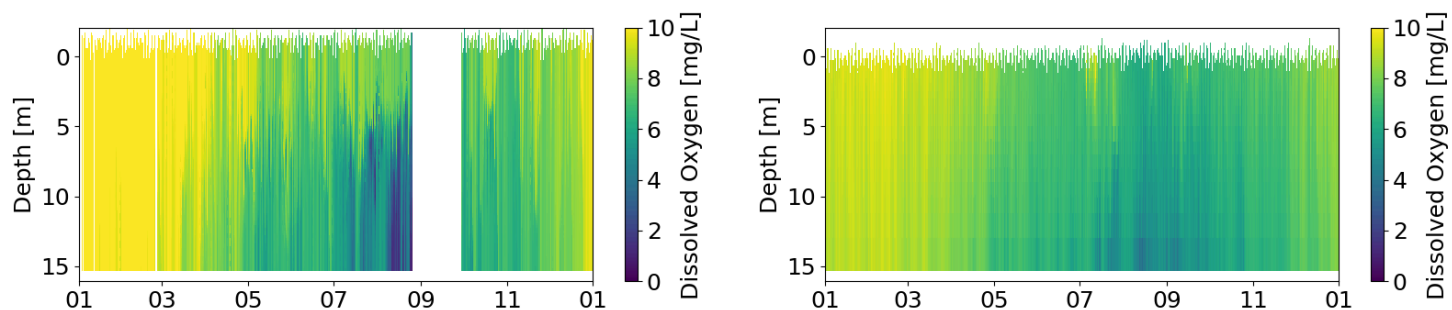
Figure S45 Isopleth plots at Mouth of Mikawa Bay in 2014
Left: Observations, Right: Data assimilation results.



(a) Water temperature

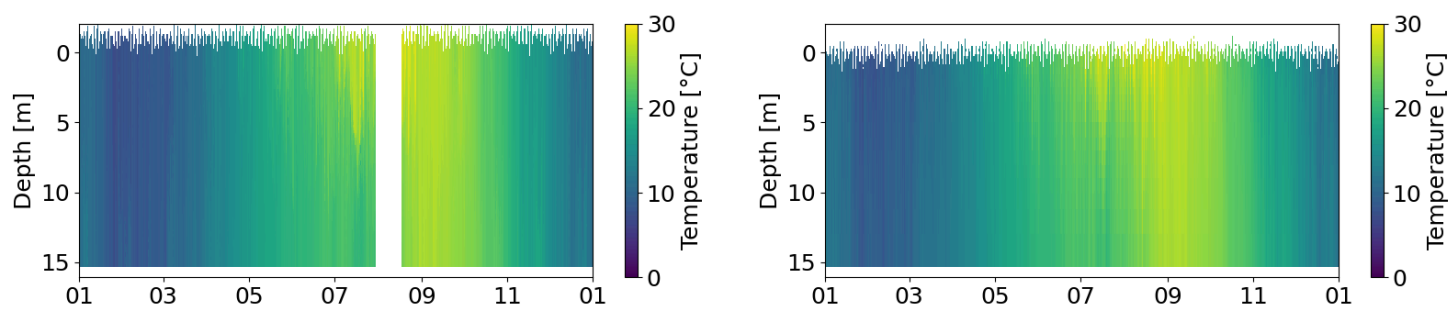


(b) Salinity

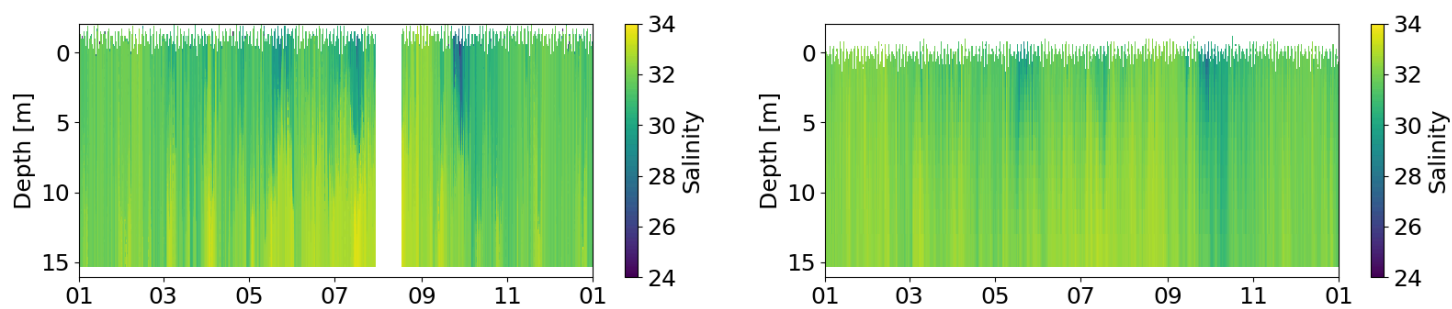


(c) Dissolved oxygen

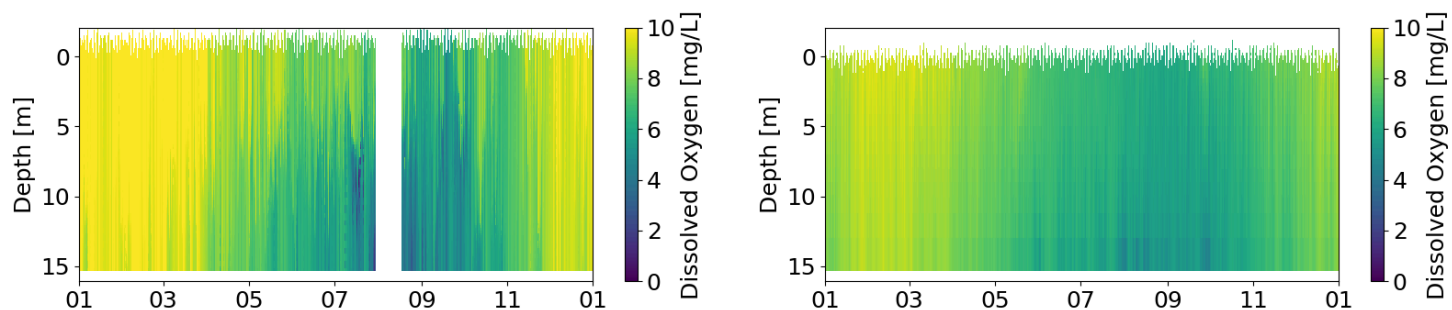
Figure S46 Isopleth plots at Mouth of Mikawa Bay in 2015
Left: Observations, Right: Data assimilation results.



(a) Water temperature

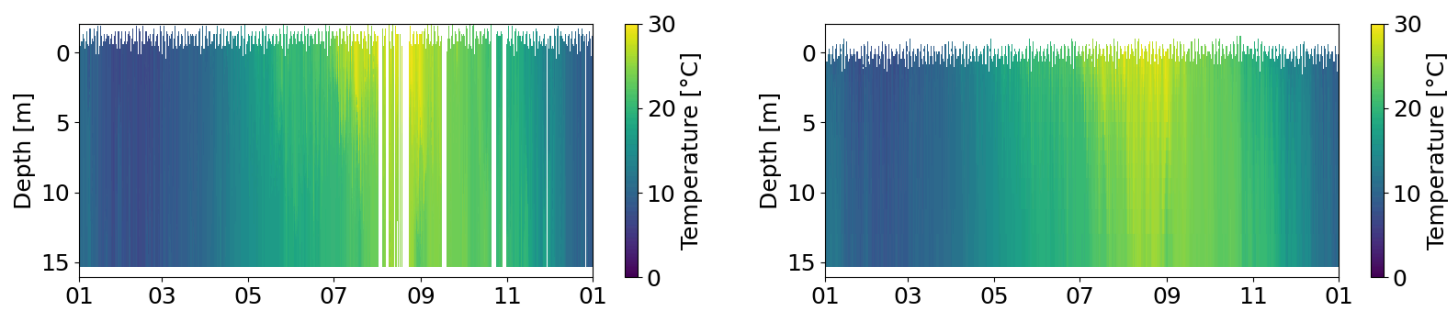


(b) Salinity

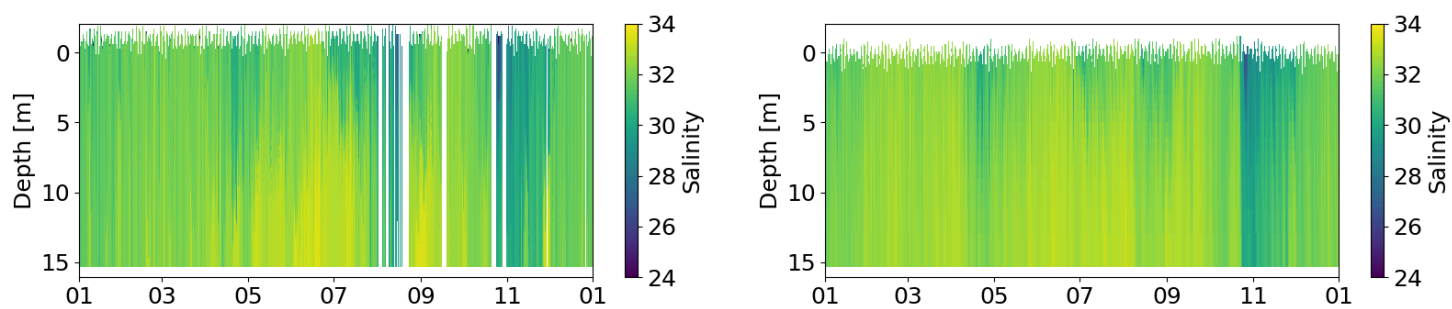


(c) Dissolved oxygen

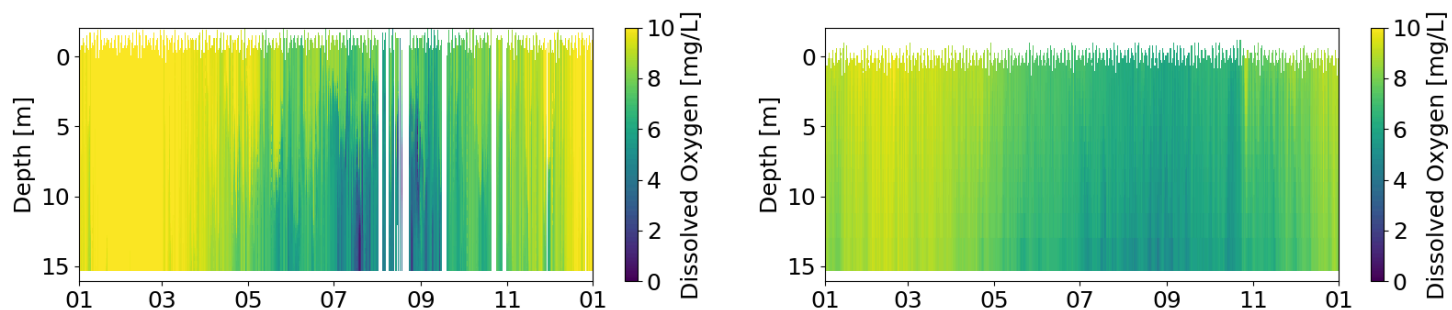
Figure S47 Isopleth plots at Mouth of Mikawa Bay in 2016
Left: Observations, Right: Data assimilation results.



(a) Water temperature

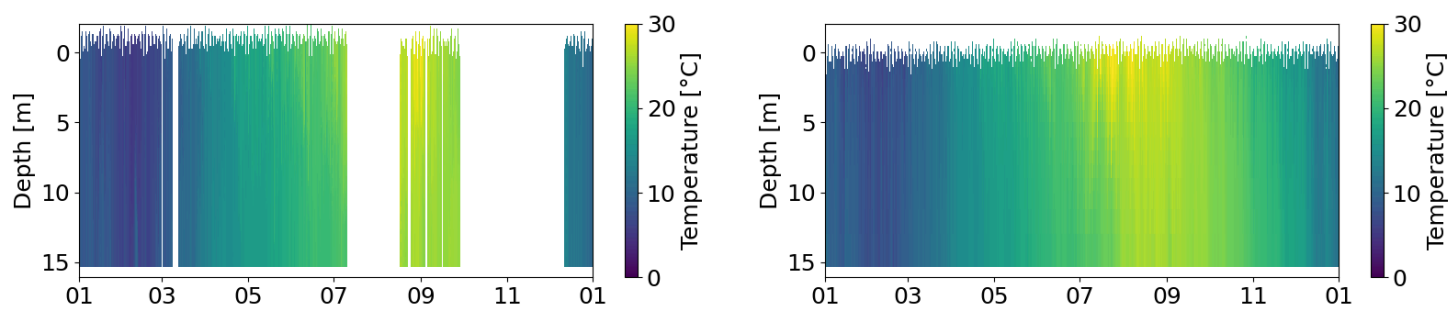


(b) Salinity

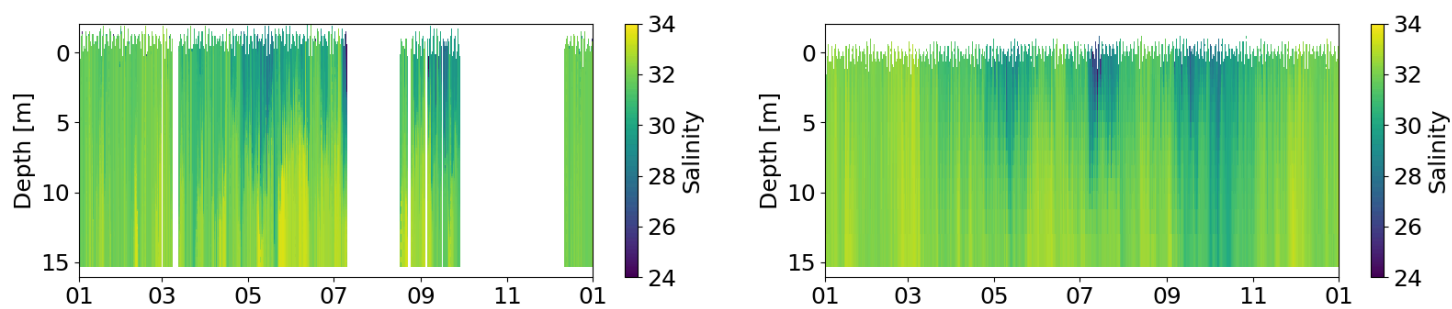


(c) Dissolved oxygen

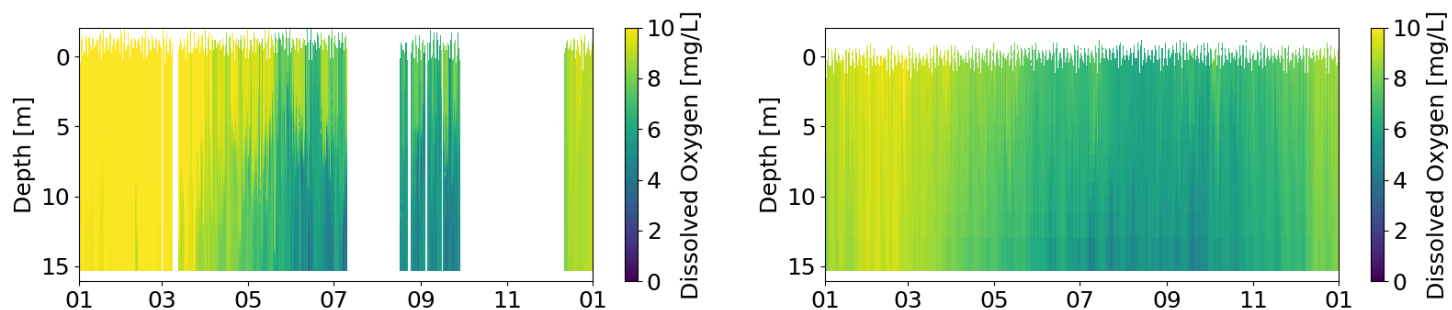
Figure S48 Isopleth plots at Mouth of Mikawa Bay in 2017
Left: Observations, Right: Data assimilation results.



(a) Water temperature

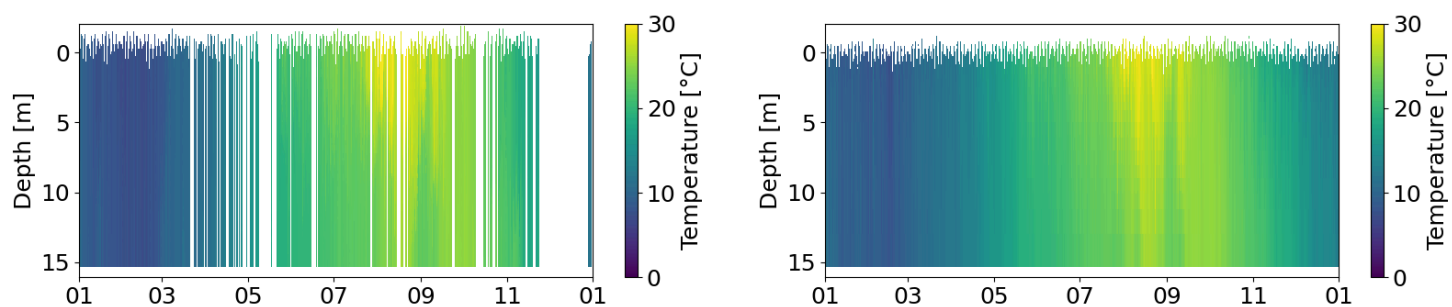


(b) Salinity

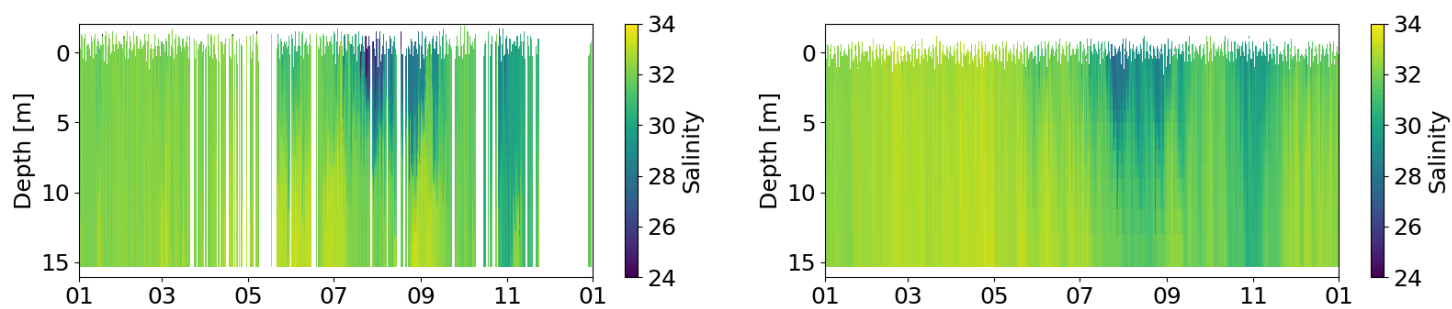


(c) Dissolved oxygen

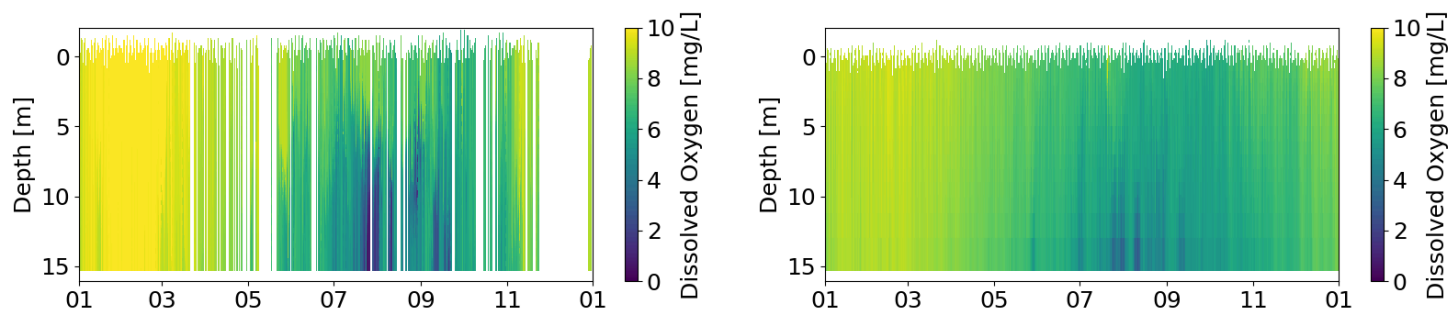
Figure S49 Isopleth plots at Mouth of Mikawa Bay in 2018
Left: Observations, Right: Data assimilation results.



(a) Water temperature

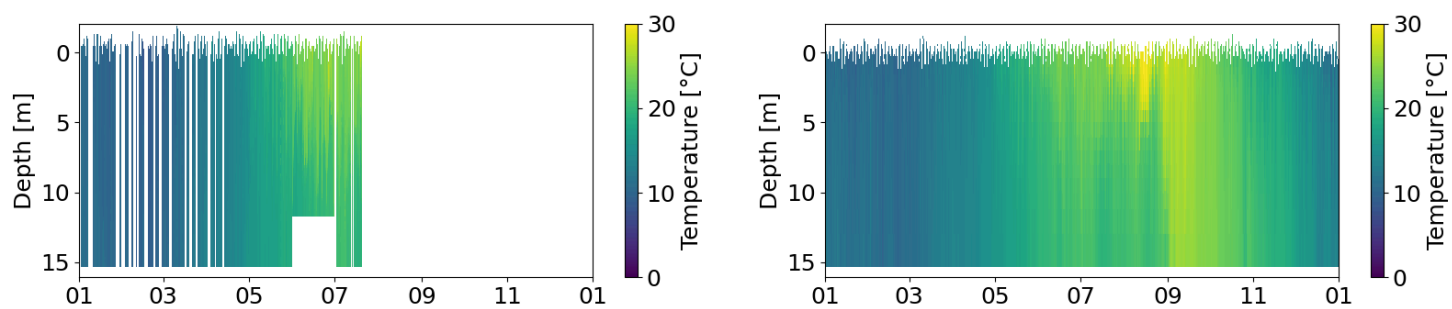


(b) Salinity

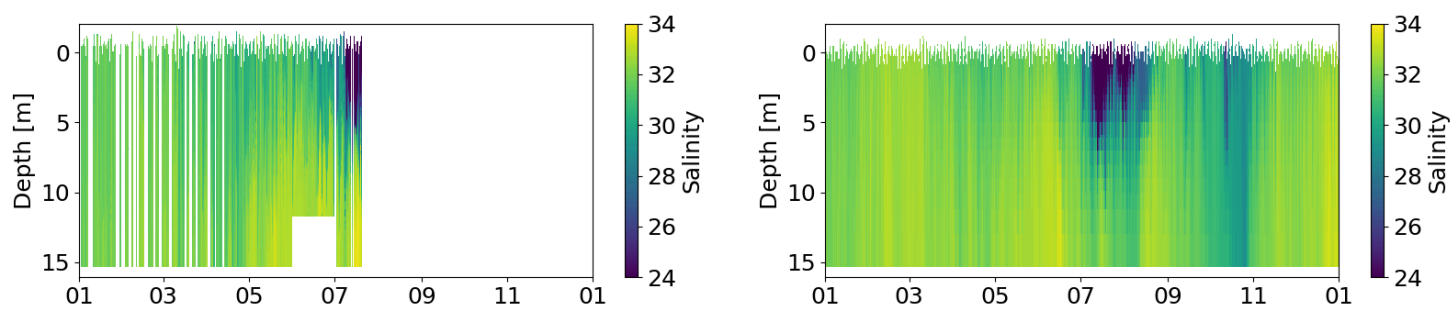


(c) Dissolved oxygen

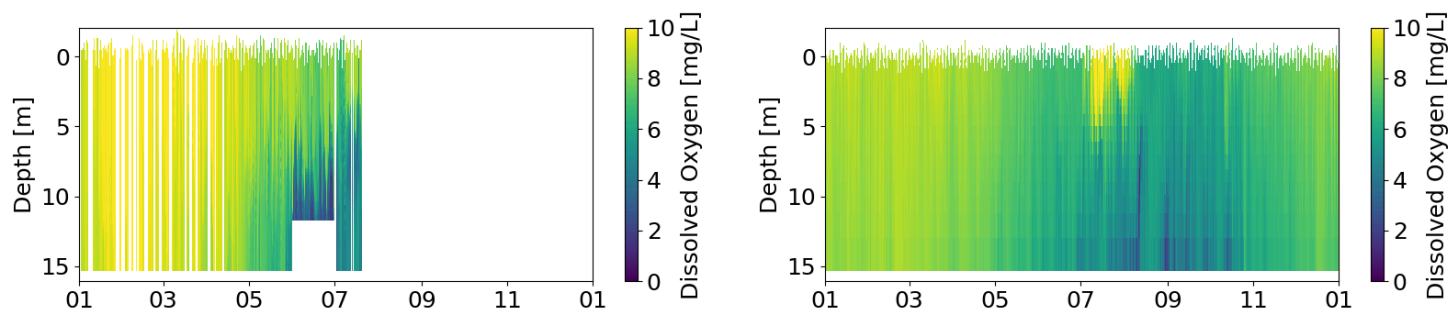
Figure S50 Isopleth plots at Mouth of Mikawa Bay in 2019
Left: Observations, Right: Data assimilation results.



(a) Water temperature

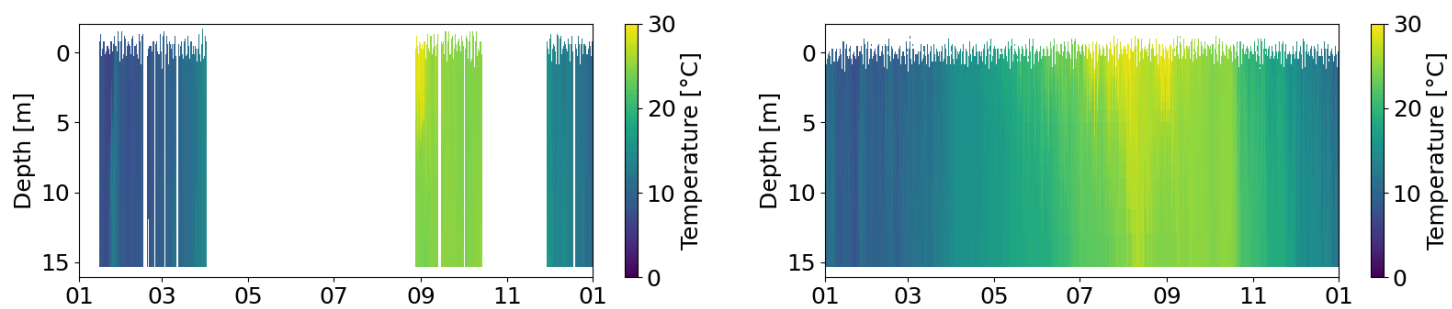


(b) Salinity

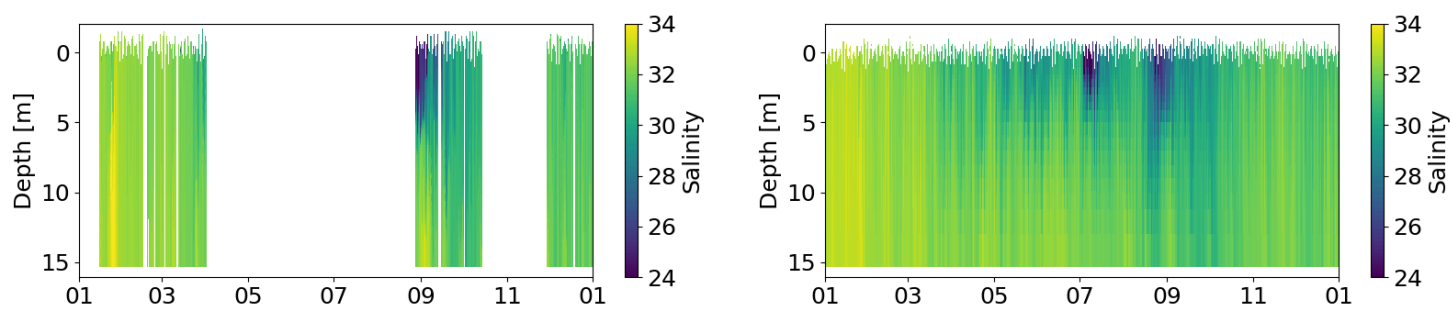


(c) Dissolved oxygen

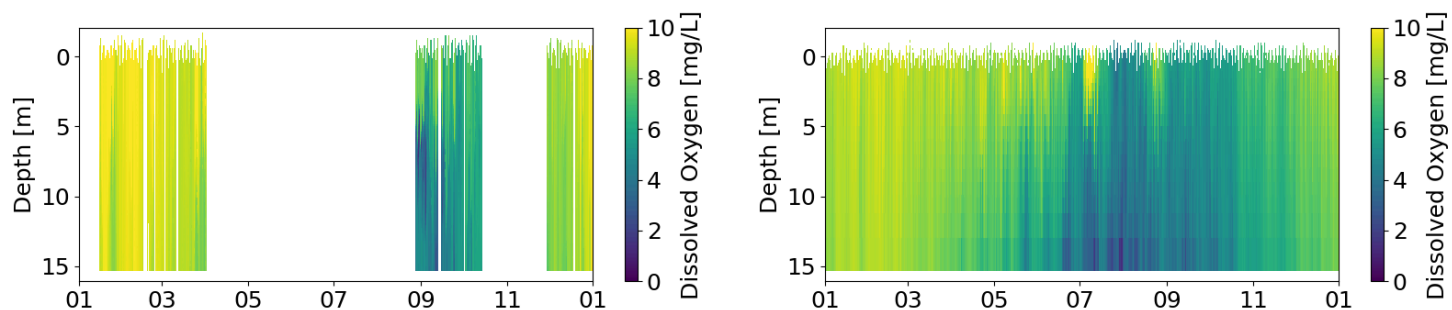
Figure S51 Isopleth plots at Mouth of Mikawa Bay in 2020
Left: Observations, Right: Data assimilation results.



(a) Water temperature

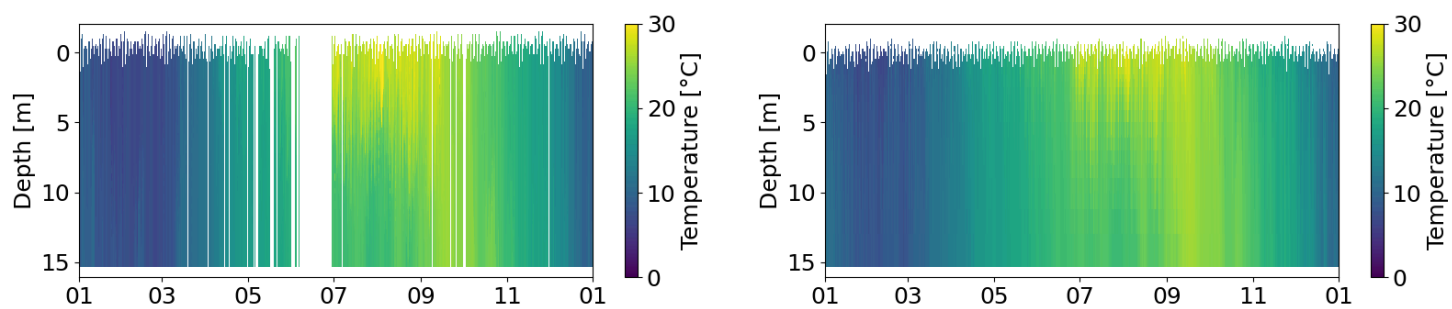


(b) Salinity

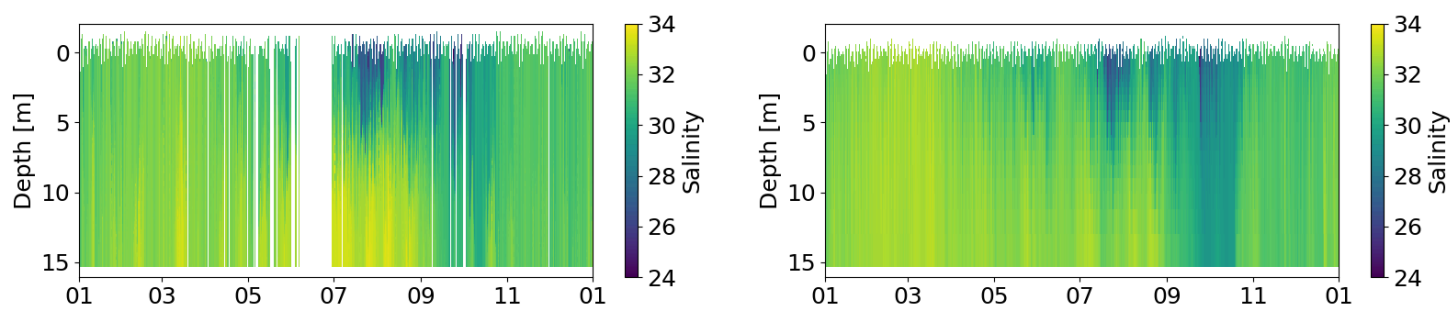


(c) Dissolved oxygen

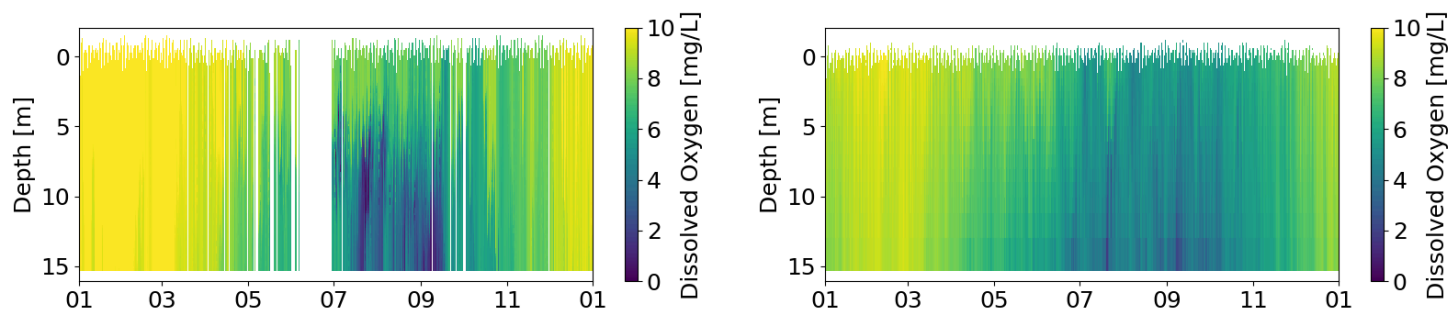
Figure S52 Isopleth plots at Mouth of Mikawa Bay in 2021
Left: Observations, Right: Data assimilation results.



(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

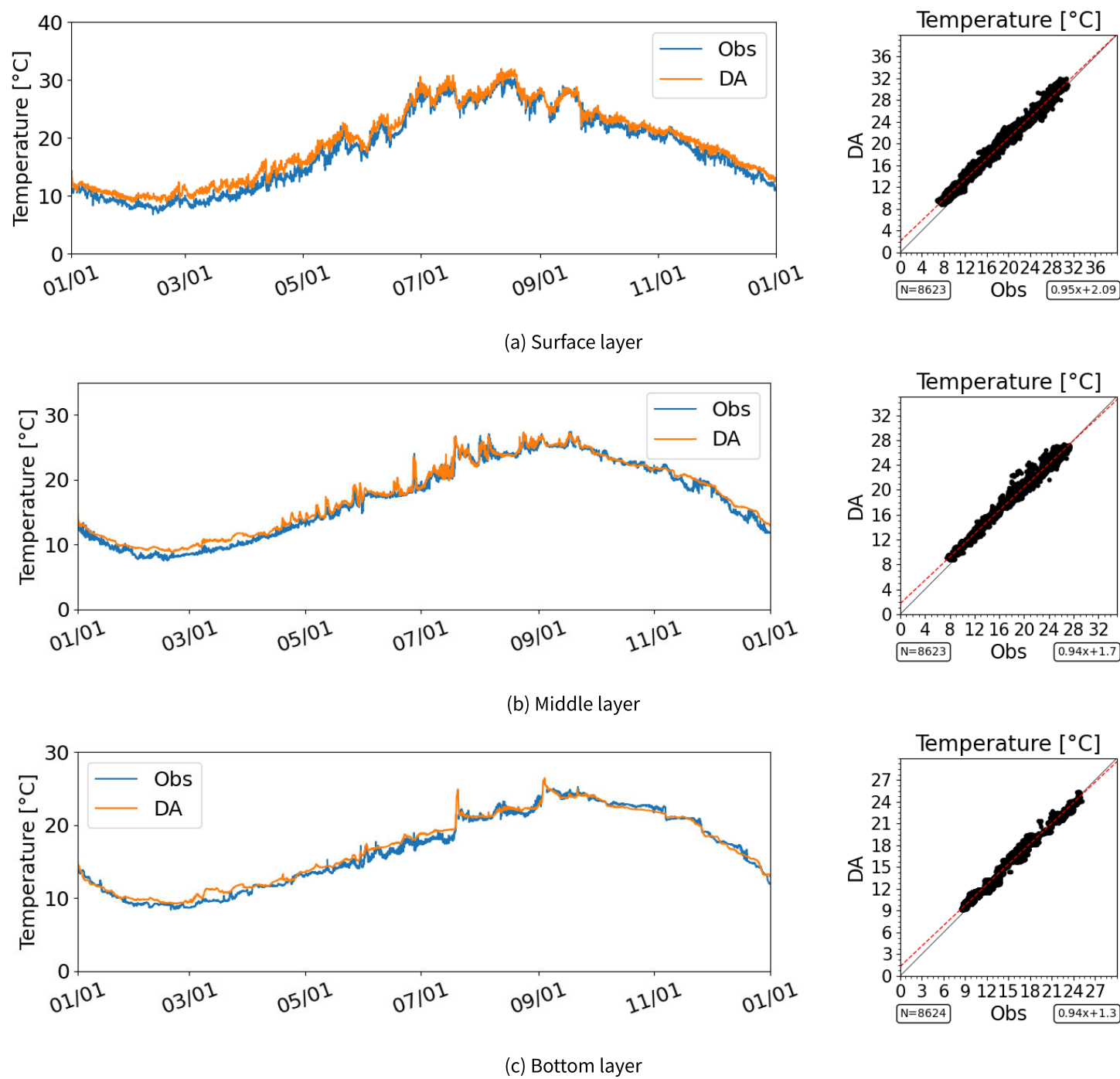
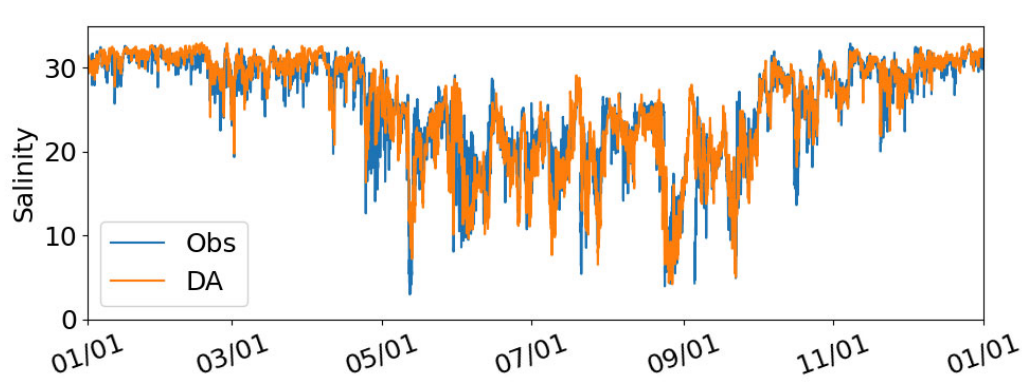
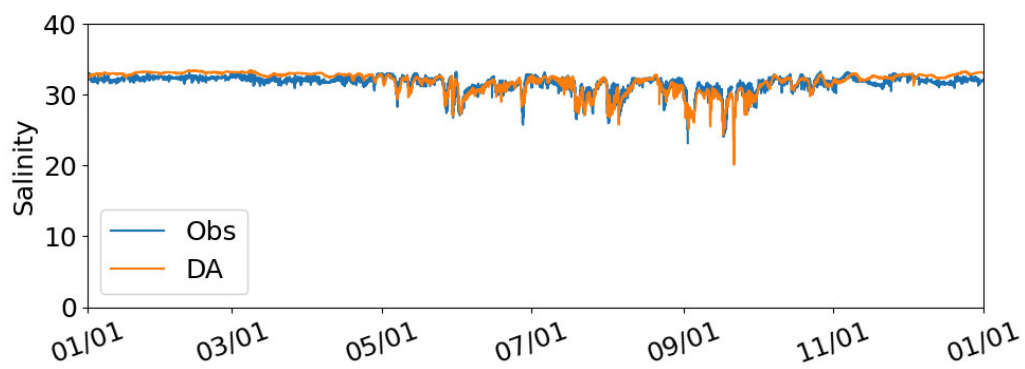
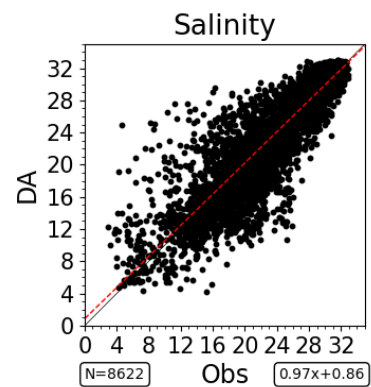


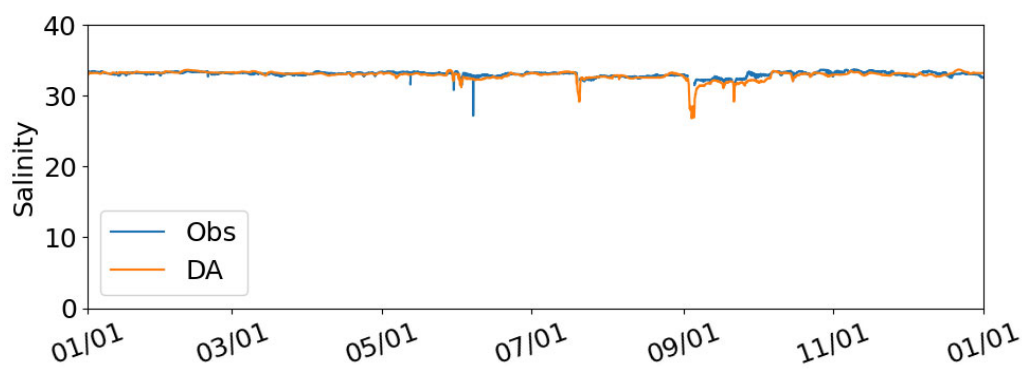
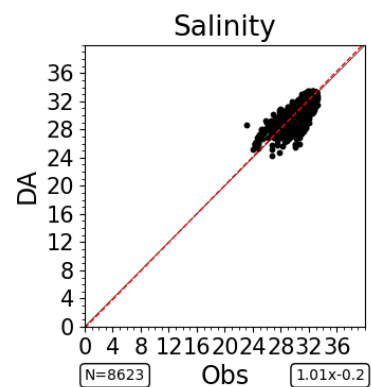
Figure S54 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

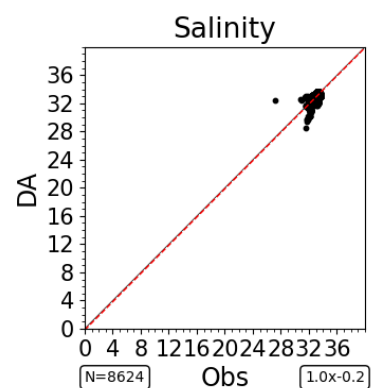
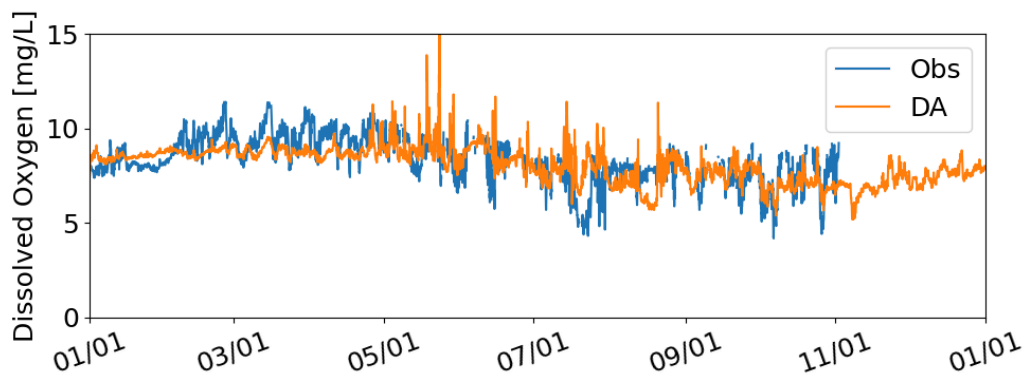
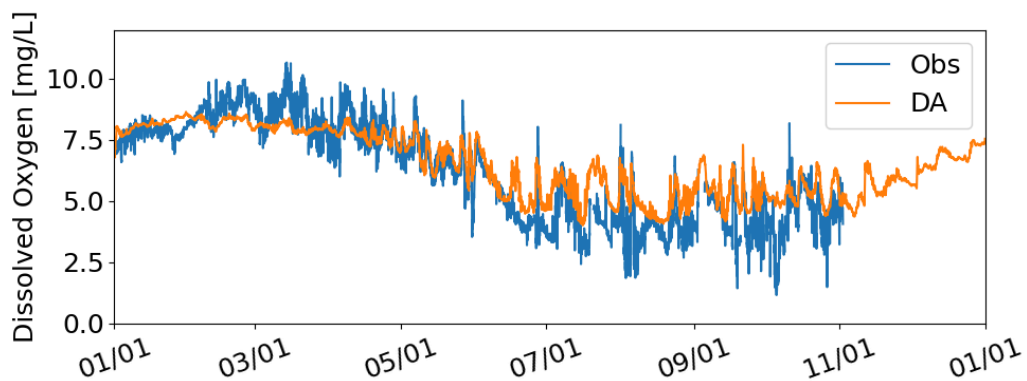
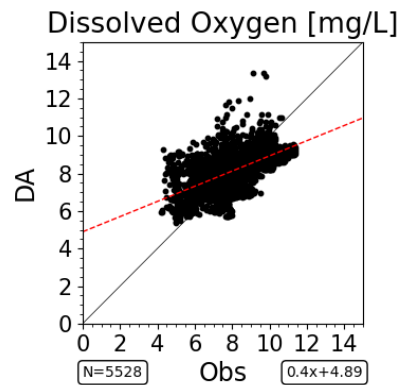


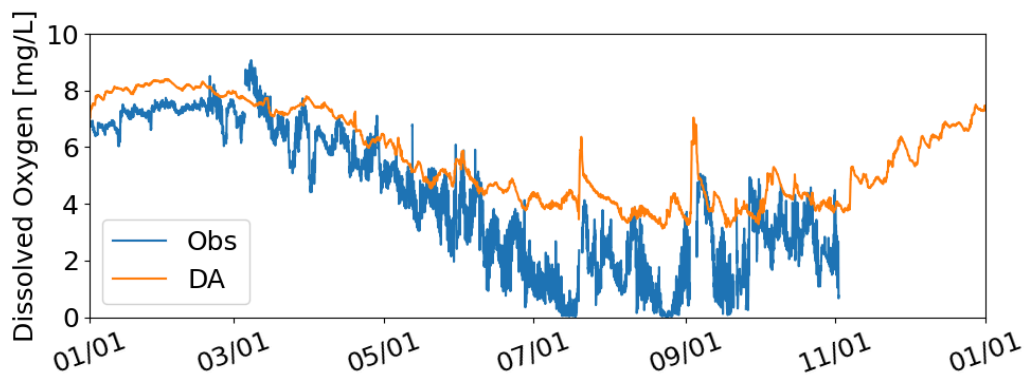
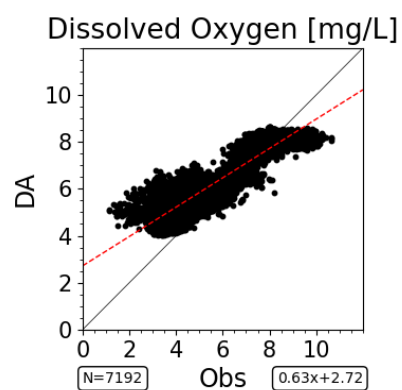
Figure S55 Timeseries and scatter plot for salinity at Back of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

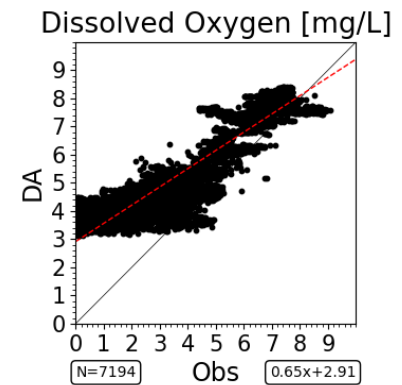
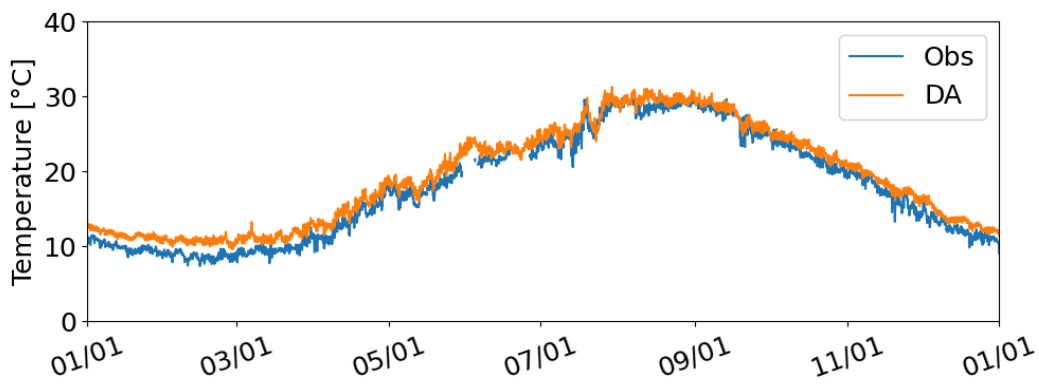
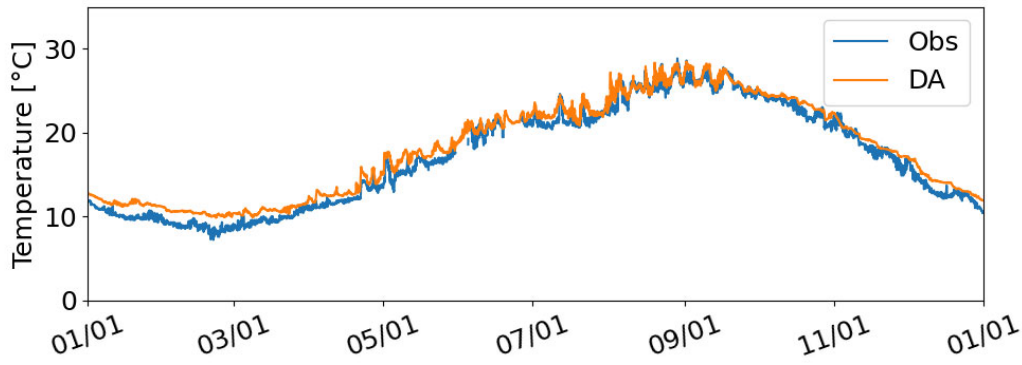
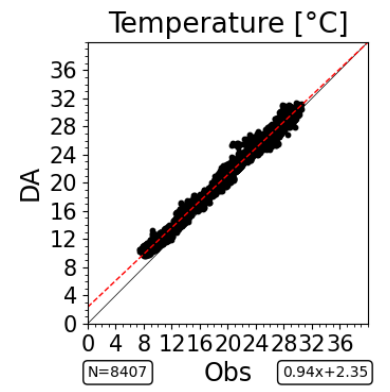


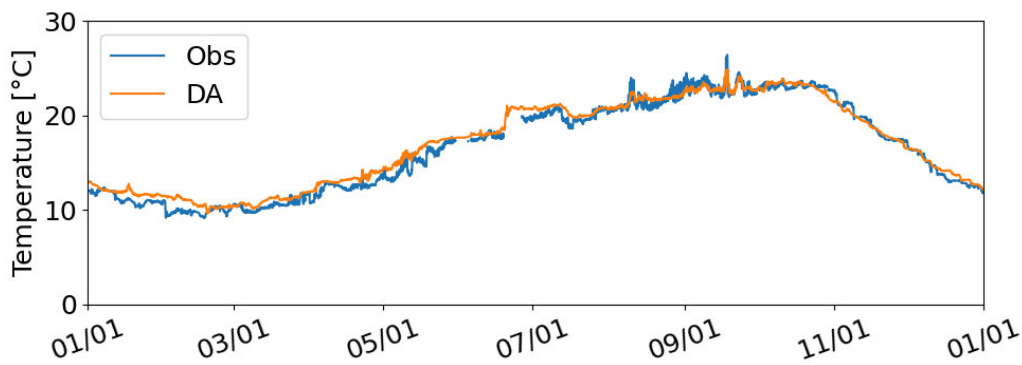
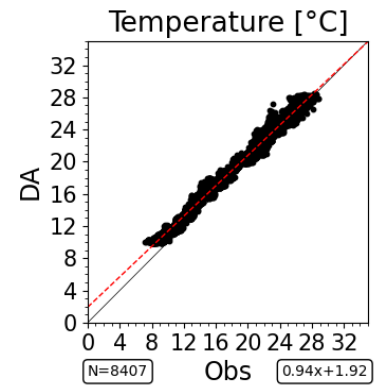
Figure S56 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

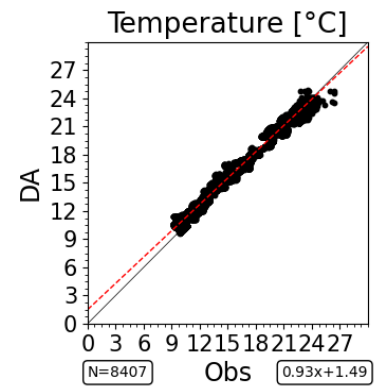
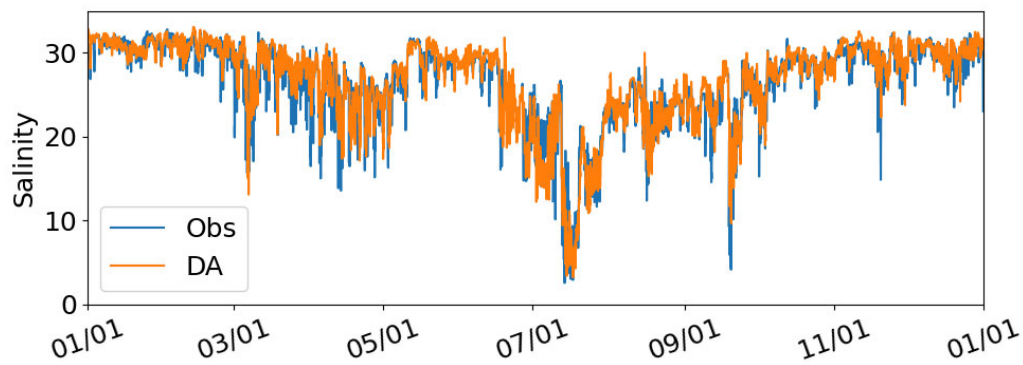
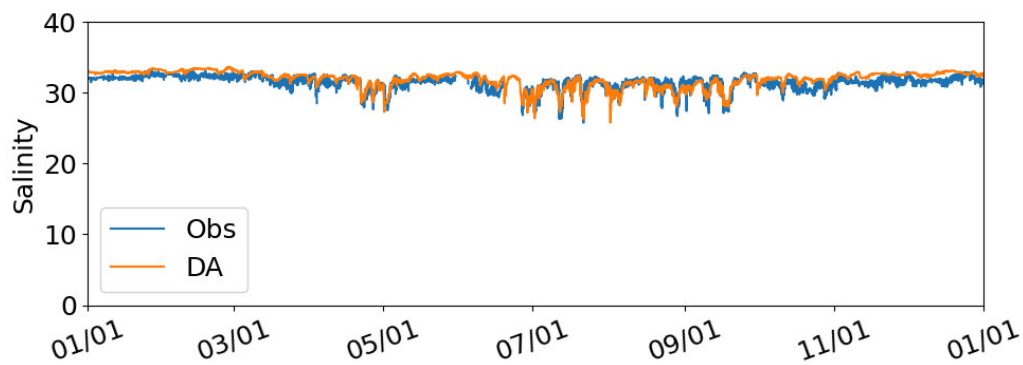
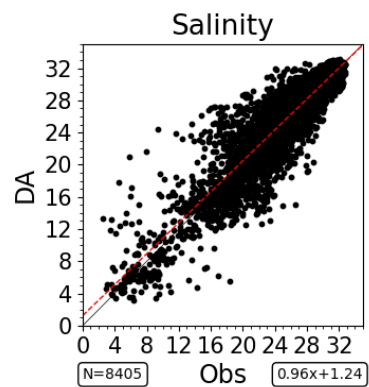


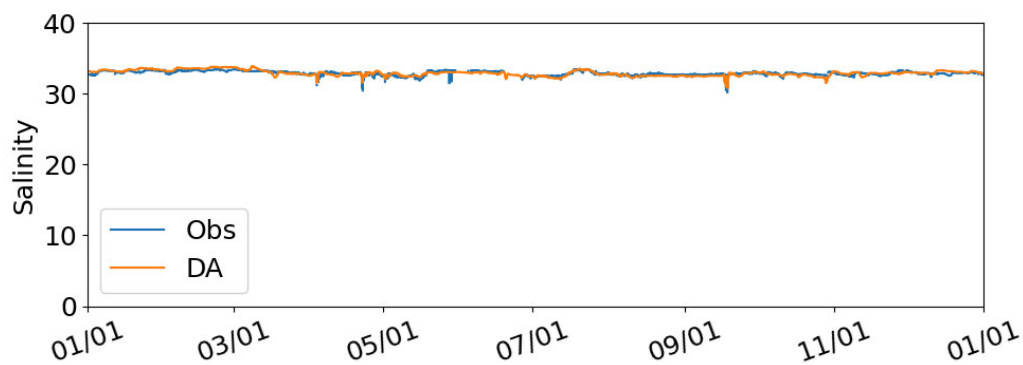
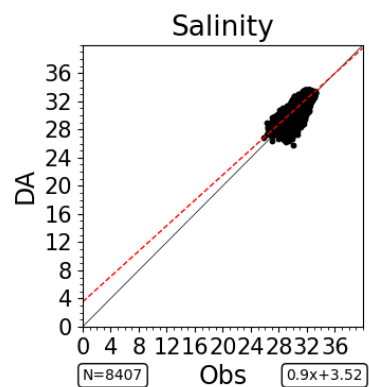
Figure S57 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

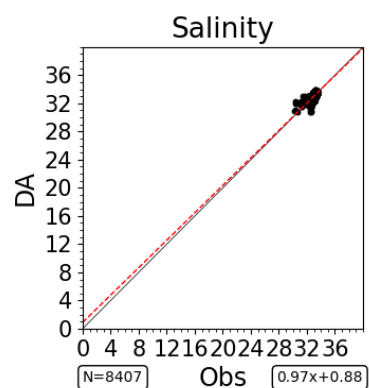
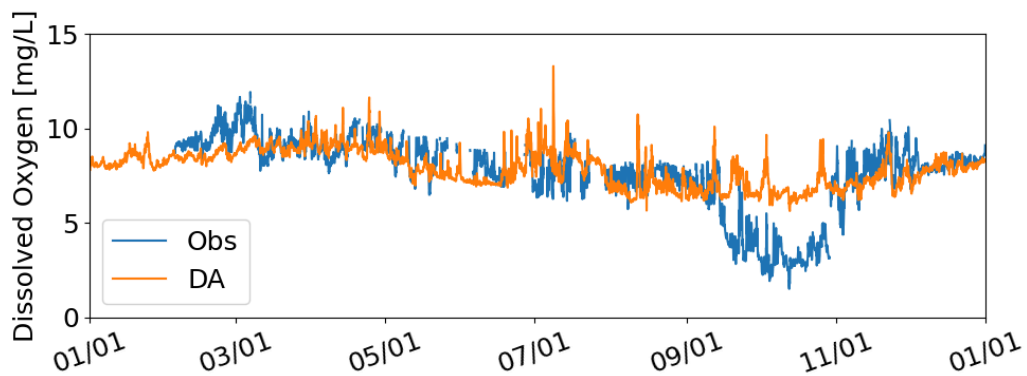
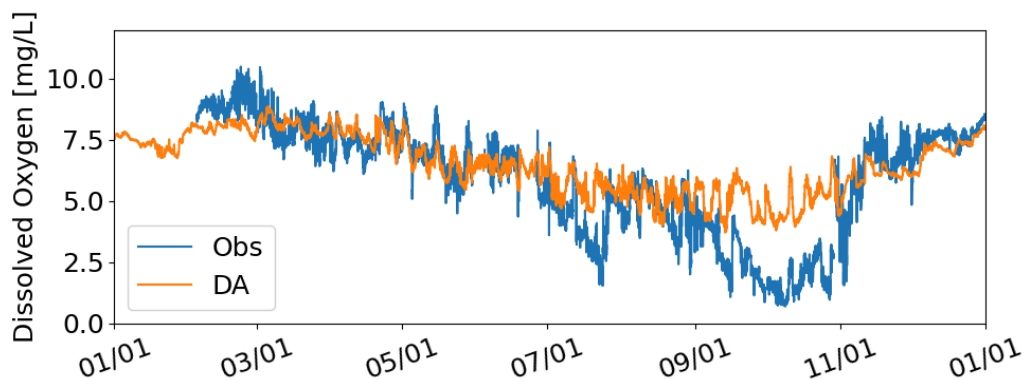
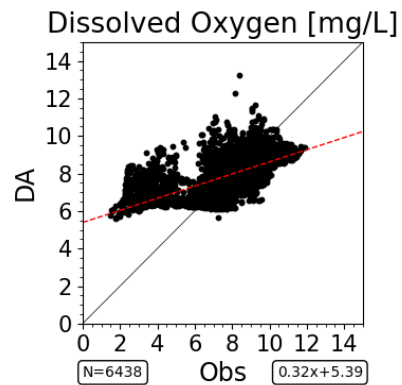


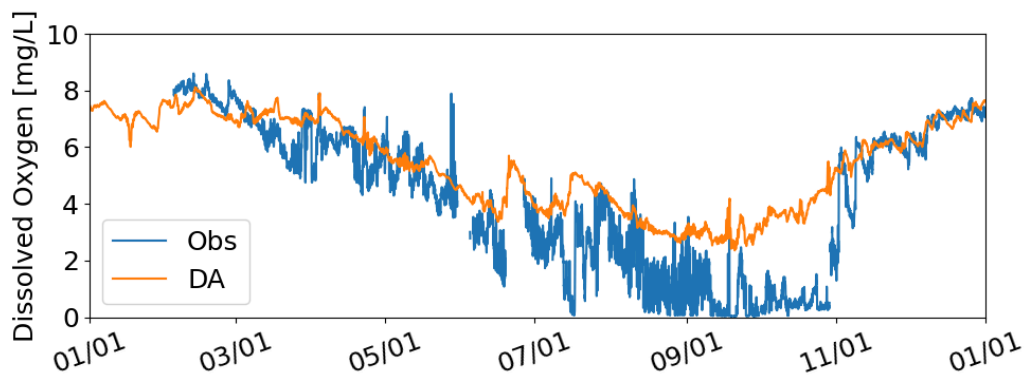
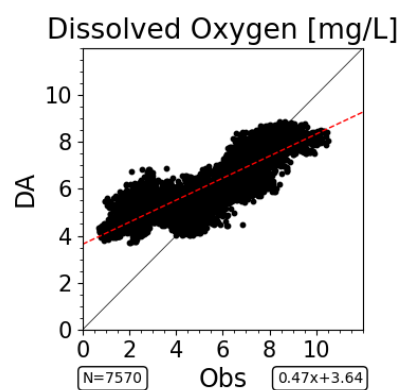
Figure S58 Timeseries and scatter plot for salinity at Back of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

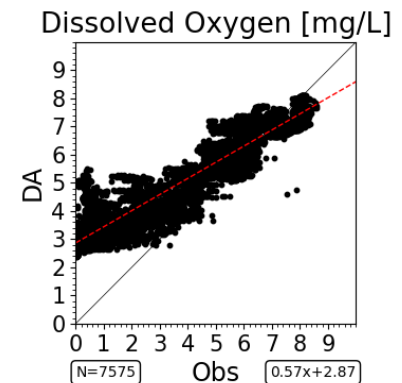
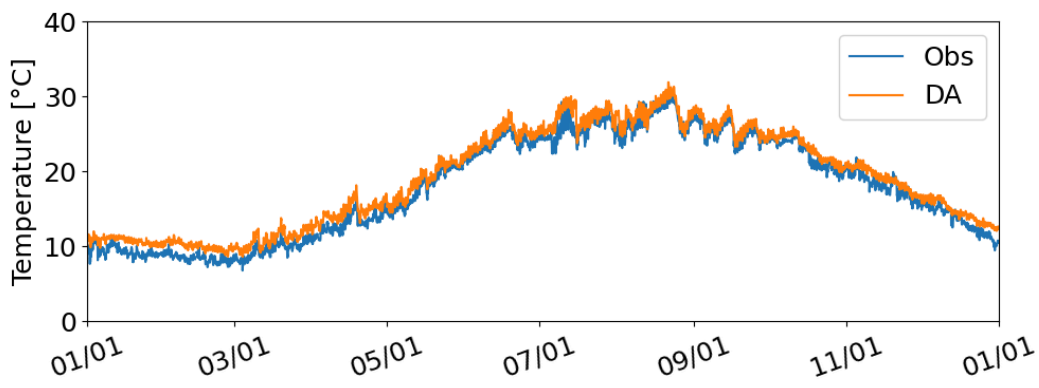
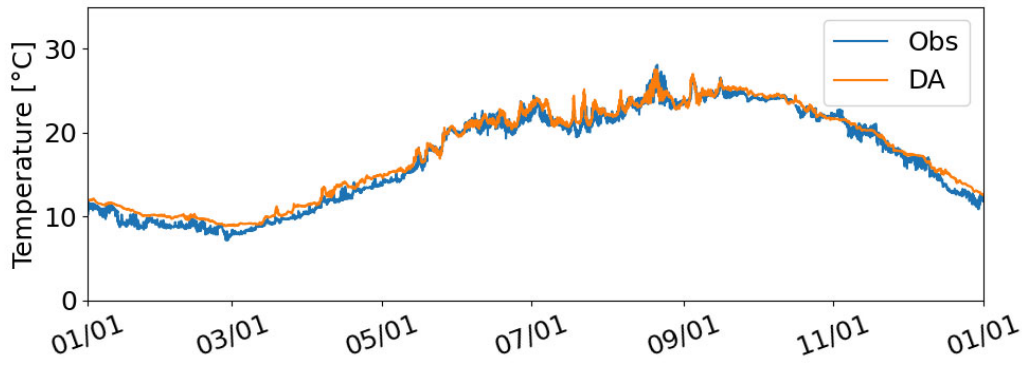
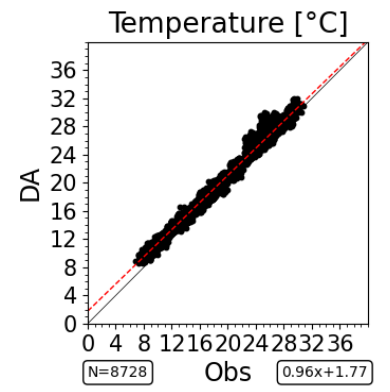


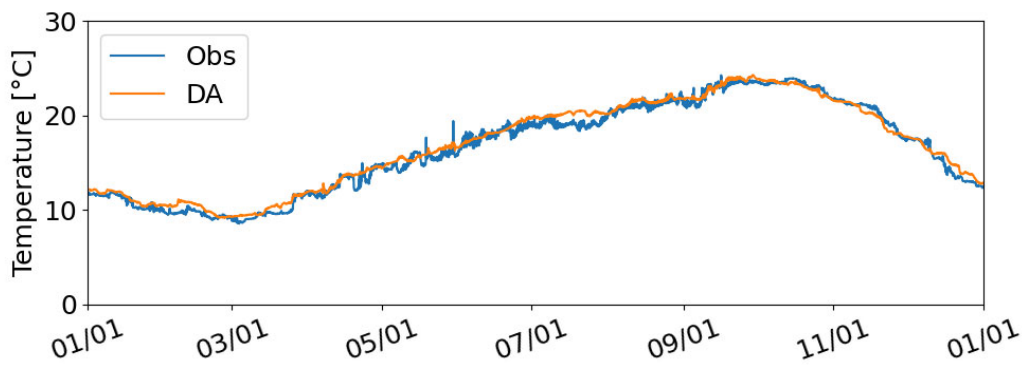
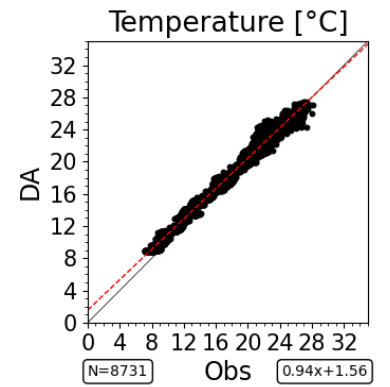
Figure S59 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

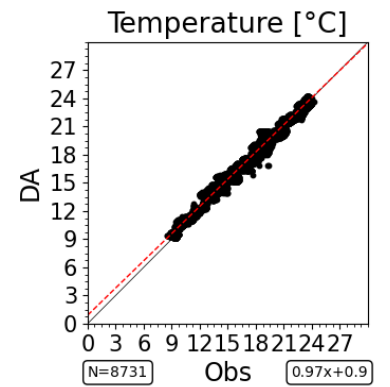
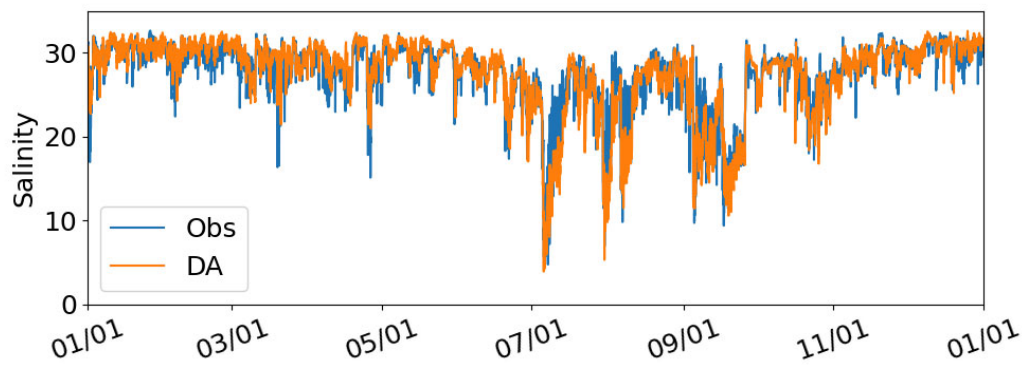
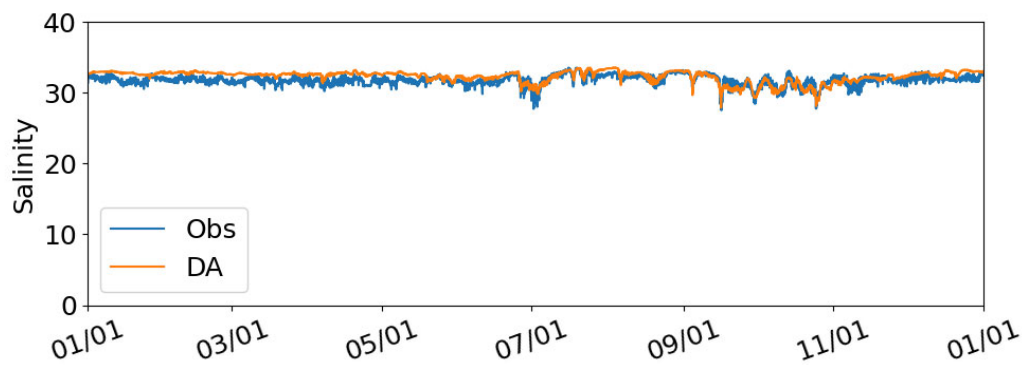
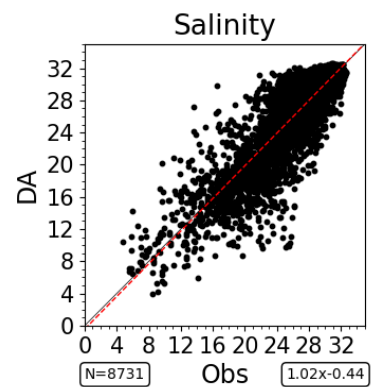


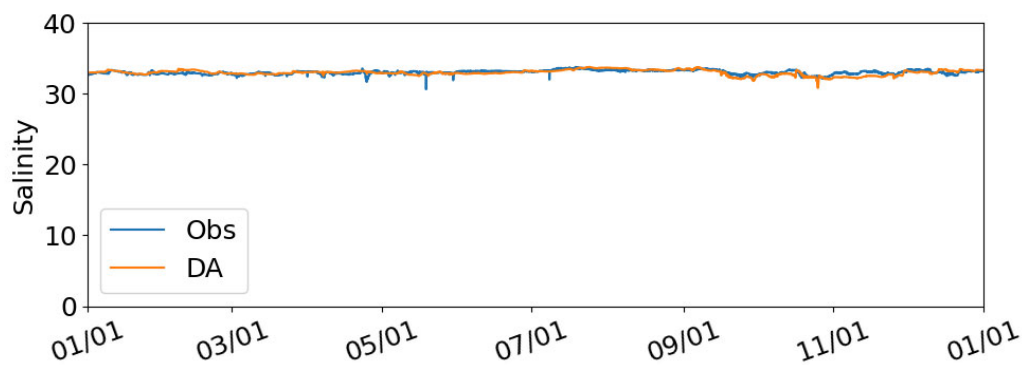
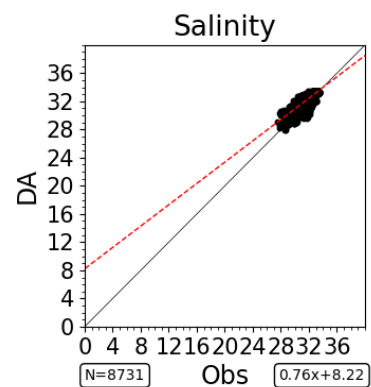
Figure S60 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

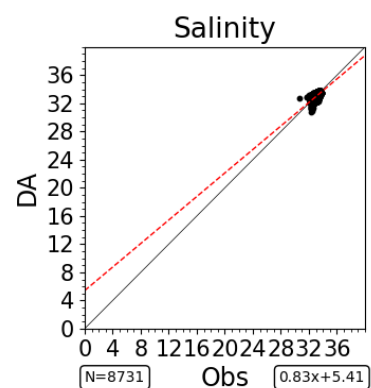
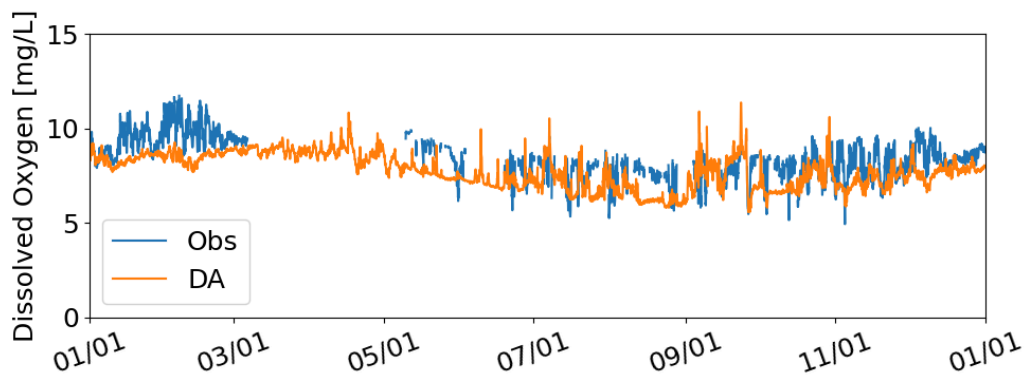
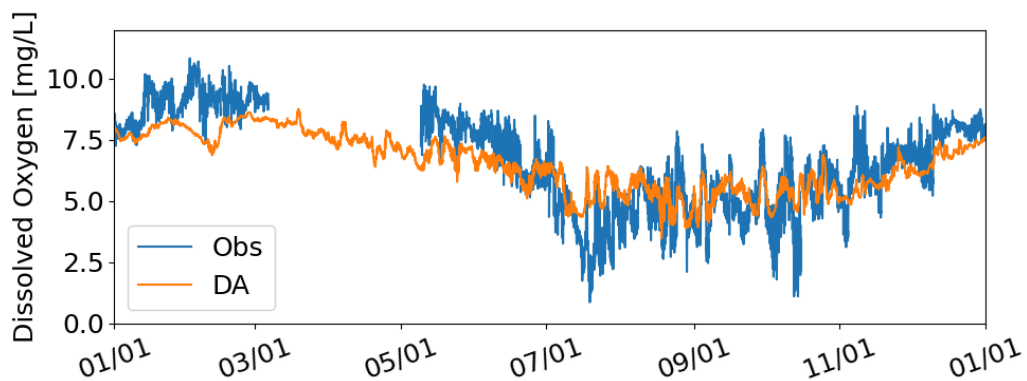
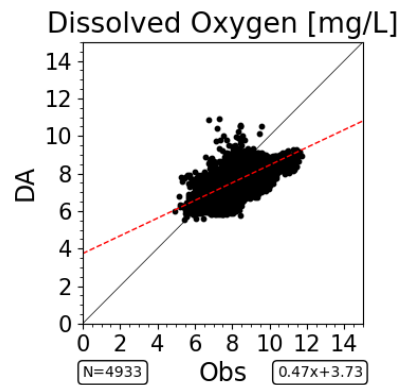


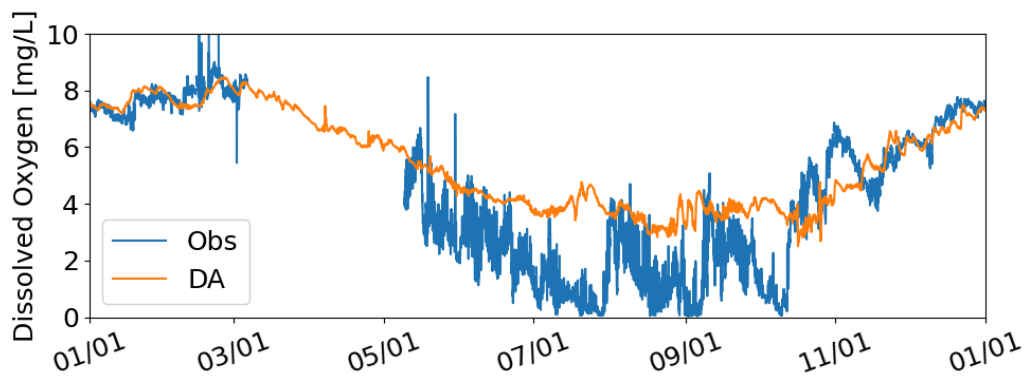
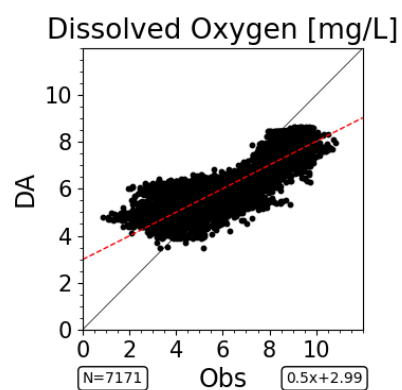
Figure S61 Timeseries and scatter plot for salinity at Back of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

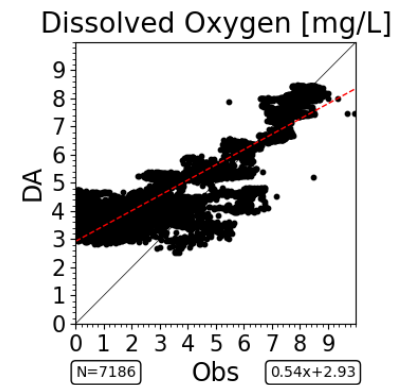
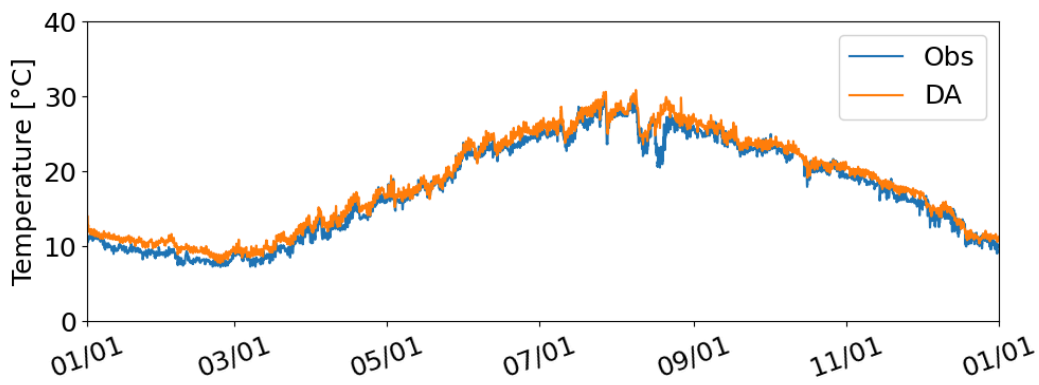
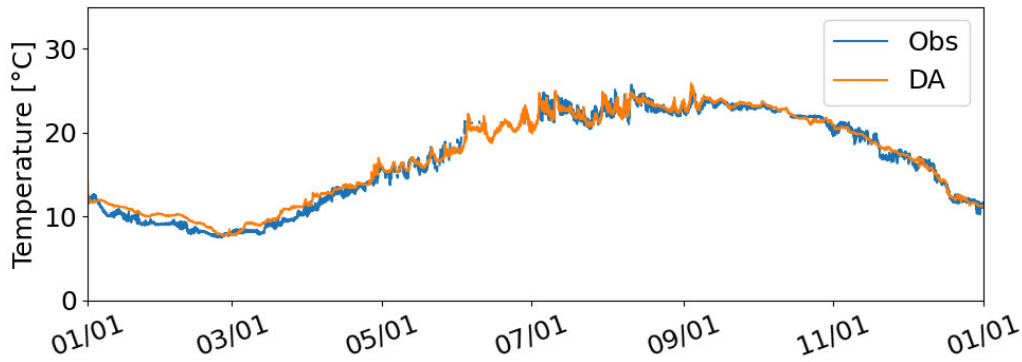
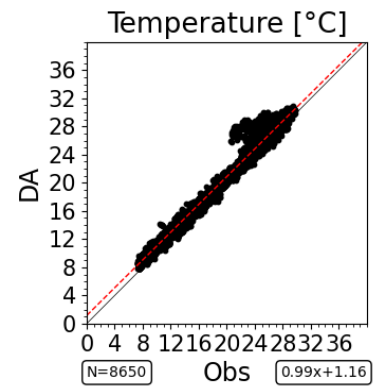


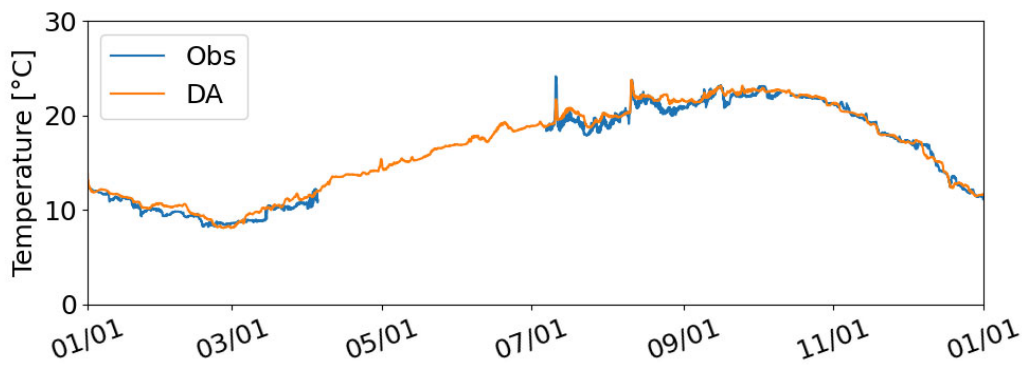
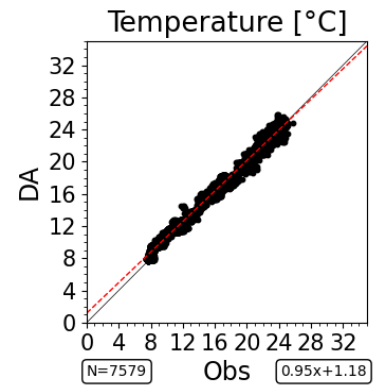
Figure S62 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

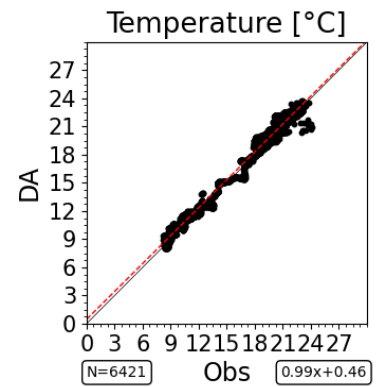
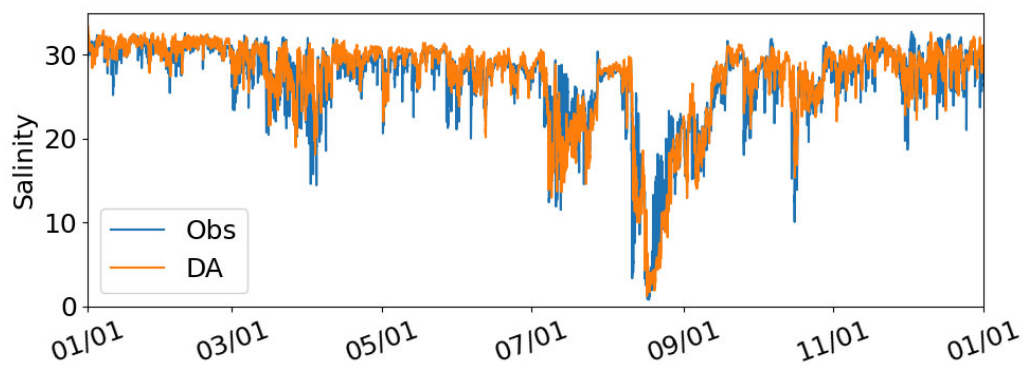
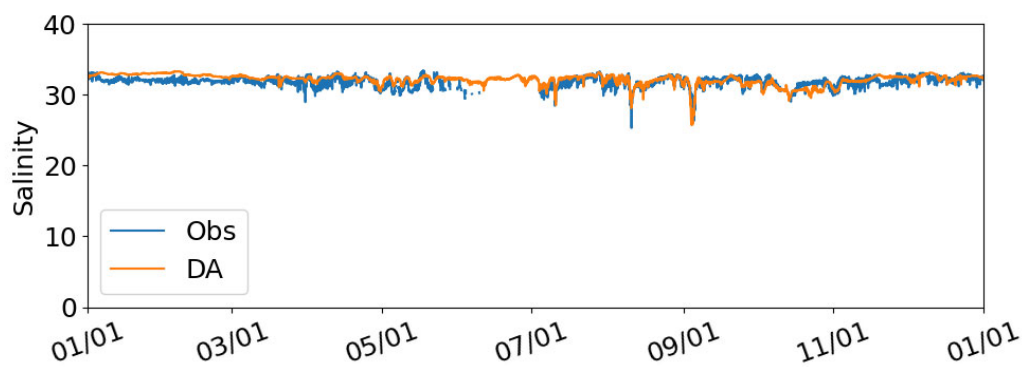
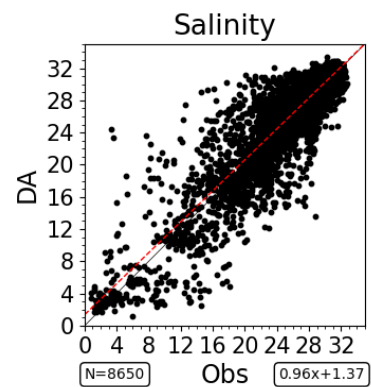


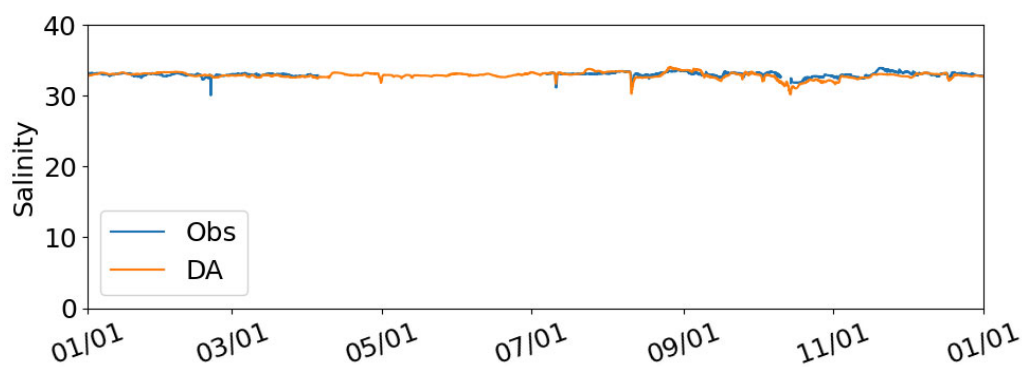
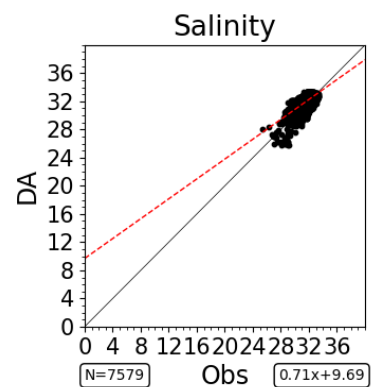
Figure S63 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

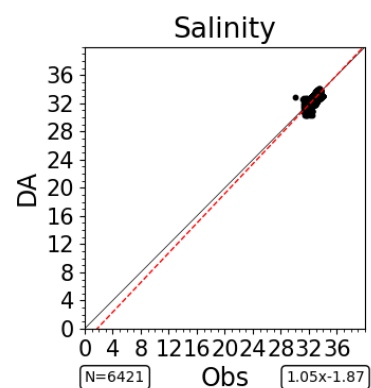
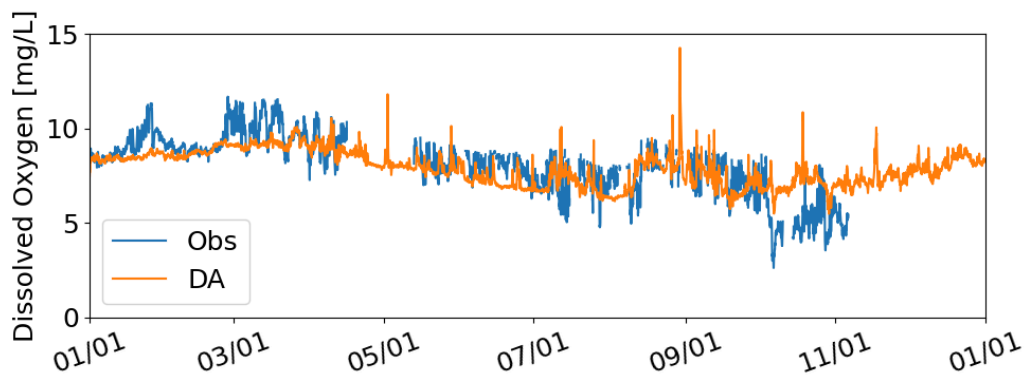
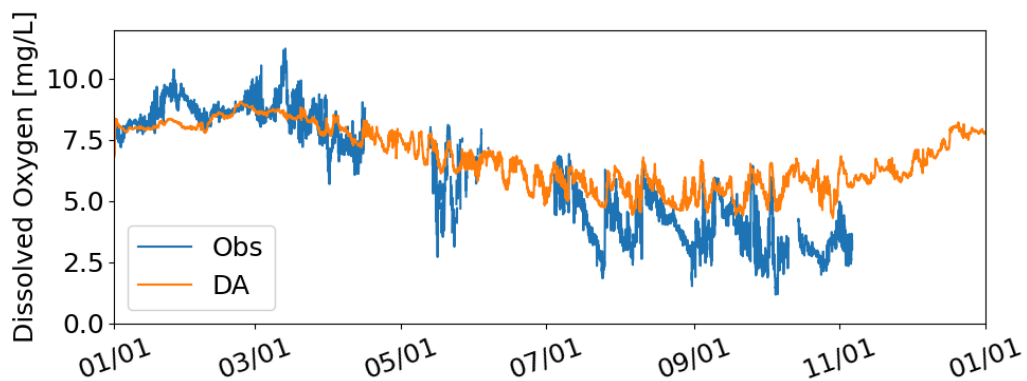
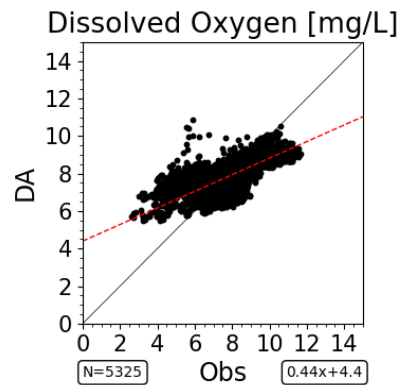


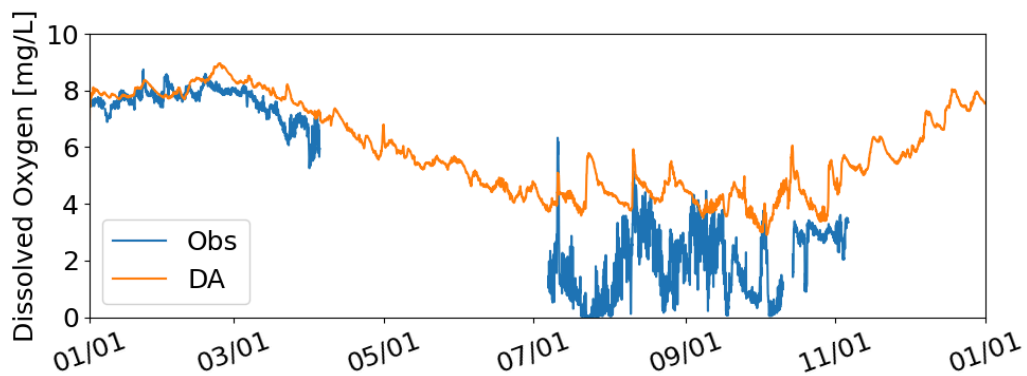
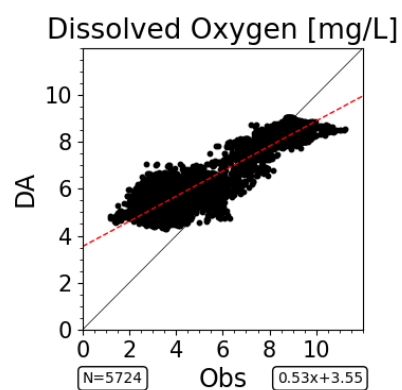
Figure S64 Timeseries and scatter plot for salinity at Back of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

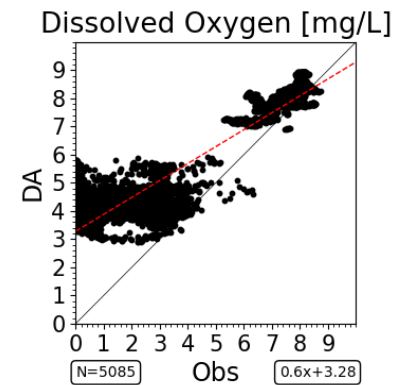
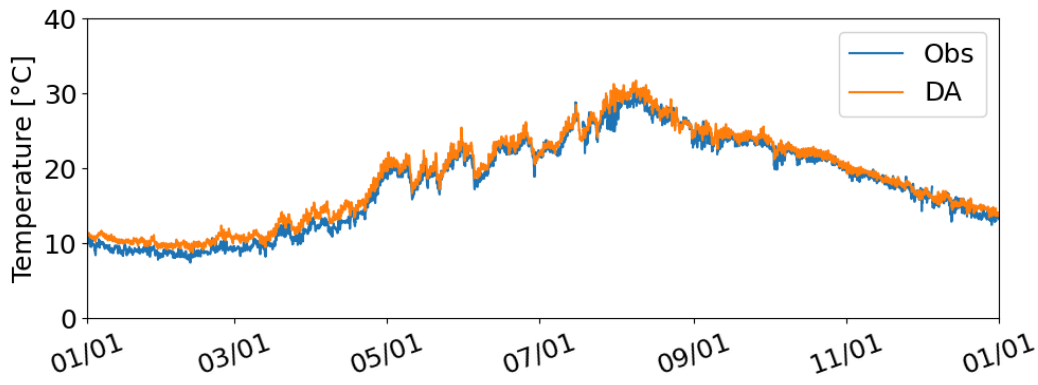
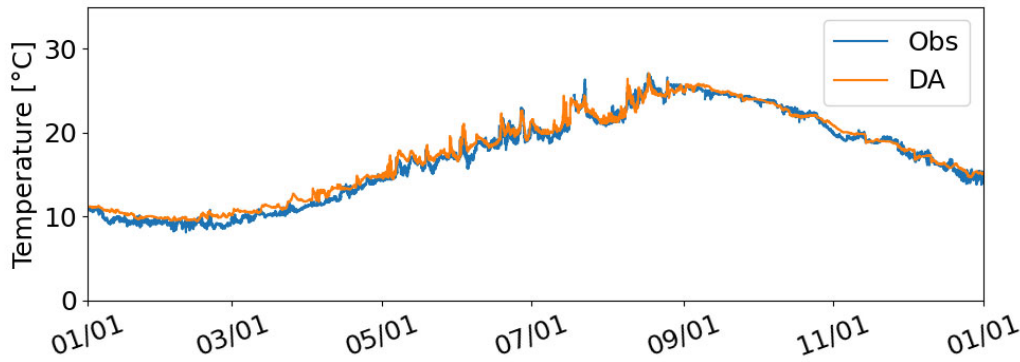
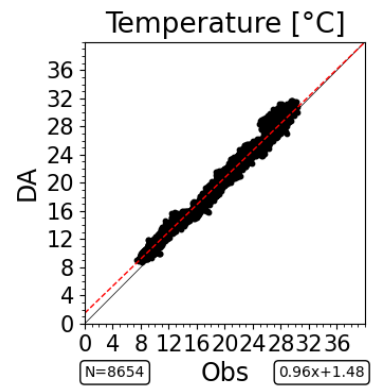


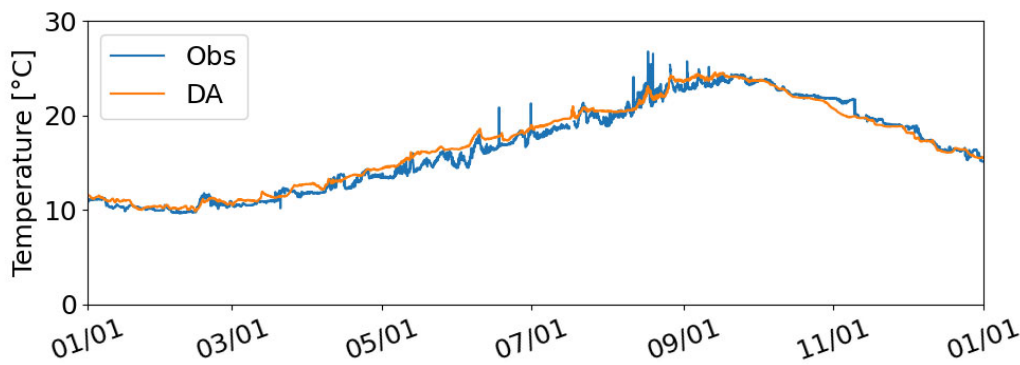
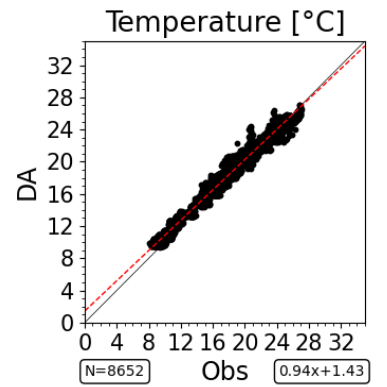
Figure S65 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

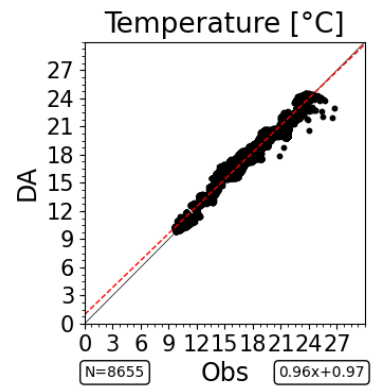
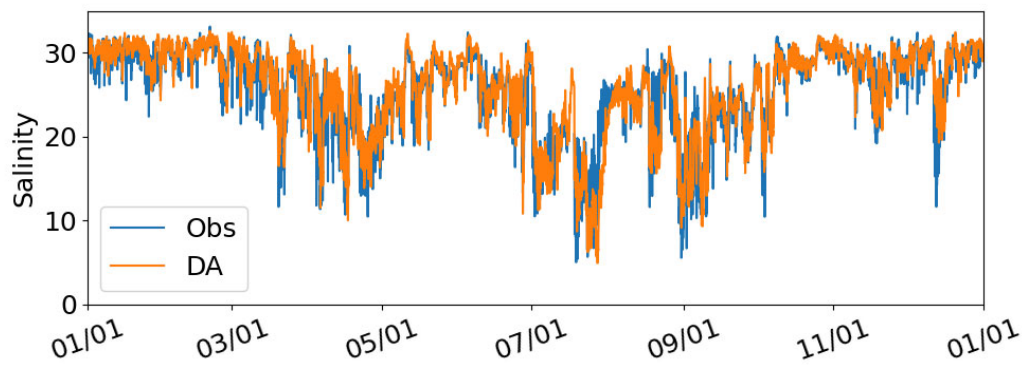
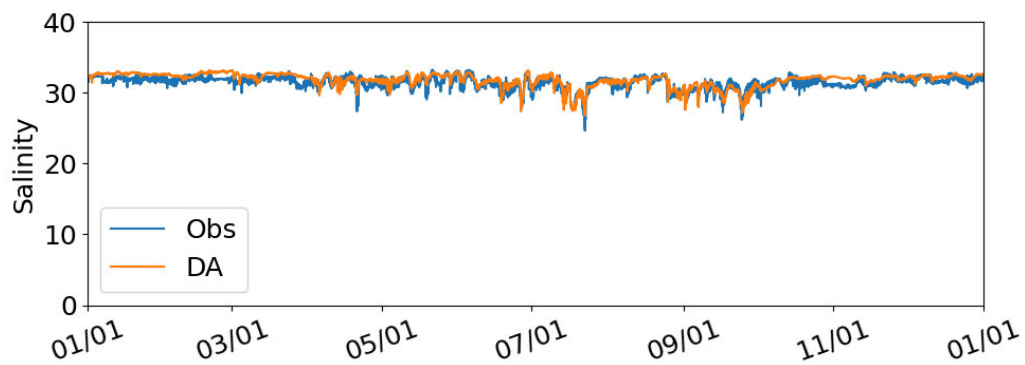
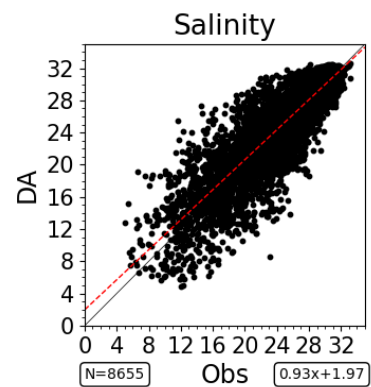


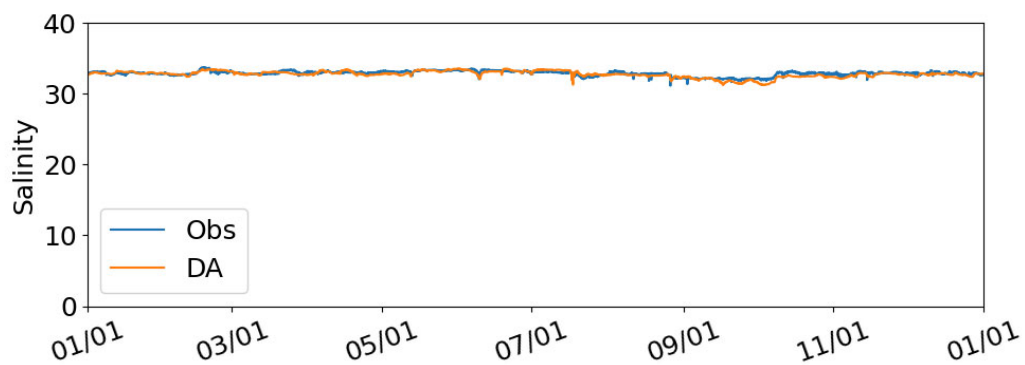
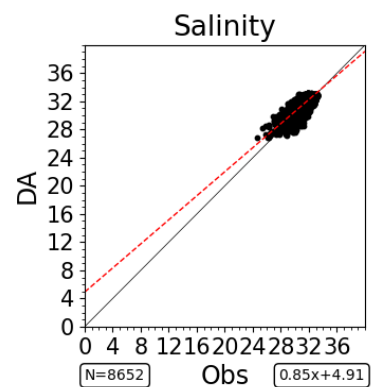
Figure S66 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

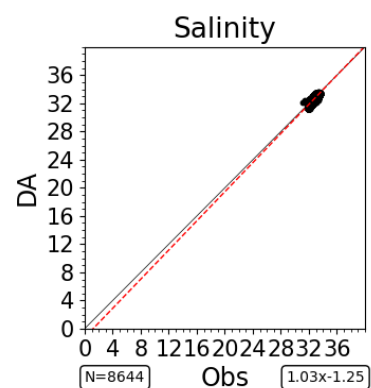
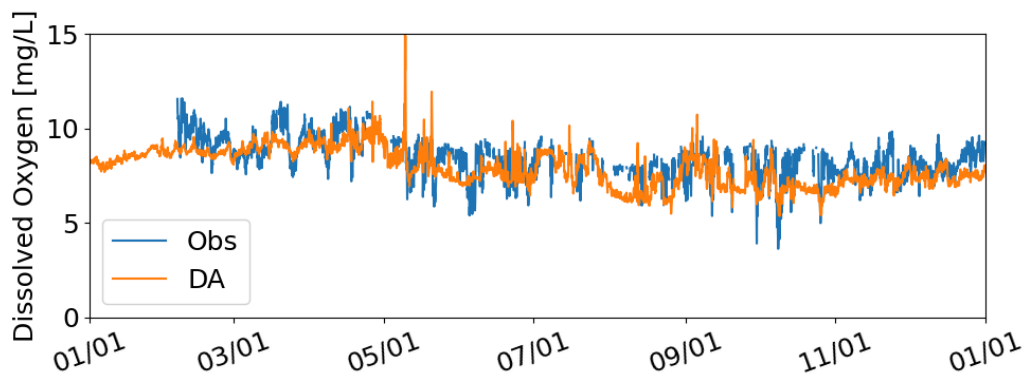
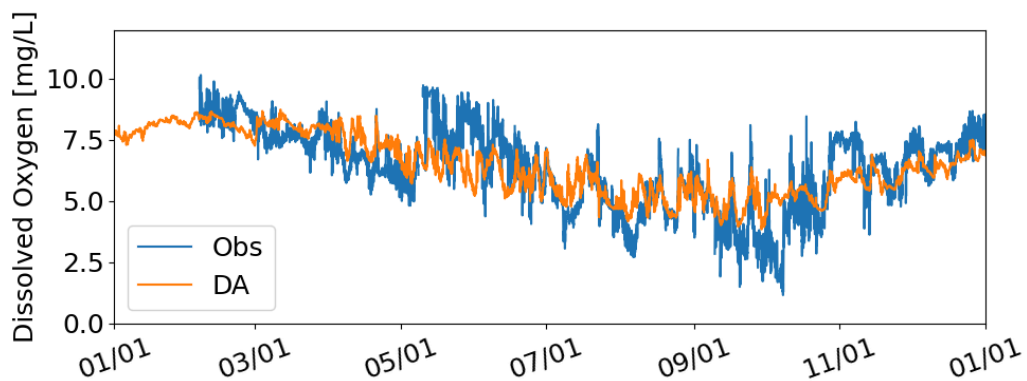
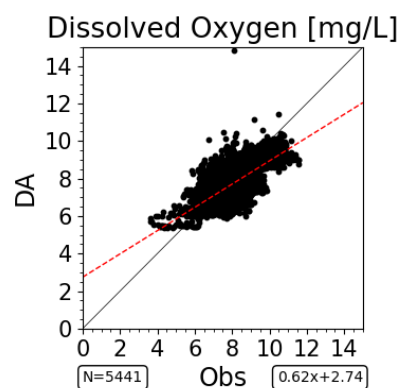


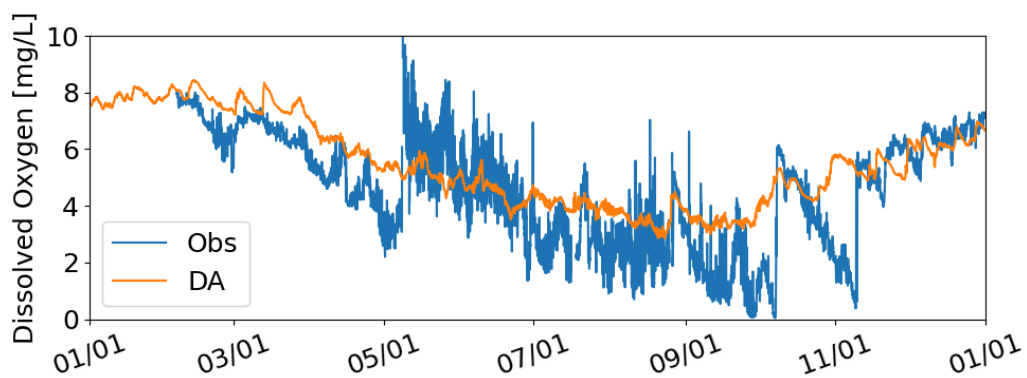
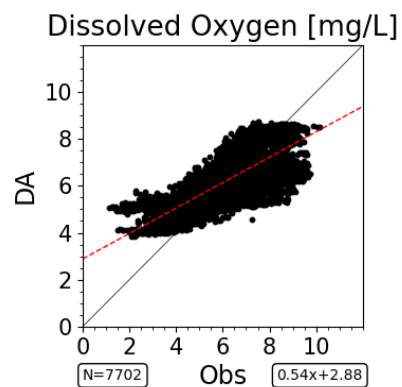
Figure S67 Timeseries and scatter plot for salinity at Back of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

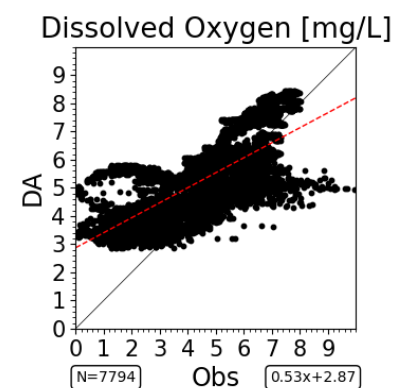
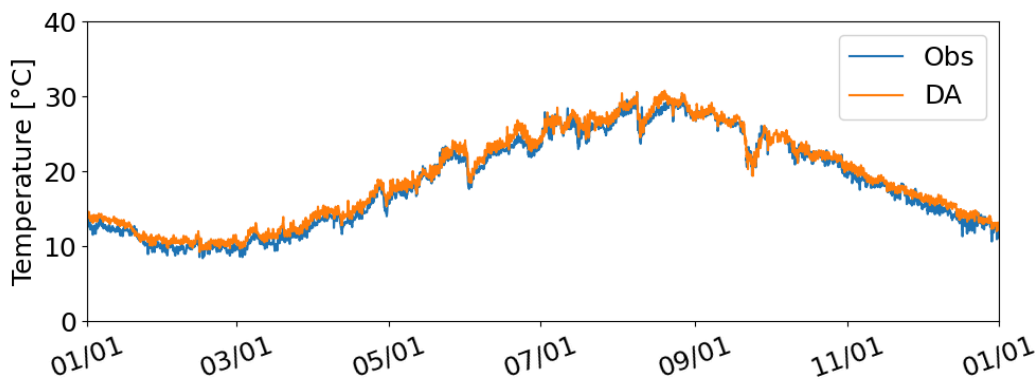
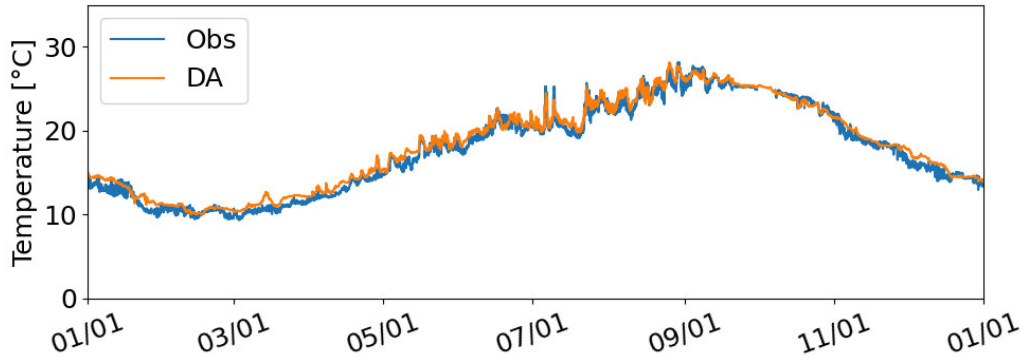
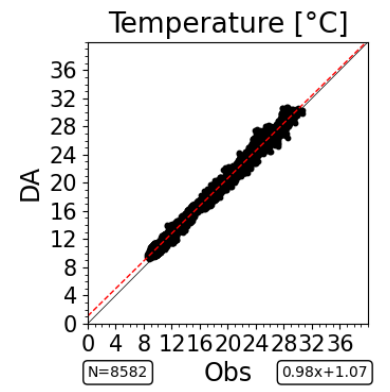


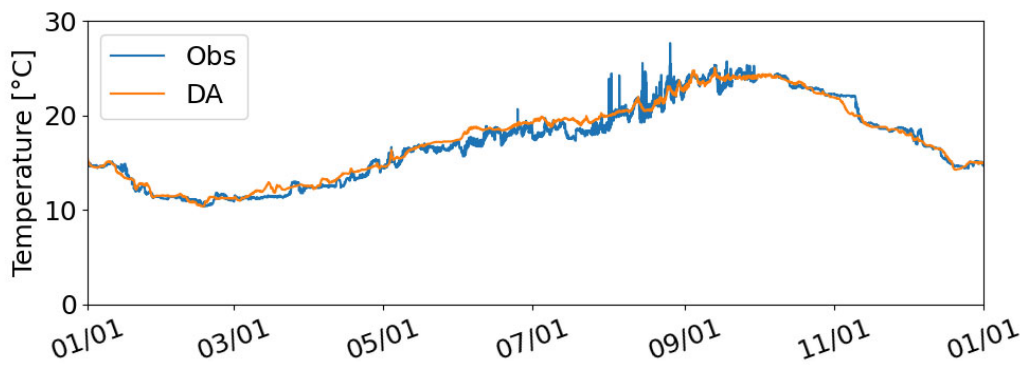
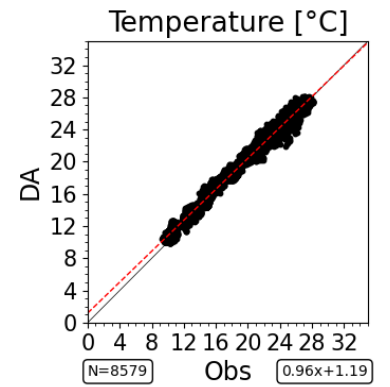
Figure S68 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

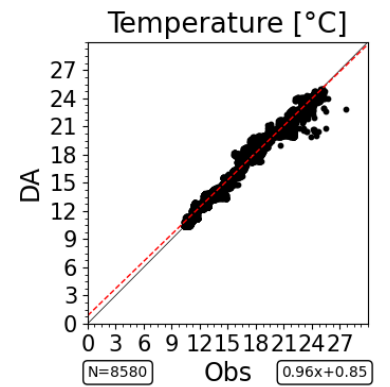
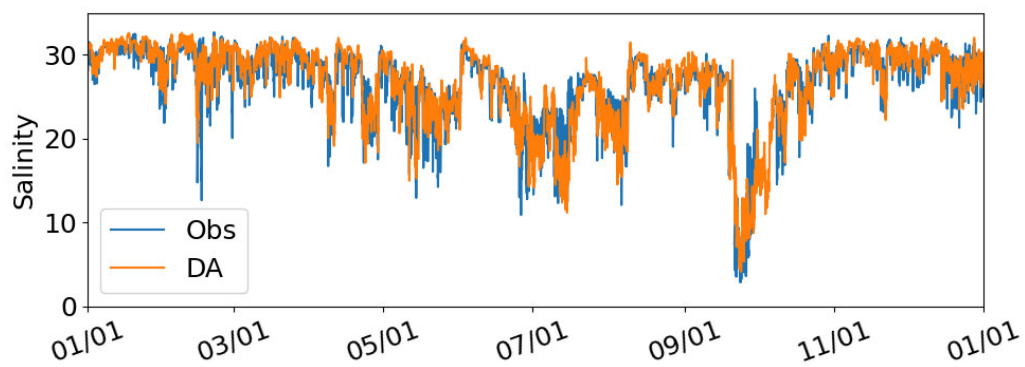
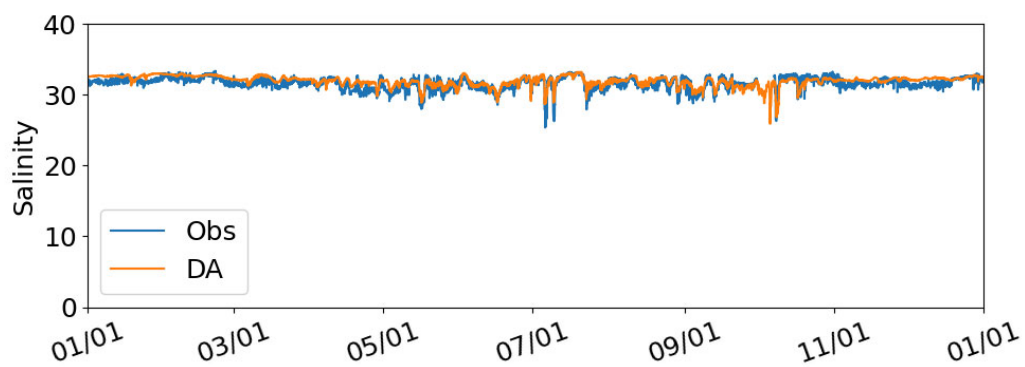
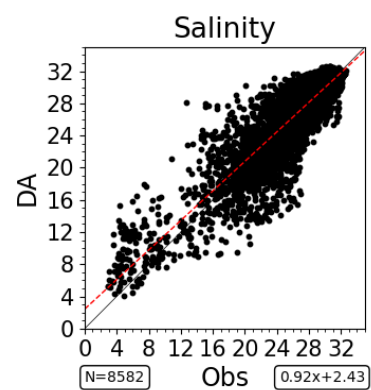


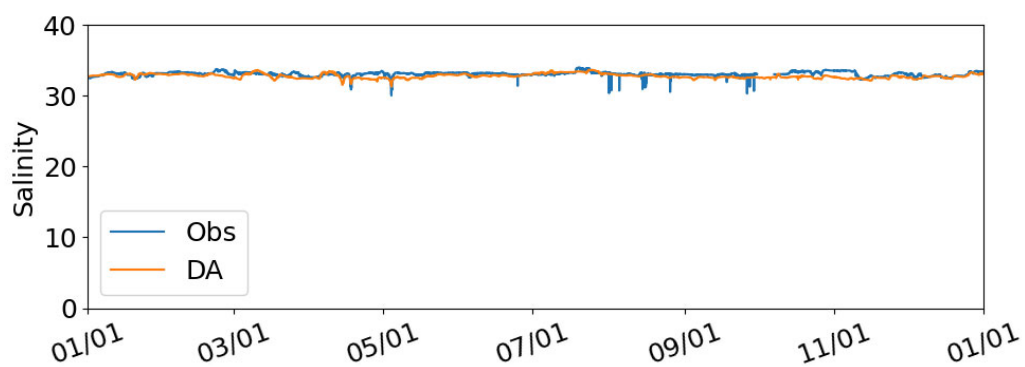
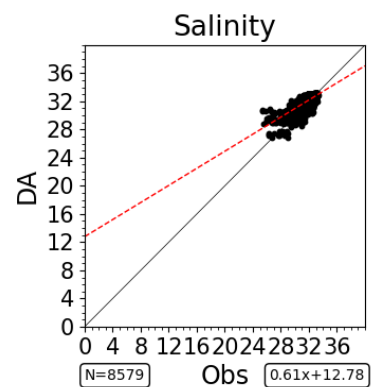
Figure S69 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

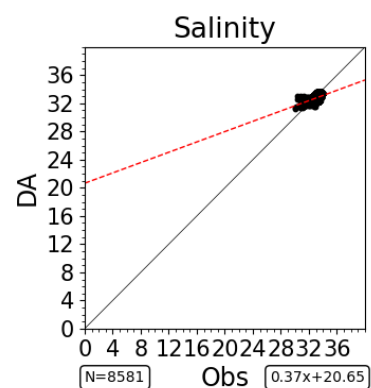
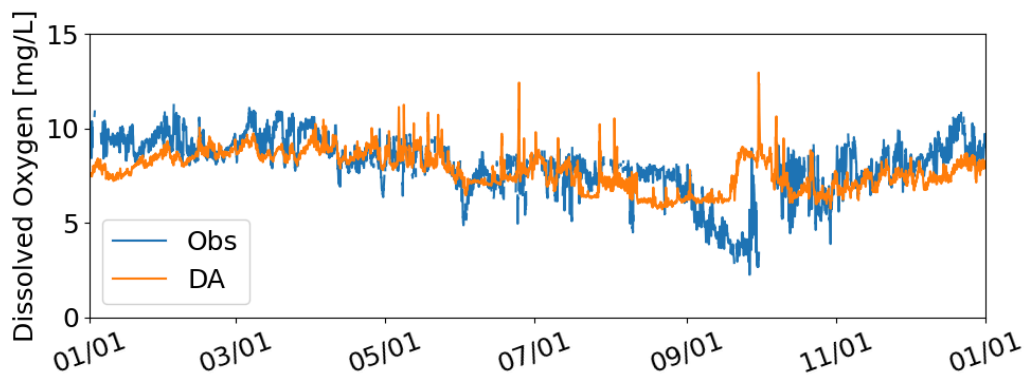
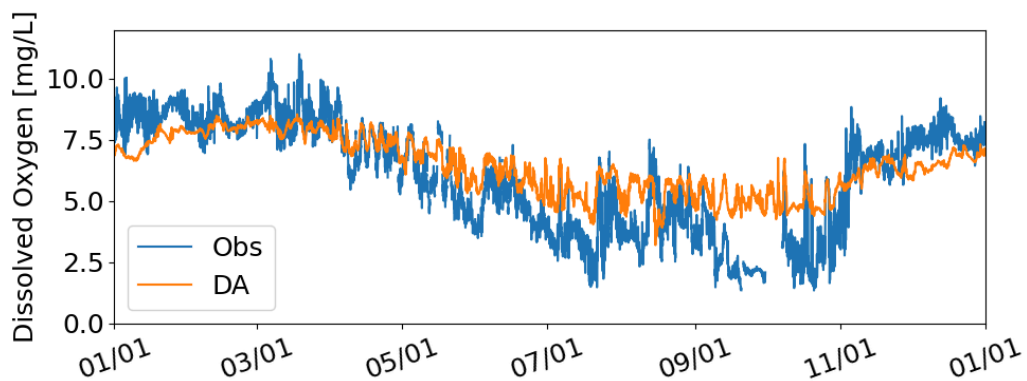
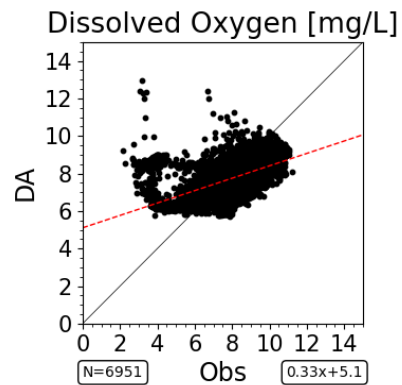


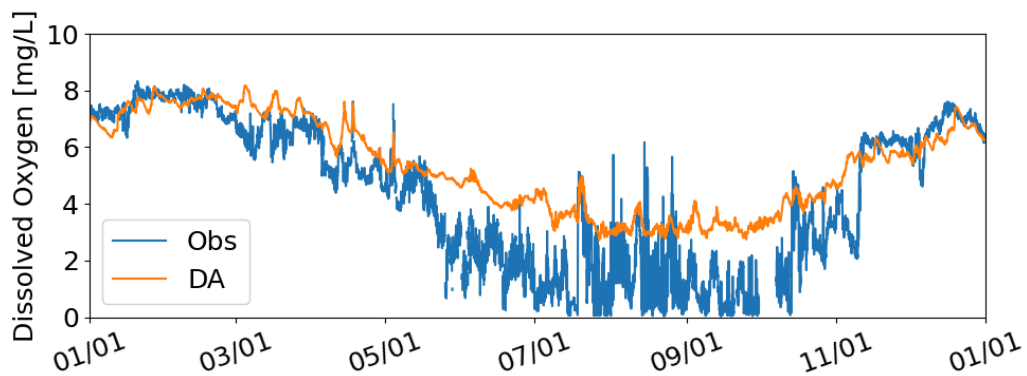
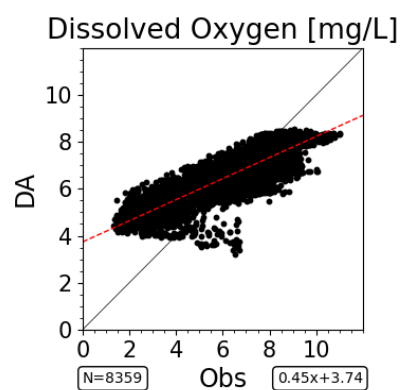
Figure S70 Timeseries and scatter plot for salinity at Back of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

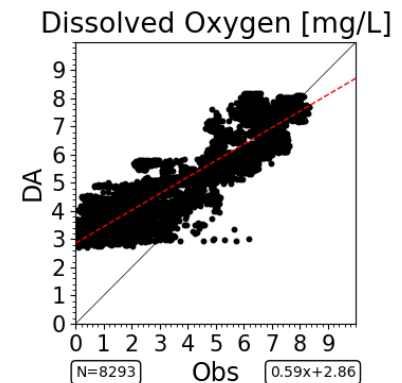
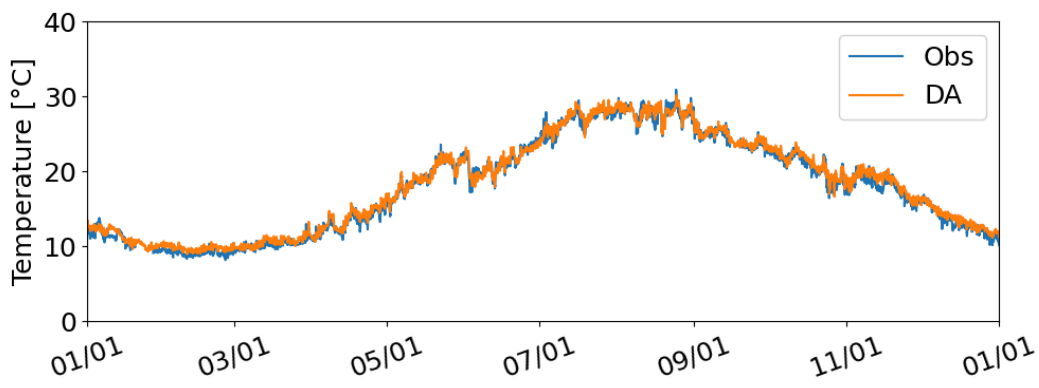
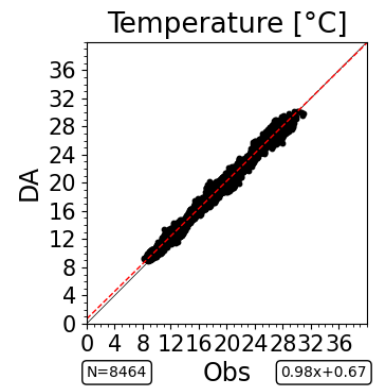


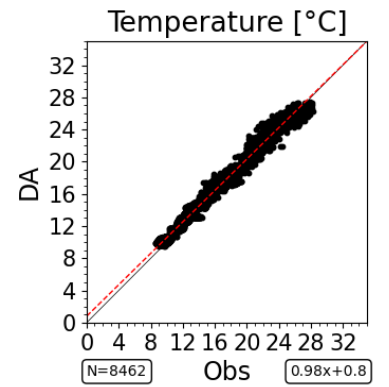
Figure S71 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

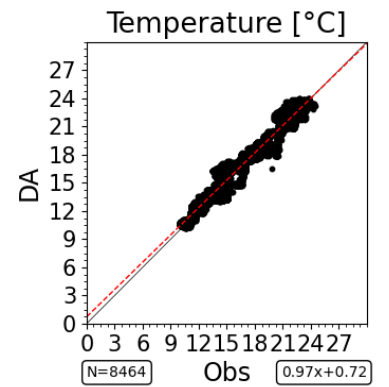
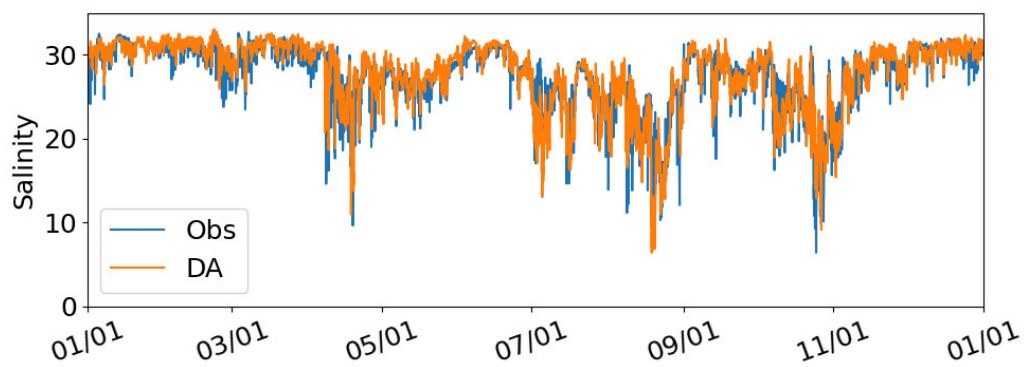
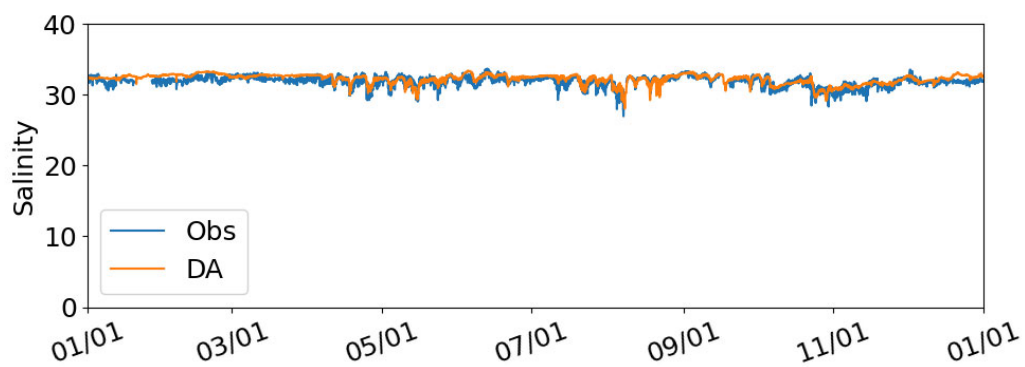
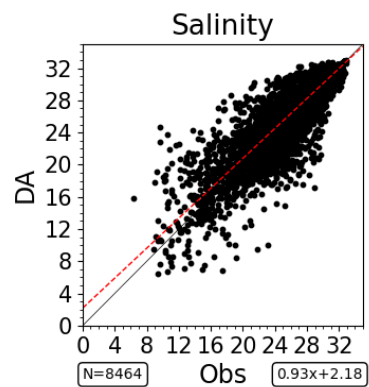


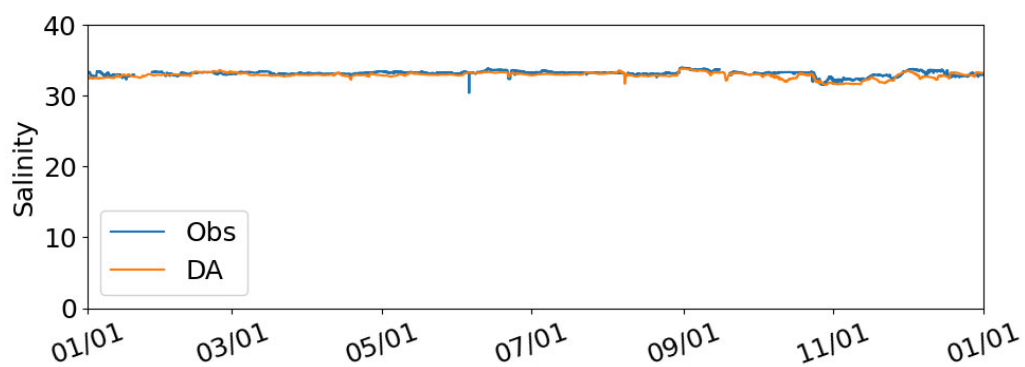
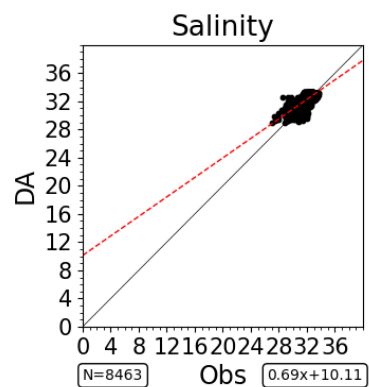
Figure S72 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

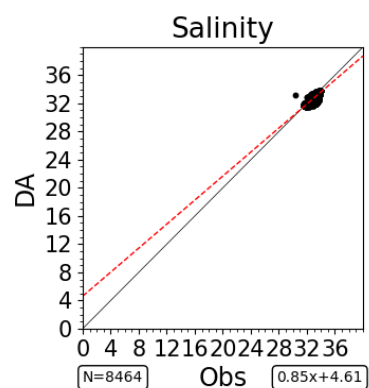
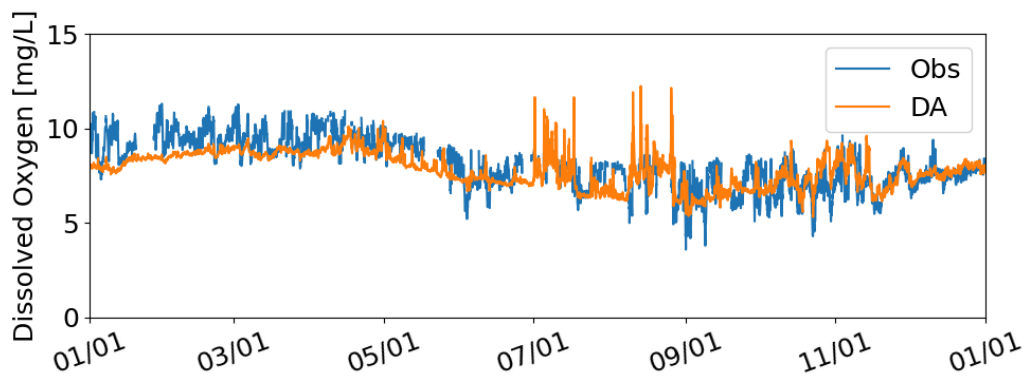
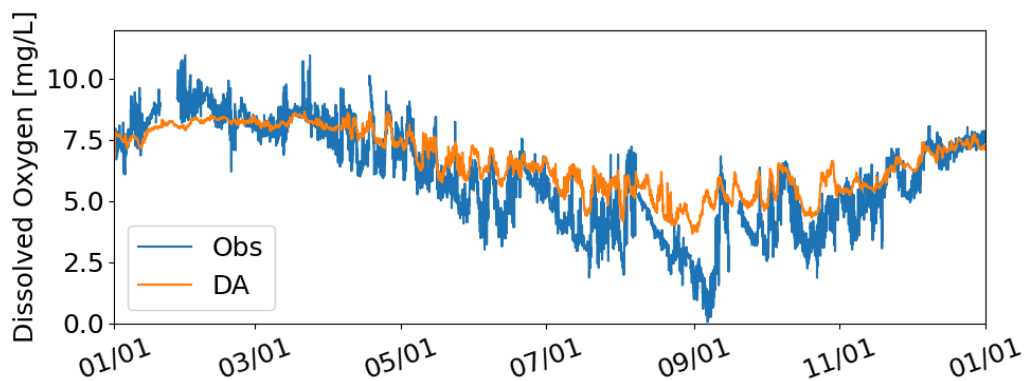
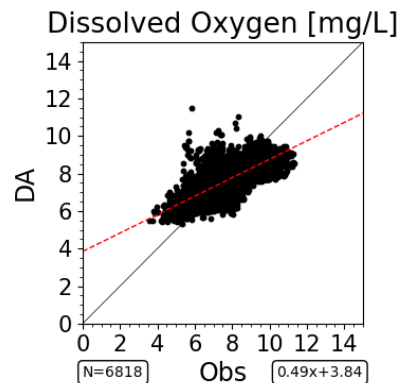


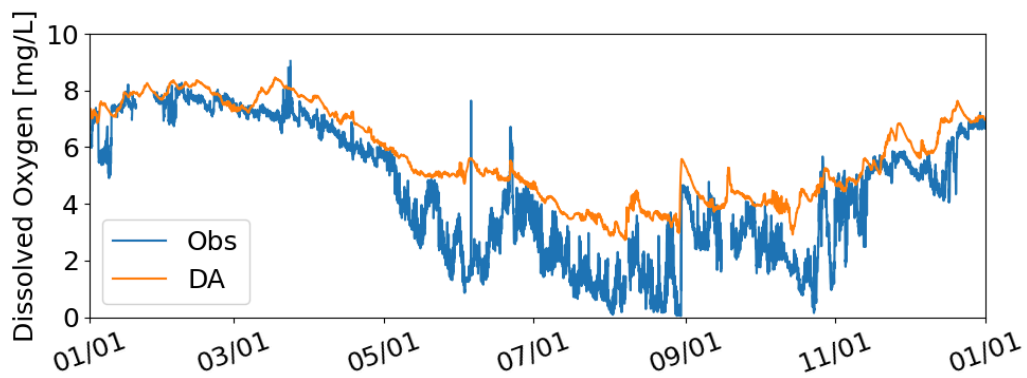
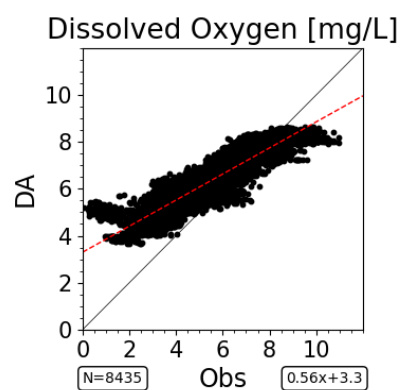
Figure S73 Timeseries and scatter plot for salinity at Back of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

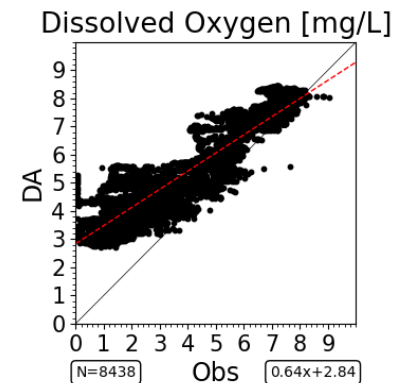
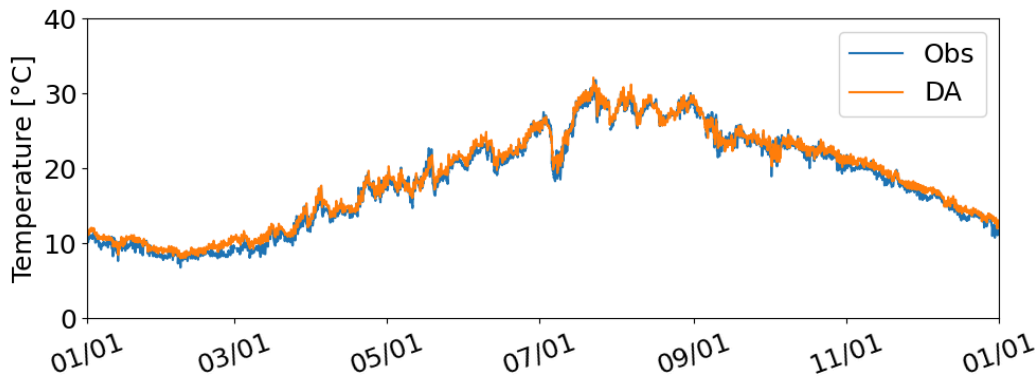
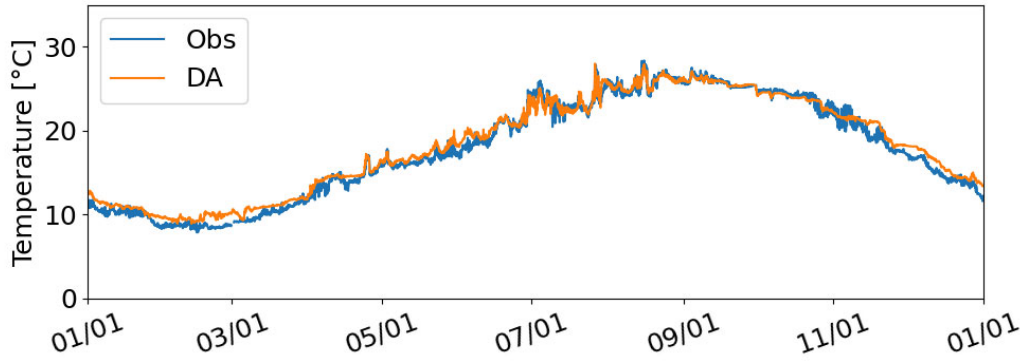
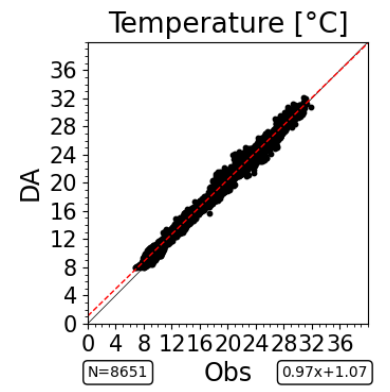


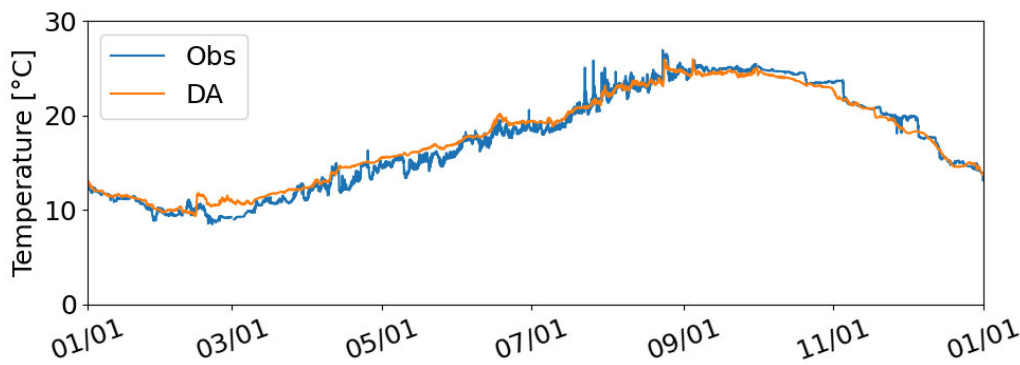
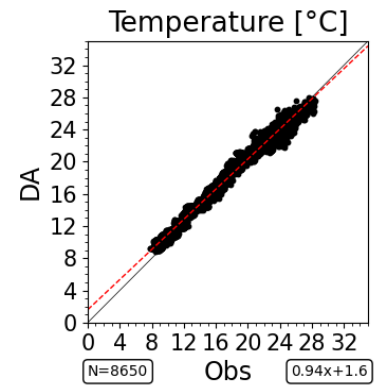
Figure S74 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

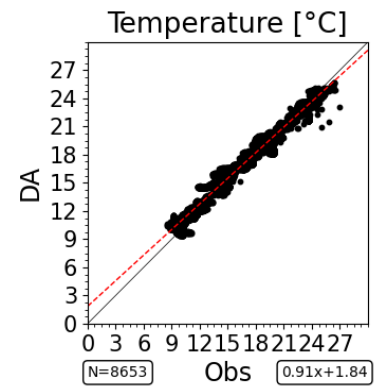
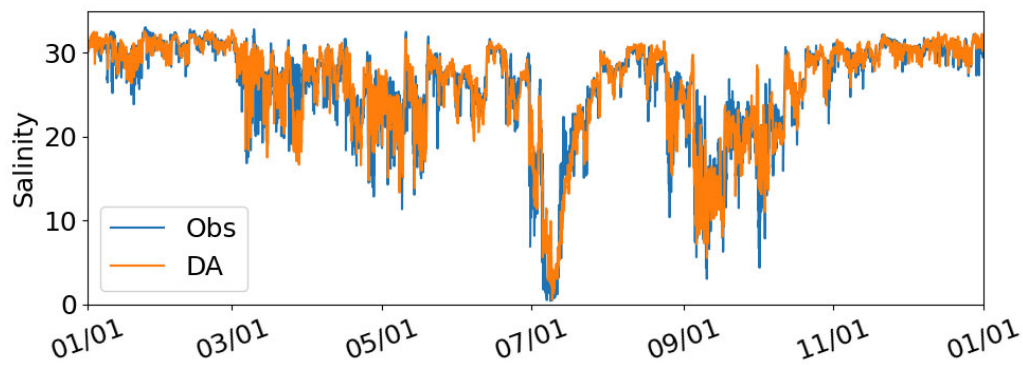
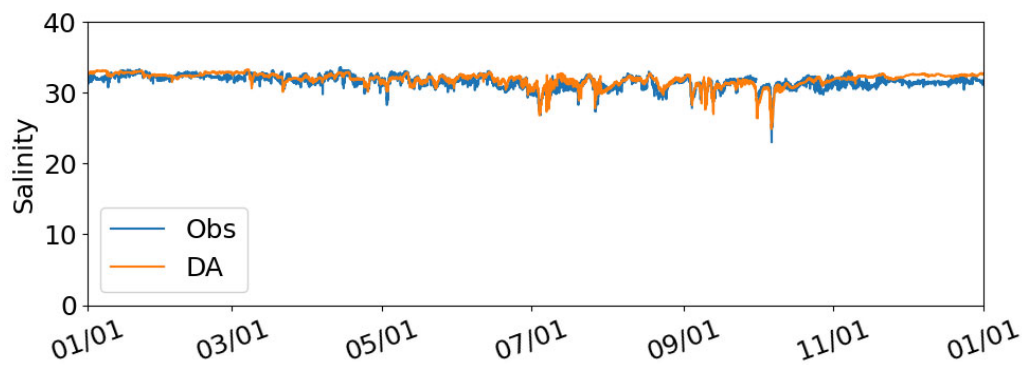
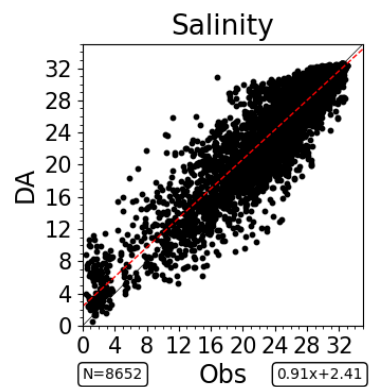


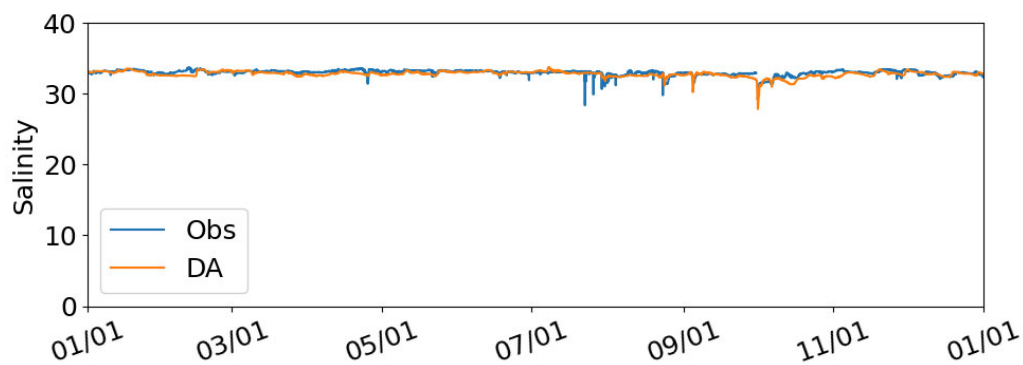
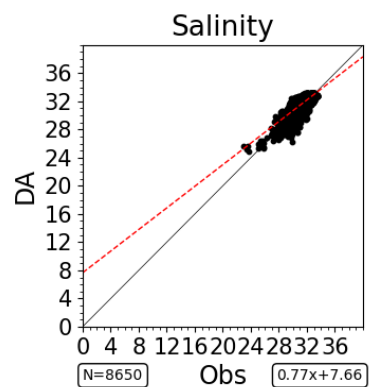
Figure S75 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

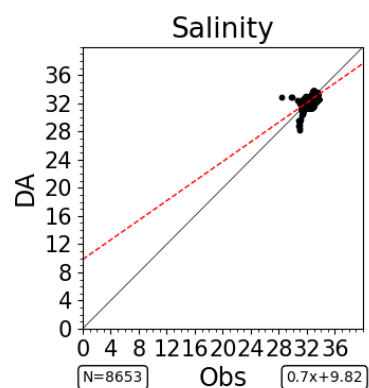
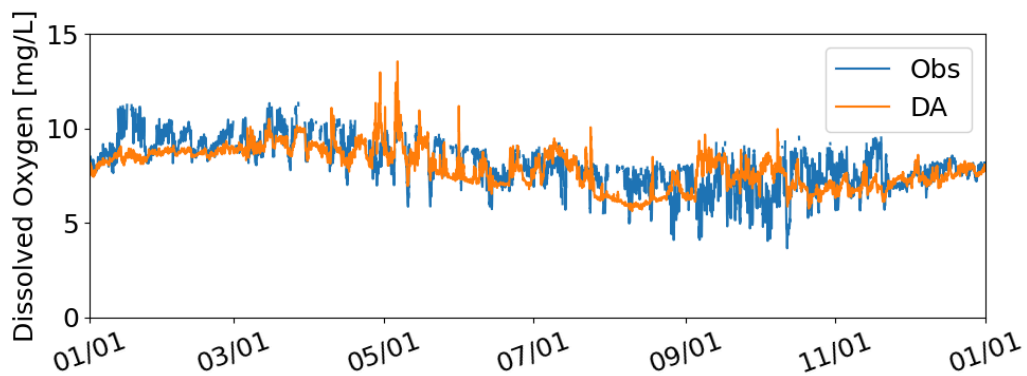
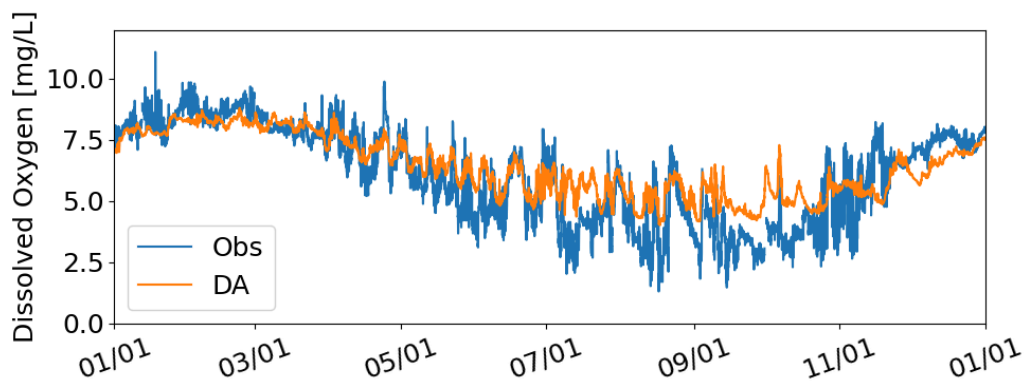
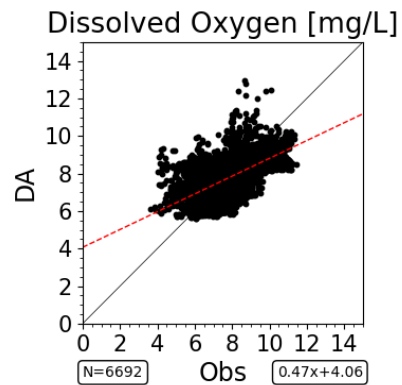


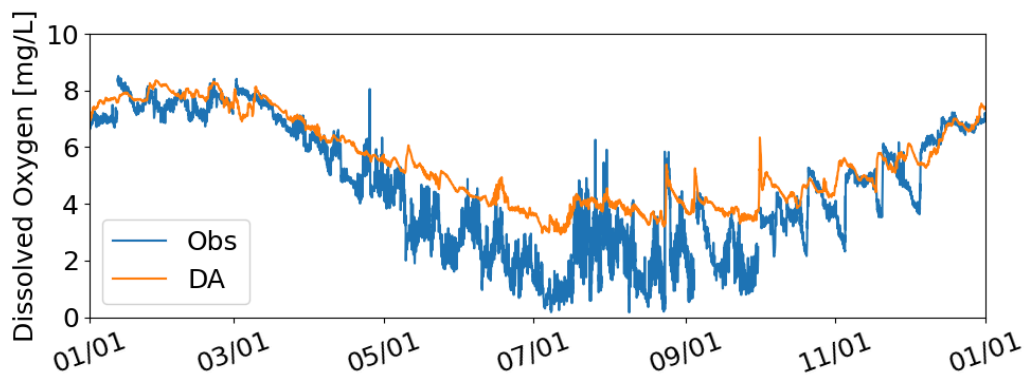
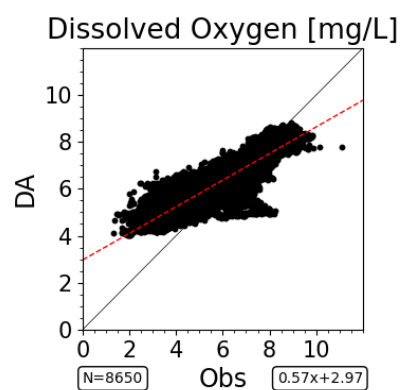
Figure S76 Timeseries and scatter plot for salinity at Back of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

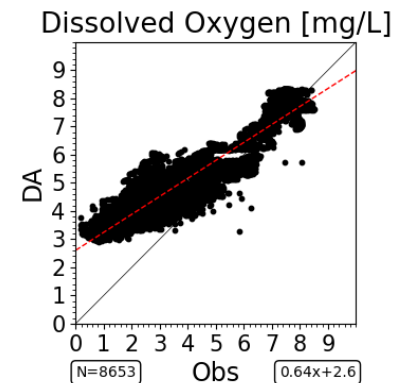
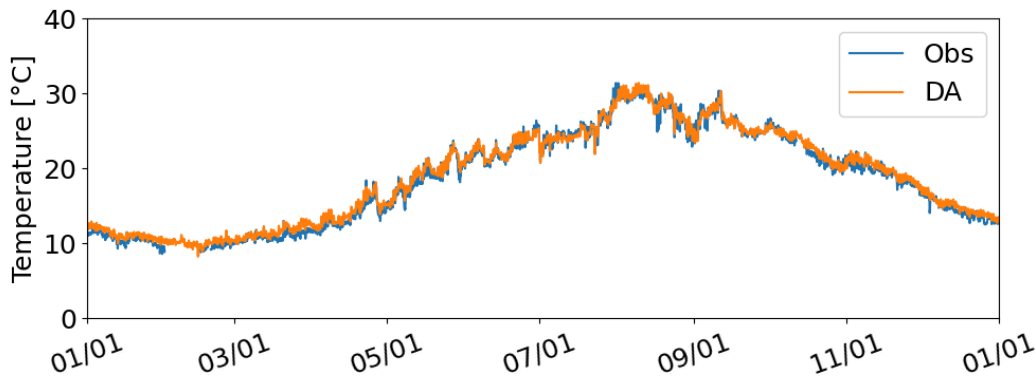
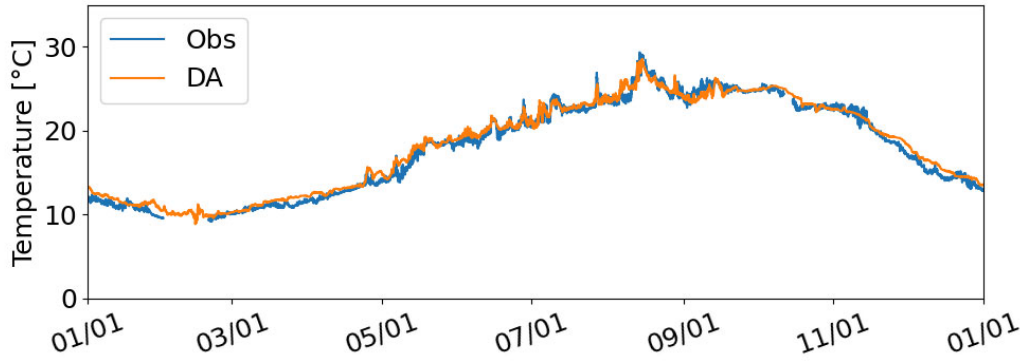
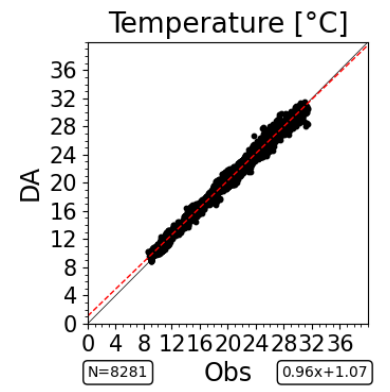


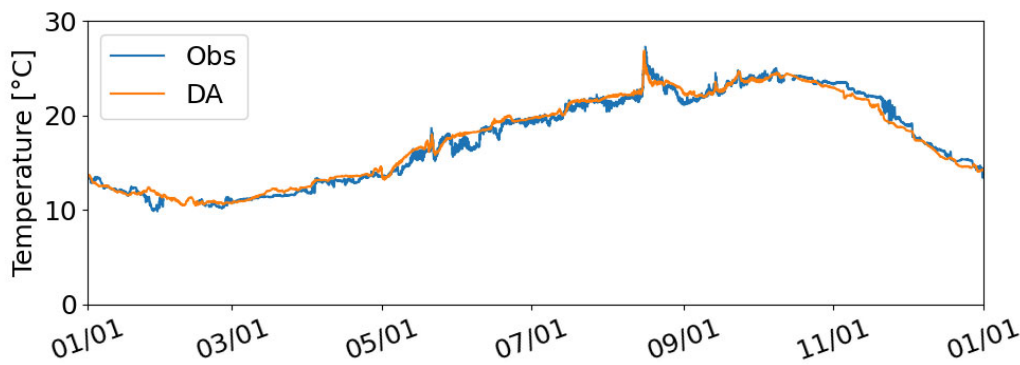
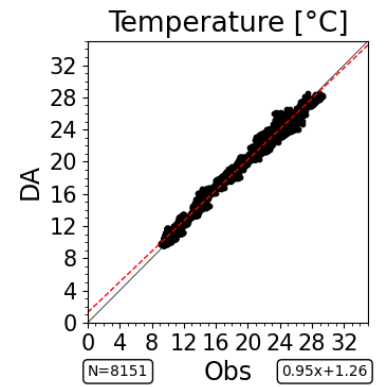
Figure S77 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

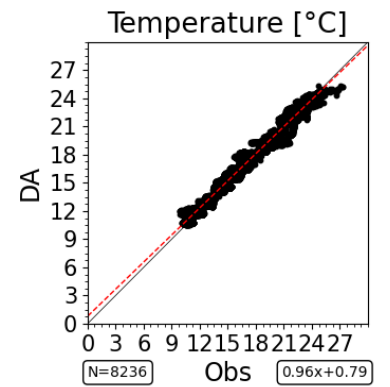
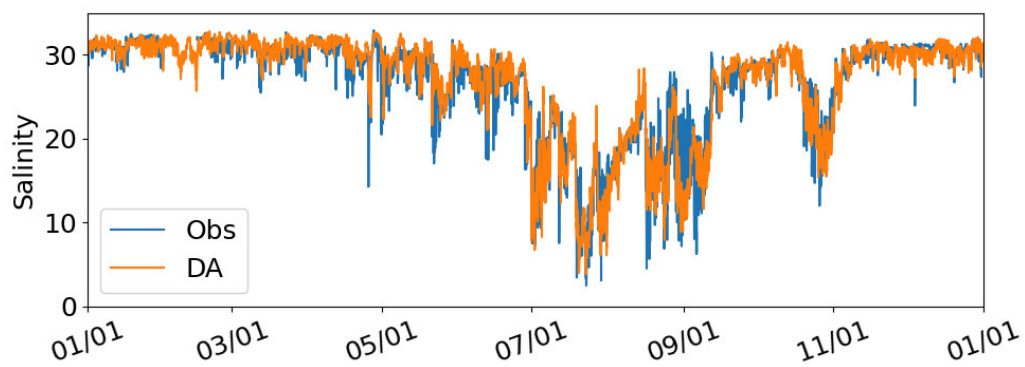
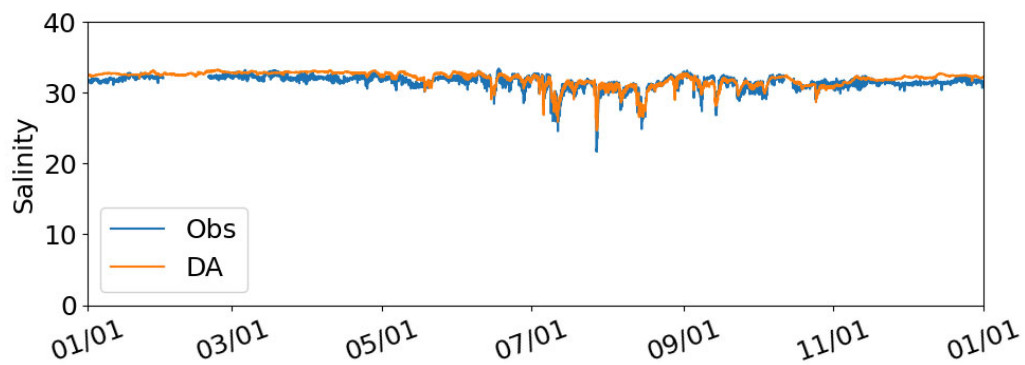
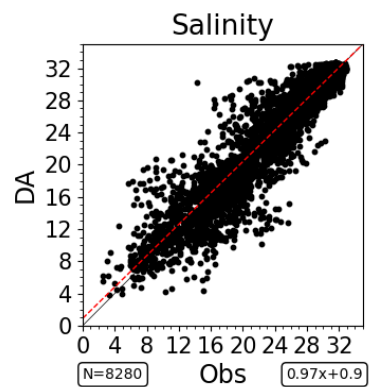


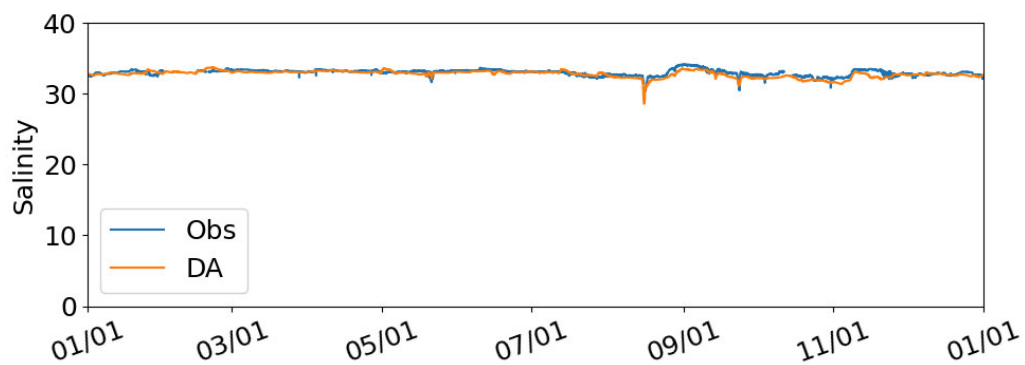
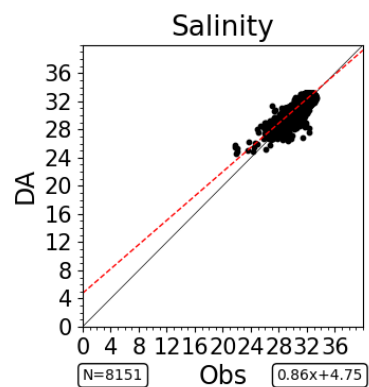
Figure S78 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

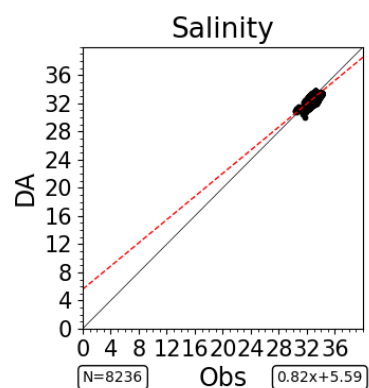
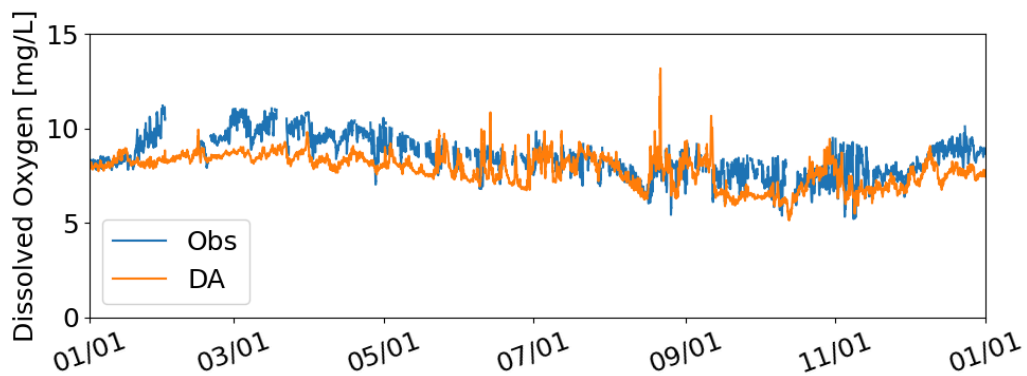
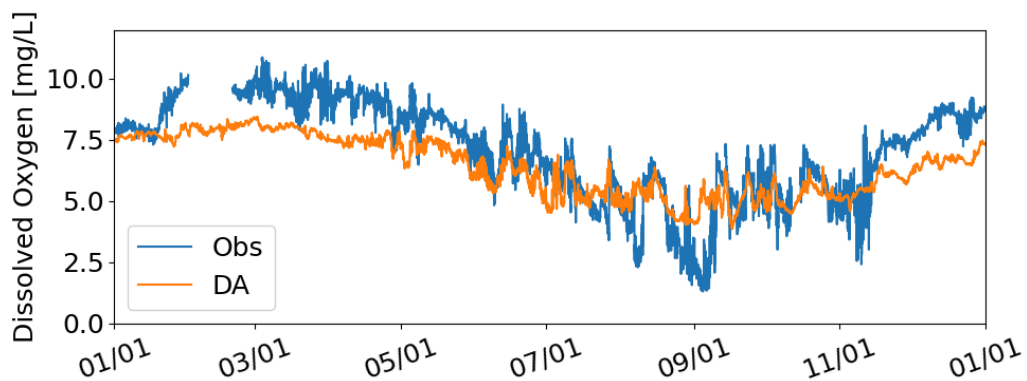
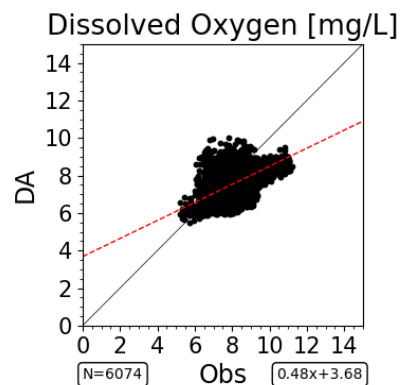


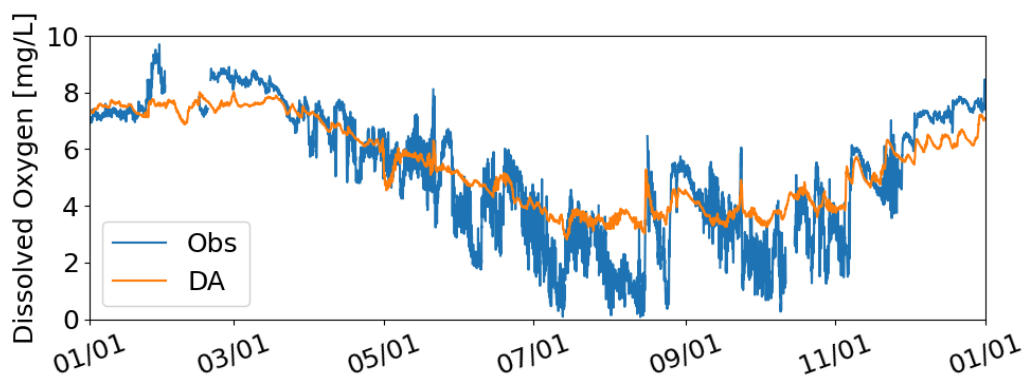
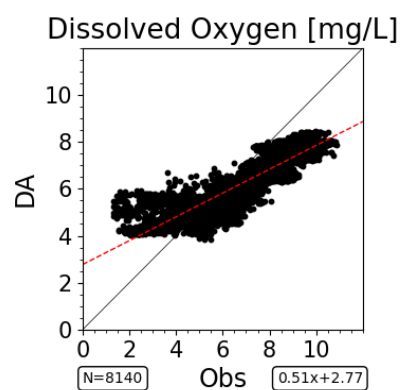
Figure S79 Timeseries and scatter plot for salinity at Back of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

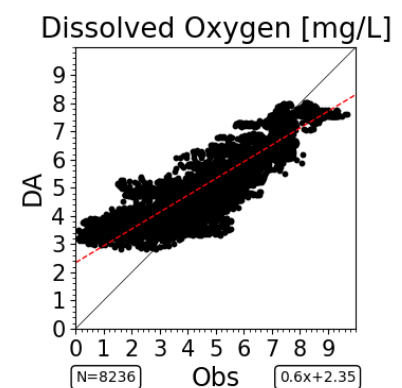
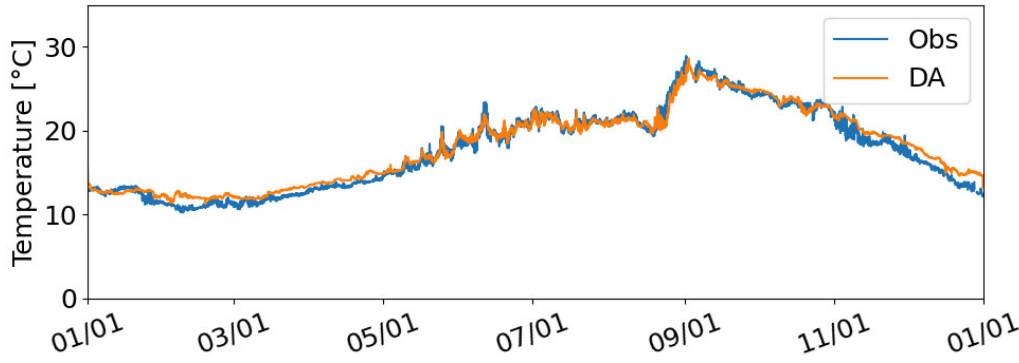
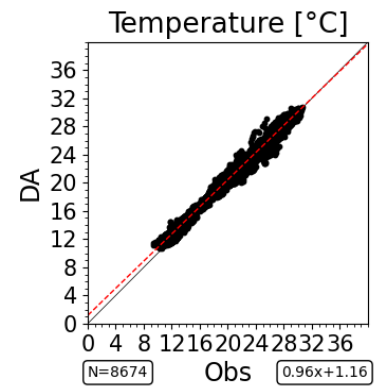


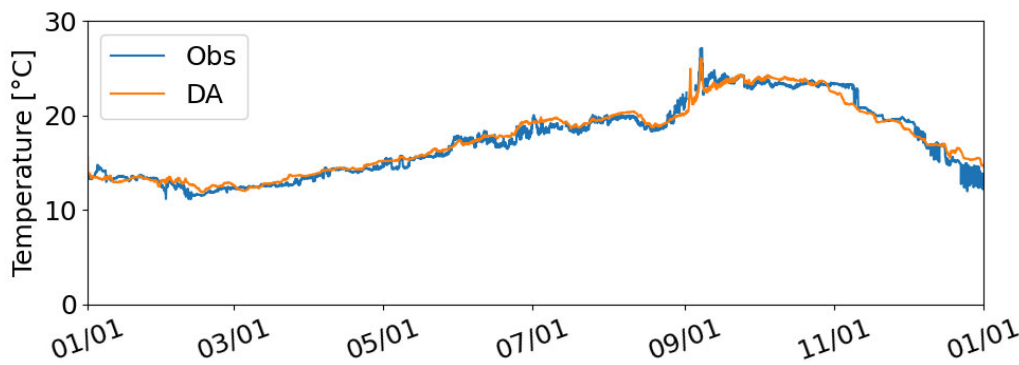
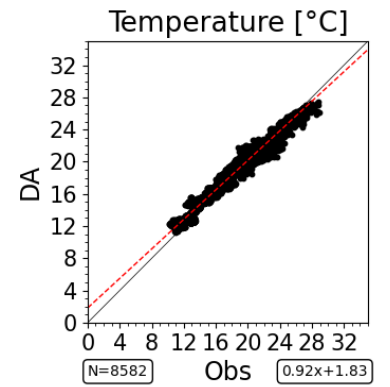
Figure S80 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

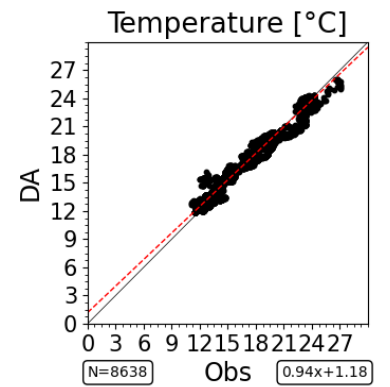
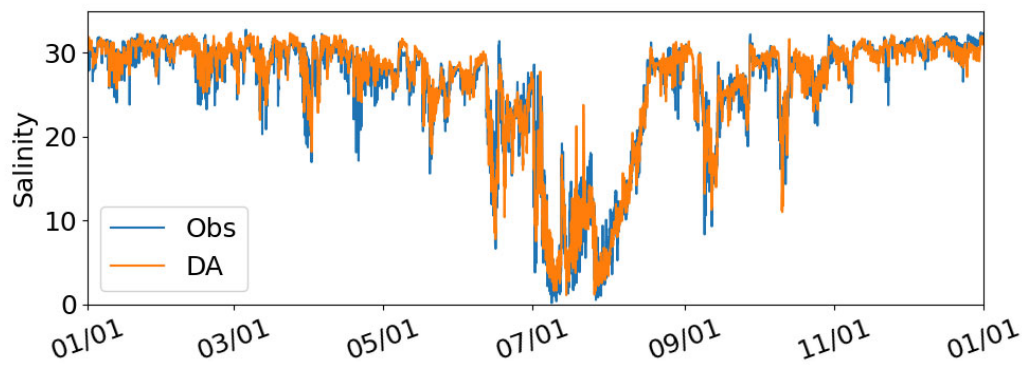
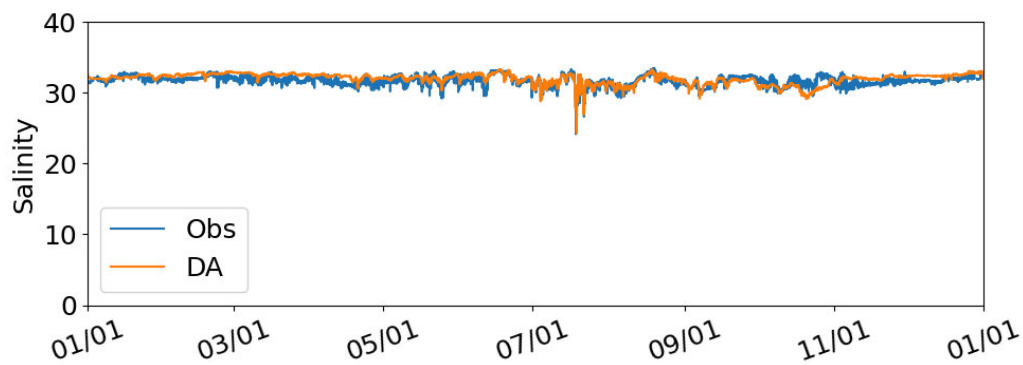
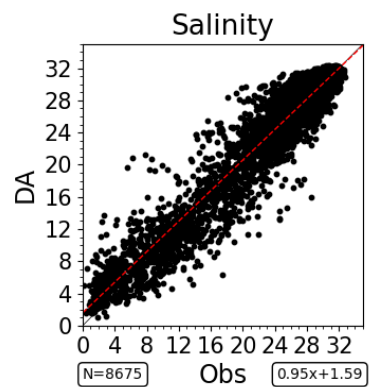


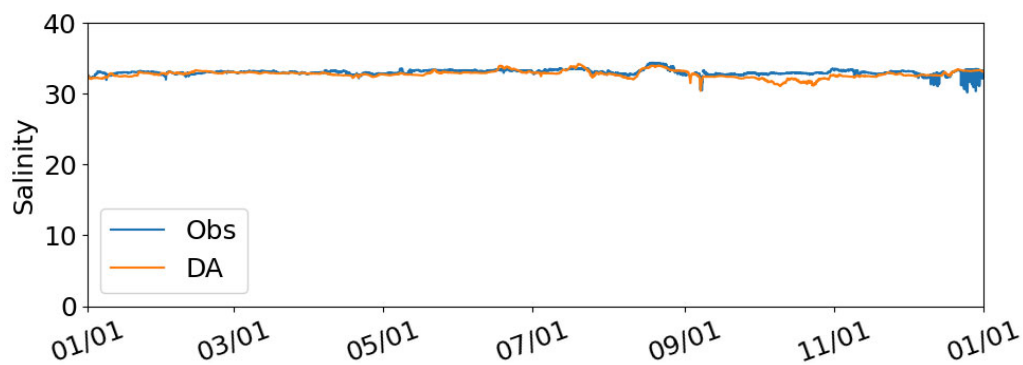
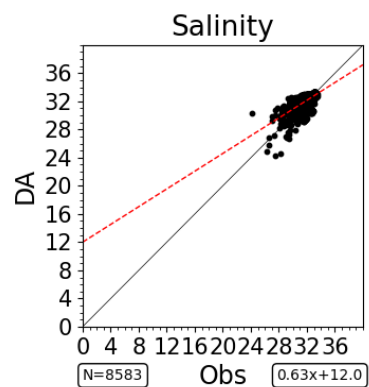
Figure S81 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

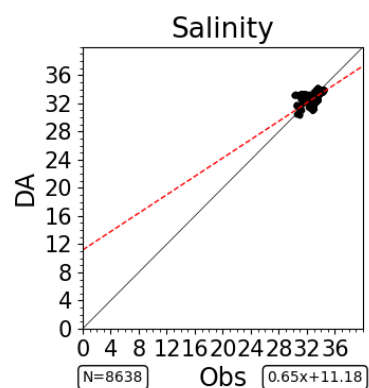
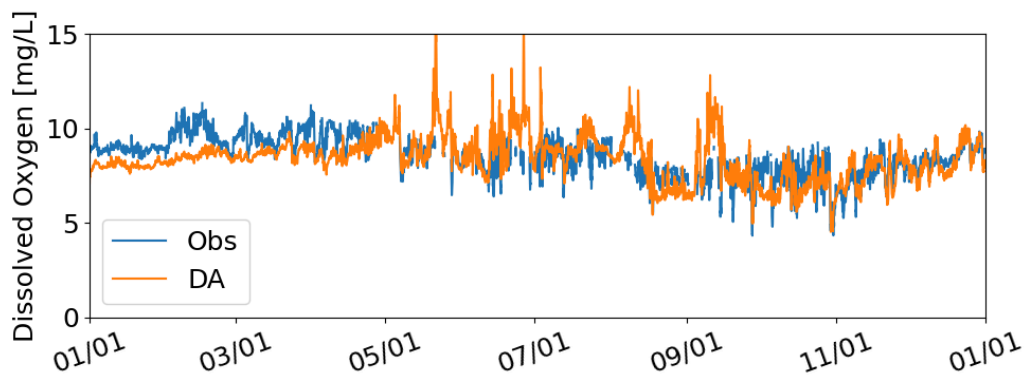
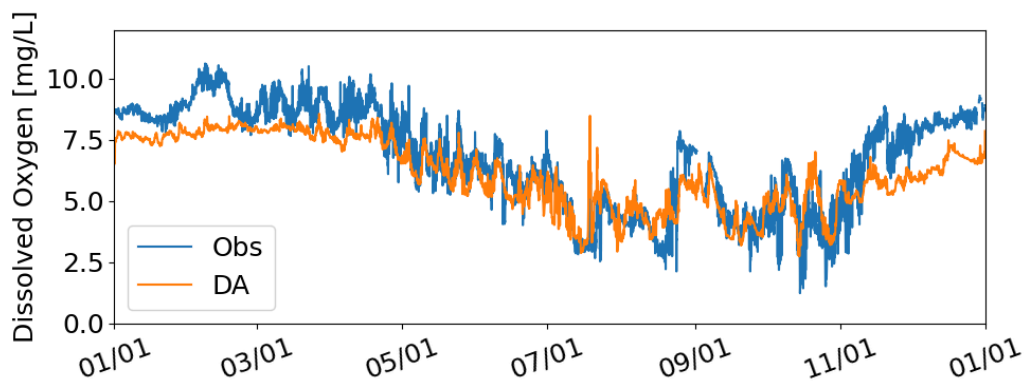
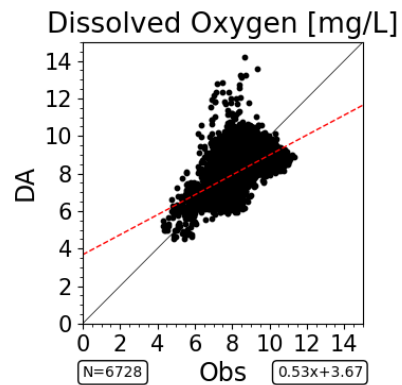


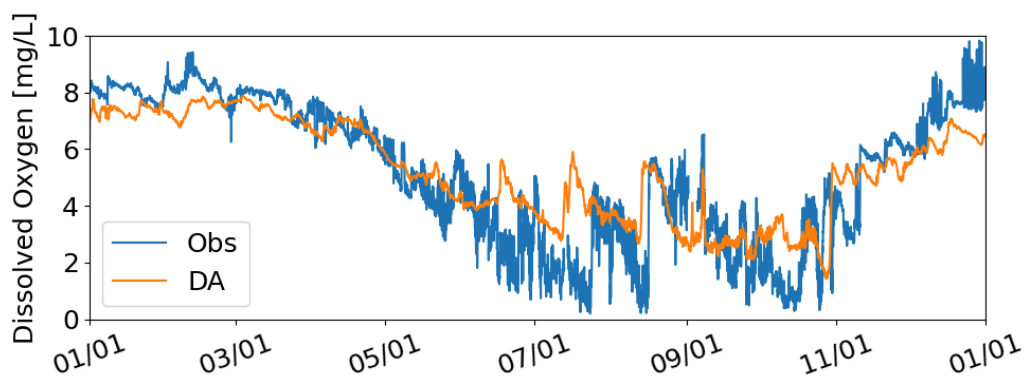
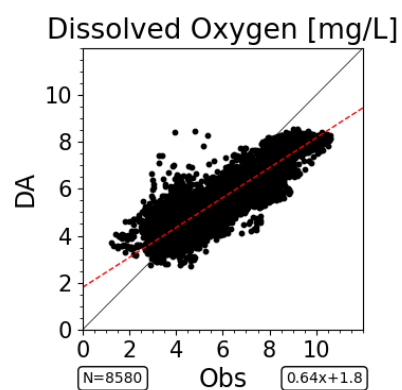
Figure S82 Timeseries and scatter plot for salinity at Back of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

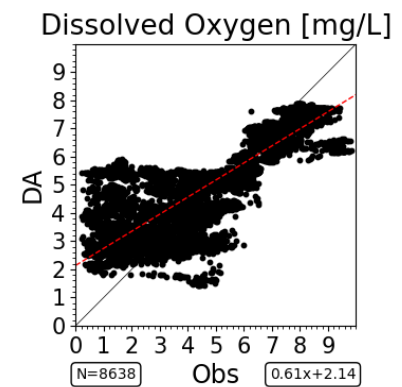
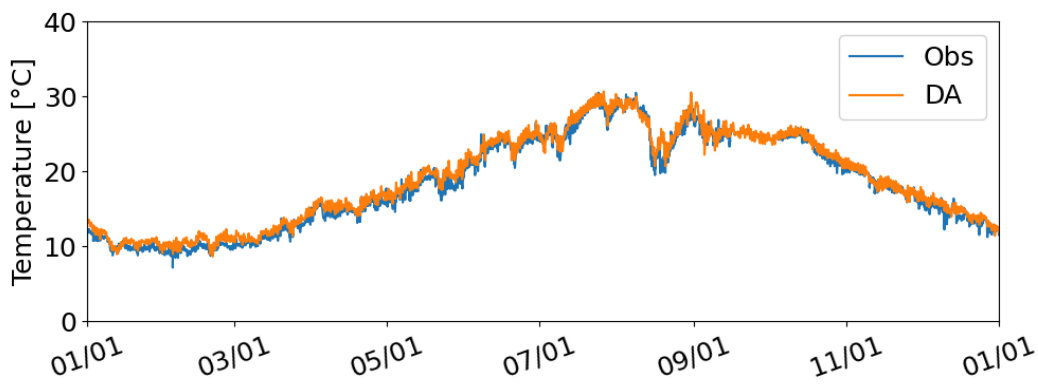
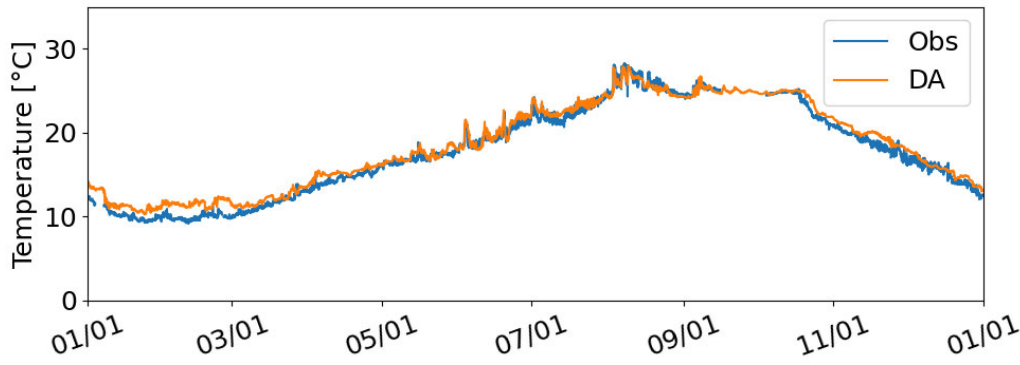
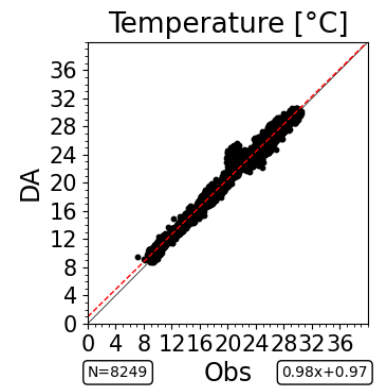


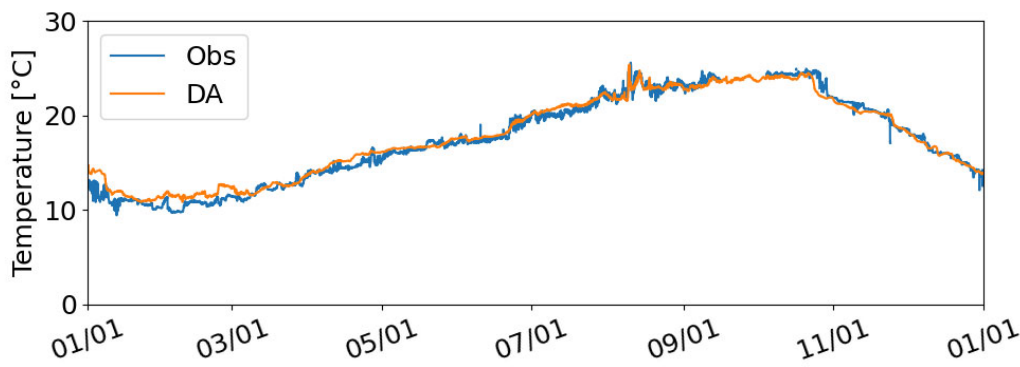
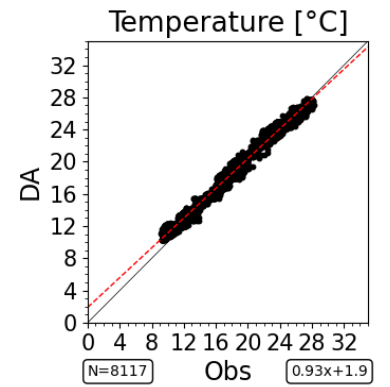
Figure S83 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

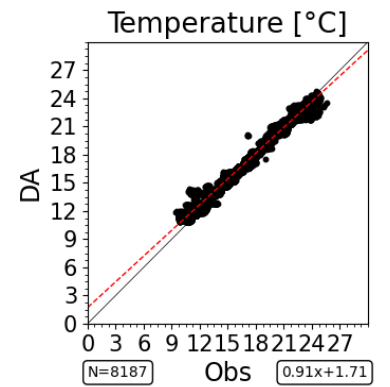
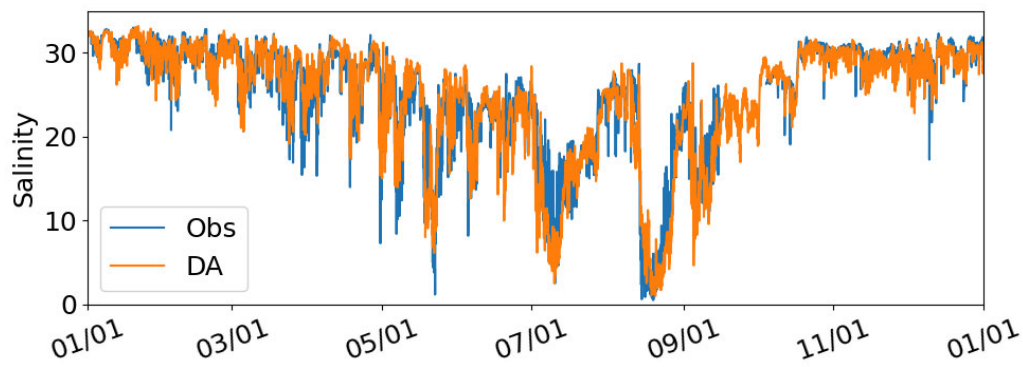
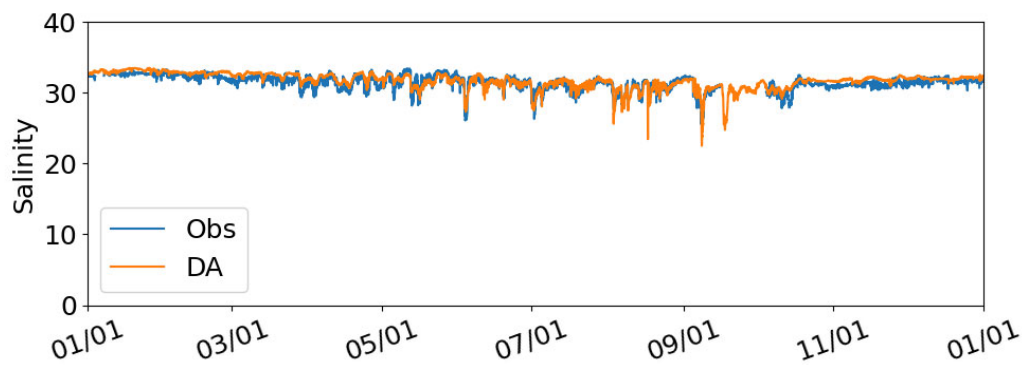
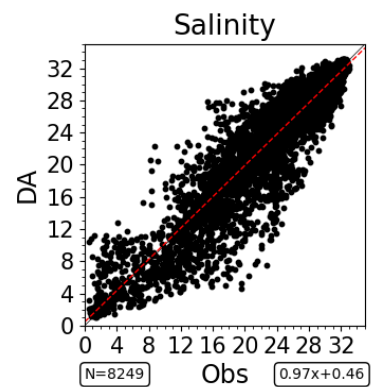


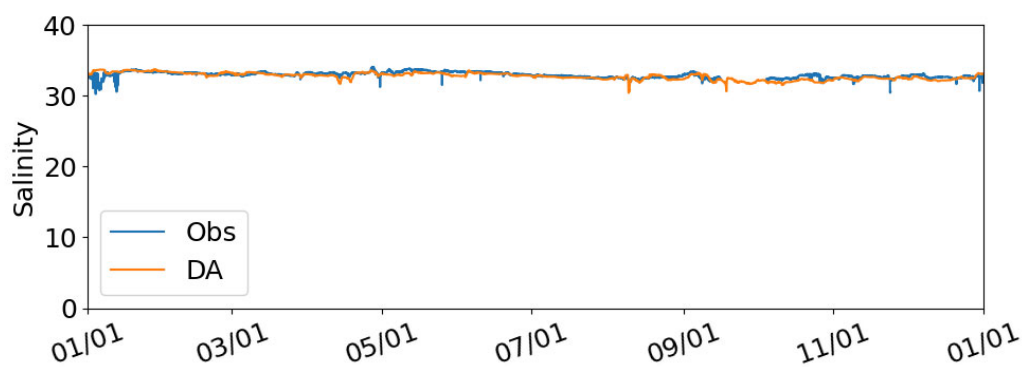
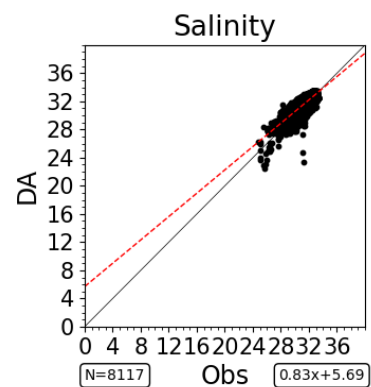
Figure S84 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

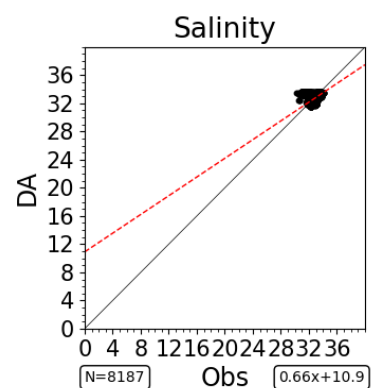
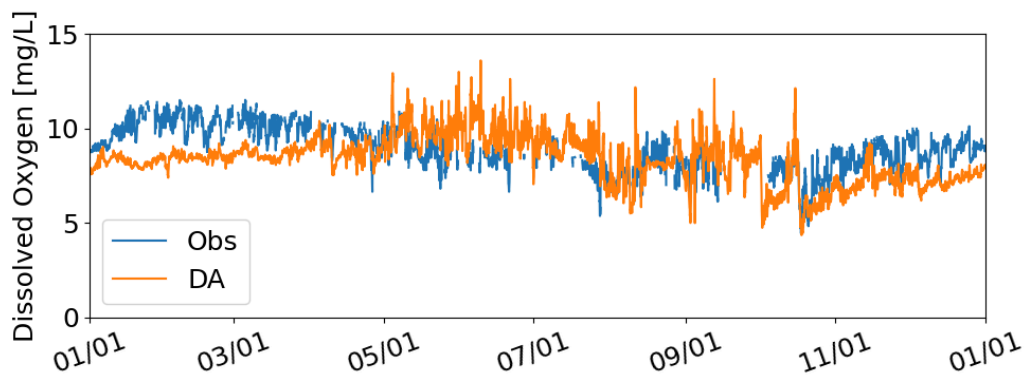
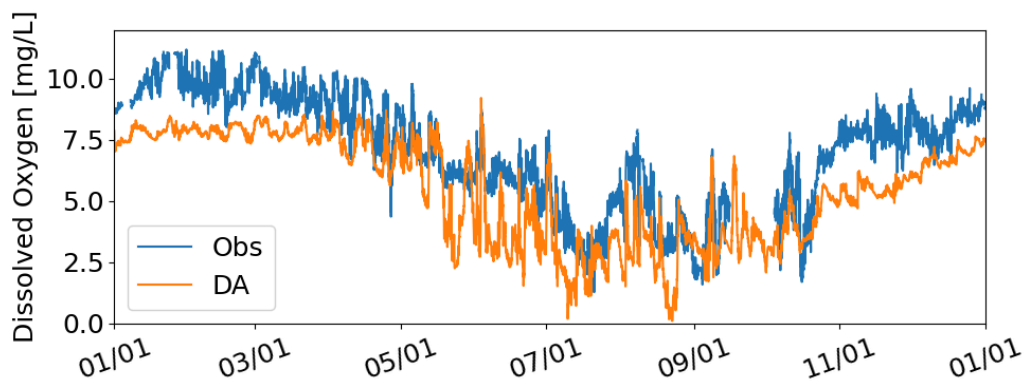
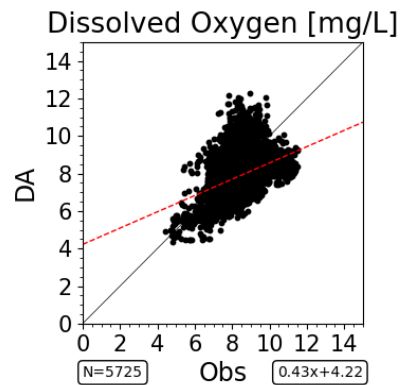


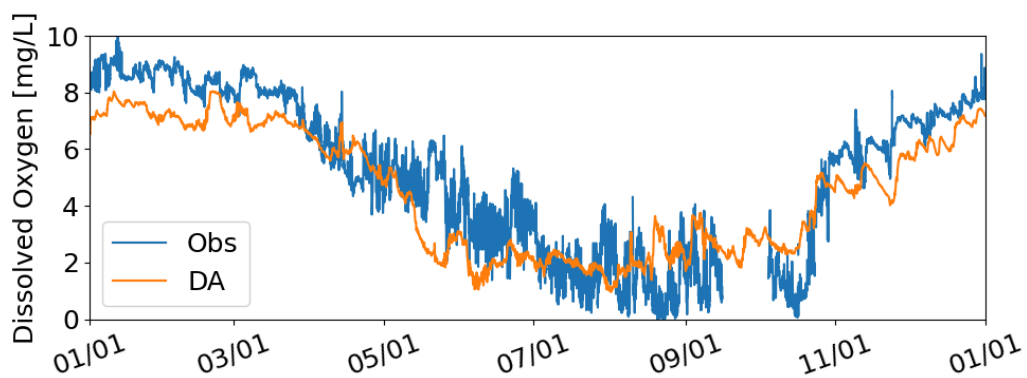
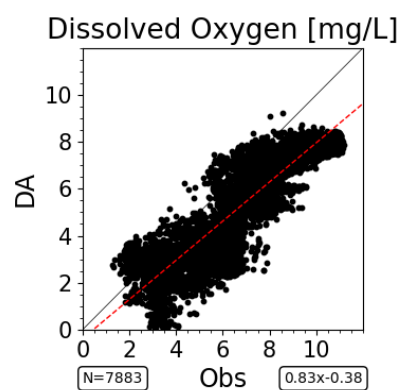
Figure S85 Timeseries and scatter plot for salinity at Back of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

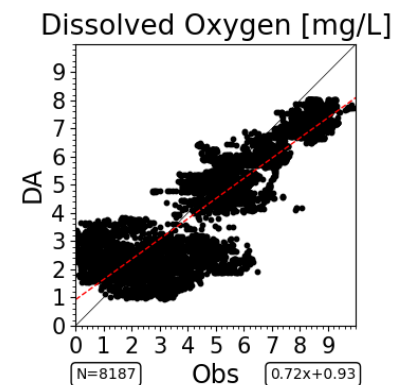
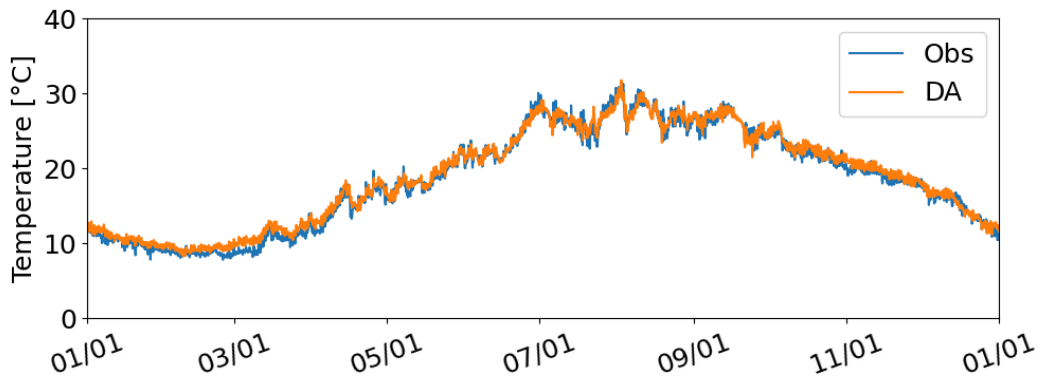
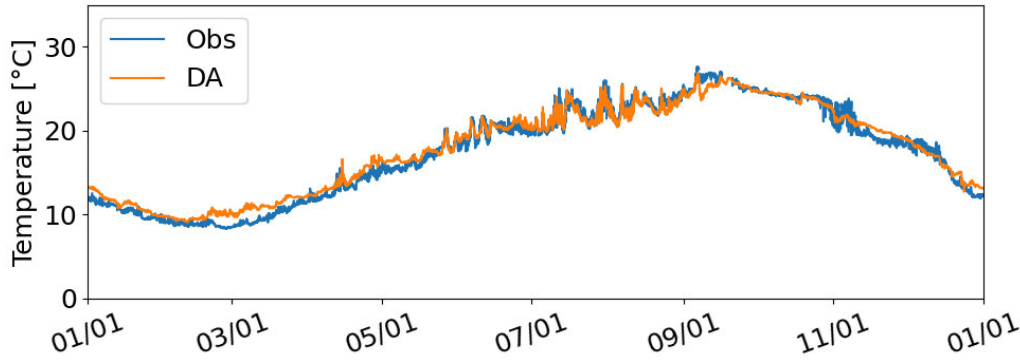
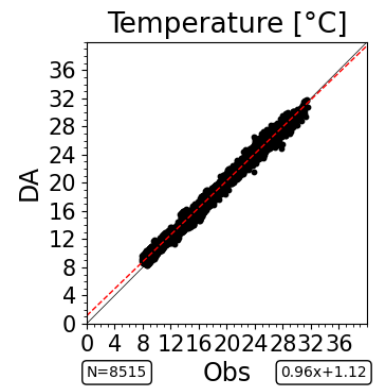


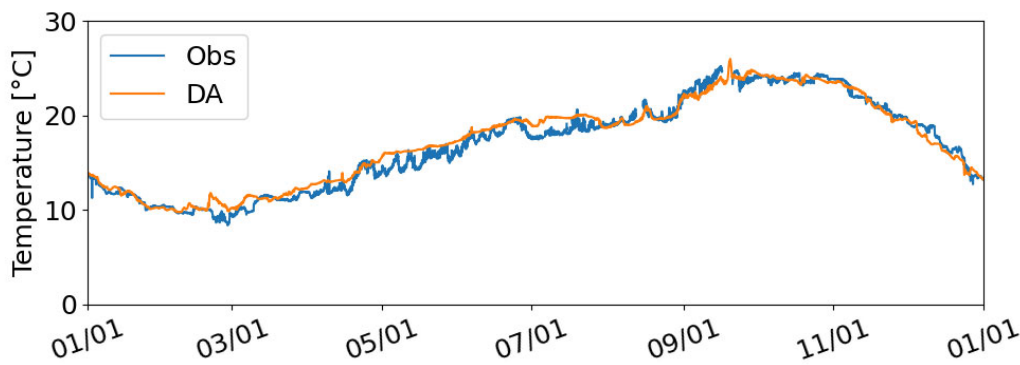
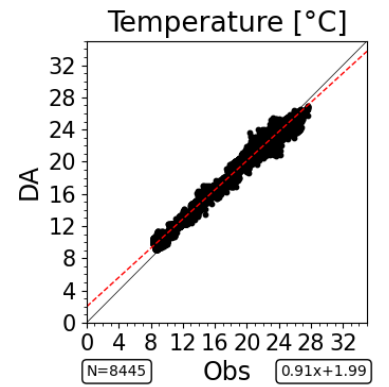
Figure S86 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

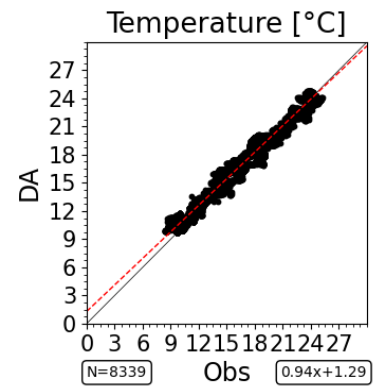
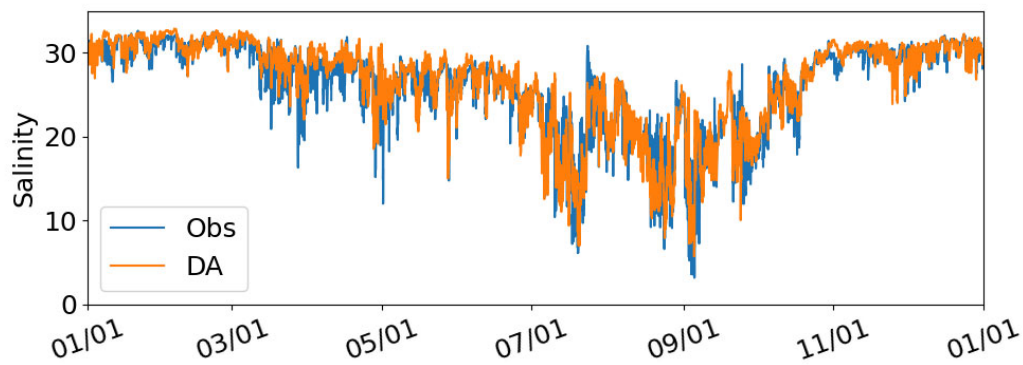
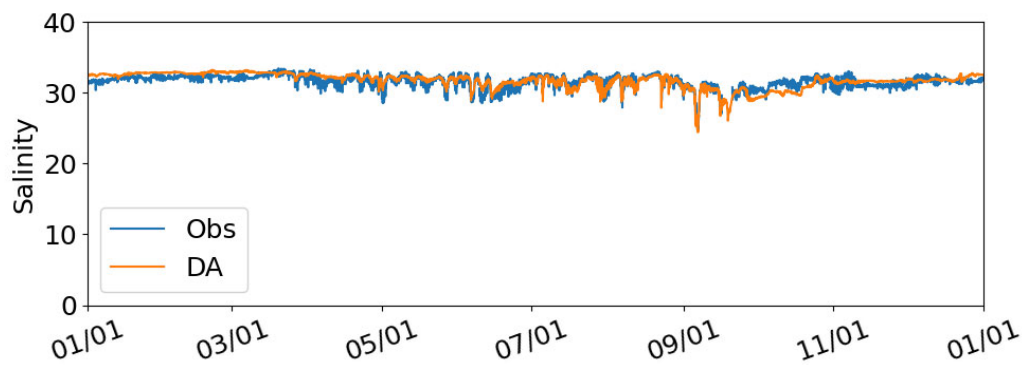
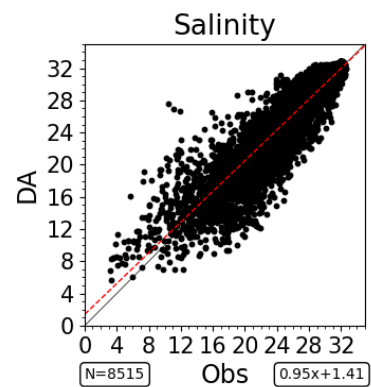


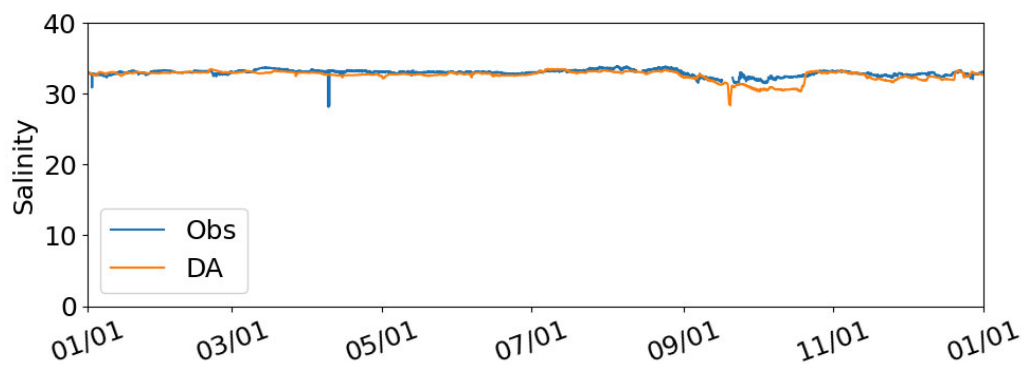
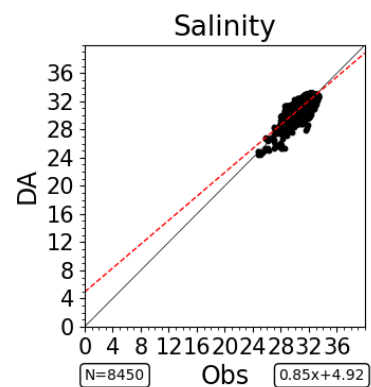
Figure S87 Timeseries and scatter plot for water temperature at Back of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

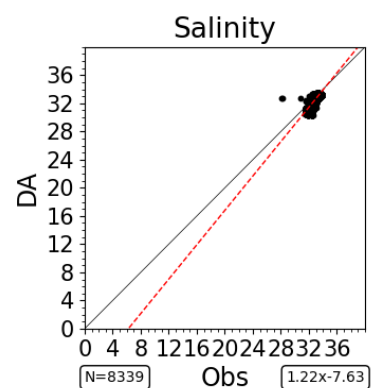
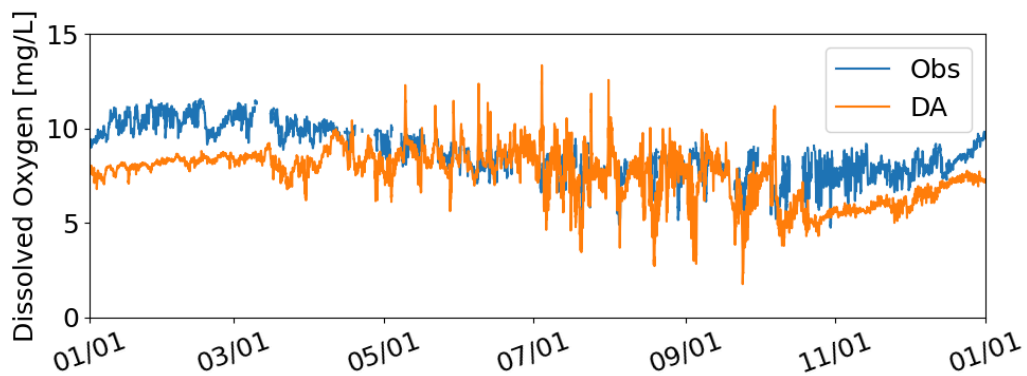
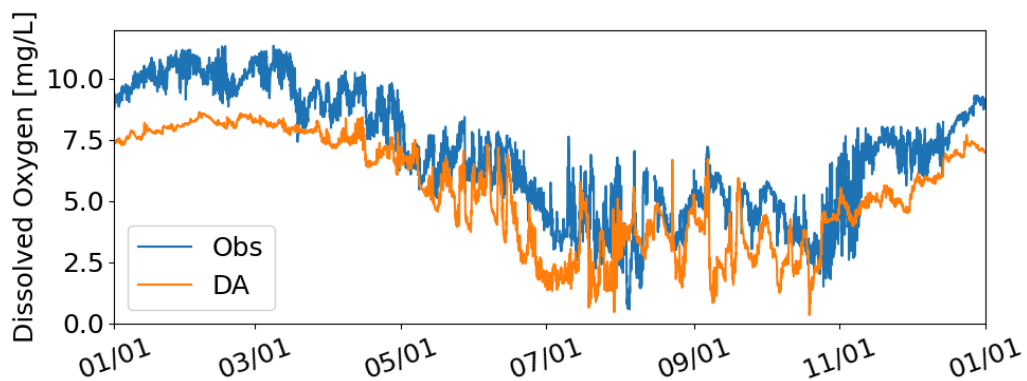
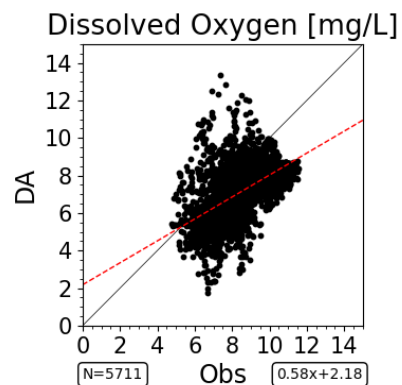


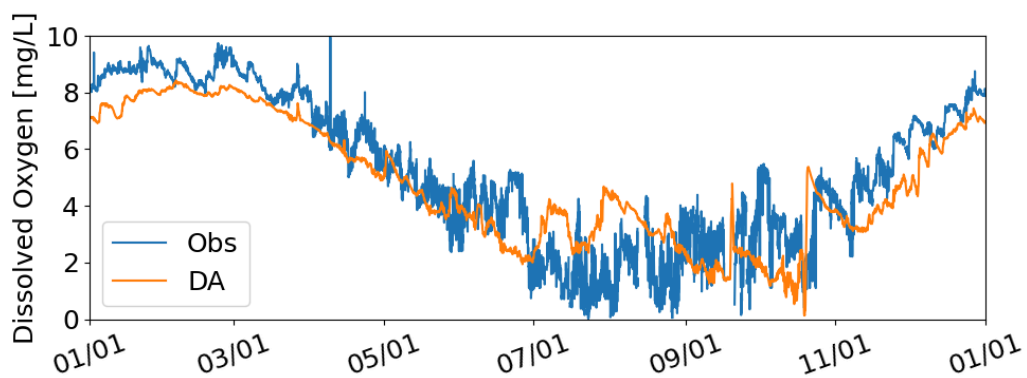
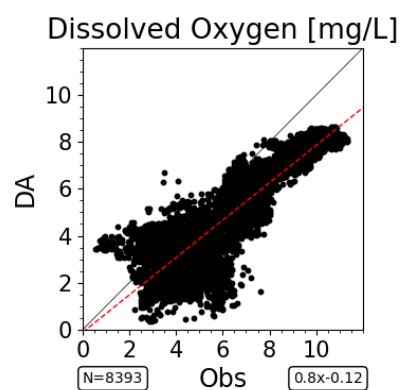
Figure S88 Timeseries and scatter plot for salinity at Back of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

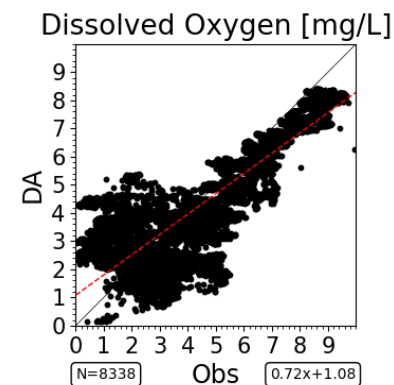


Figure S89 Timeseries and scatter plot for dissolved oxygen at Back of Ise Bay in 2022

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

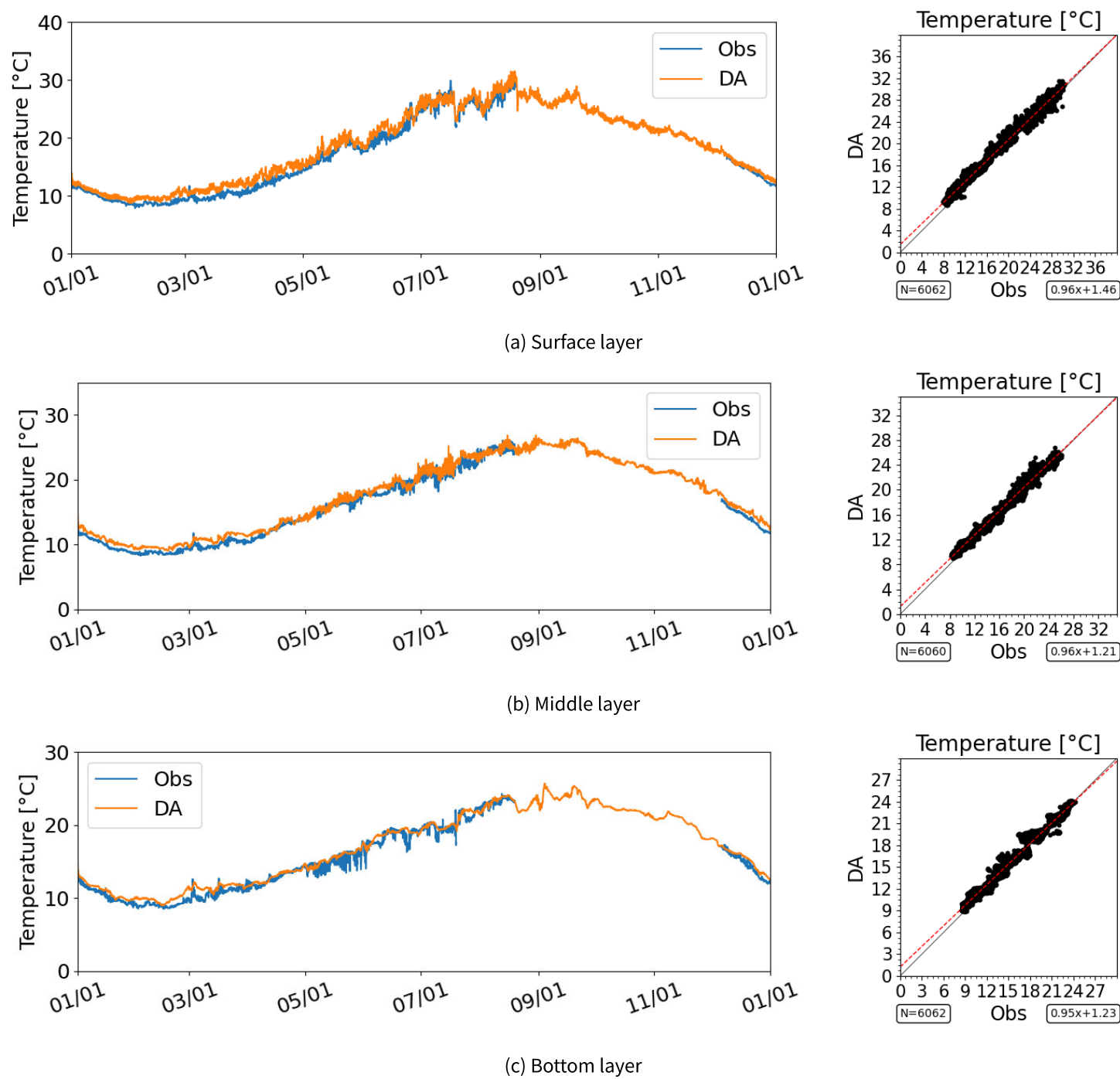
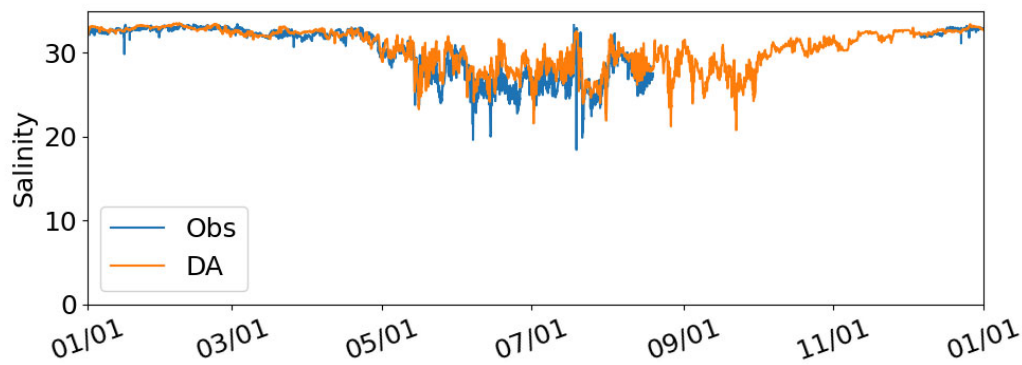
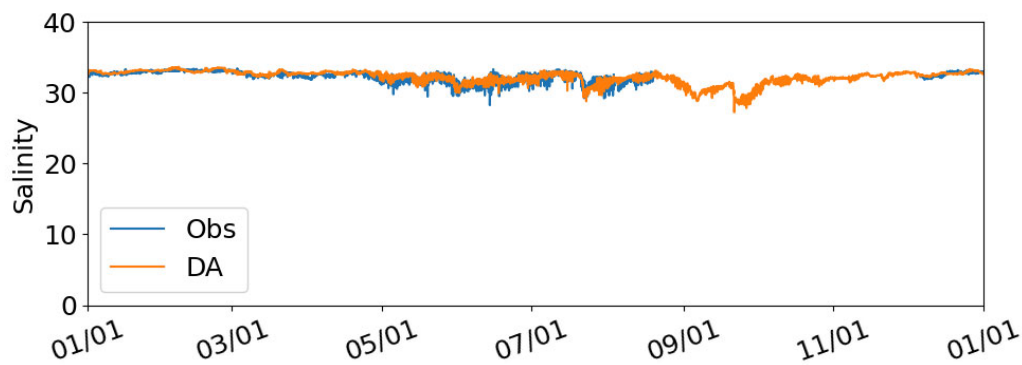
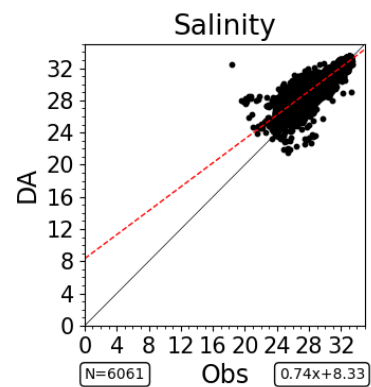


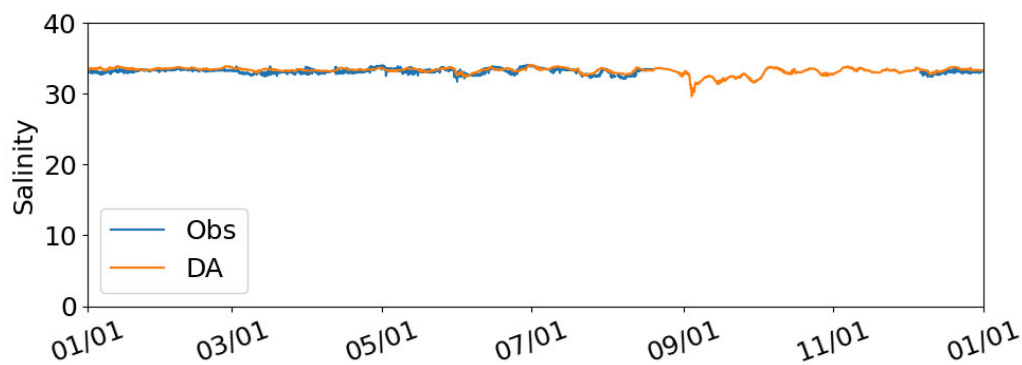
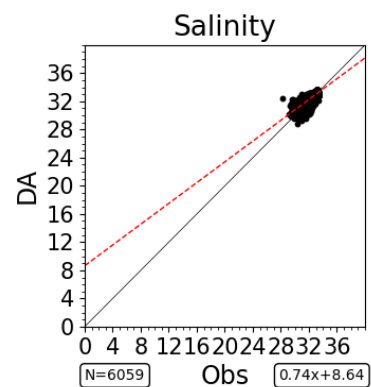
Figure S90 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

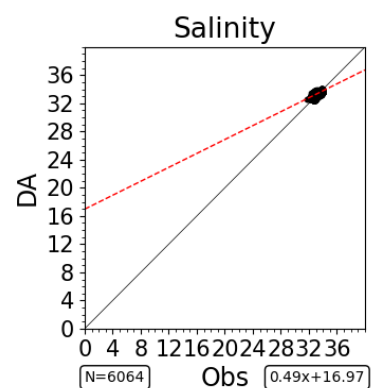
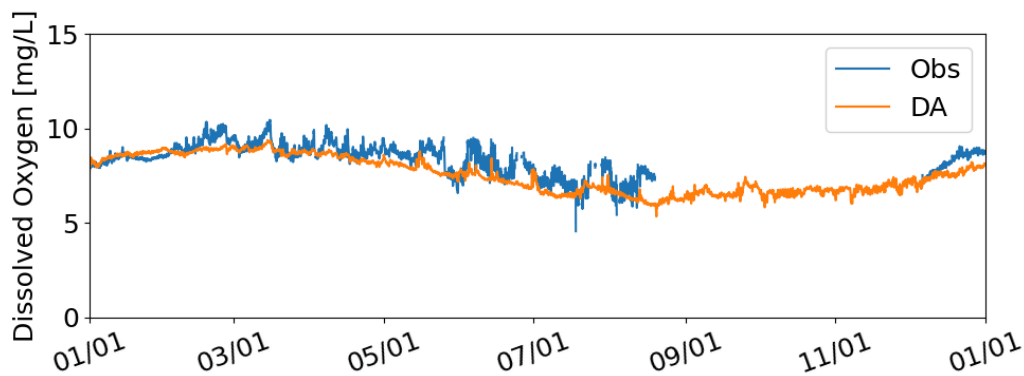
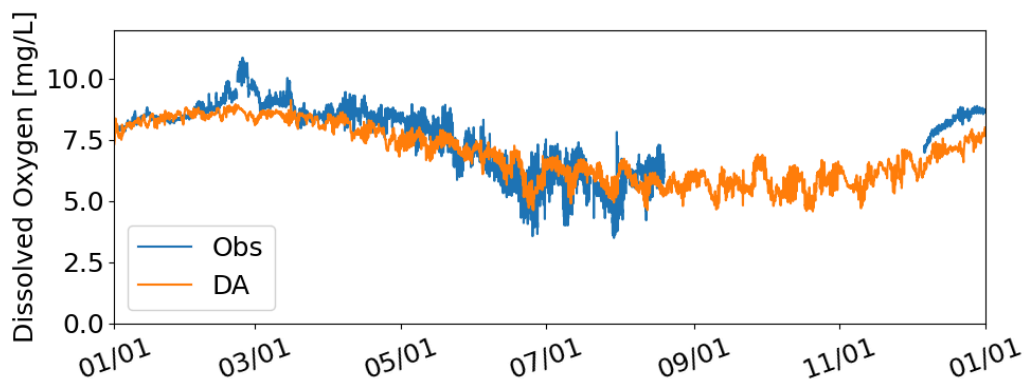
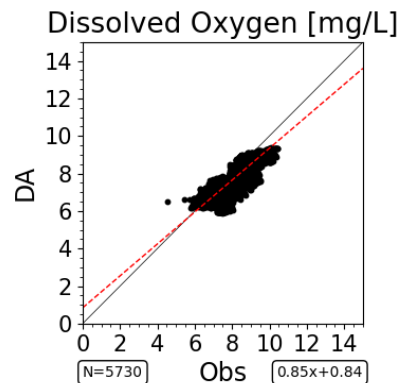


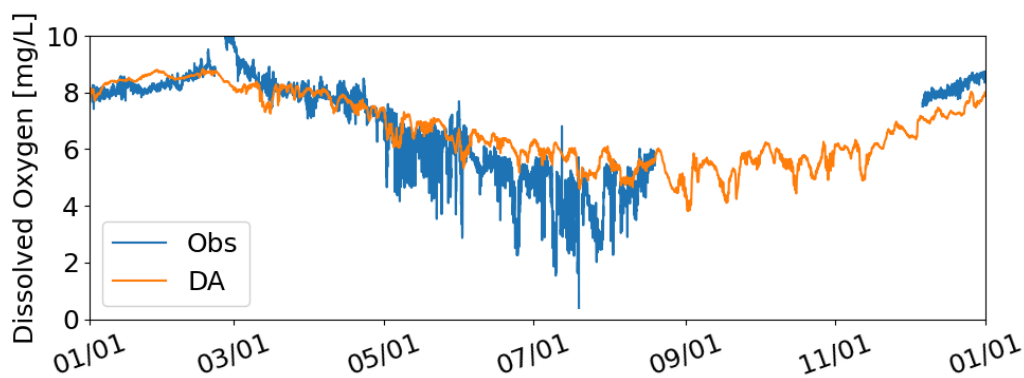
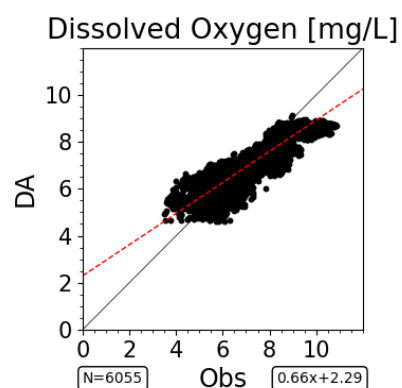
Figure S91 Timeseries and scatter plot for salinity at Center of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

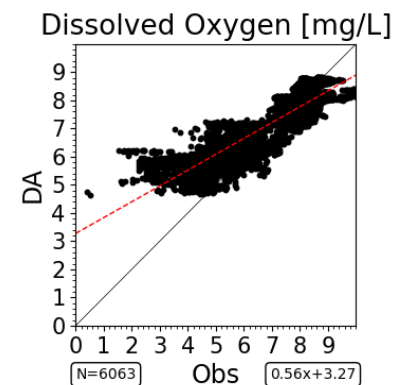
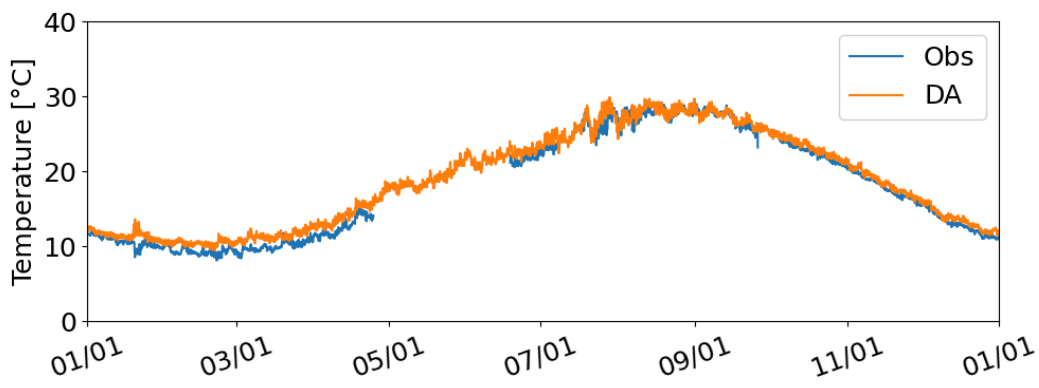
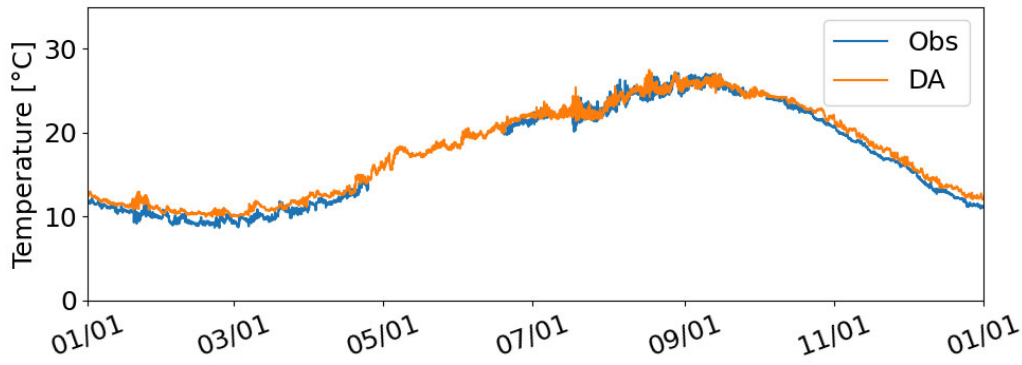
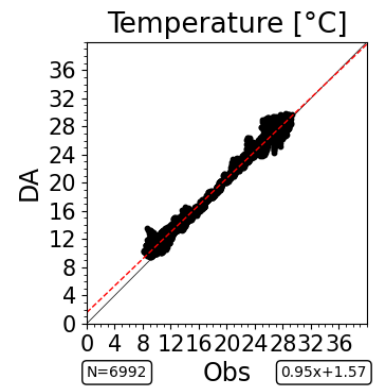


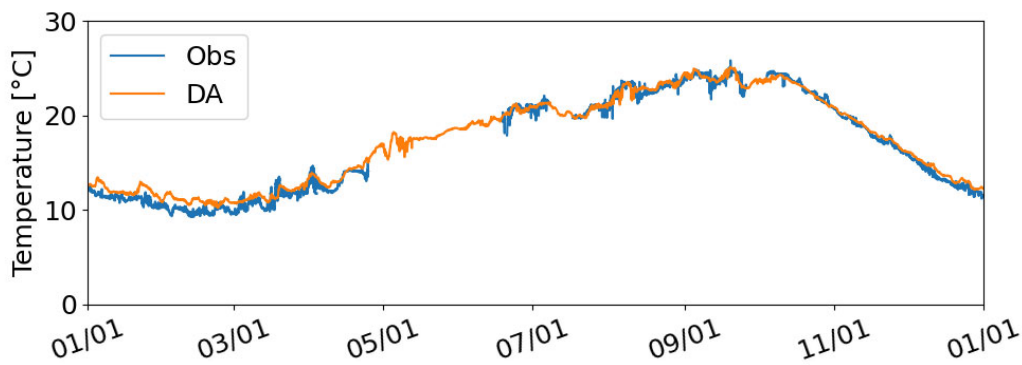
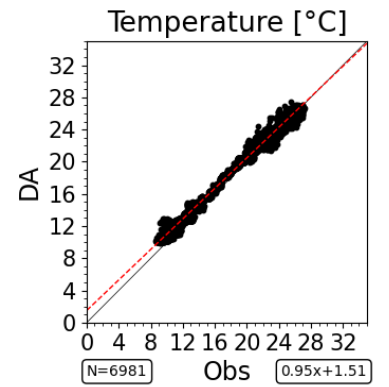
Figure S92 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

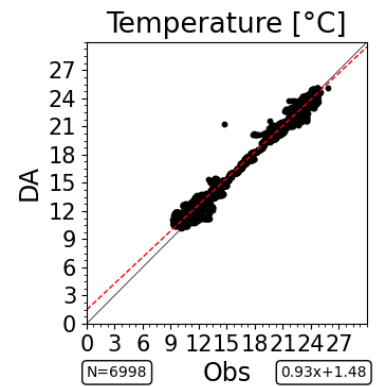
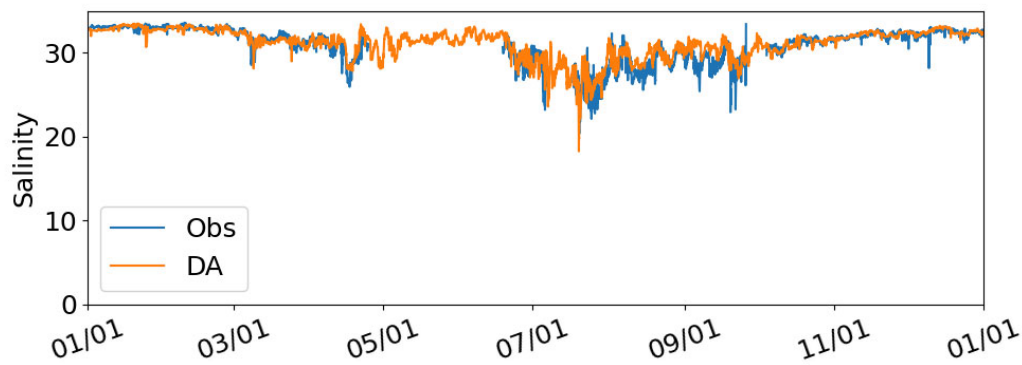
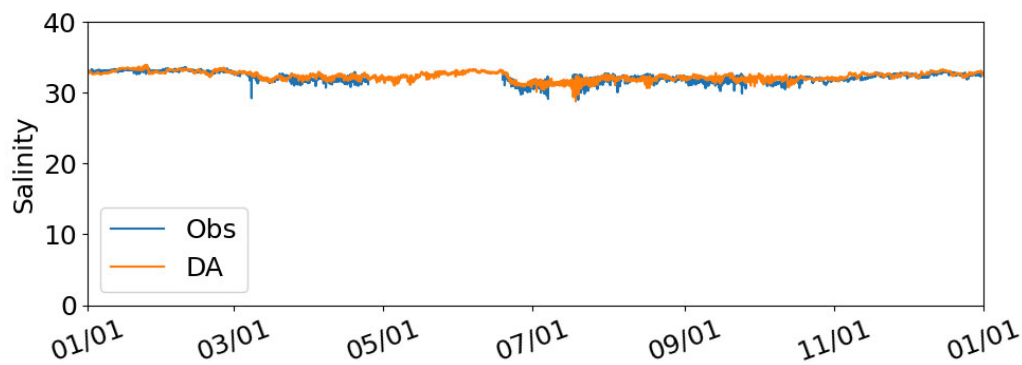
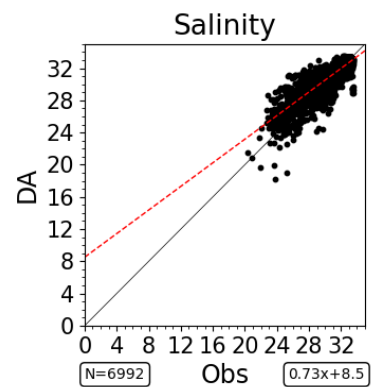


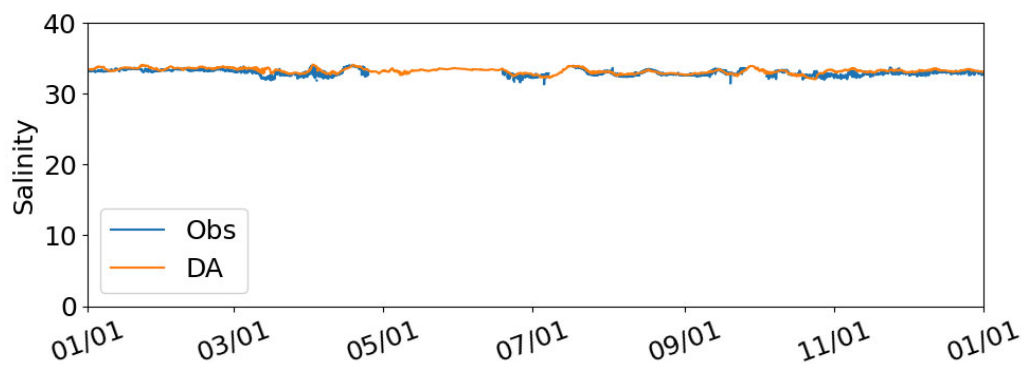
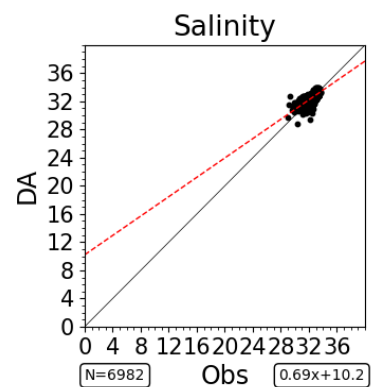
Figure S93 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

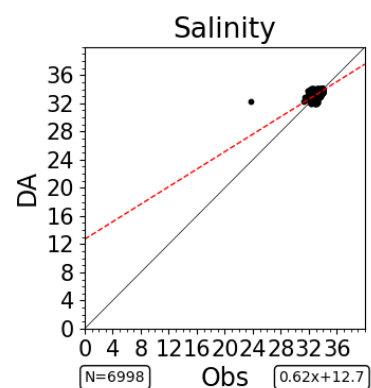
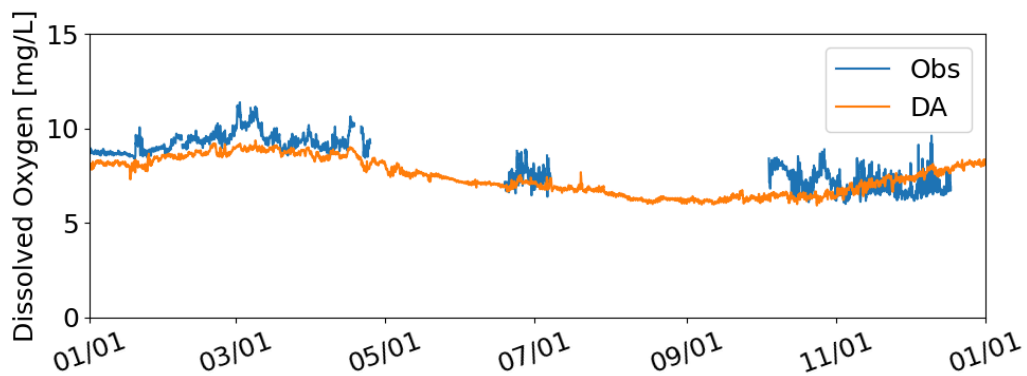
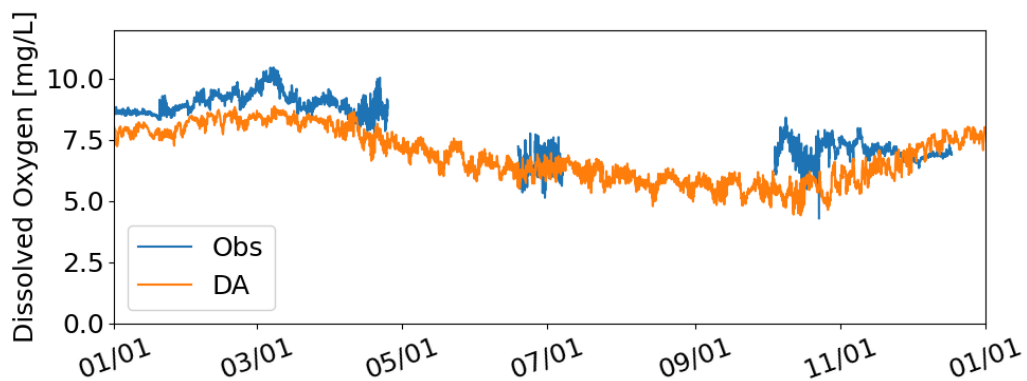
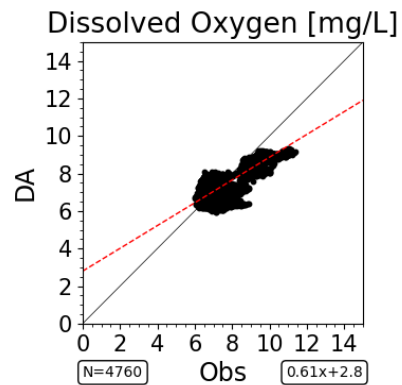


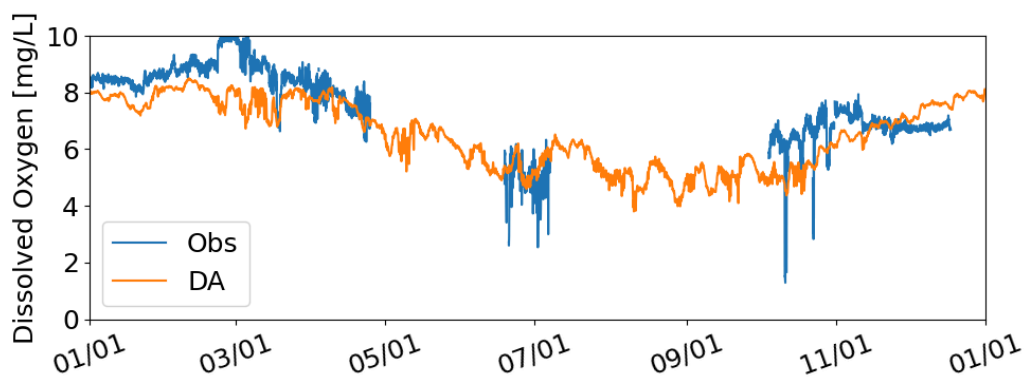
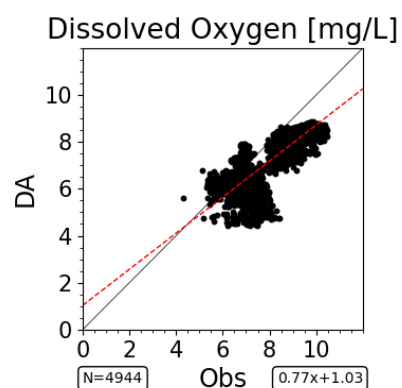
Figure S94 Timeseries and scatter plot for salinity at Center of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

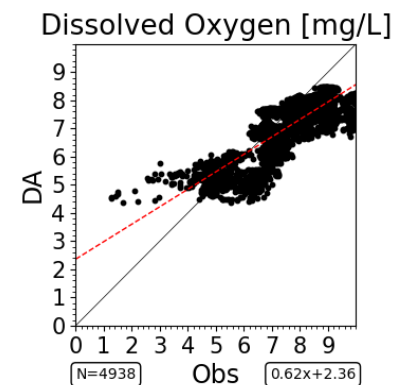
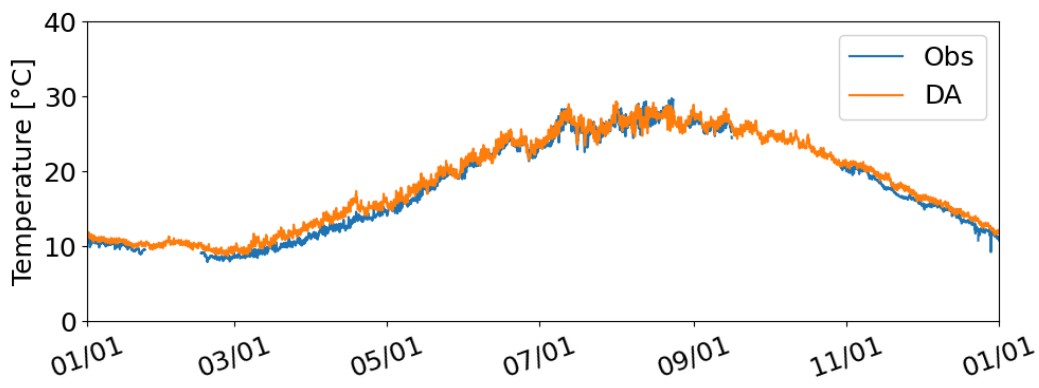
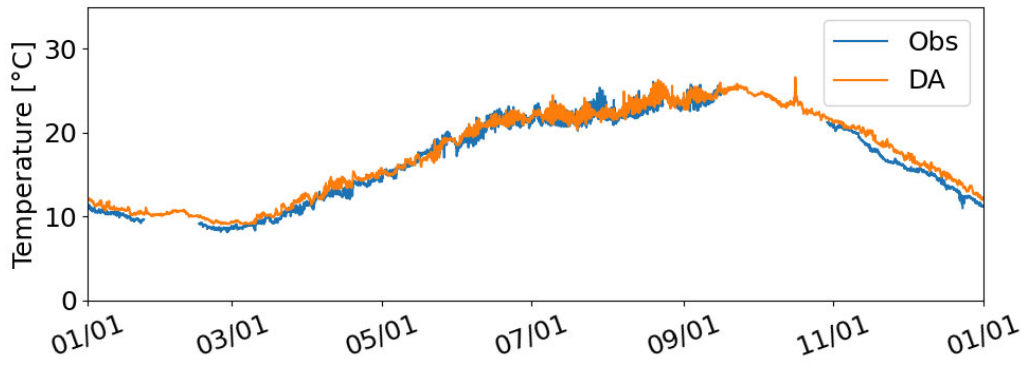
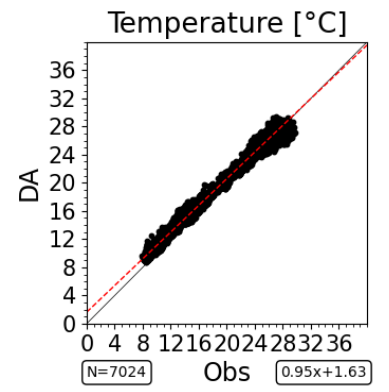


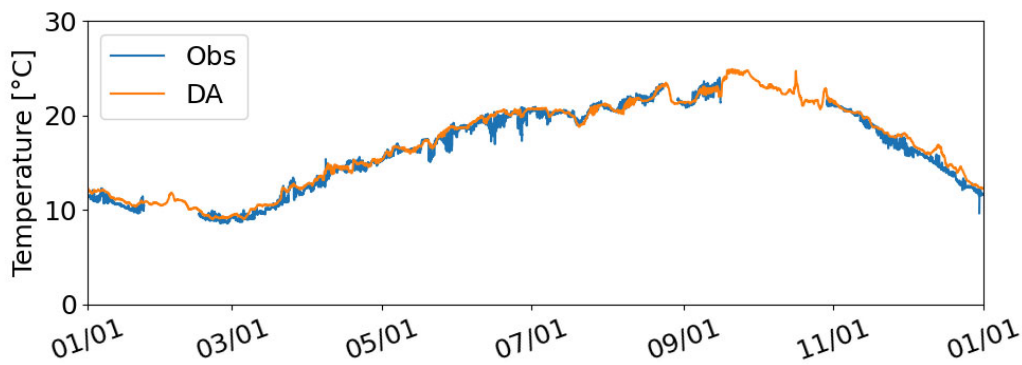
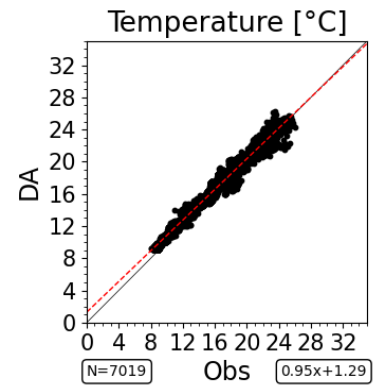
Figure S95 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

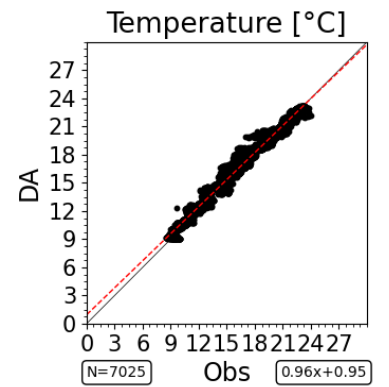
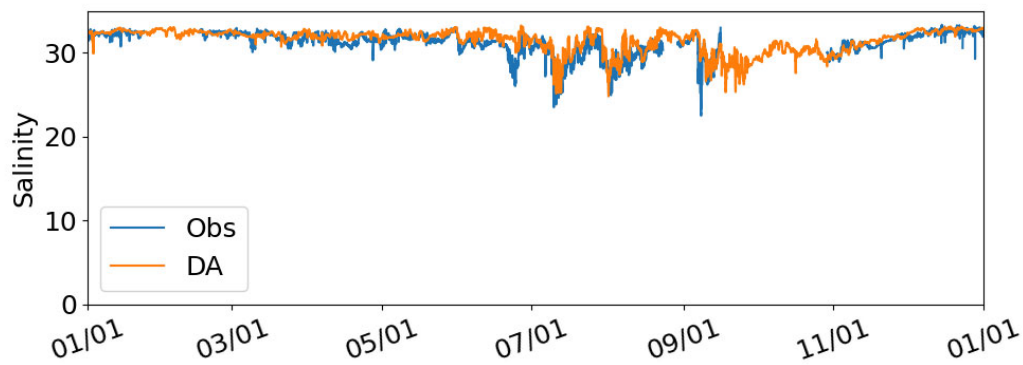
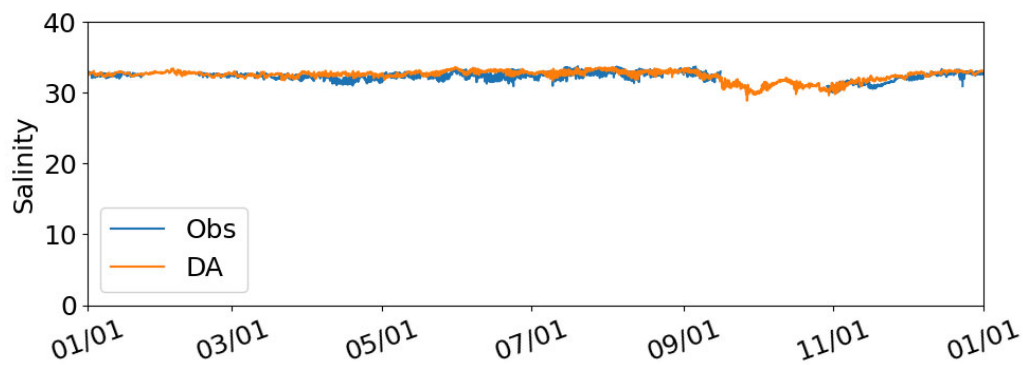
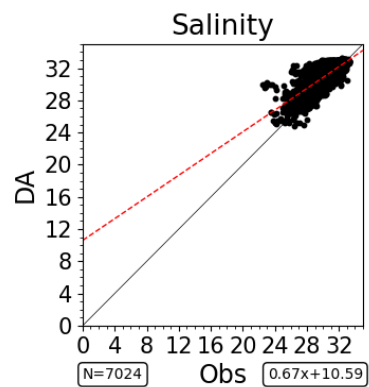


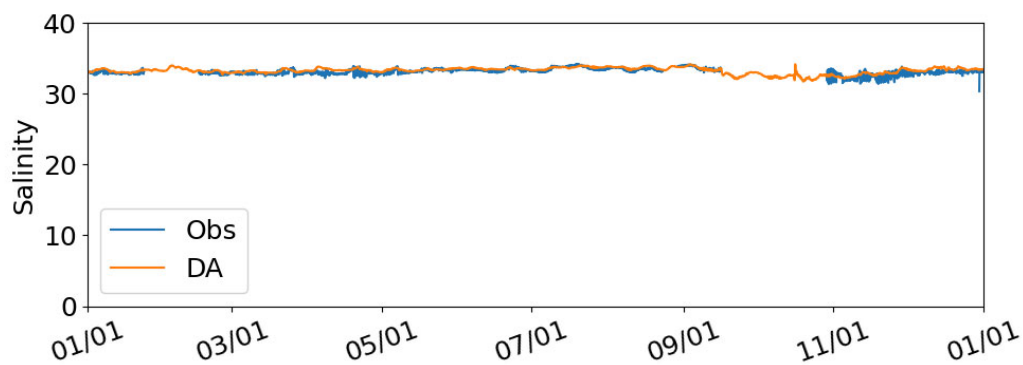
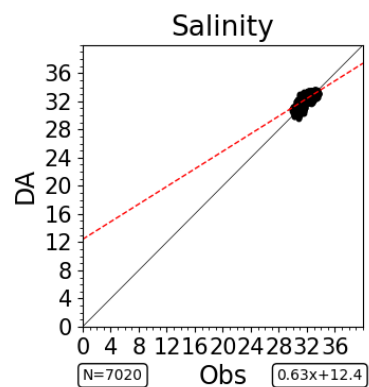
Figure S96 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

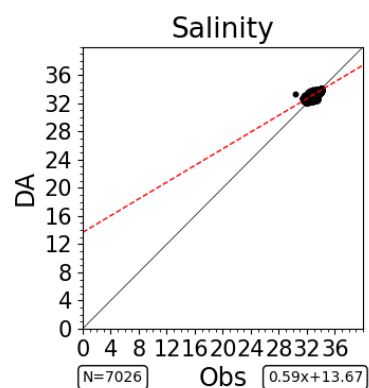
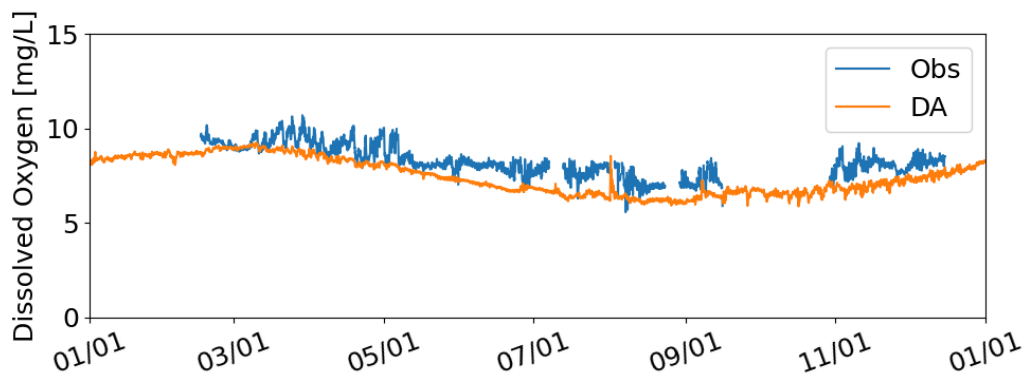
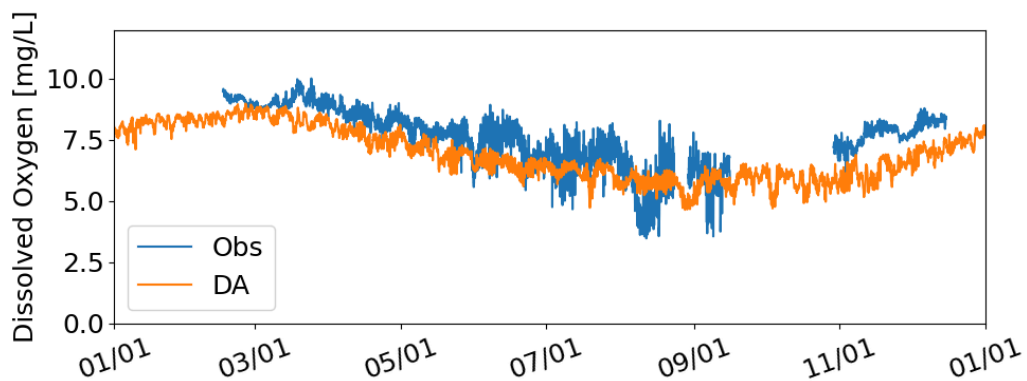
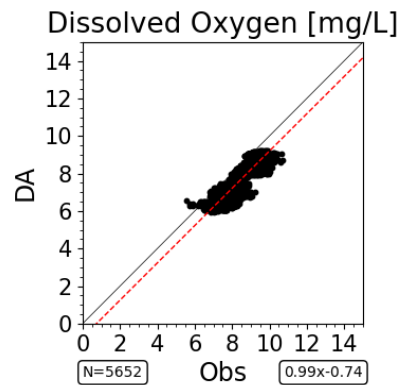


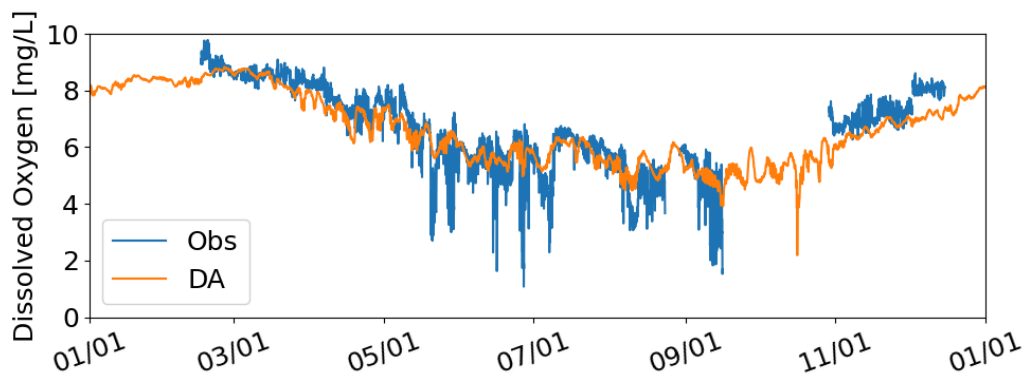
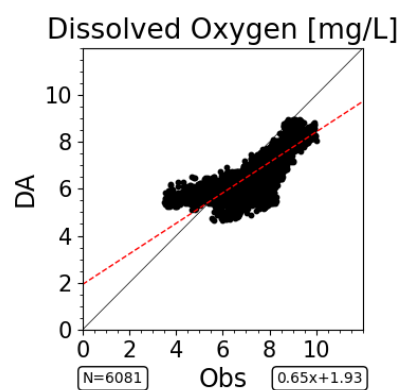
Figure S97 Timeseries and scatter plot for salinity at Center of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

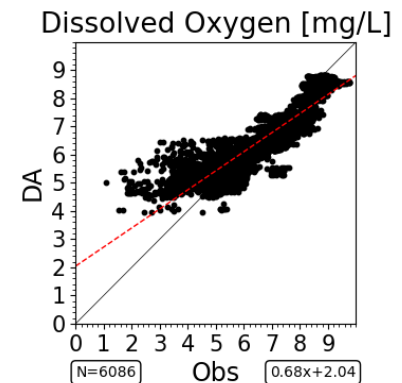
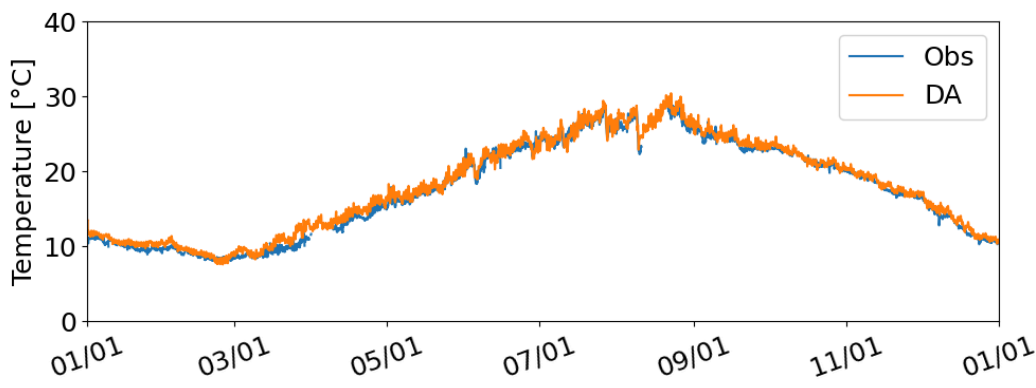
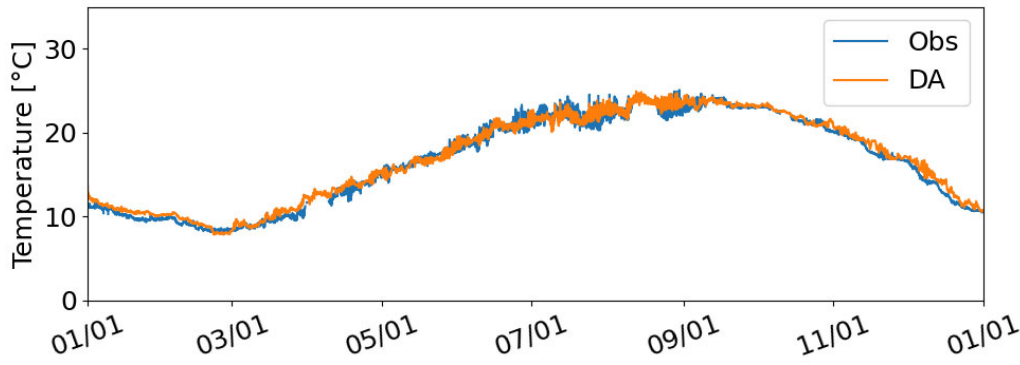
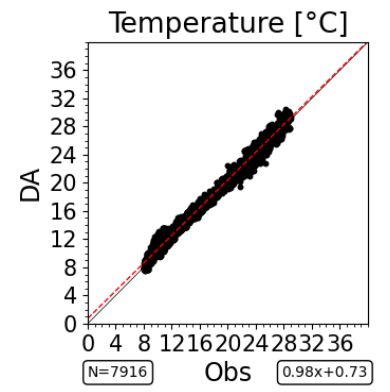


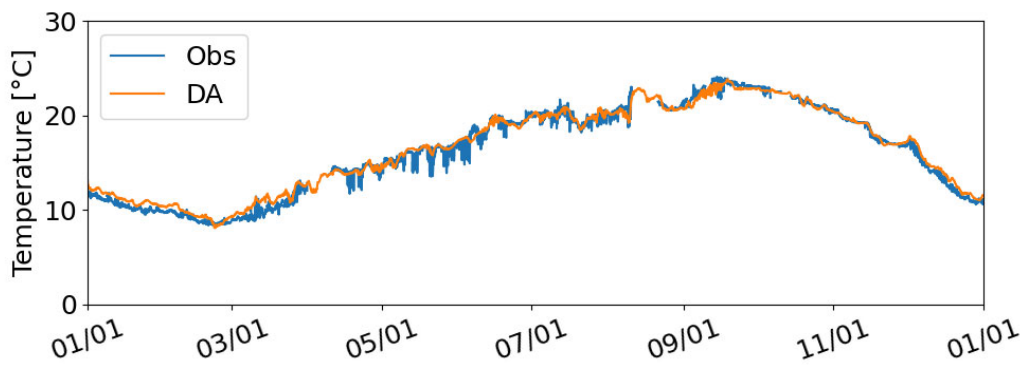
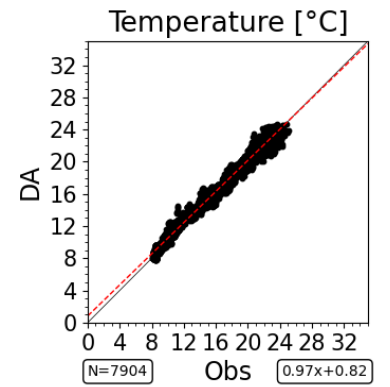
Figure S98 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

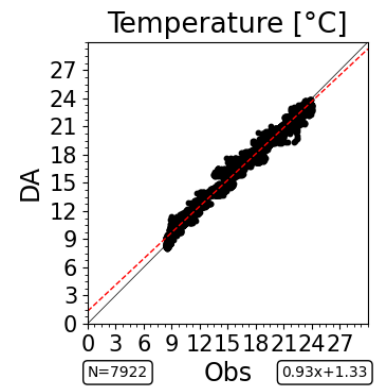
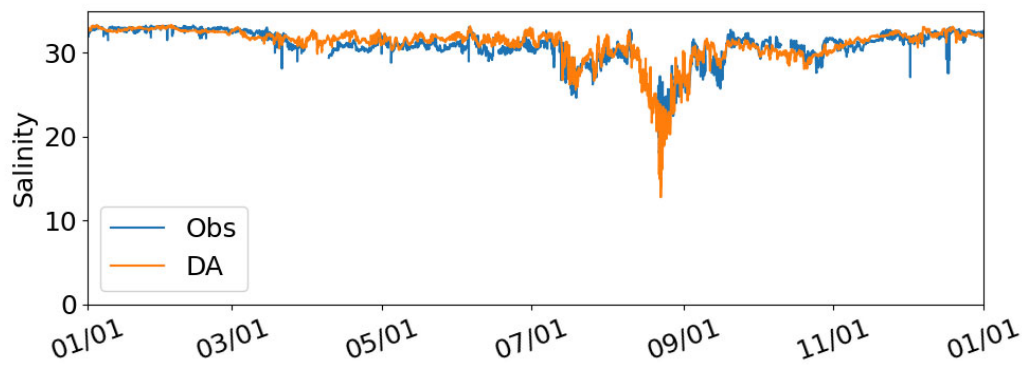
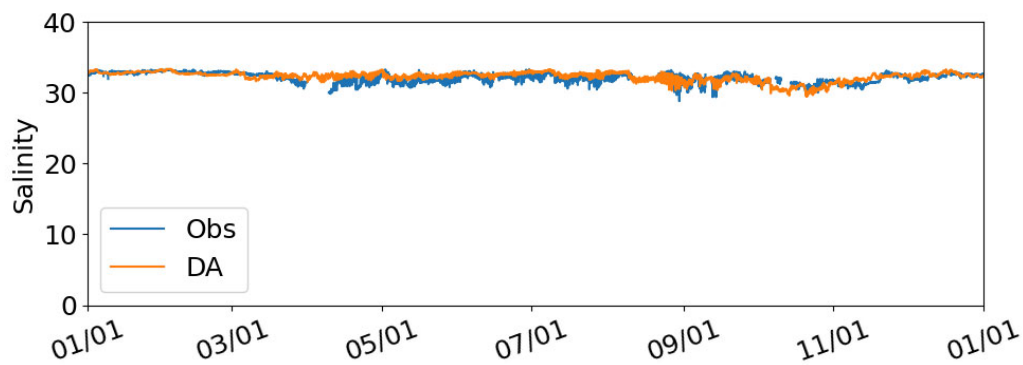
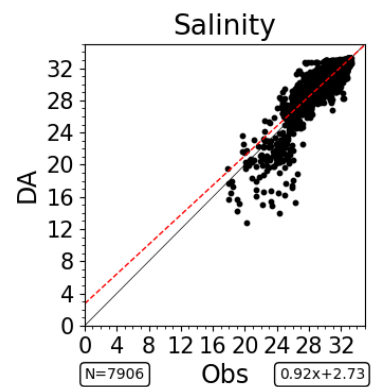


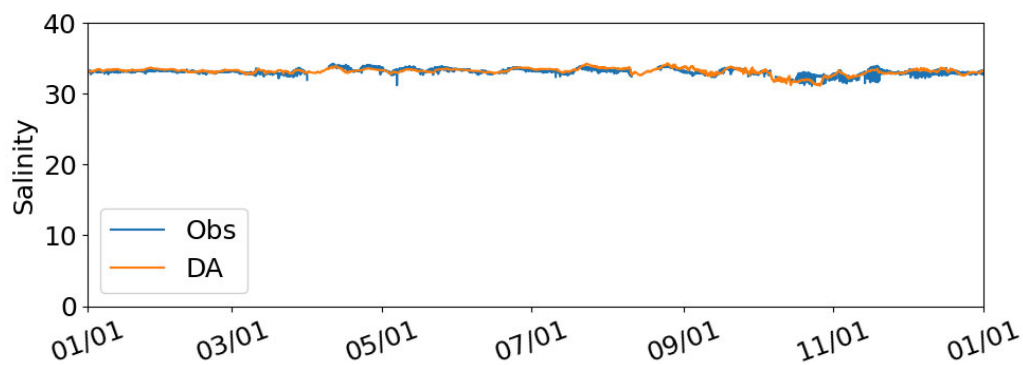
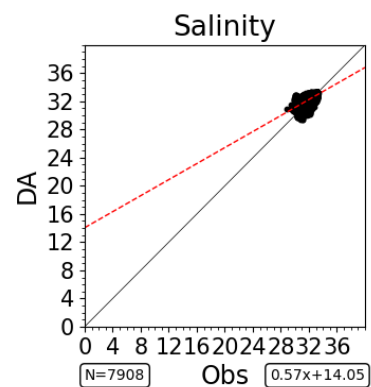
Figure S99 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

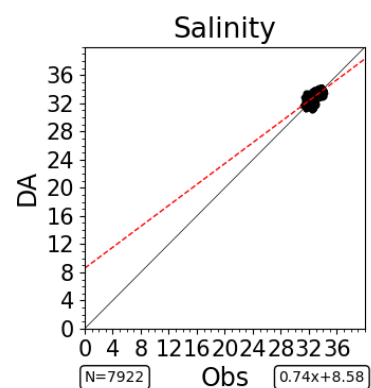
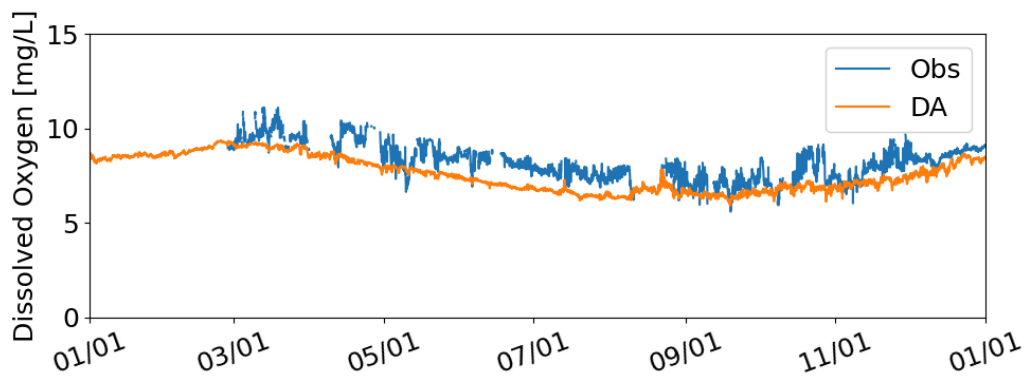
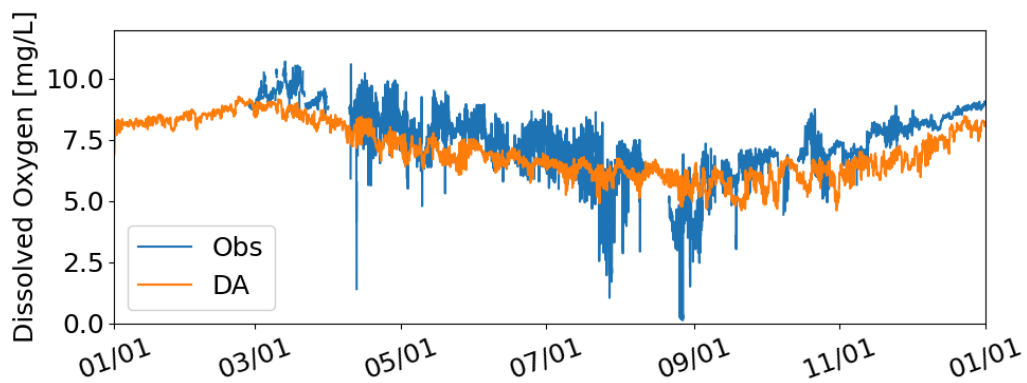
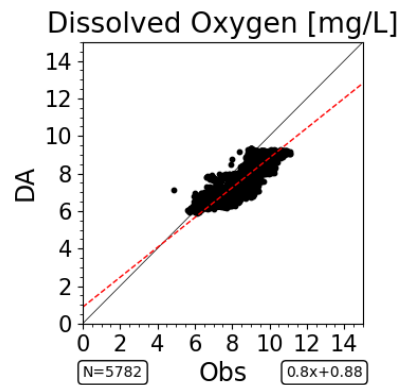


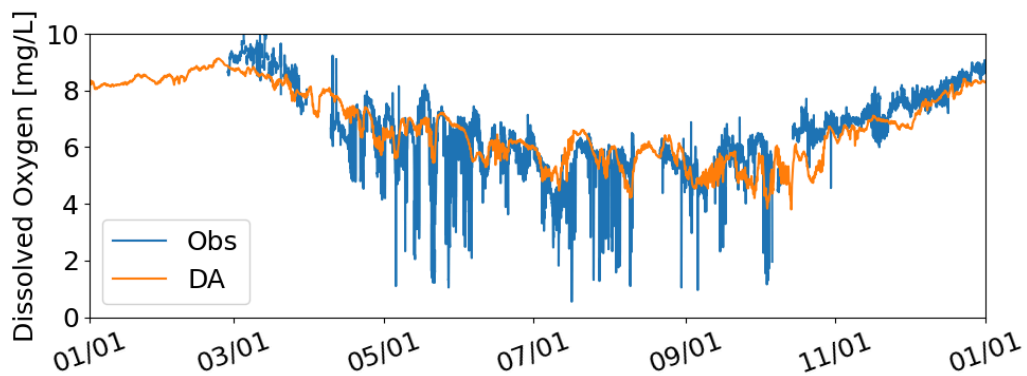
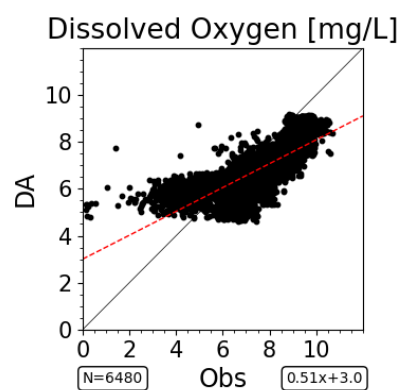
Figure S100 Timeseries and scatter plot for salinity at Center of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

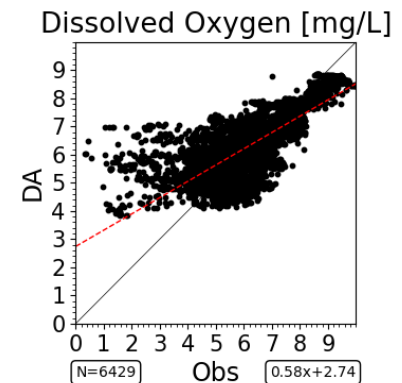
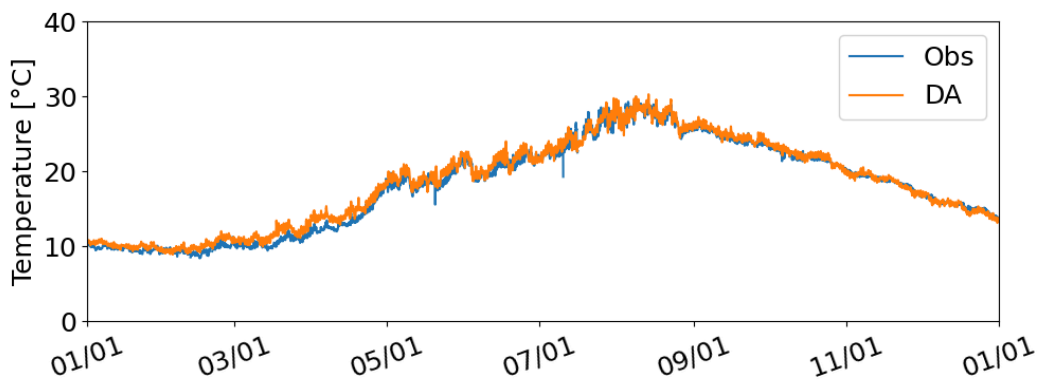
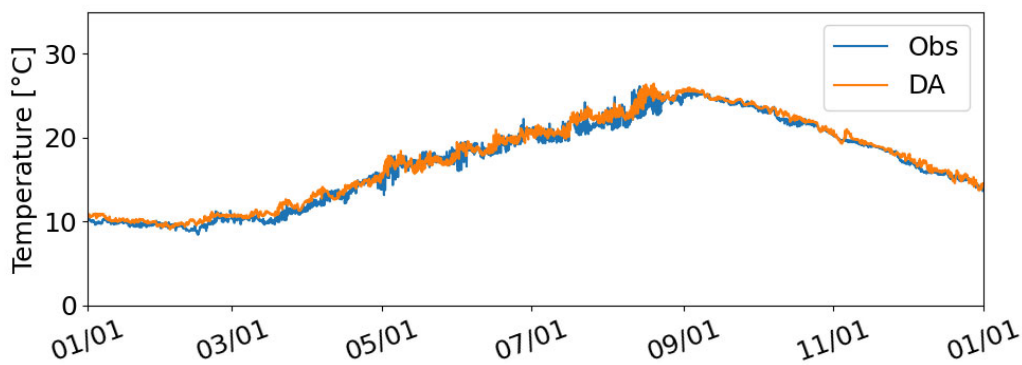
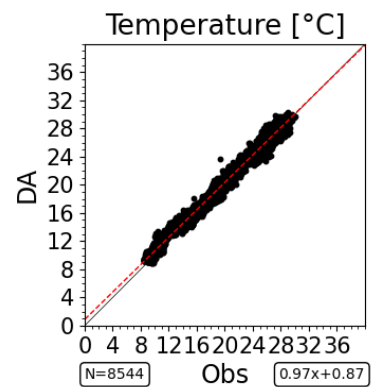


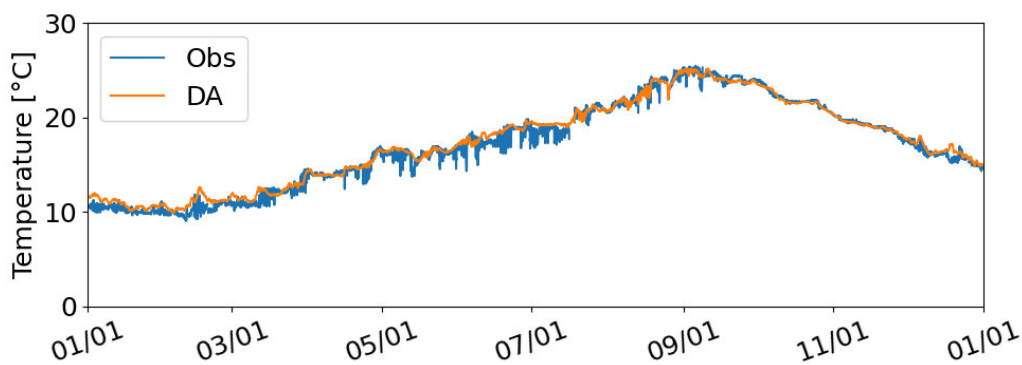
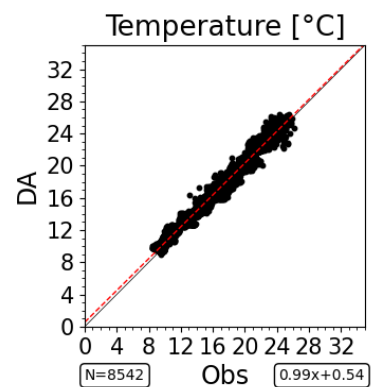
Figure S101 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

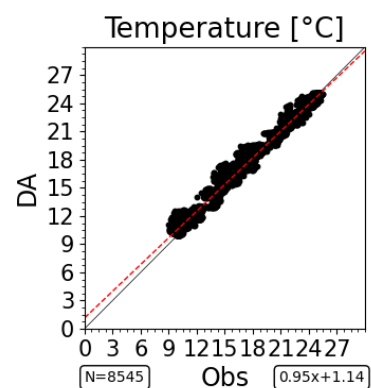
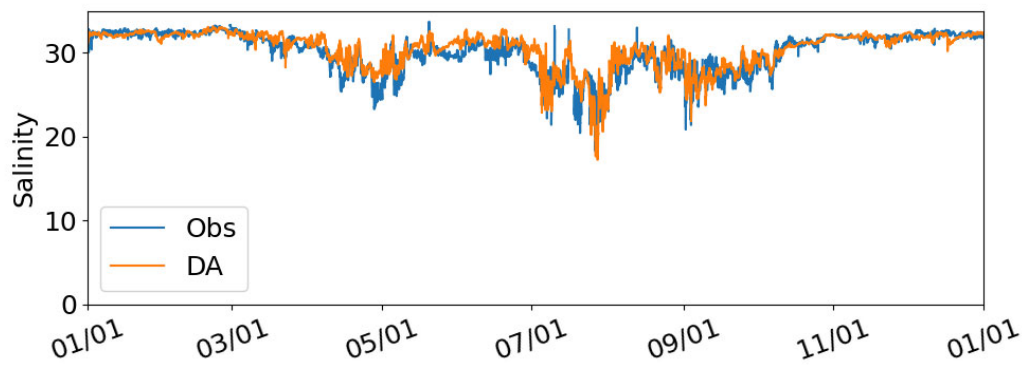
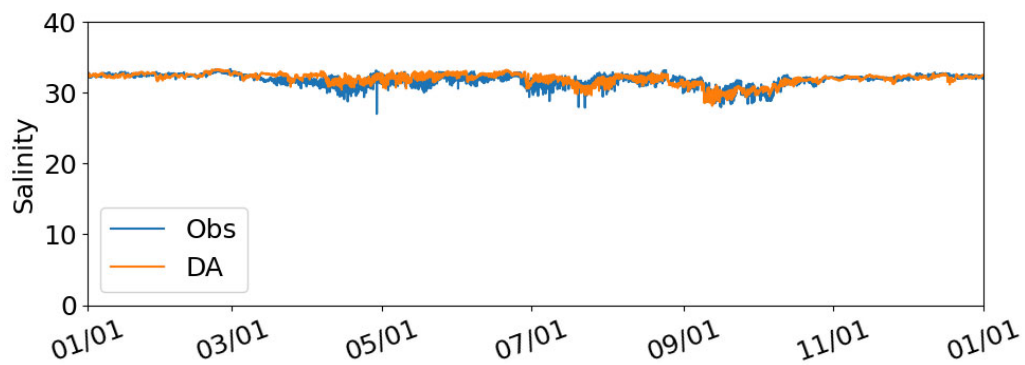
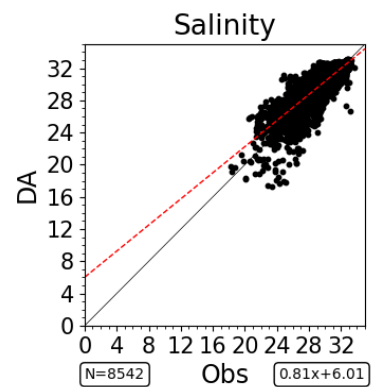


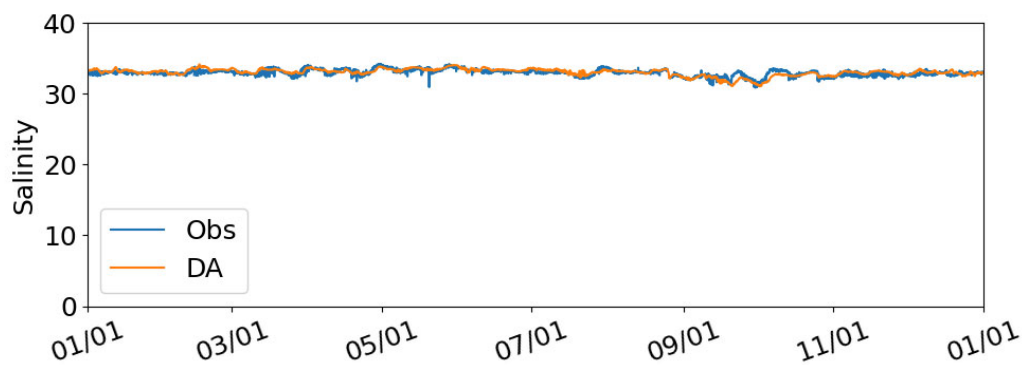
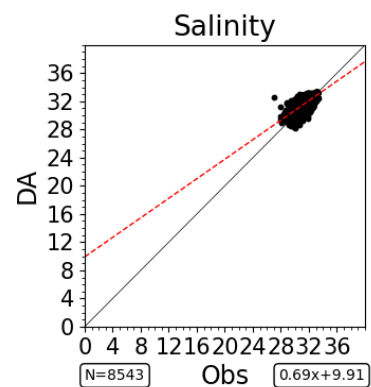
Figure S102 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

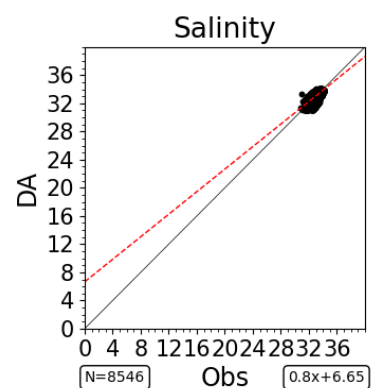
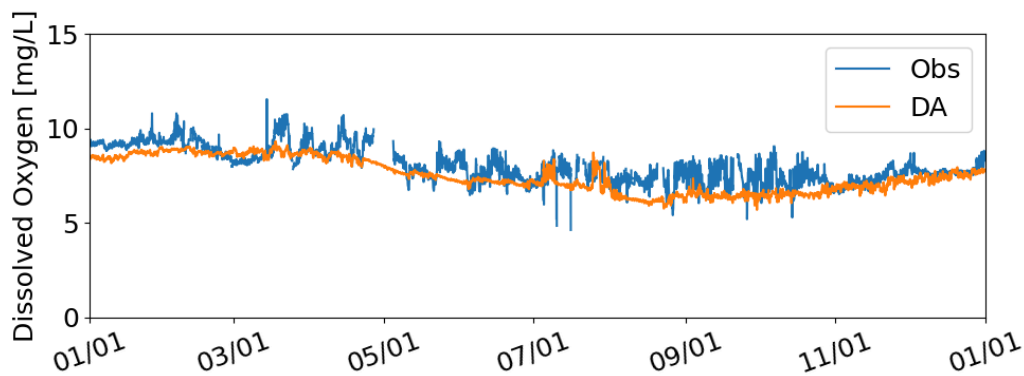
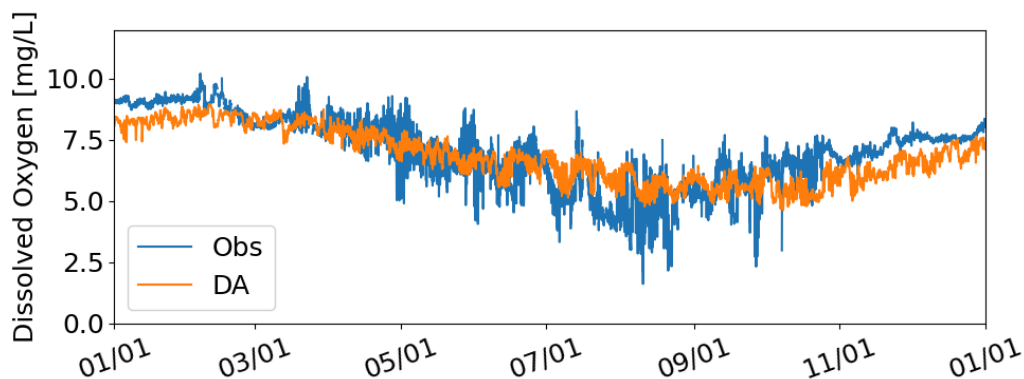
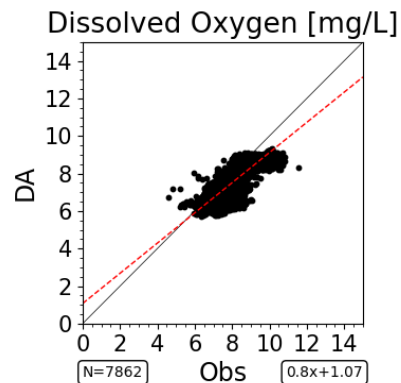


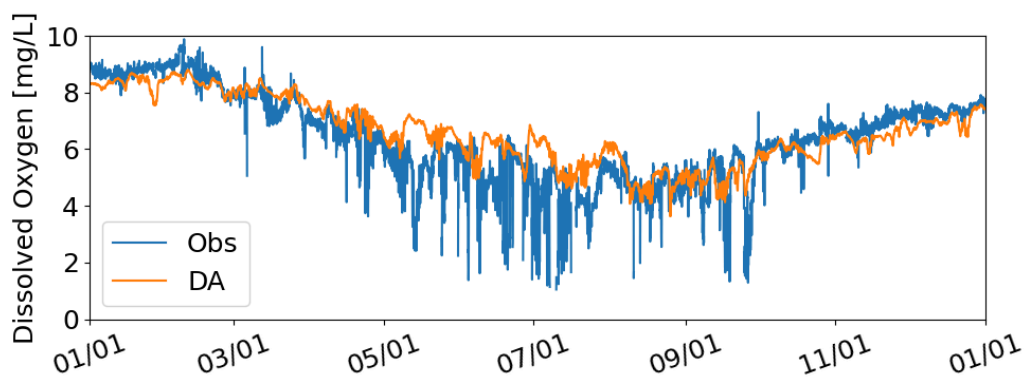
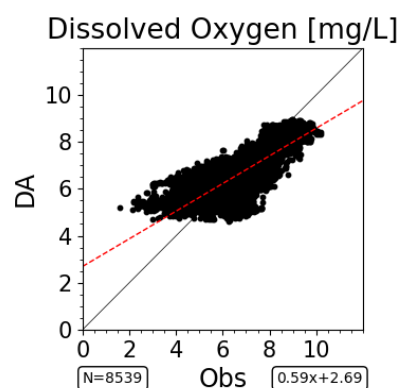
Figure S103 Timeseries and scatter plot for salinity at Center of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

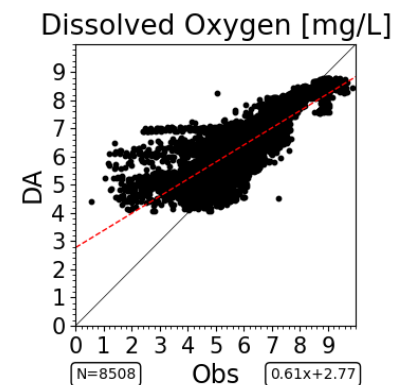
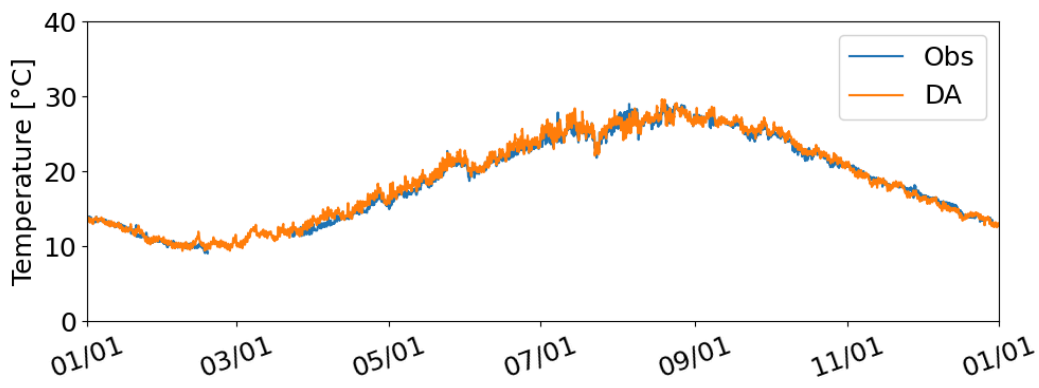
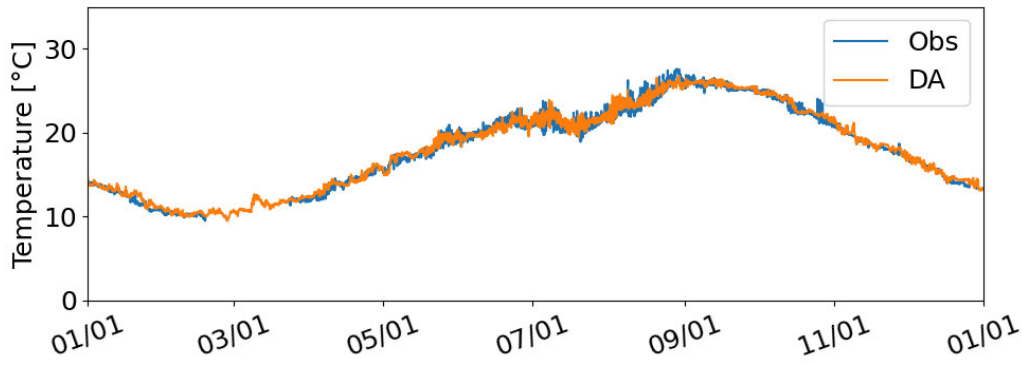
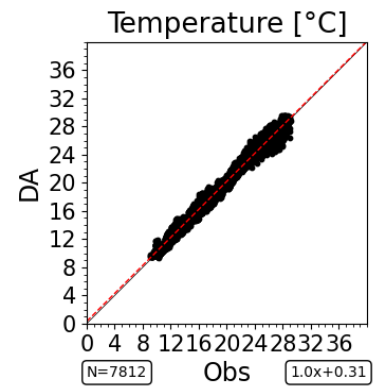


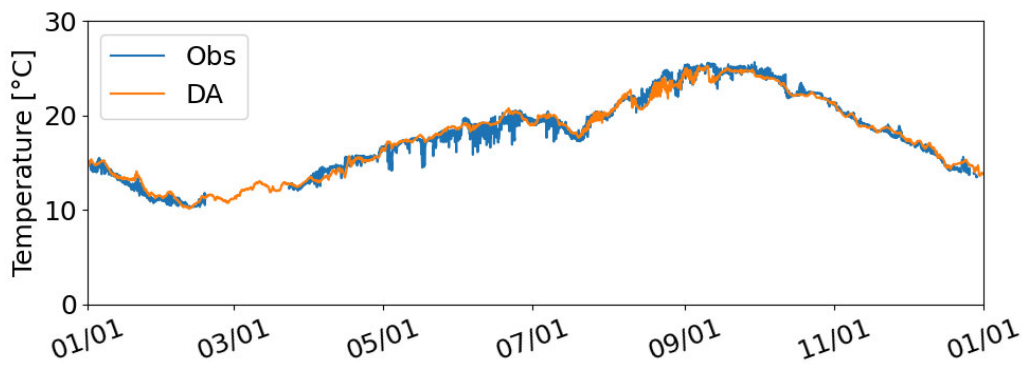
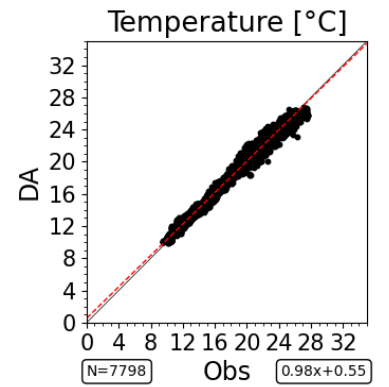
Figure S104 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

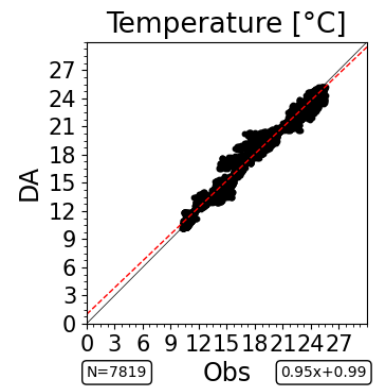
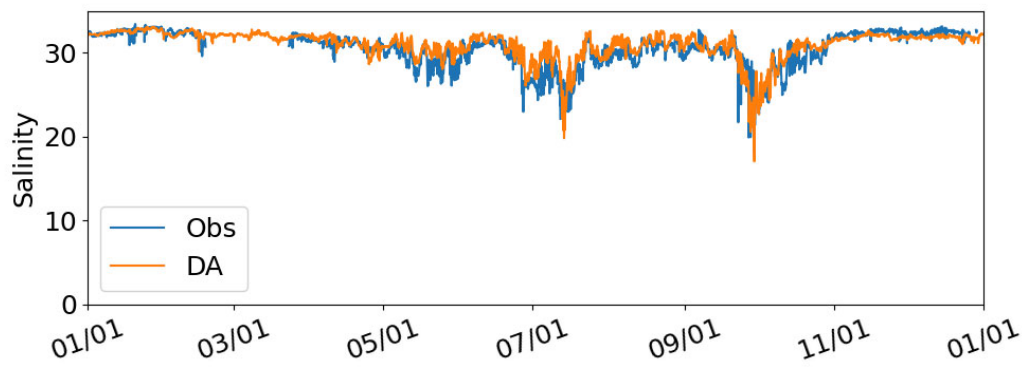
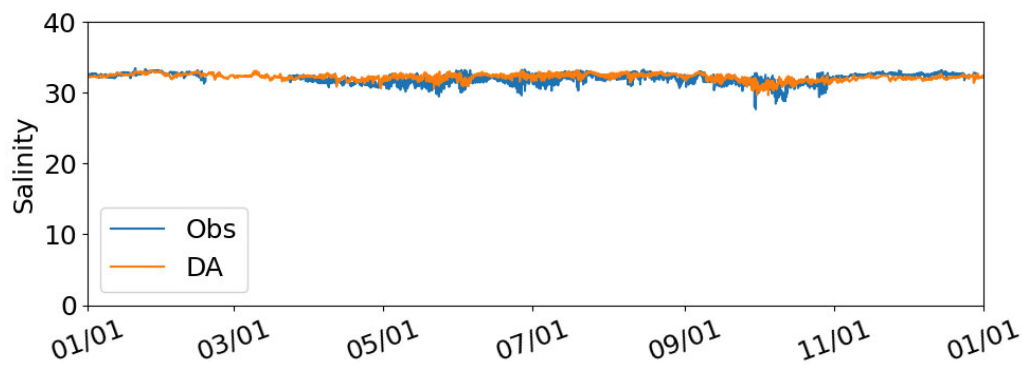
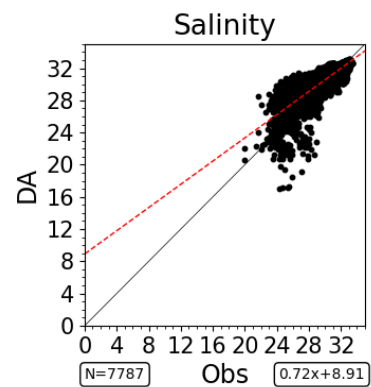


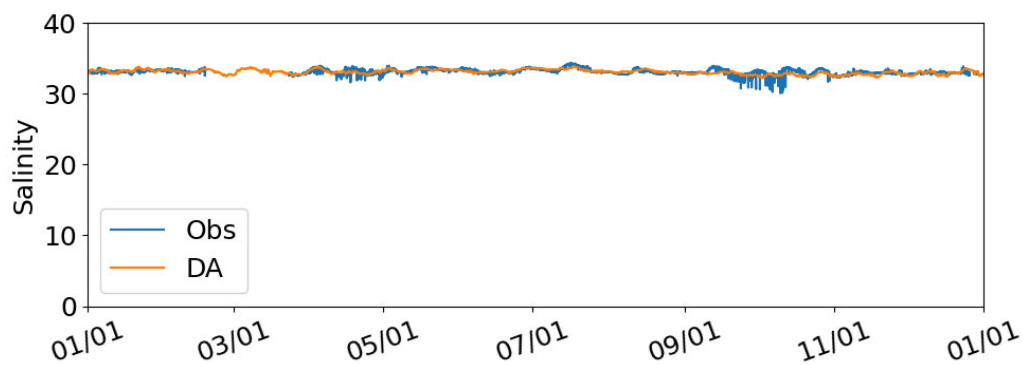
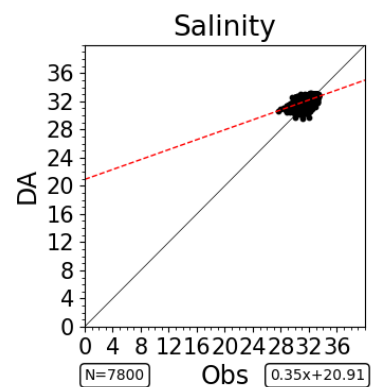
Figure S105 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

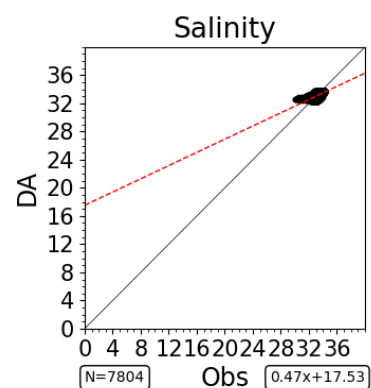
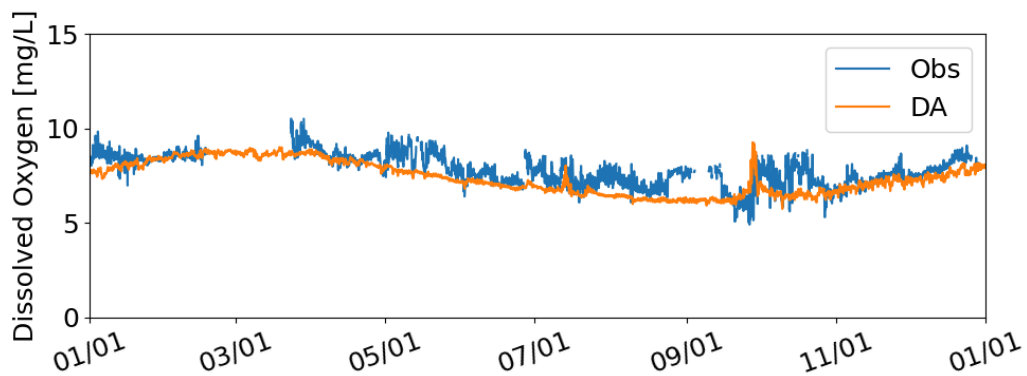
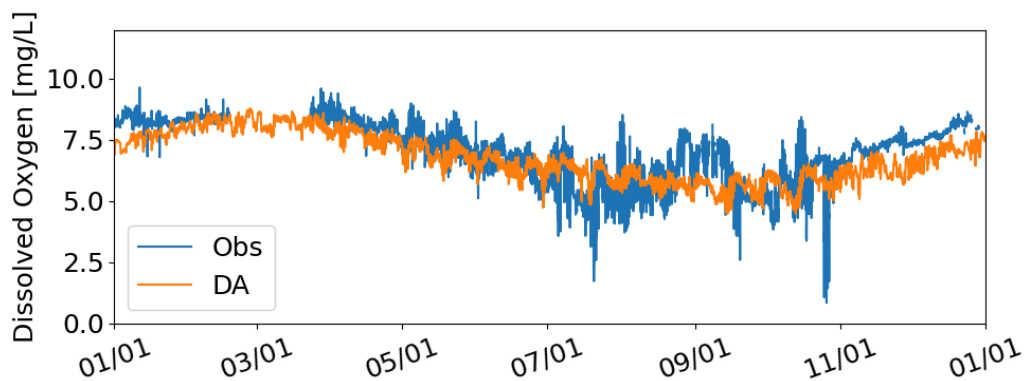
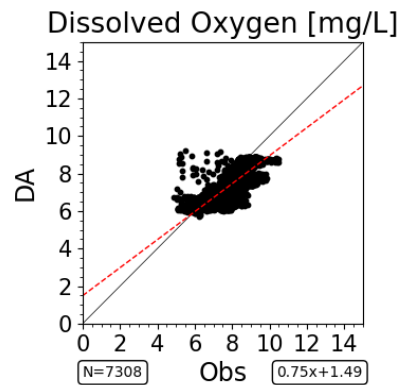


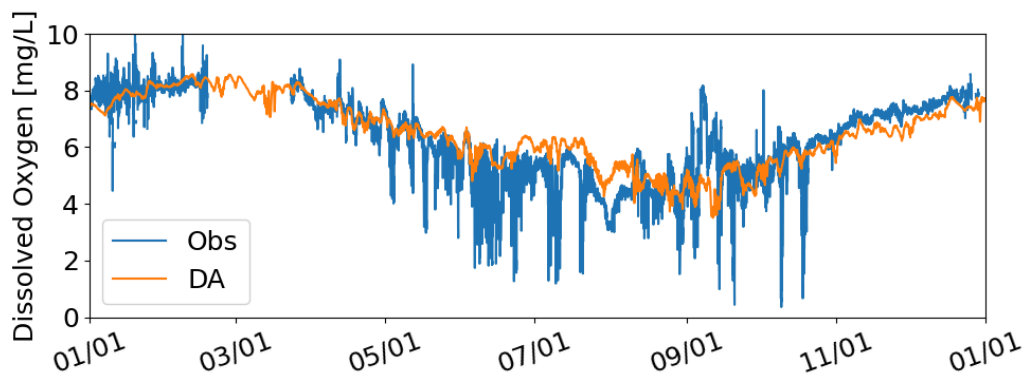
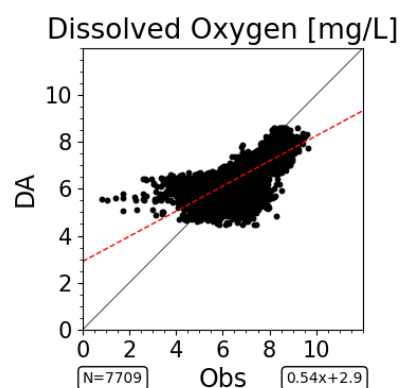
Figure S106 Timeseries and scatter plot for salinity at Center of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

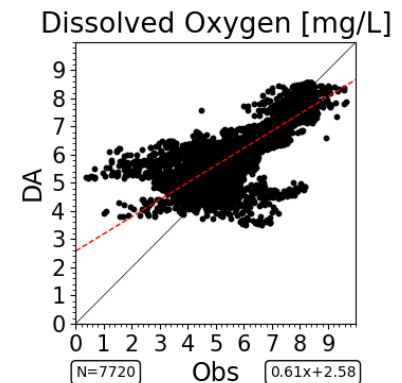
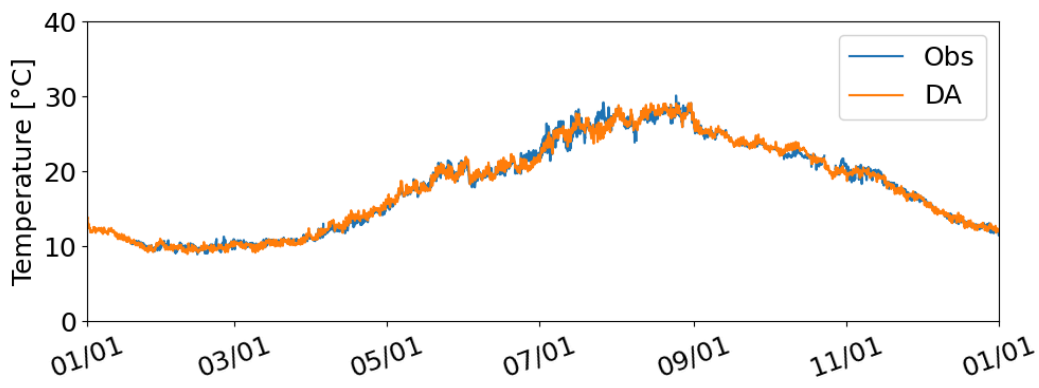
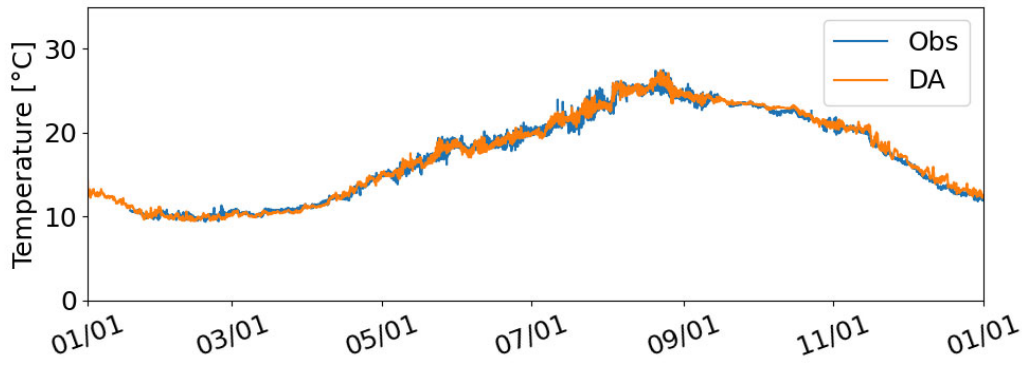
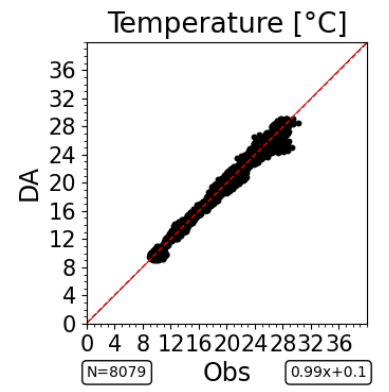


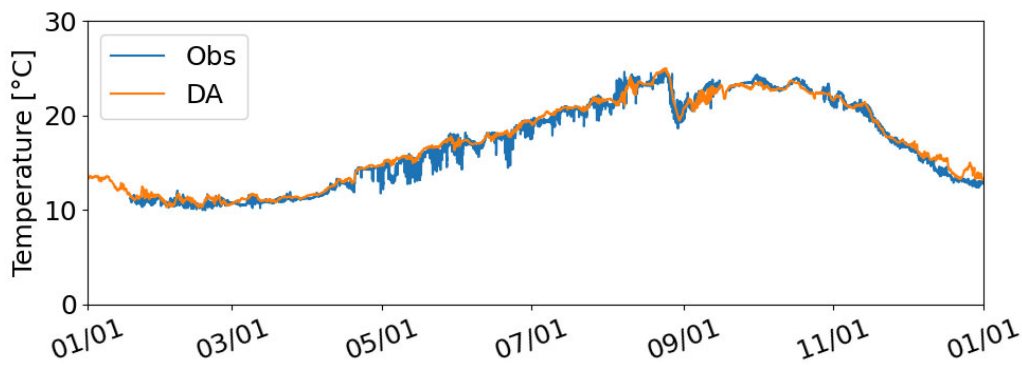
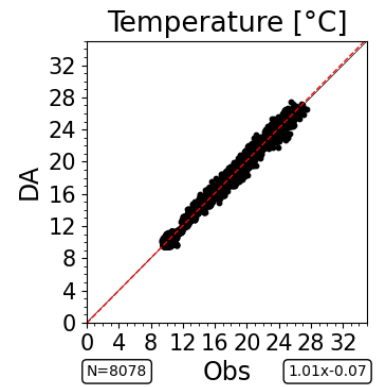
Figure S107 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

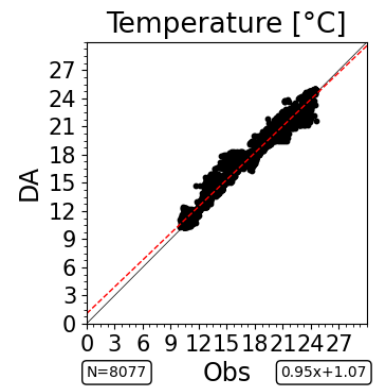
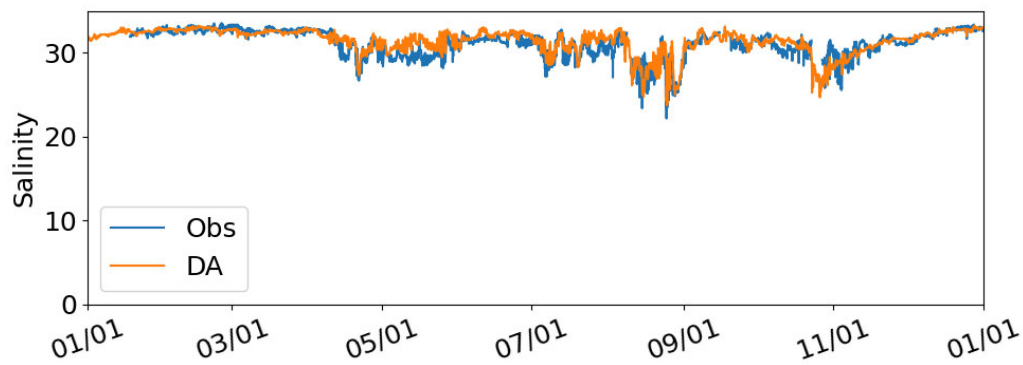
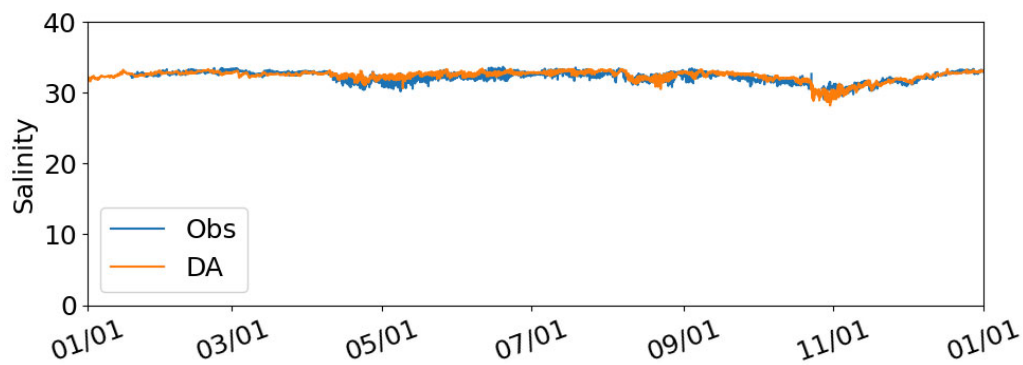
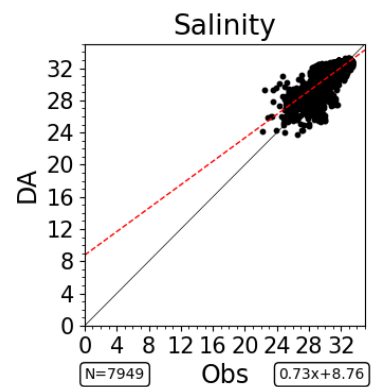


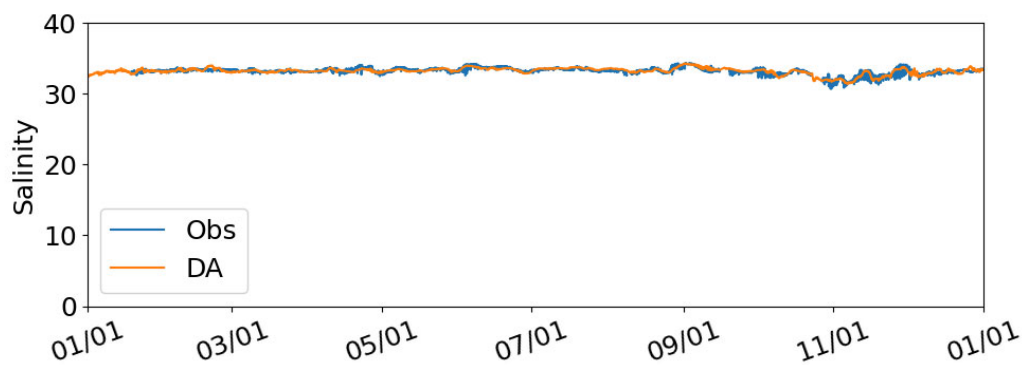
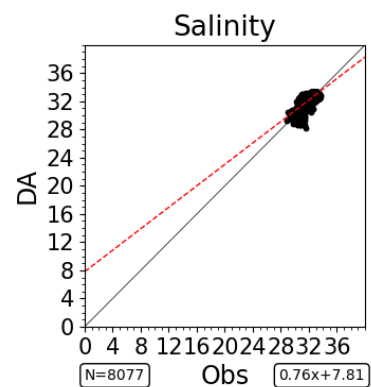
Figure S108 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

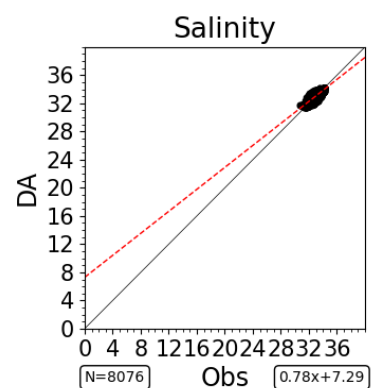
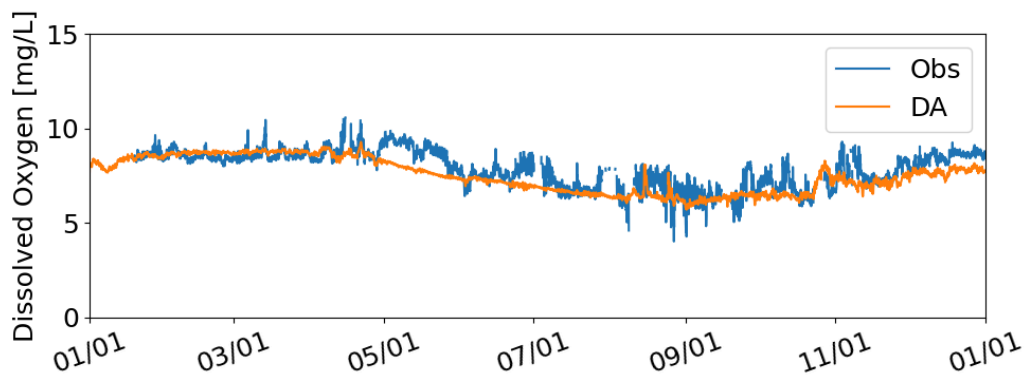
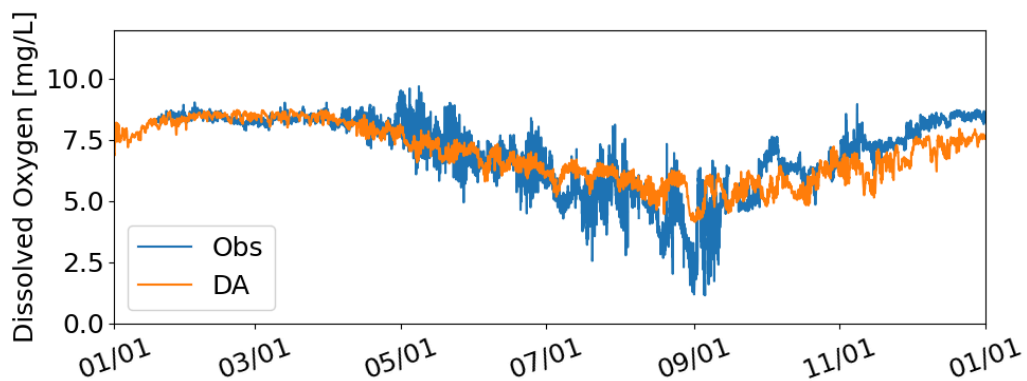
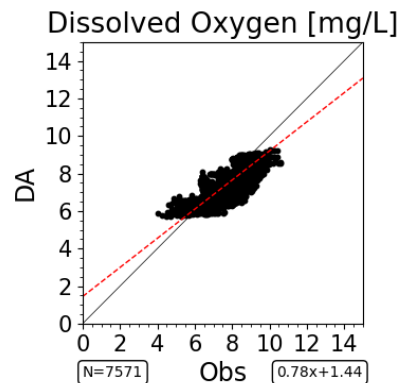


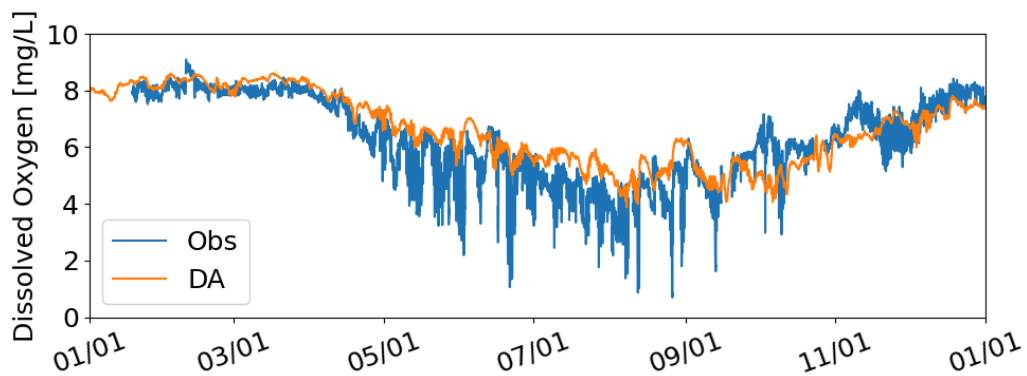
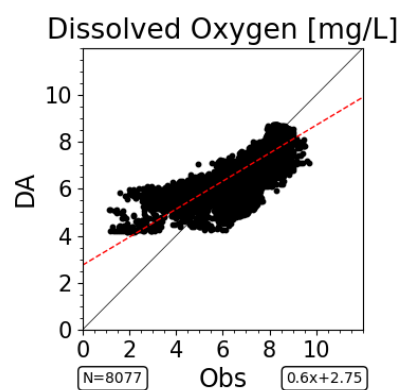
Figure S109 Timeseries and scatter plot for salinity at Center of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

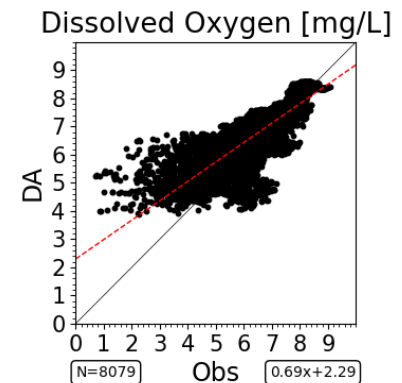
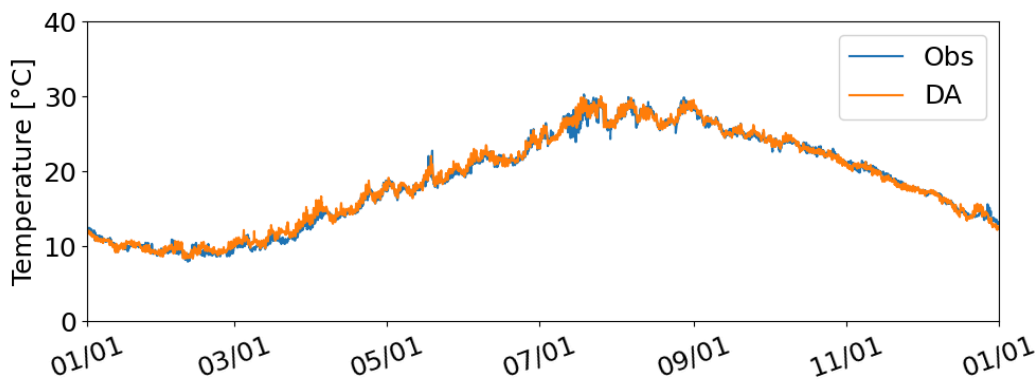
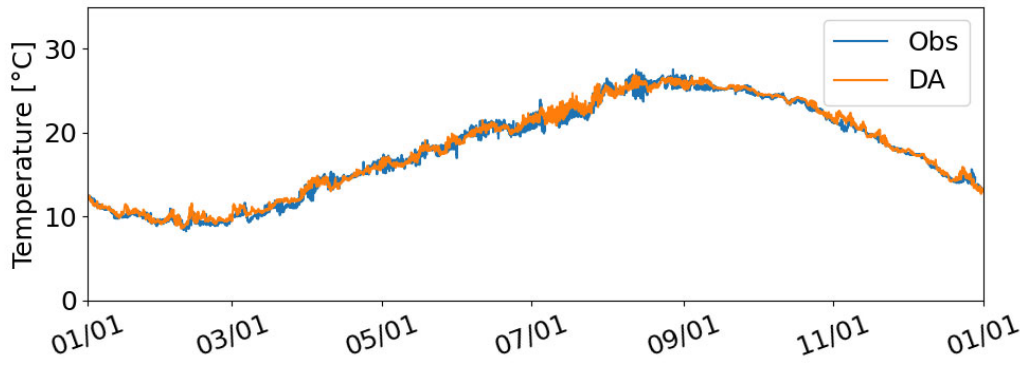
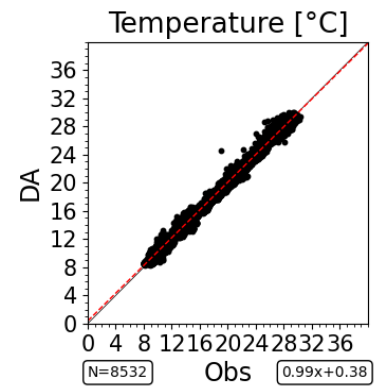


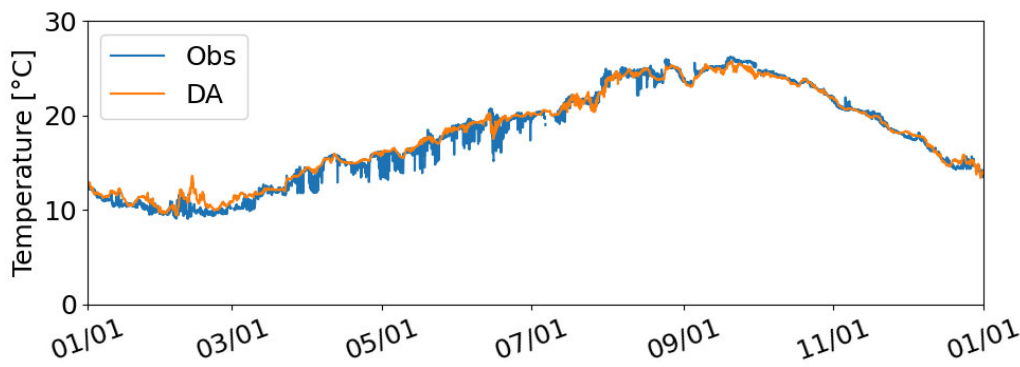
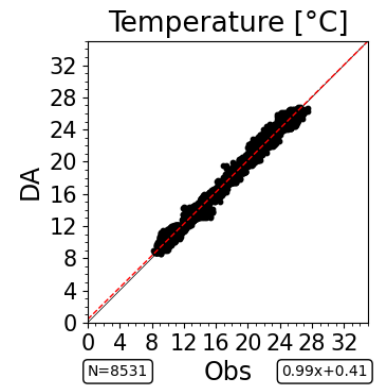
Figure S110 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

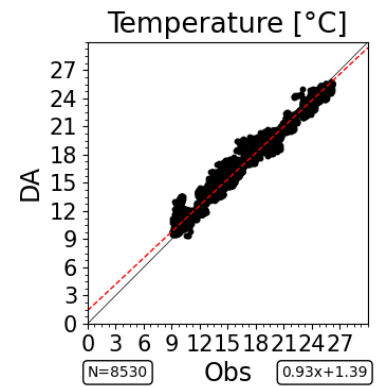
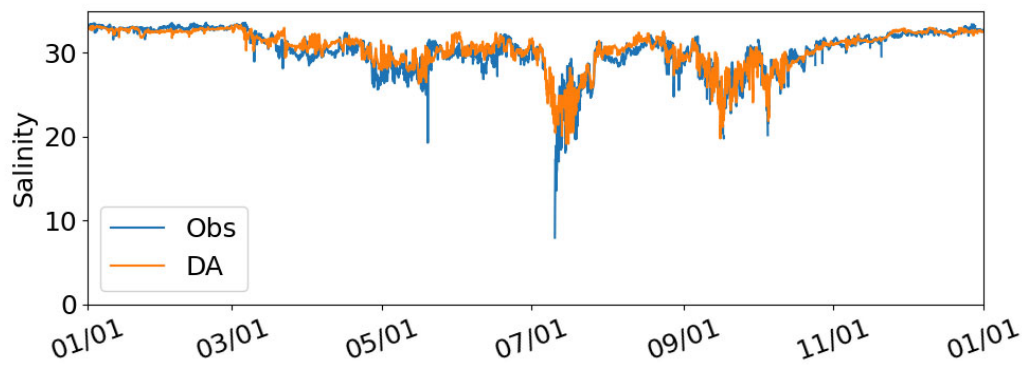
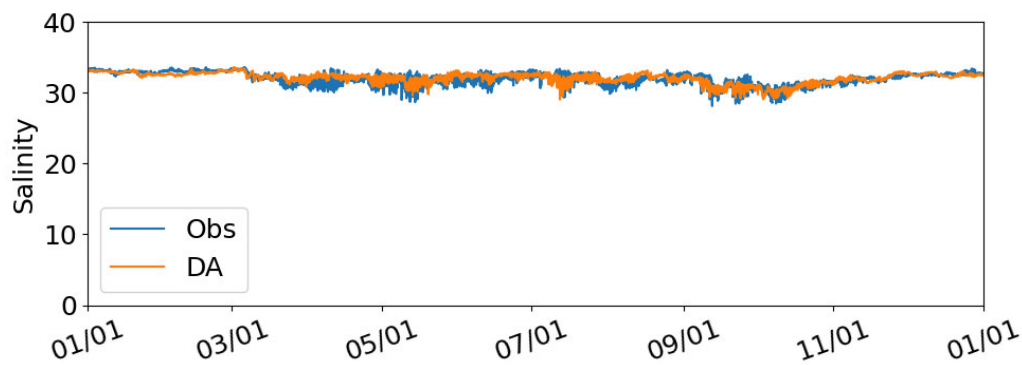
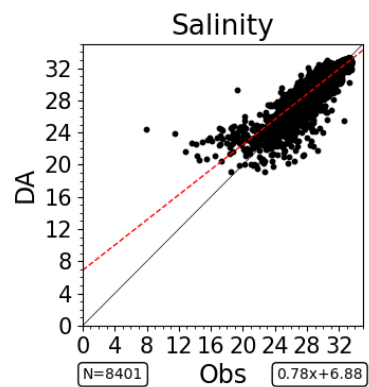


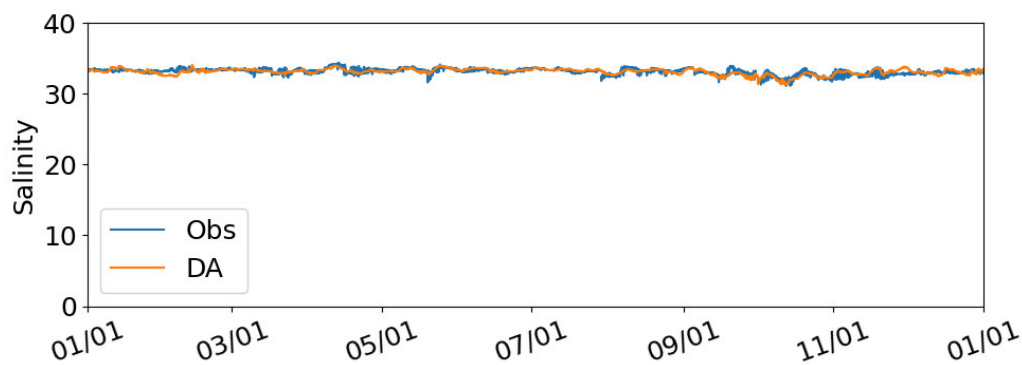
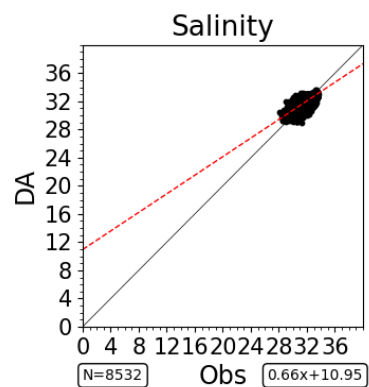
Figure S111 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

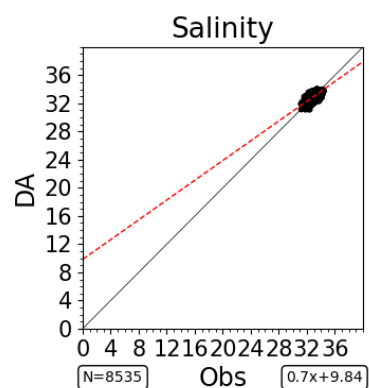
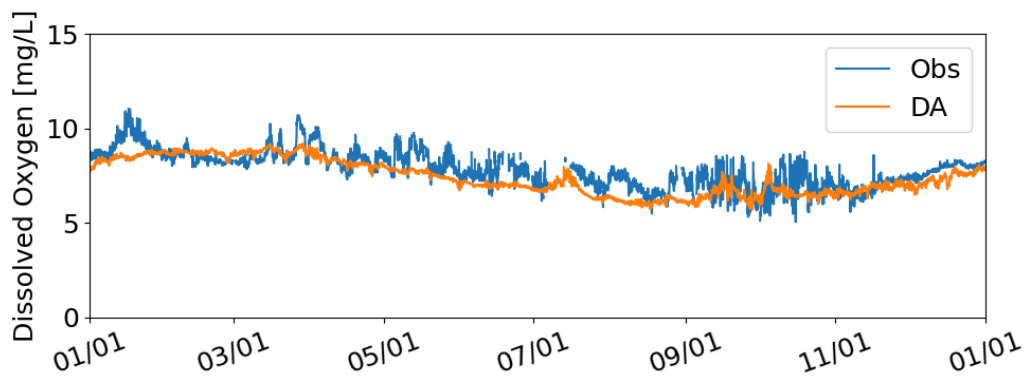
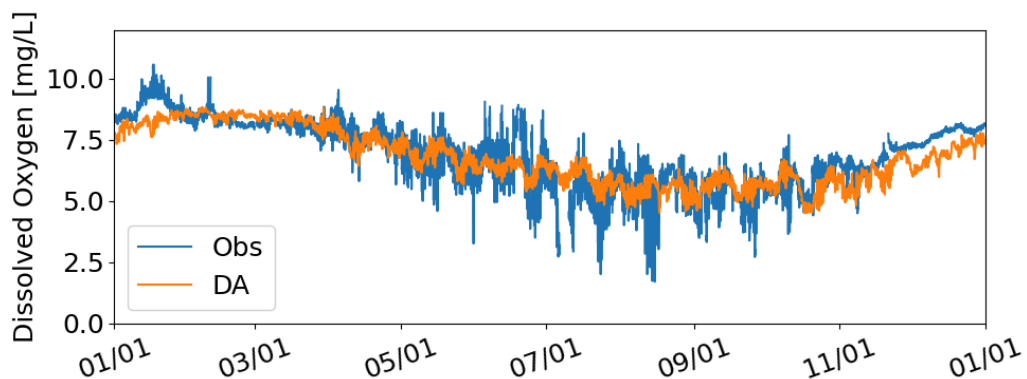
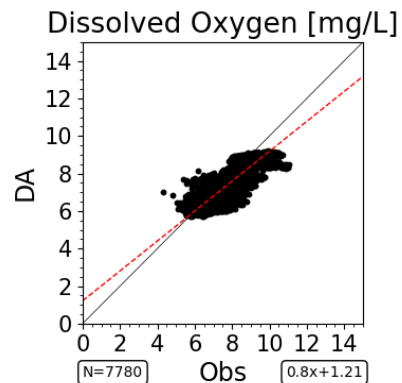


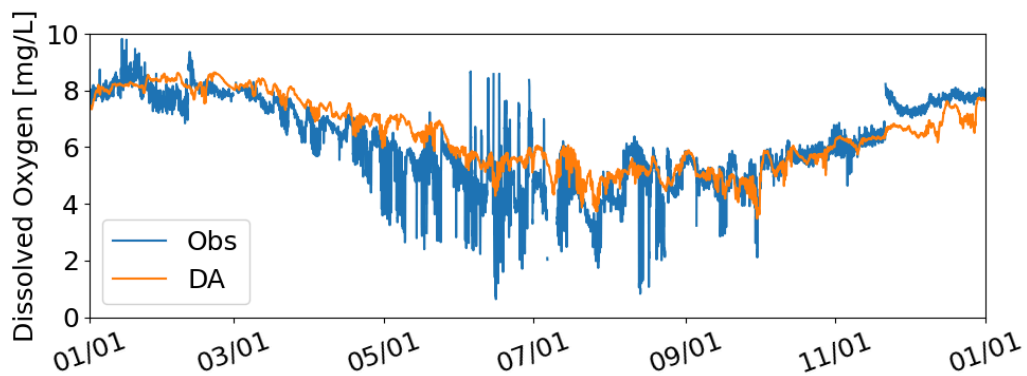
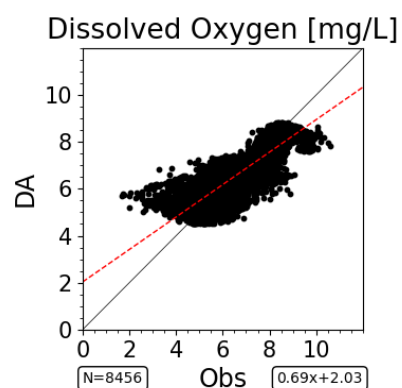
Figure S112 Timeseries and scatter plot for salinity at Center of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

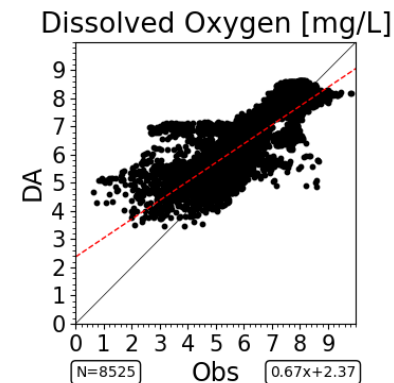
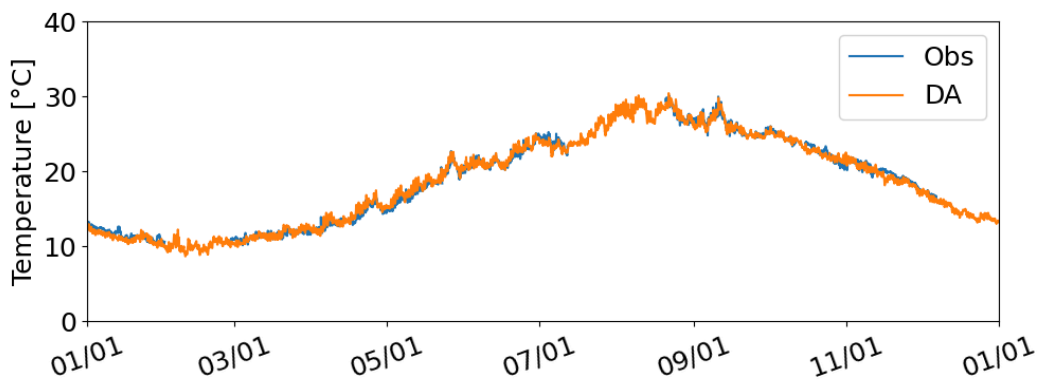
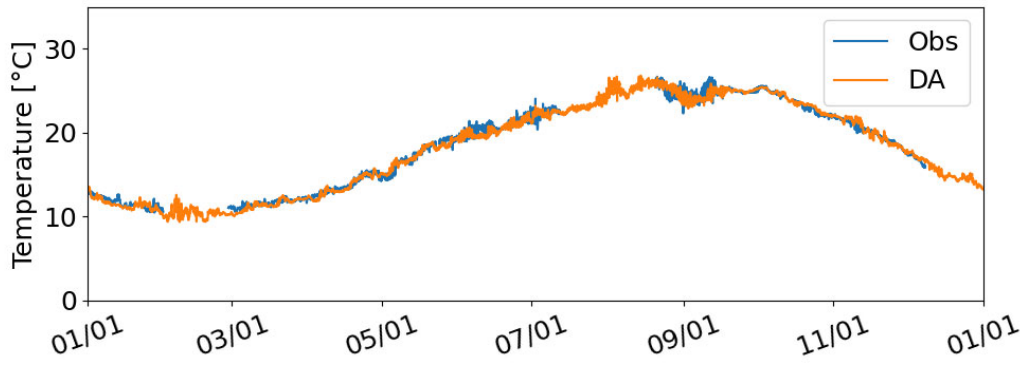
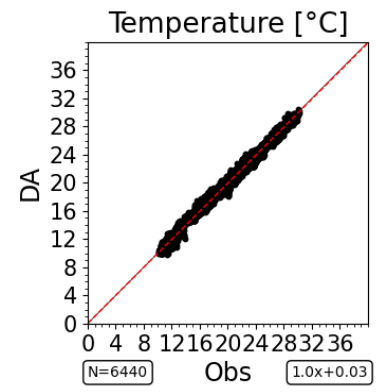


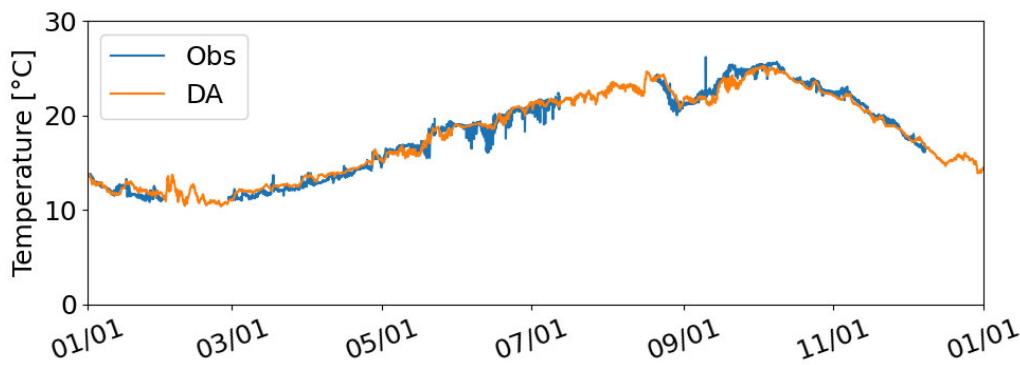
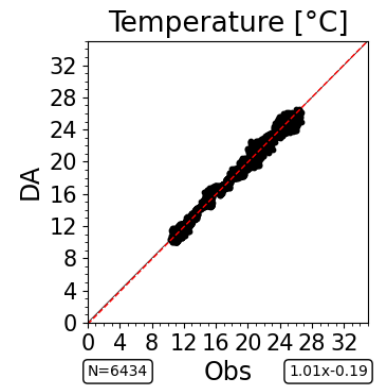
Figure S113 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

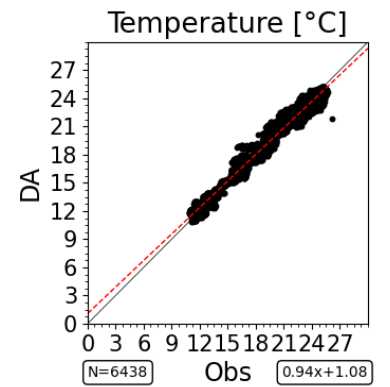
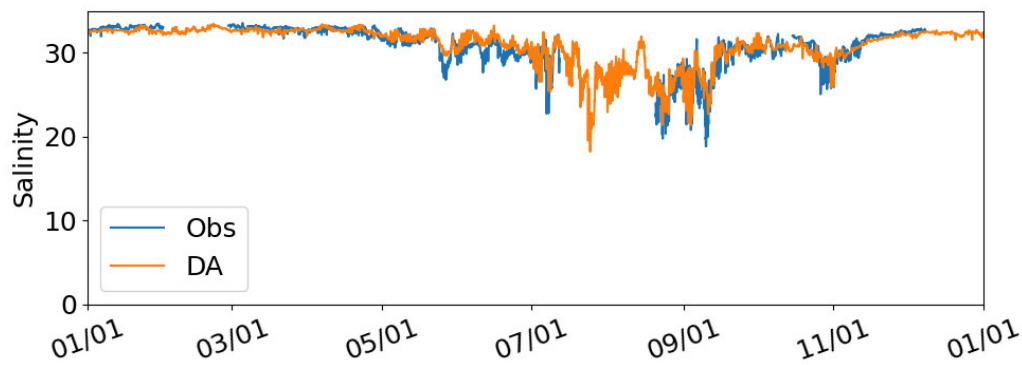
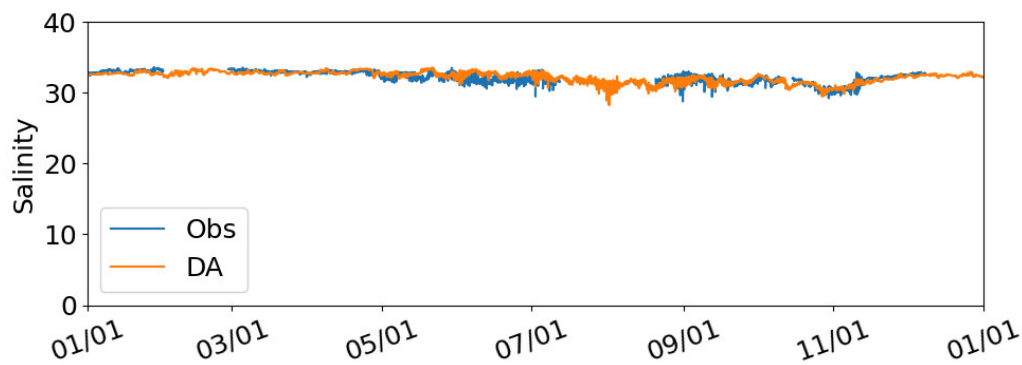
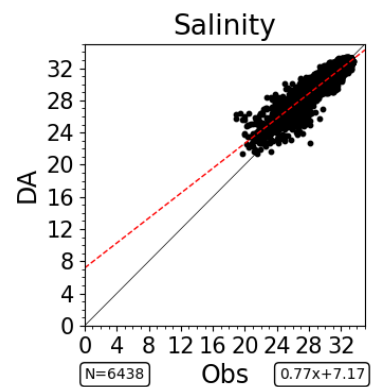


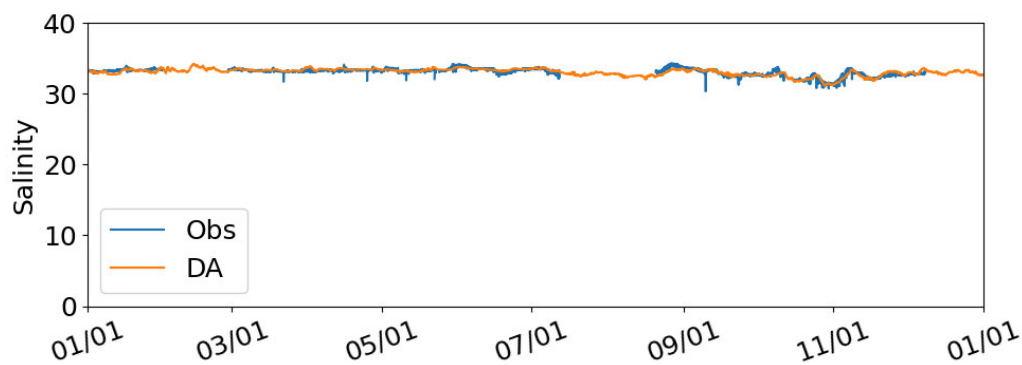
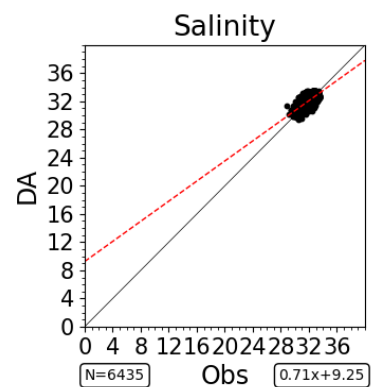
Figure S114 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

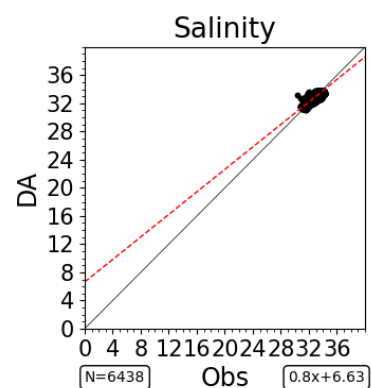
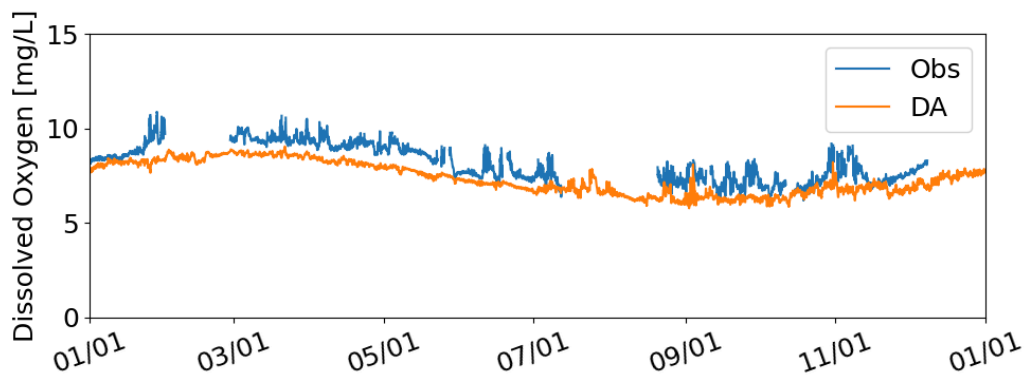
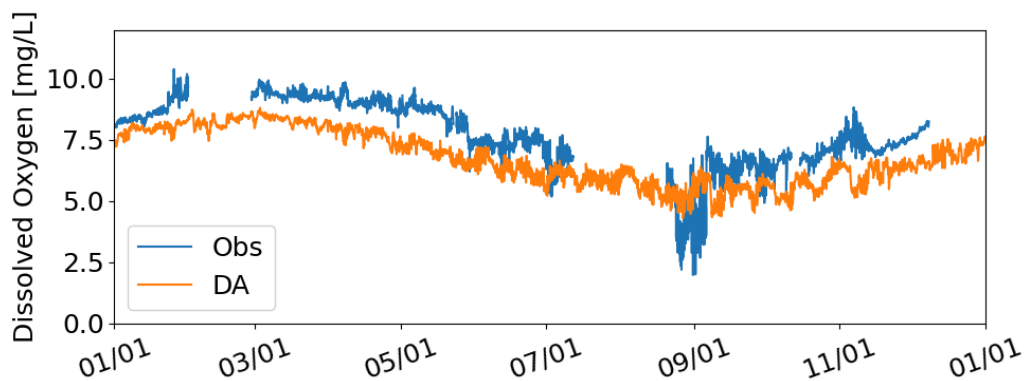
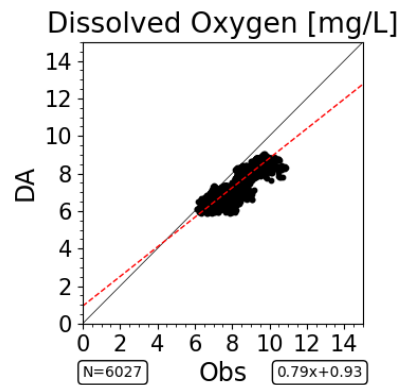


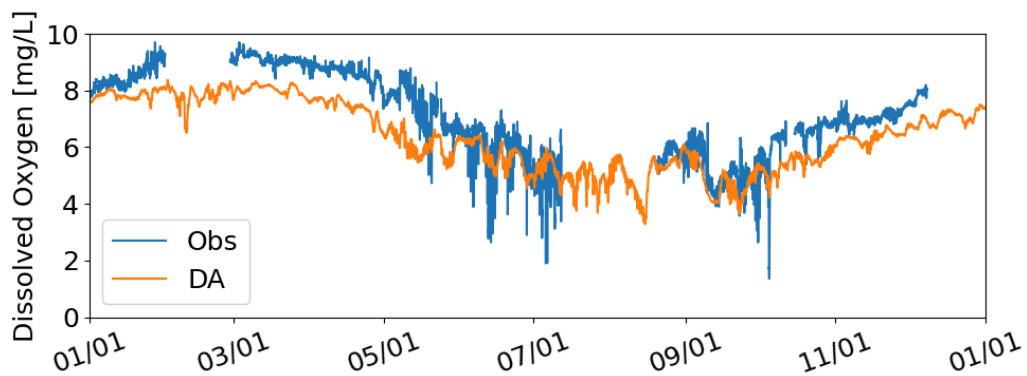
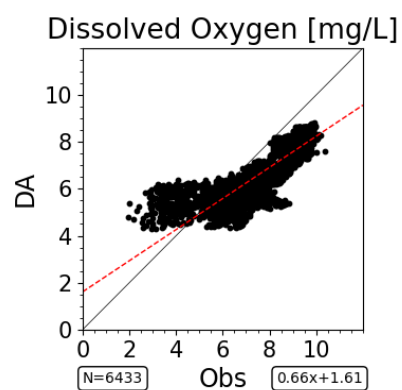
Figure S115 Timeseries and scatter plot for salinity at Center of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

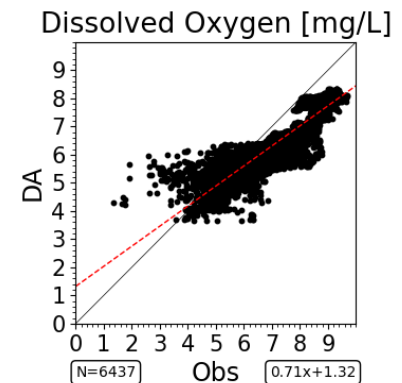
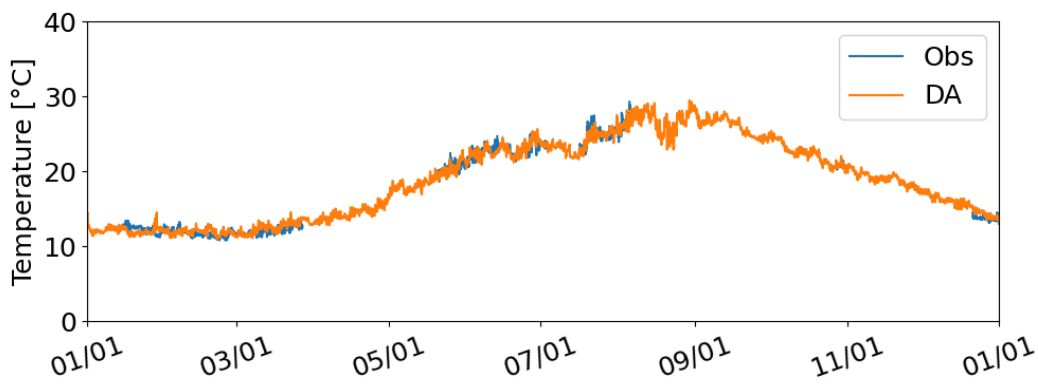
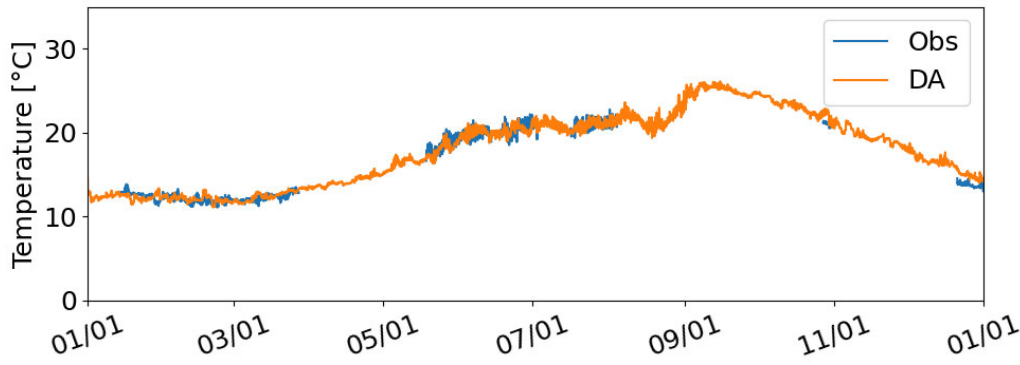
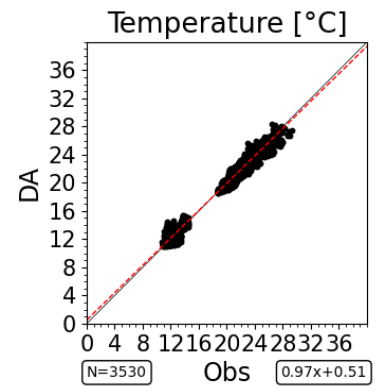


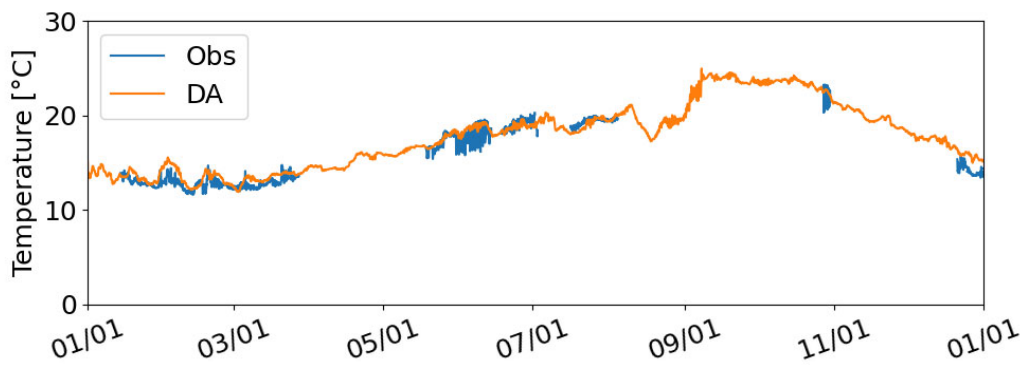
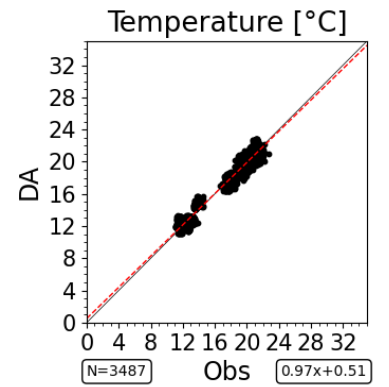
Figure S116 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

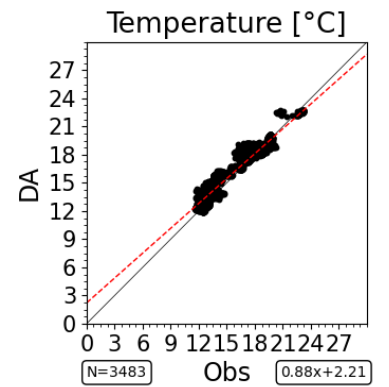
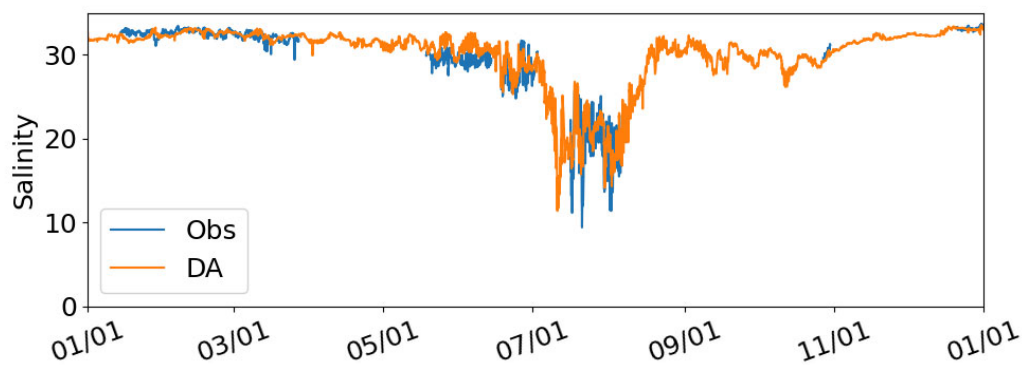
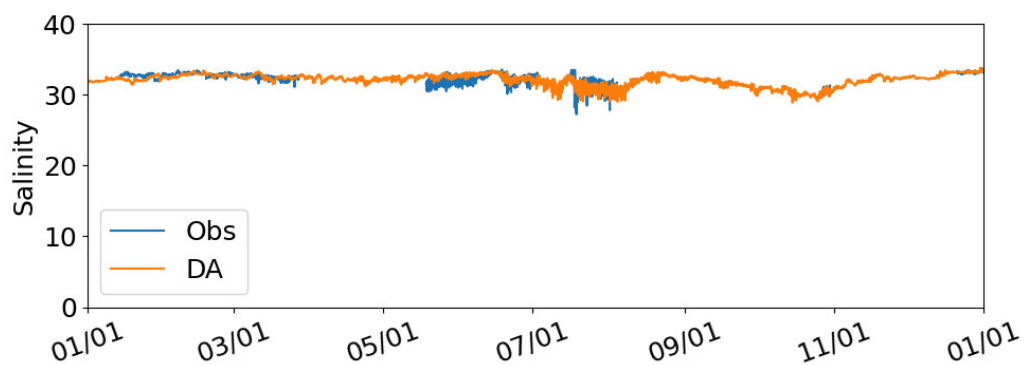
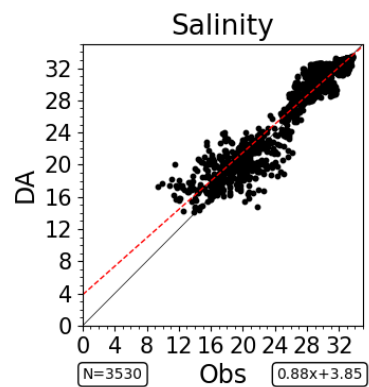


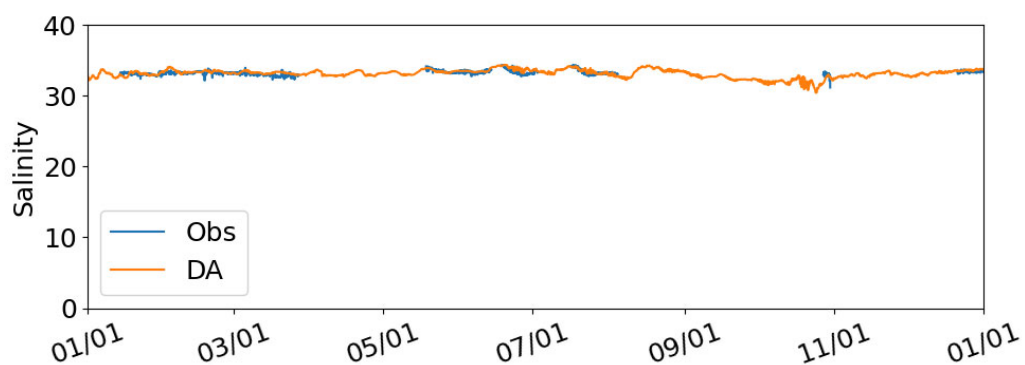
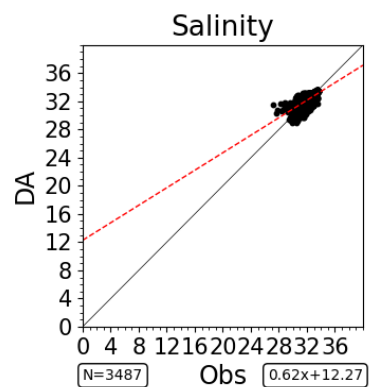
Figure S117 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

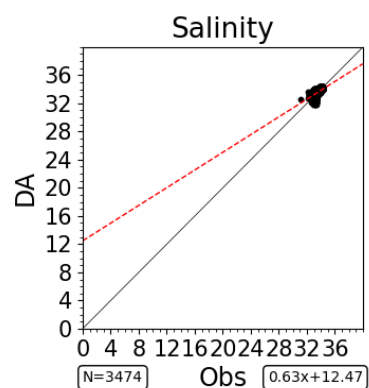
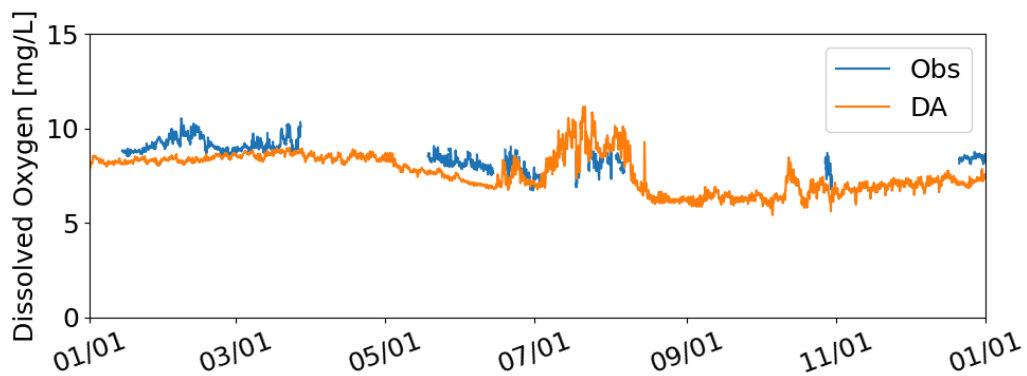
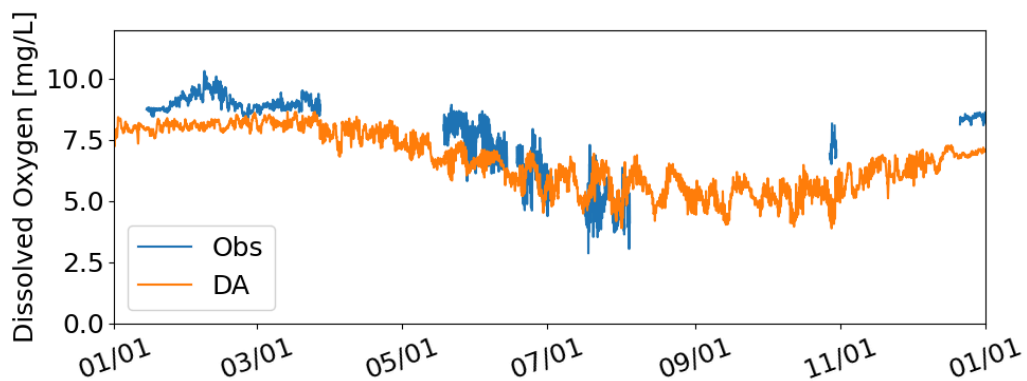
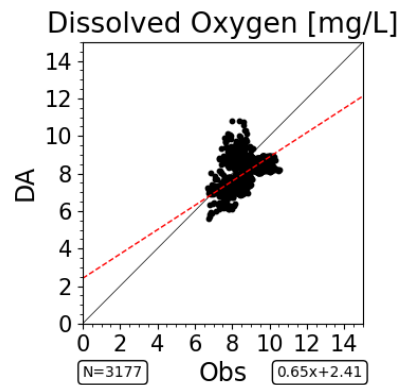


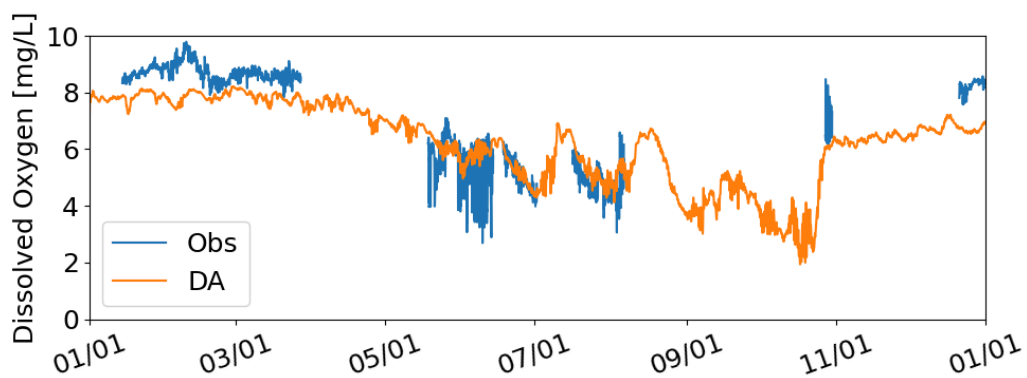
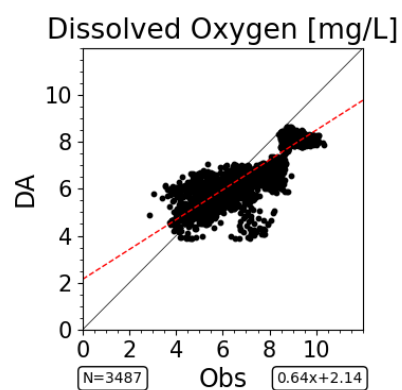
Figure S118 Timeseries and scatter plot for salinity at Center of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

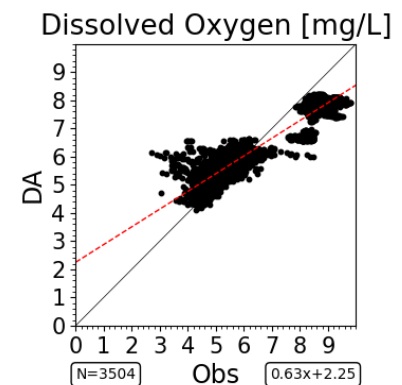
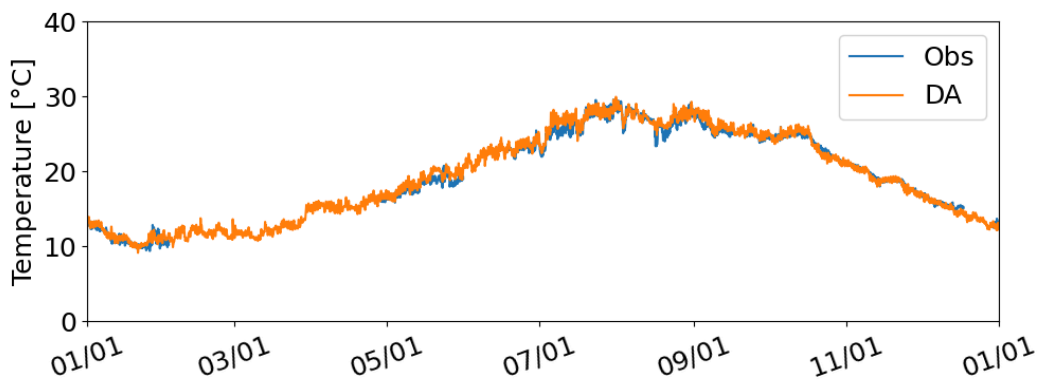
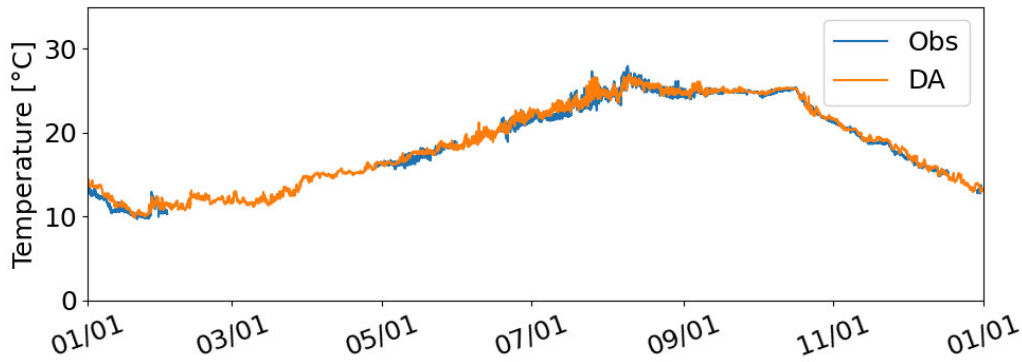
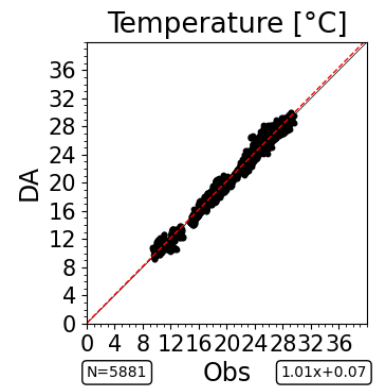


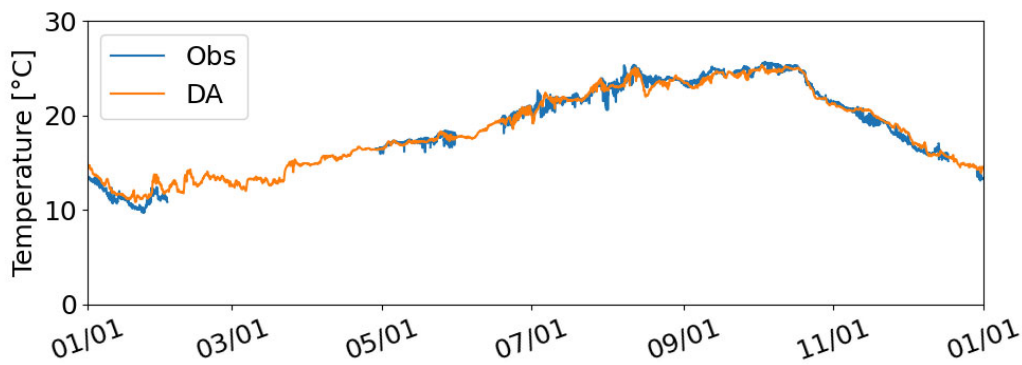
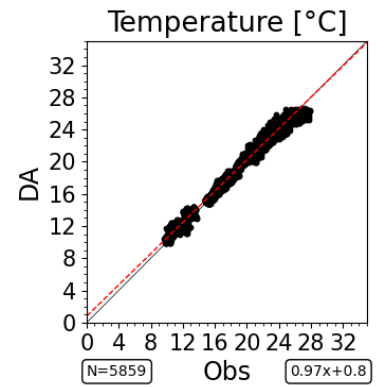
Figure S119 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

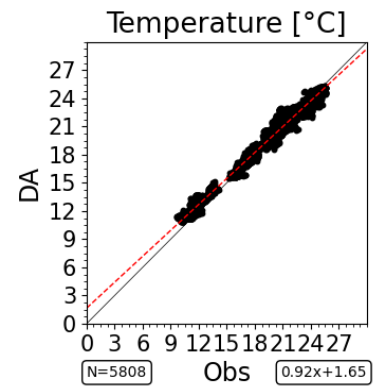
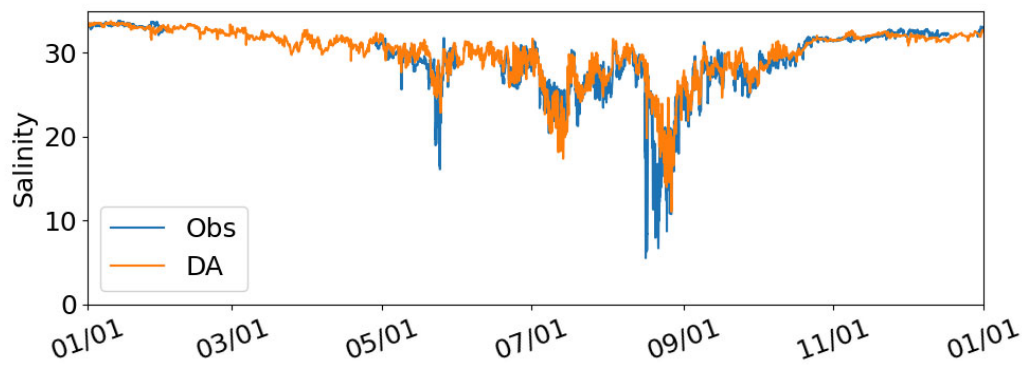
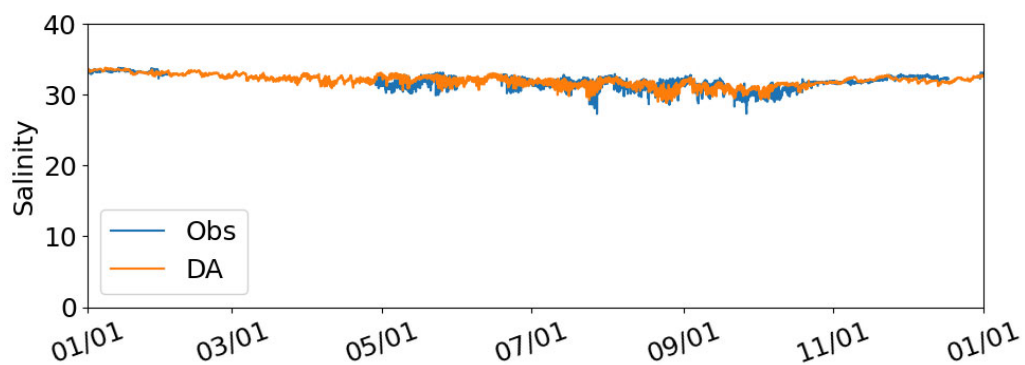
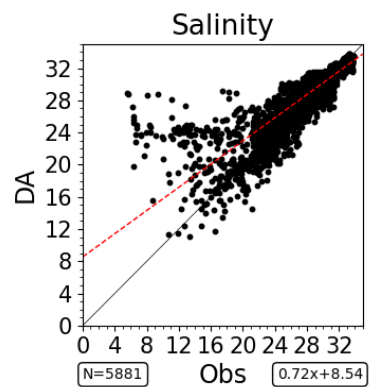


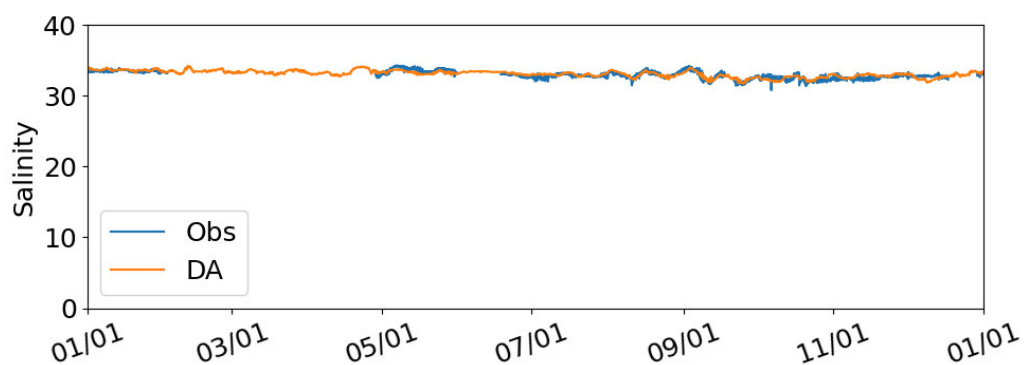
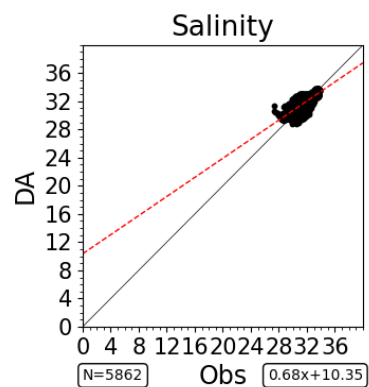
Figure S120 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

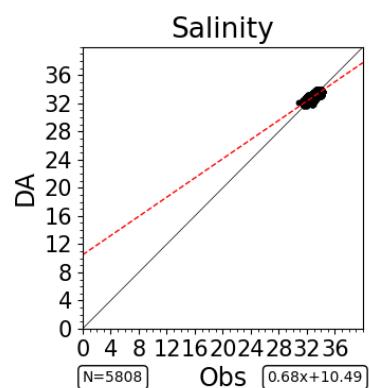
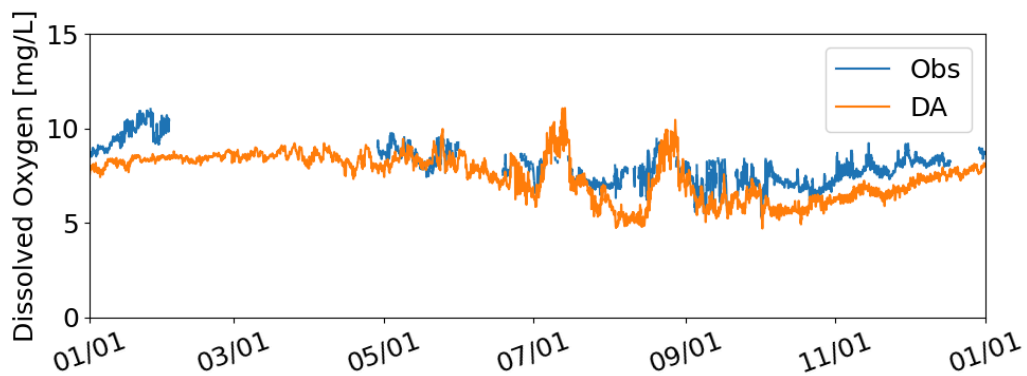
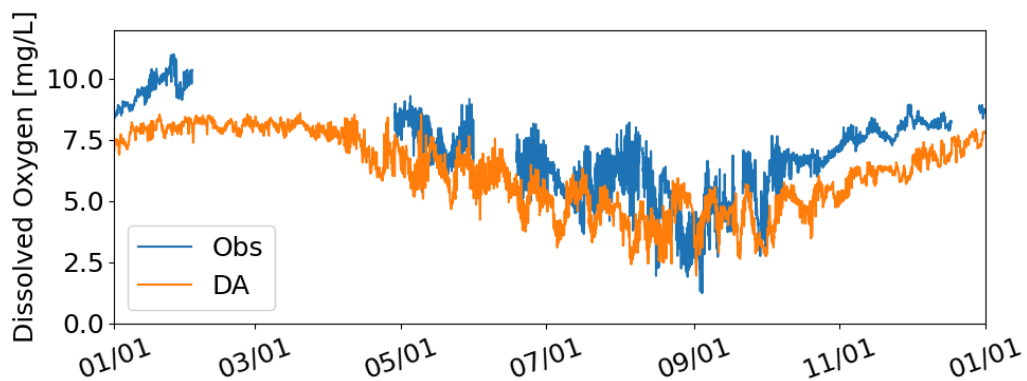
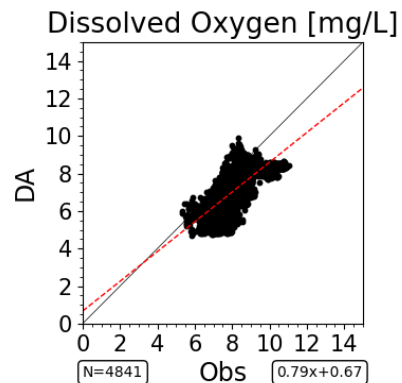


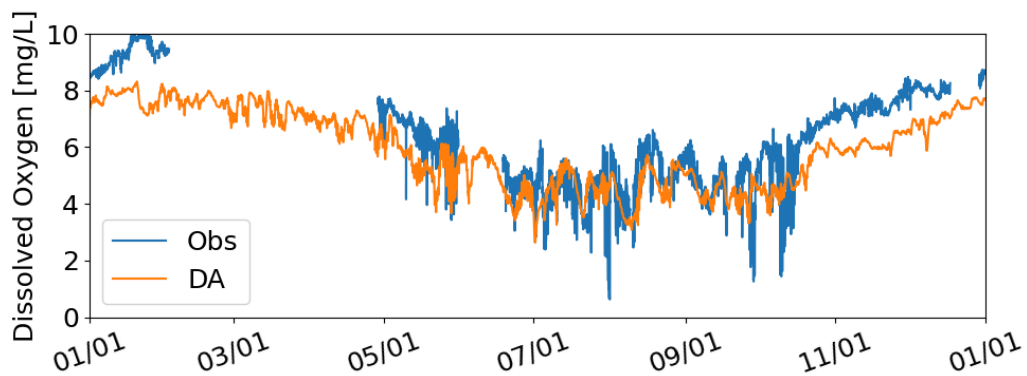
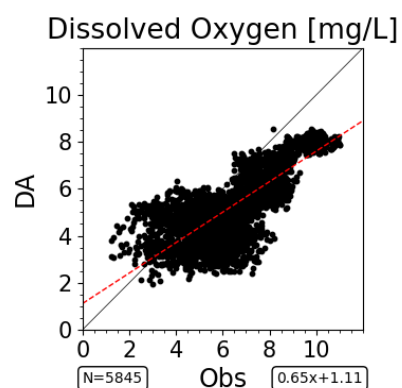
Figure S121 Timeseries and scatter plot for salinity at Center of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

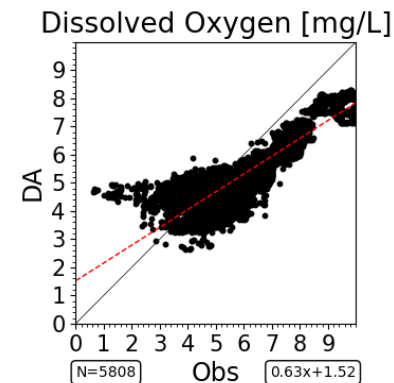
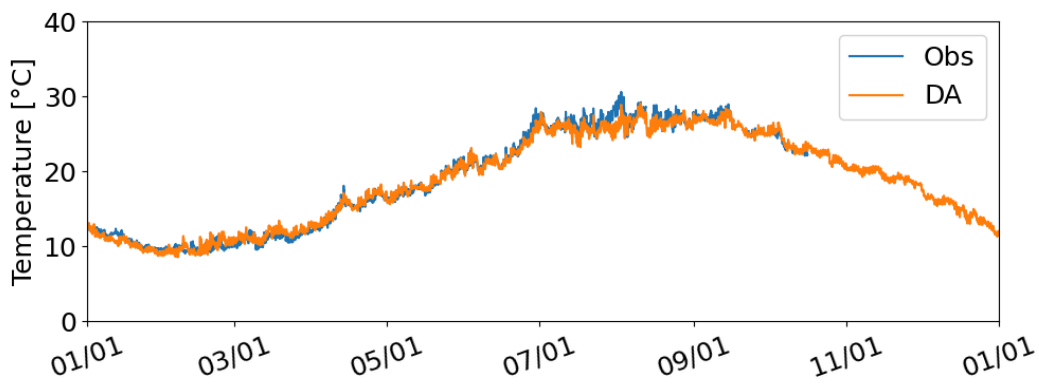
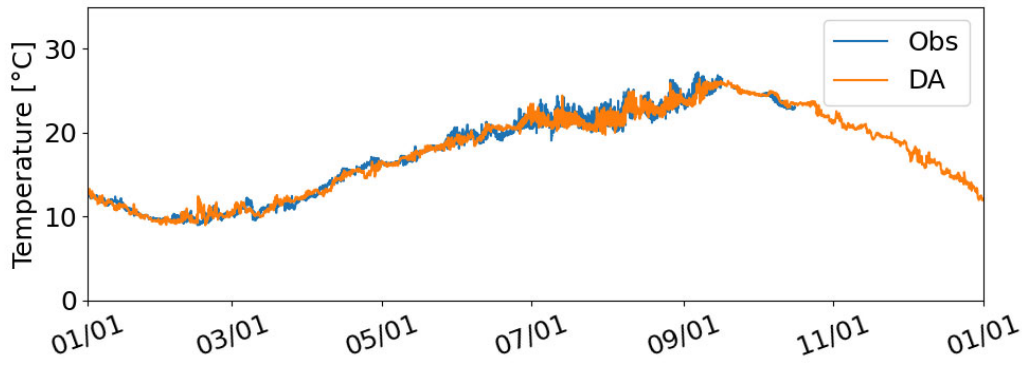
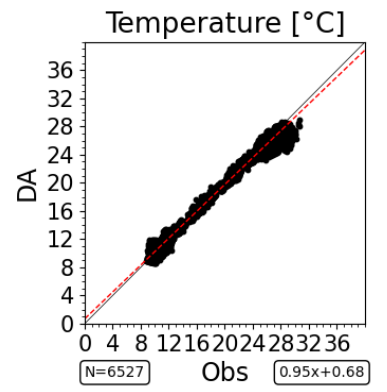


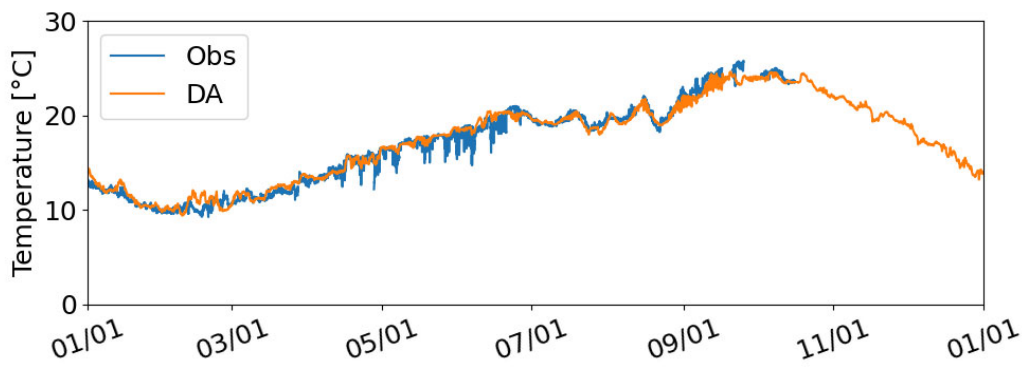
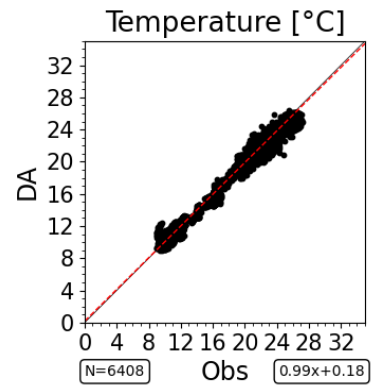
Figure S122 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

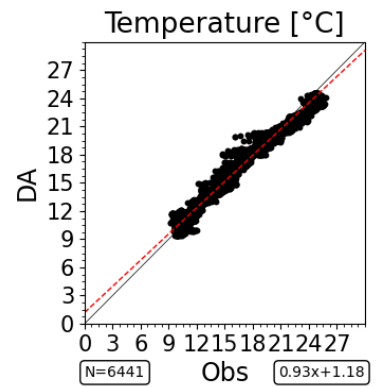
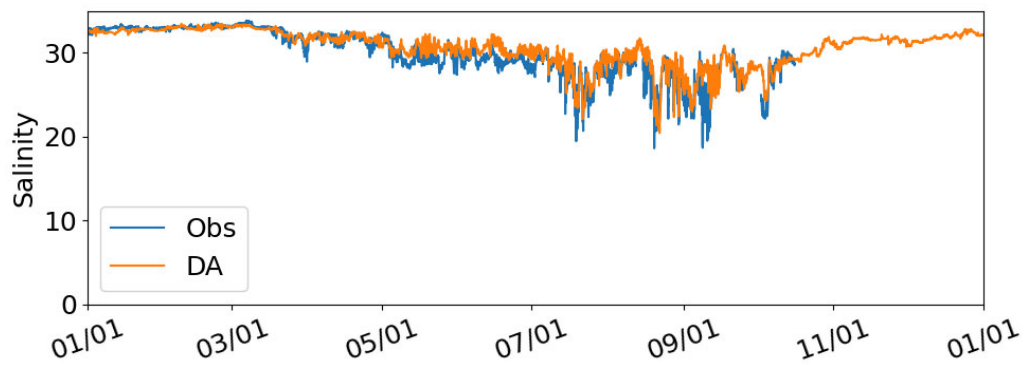
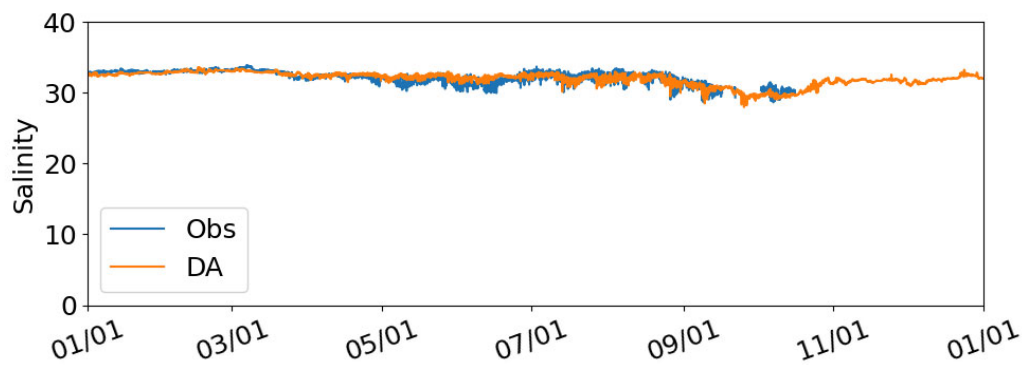
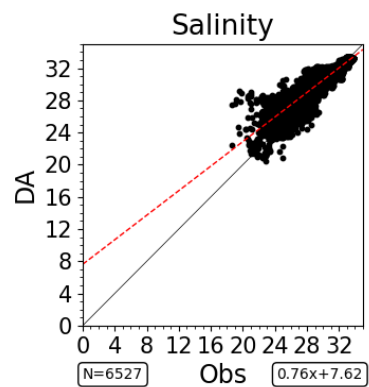


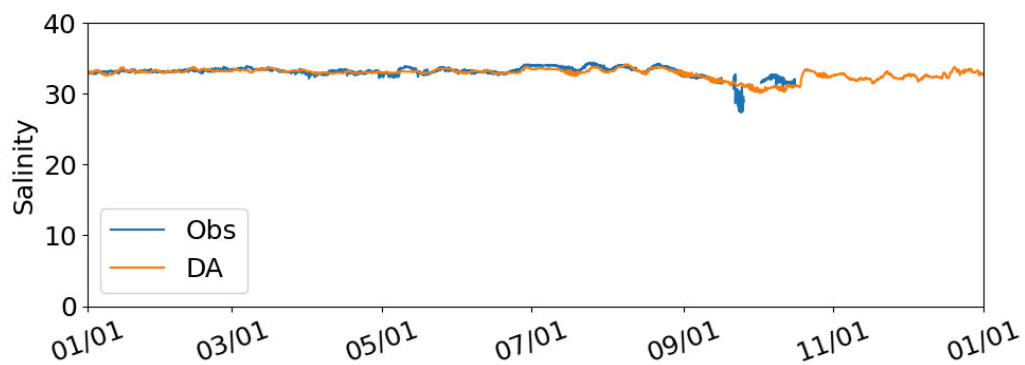
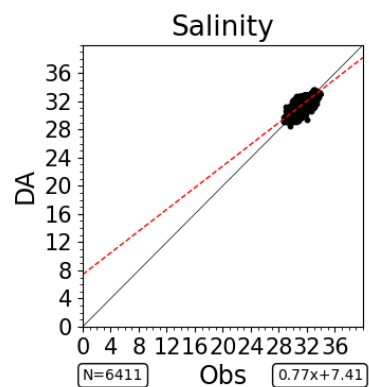
Figure S123 Timeseries and scatter plot for water temperature at Center of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

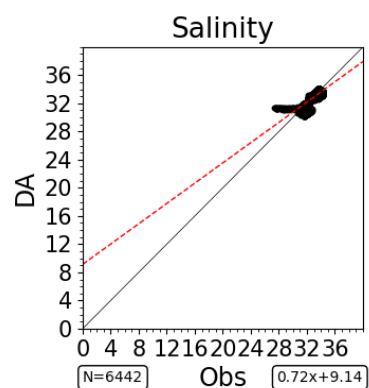
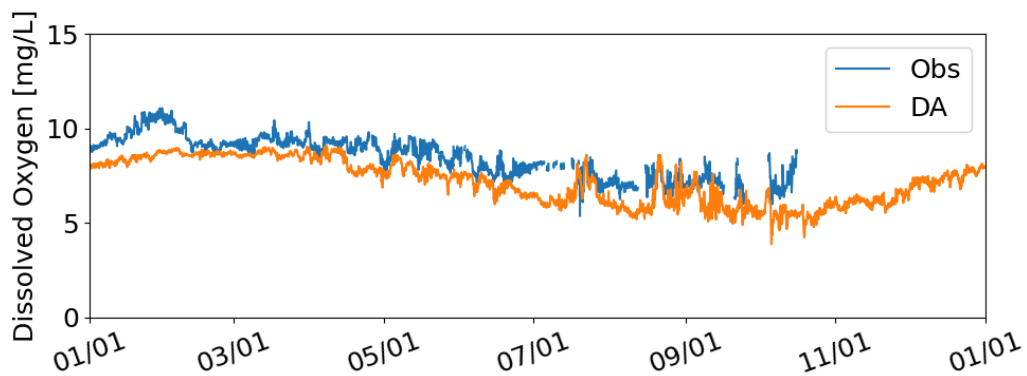
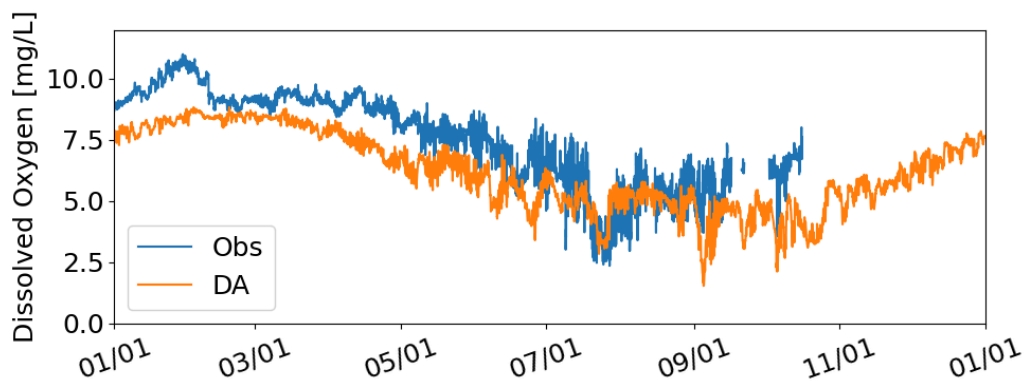
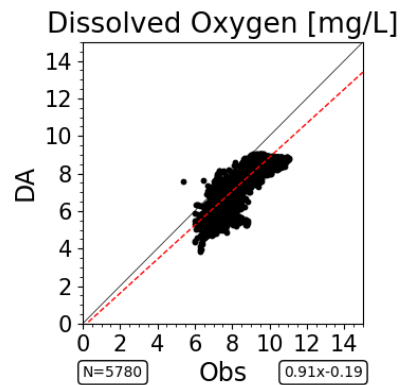


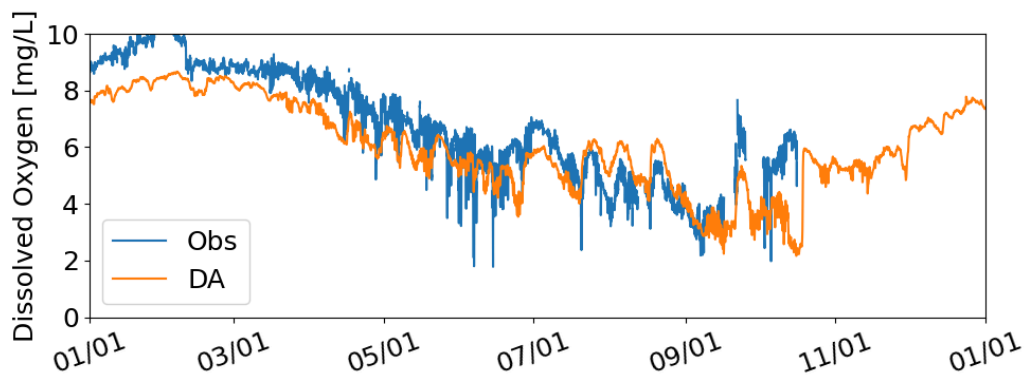
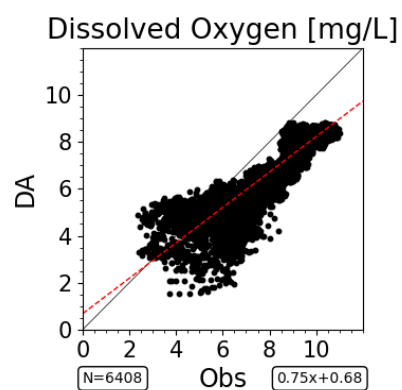
Figure S124 Timeseries and scatter plot for salinity at Center of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

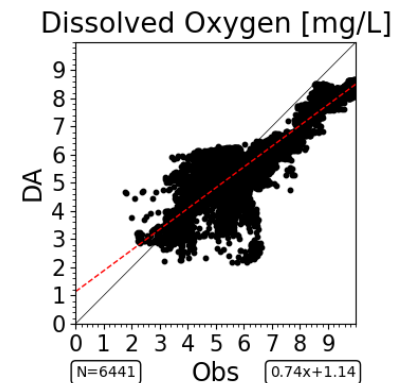


Figure S125 Timeseries and scatter plot for dissolved oxygen at Center of Ise Bay in 2022

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

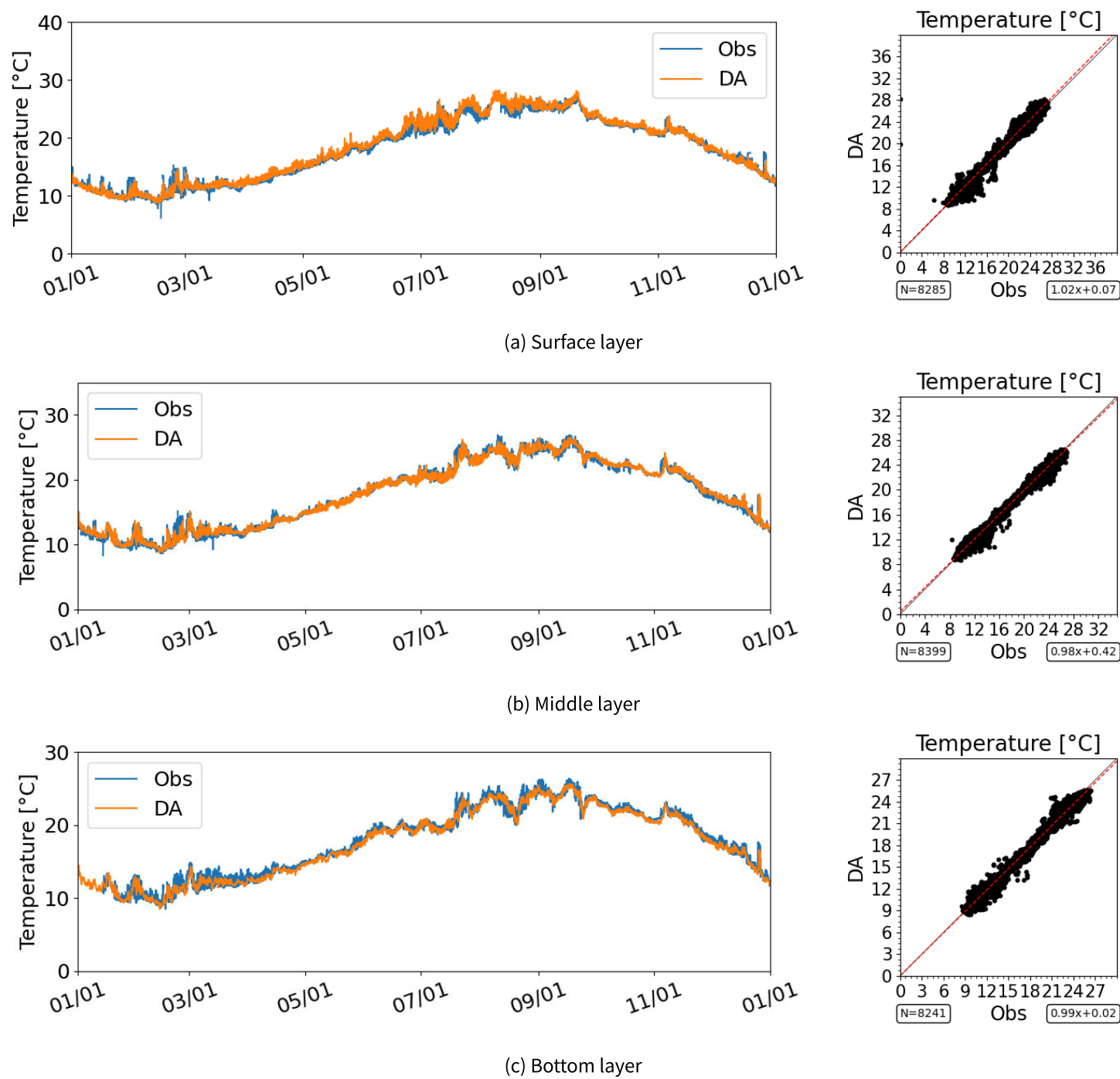
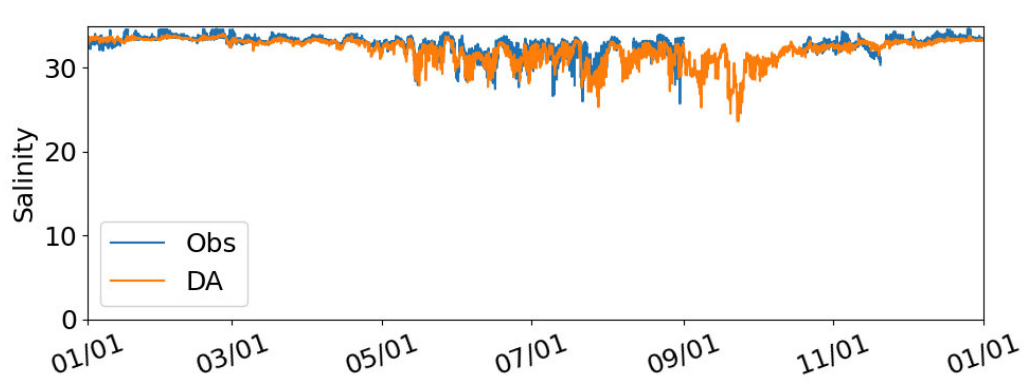
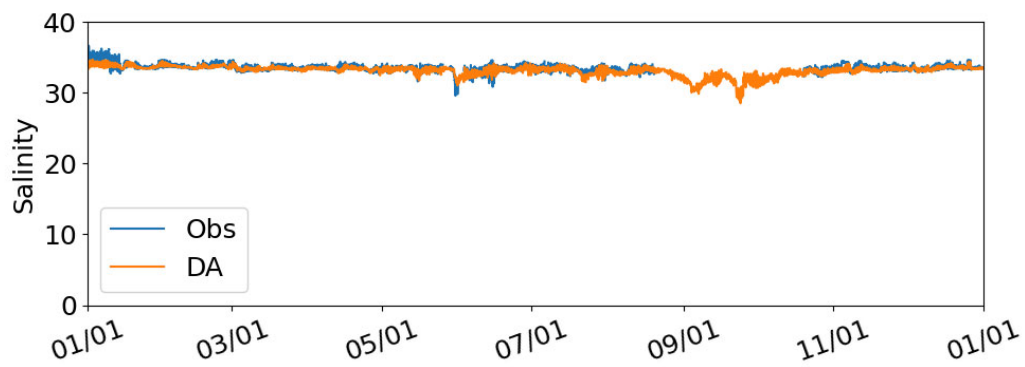
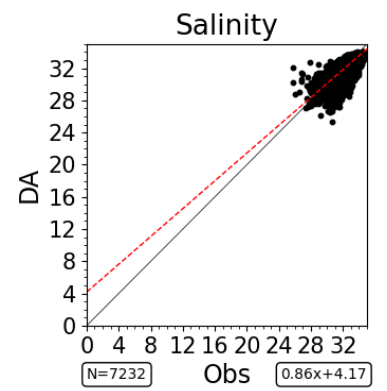


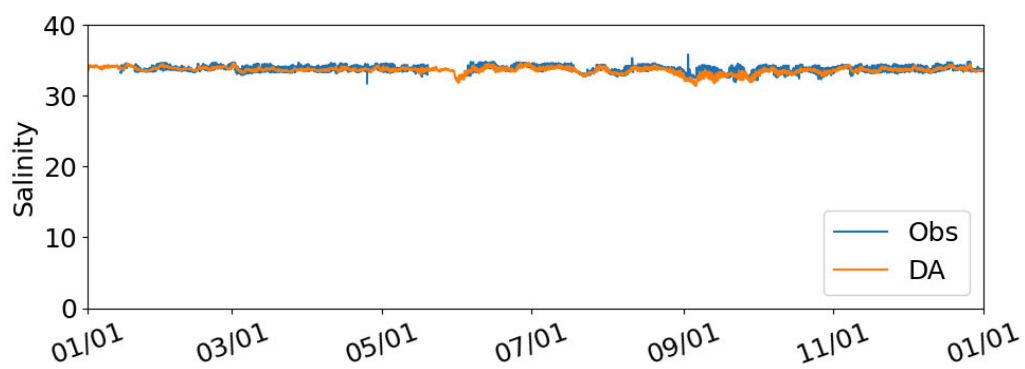
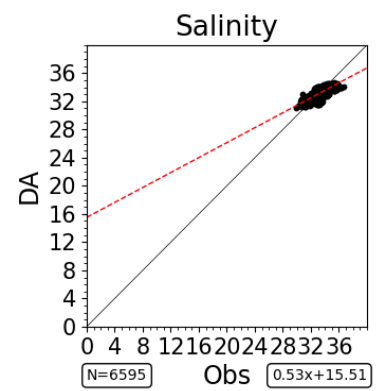
Figure S126 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

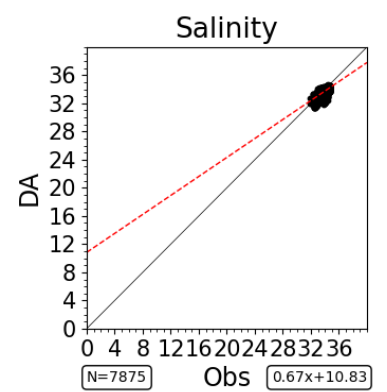
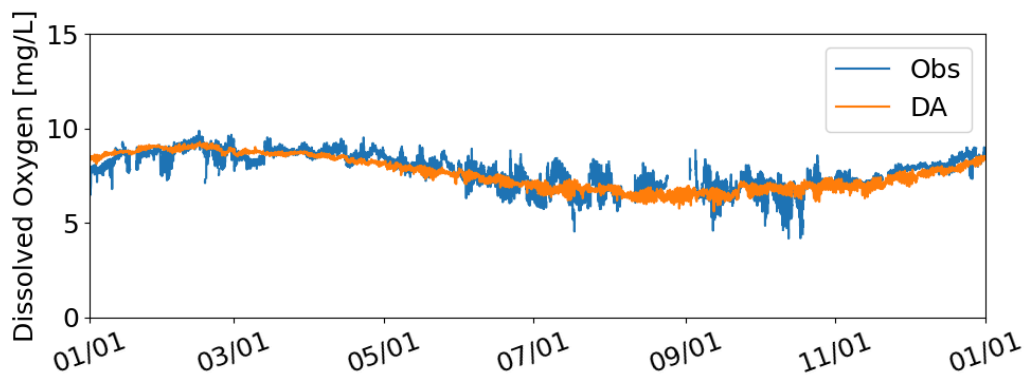
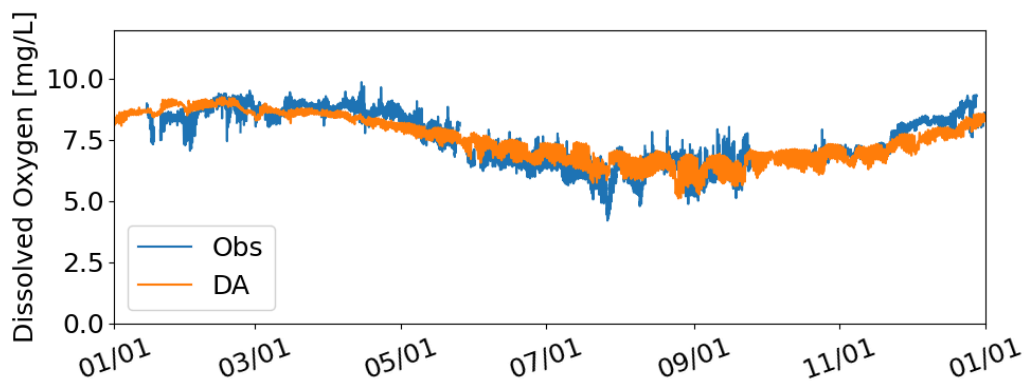
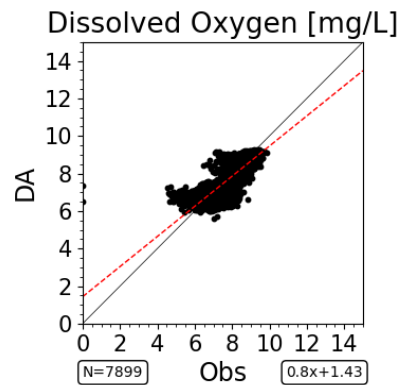


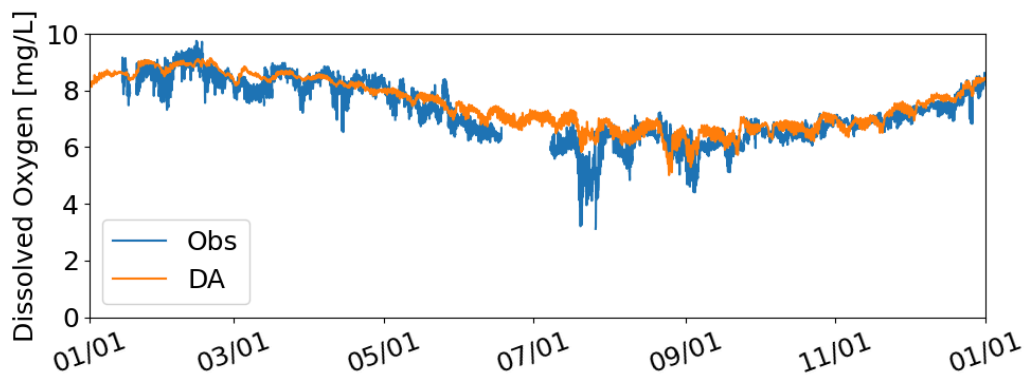
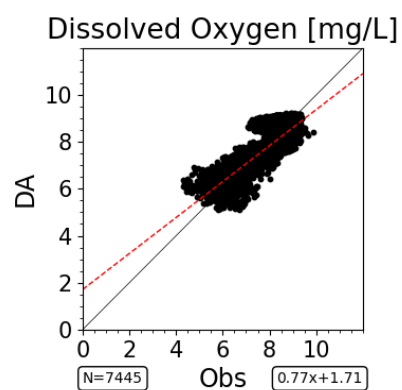
Figure S127 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

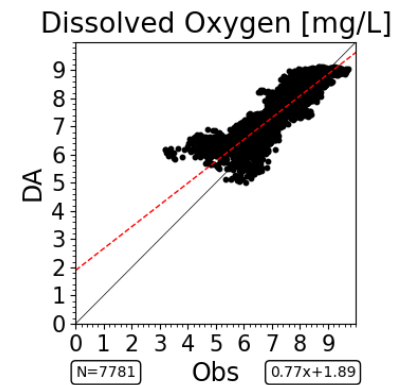
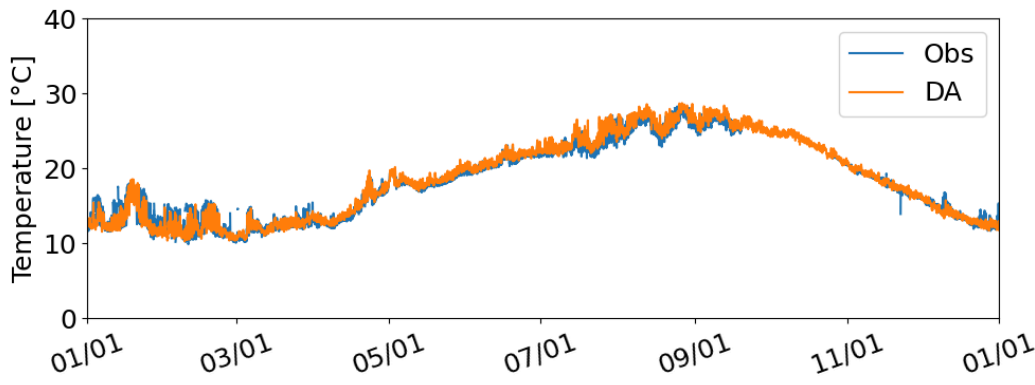
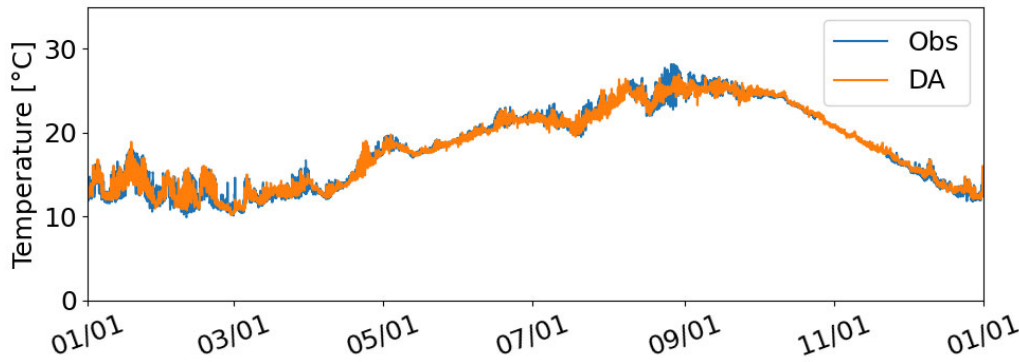
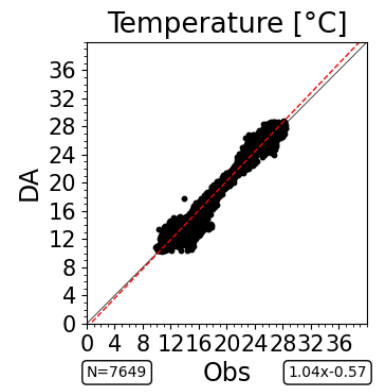


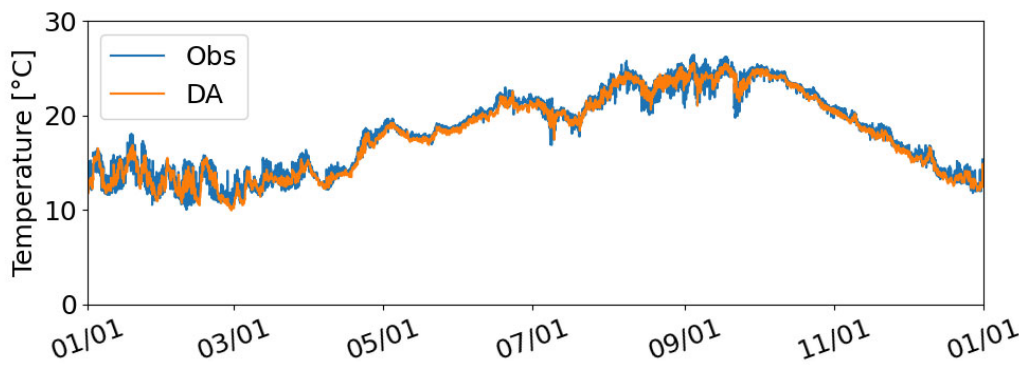
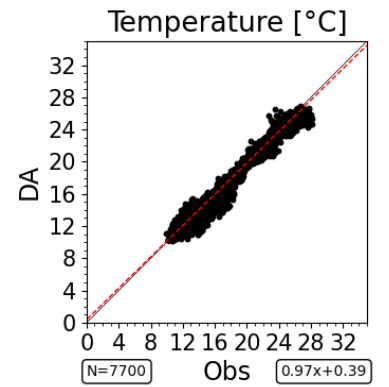
Figure S128 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

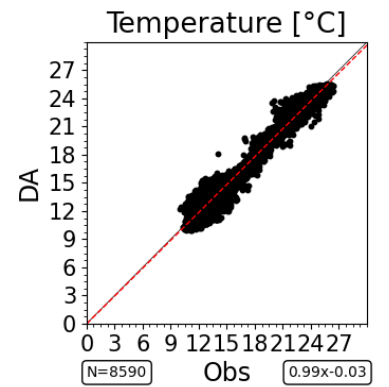
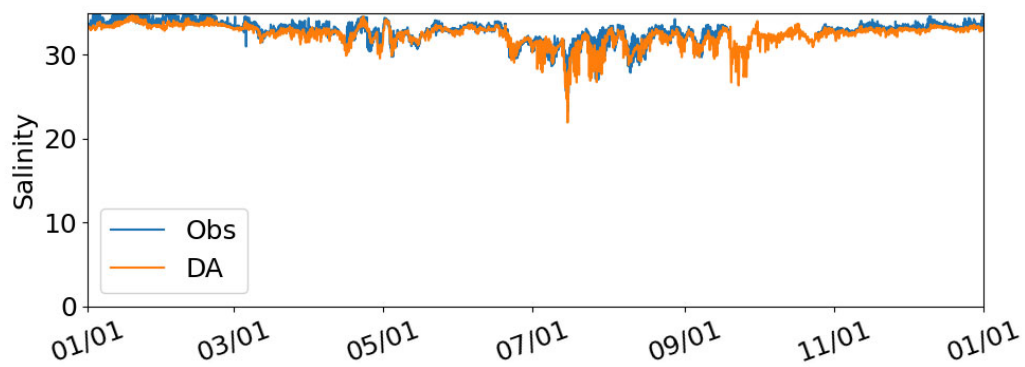
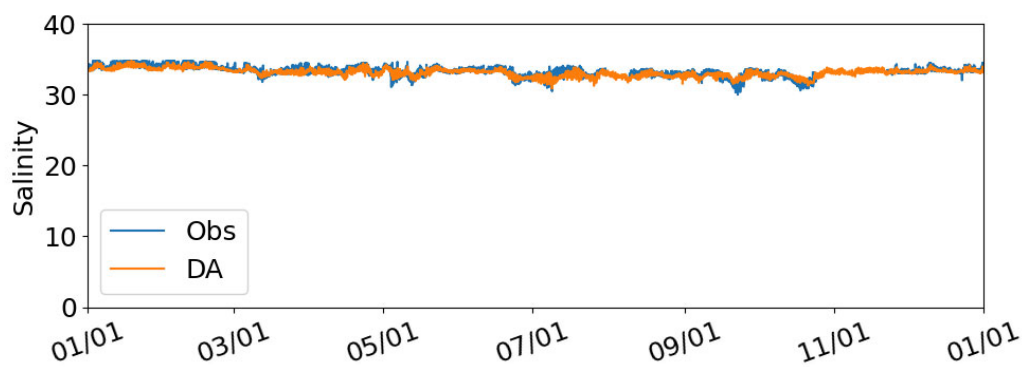
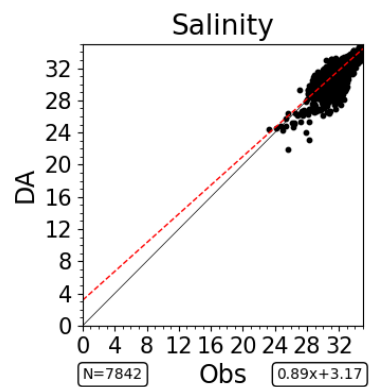


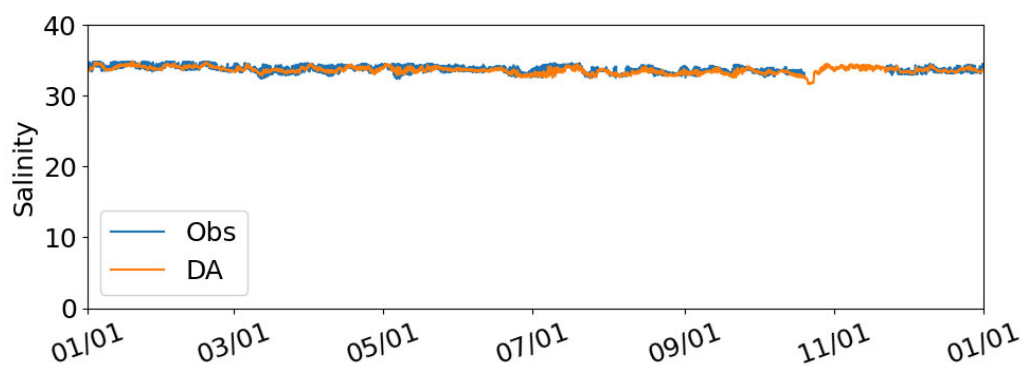
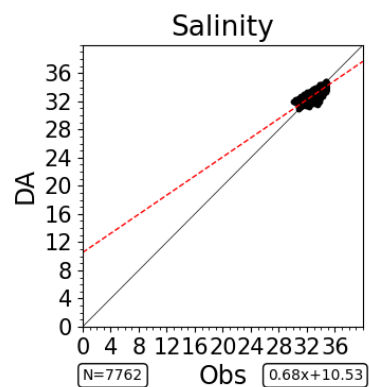
Figure S129 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

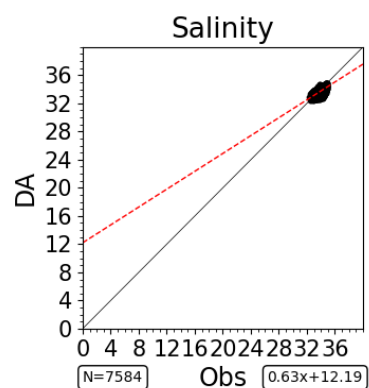
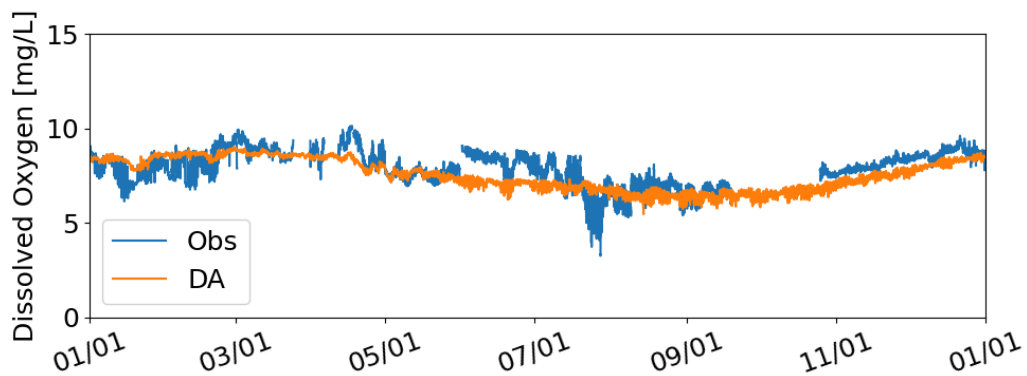
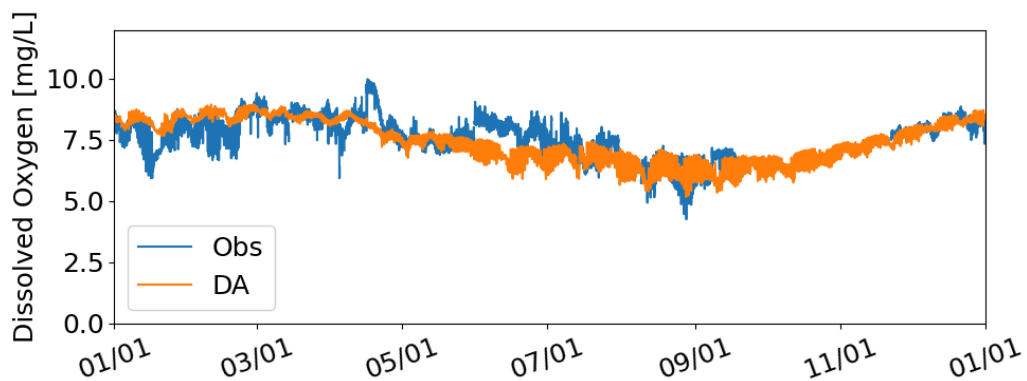
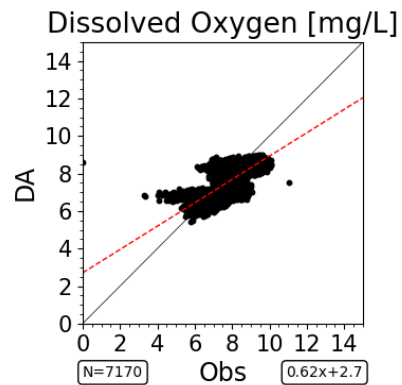


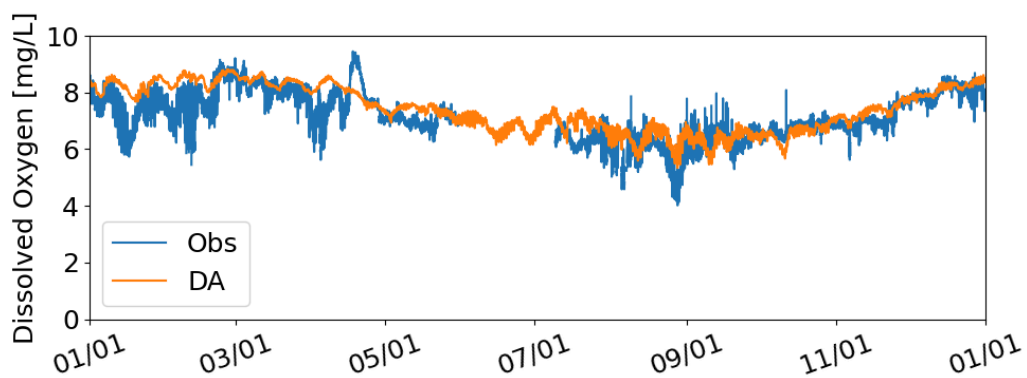
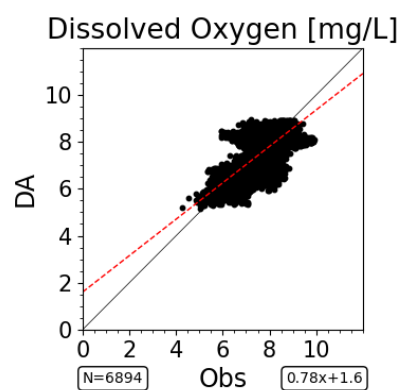
Figure S130 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

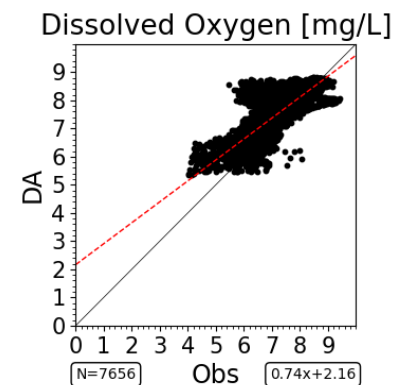
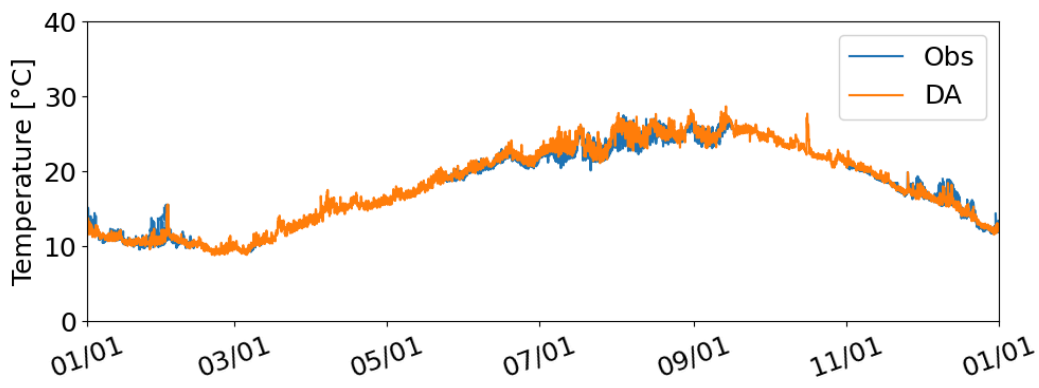
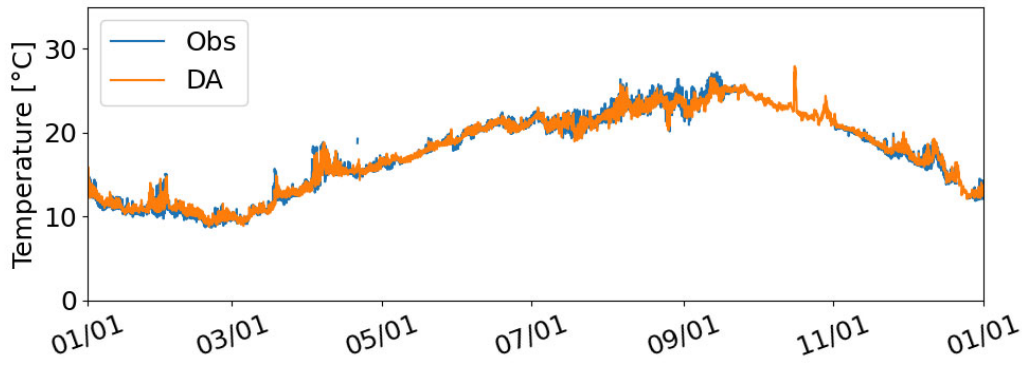
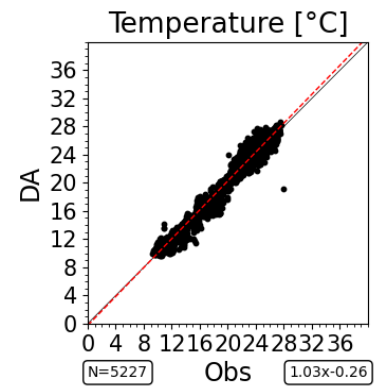


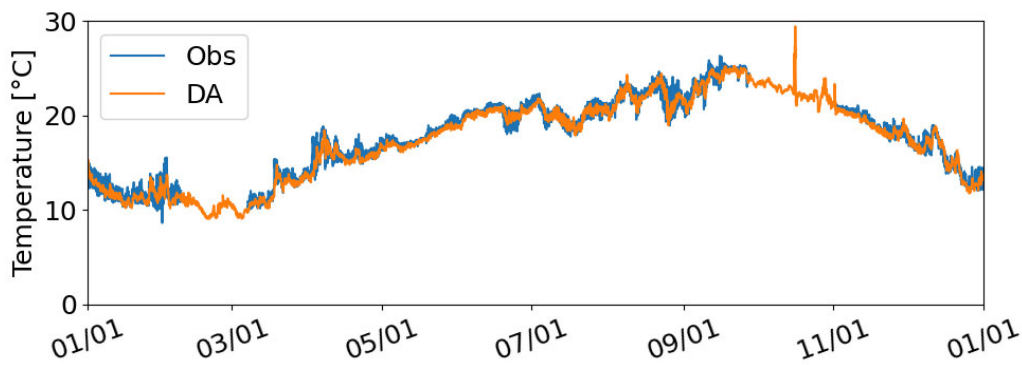
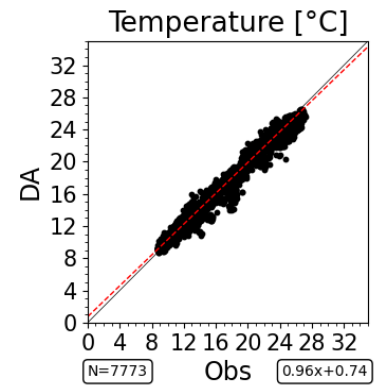
Figure S131 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

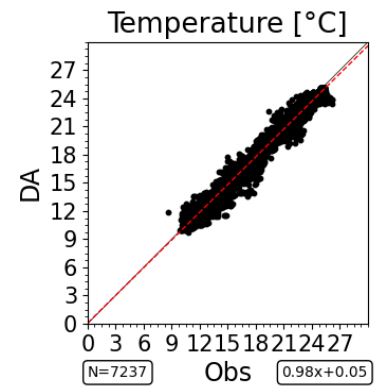
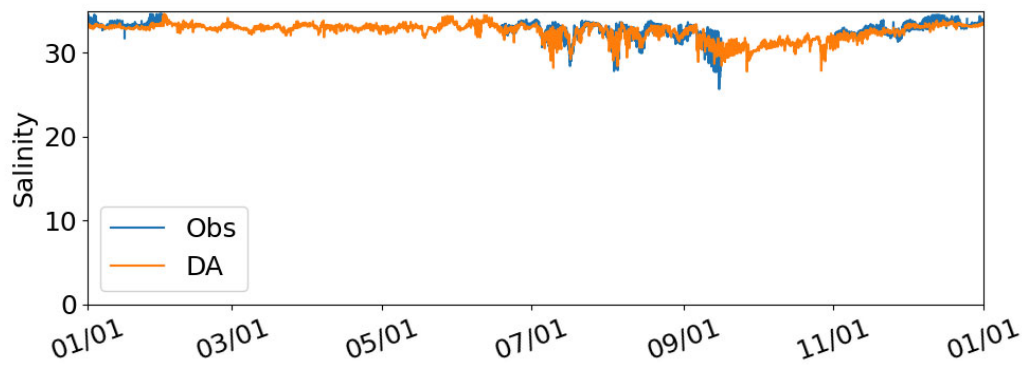
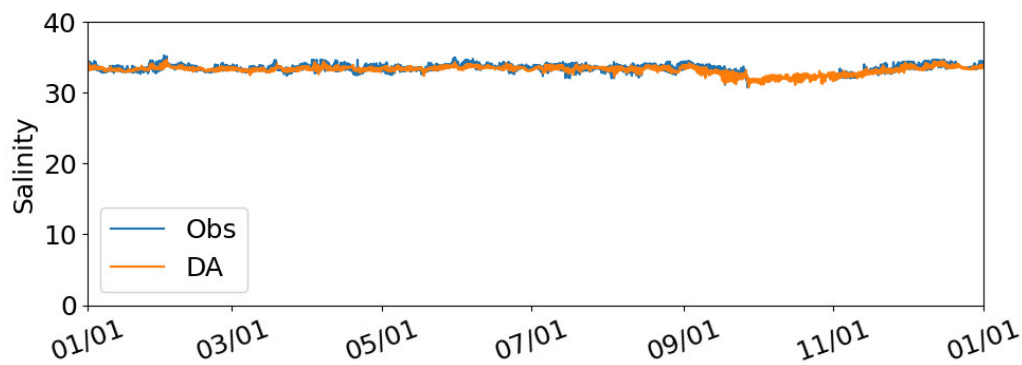
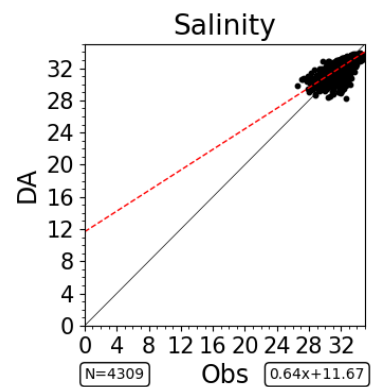


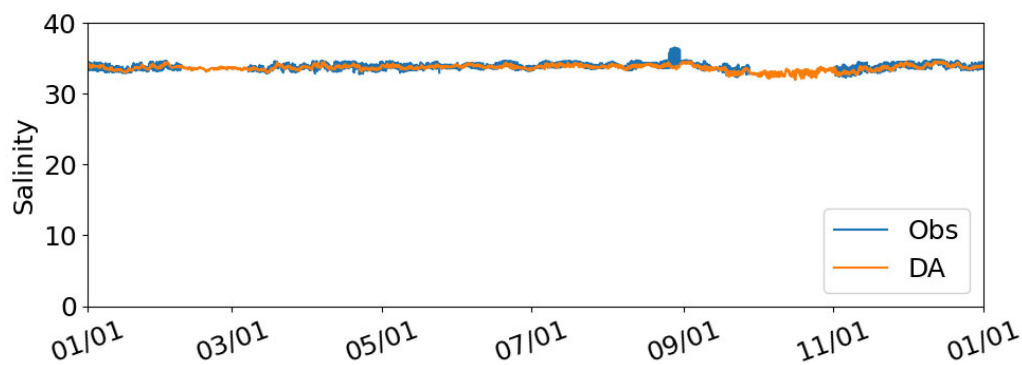
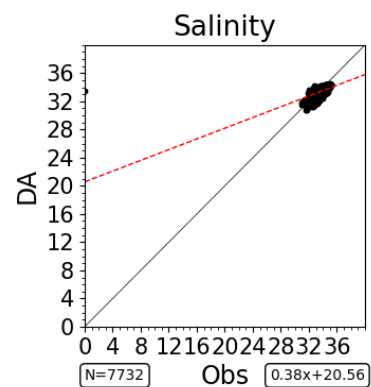
Figure S132 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

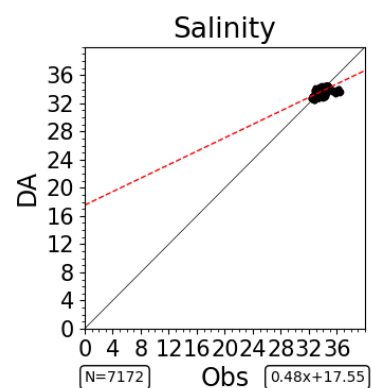
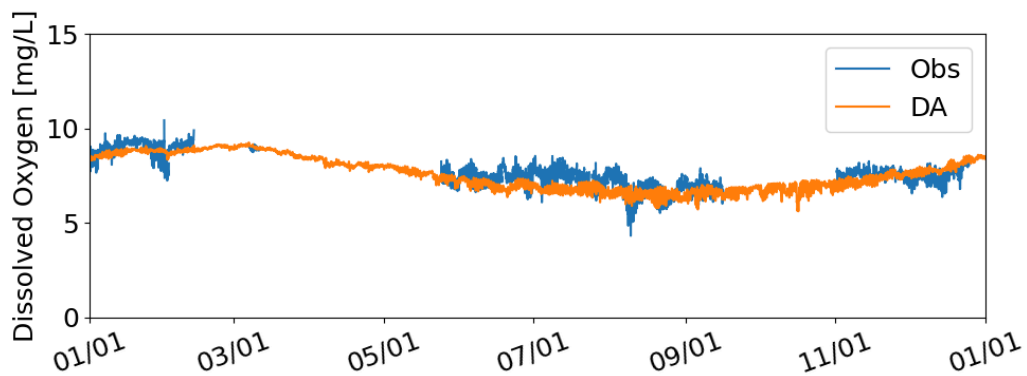
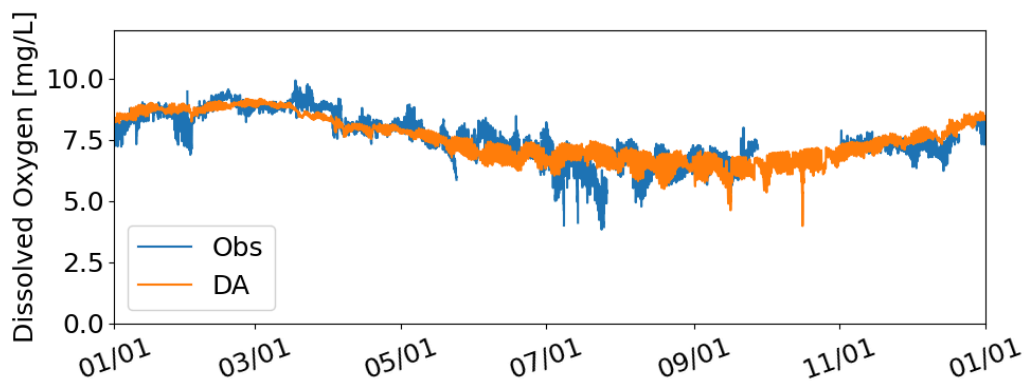
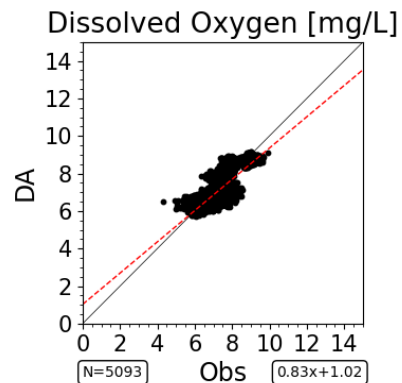


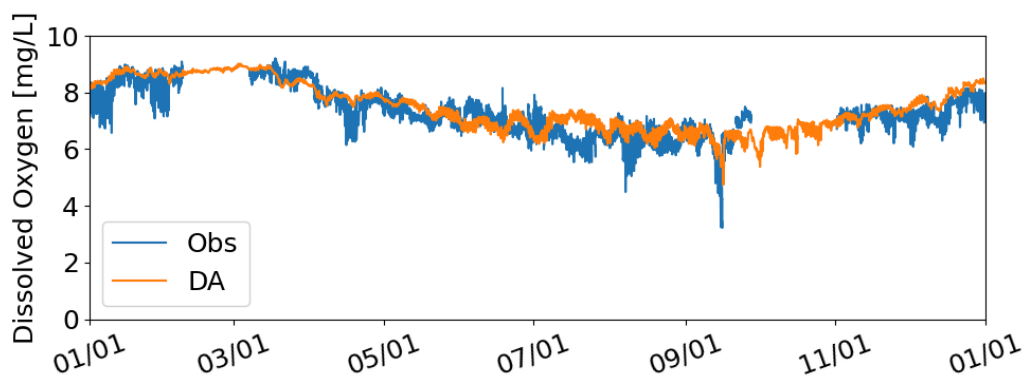
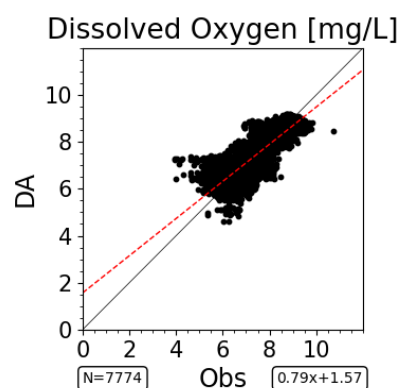
Figure S133 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

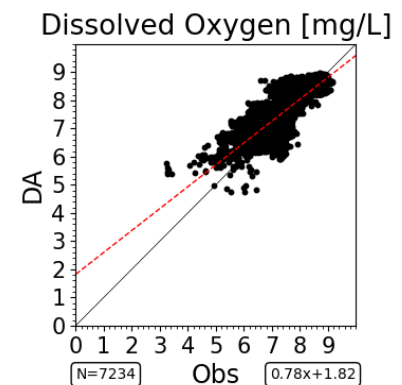
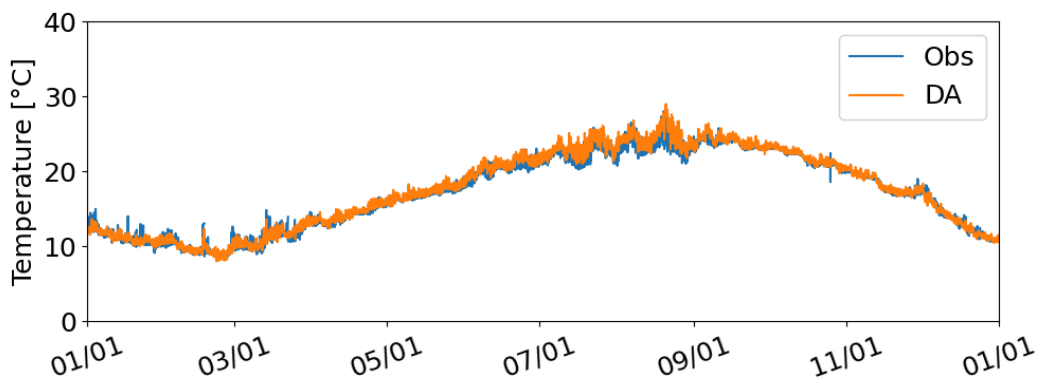
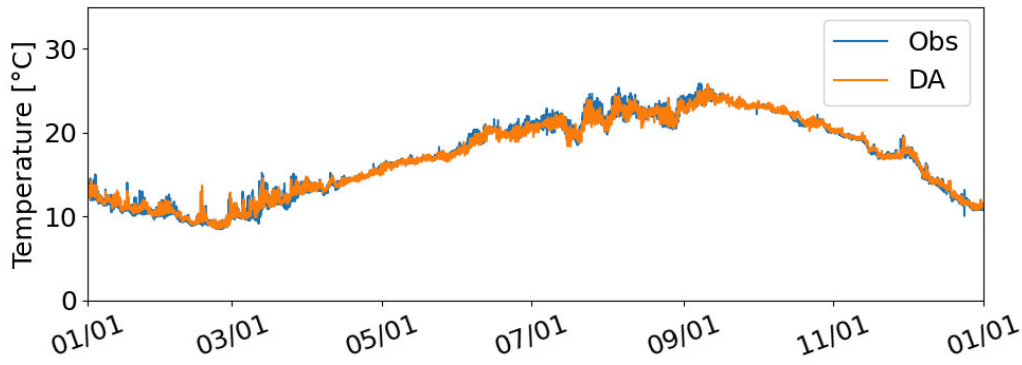
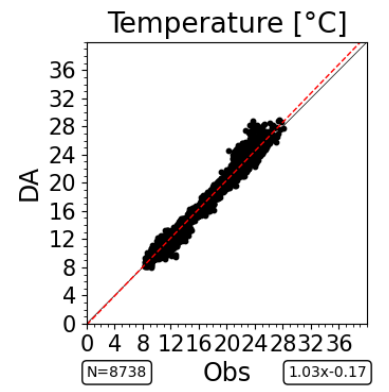


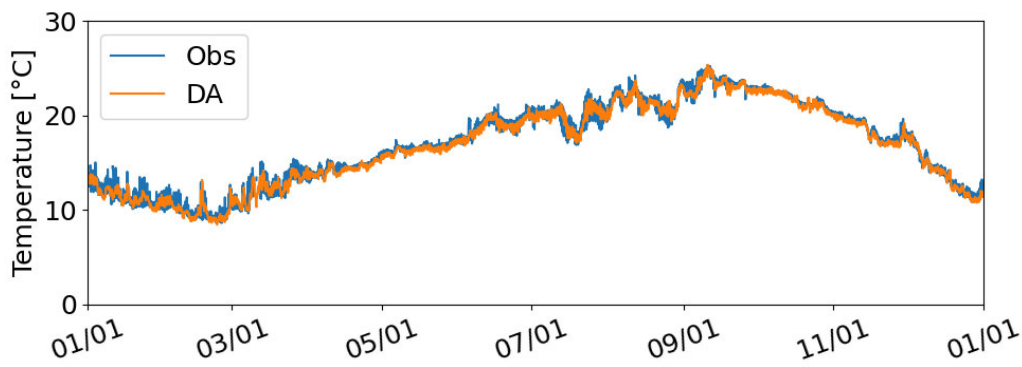
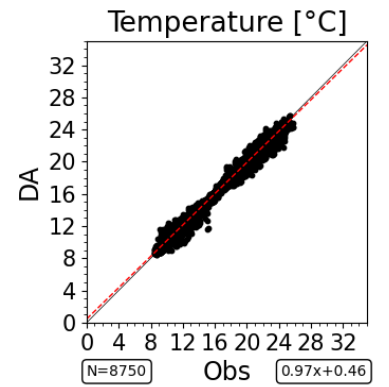
Figure S134 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

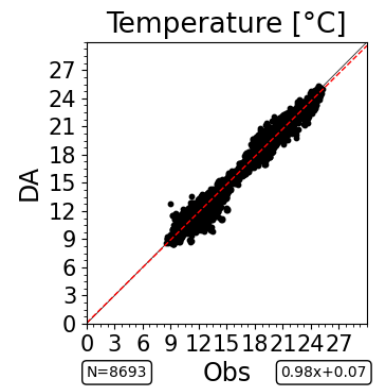
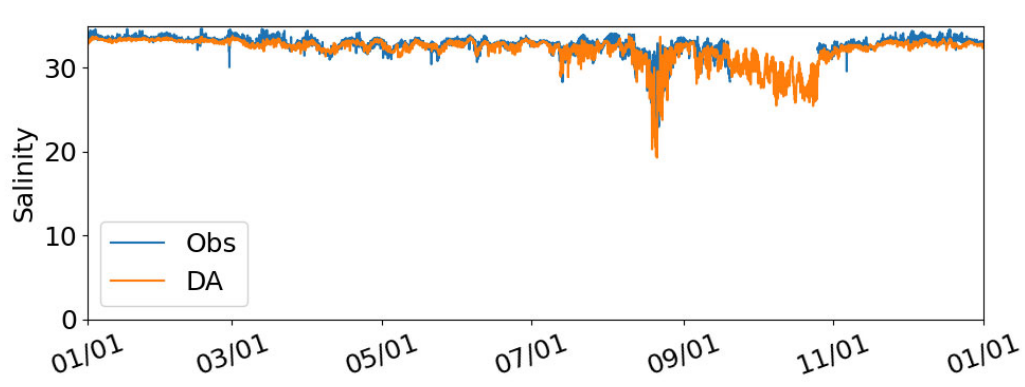
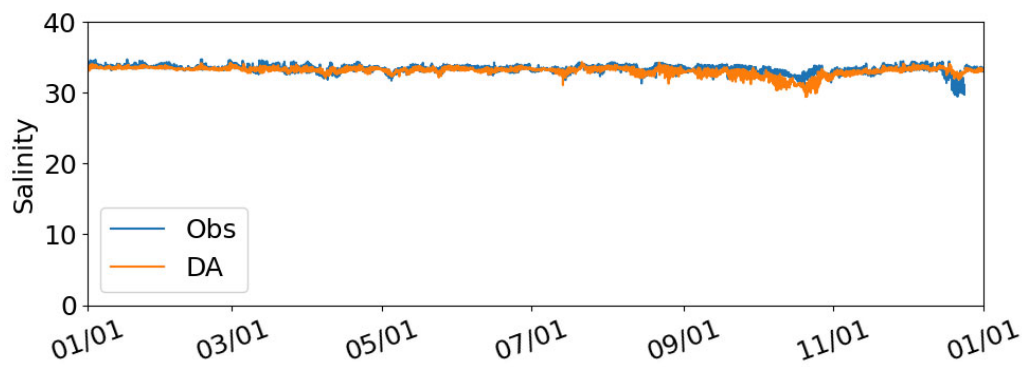
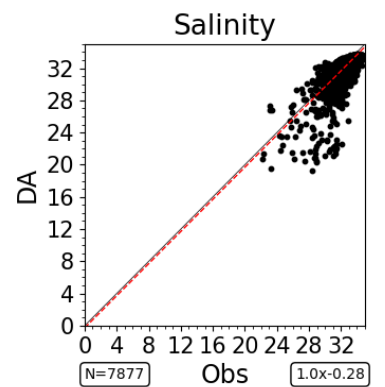


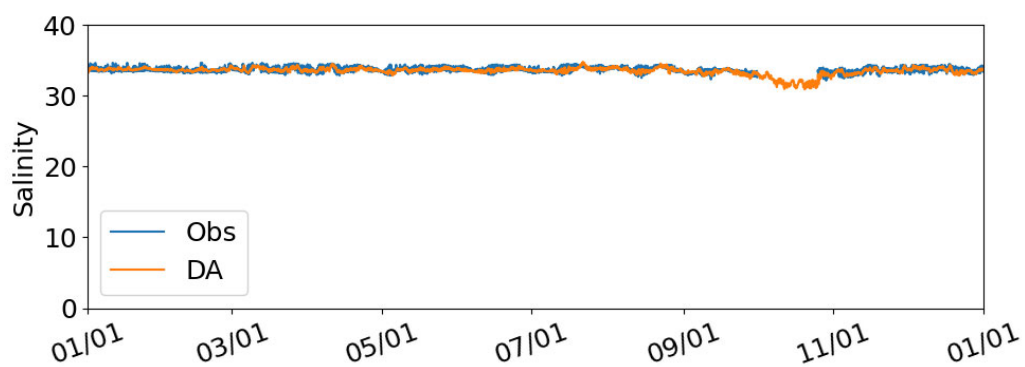
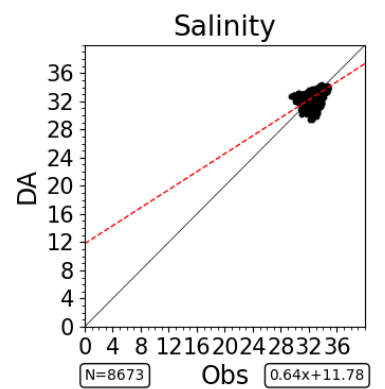
Figure S135 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

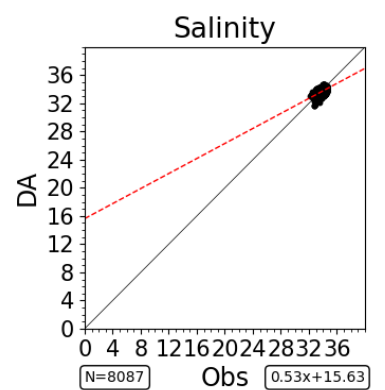
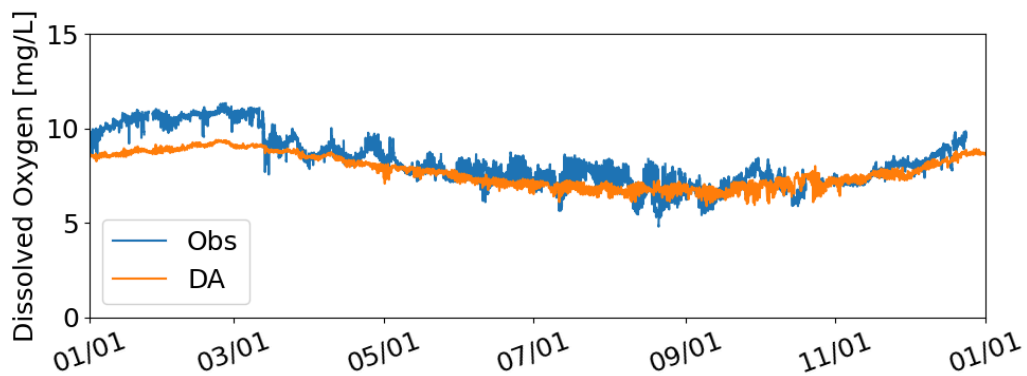
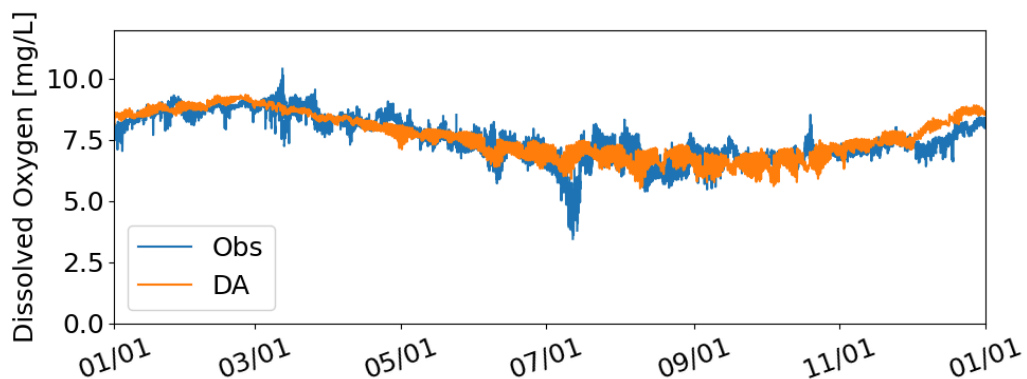
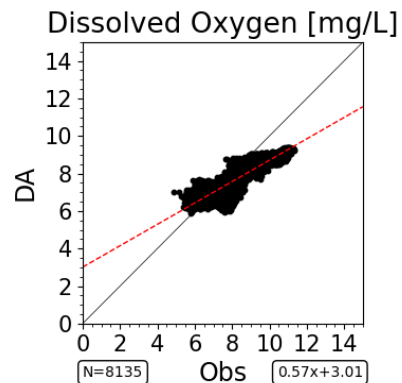


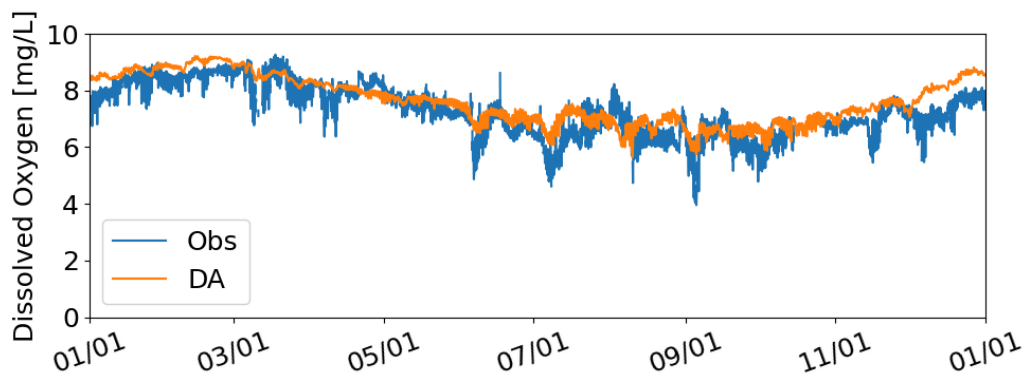
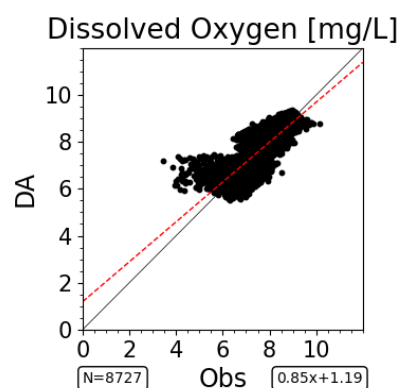
Figure S136 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

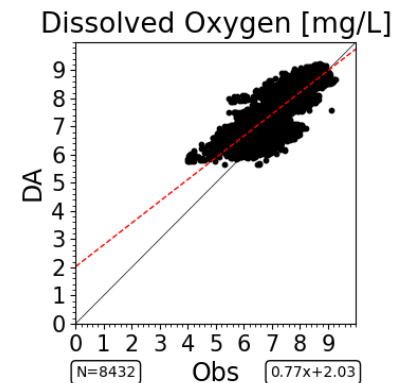
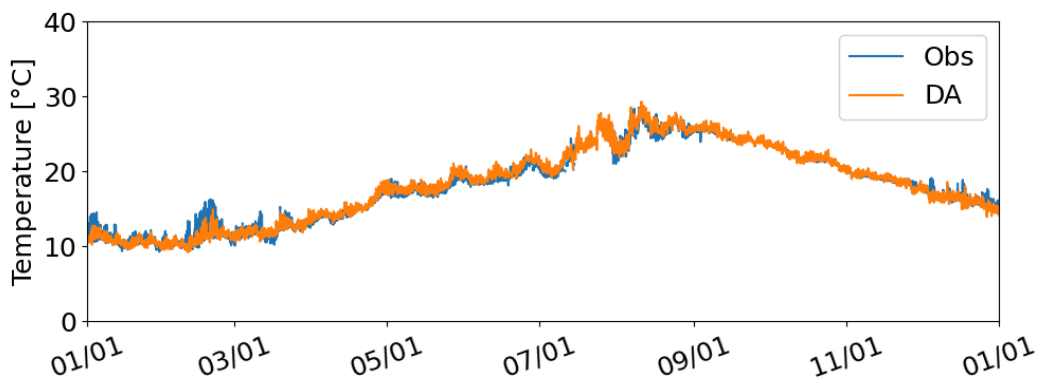
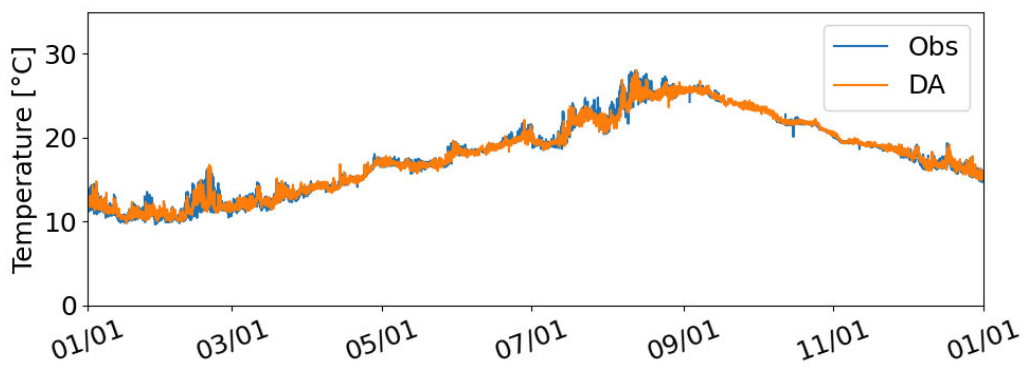
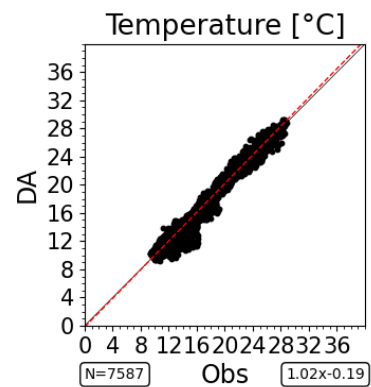


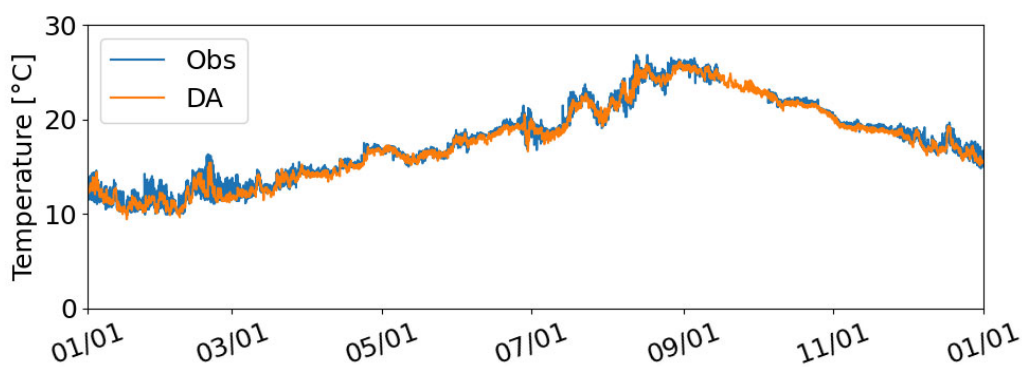
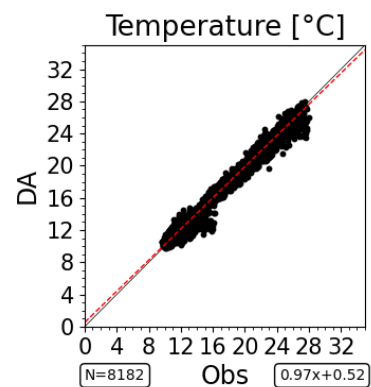
Figure S137 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

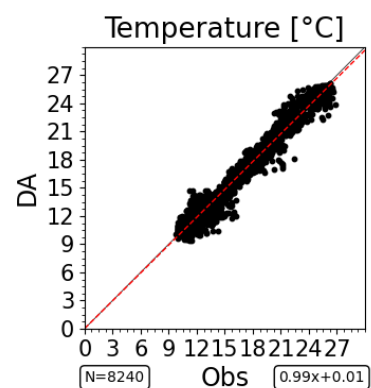
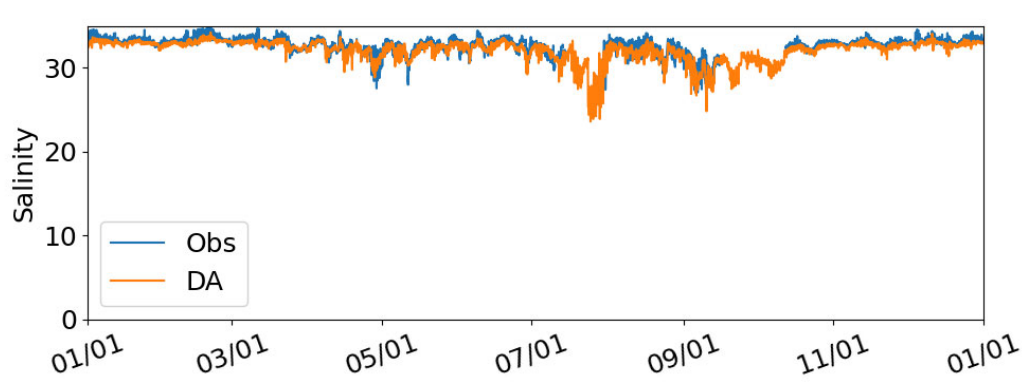
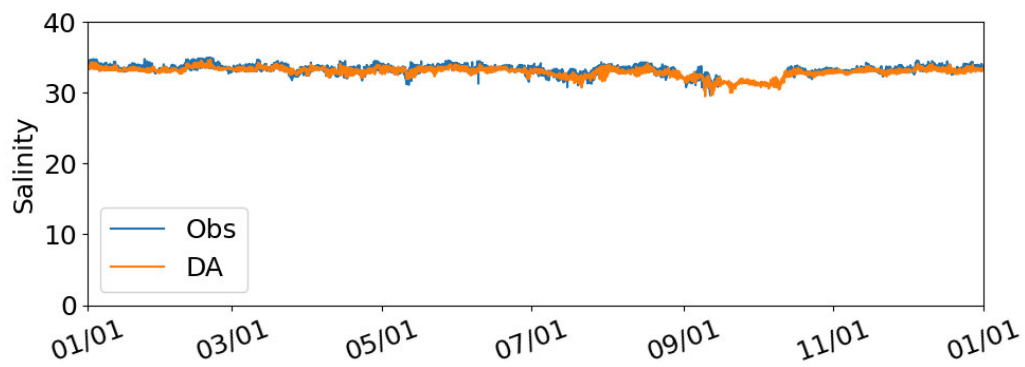
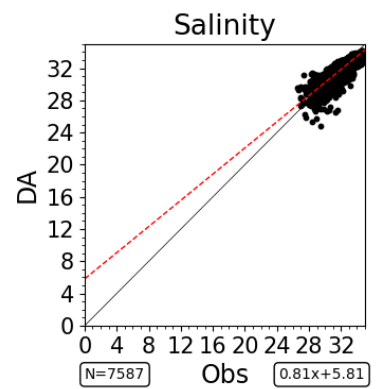


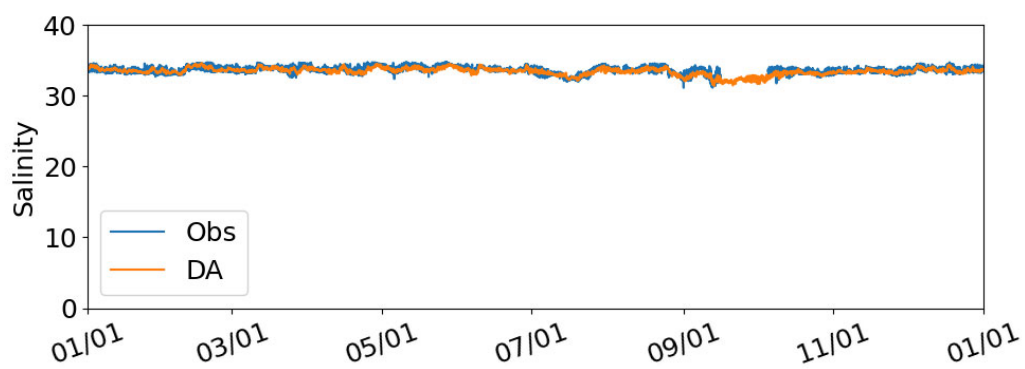
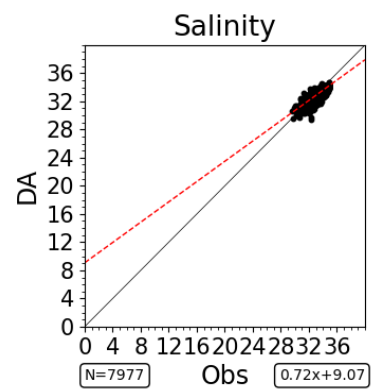
Figure S138 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

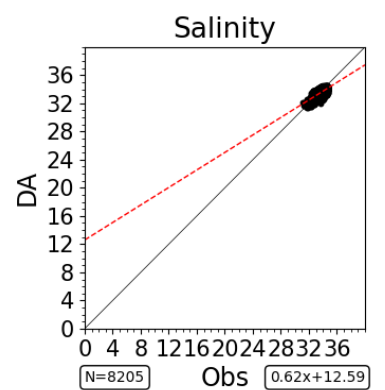
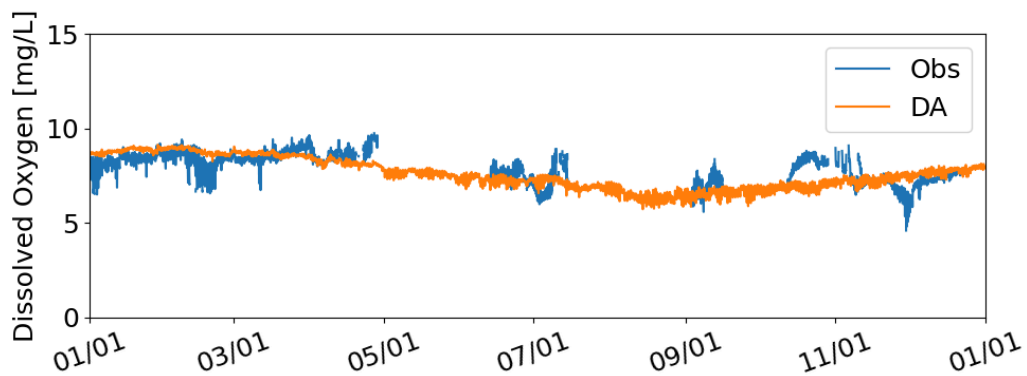
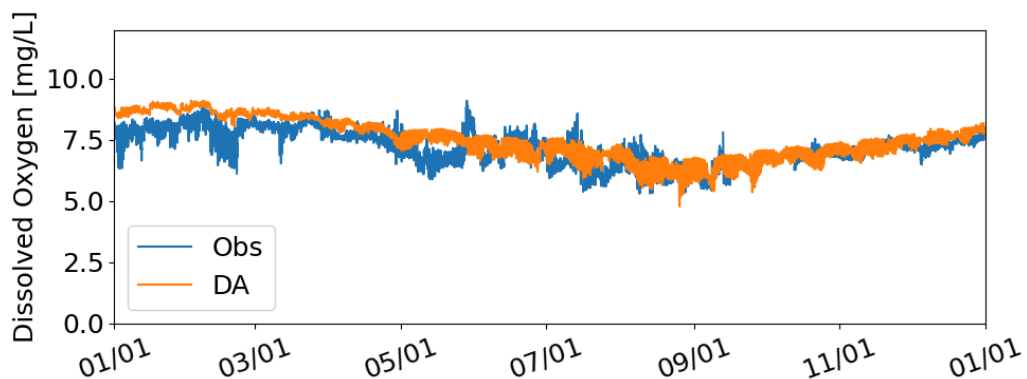
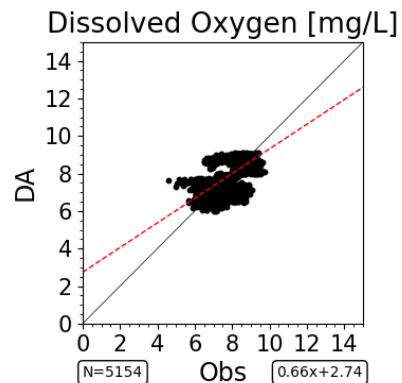


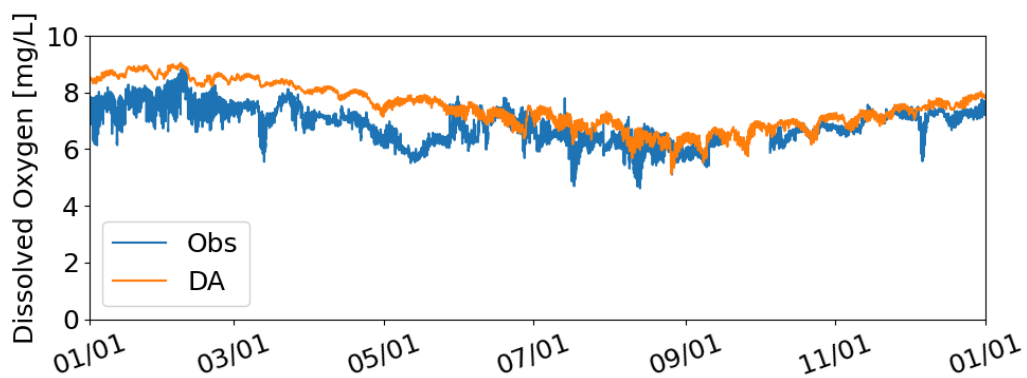
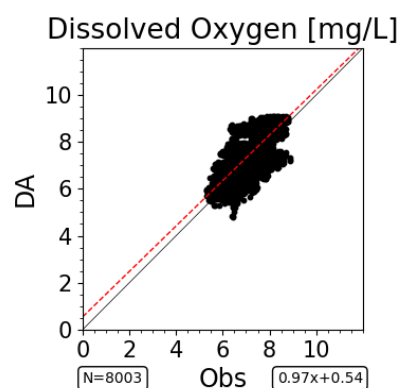
Figure S139 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

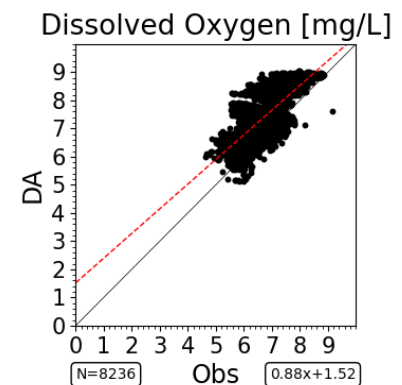
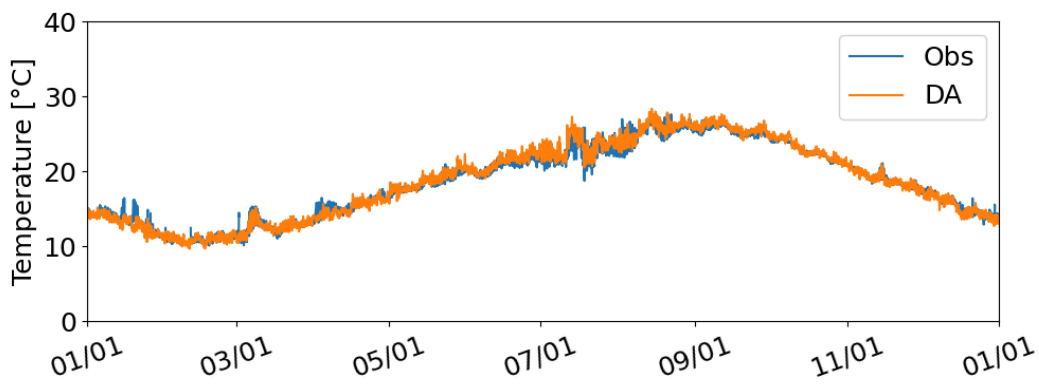
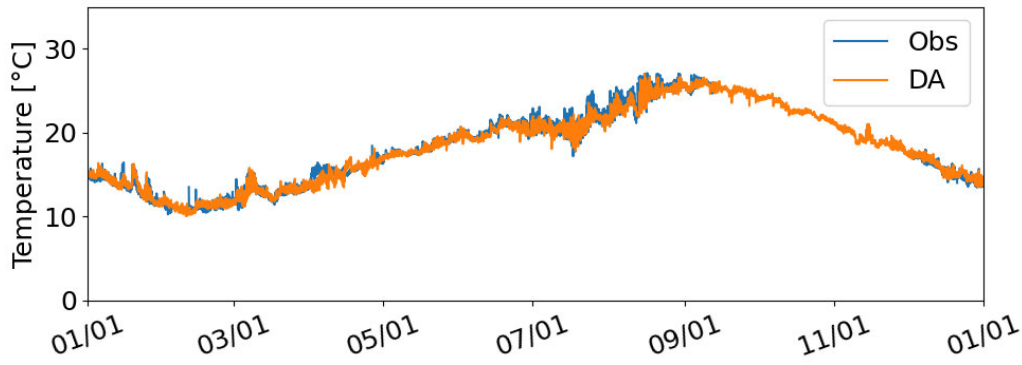
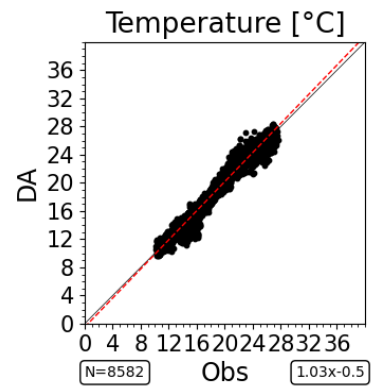


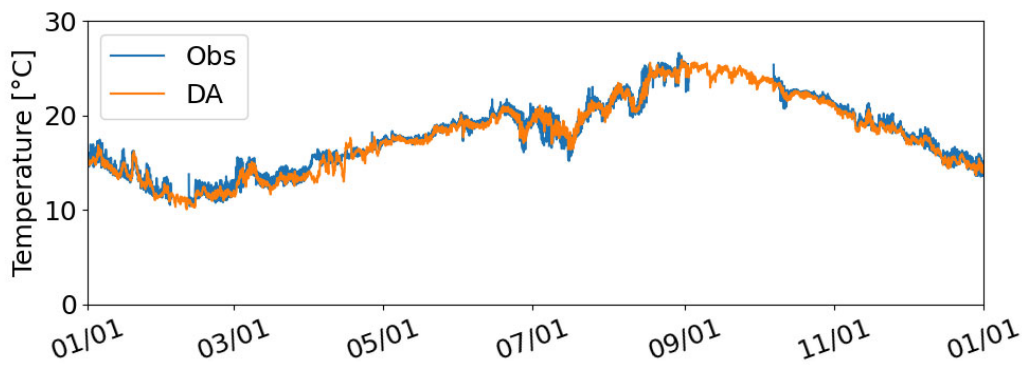
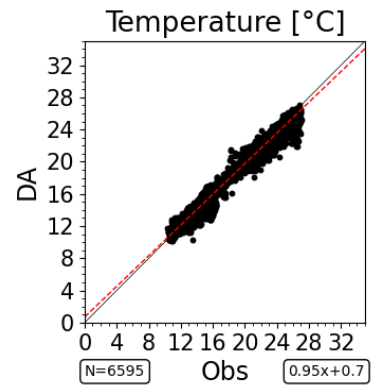
Figure S140 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

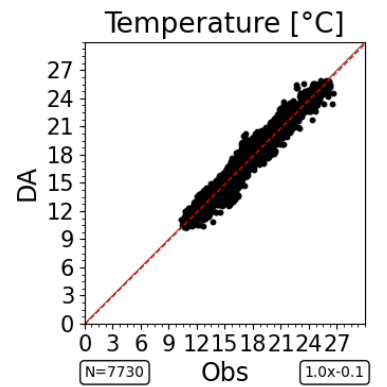
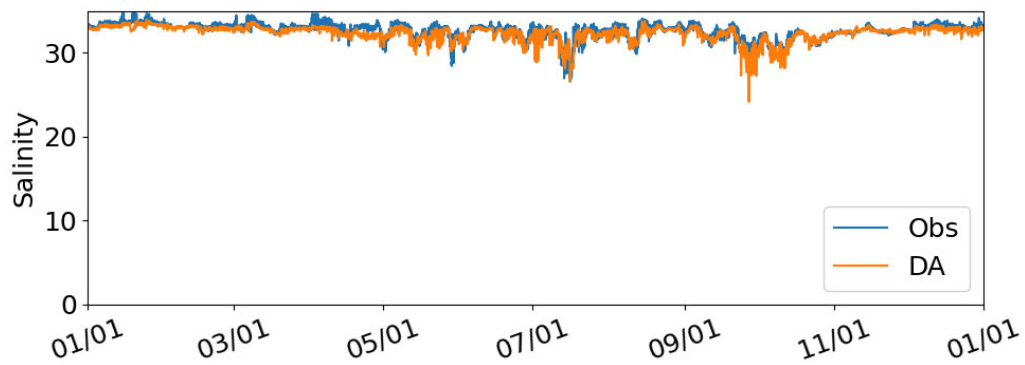
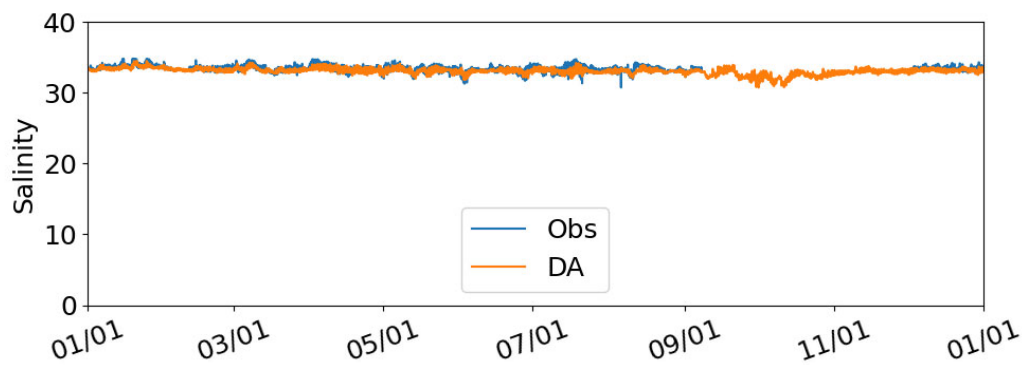
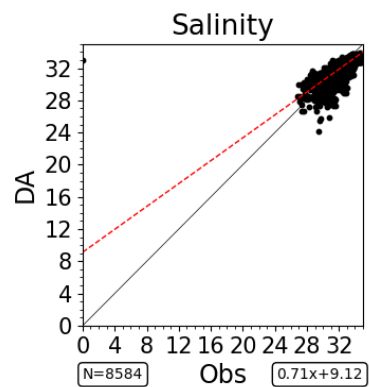


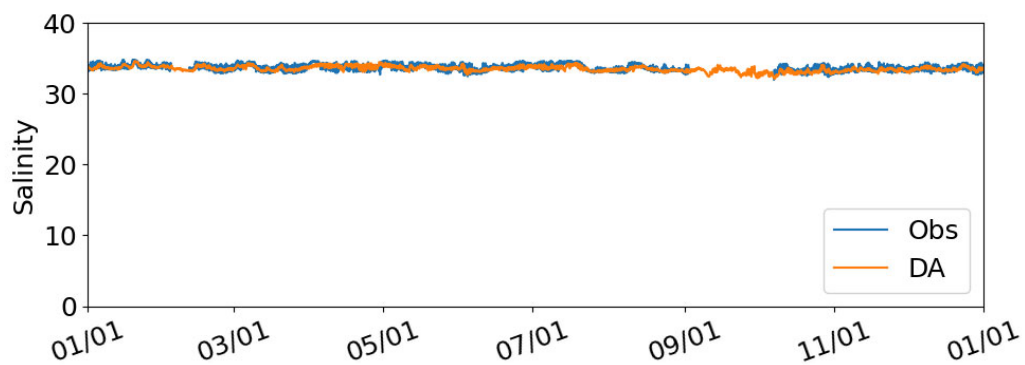
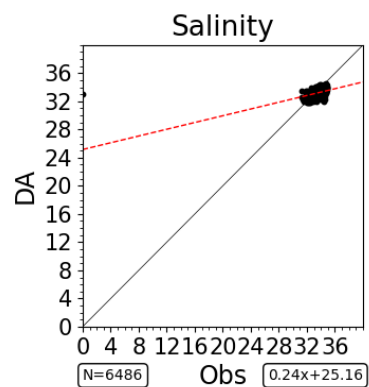
Figure S141 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

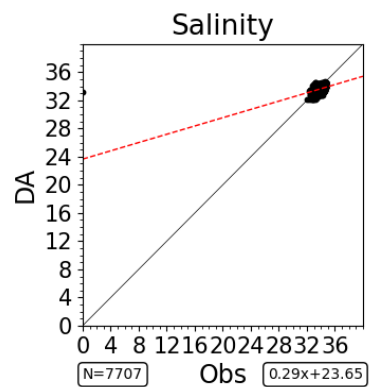
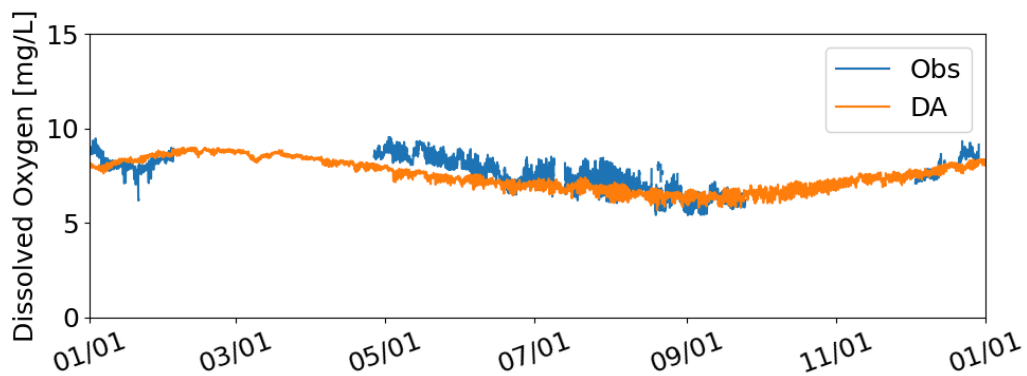
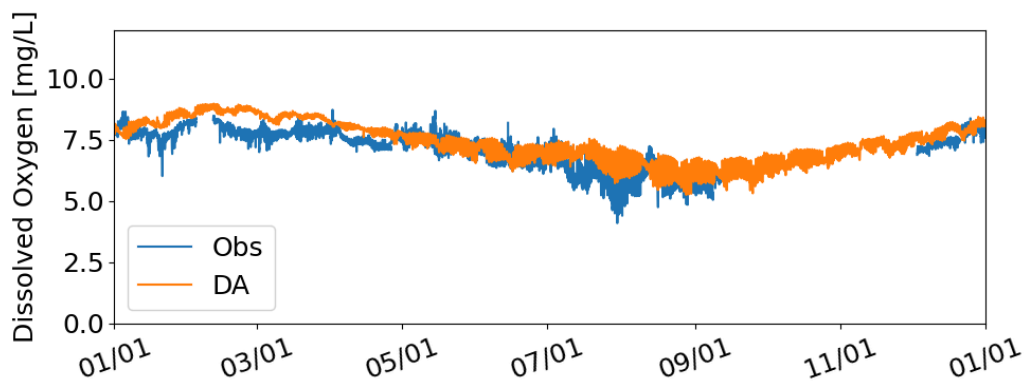
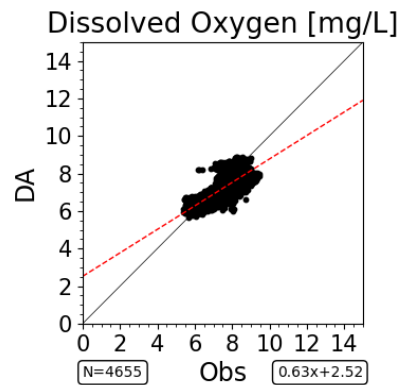


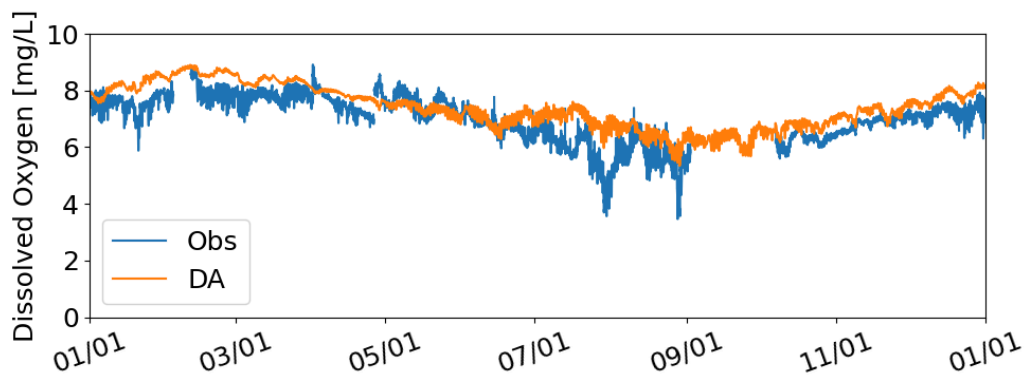
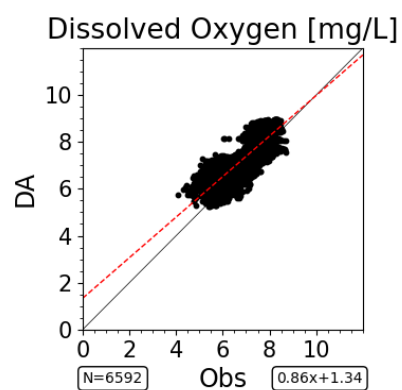
Figure S142 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

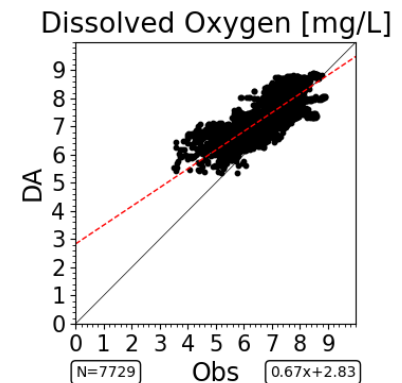
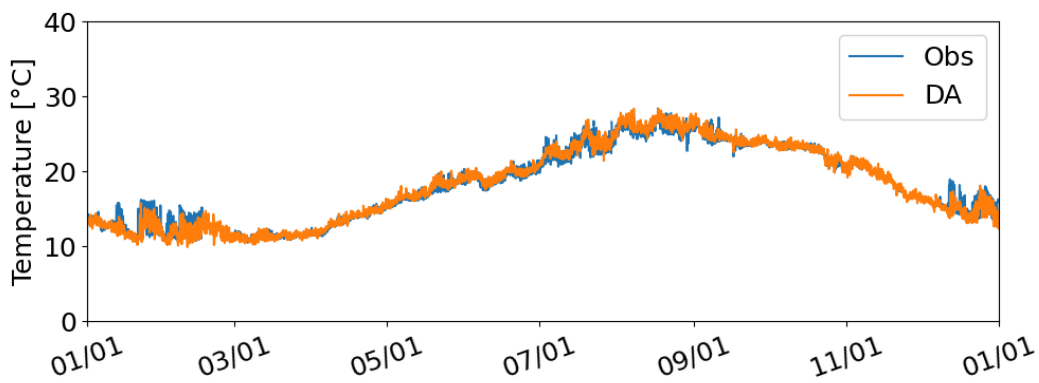
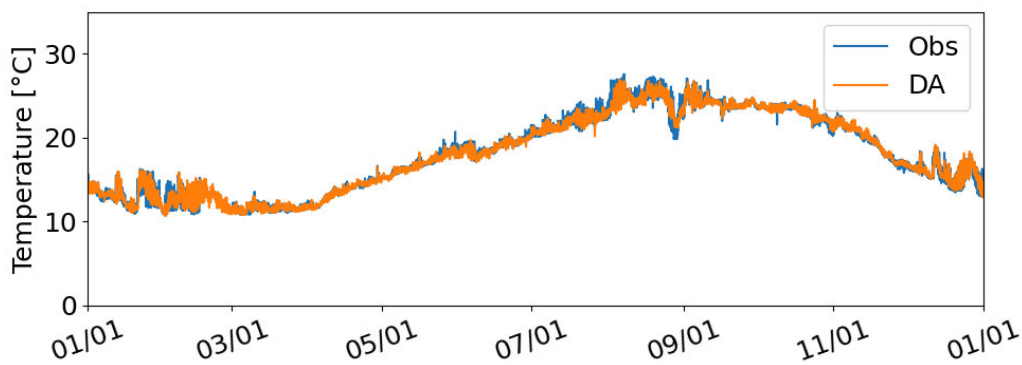
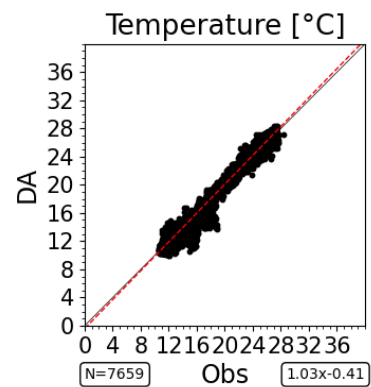


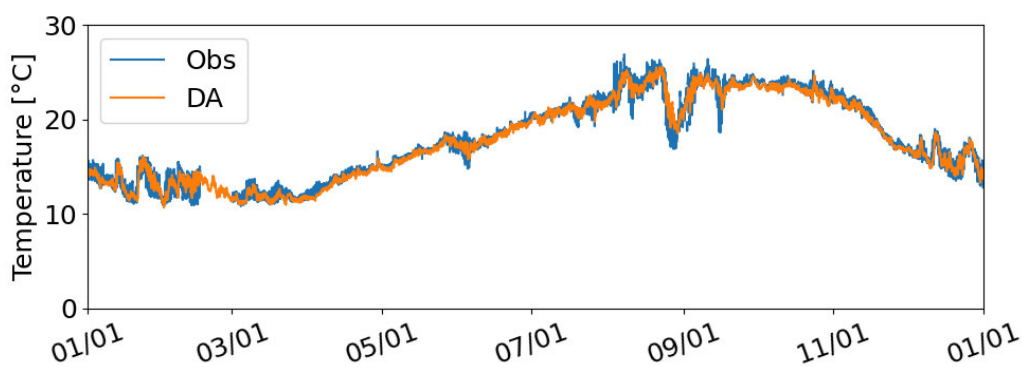
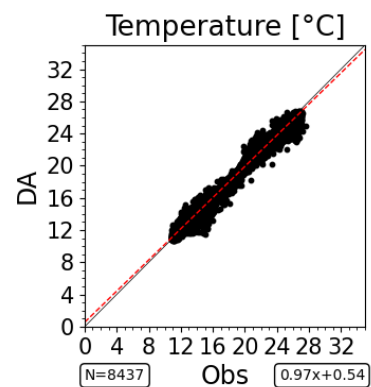
Figure S143 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

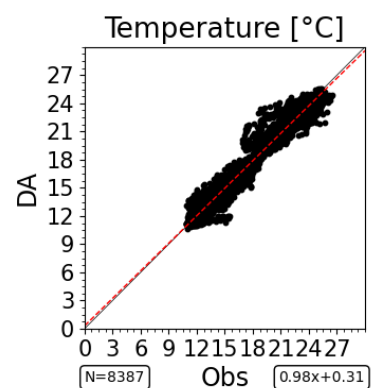
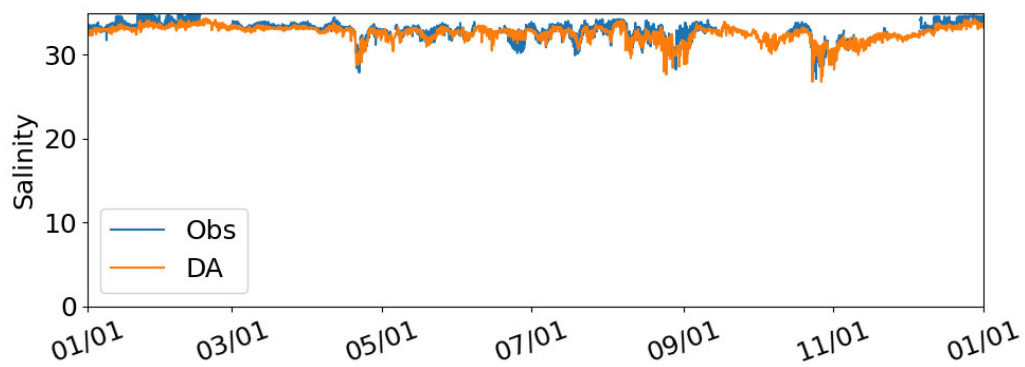
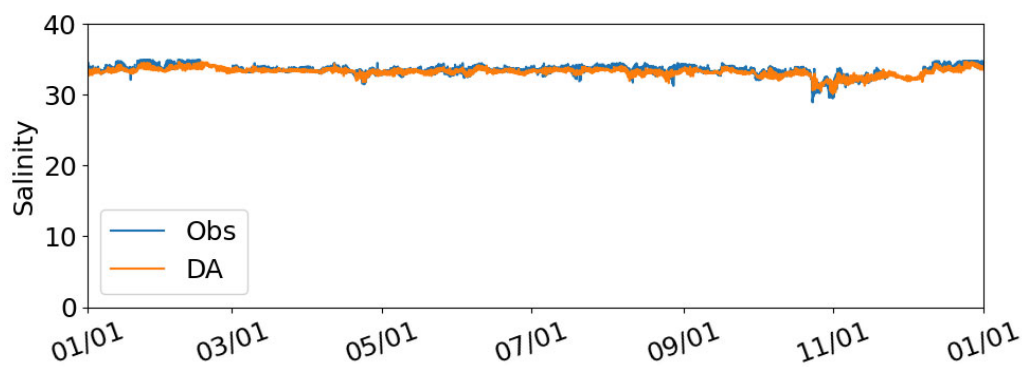
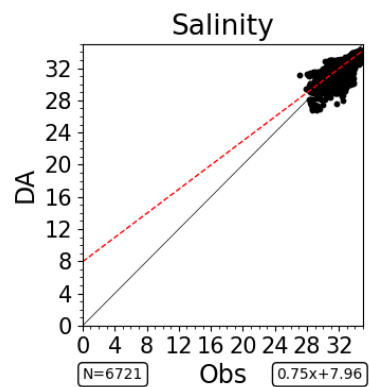


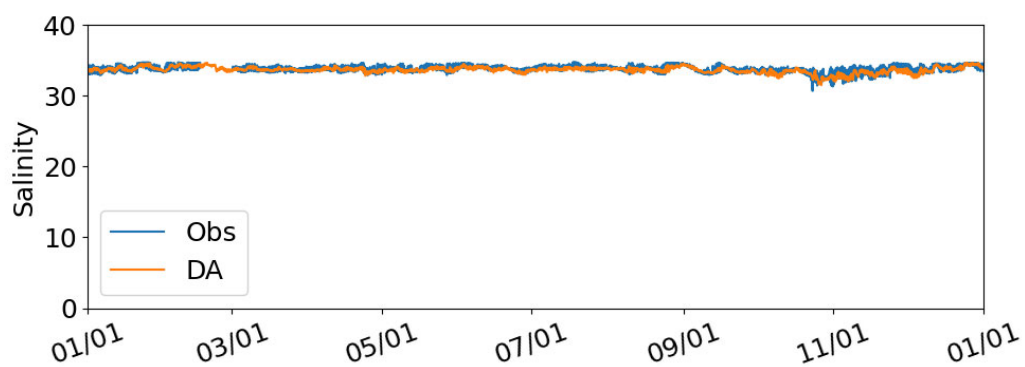
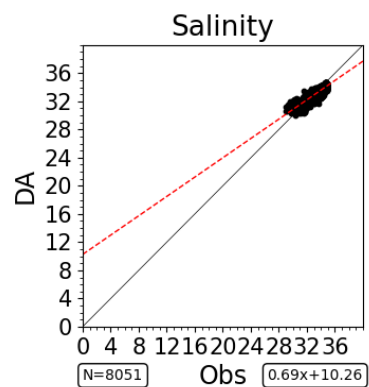
Figure S144 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

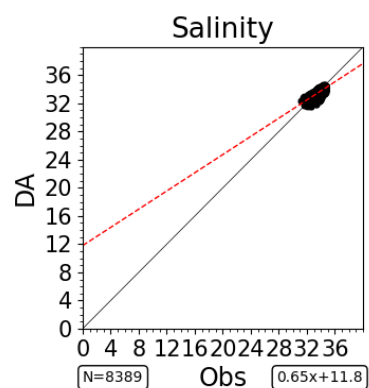
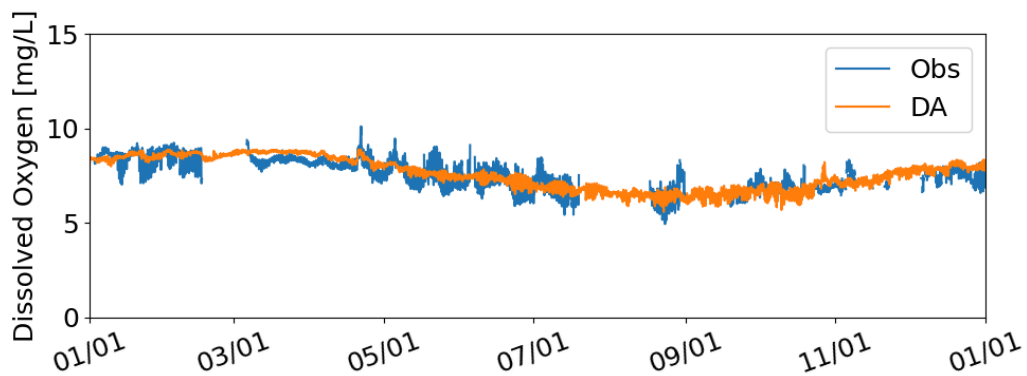
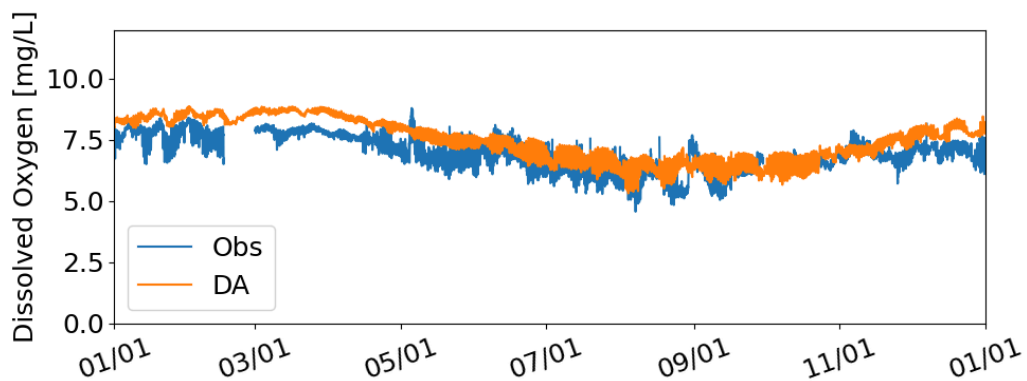
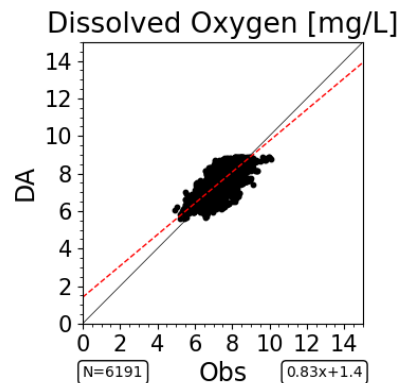


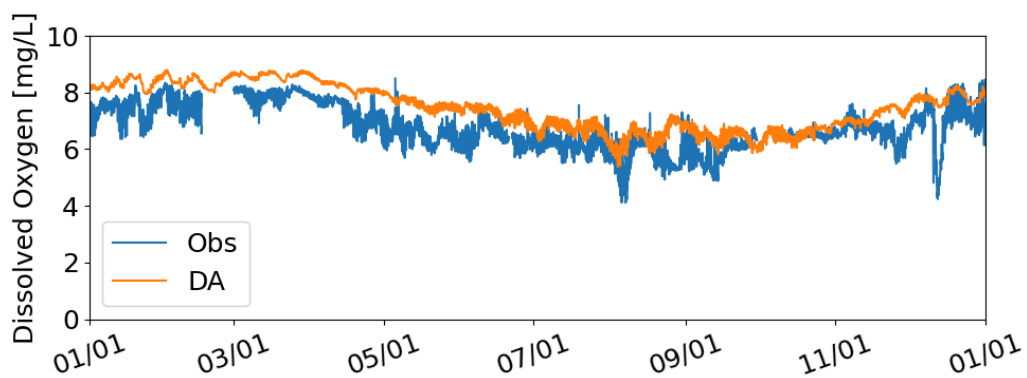
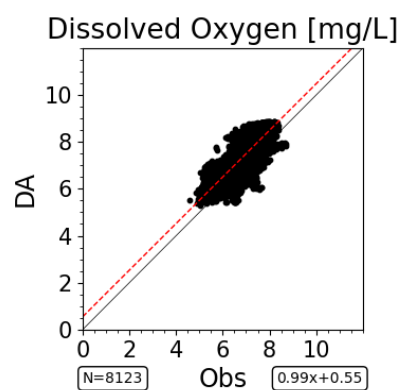
Figure S145 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

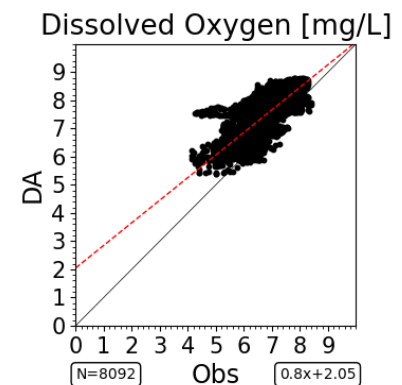
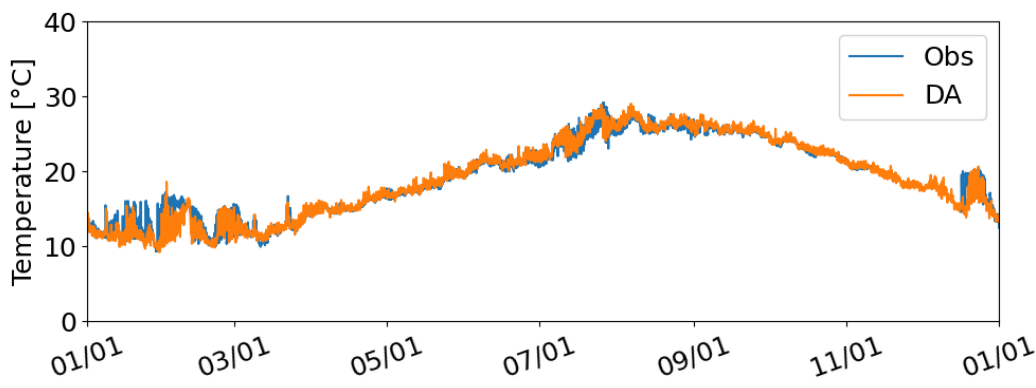
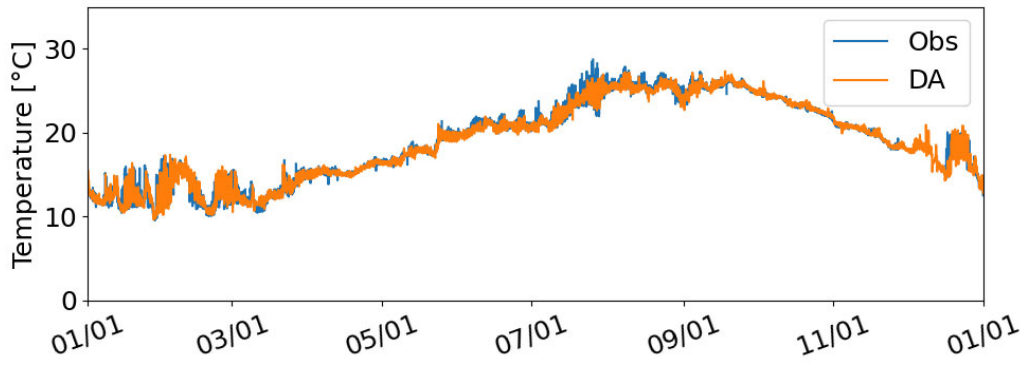
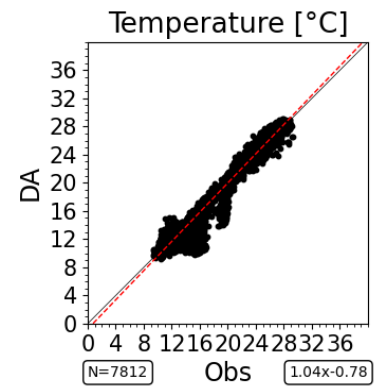


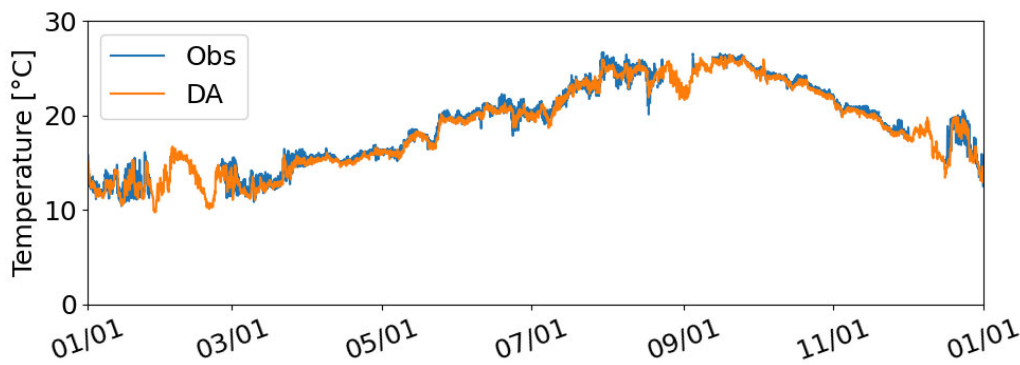
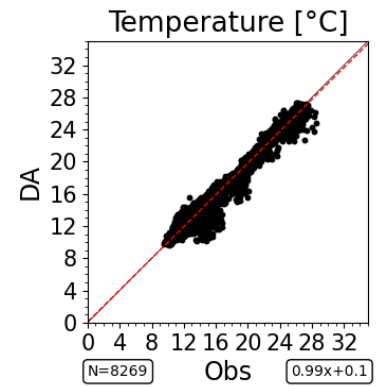
Figure S146 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

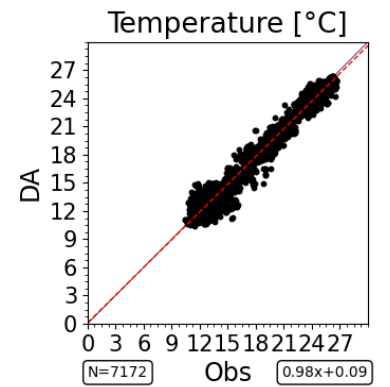
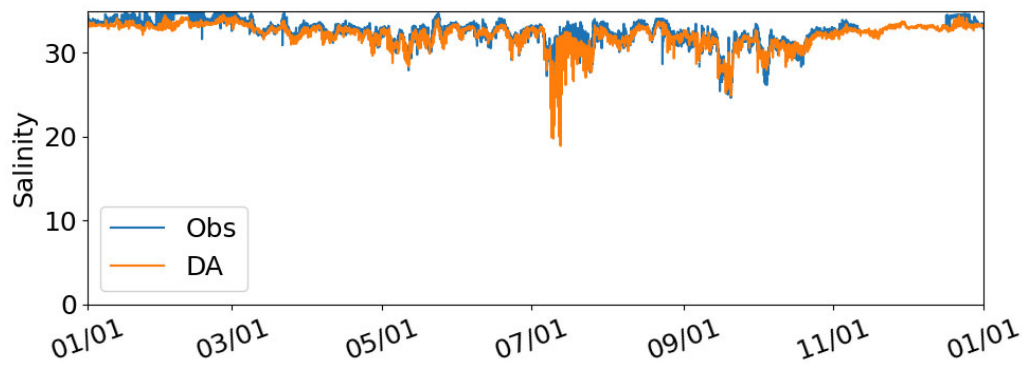
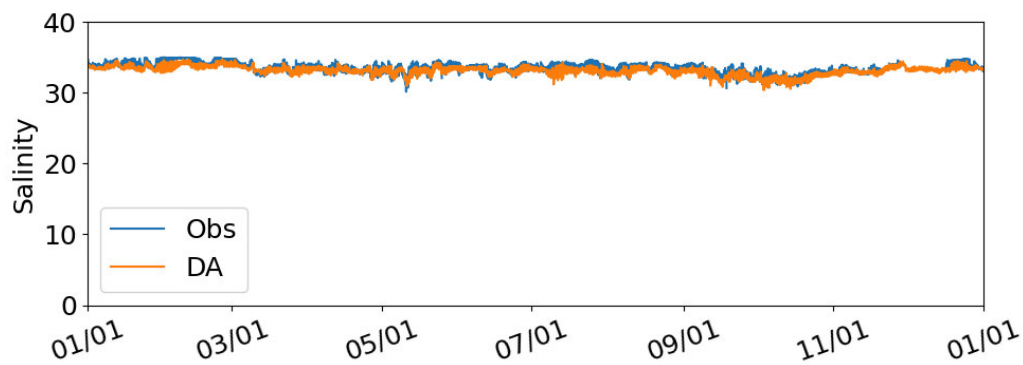
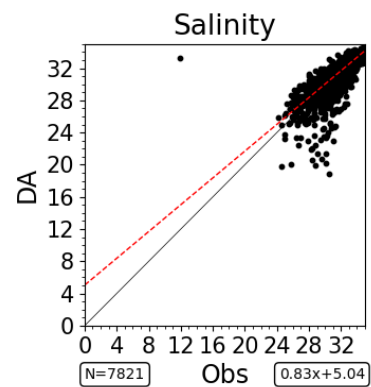


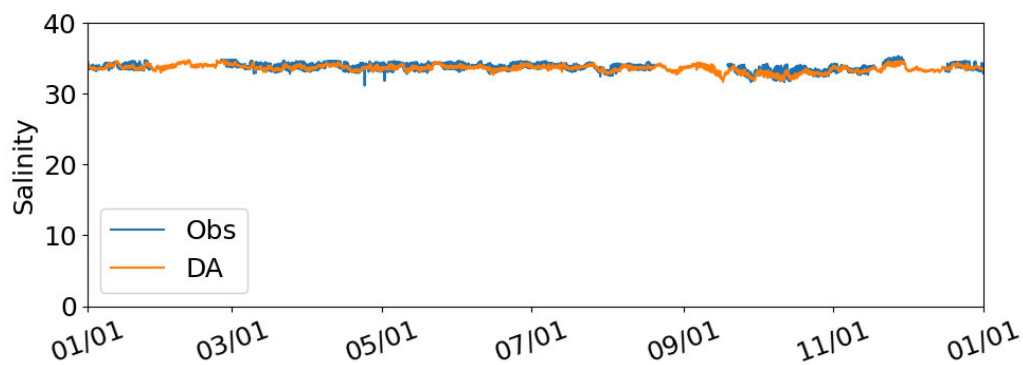
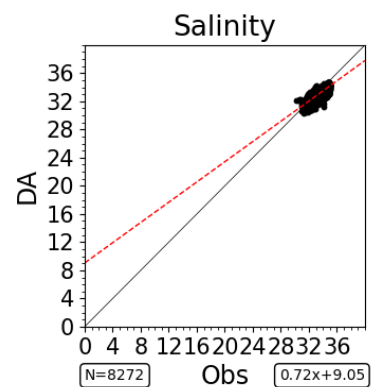
Figure S147 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

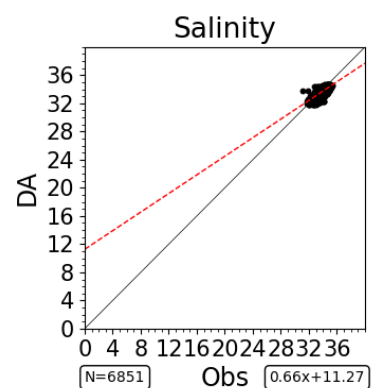
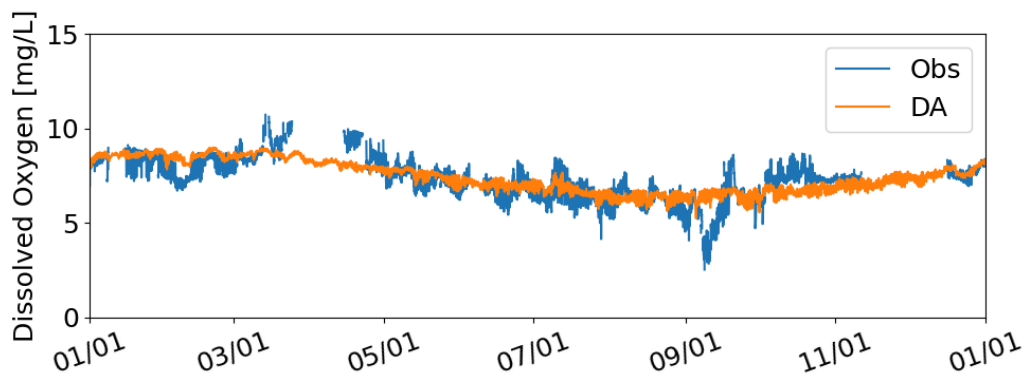
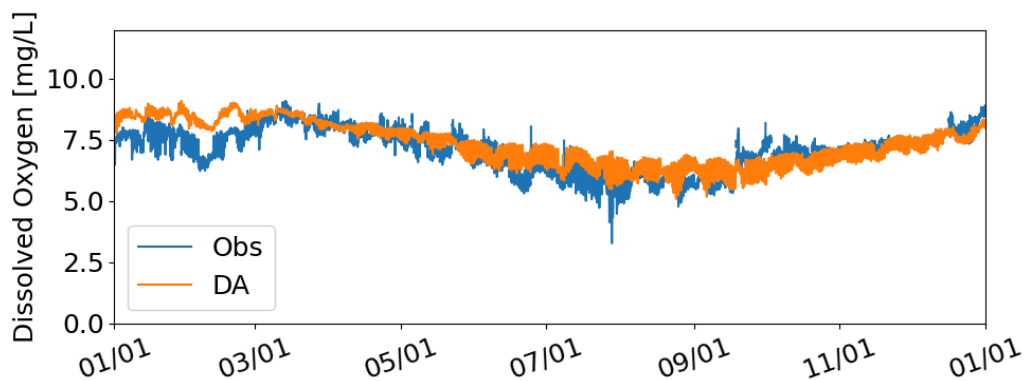
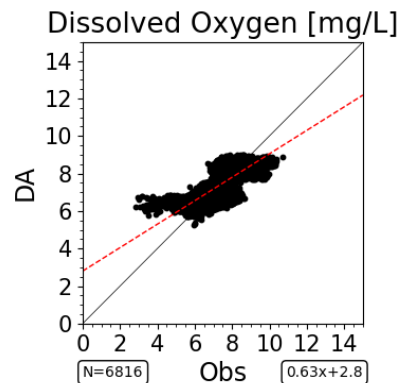


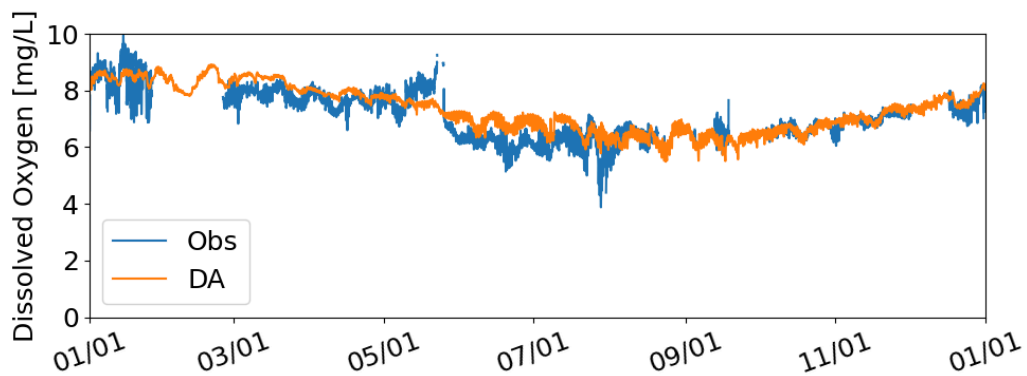
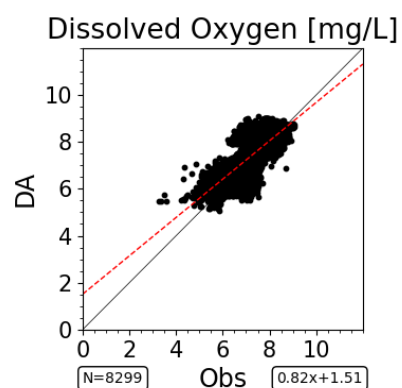
Figure S148 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

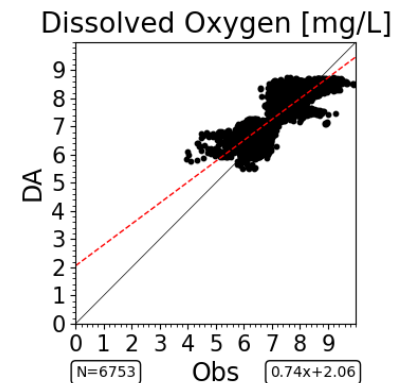
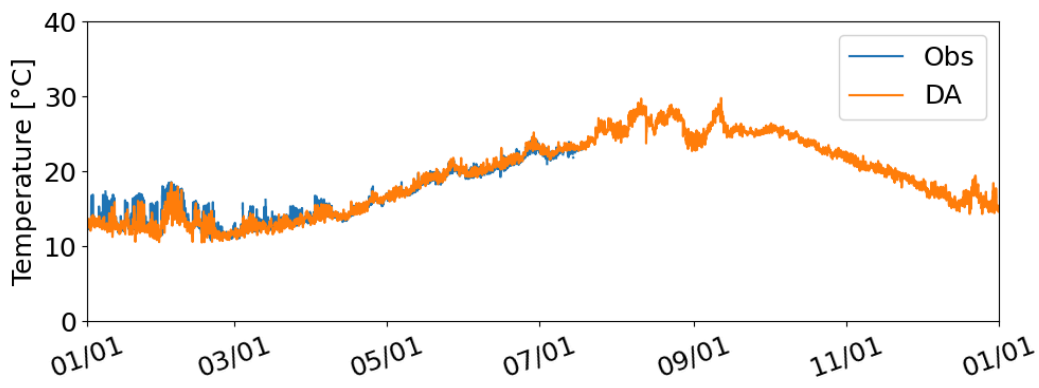
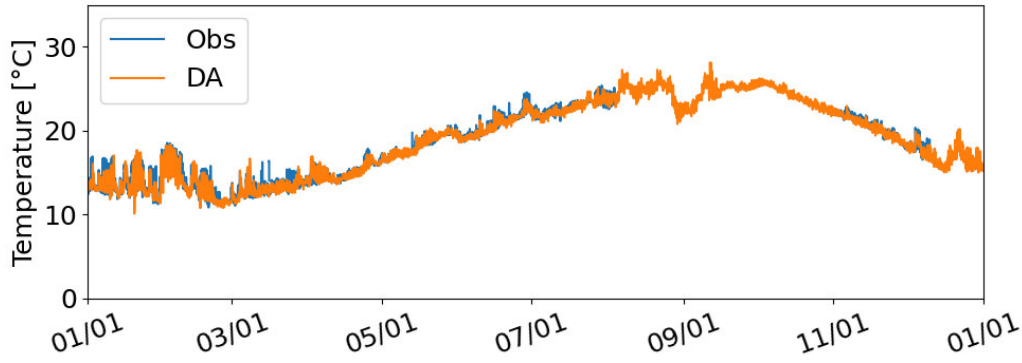
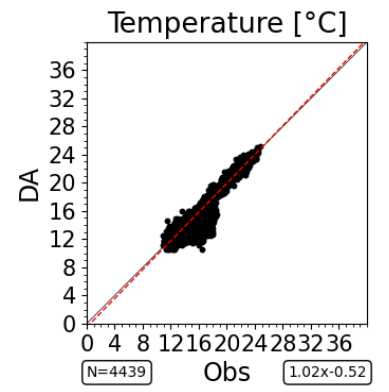


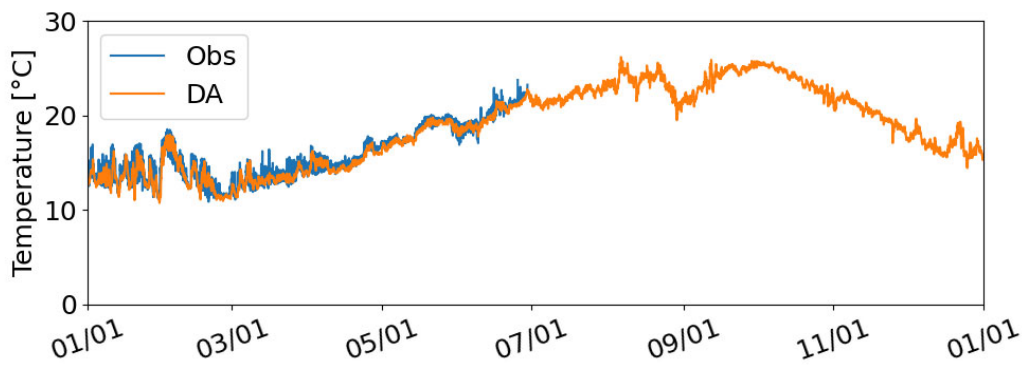
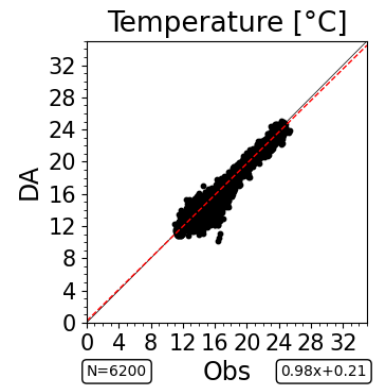
Figure S149 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

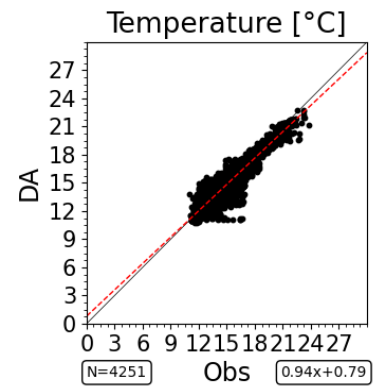
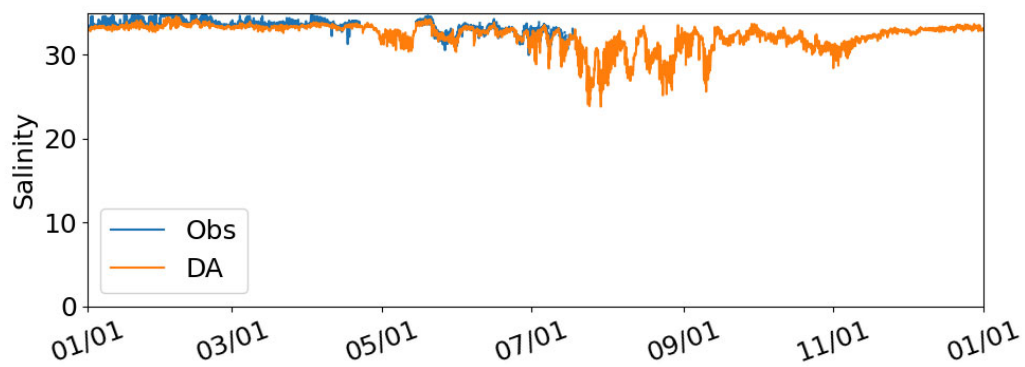
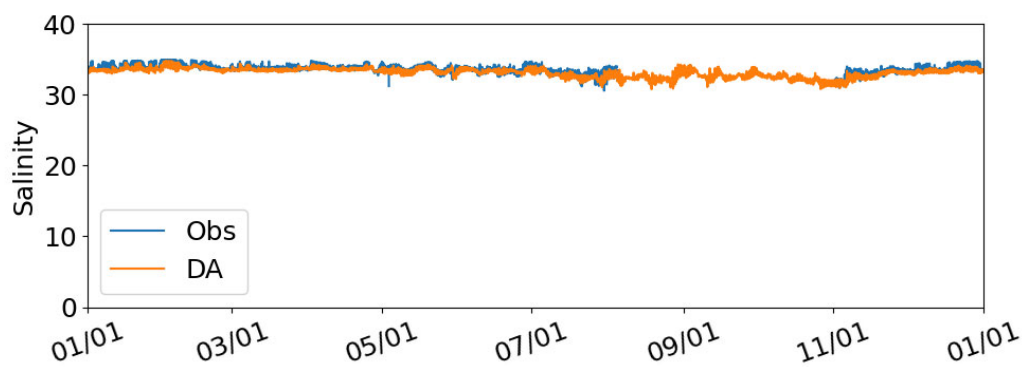
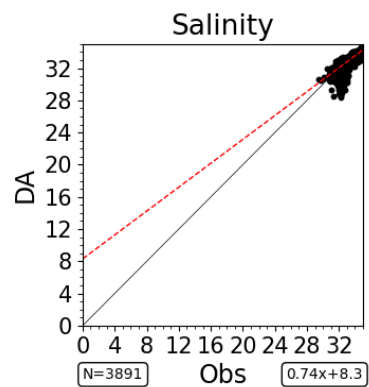


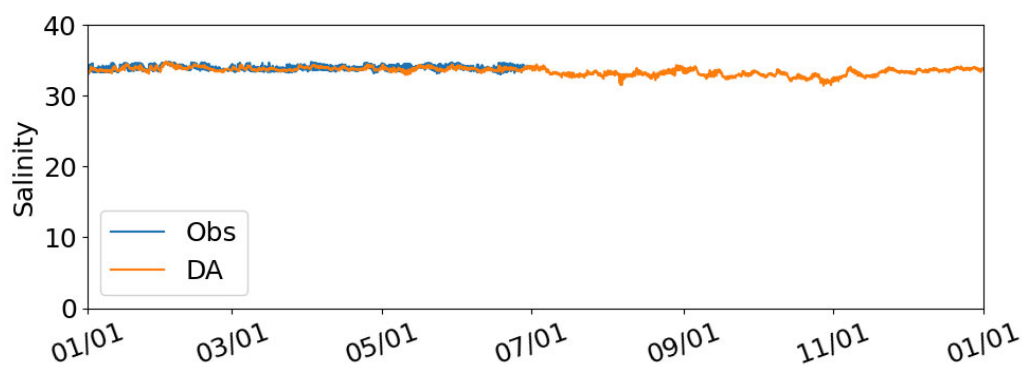
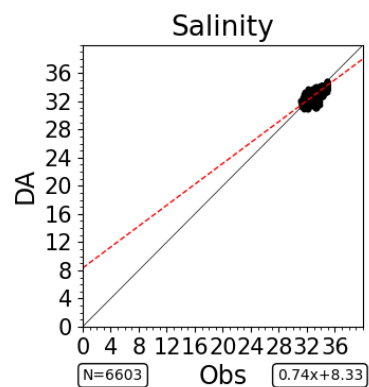
Figure S150 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

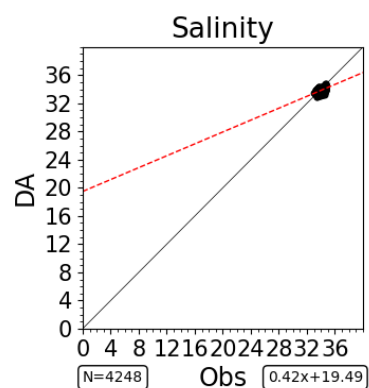
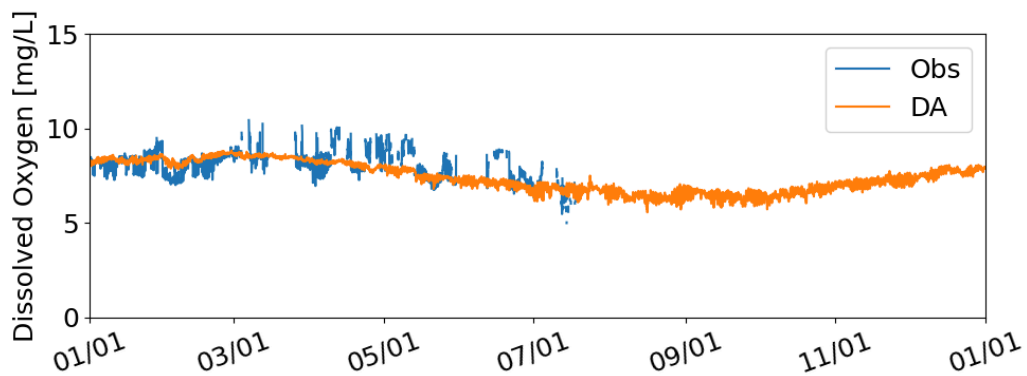
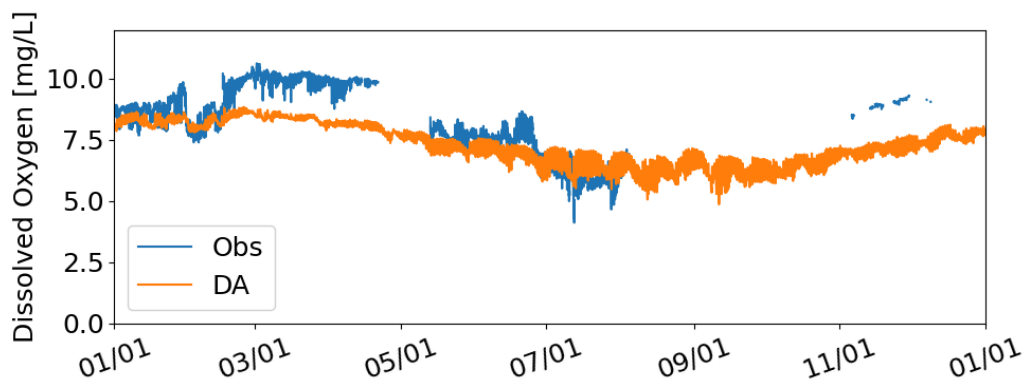
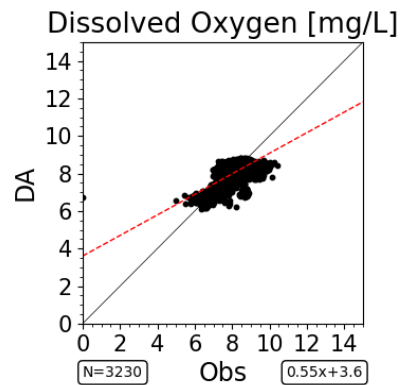


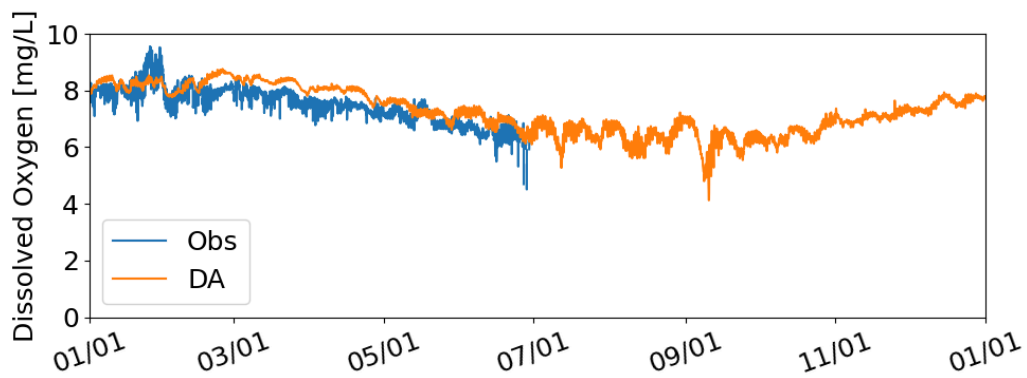
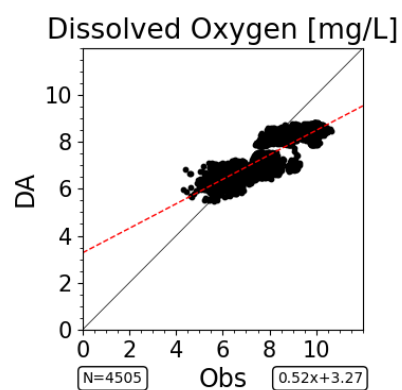
Figure S151 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

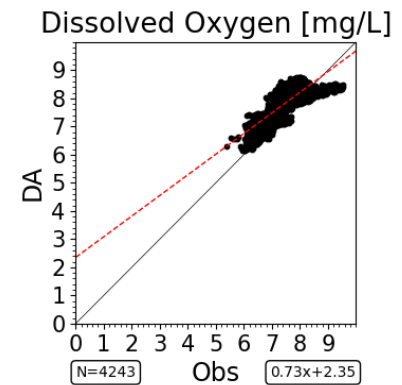
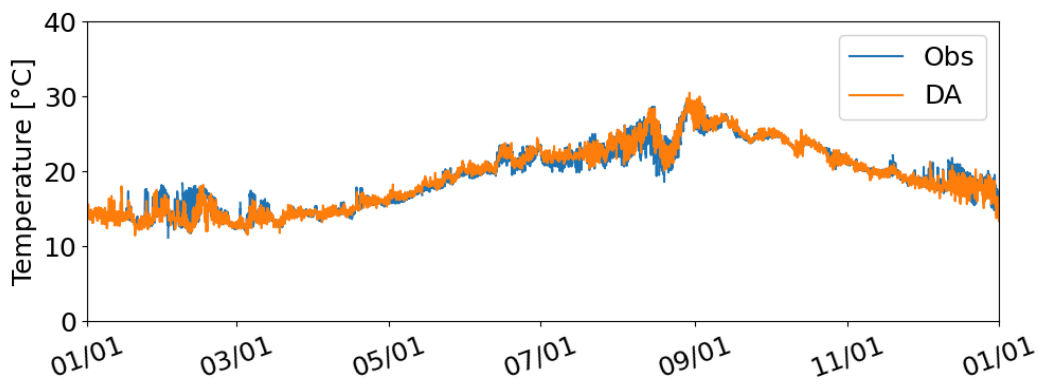
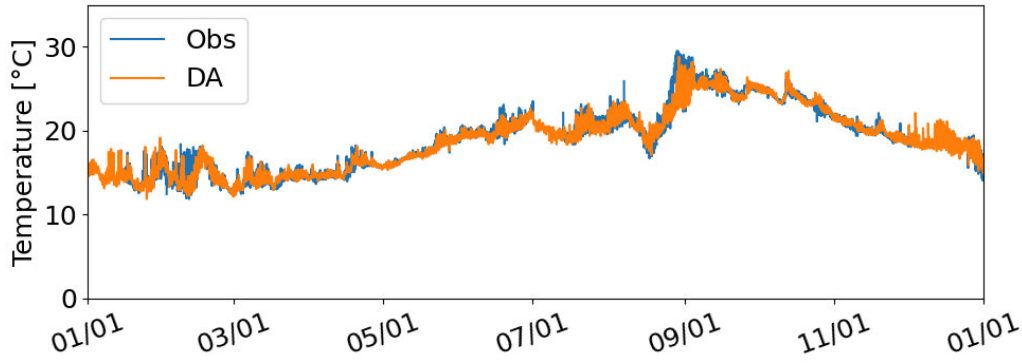
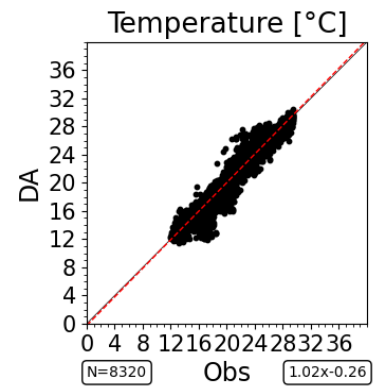


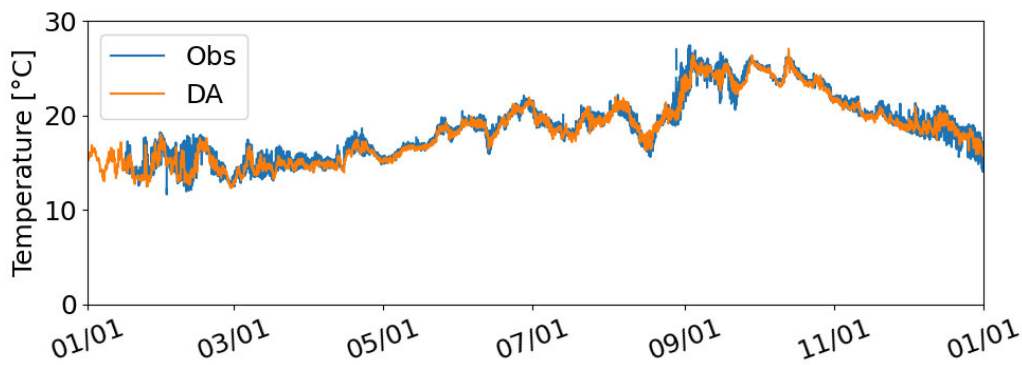
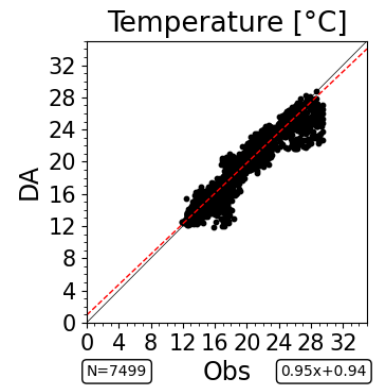
Figure S152 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

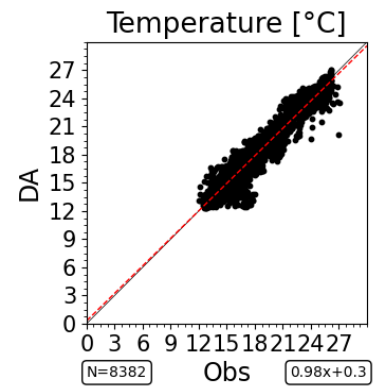
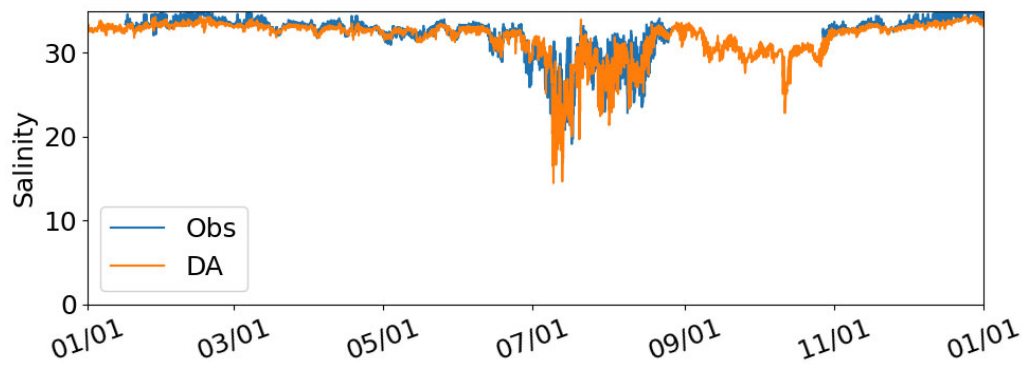
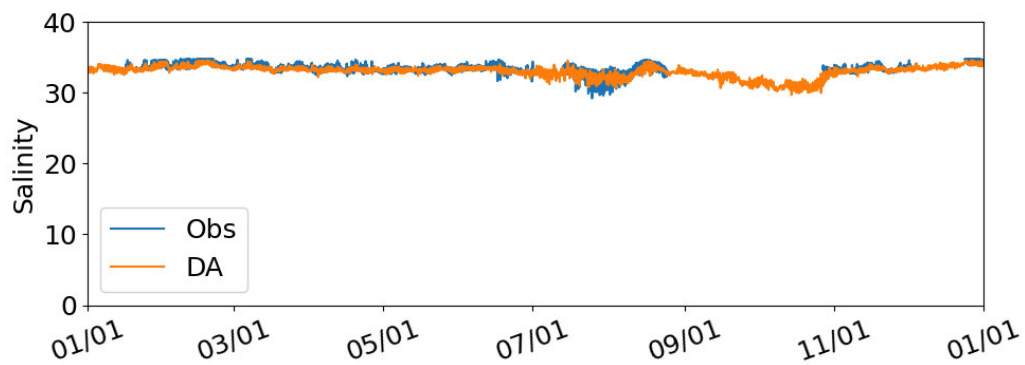
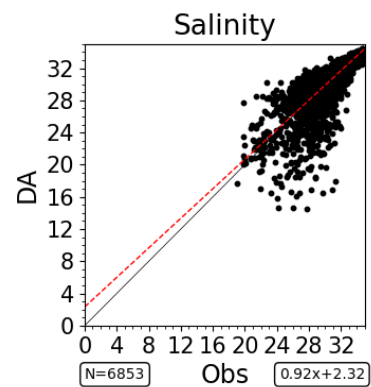


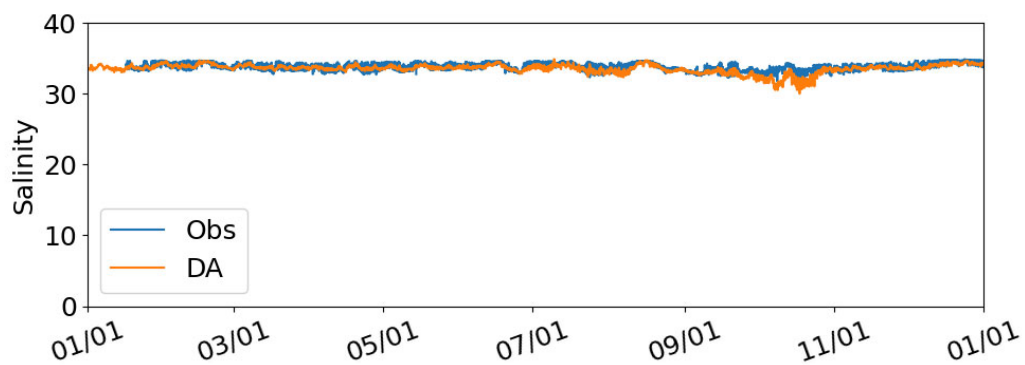
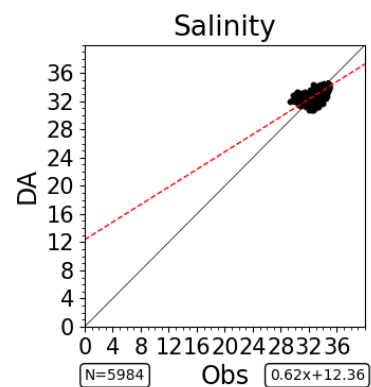
Figure S153 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

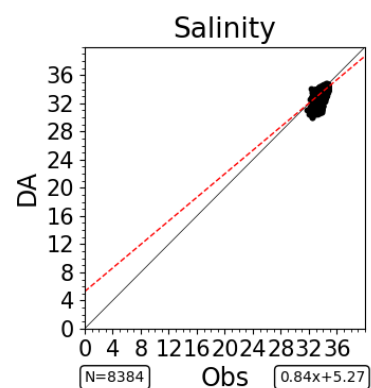
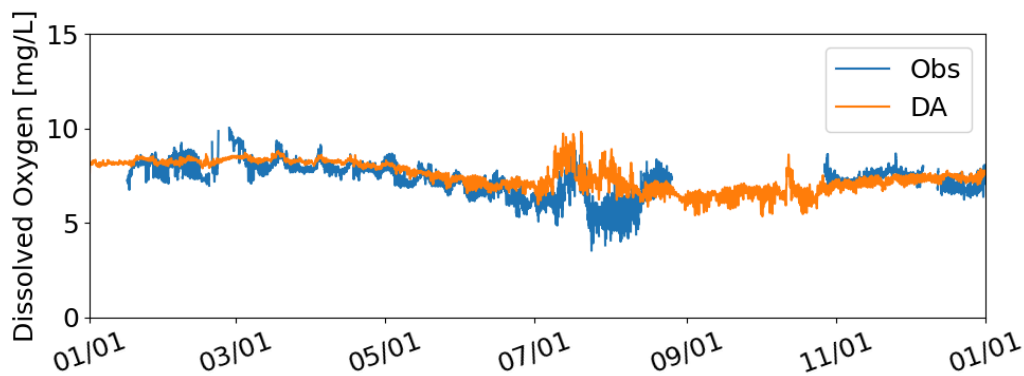
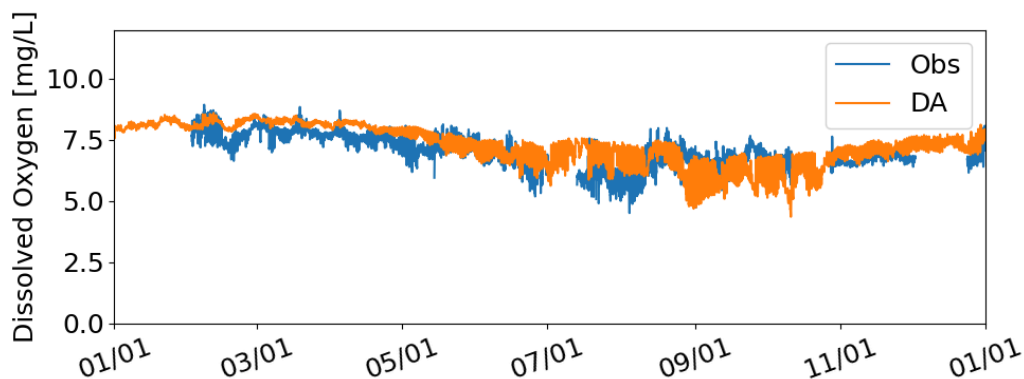
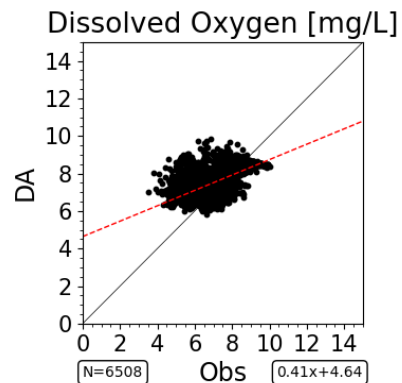


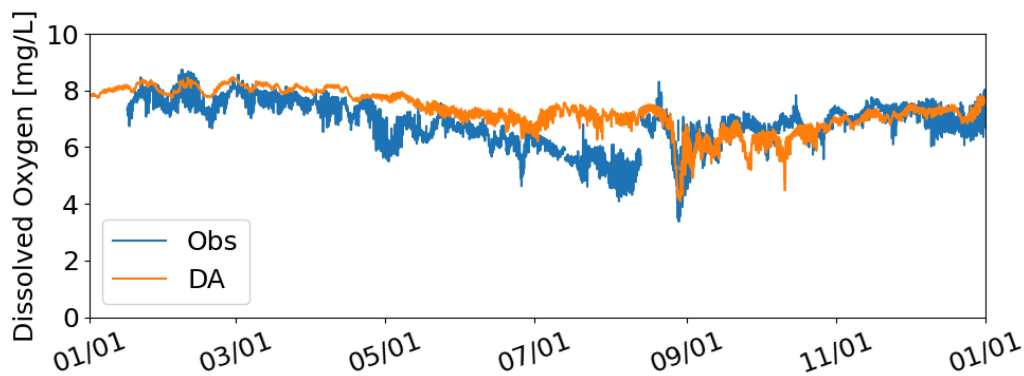
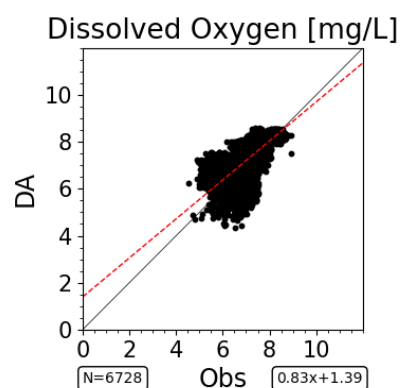
Figure S154 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

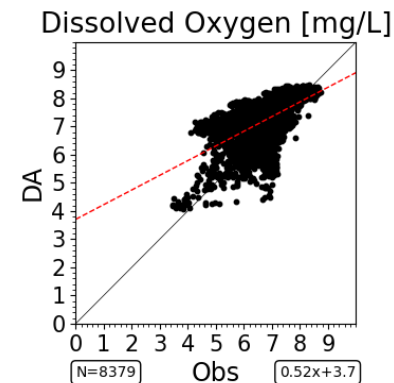
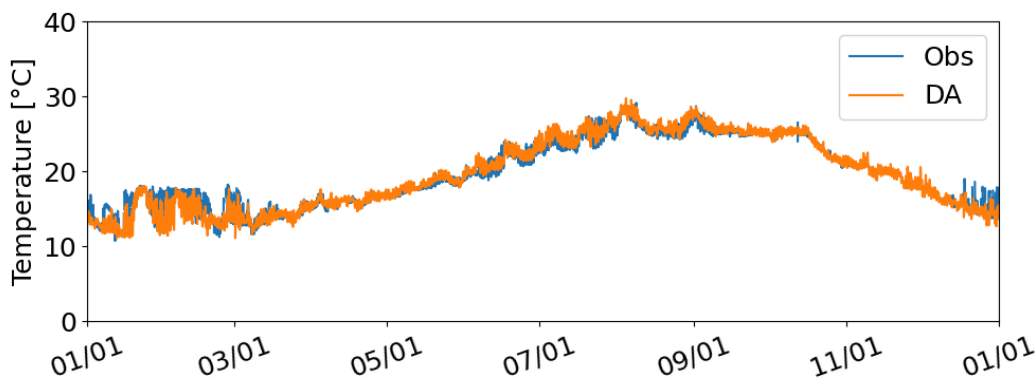
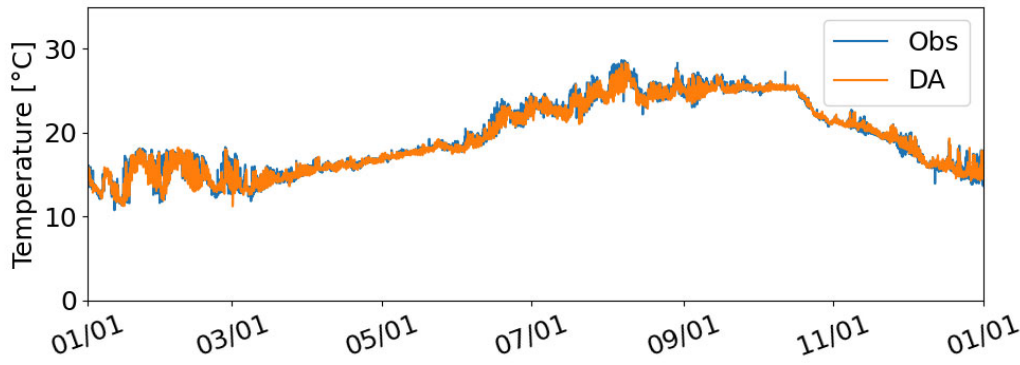
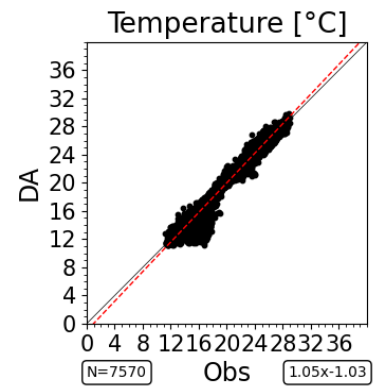


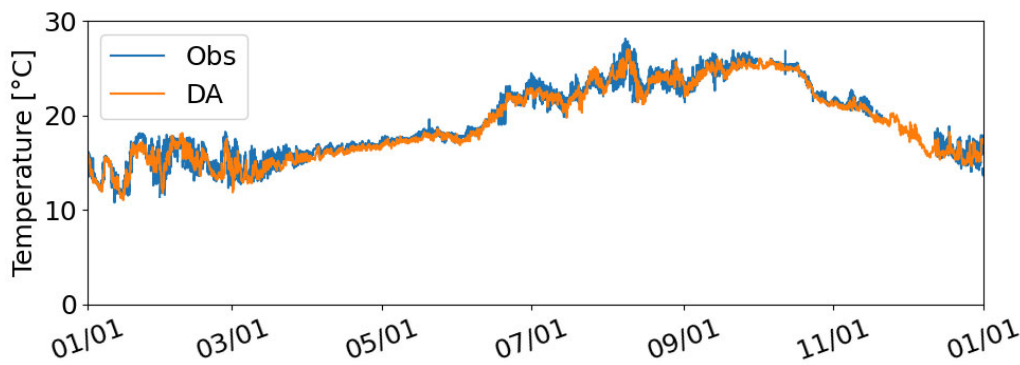
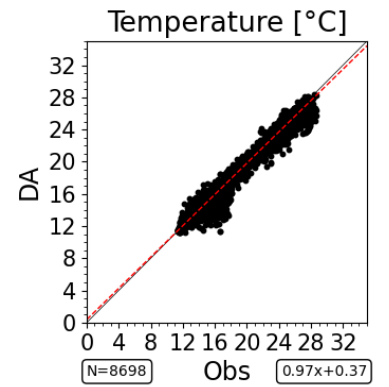
Figure S155 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

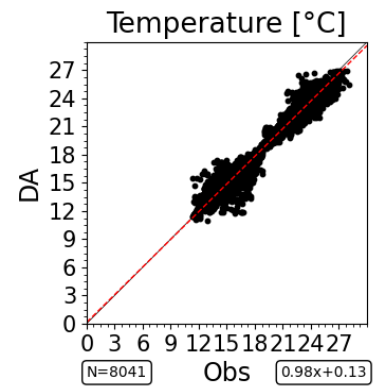
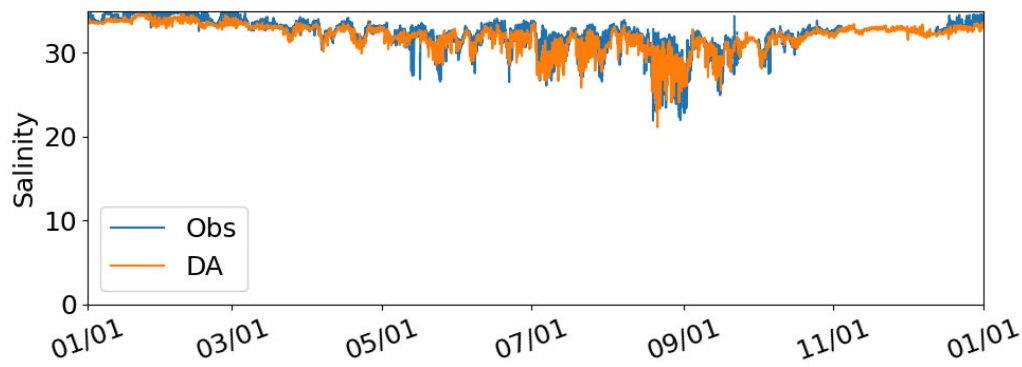
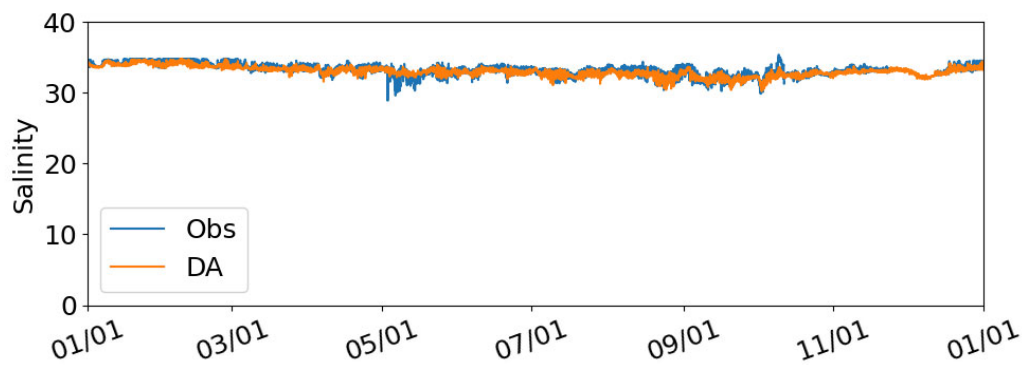
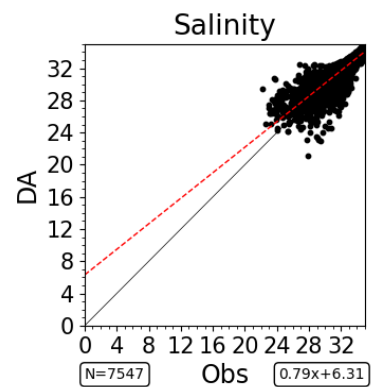


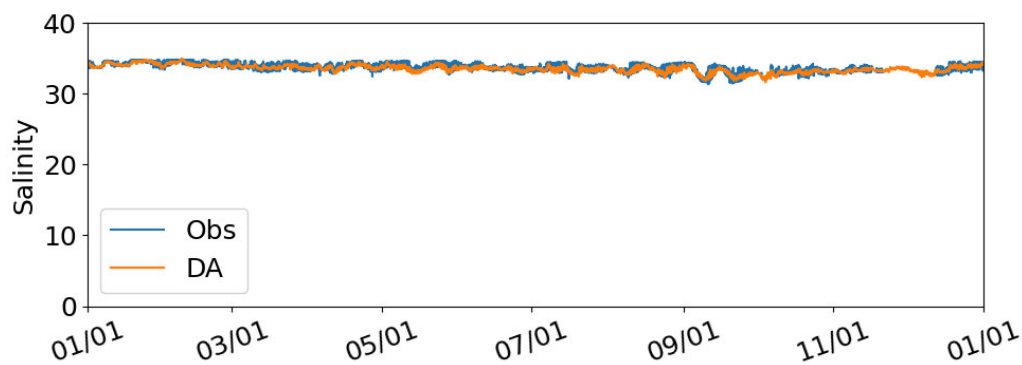
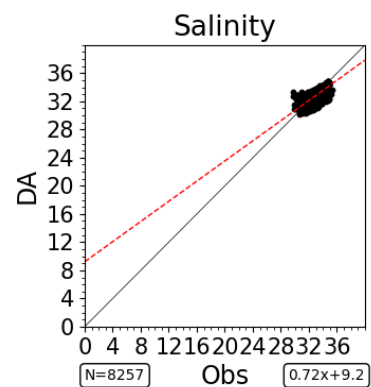
Figure S156 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

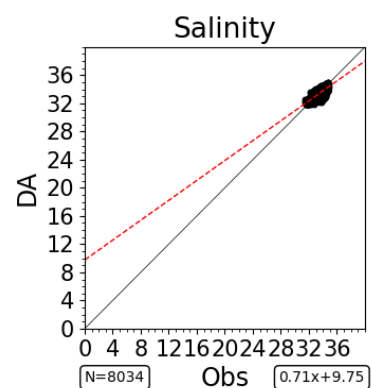
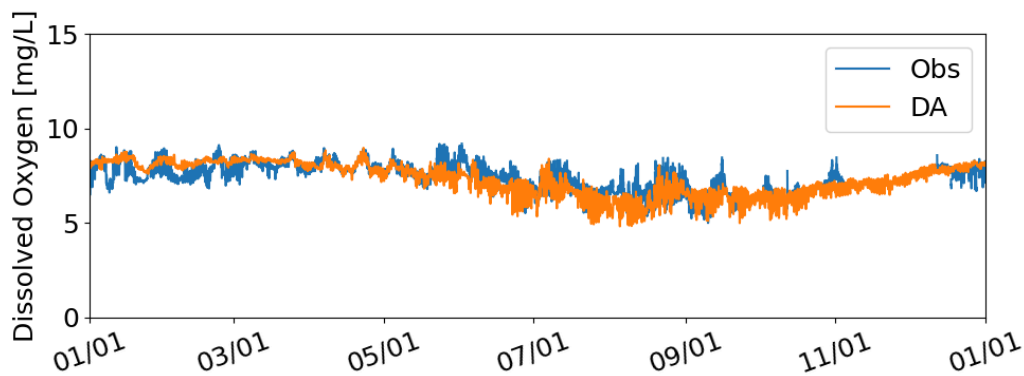
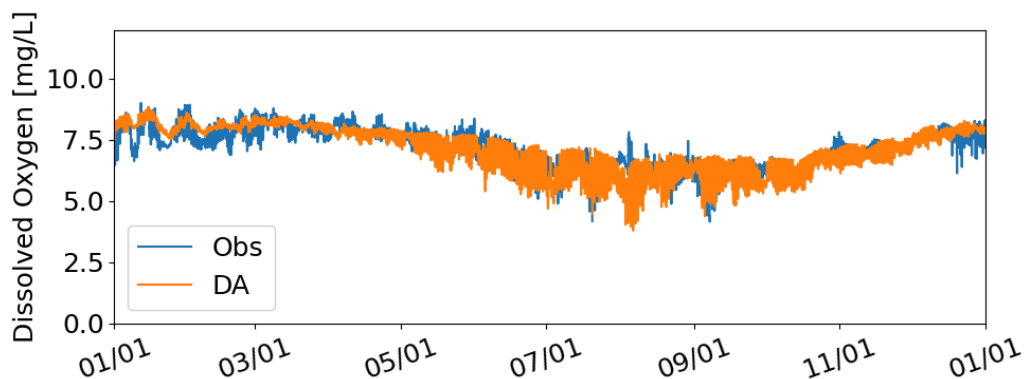
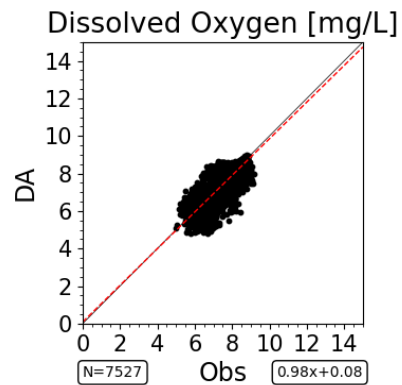


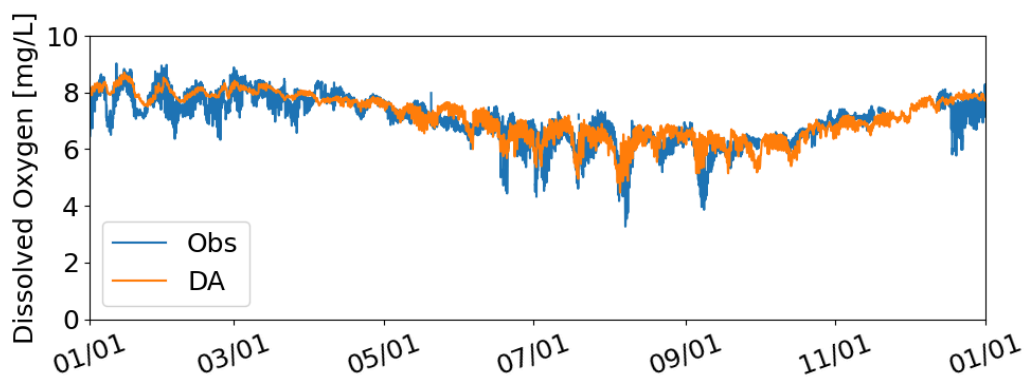
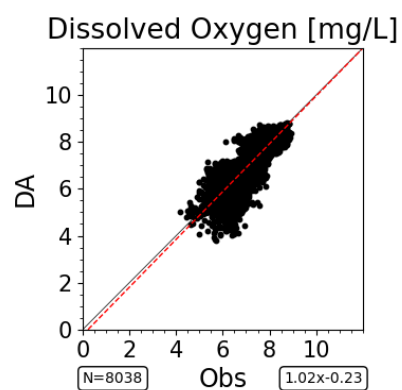
Figure S157 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

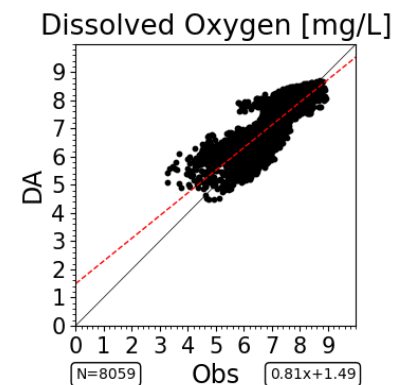
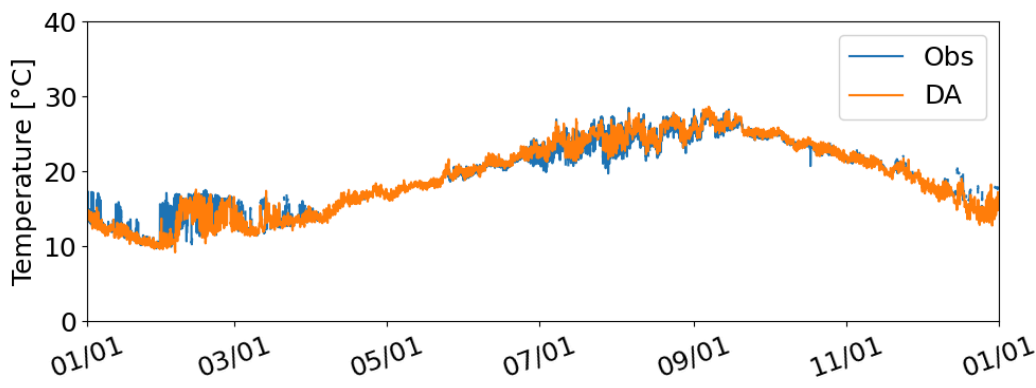
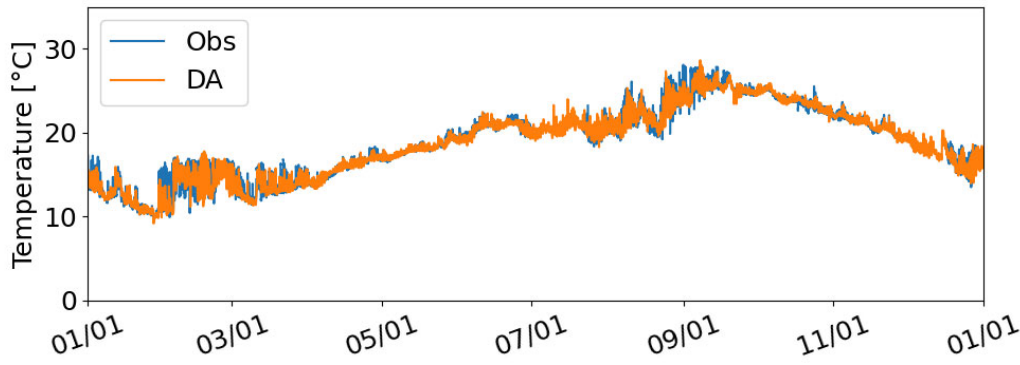
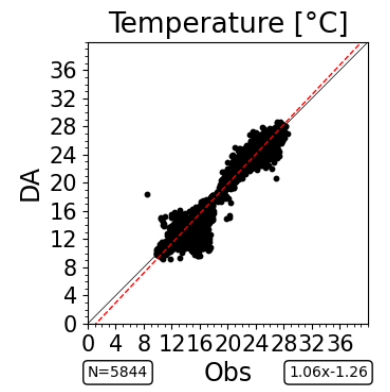


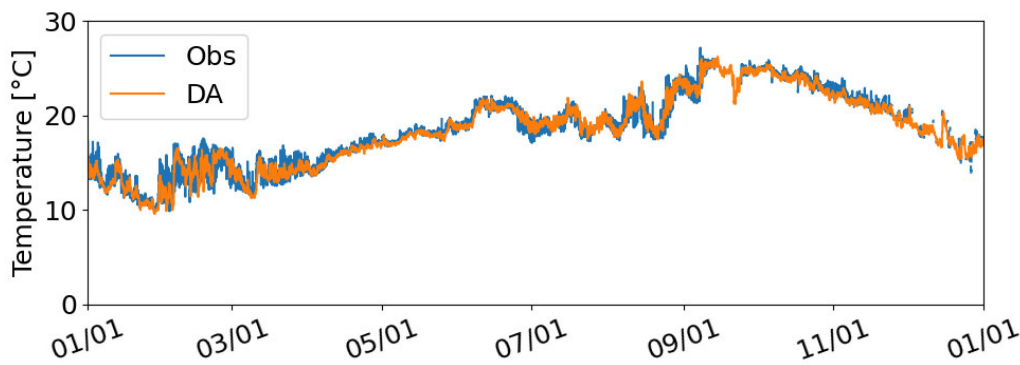
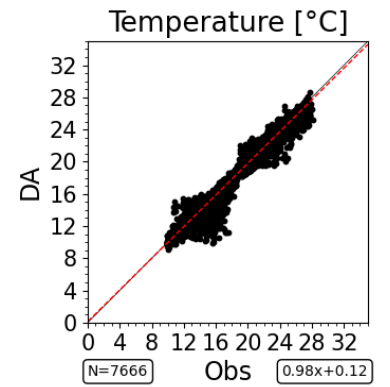
Figure S158 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

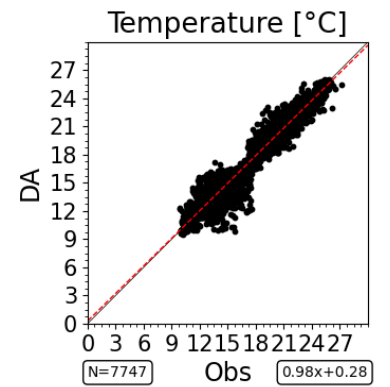
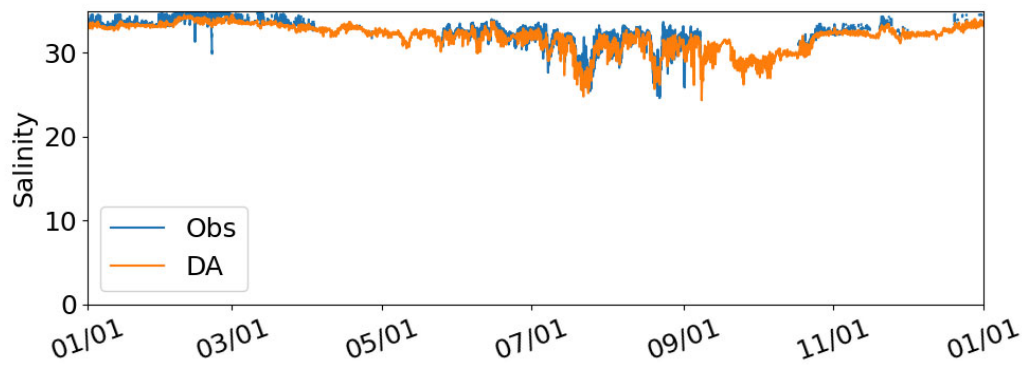
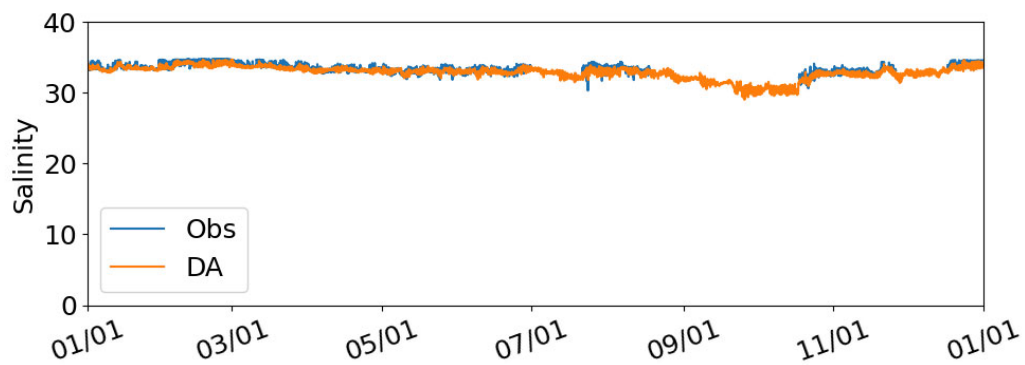
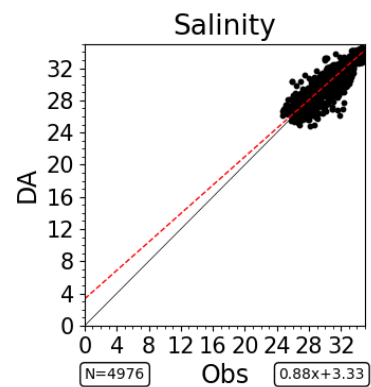


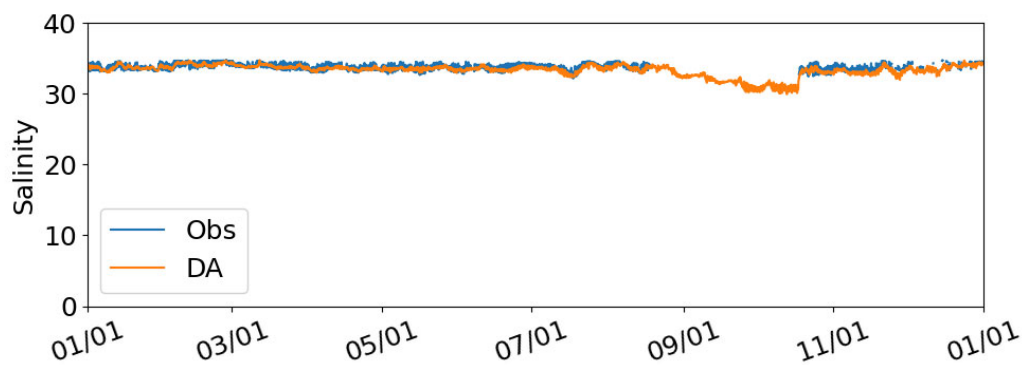
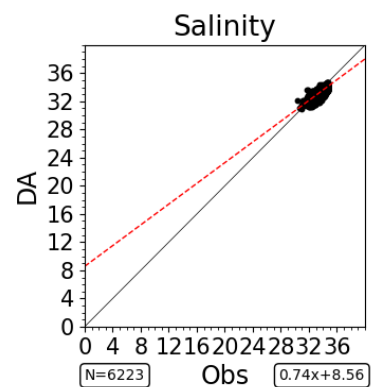
Figure S159 Timeseries and scatter plot for water temperature at Mouth of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

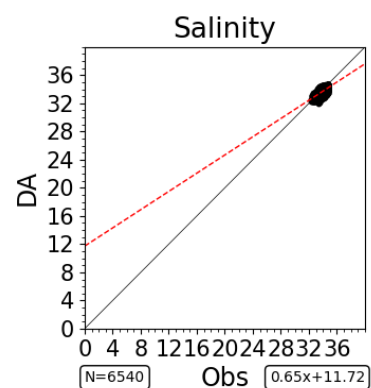
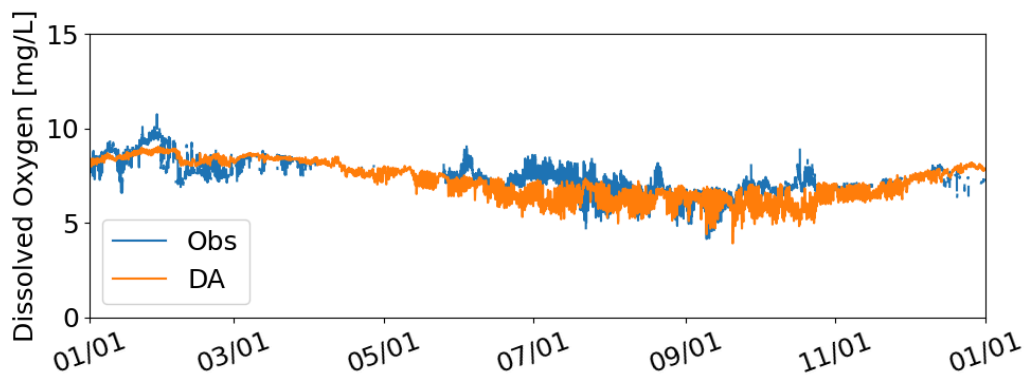
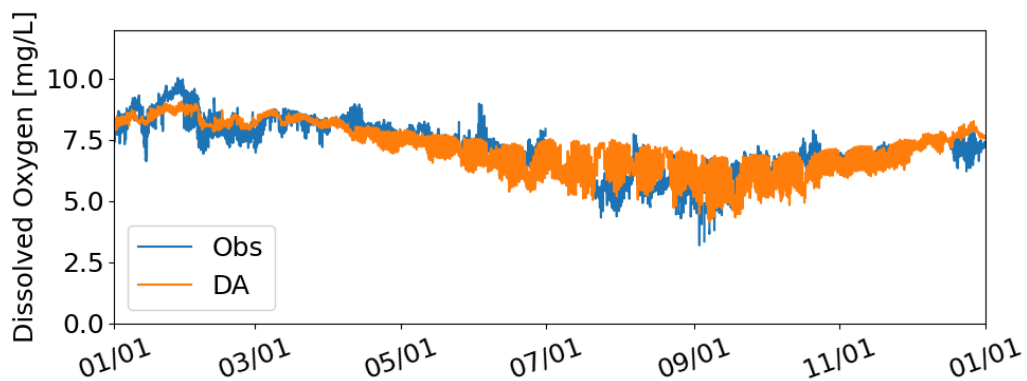
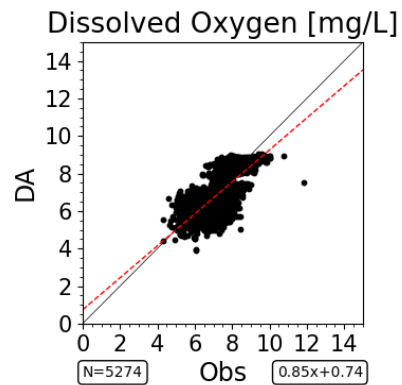


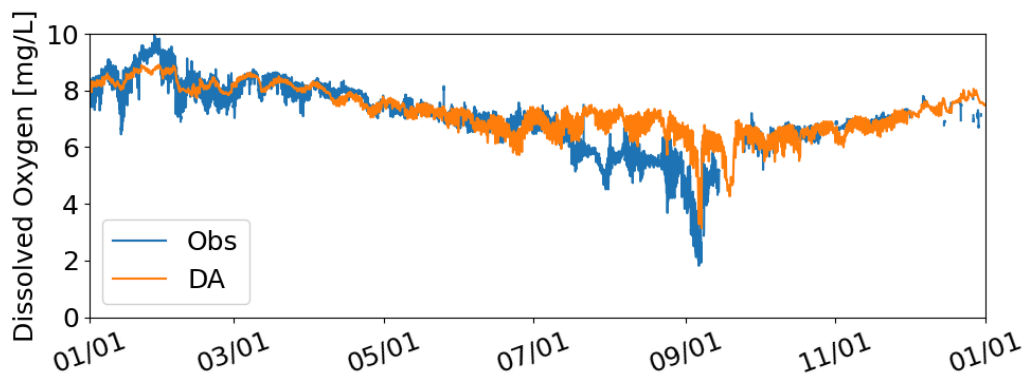
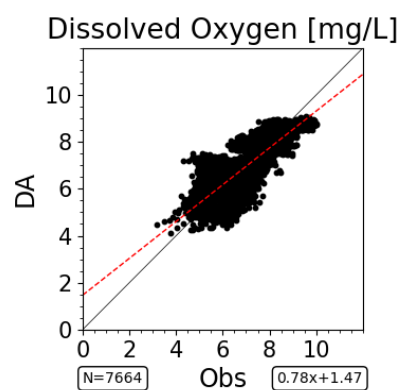
Figure S160 Timeseries and scatter plot for salinity at Mouth of Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

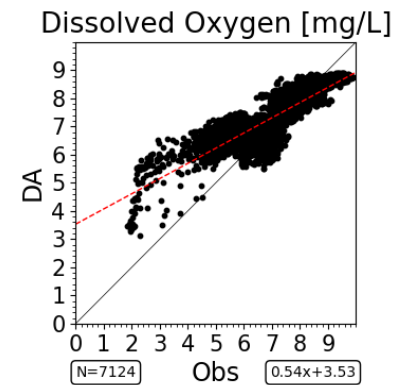


Figure S161 Timeseries and scatter plot for dissolved oxygen at Mouth of Ise Bay in 2022

S3.10 Western Ise Bay: Timeseries and scatter plot

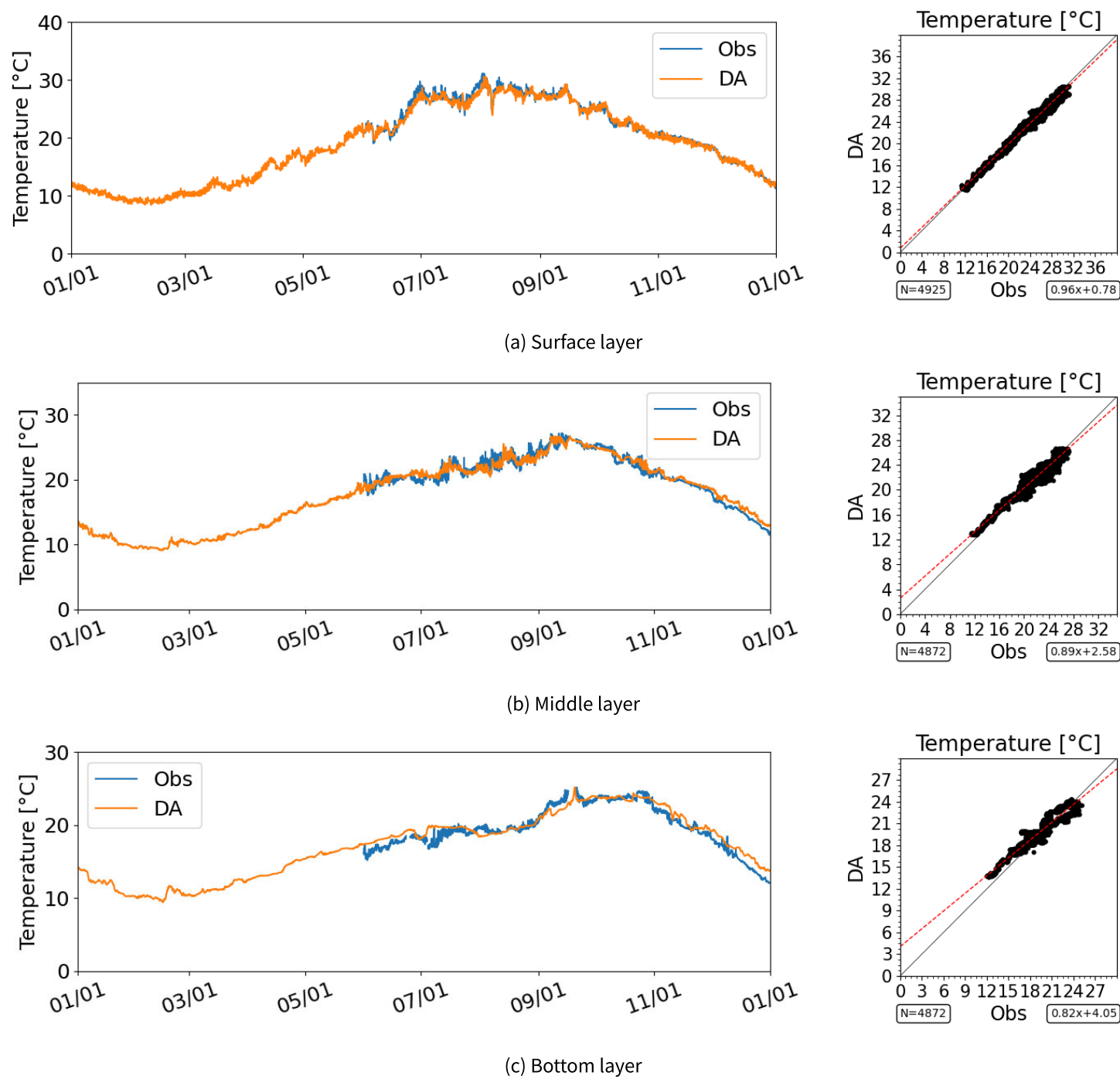
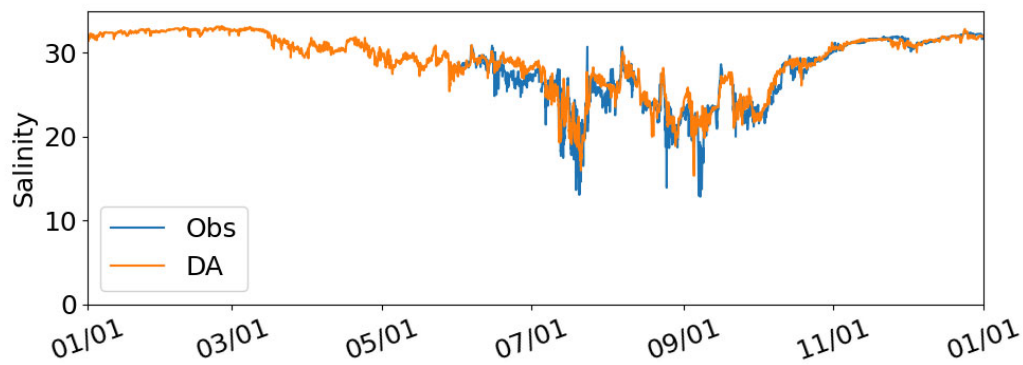
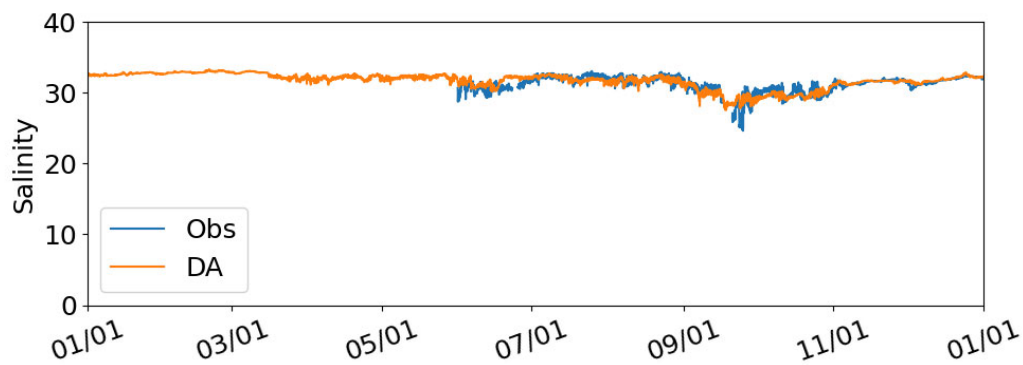
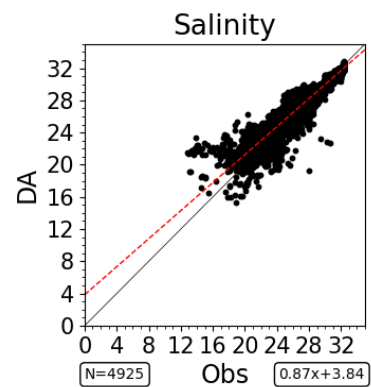


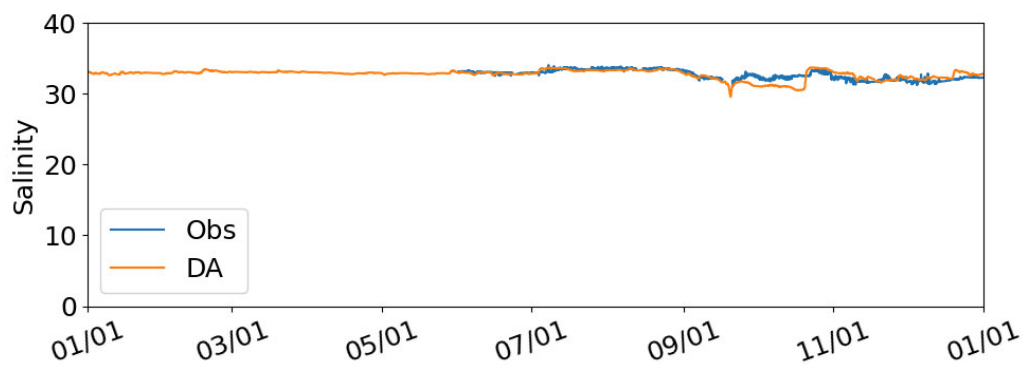
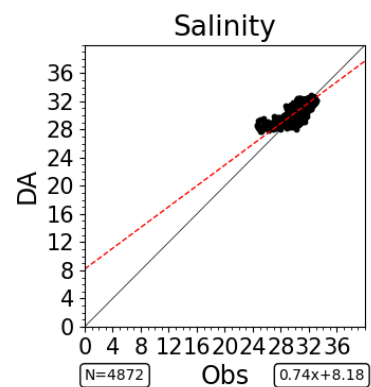
Figure S162 Timeseries and scatter plot for water temperature at Western Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

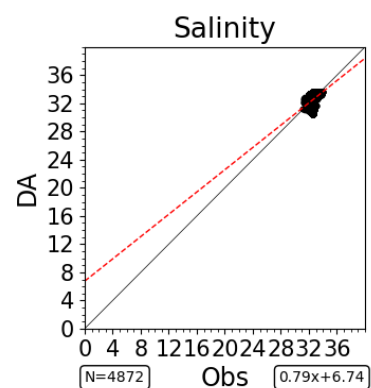
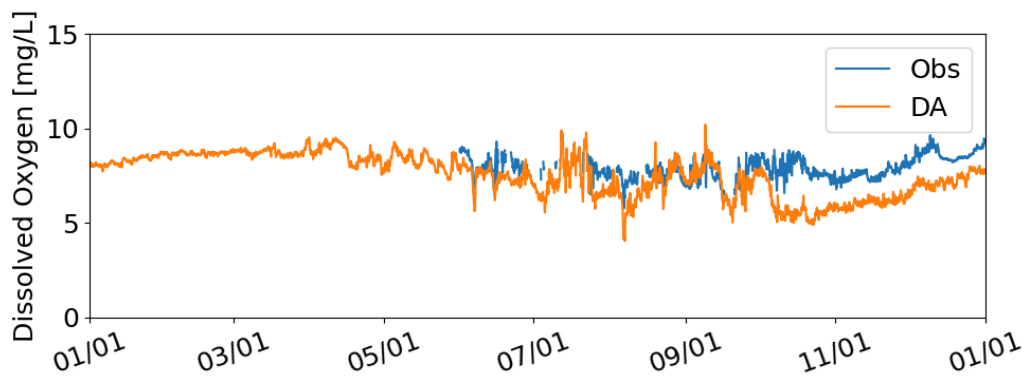
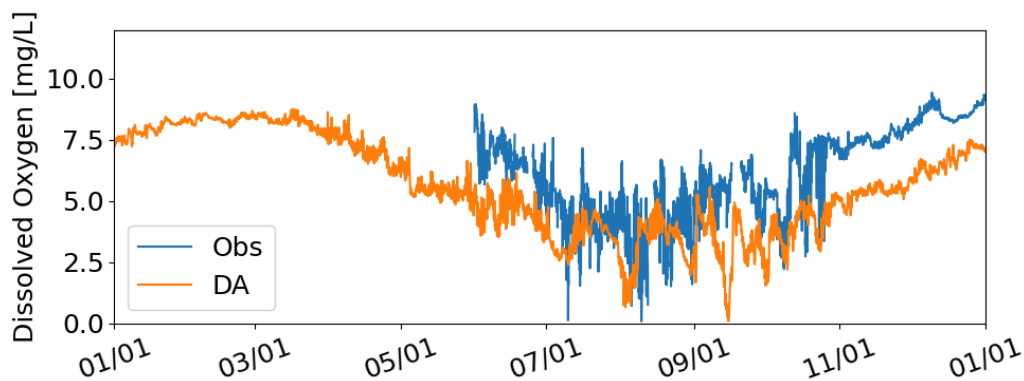
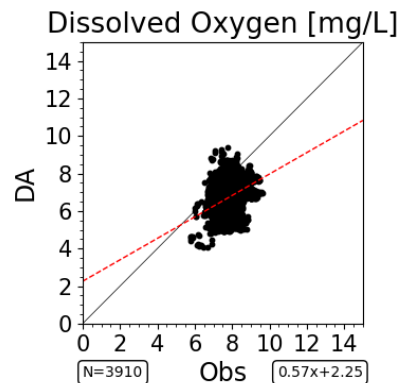


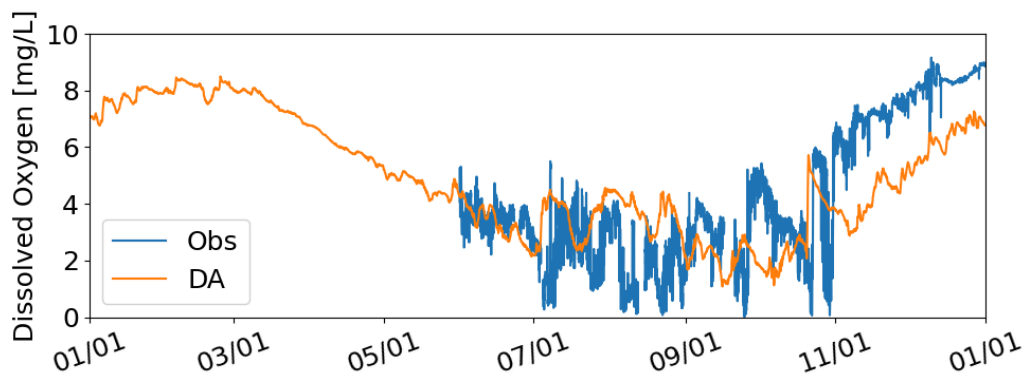
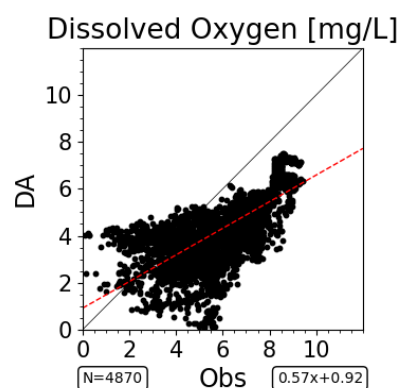
Figure S163 Timeseries and scatter plot for salinity at Western Ise Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

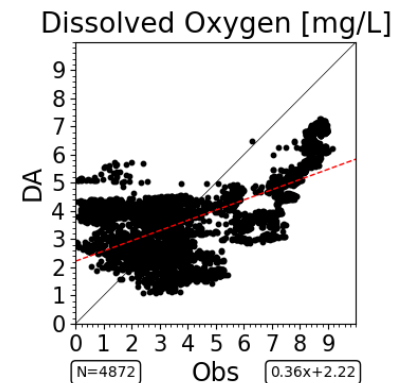


Figure S164 Timeseries and scatter plot for dissolved oxygen at Western Ise Bay in 2022

S3.11 Nakayama Channel: Timeseries and scatter plot

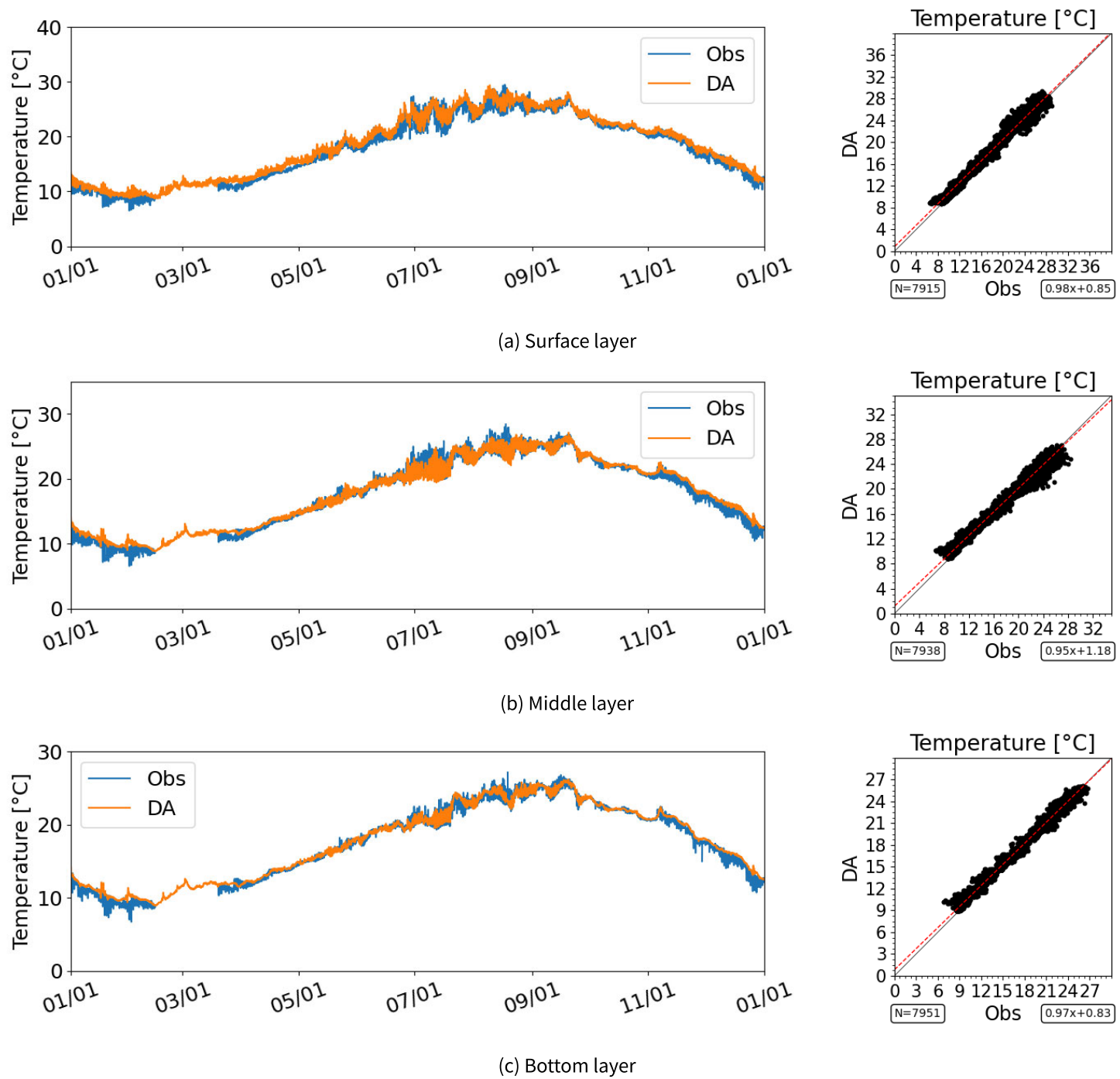
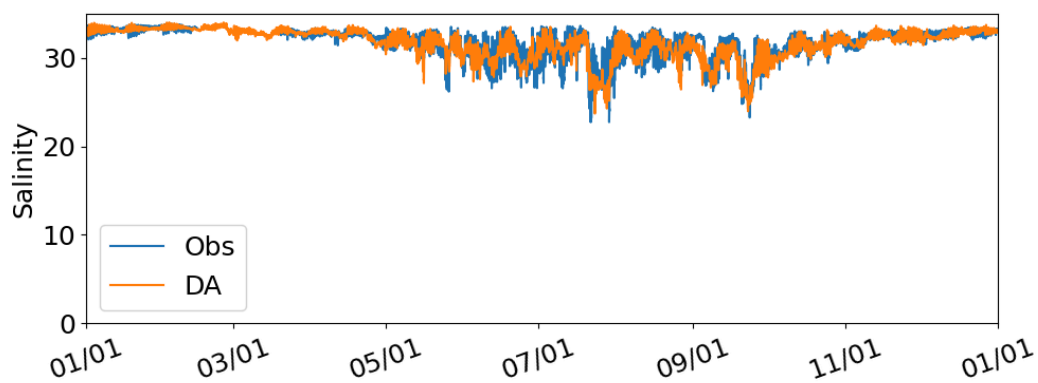
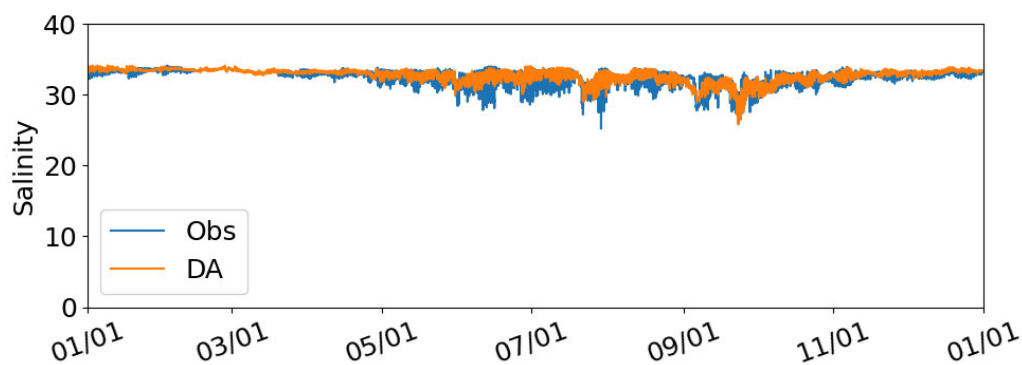
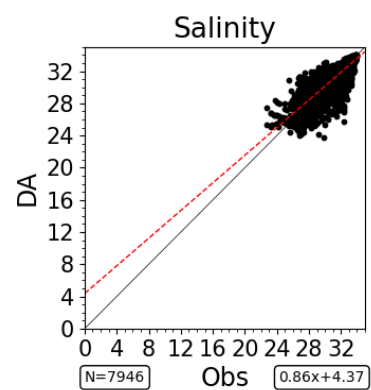


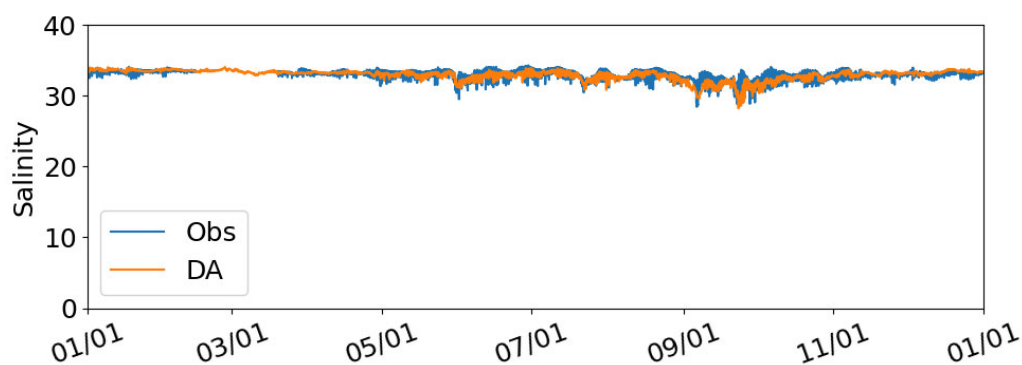
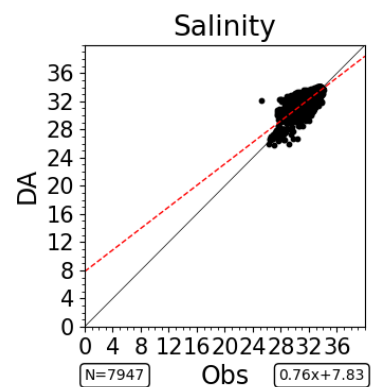
Figure S165 Timeseries and scatter plot for water temperature at Nakayama Channel in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

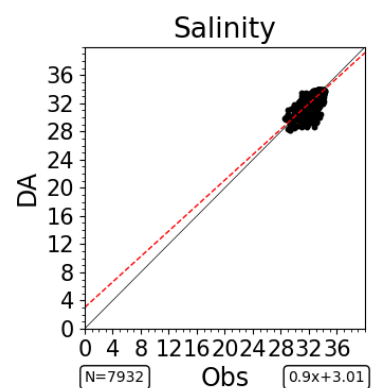
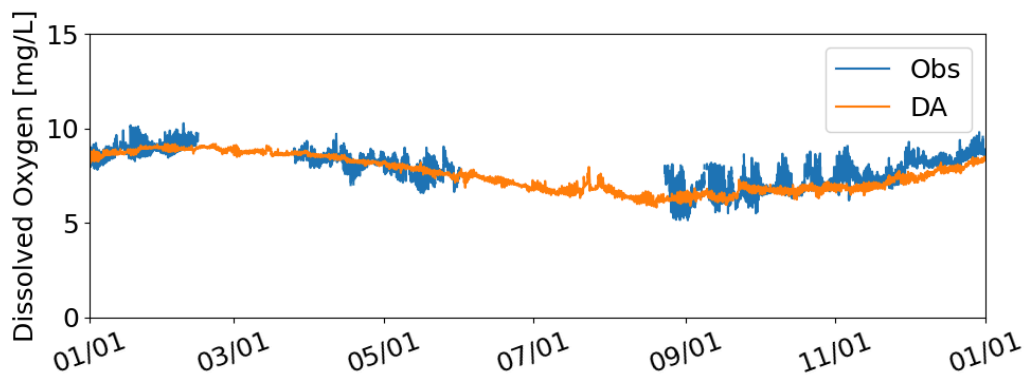
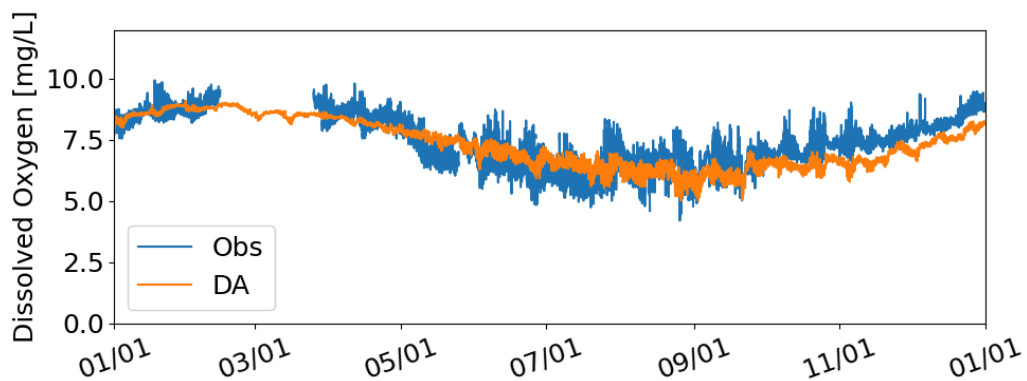
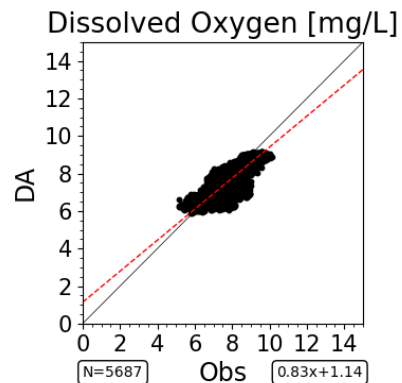


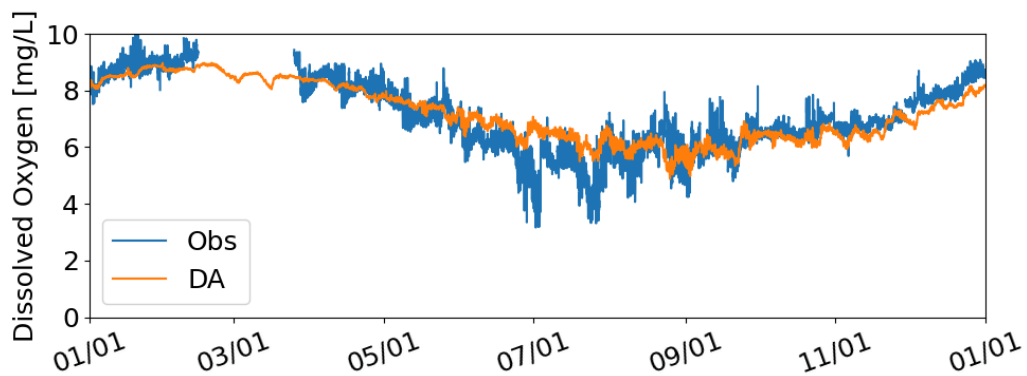
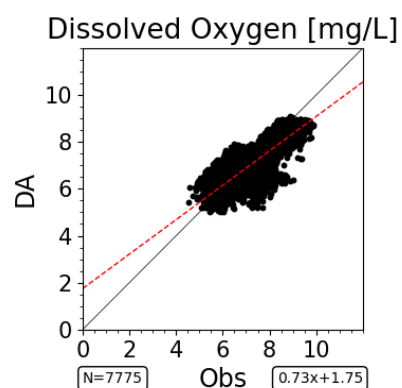
Figure S166 Timeseries and scatter plot for salinity at Nakayama Channel in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

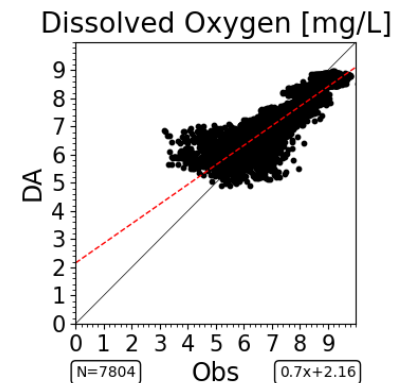
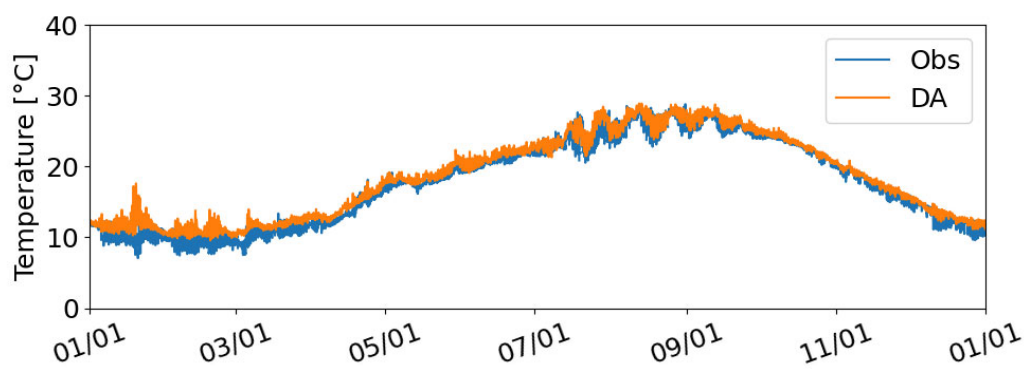
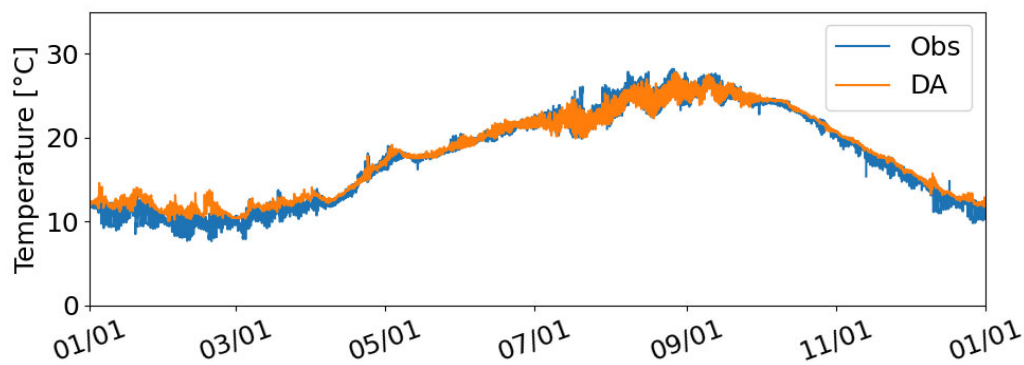
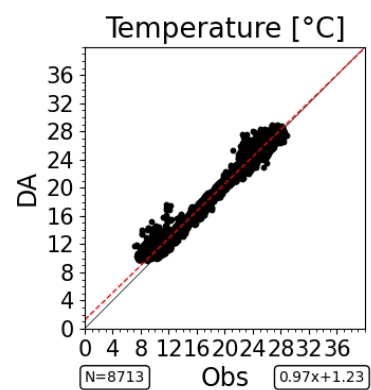


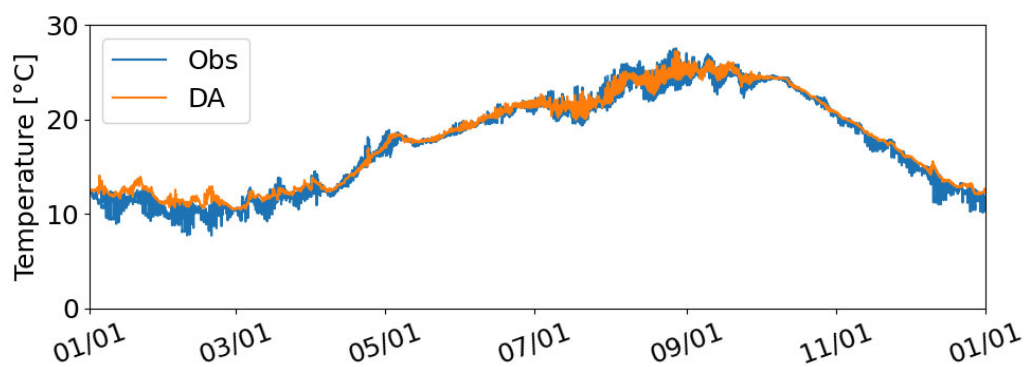
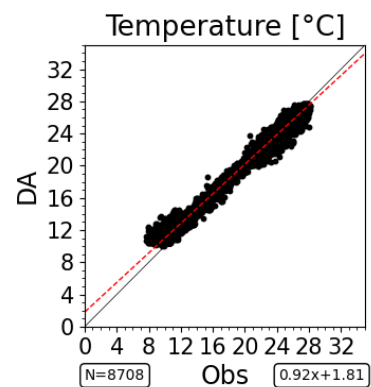
Figure S167 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2011



(a) Surface layer



(b) Middle layer



(c) Bottom layer

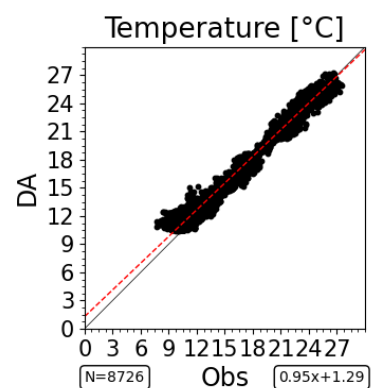
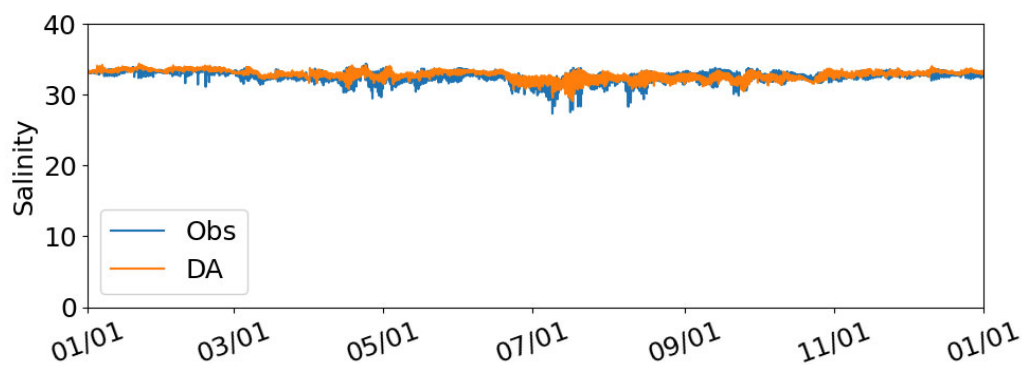
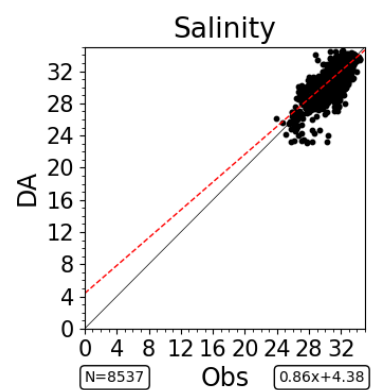


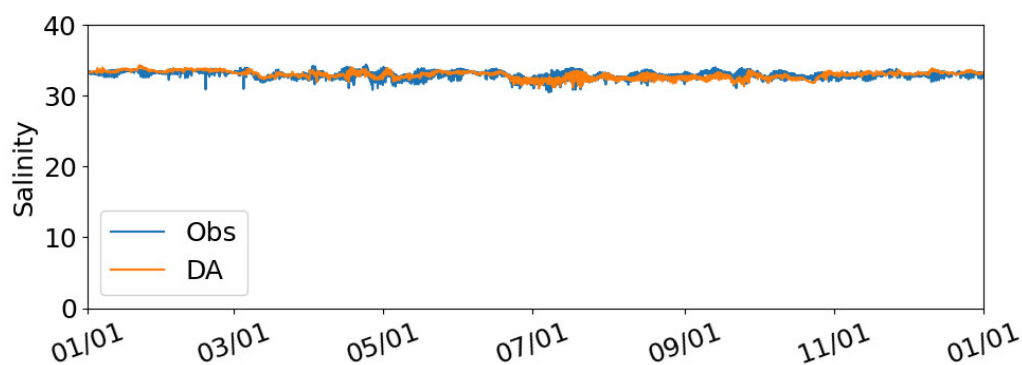
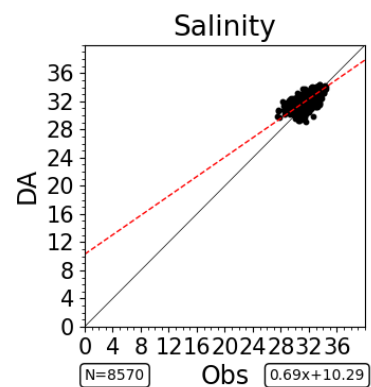
Figure S168 Timeseries and scatter plot for water temperature at Nakayama Channel in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

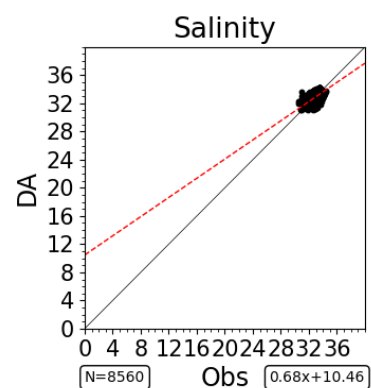
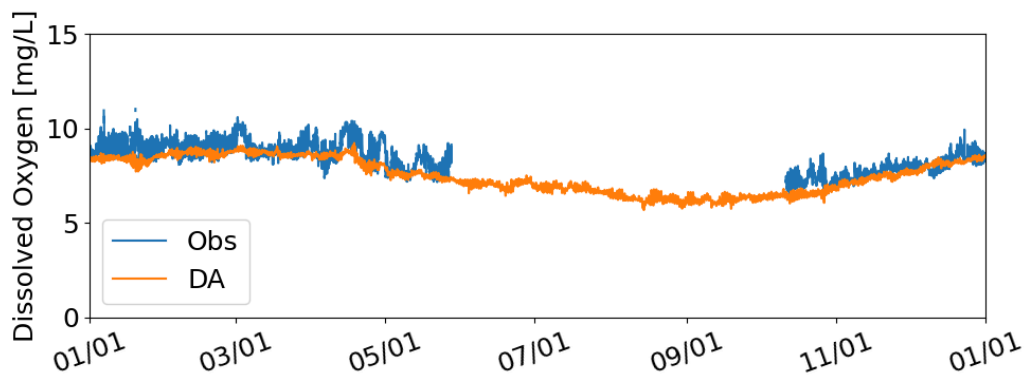
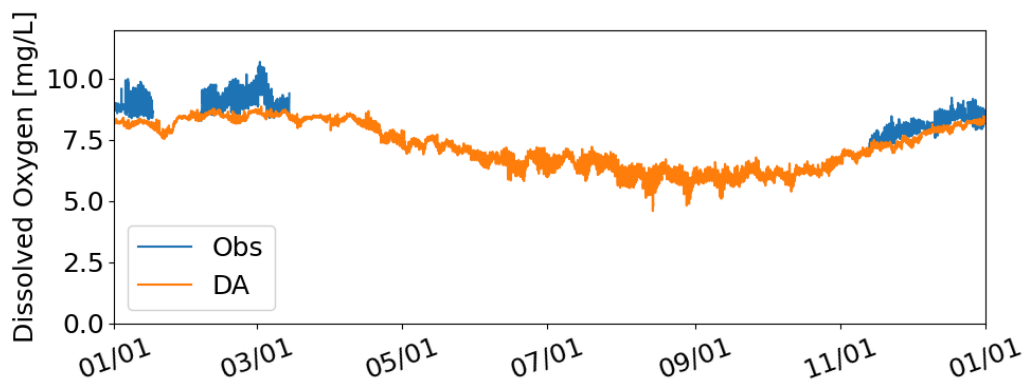
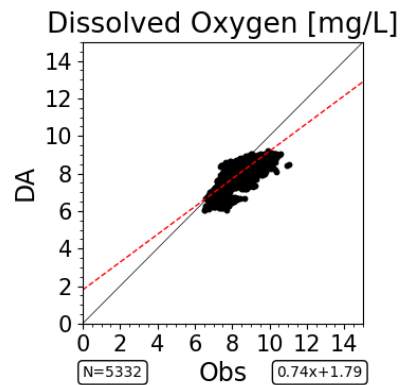


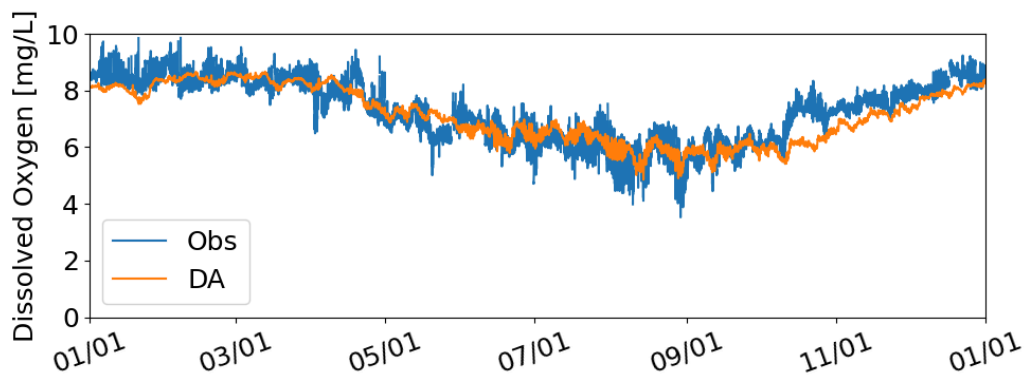
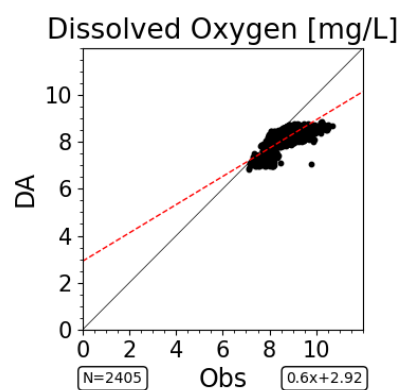
Figure S169 Timeseries and scatter plot for salinity at Nakayama Channel in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

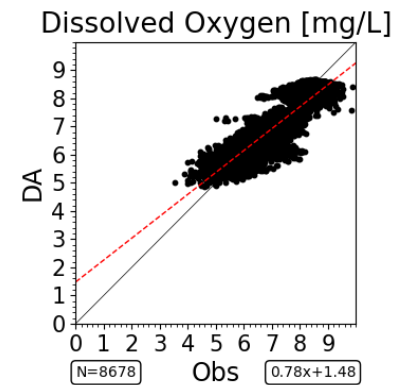
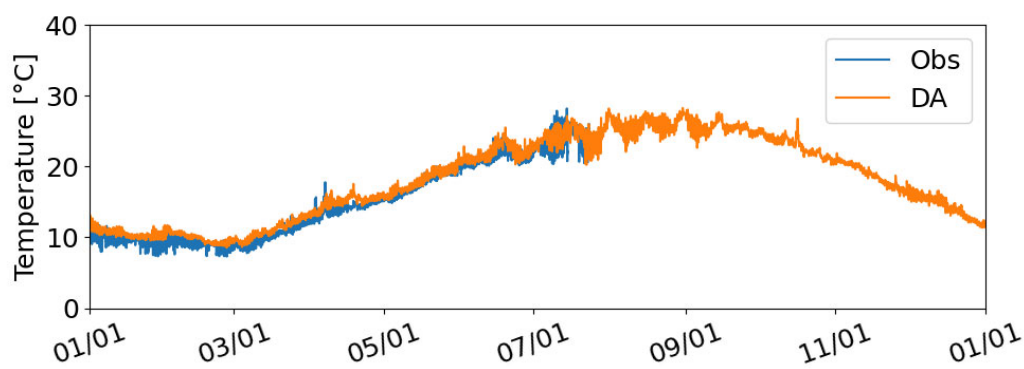
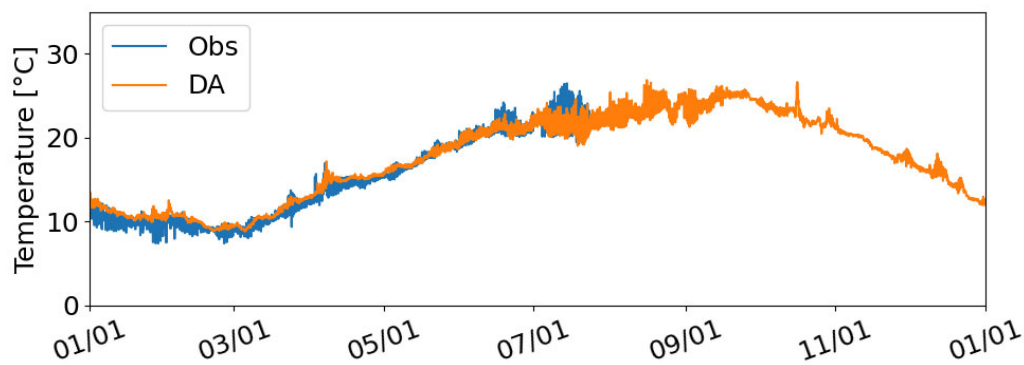
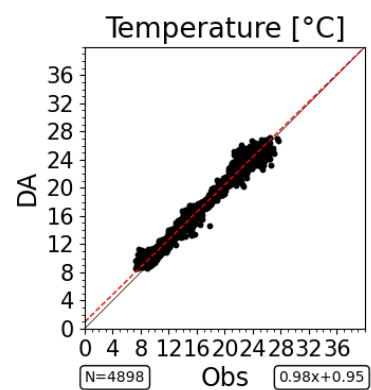


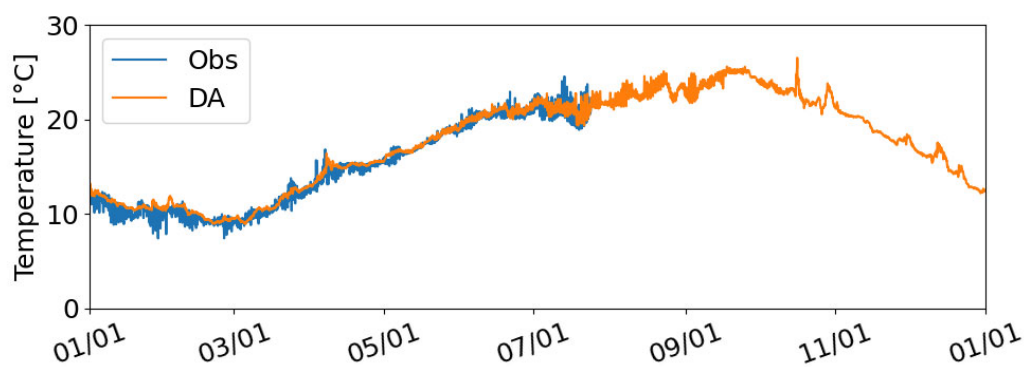
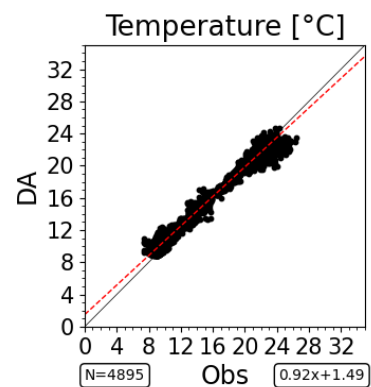
Figure S170 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2012



(a) Surface layer



(b) Middle layer



(c) Bottom layer

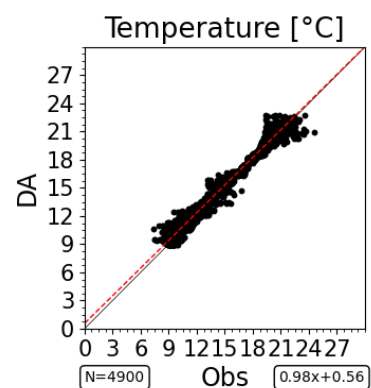
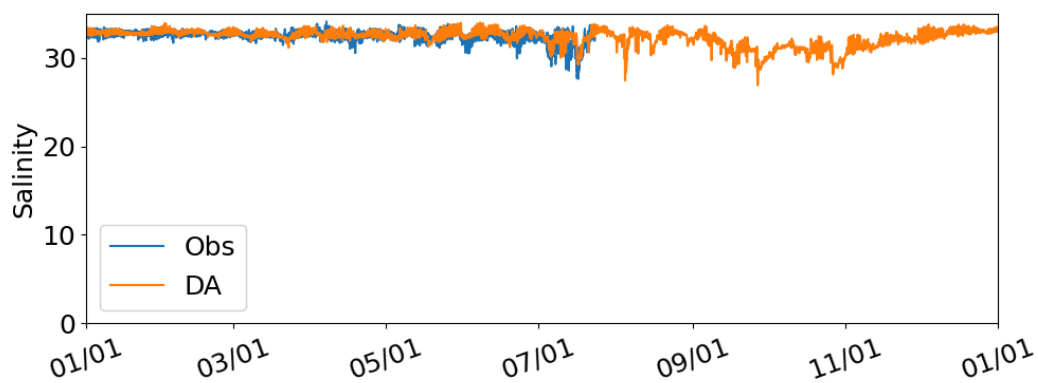
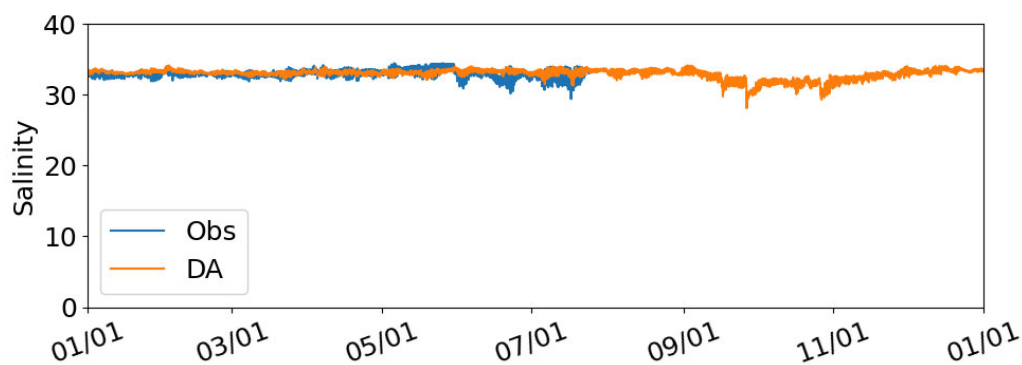
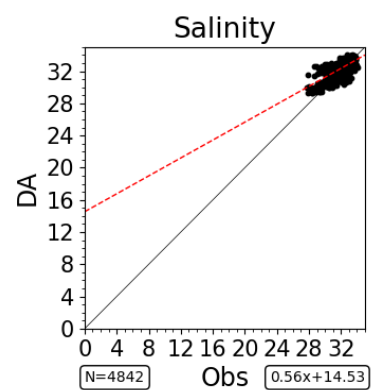


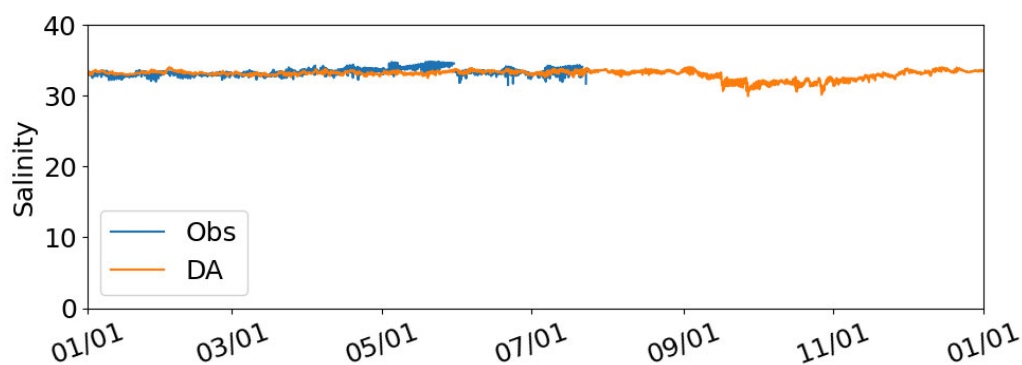
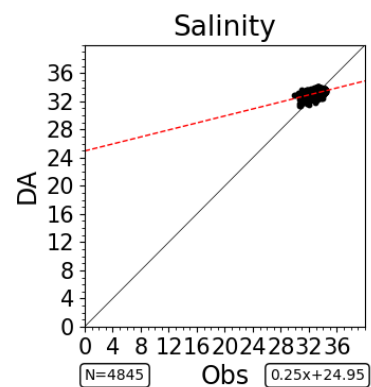
Figure S171 Timeseries and scatter plot for water temperature at Nakayama Channel in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

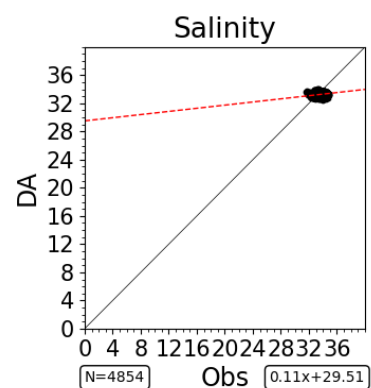
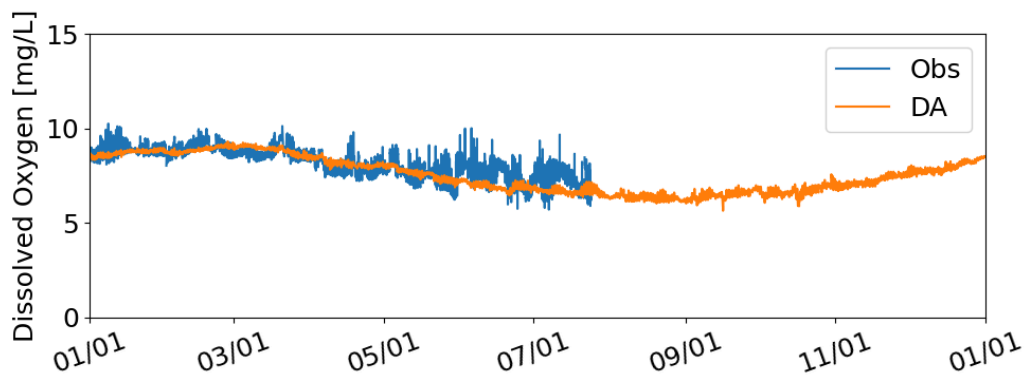
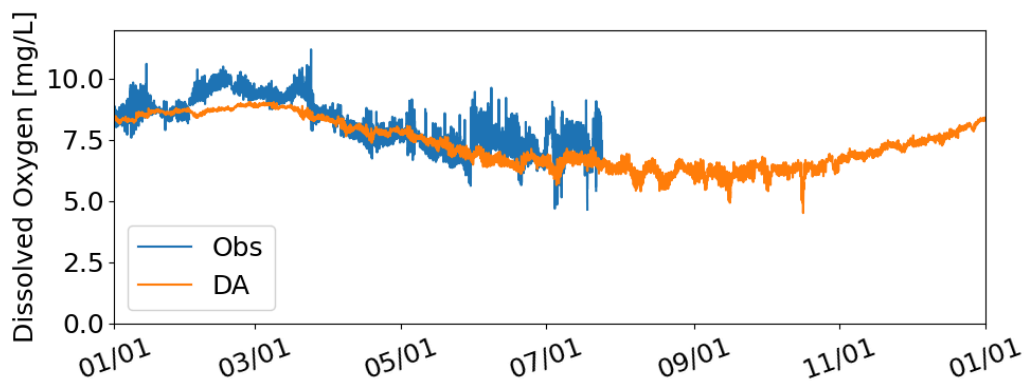
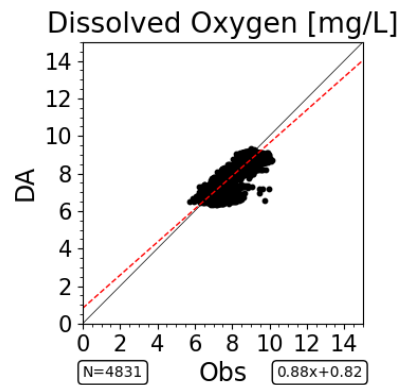


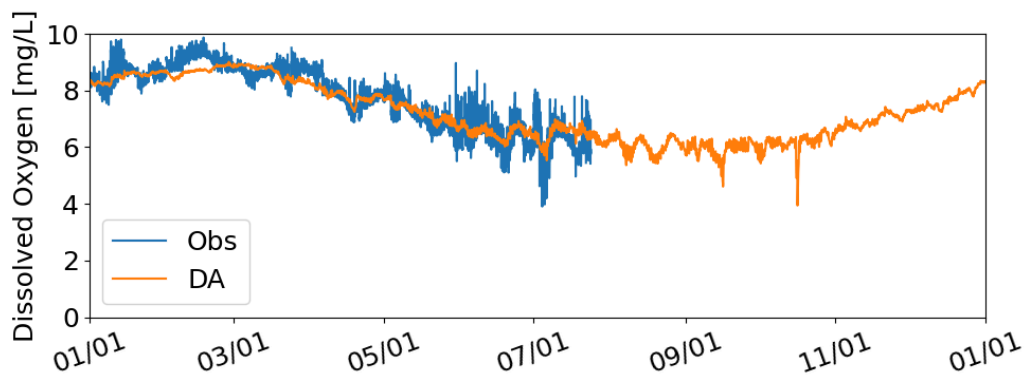
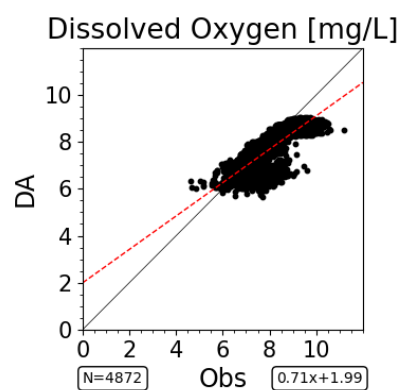
Figure S172 Timeseries and scatter plot for salinity at Nakayama Channel in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

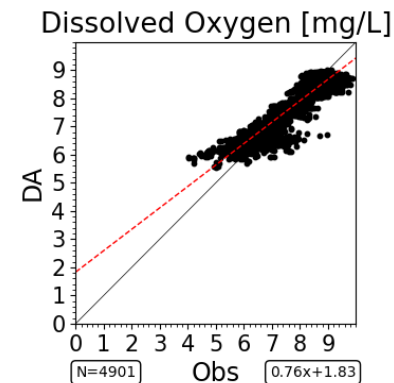
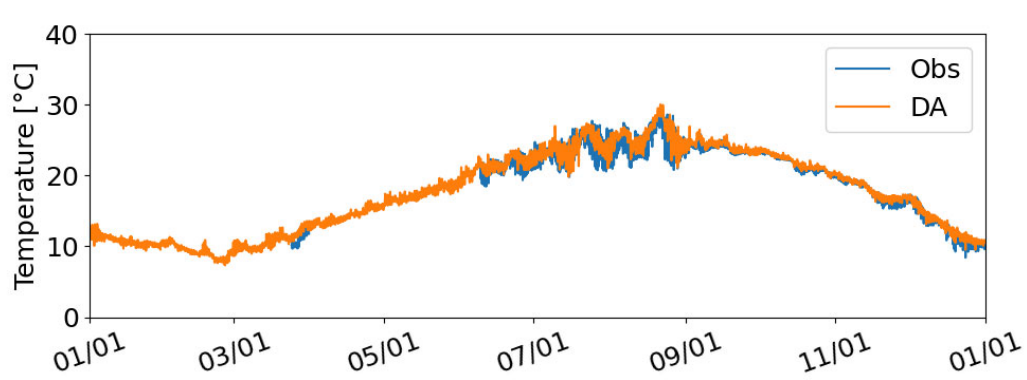
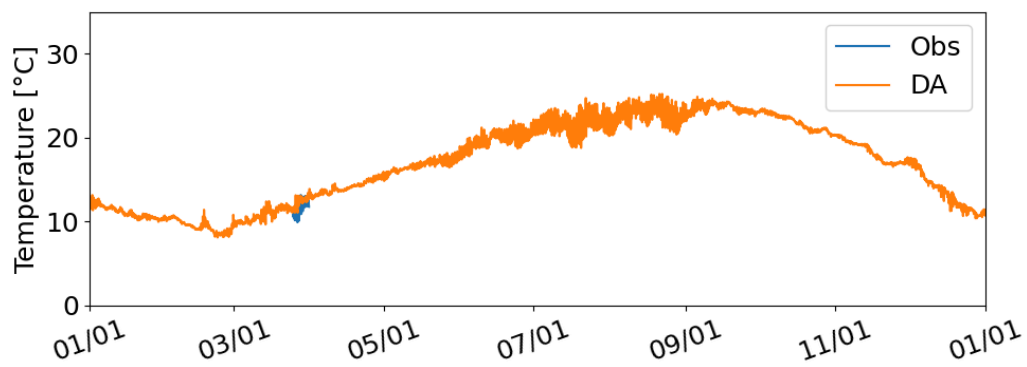
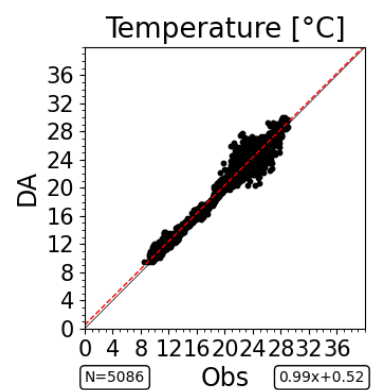


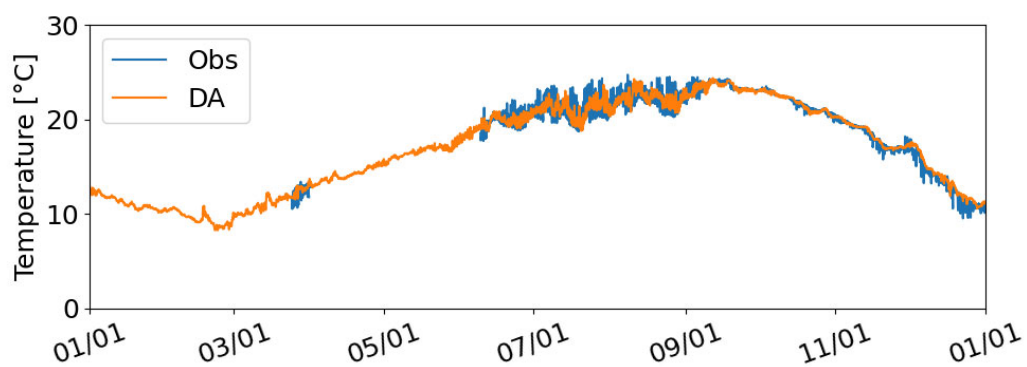
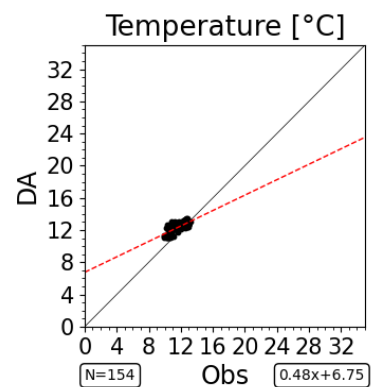
Figure S173 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2013



(a) Surface layer



(b) Middle layer



(c) Bottom layer

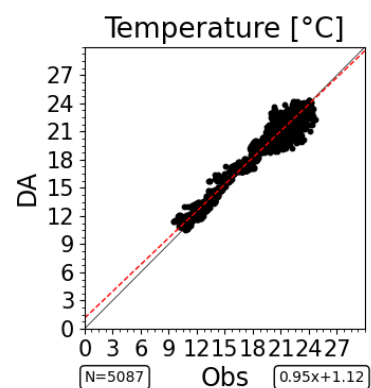
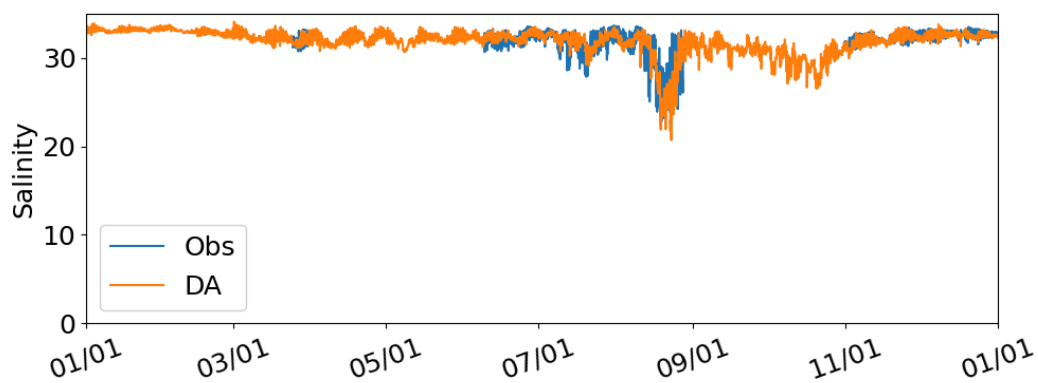
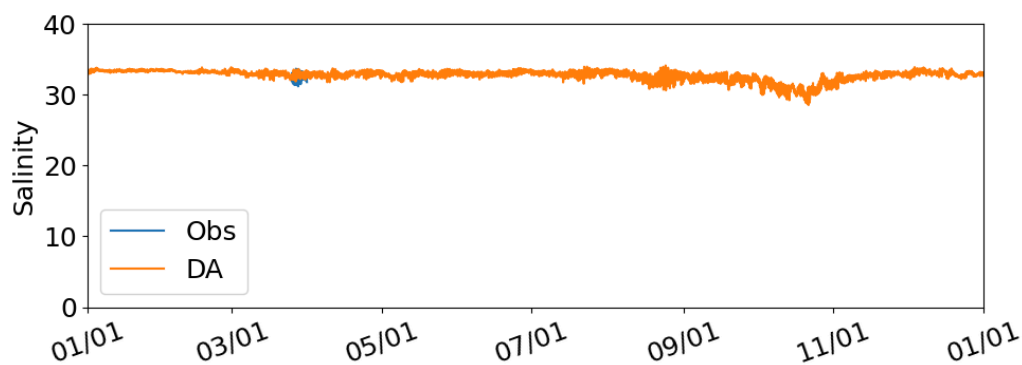
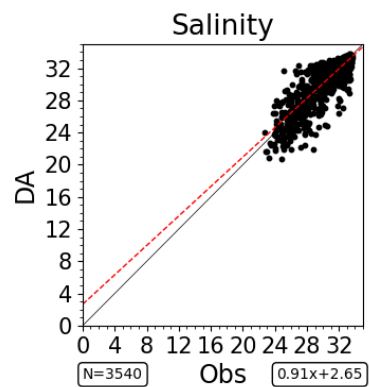


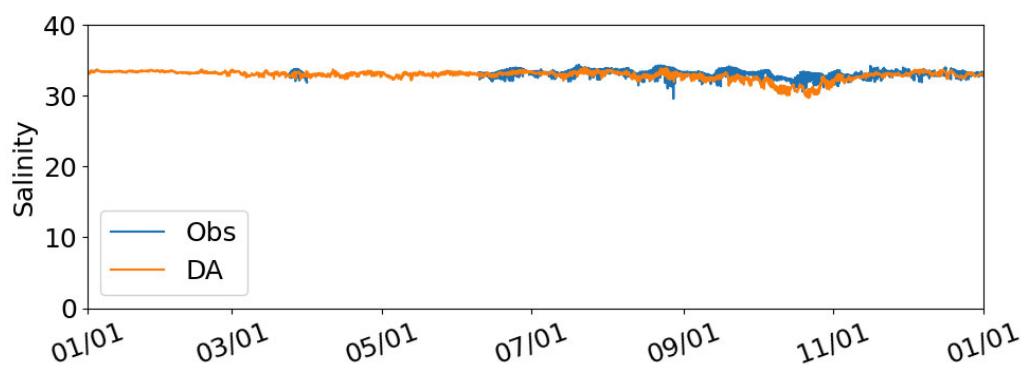
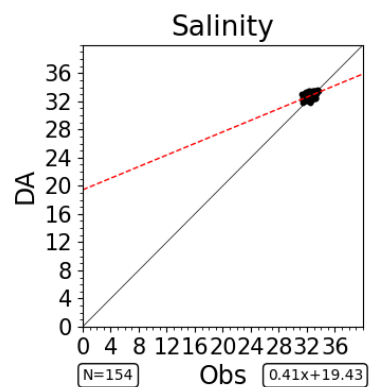
Figure S174 Timeseries and scatter plot for water temperature at Nakayama Channel in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

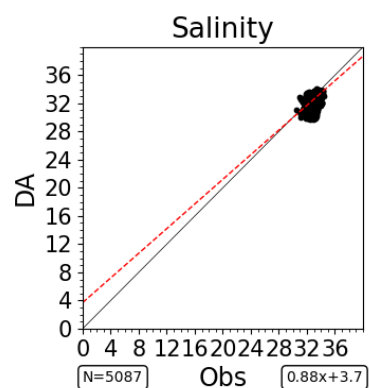
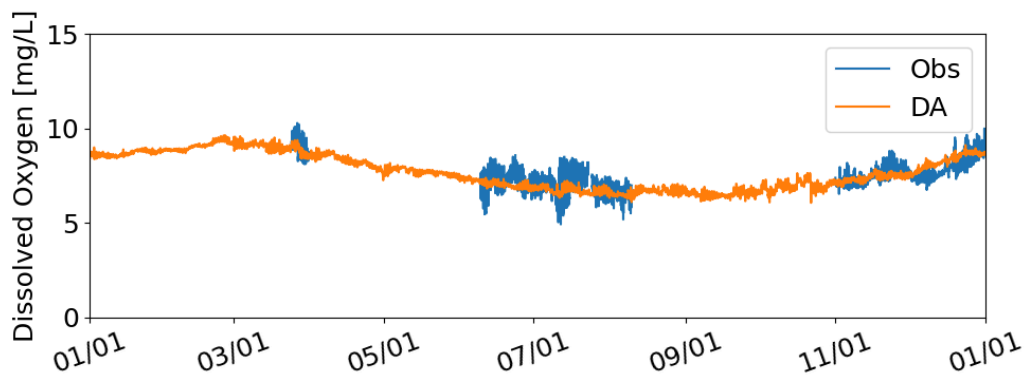
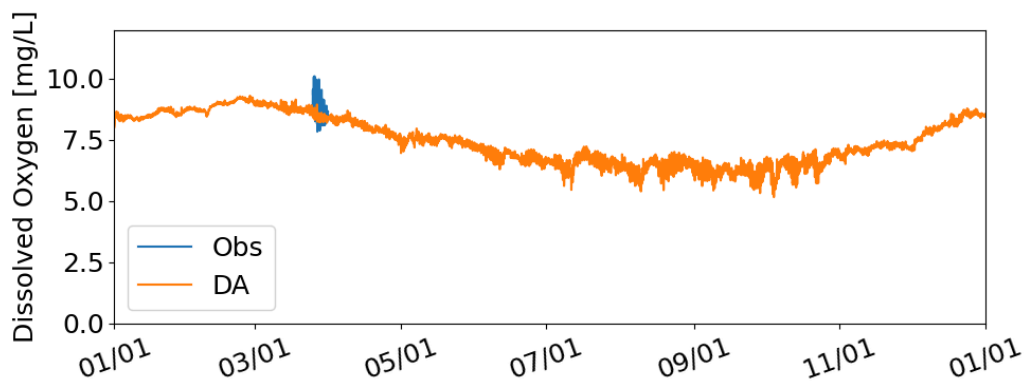
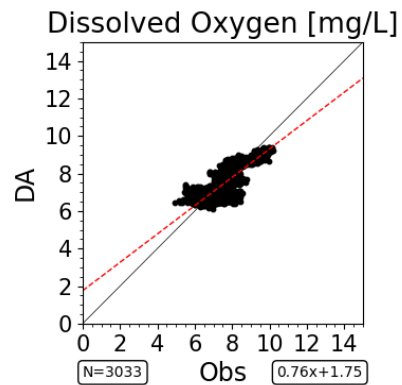


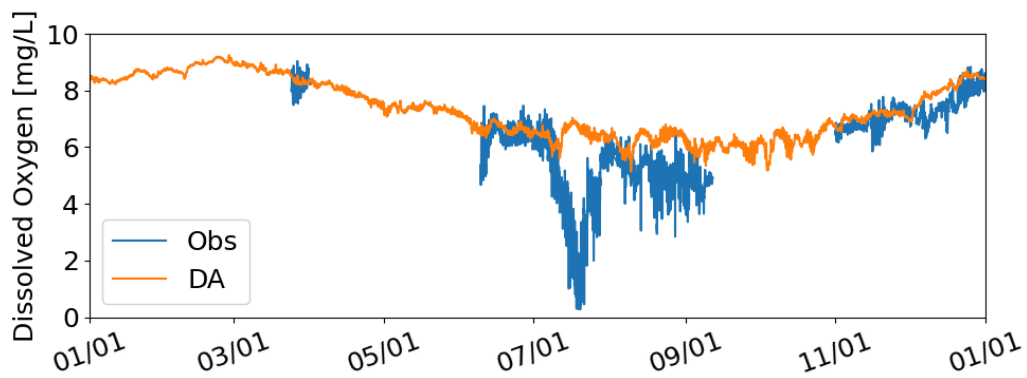
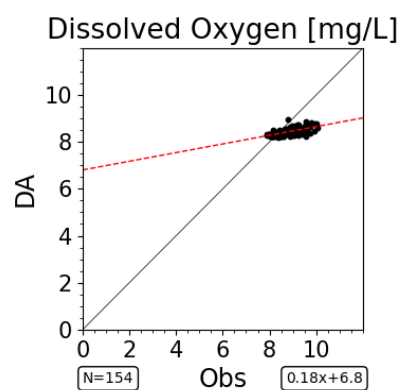
Figure S175 Timeseries and scatter plot for salinity at Nakayama Channel in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

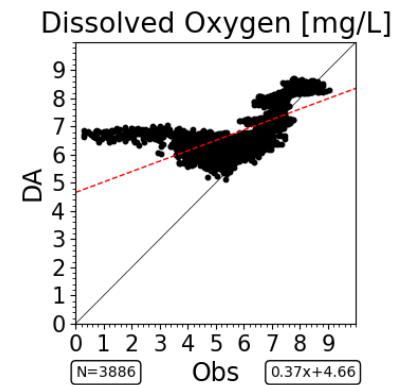
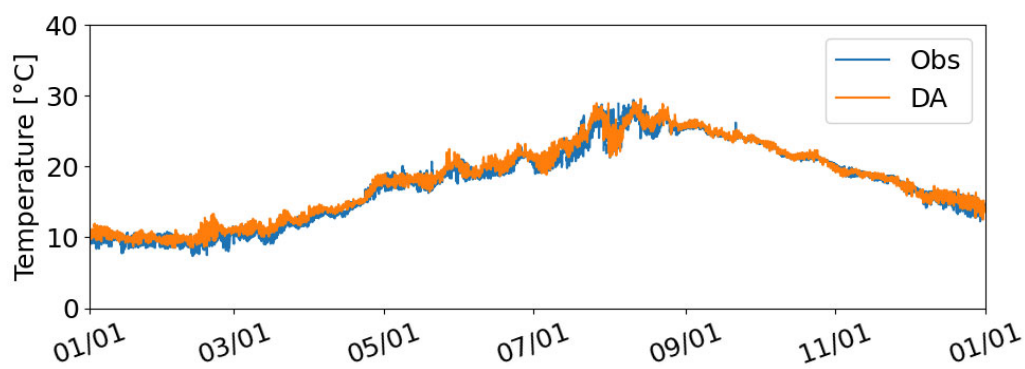
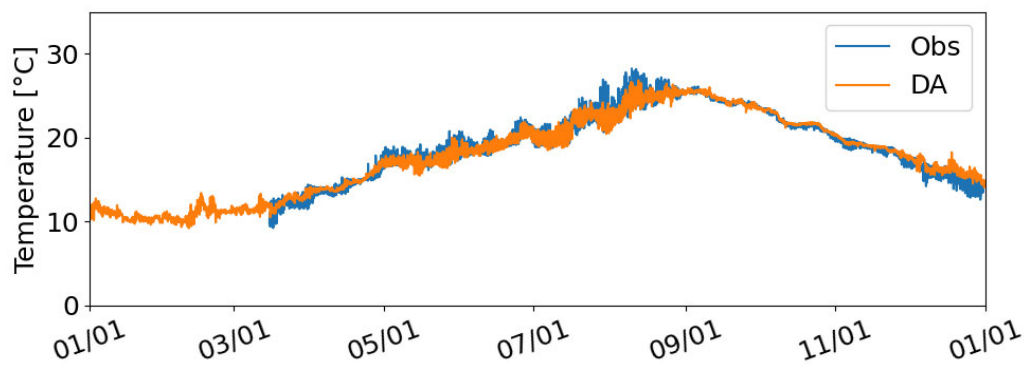
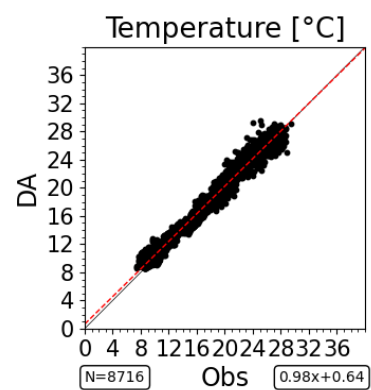


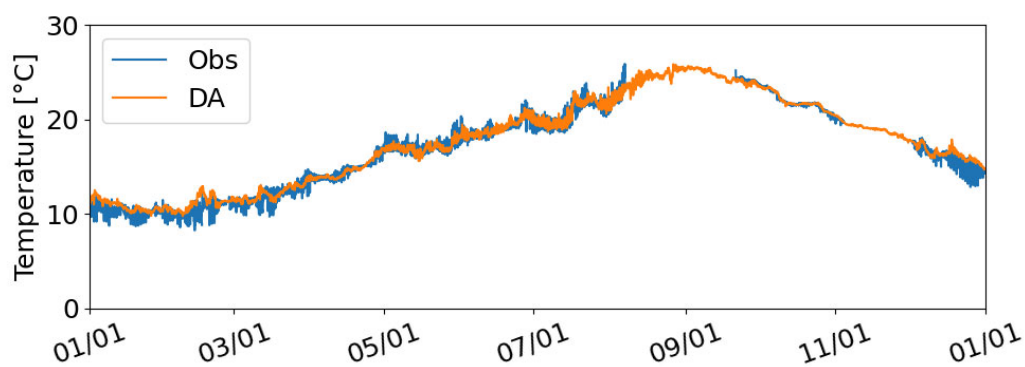
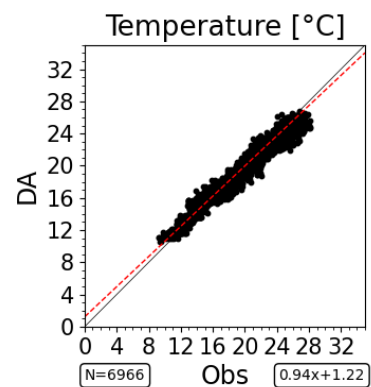
Figure S176 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

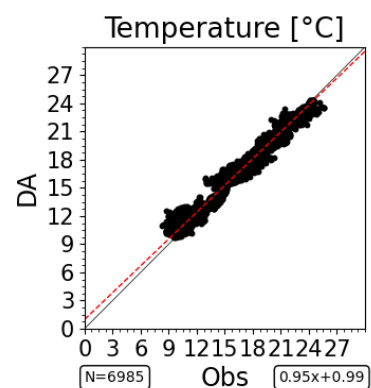
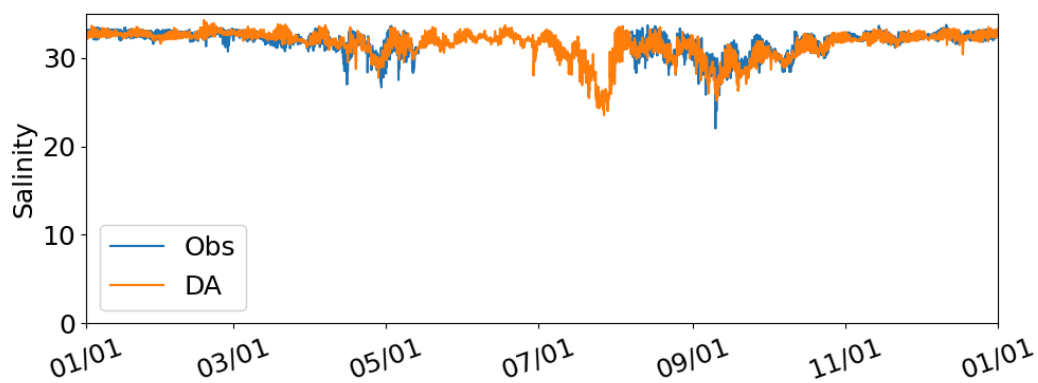
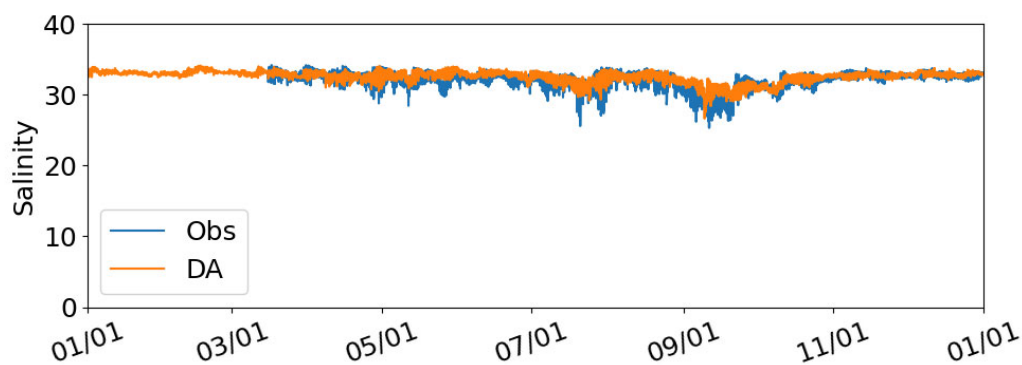
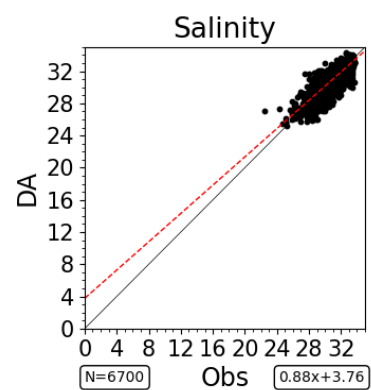


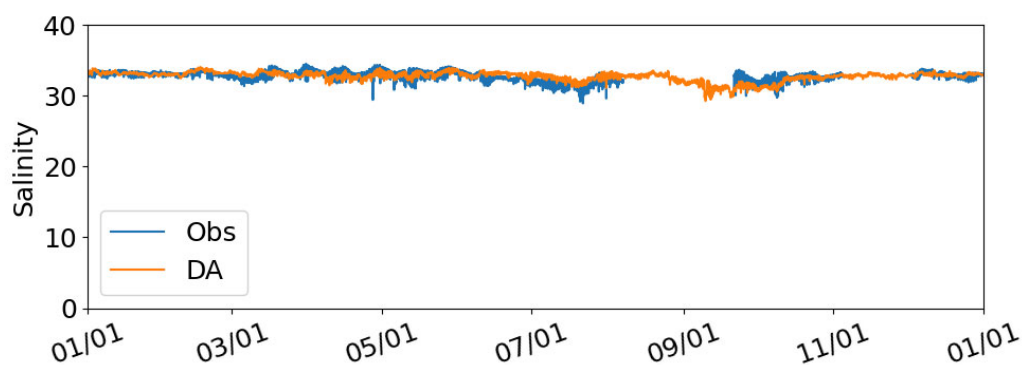
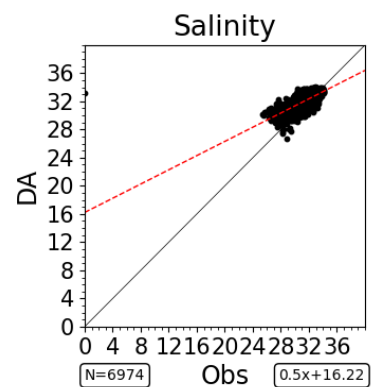
Figure S177 Timeseries and scatter plot for water temperature at Nakayama Channel in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

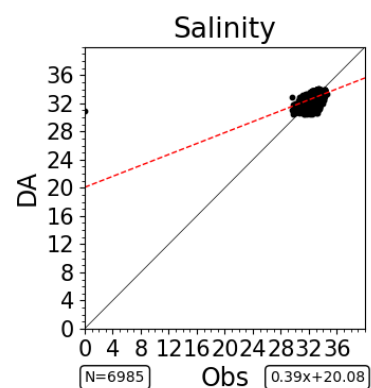
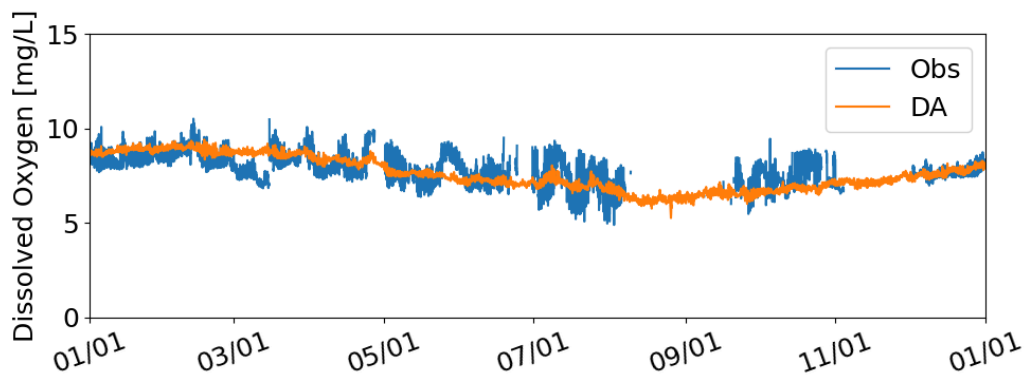
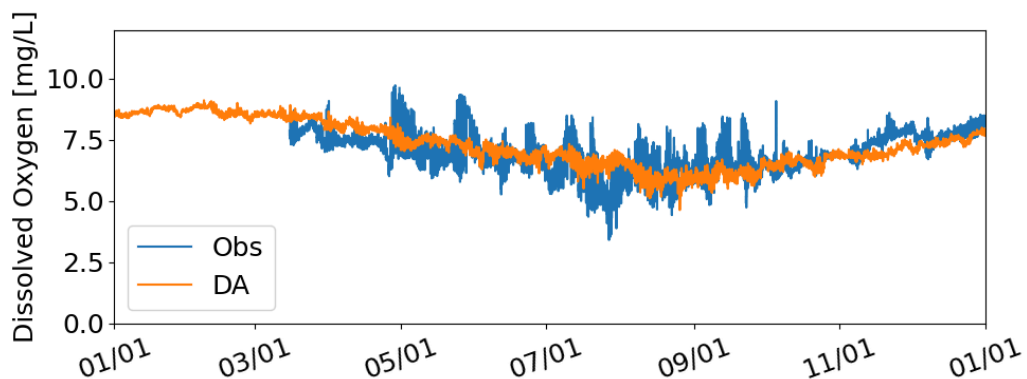
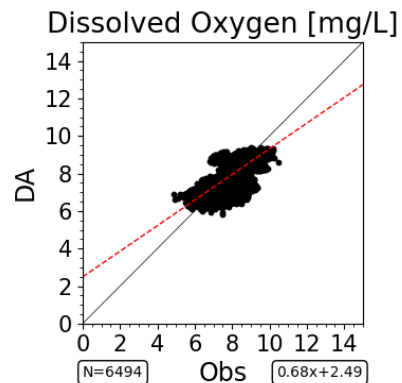


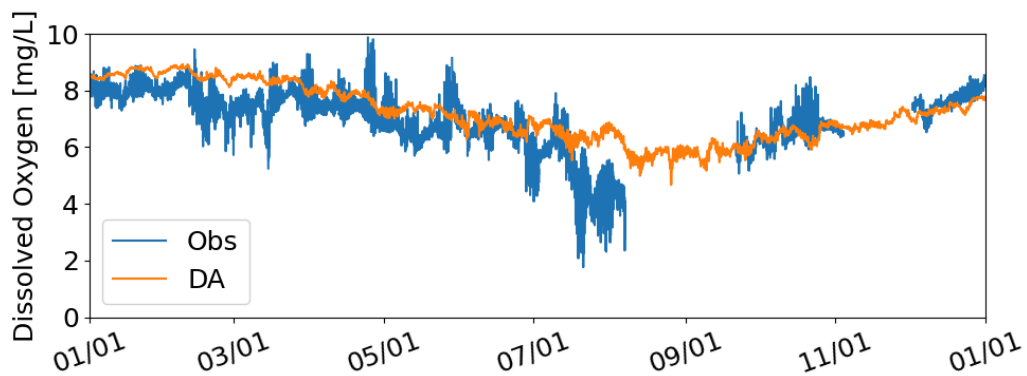
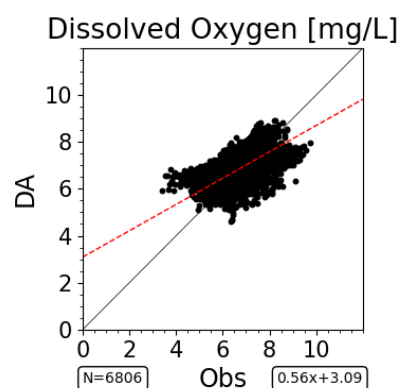
Figure S178 Timeseries and scatter plot for salinity at Nakayama Channel in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

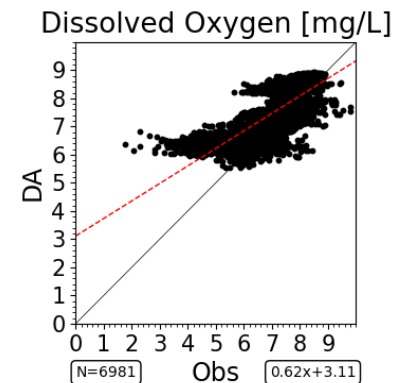
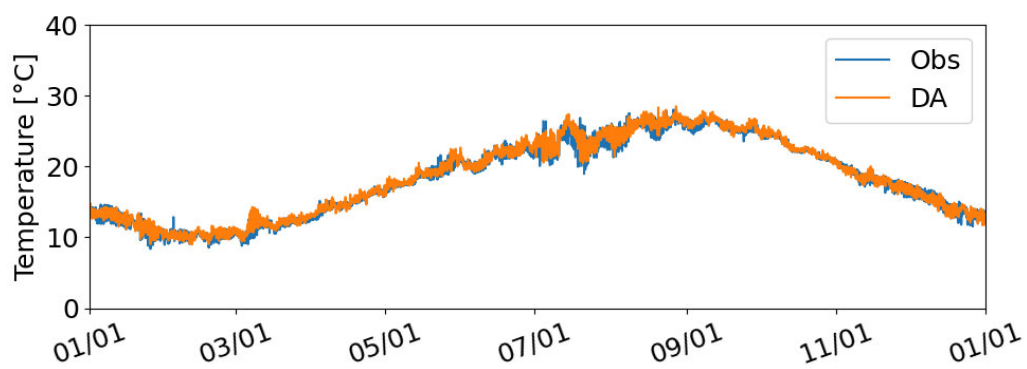
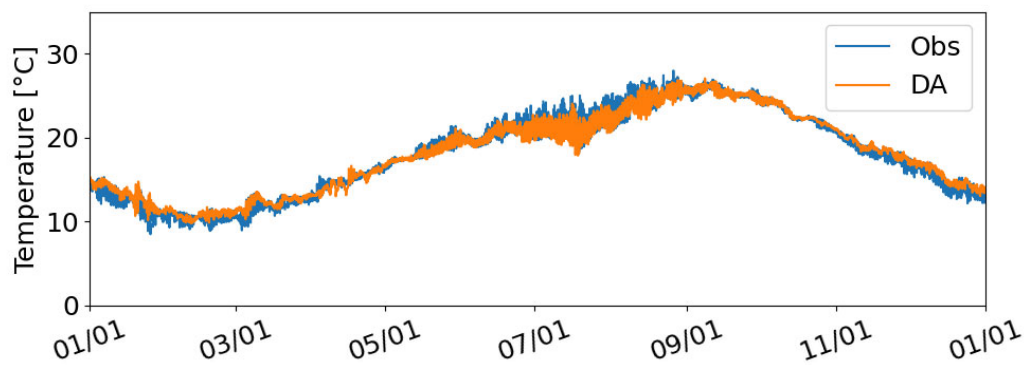
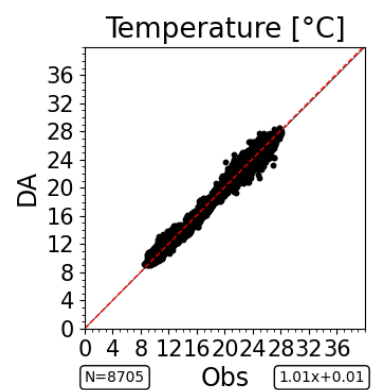


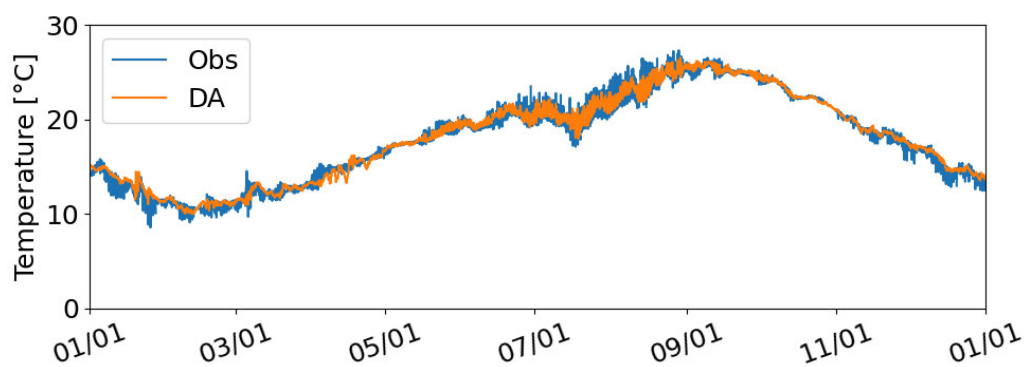
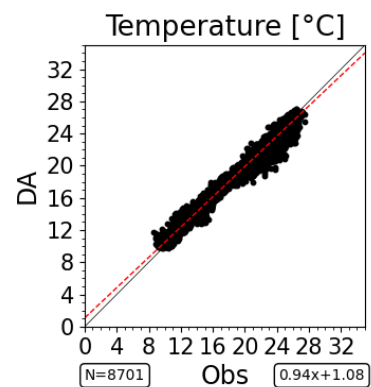
Figure S179 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

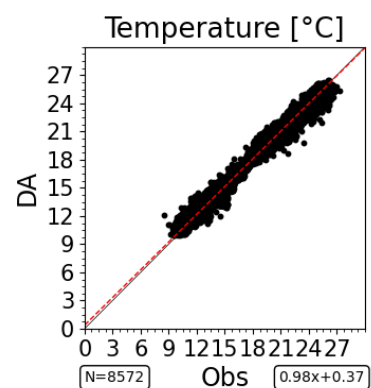
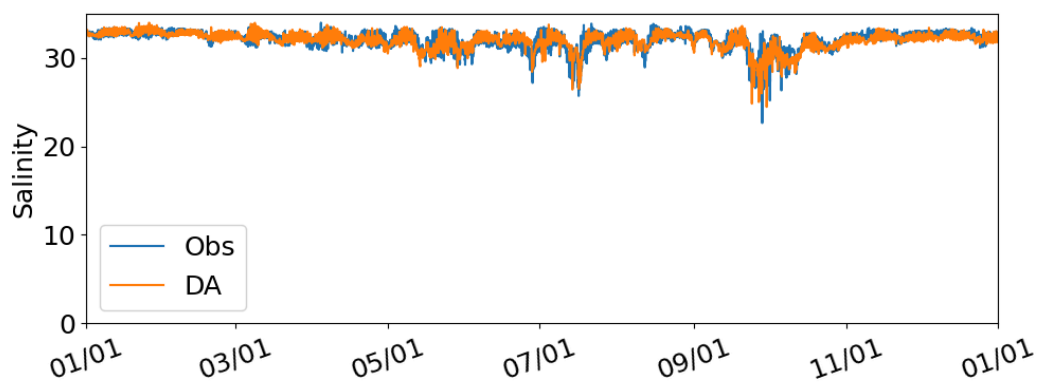
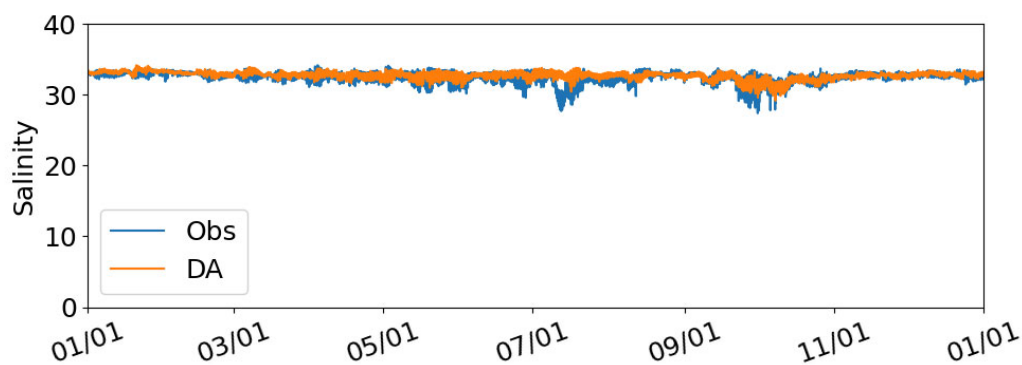
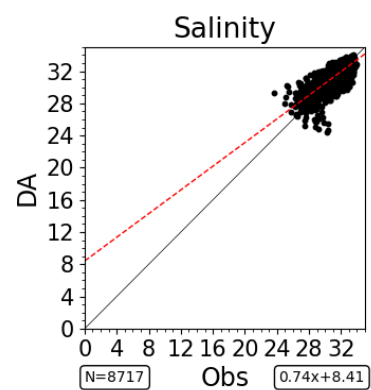


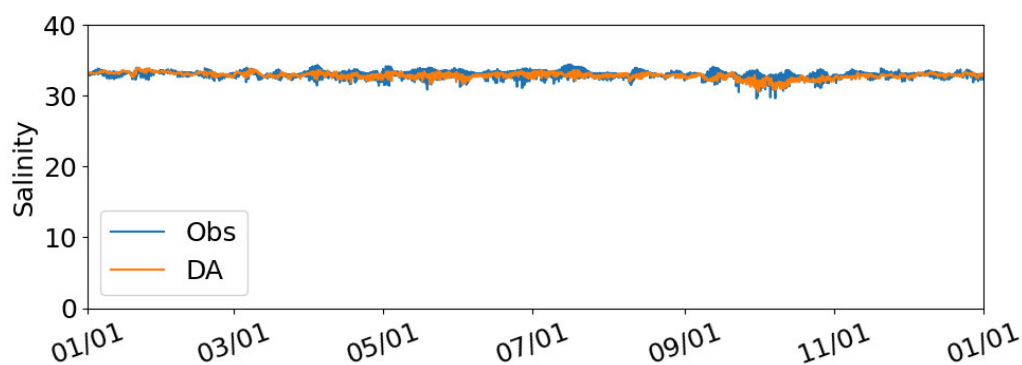
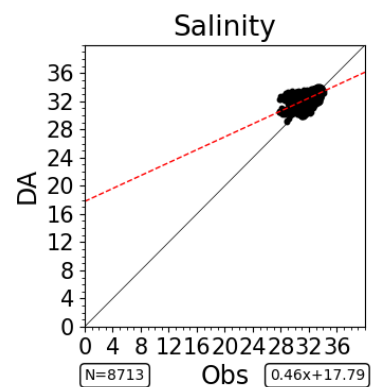
Figure S180 Timeseries and scatter plot for water temperature at Nakayama Channel in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

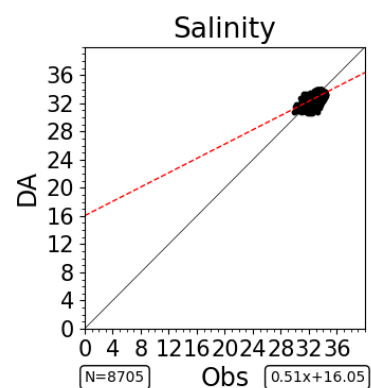
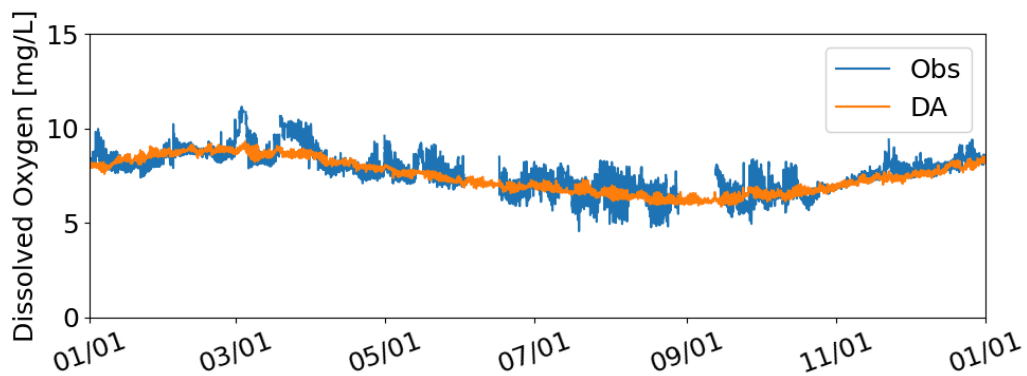
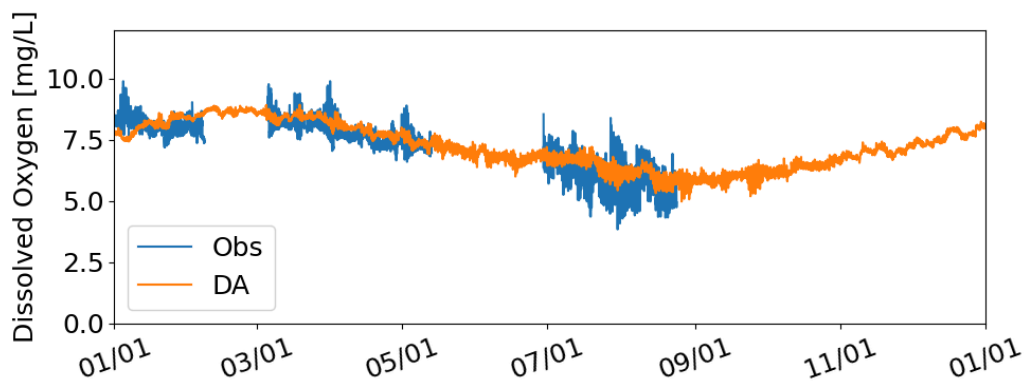
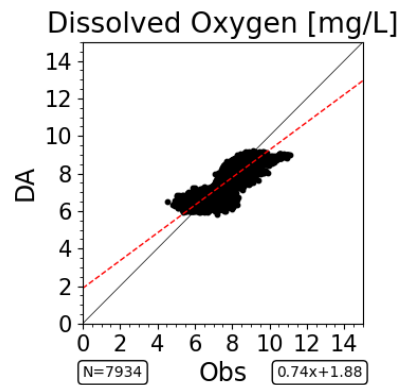


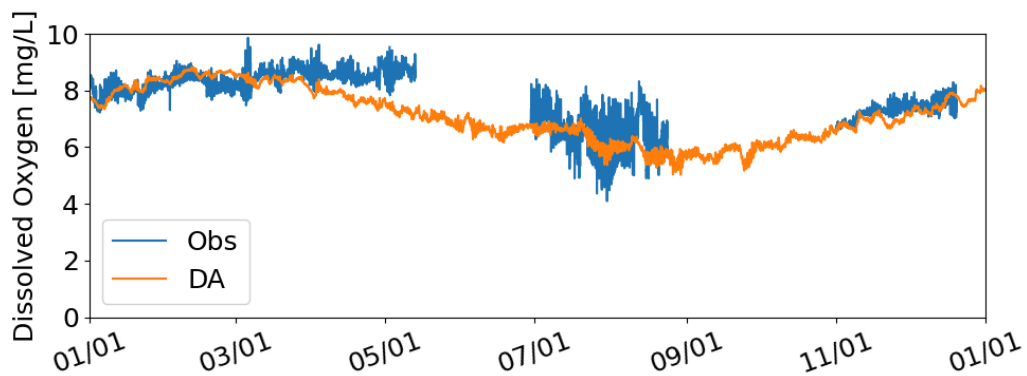
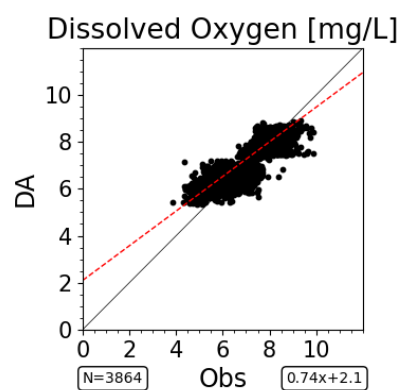
Figure S181 Timeseries and scatter plot for salinity at Nakayama Channel in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

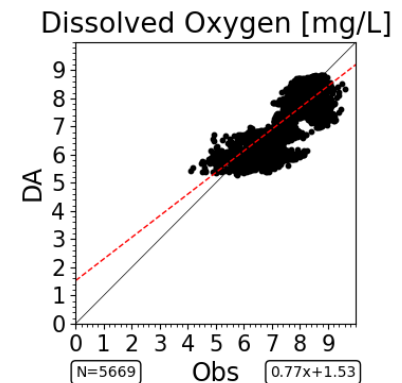
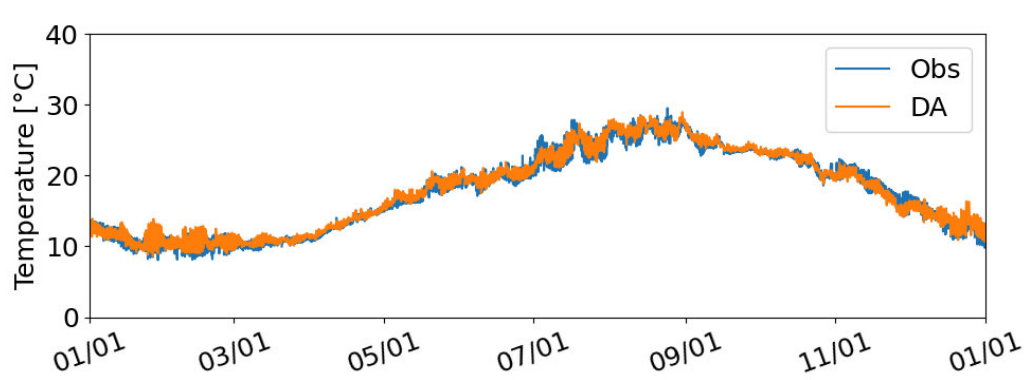
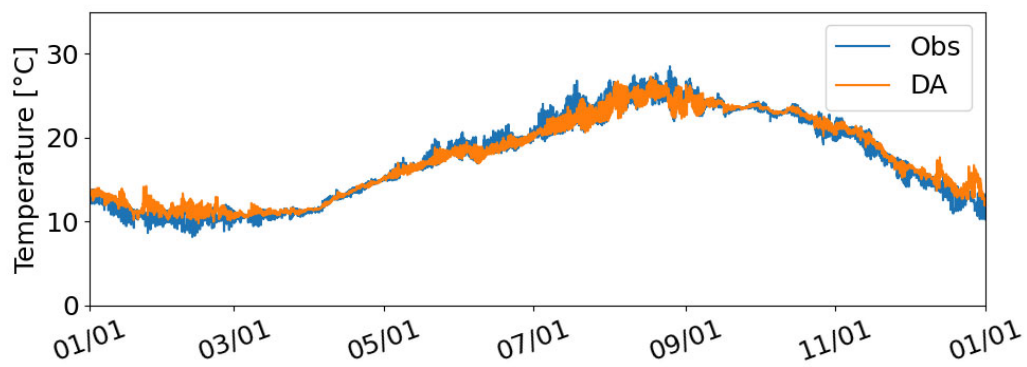
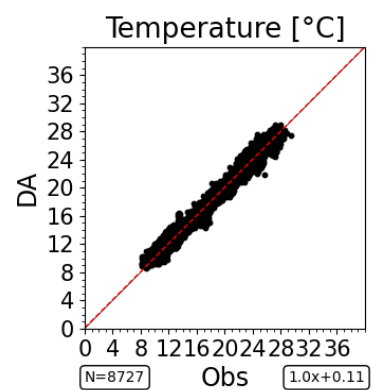


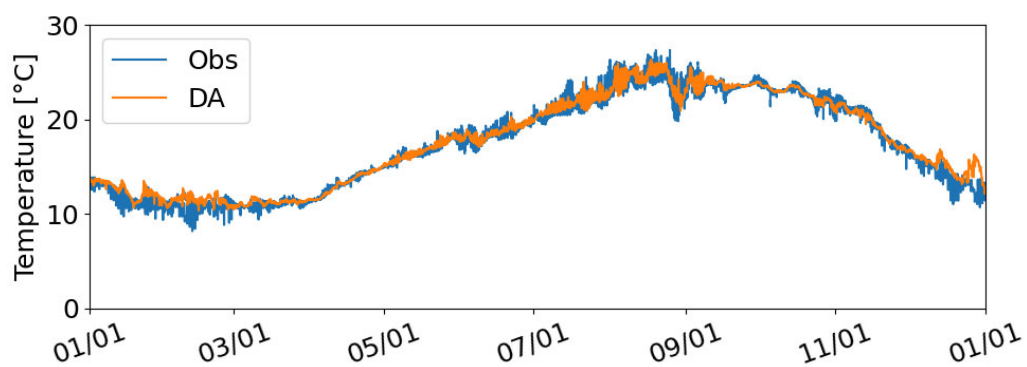
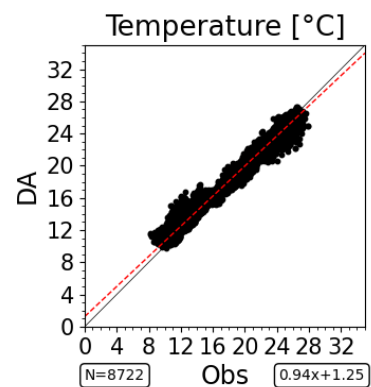
Figure S182 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

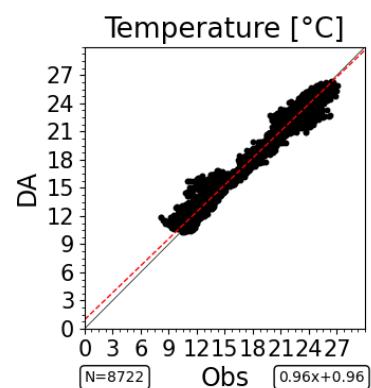
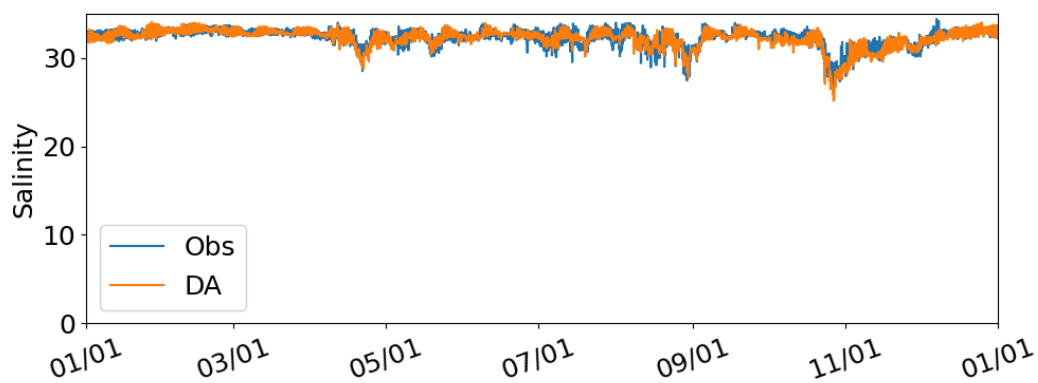
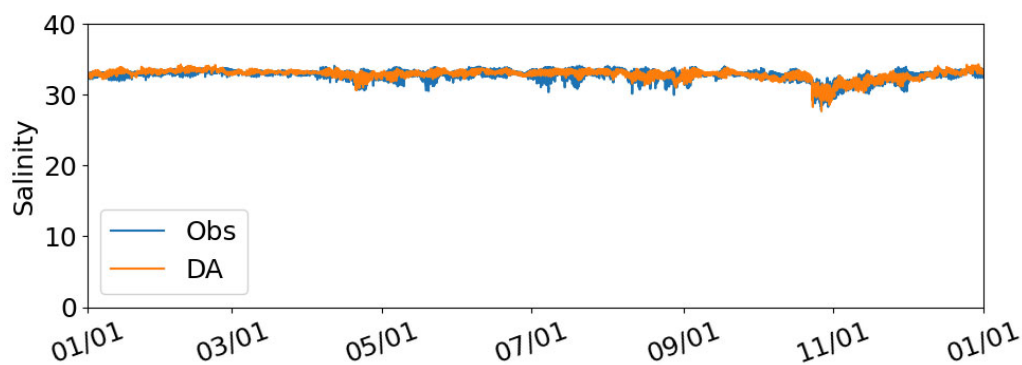
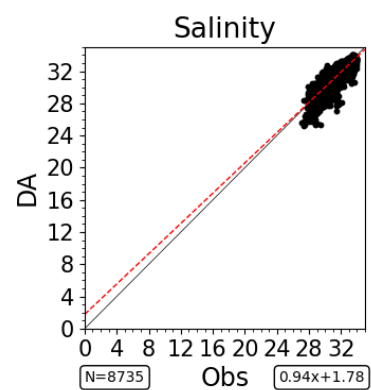


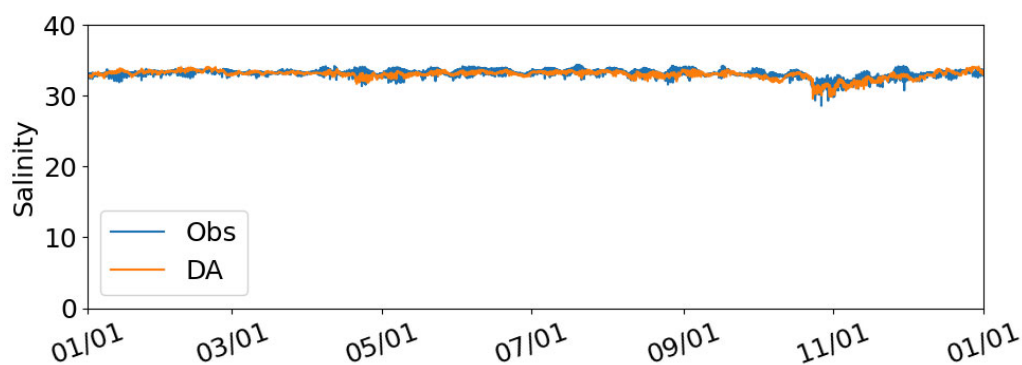
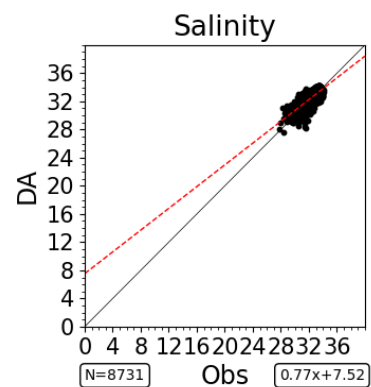
Figure S183 Timeseries and scatter plot for water temperature at Nakayama Channel in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

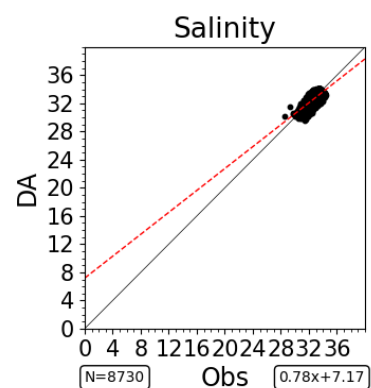
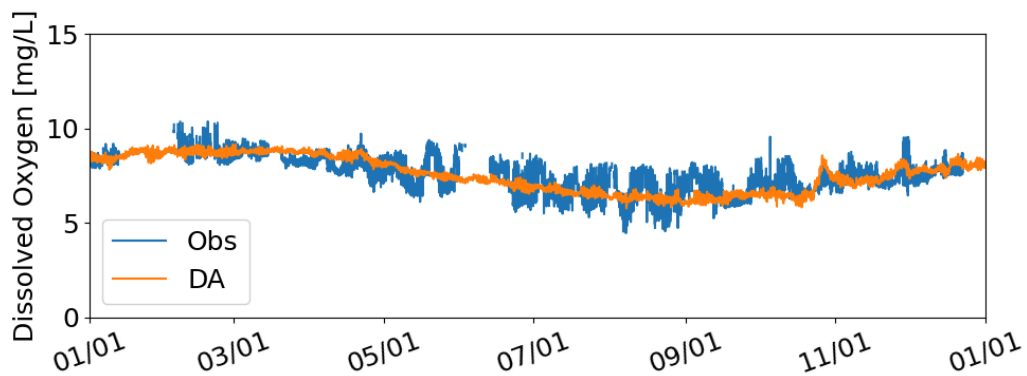
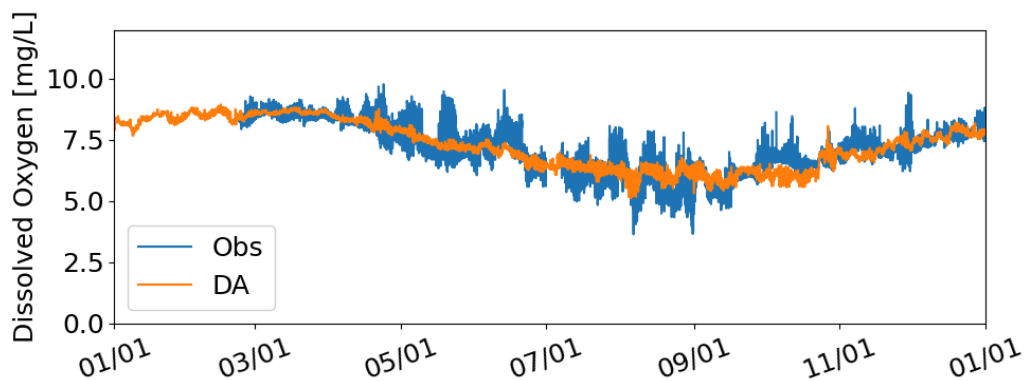
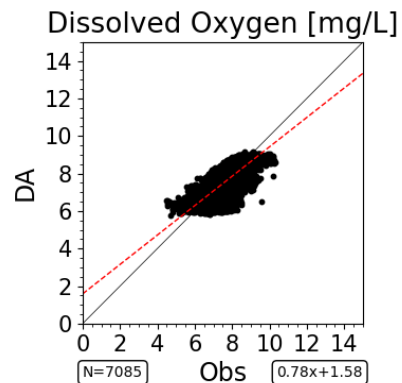


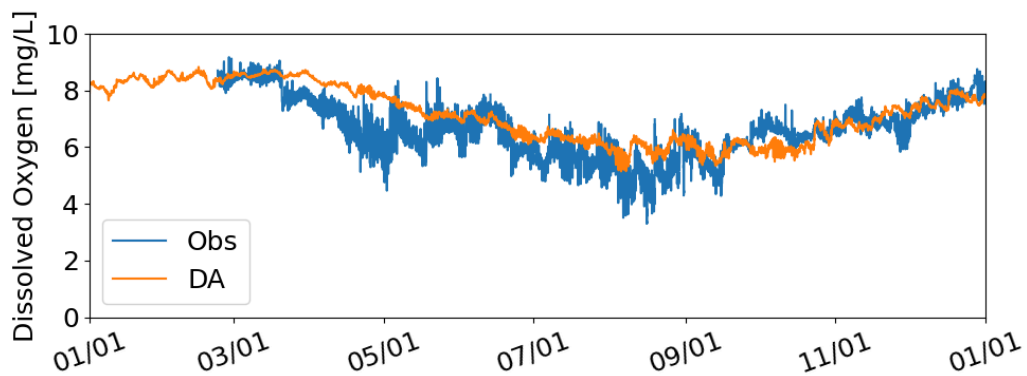
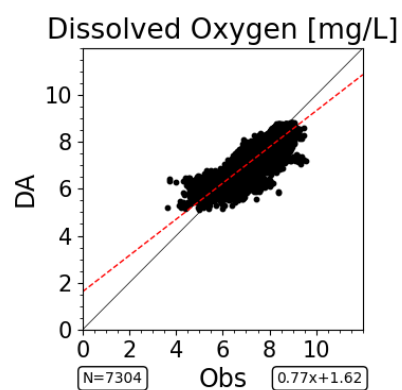
Figure S184 Timeseries and scatter plot for salinity at Nakayama Channel in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

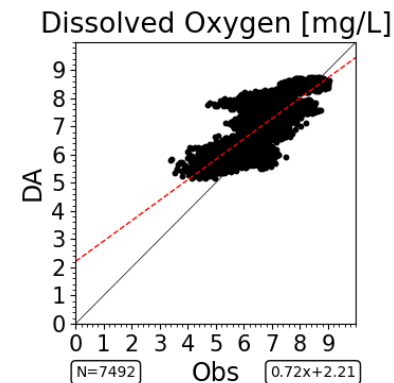
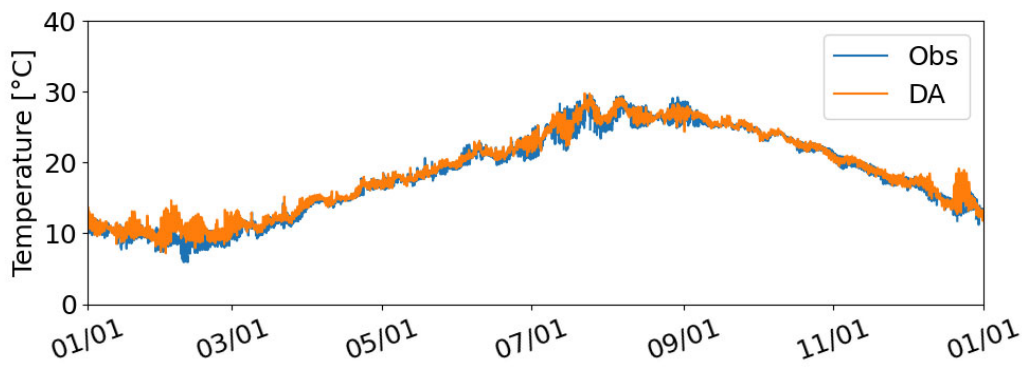
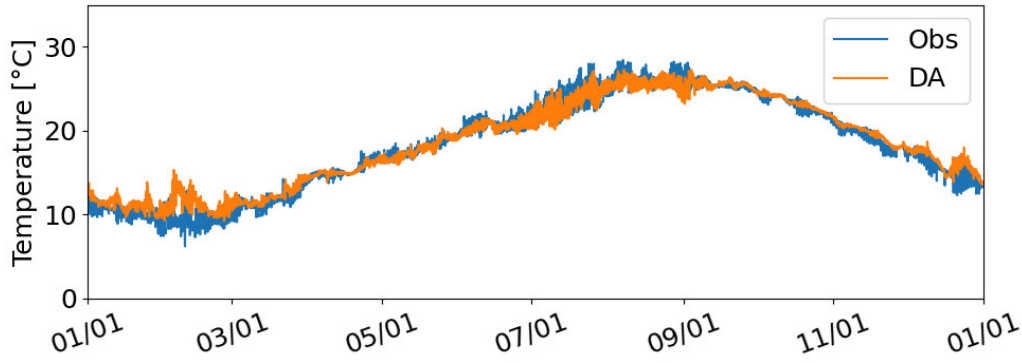
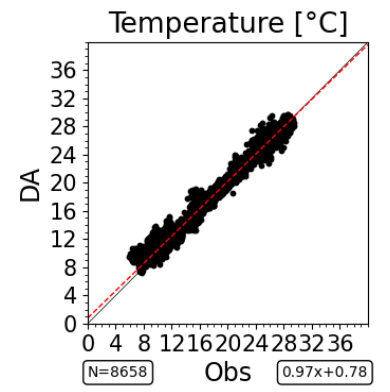


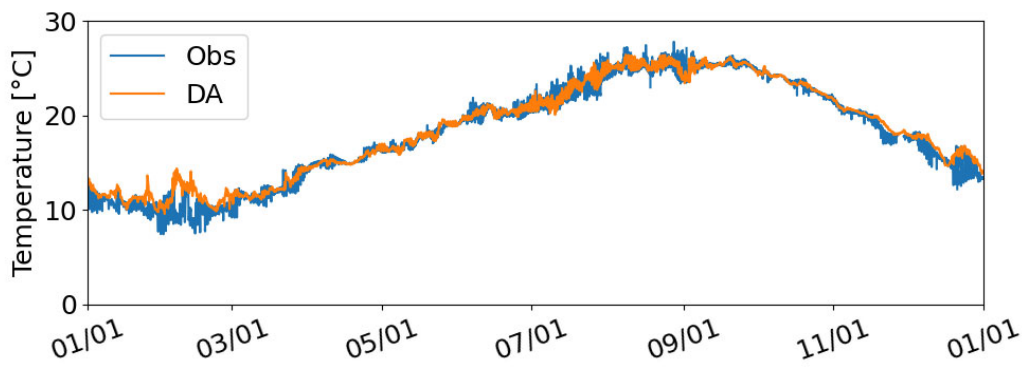
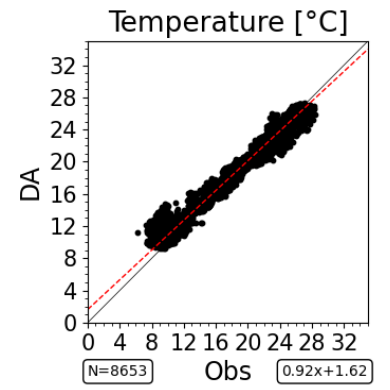
Figure S185 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

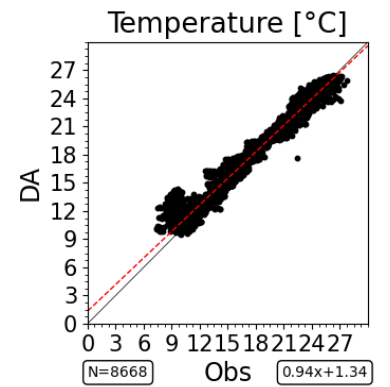
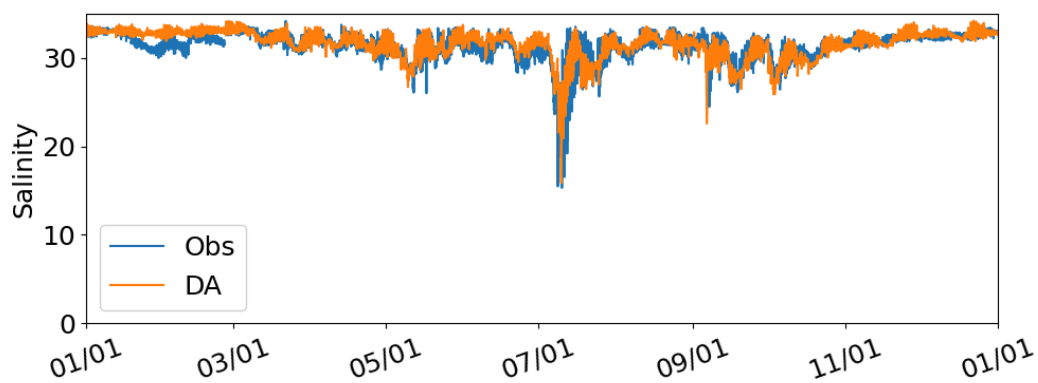
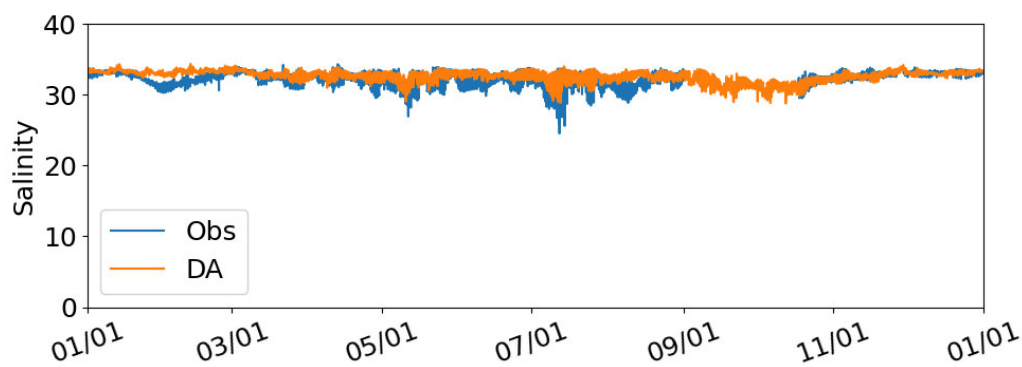
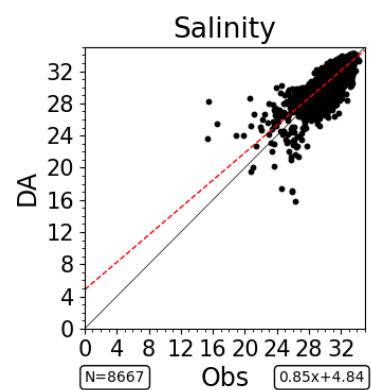


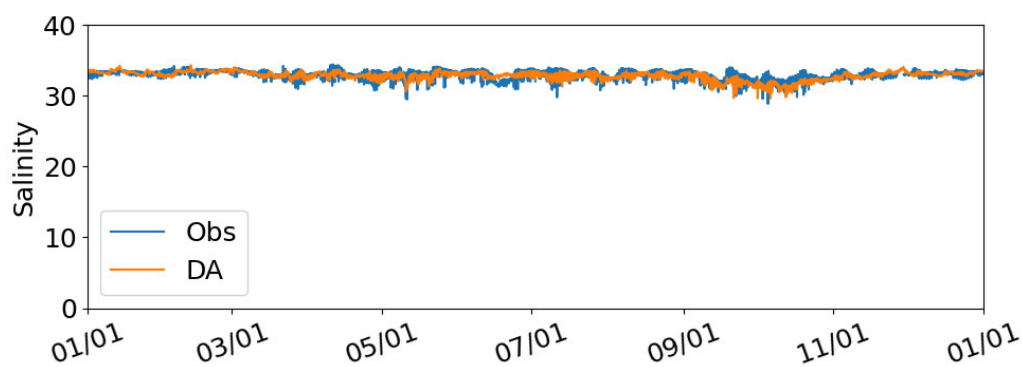
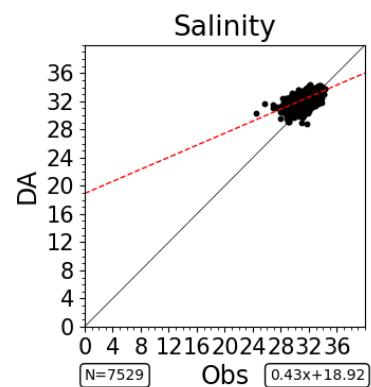
Figure S186 Timeseries and scatter plot for water temperature at Nakayama Channel in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

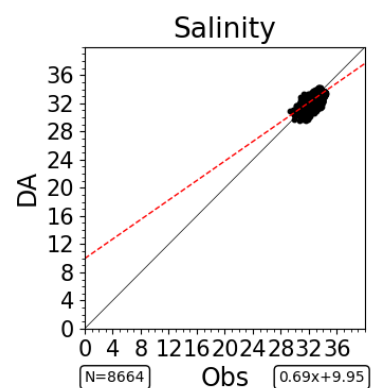
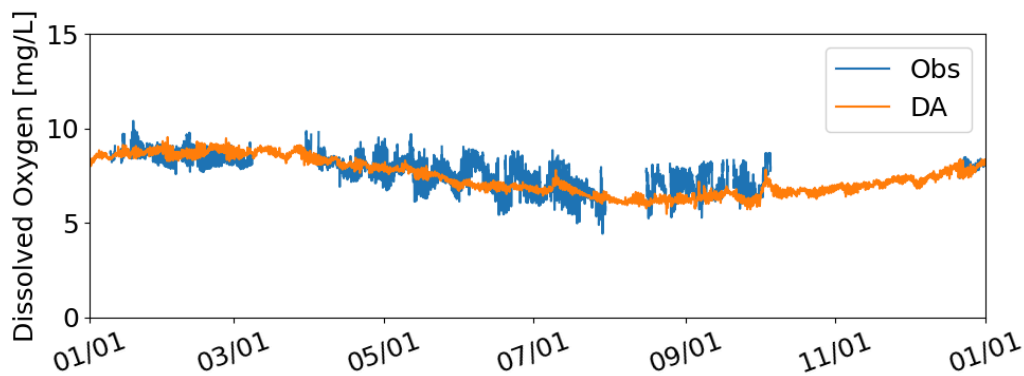
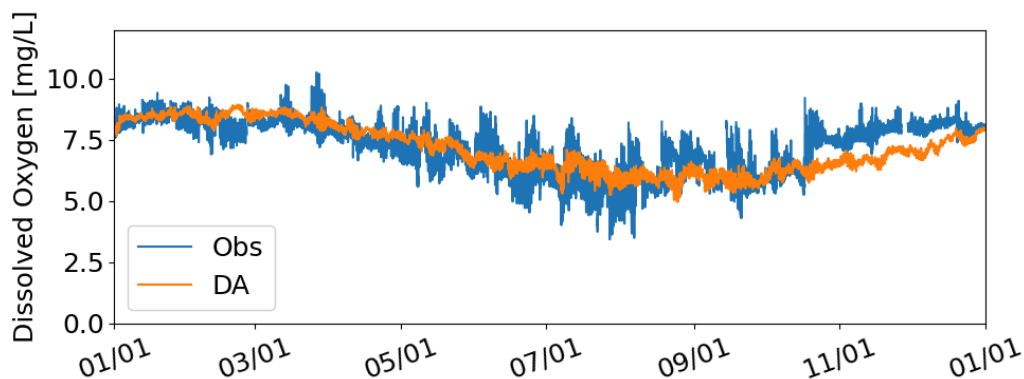
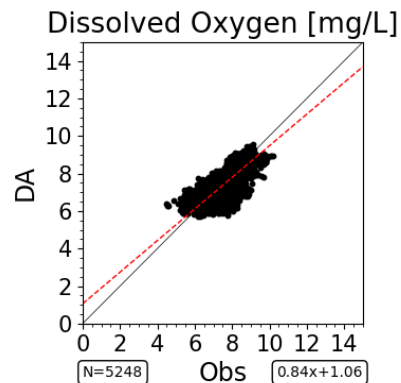


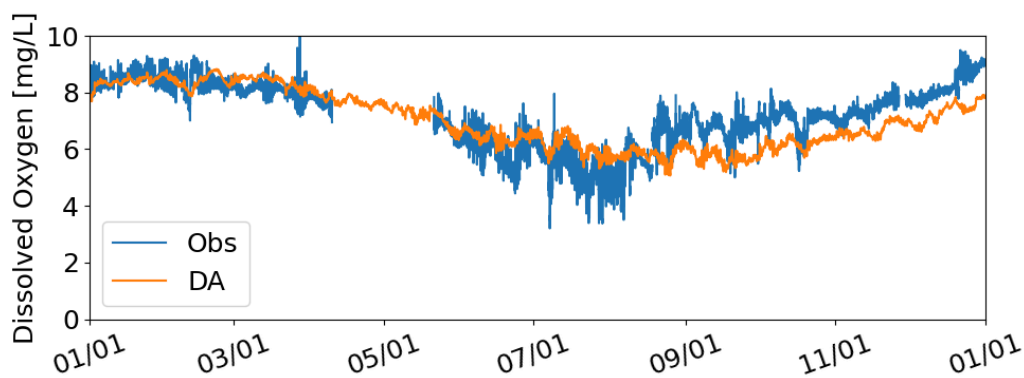
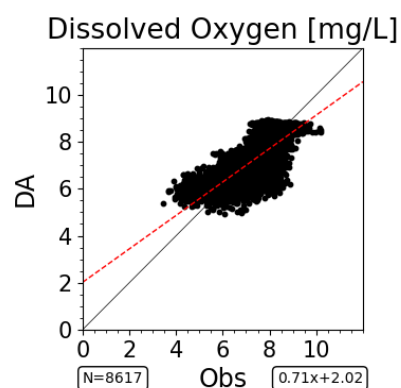
Figure S187 Timeseries and scatter plot for salinity at Nakayama Channel in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

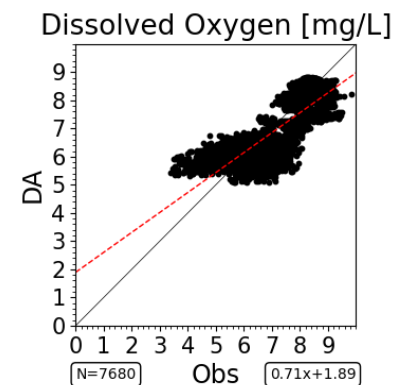
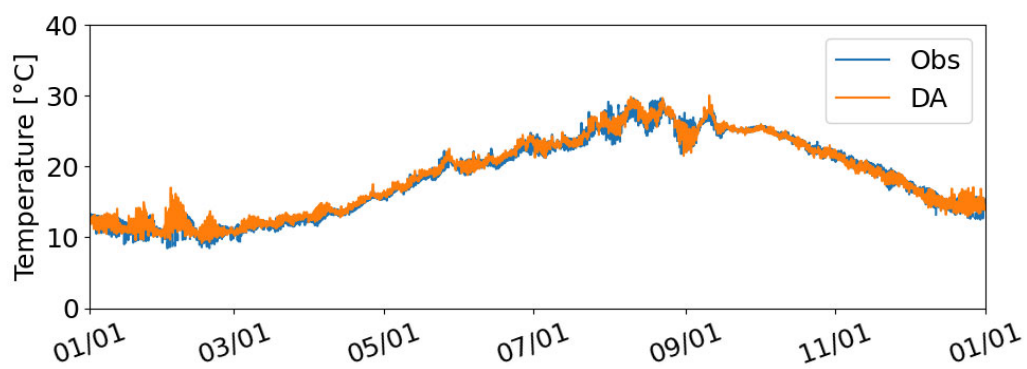
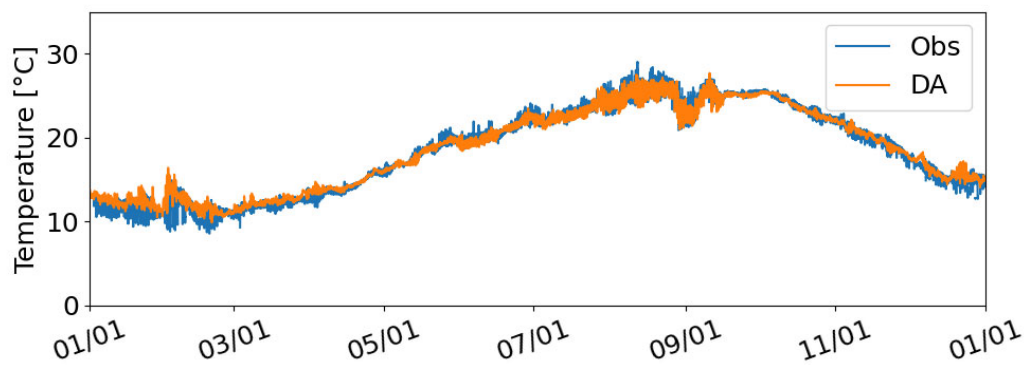
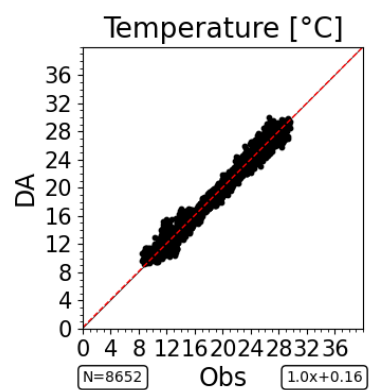


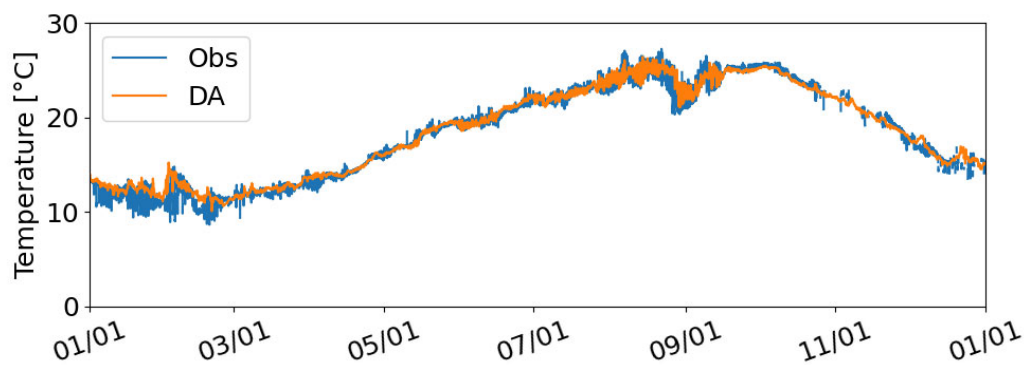
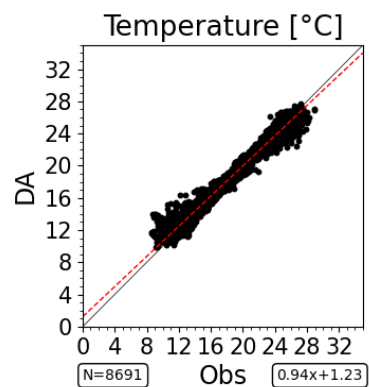
Figure S188 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

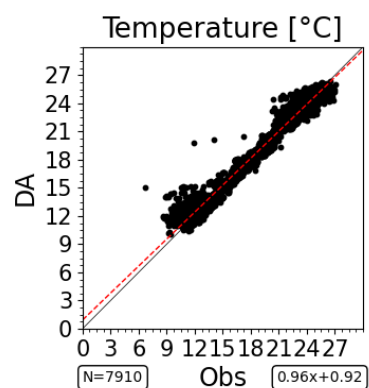
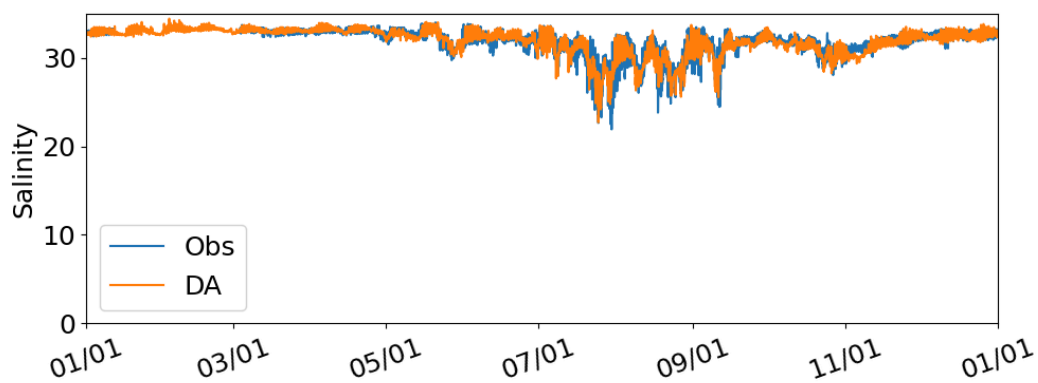
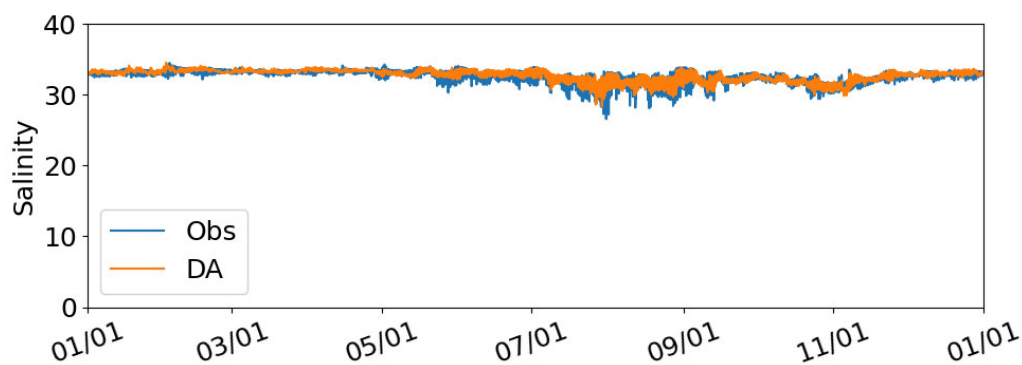
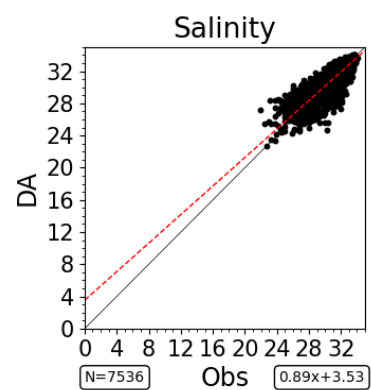


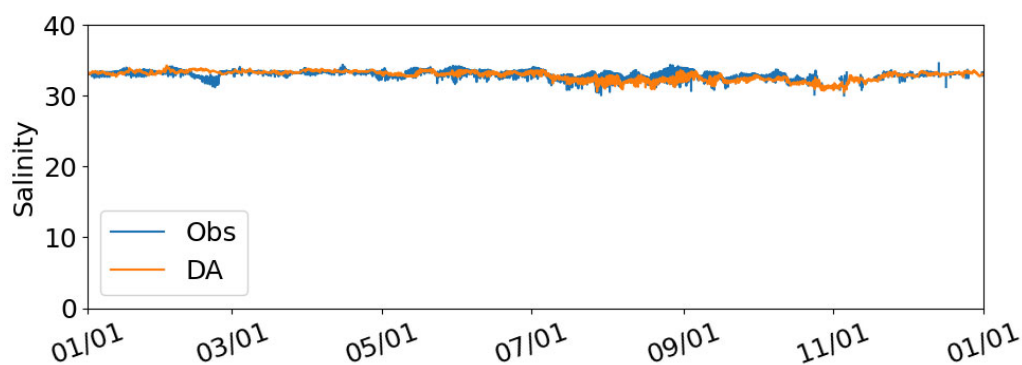
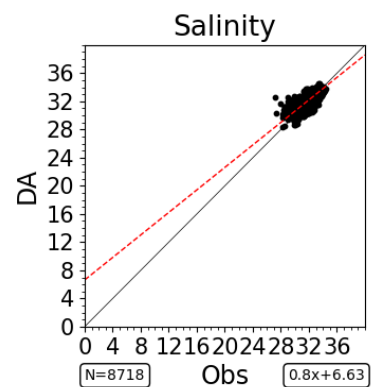
Figure S189 Timeseries and scatter plot for water temperature at Nakayama Channel in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

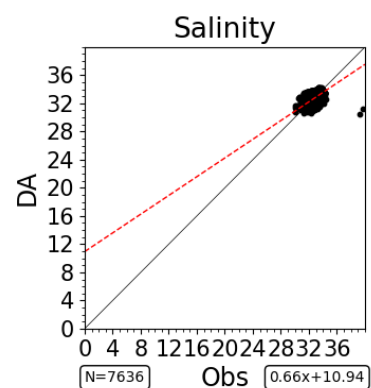
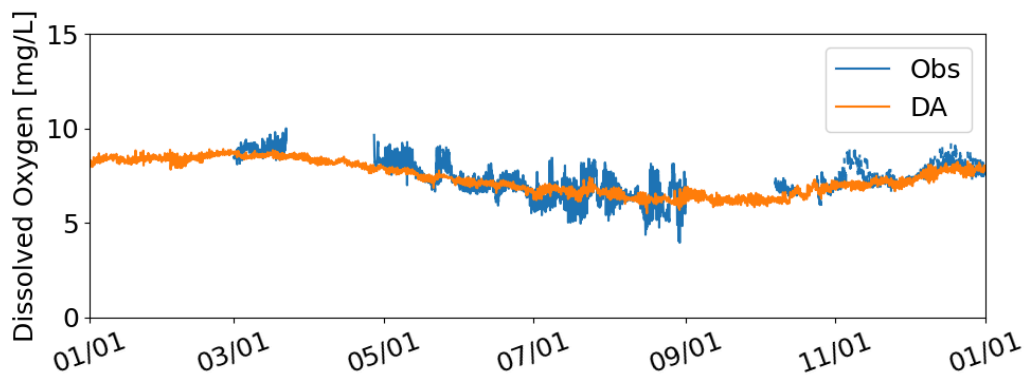
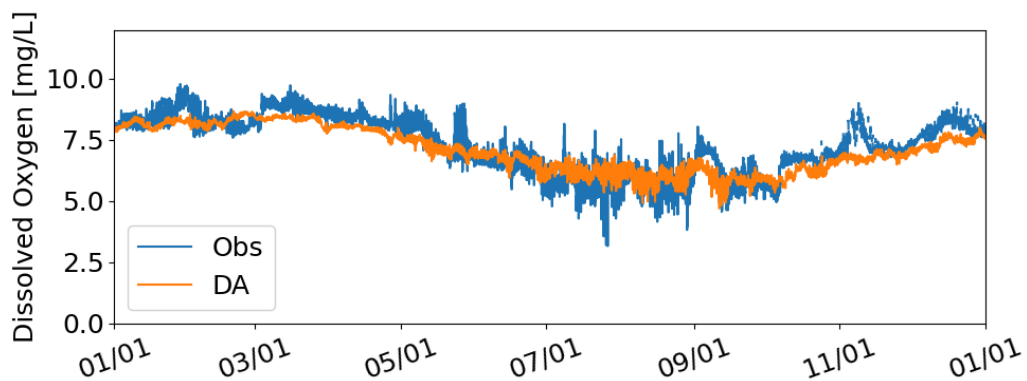
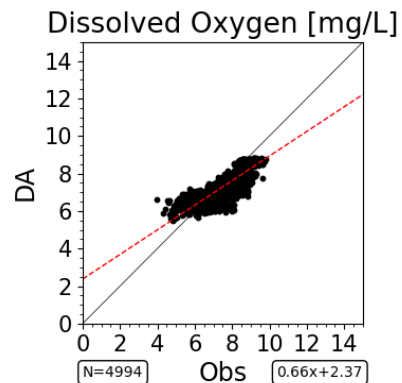


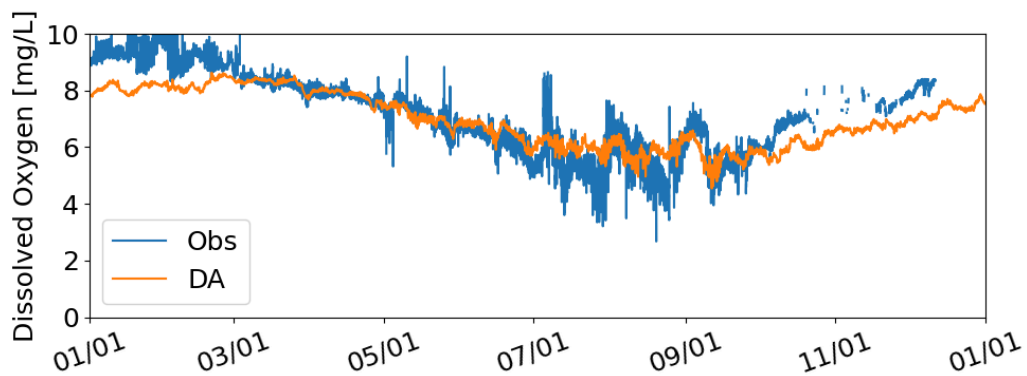
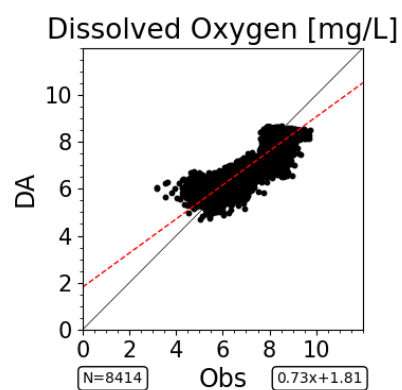
Figure S190 Timeseries and scatter plot for salinity at Nakayama Channel in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

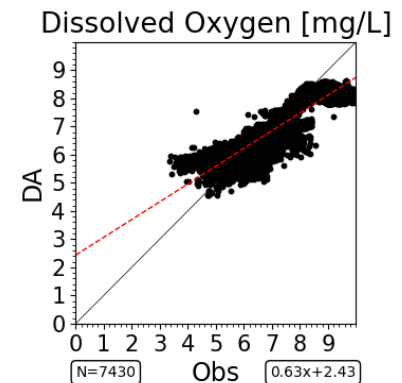
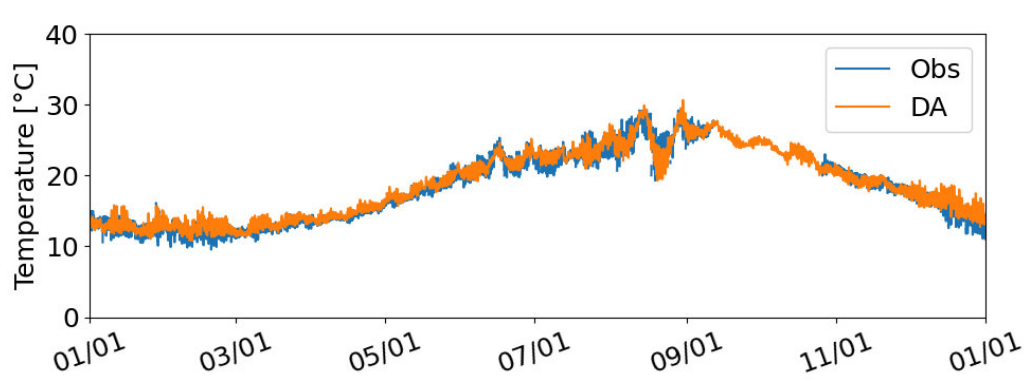
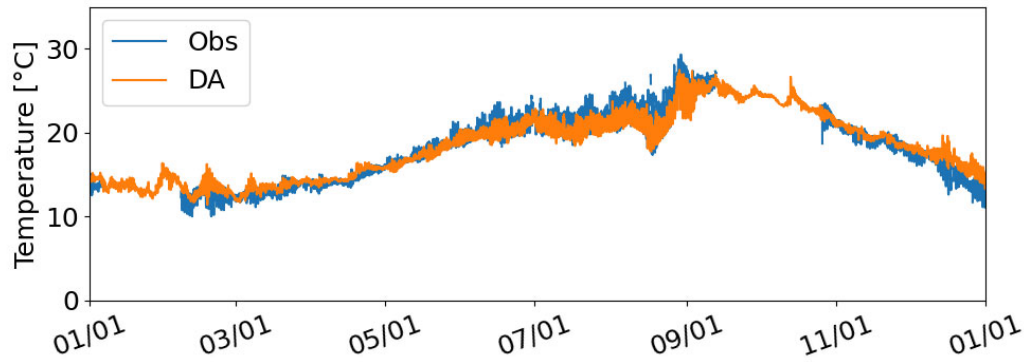
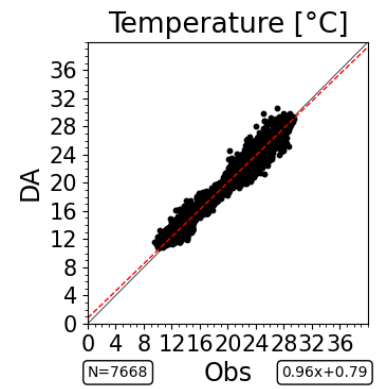


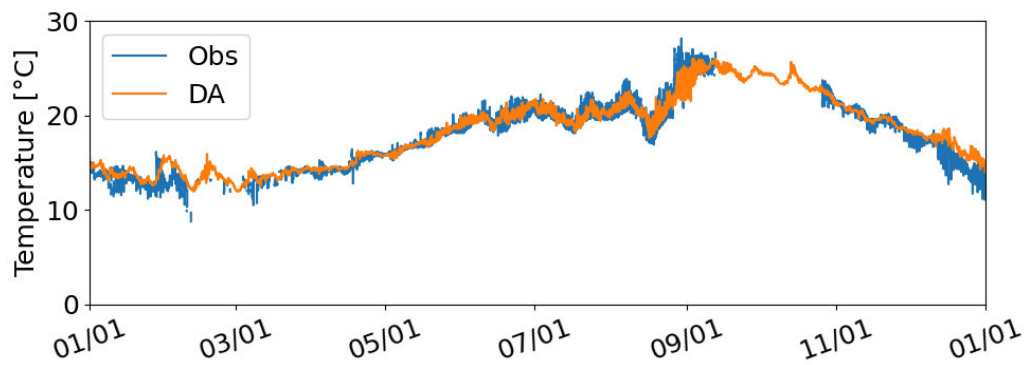
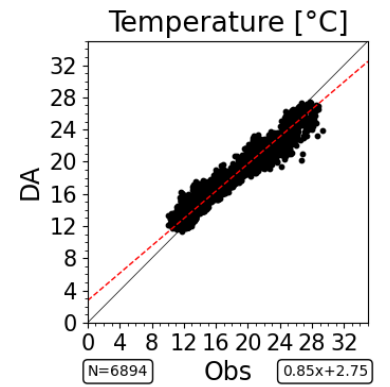
Figure S191 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

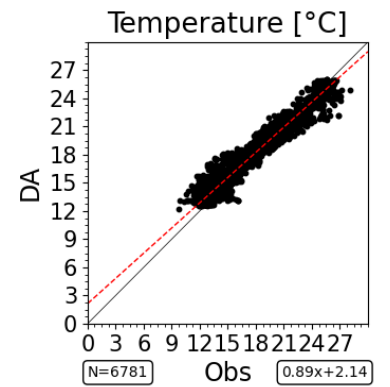
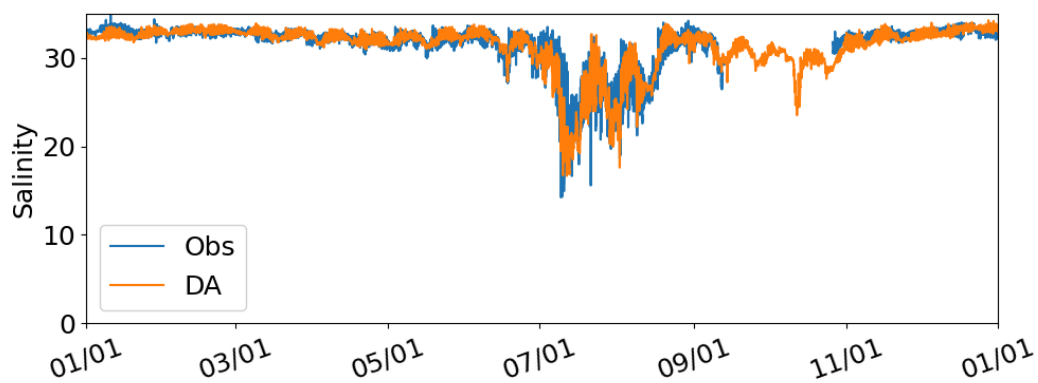
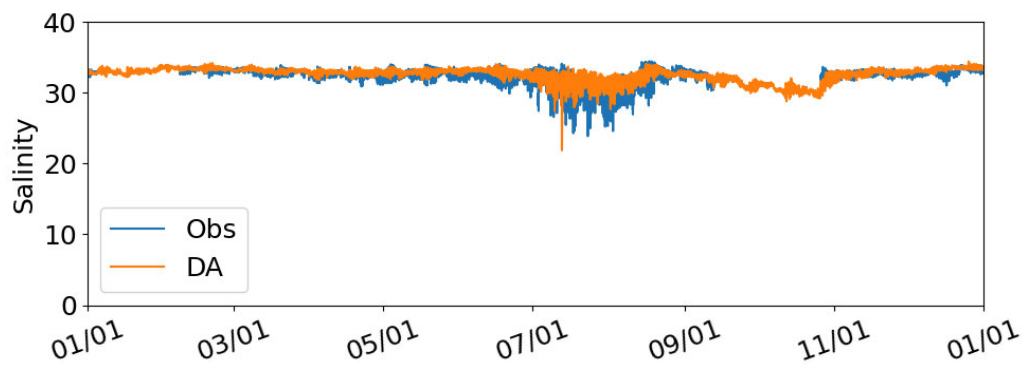
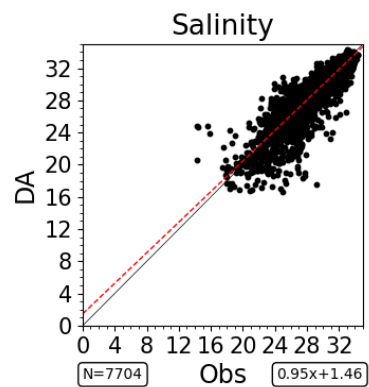


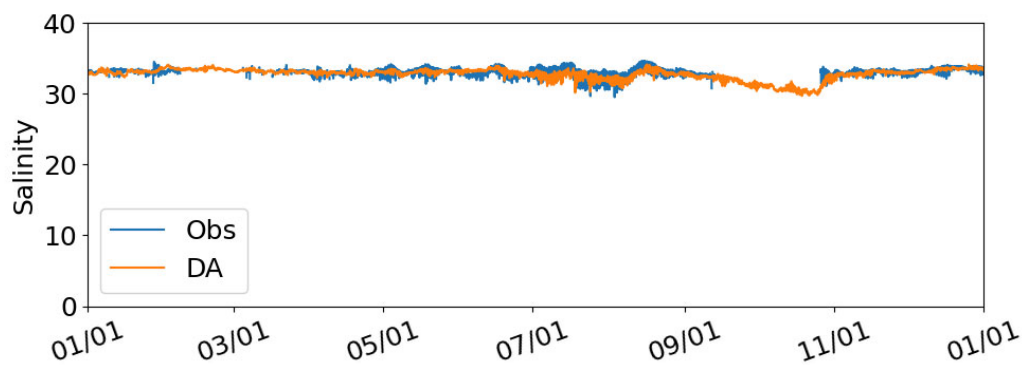
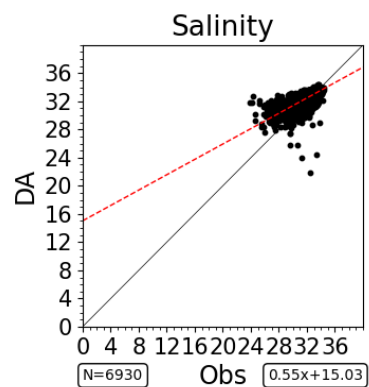
Figure S192 Timeseries and scatter plot for water temperature at Nakayama Channel in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

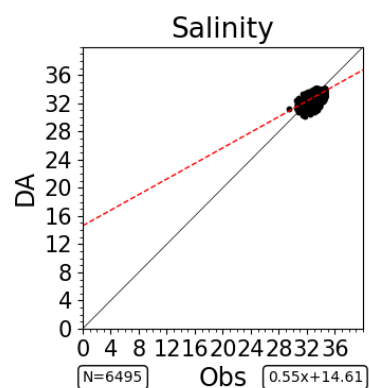
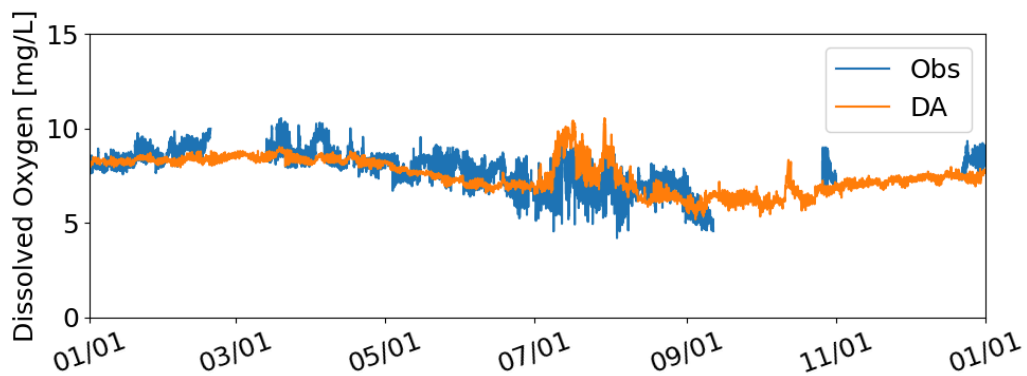
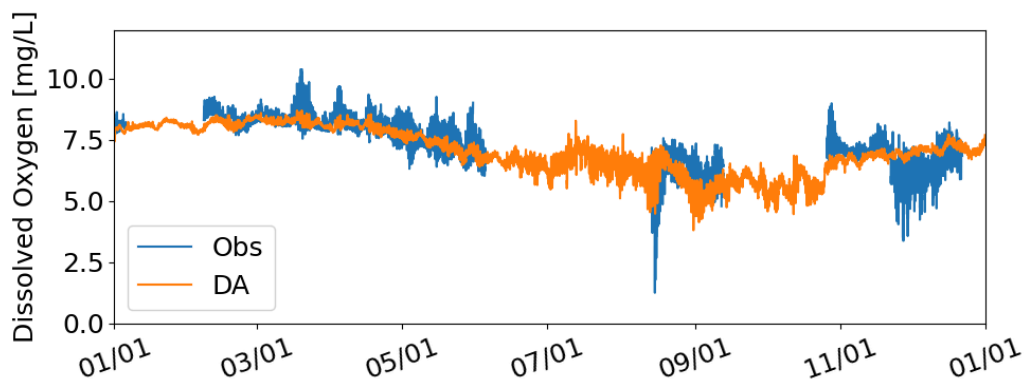
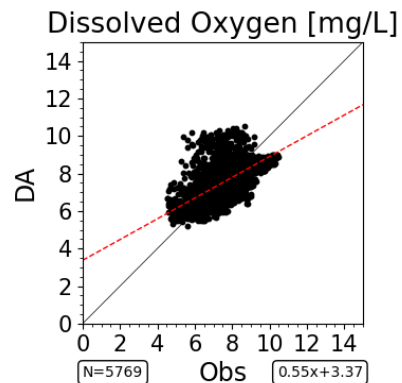


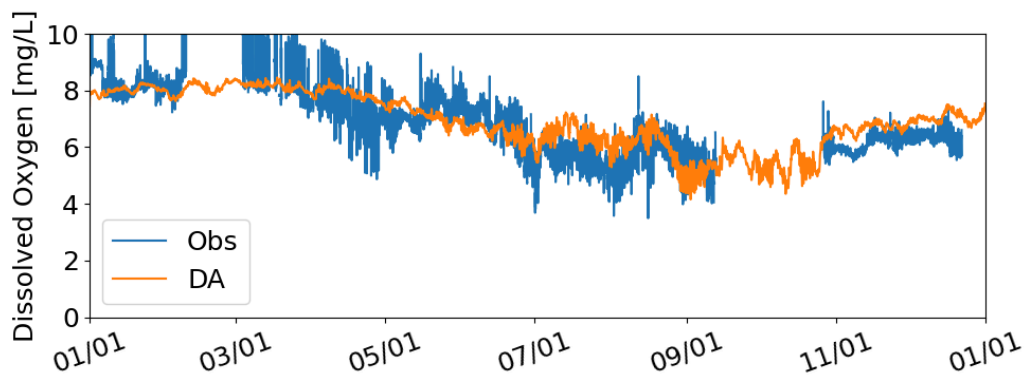
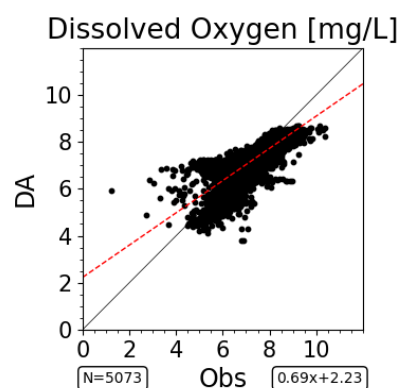
Figure S193 Timeseries and scatter plot for salinity at Nakayama Channel in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

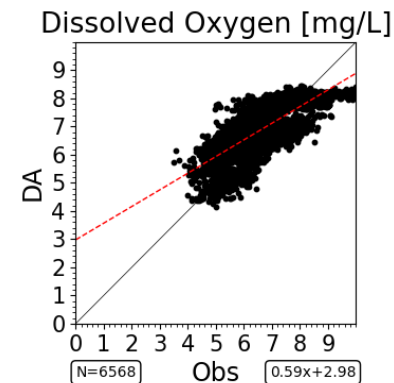
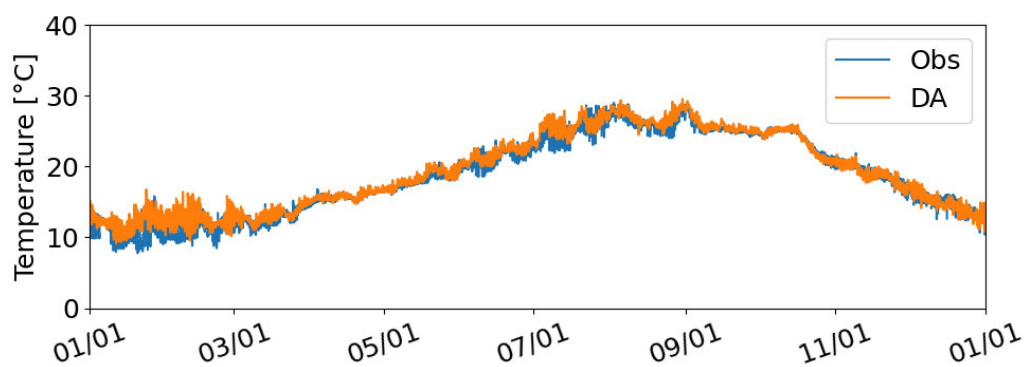
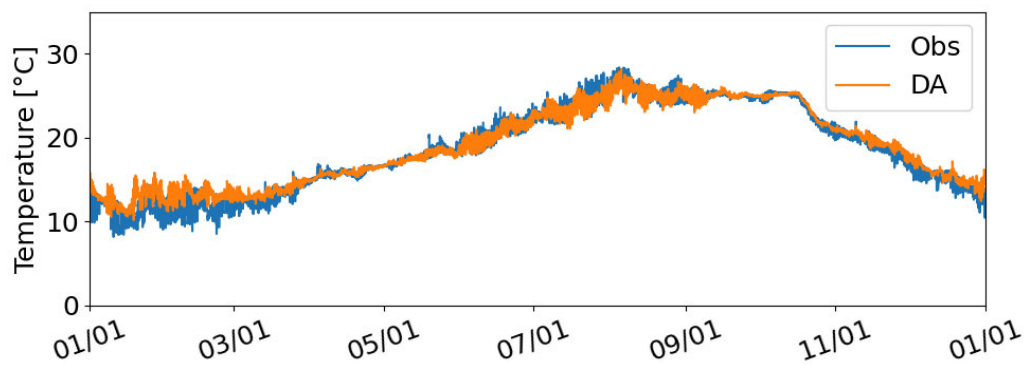
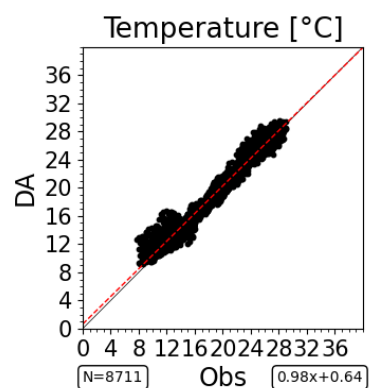


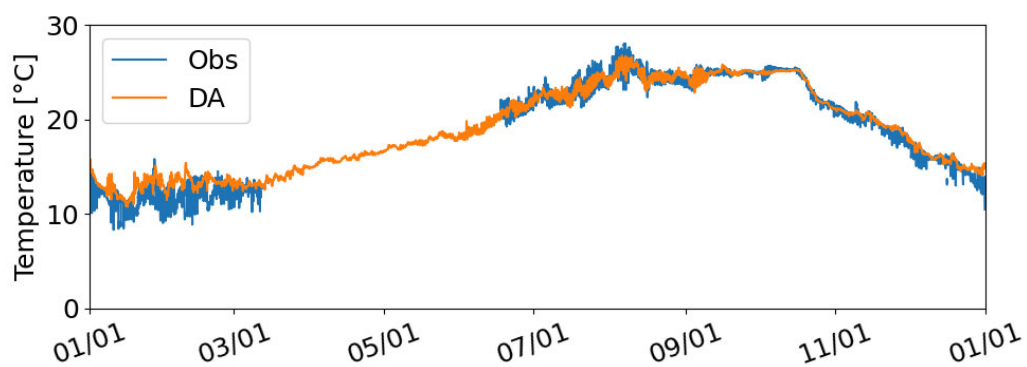
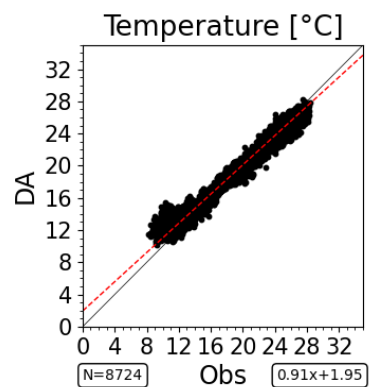
Figure S194 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

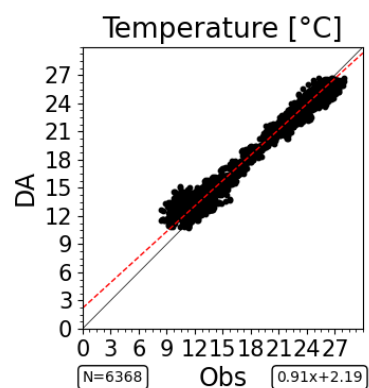
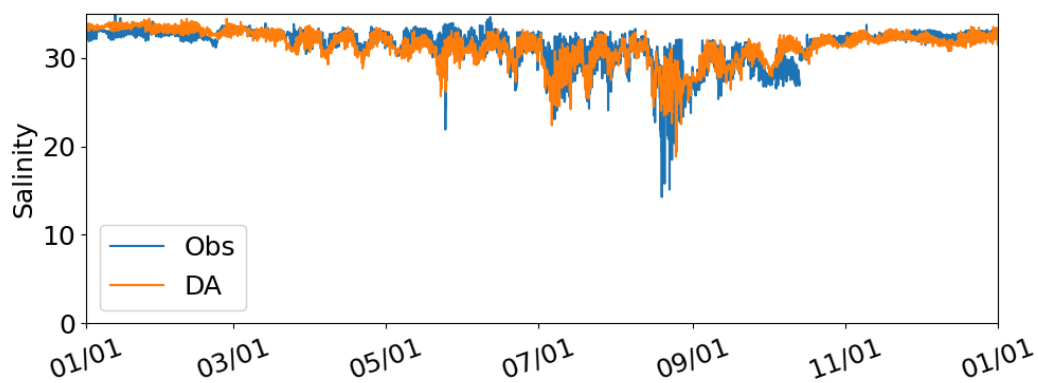
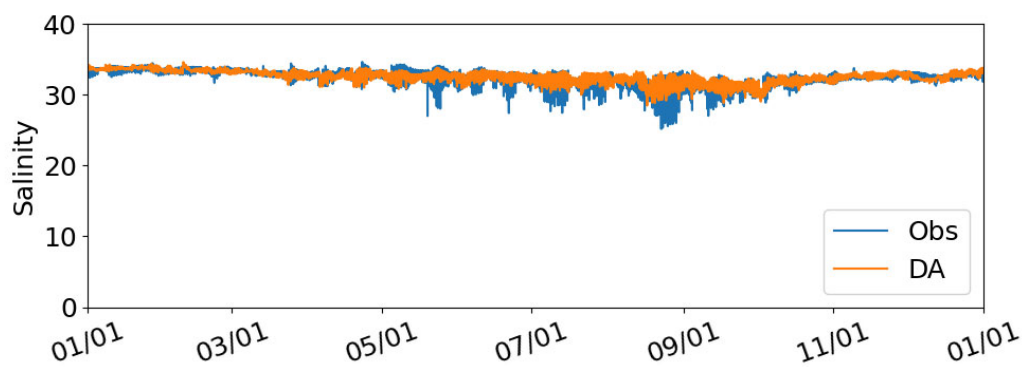
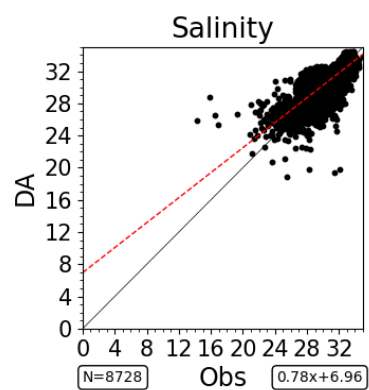


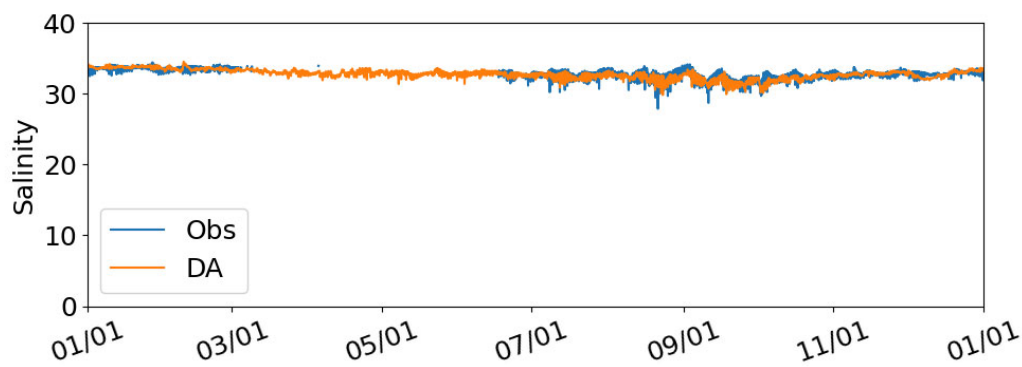
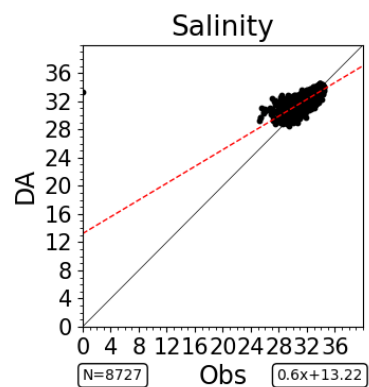
Figure S195 Timeseries and scatter plot for water temperature at Nakayama Channel in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

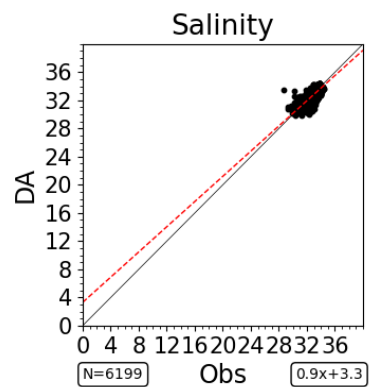
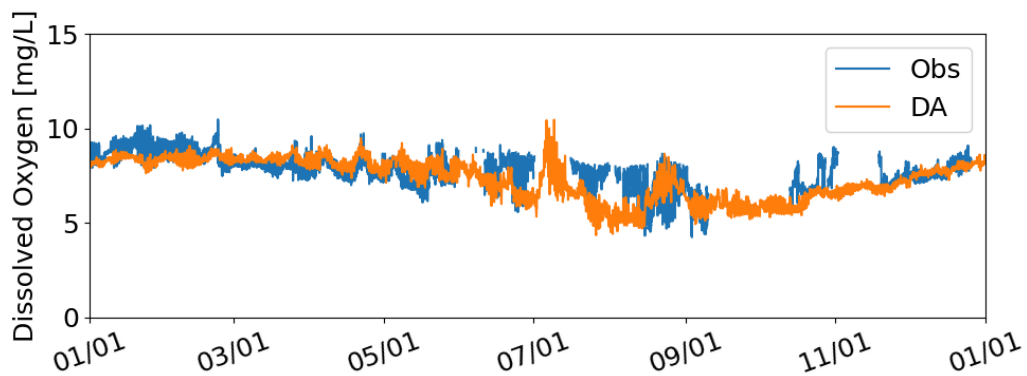
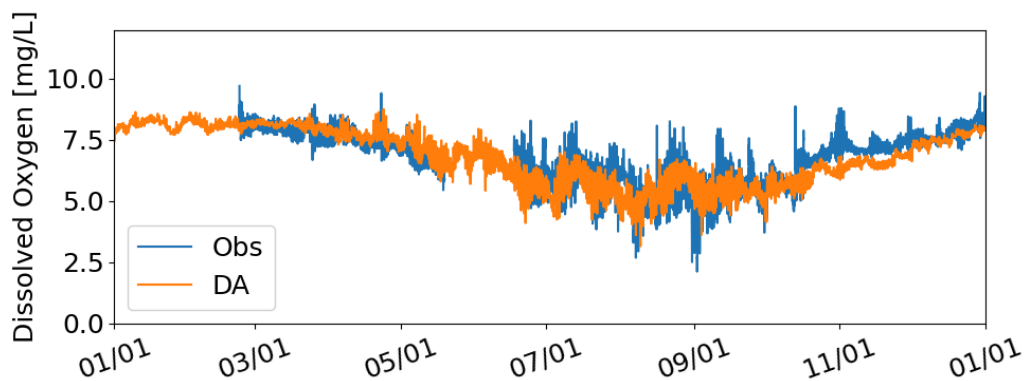
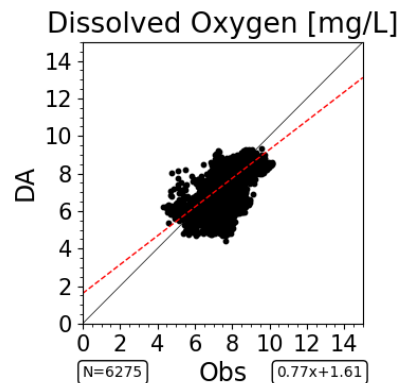


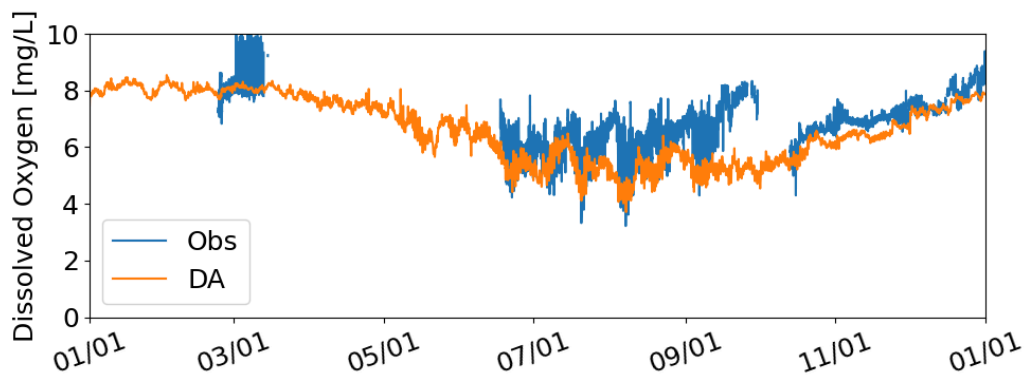
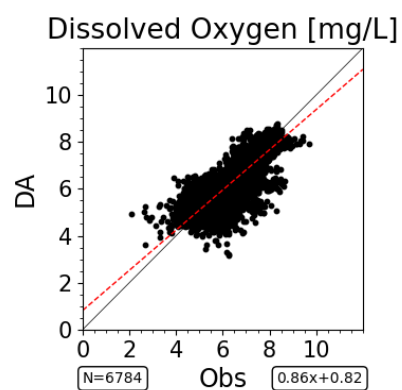
Figure S196 Timeseries and scatter plot for salinity at Nakayama Channel in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

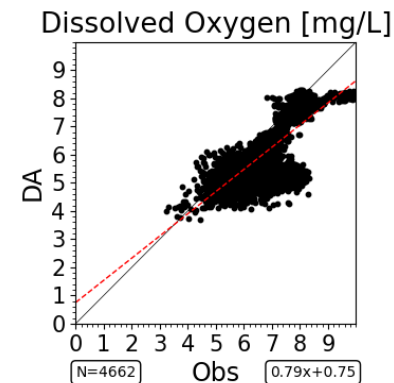
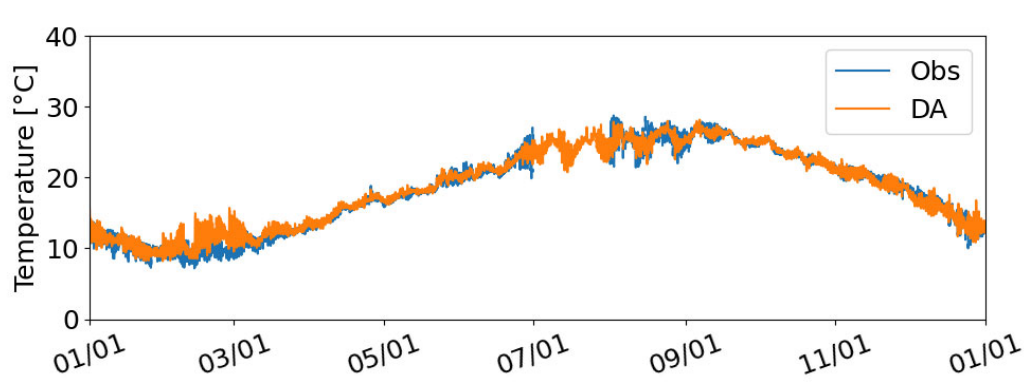
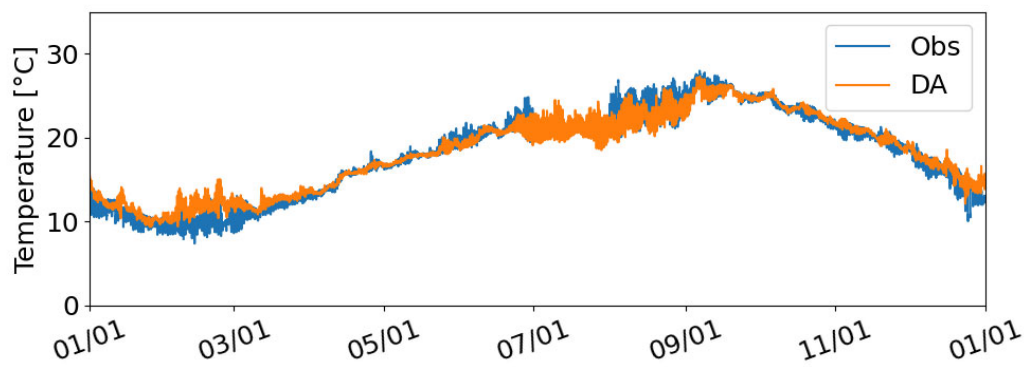
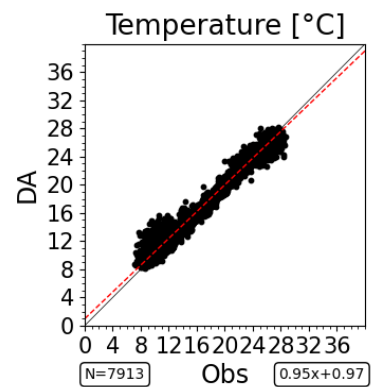


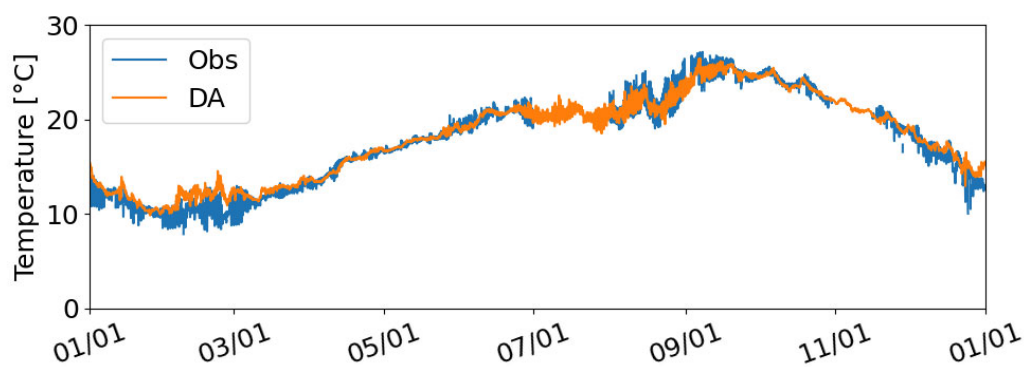
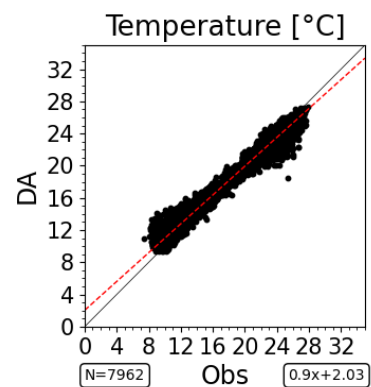
Figure S197 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

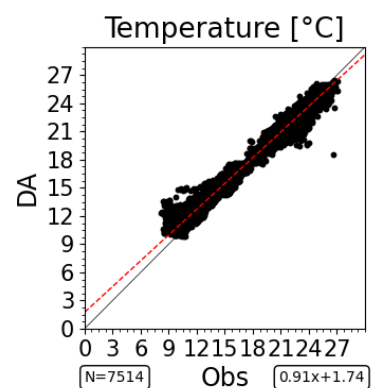
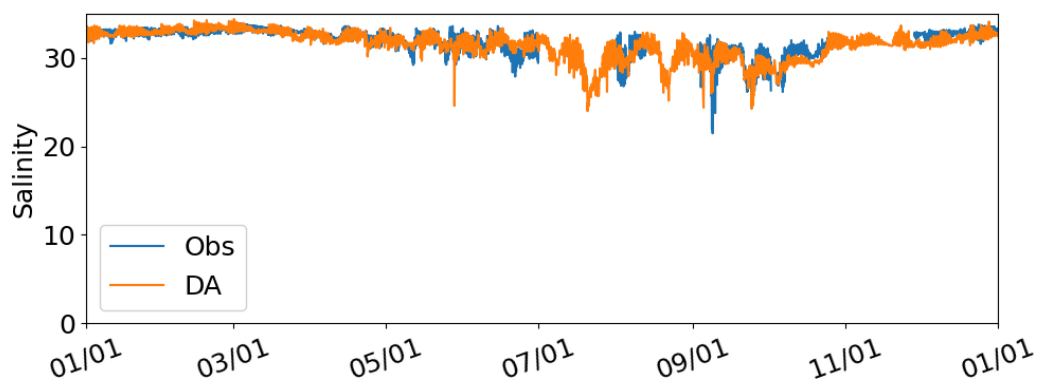
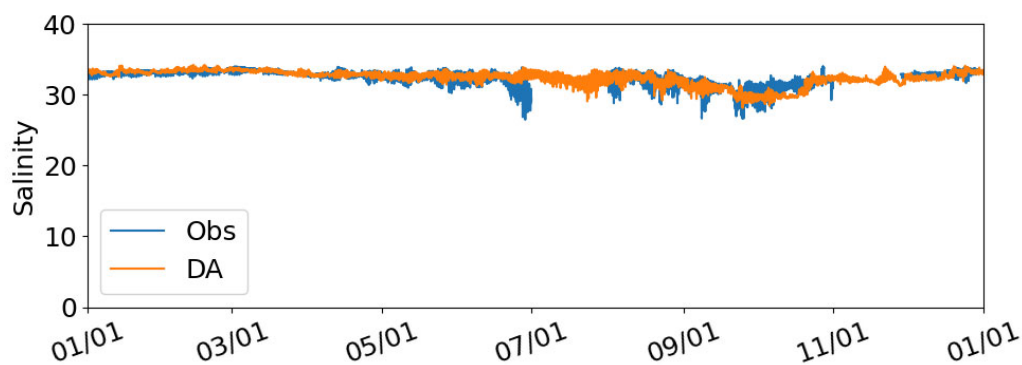
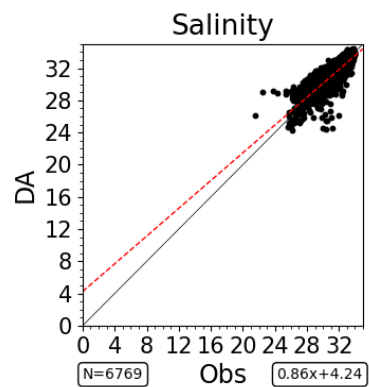


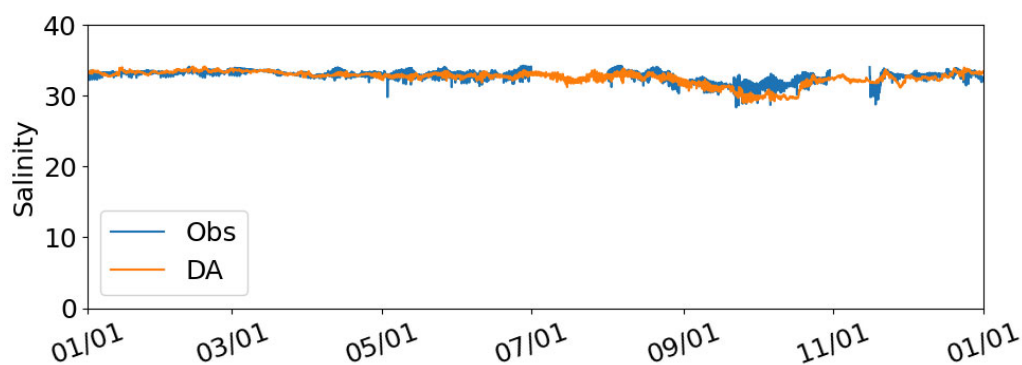
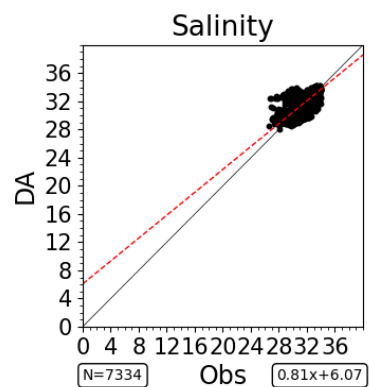
Figure S198 Timeseries and scatter plot for water temperature at Nakayama Channel in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

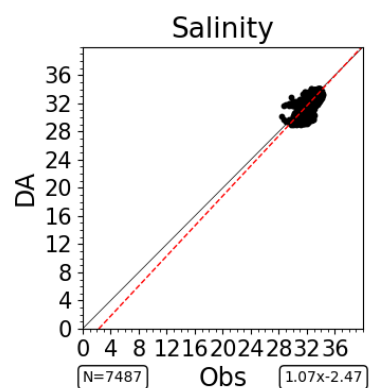
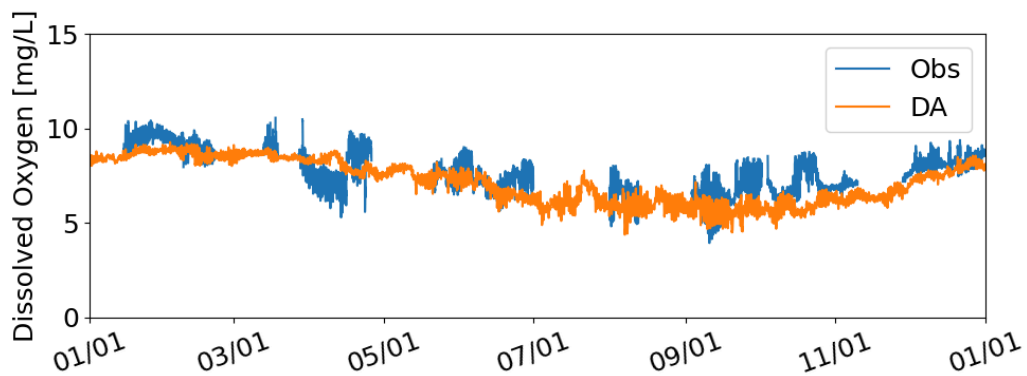
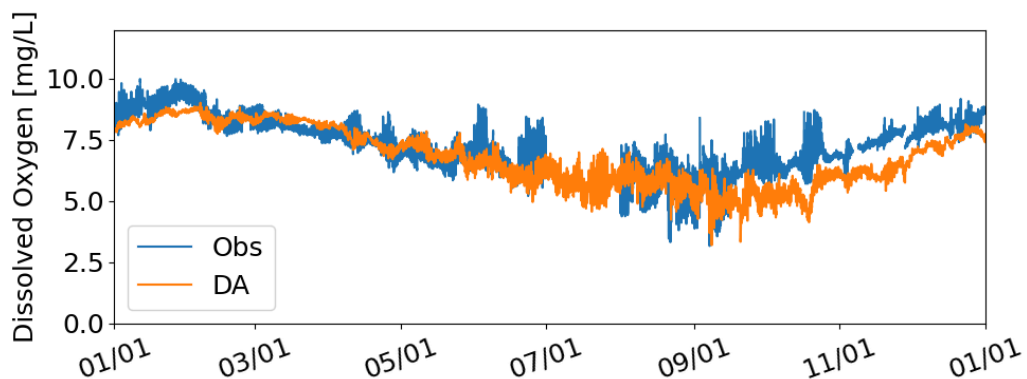
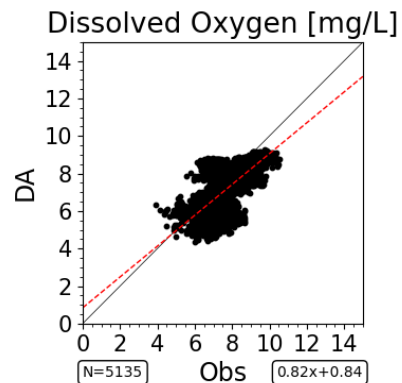


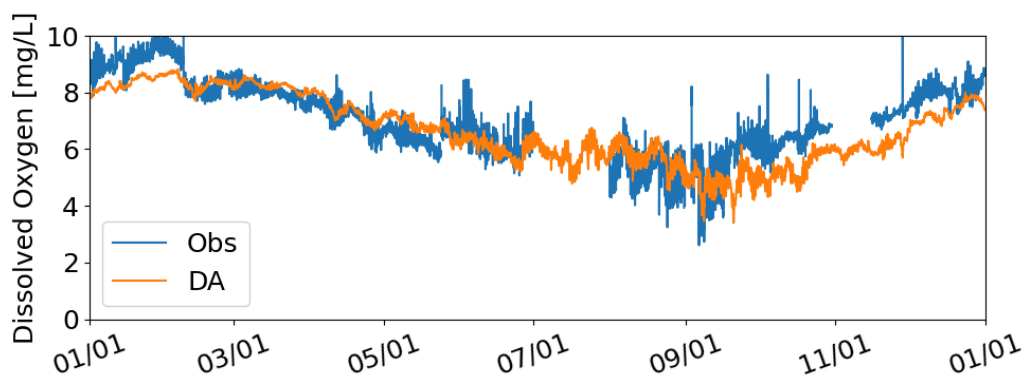
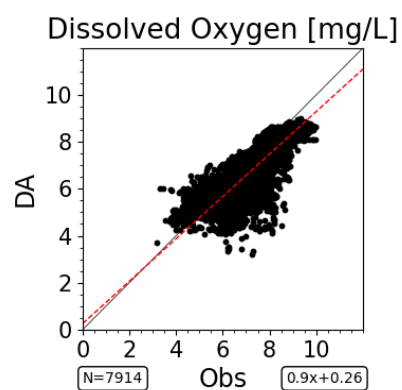
Figure S199 Timeseries and scatter plot for salinity at Nakayama Channel in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

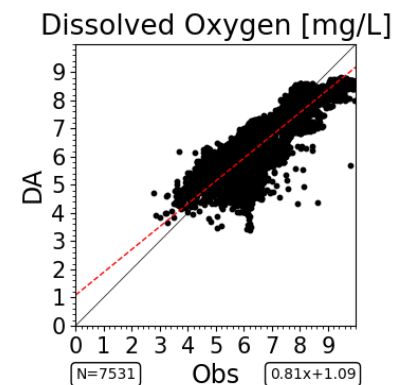


Figure S200 Timeseries and scatter plot for dissolved oxygen at Nakayama Channel in 2022

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

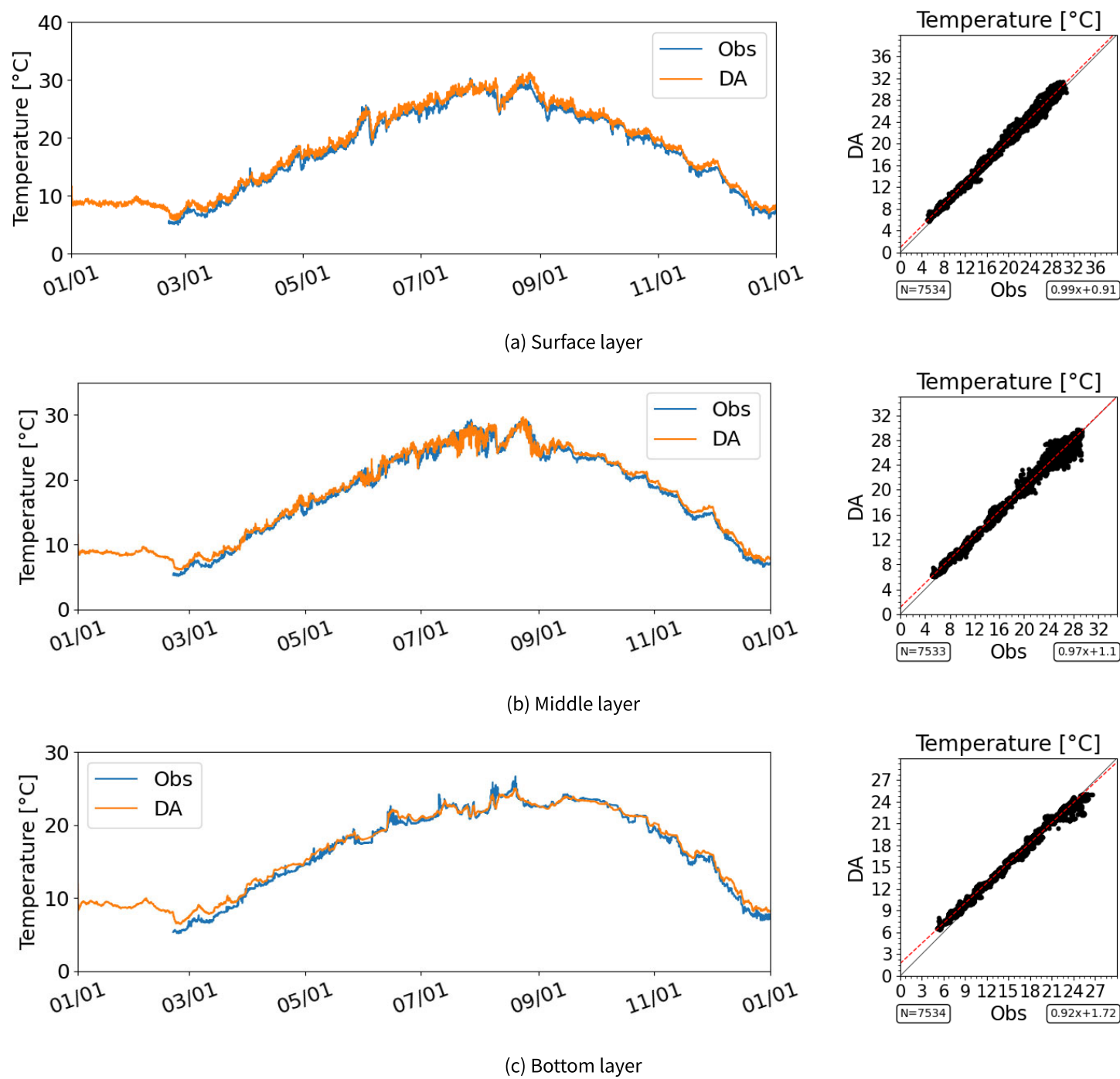
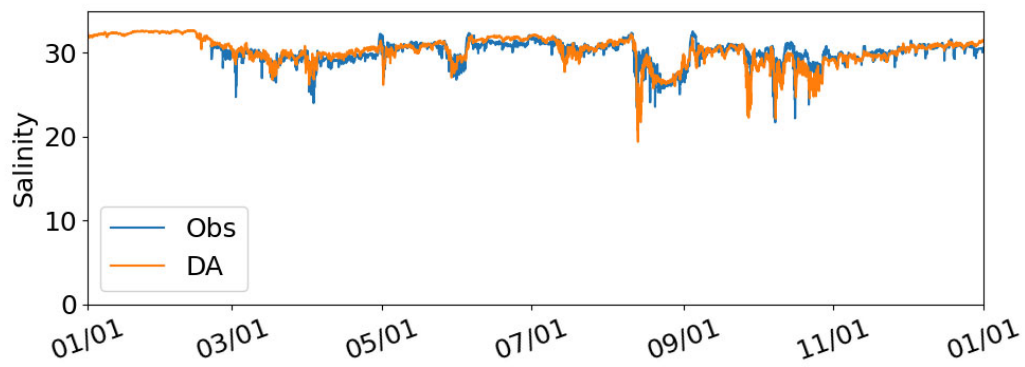
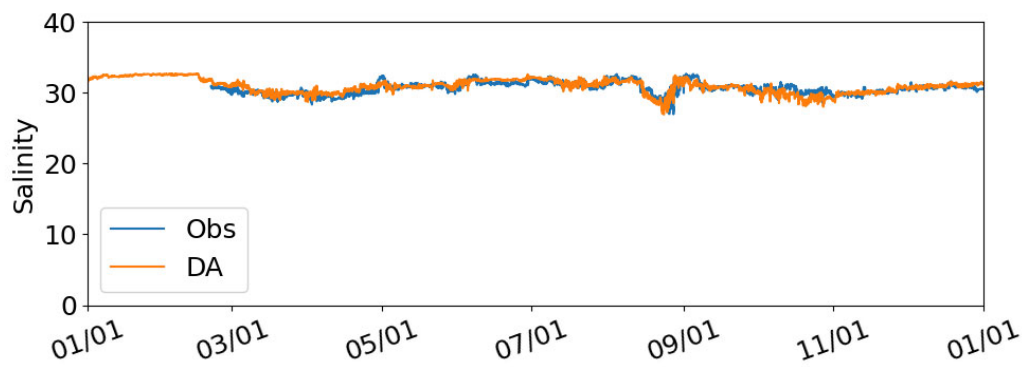
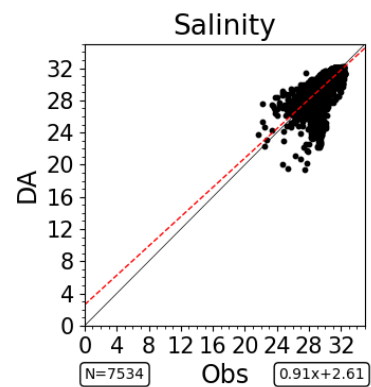


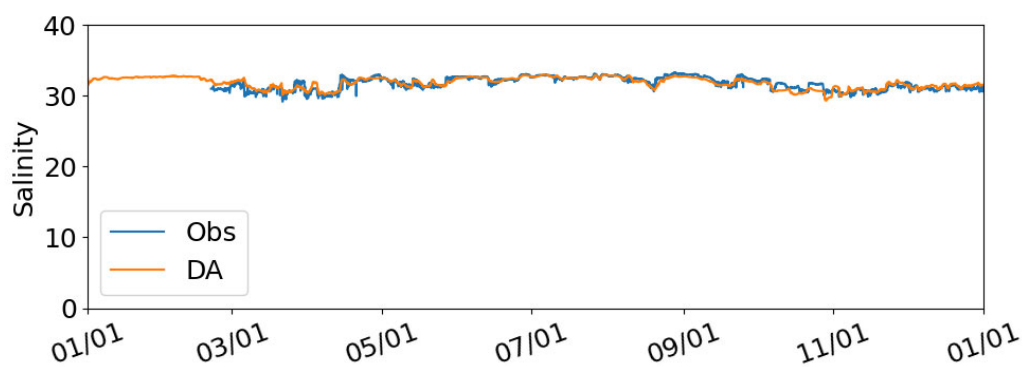
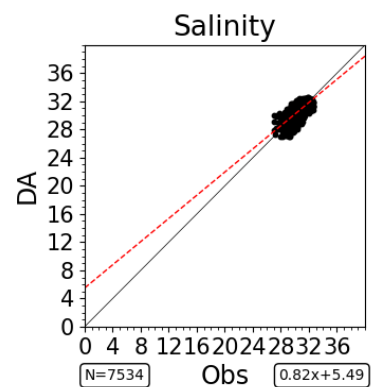
Figure S201 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

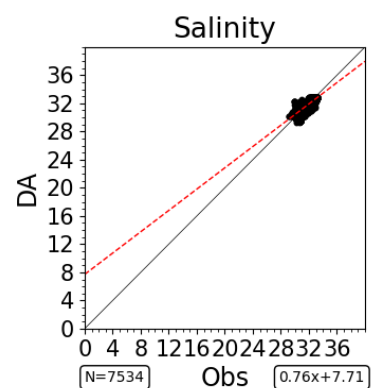
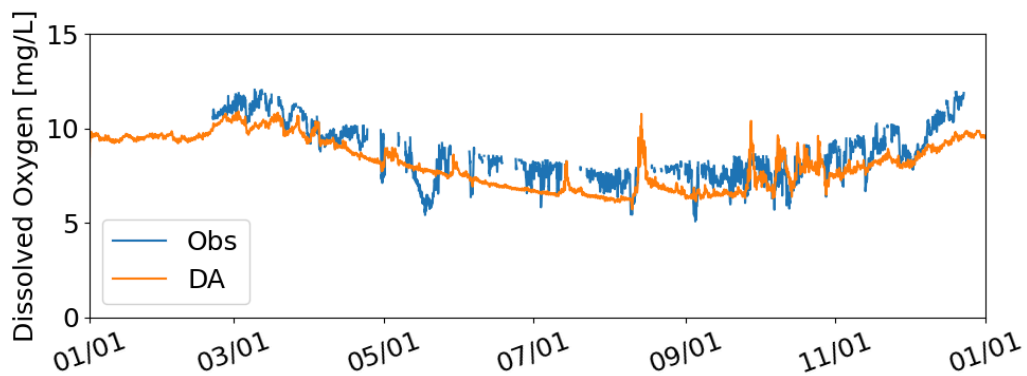
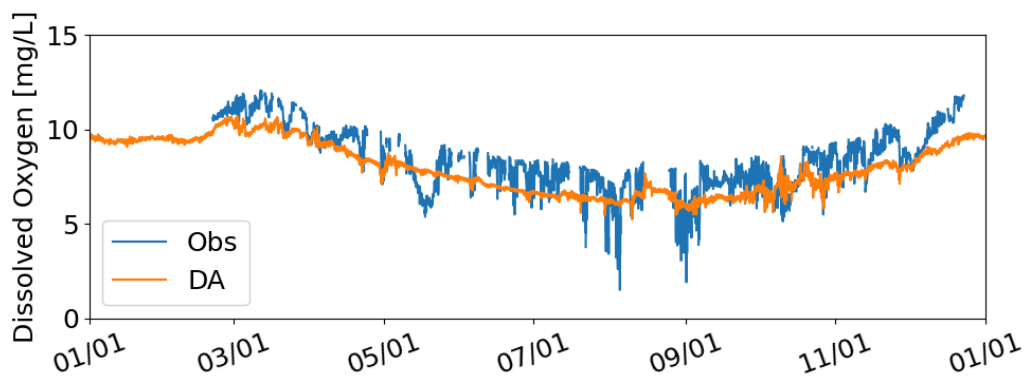
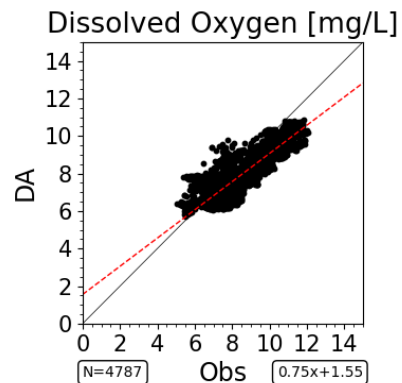


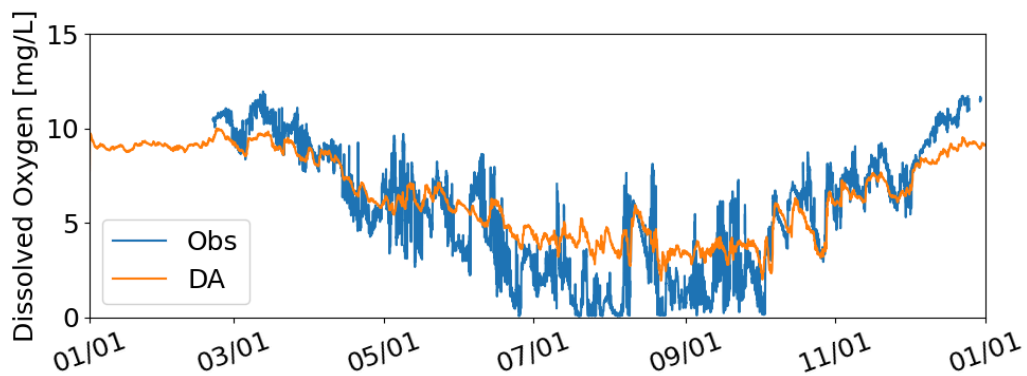
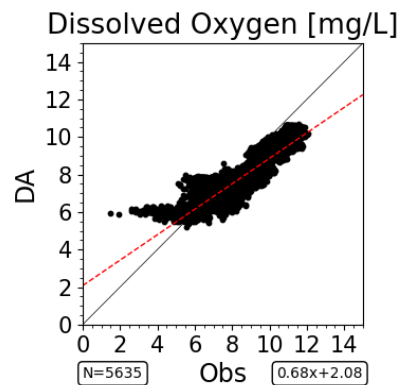
Figure S202 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

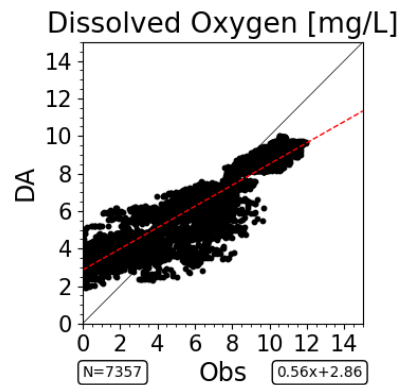
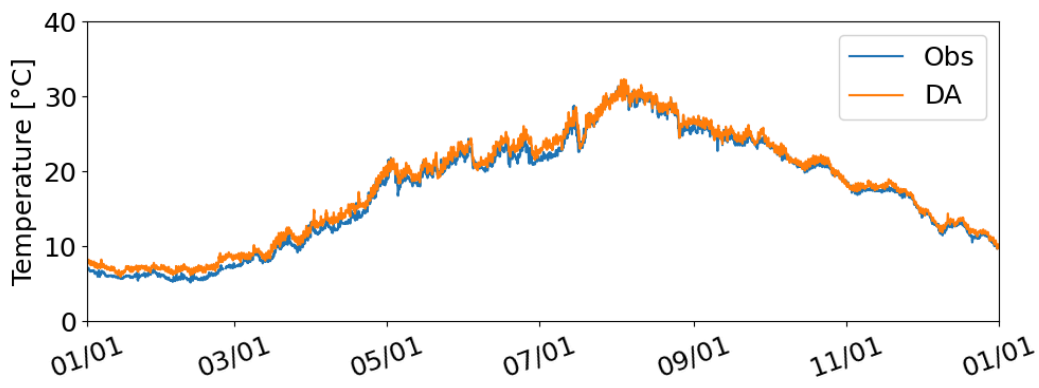
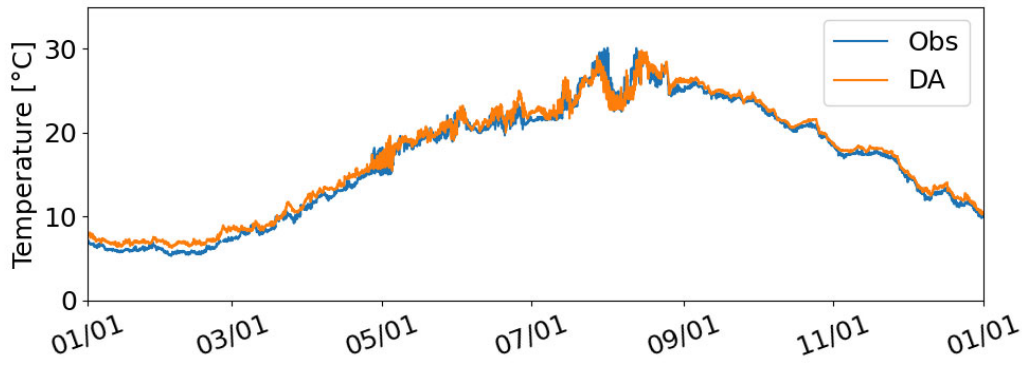
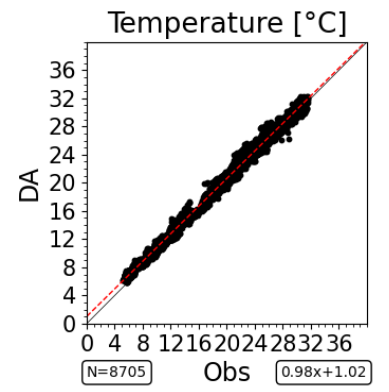


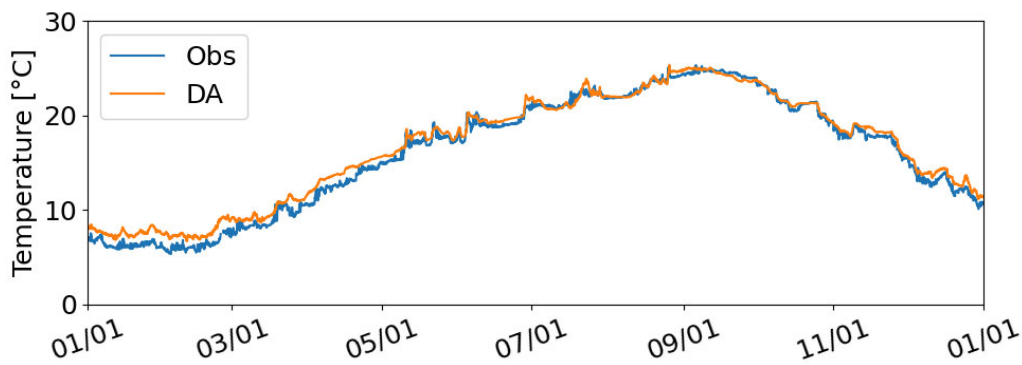
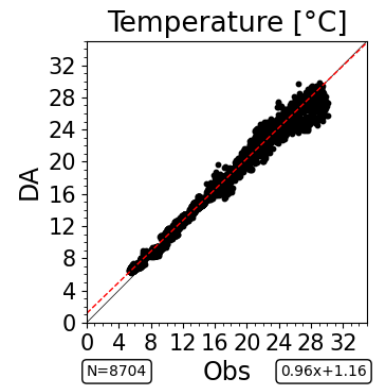
Figure S203 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

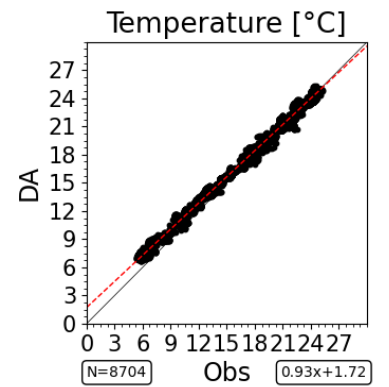
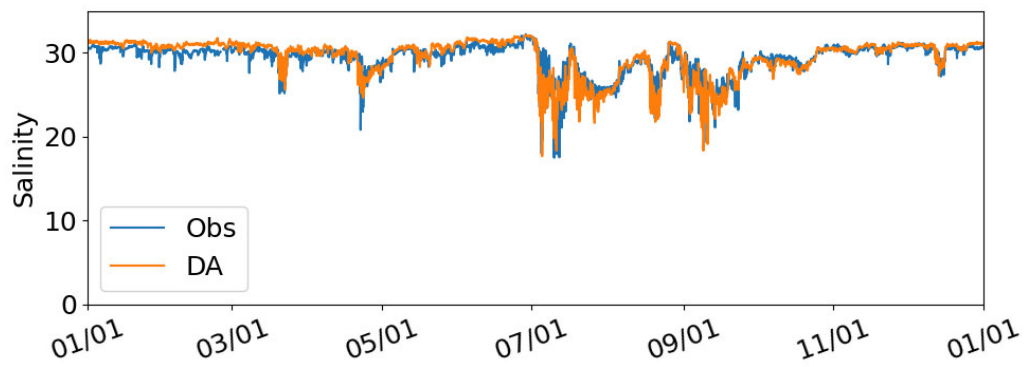
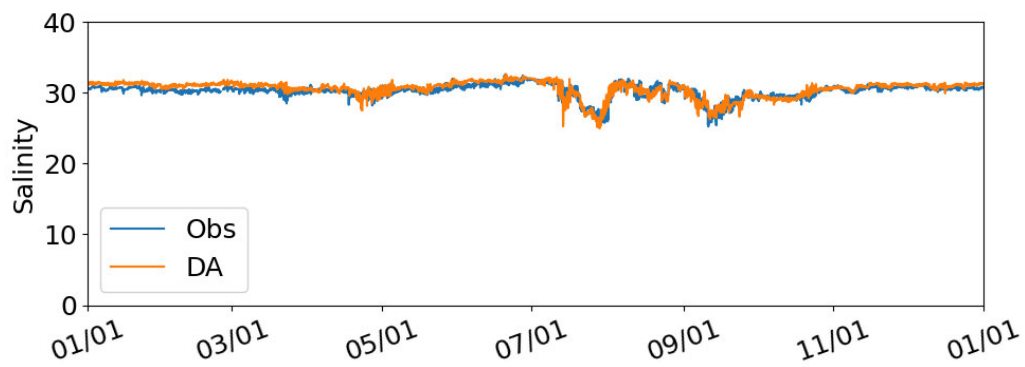
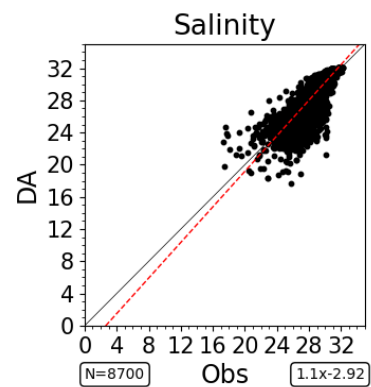


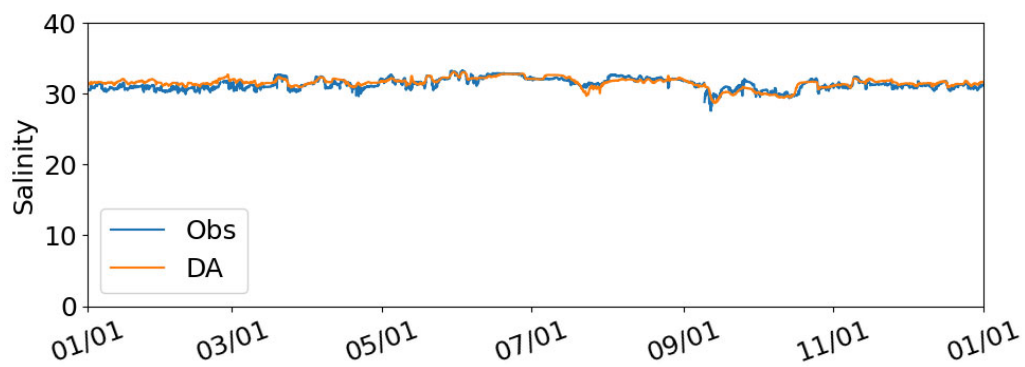
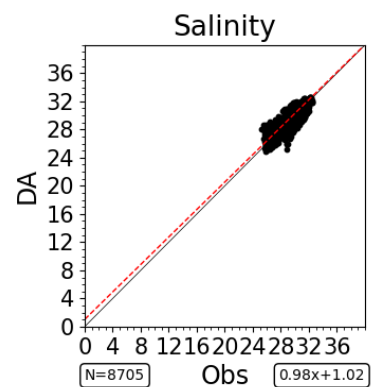
Figure S204 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

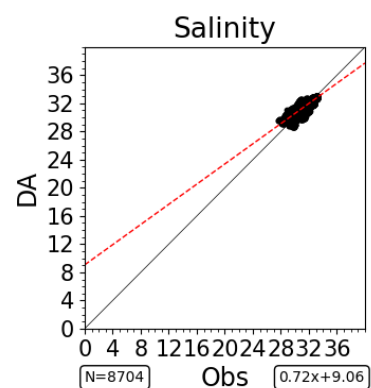
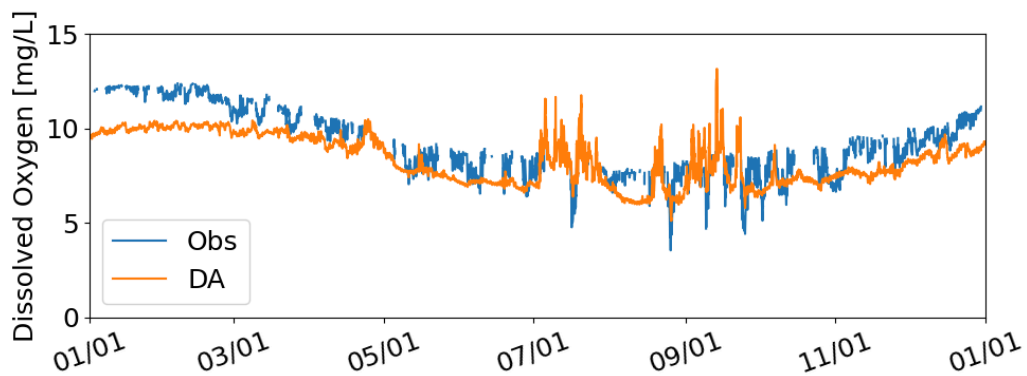
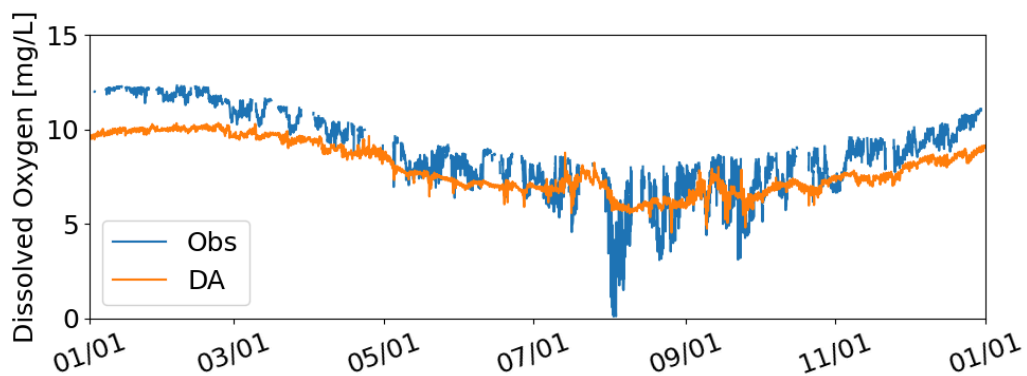
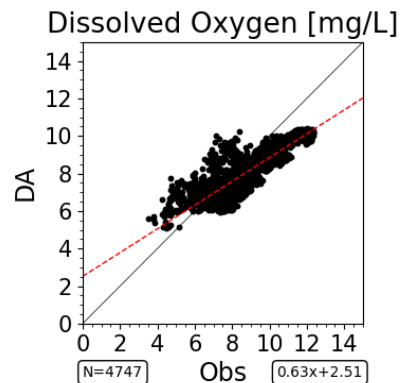


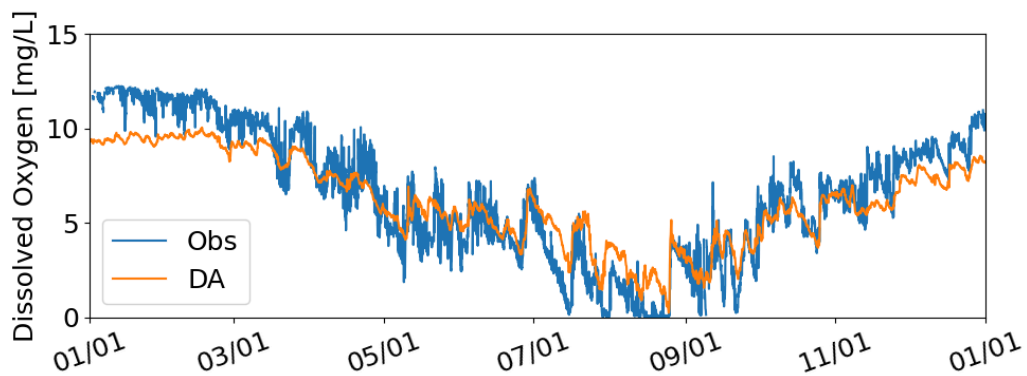
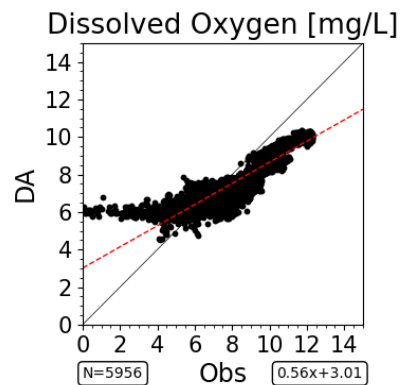
Figure S205 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

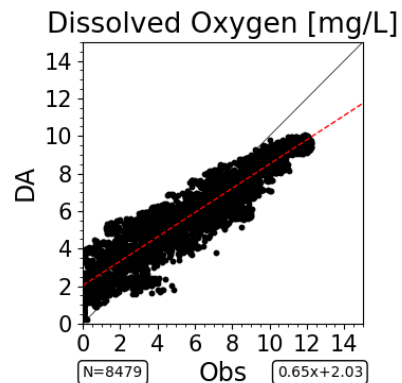
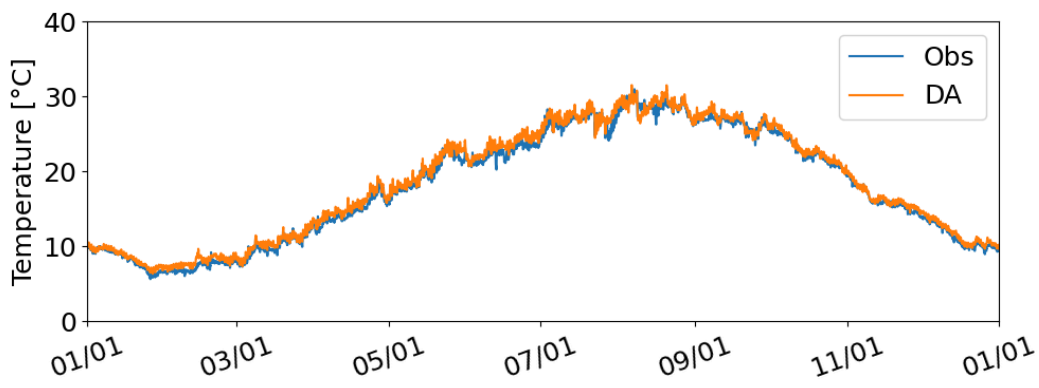
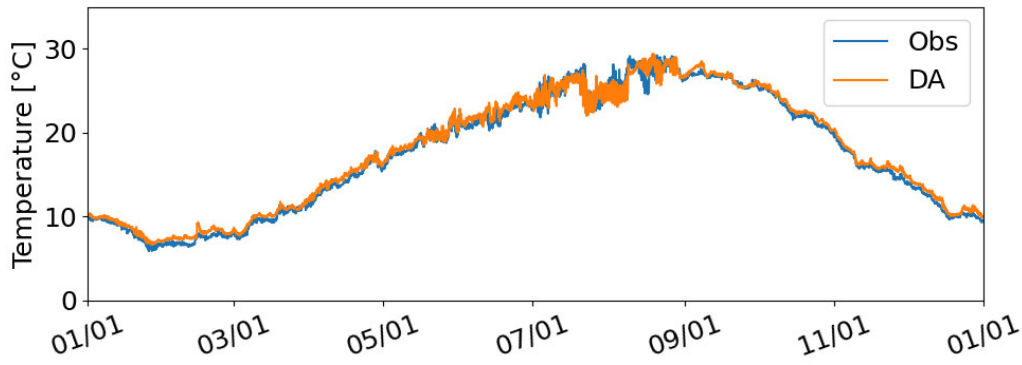
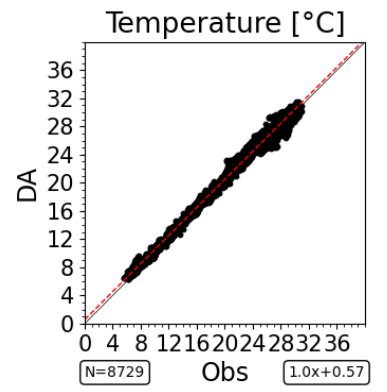


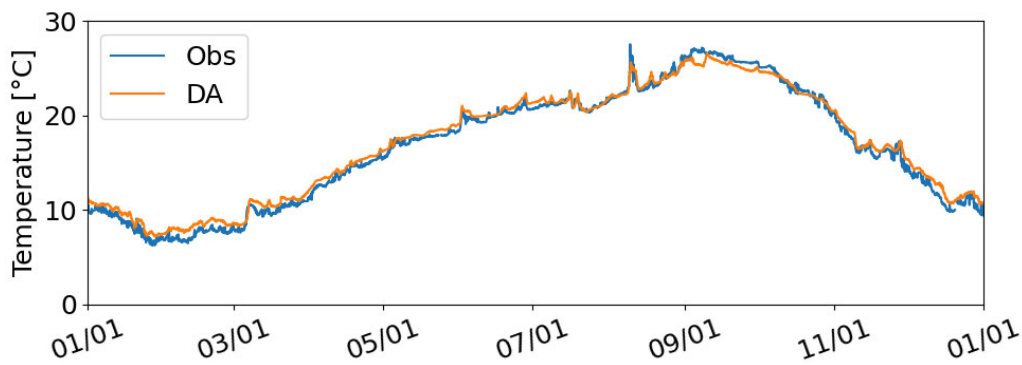
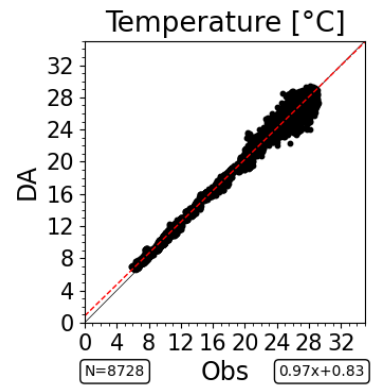
Figure S206 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

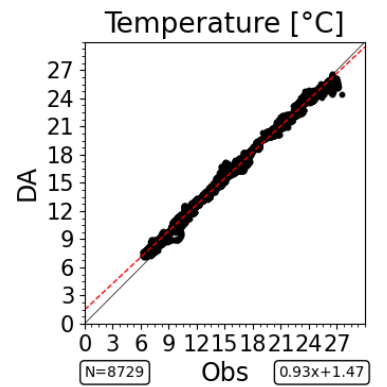
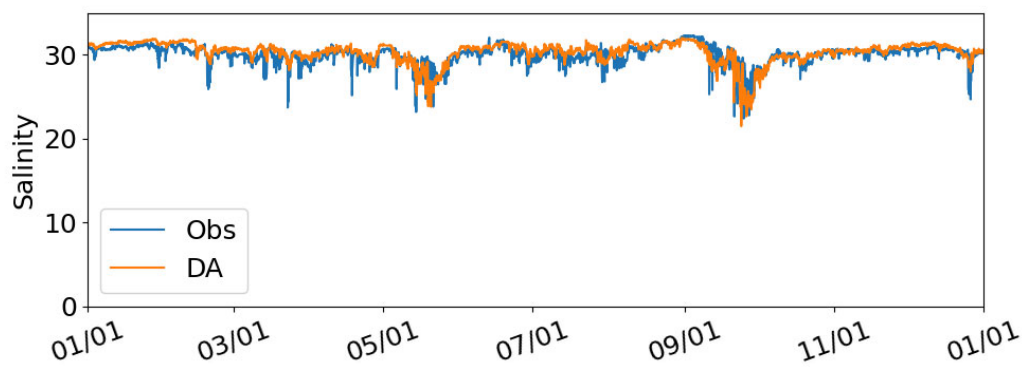
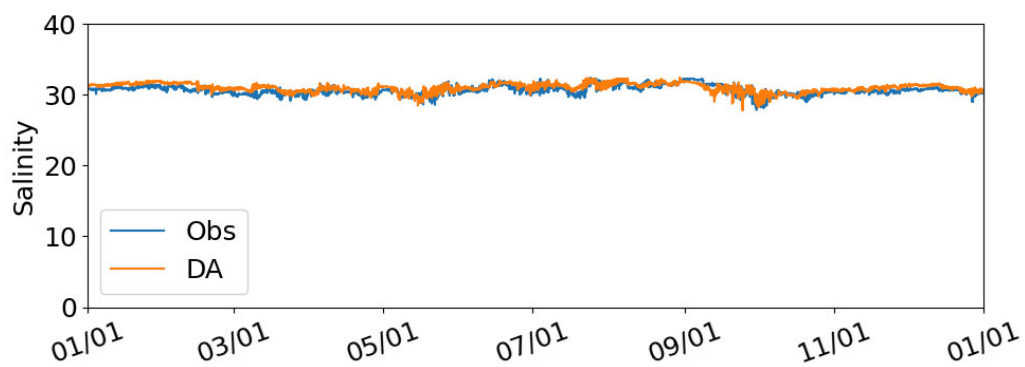
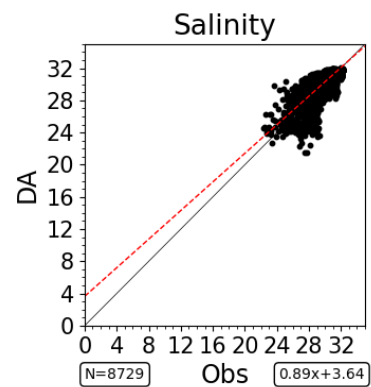


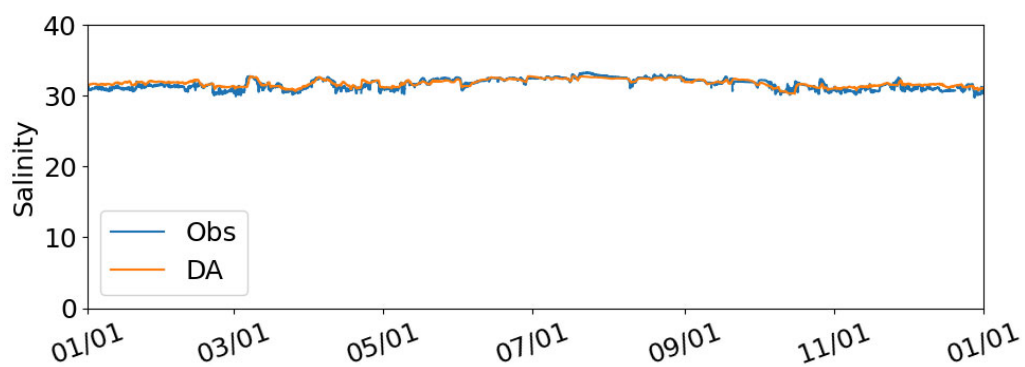
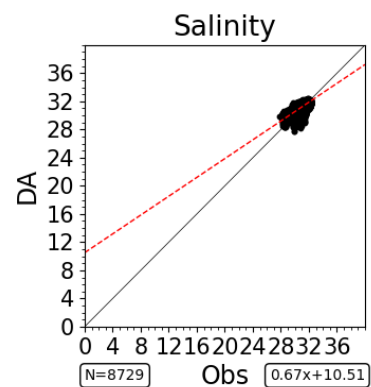
Figure S207 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

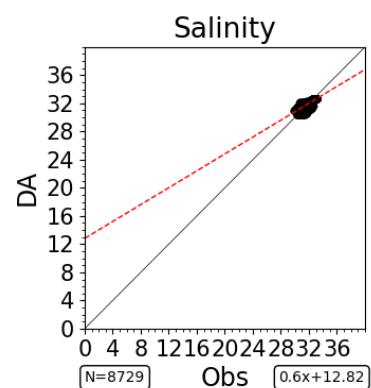
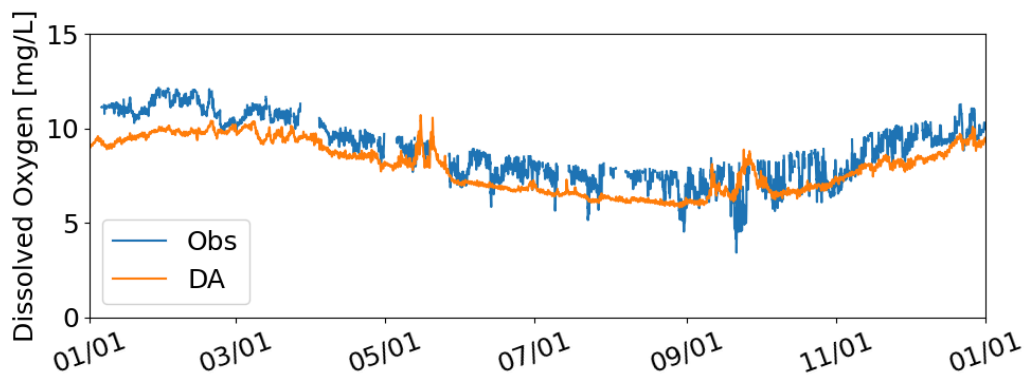
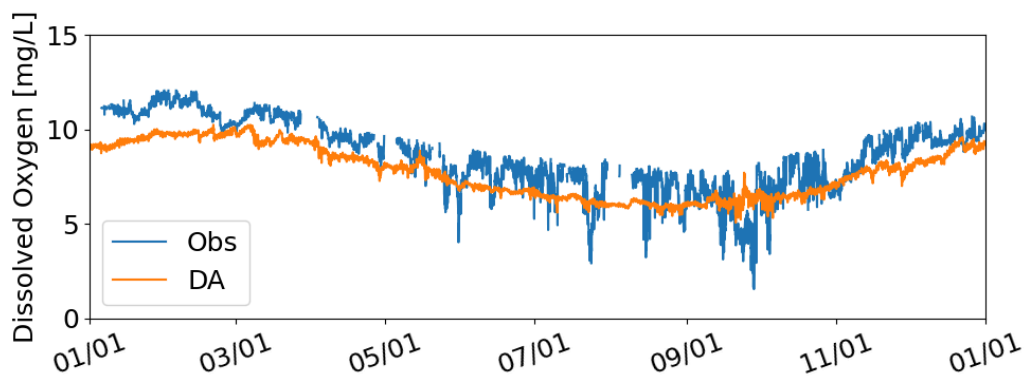
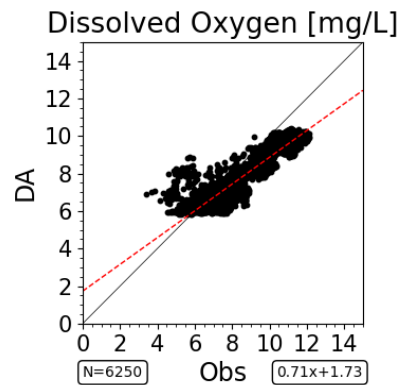


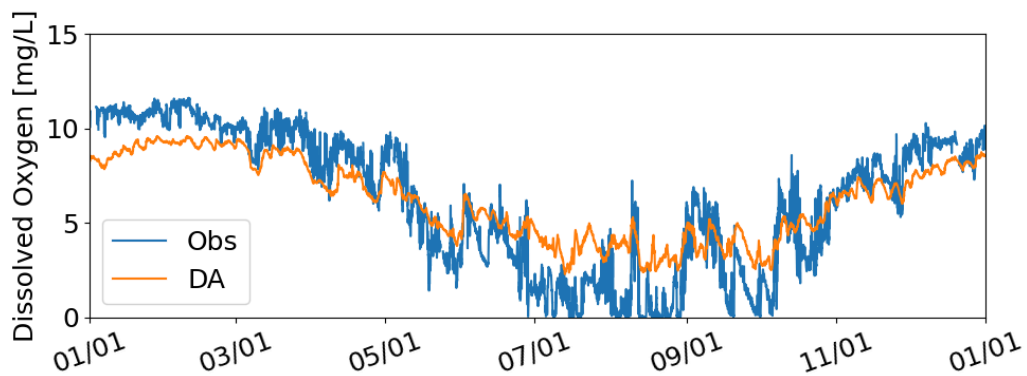
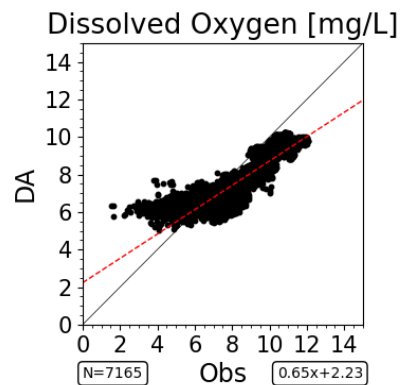
Figure S208 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

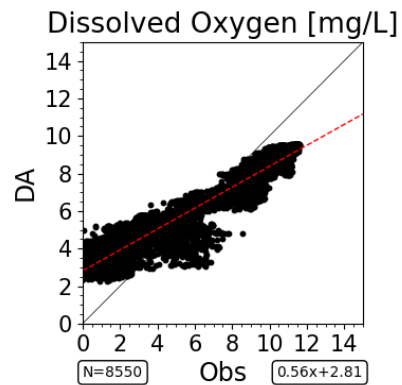
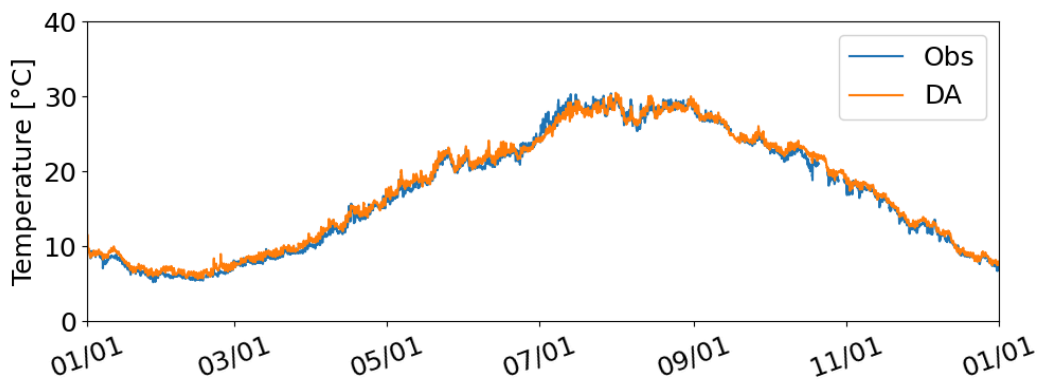
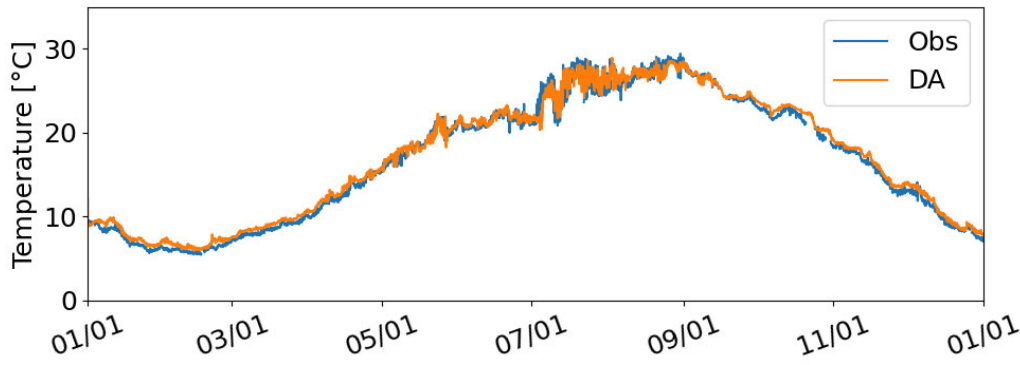
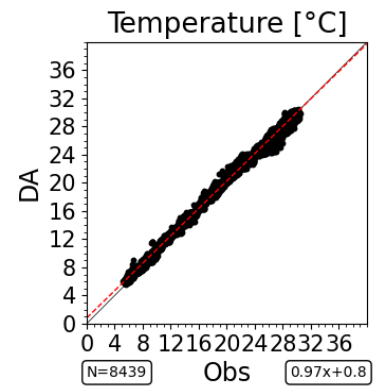


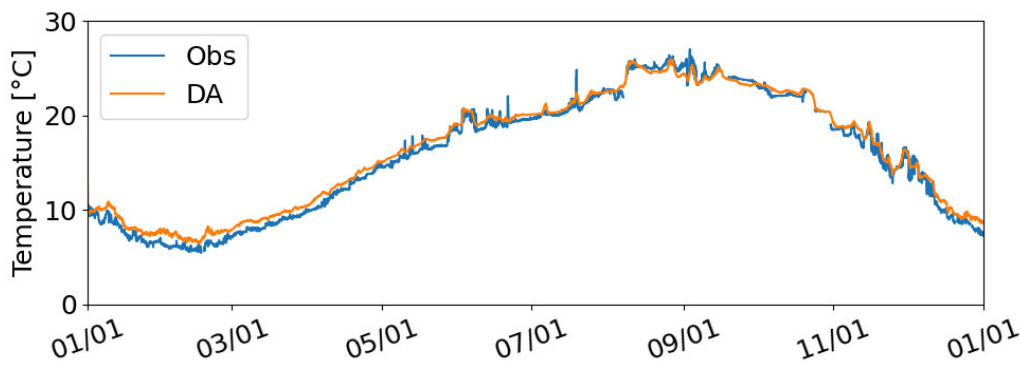
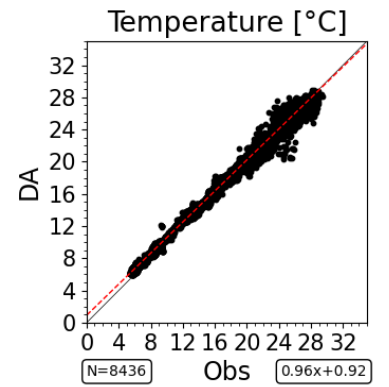
Figure S209 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

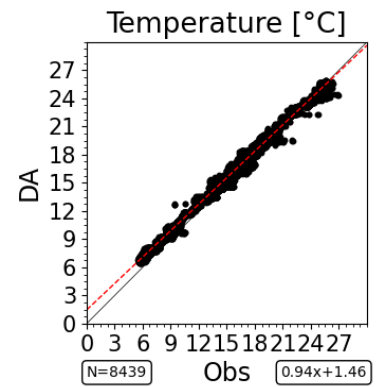
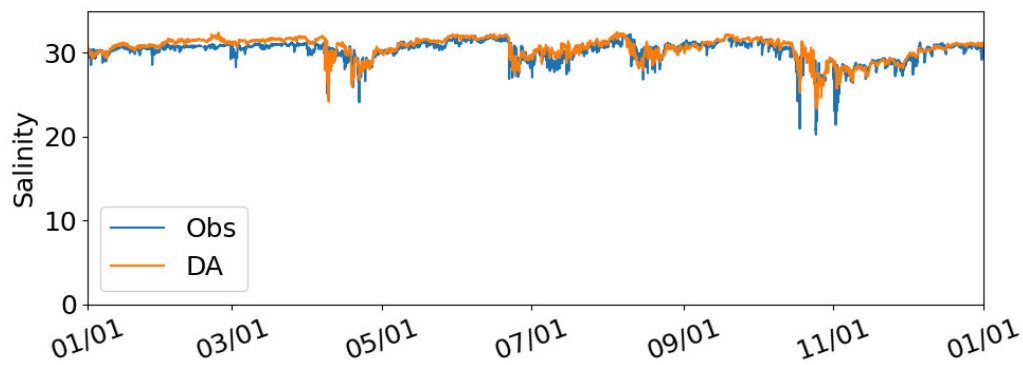
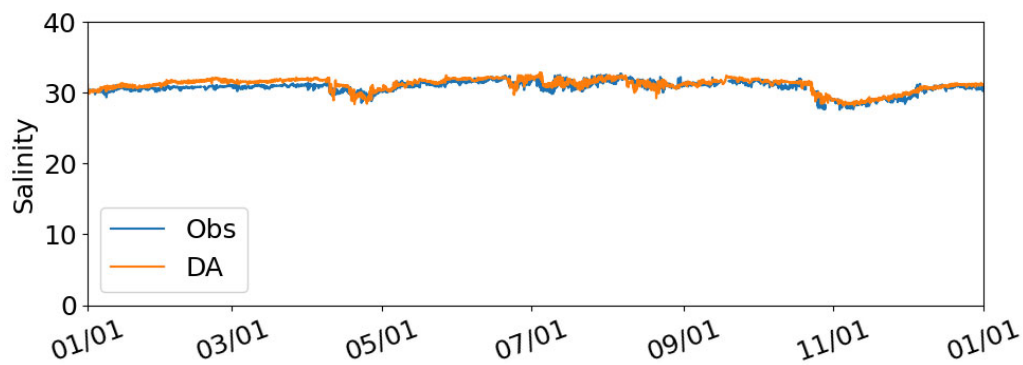
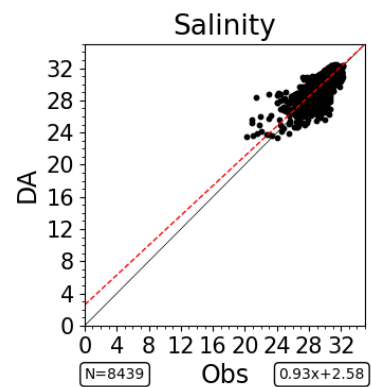


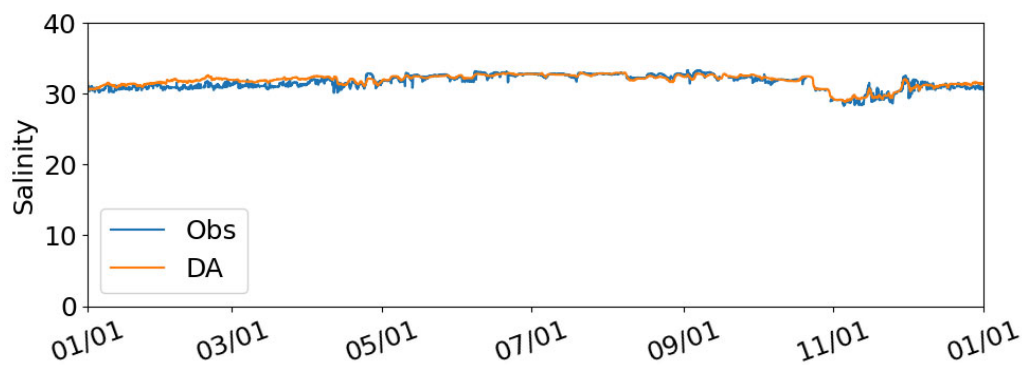
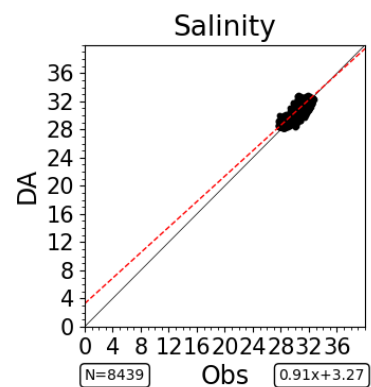
Figure S210 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

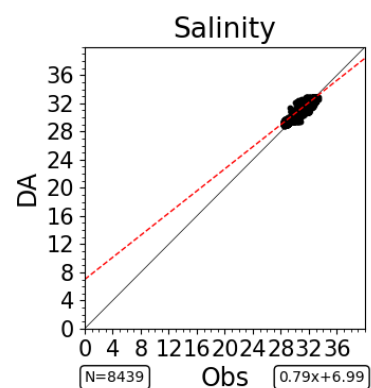
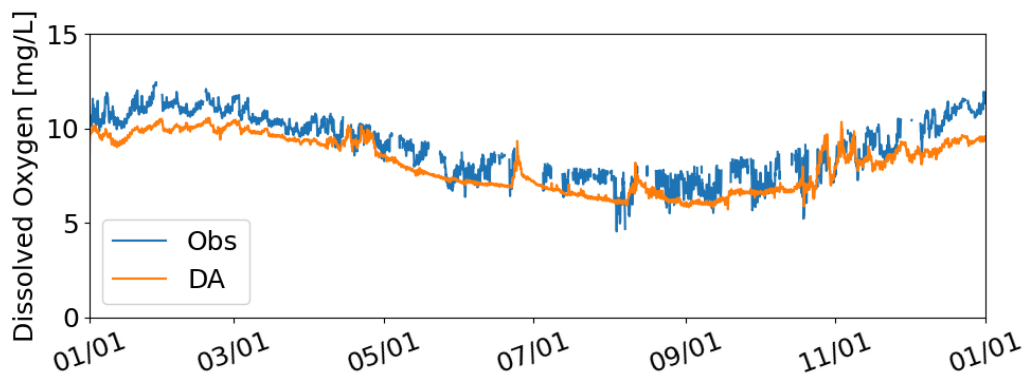
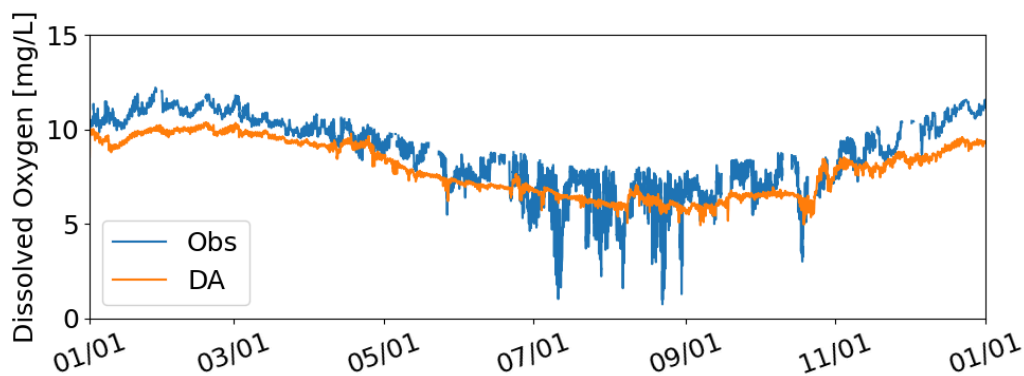
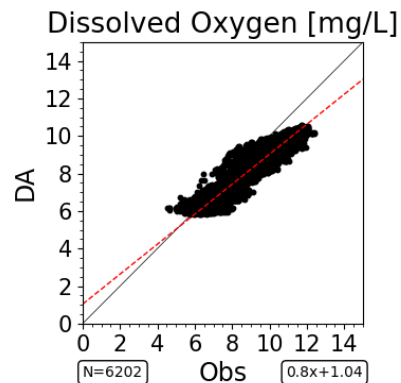


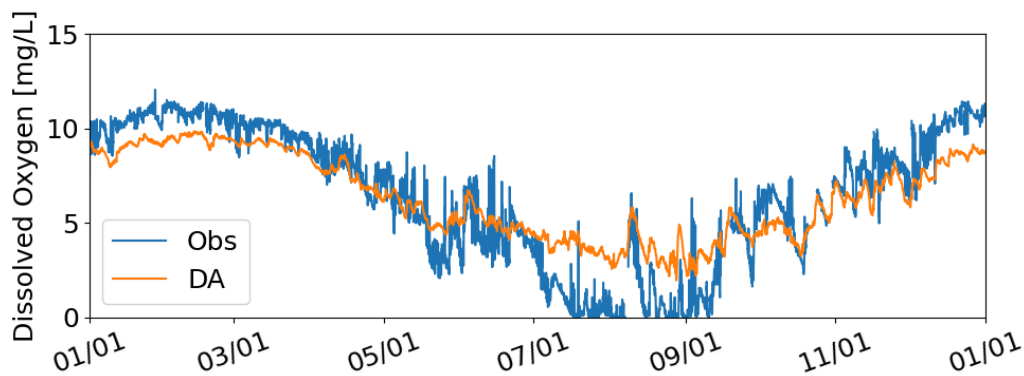
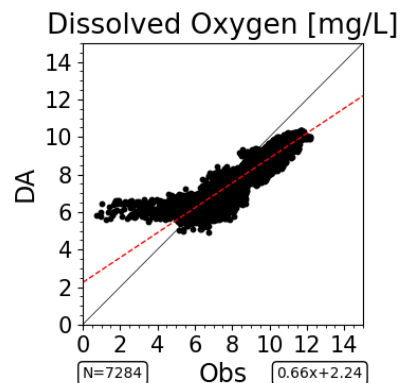
Figure S211 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

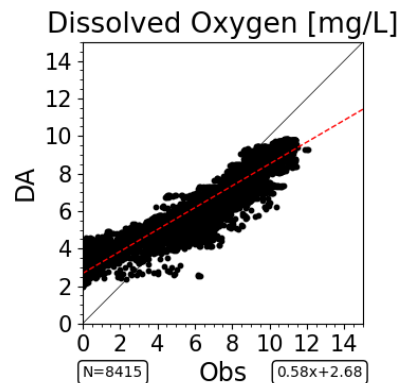
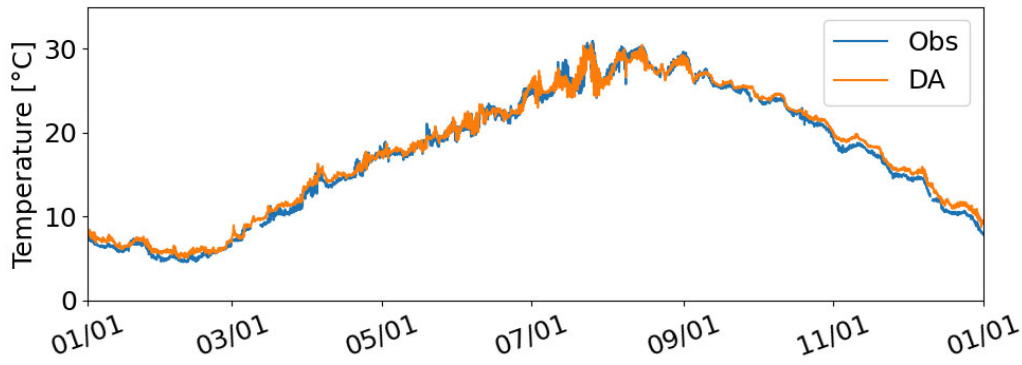
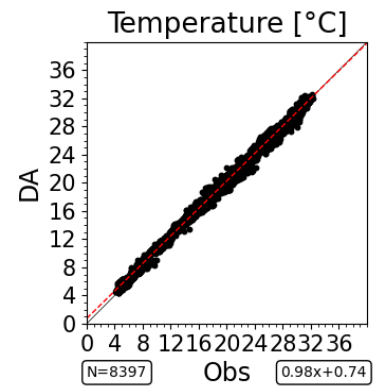


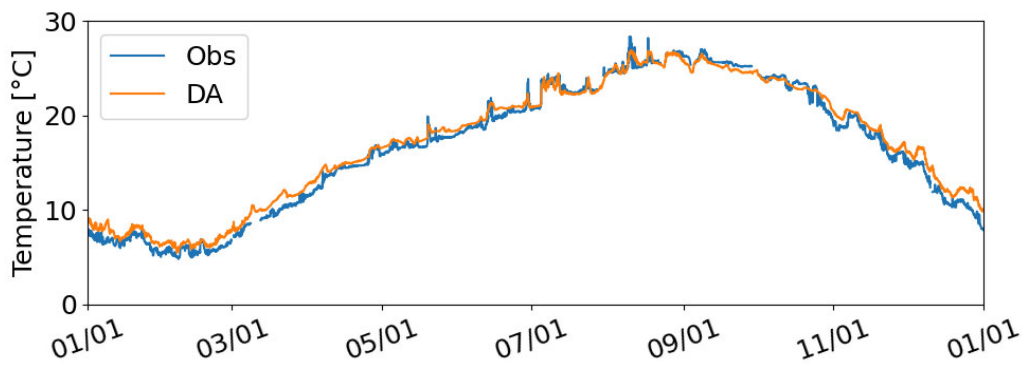
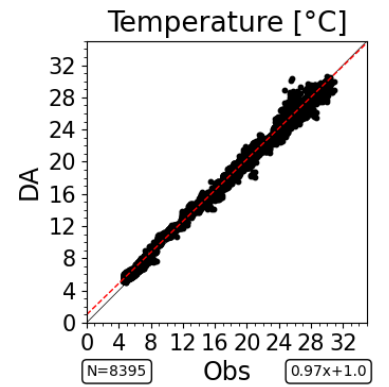
Figure S212 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

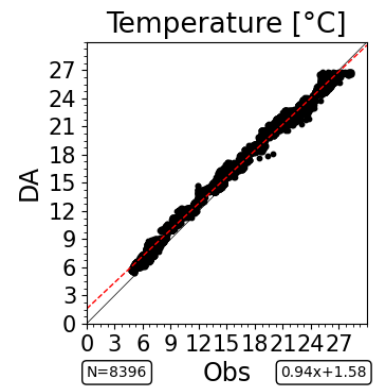
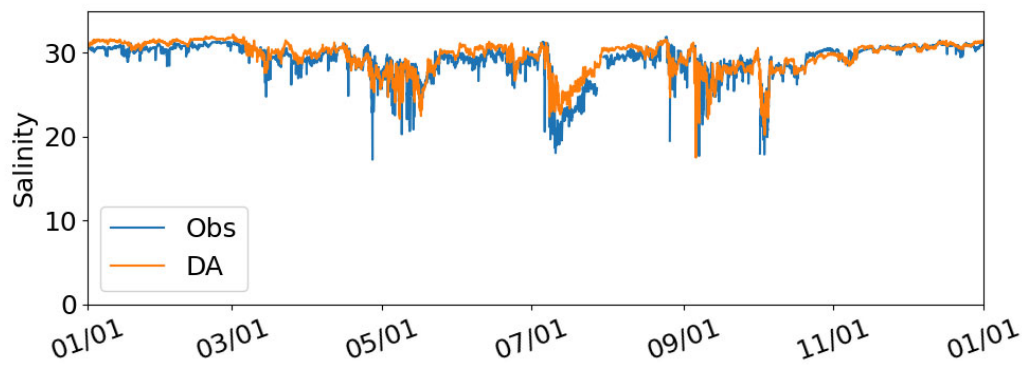
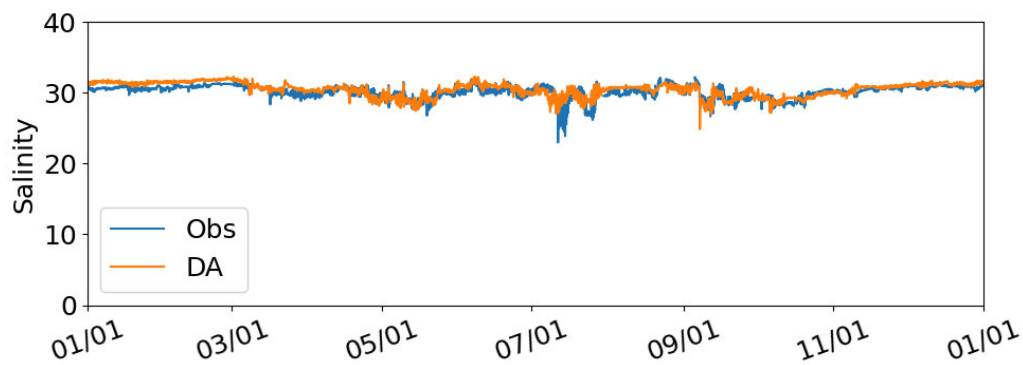
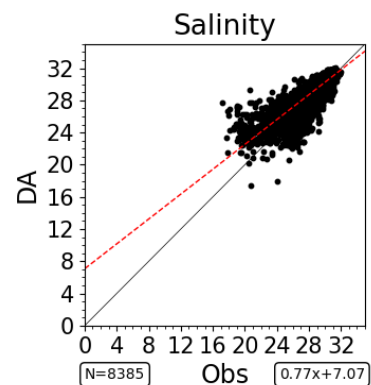


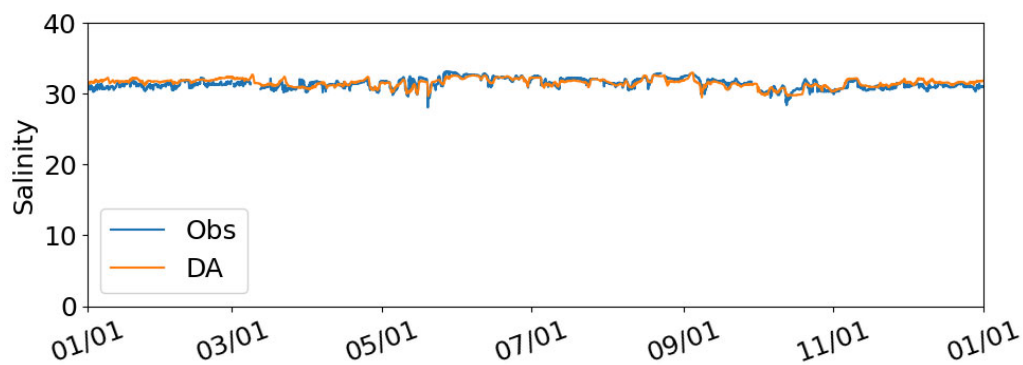
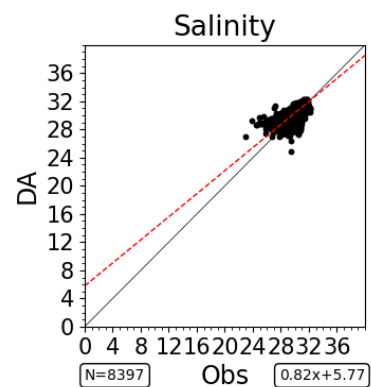
Figure S213 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

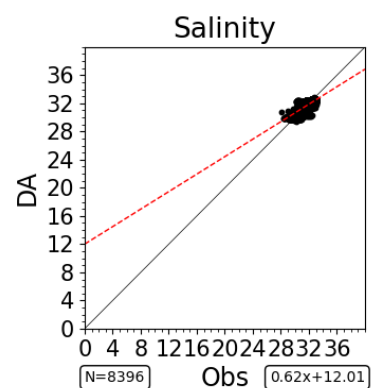
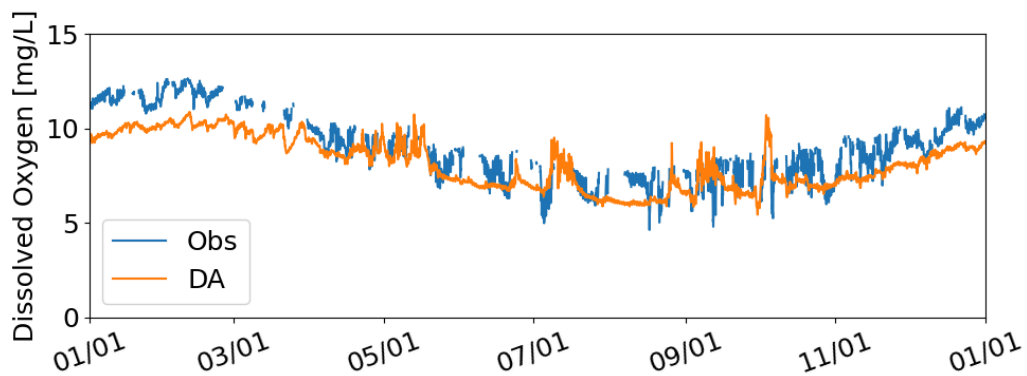
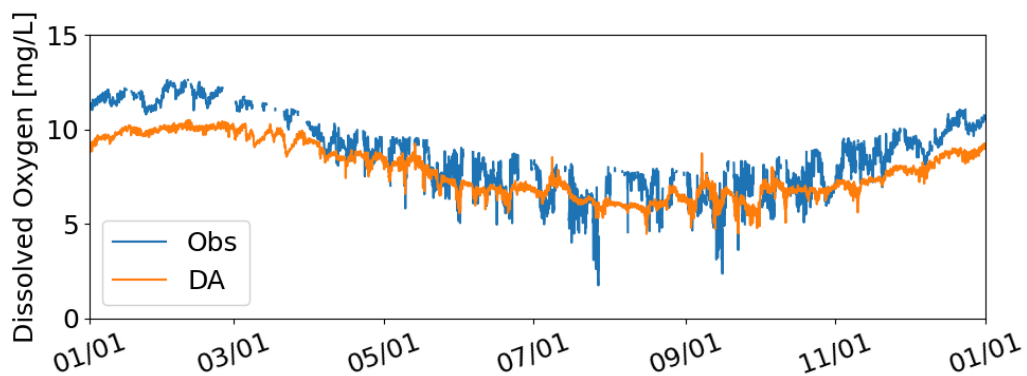
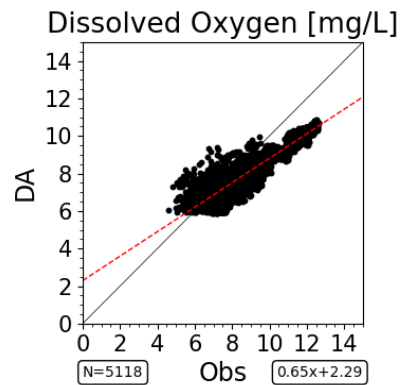


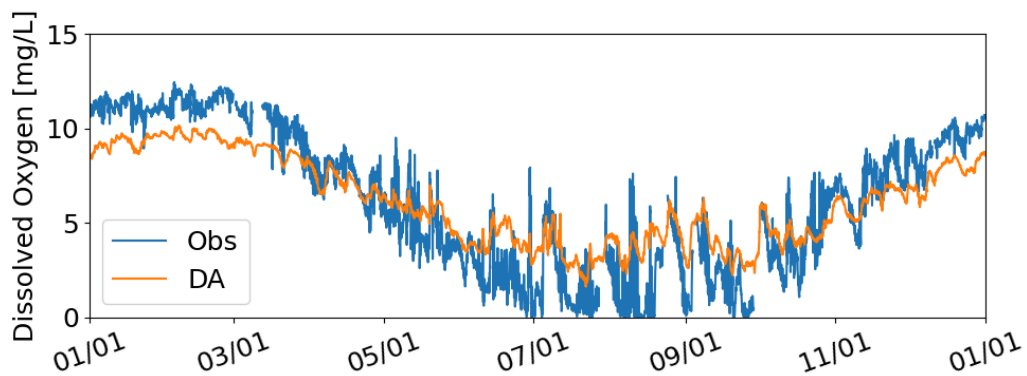
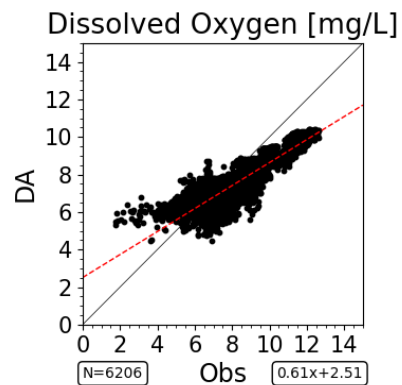
Figure S214 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

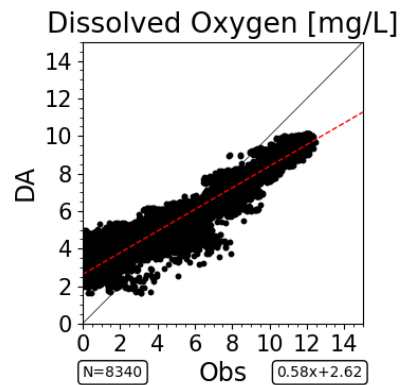
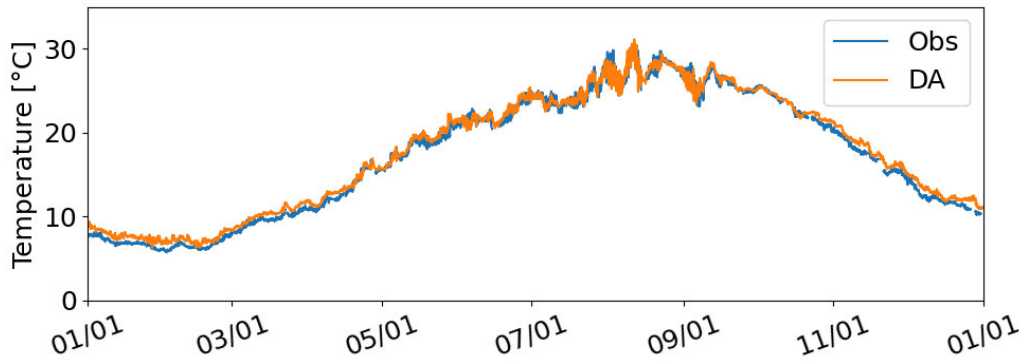
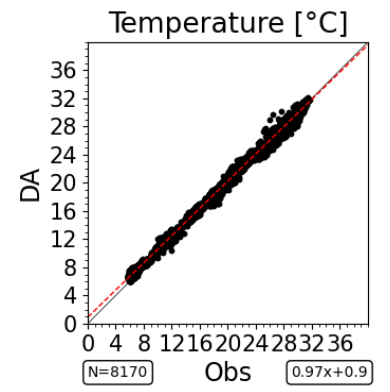


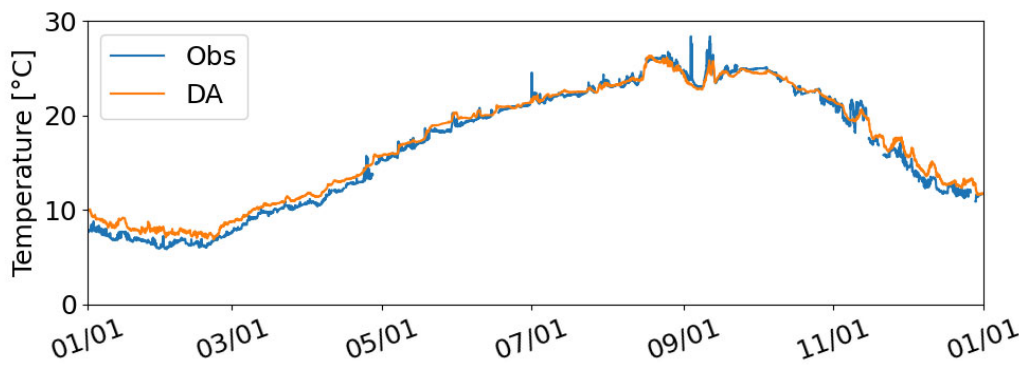
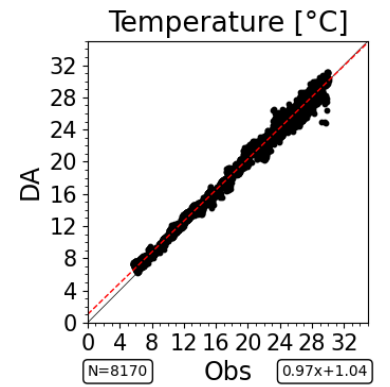
Figure S215 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

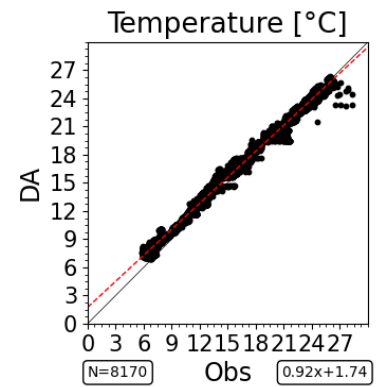
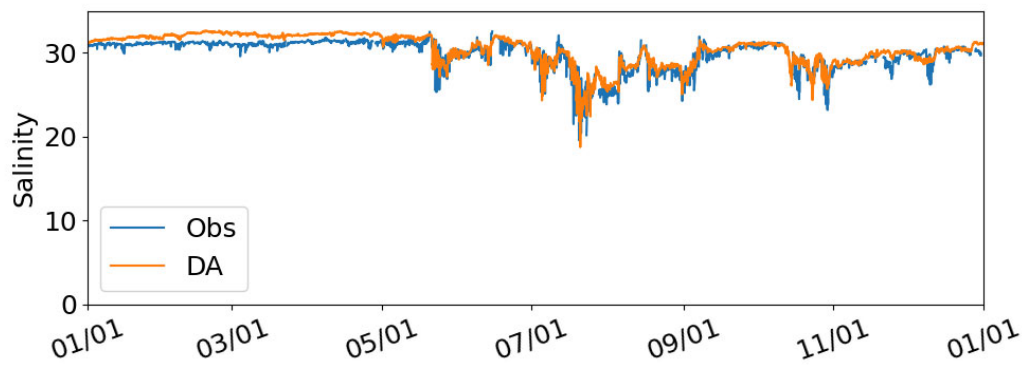
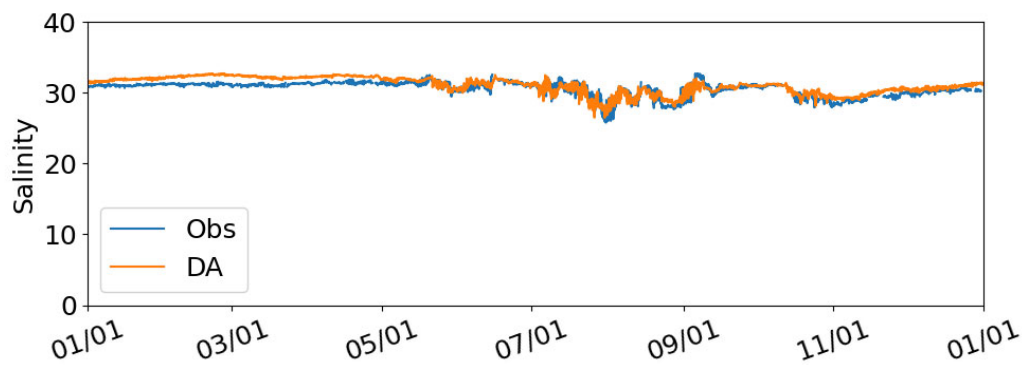
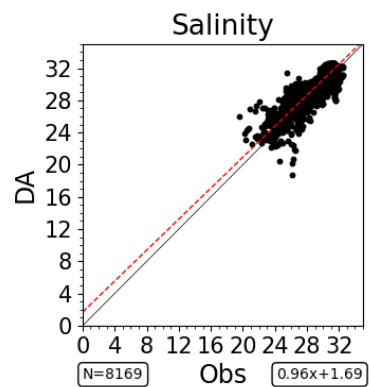


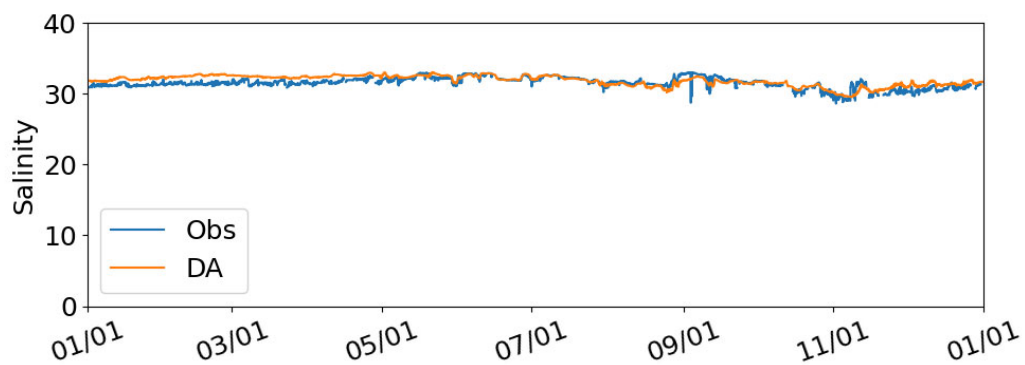
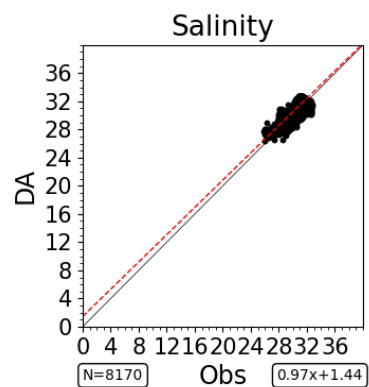
Figure S216 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

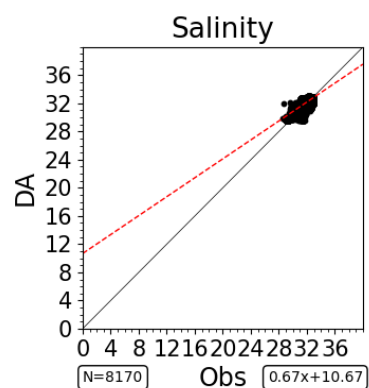
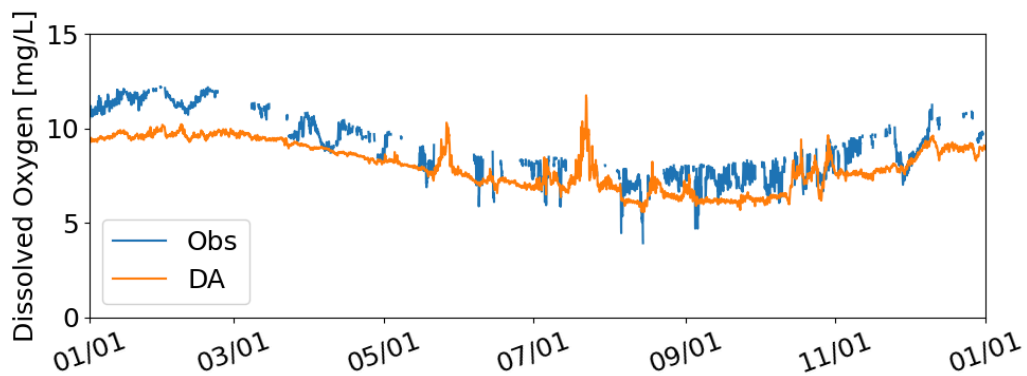
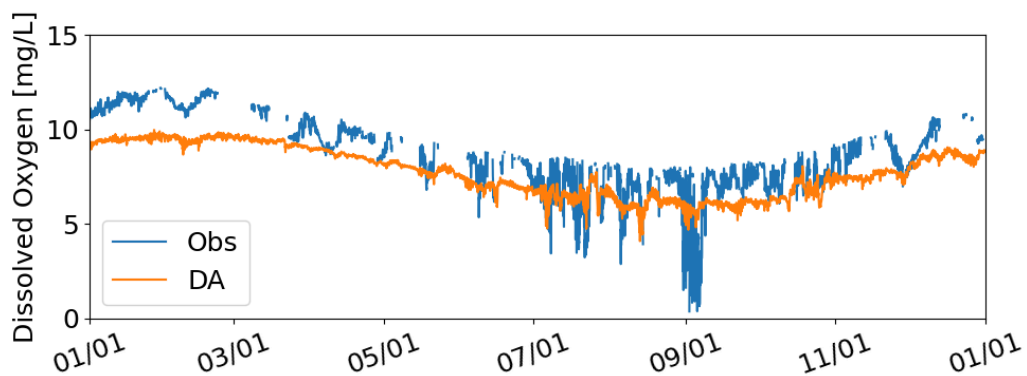
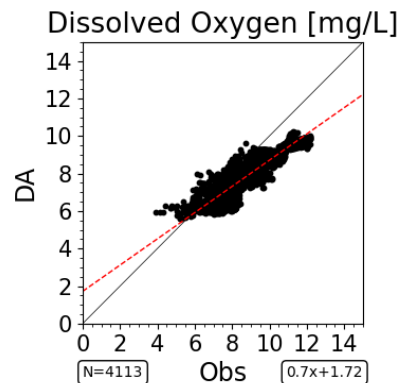


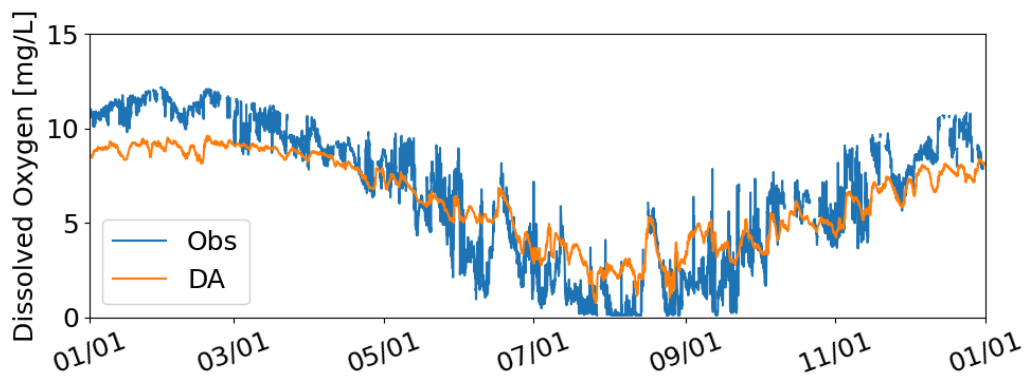
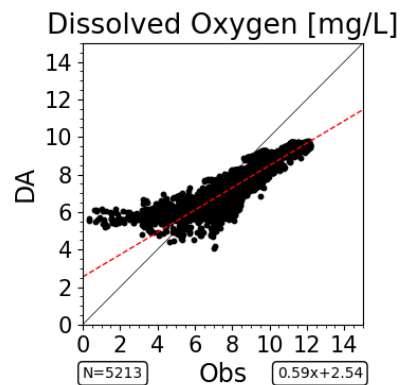
Figure S217 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

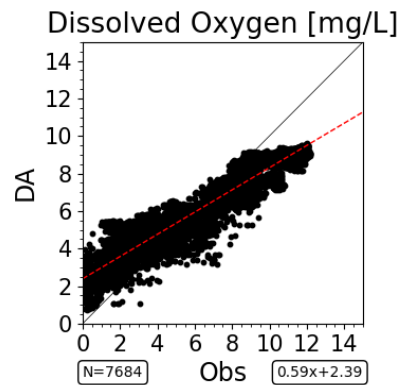
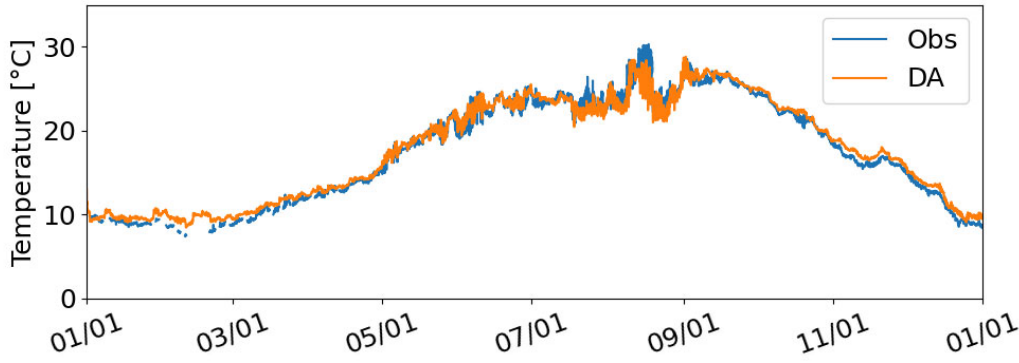
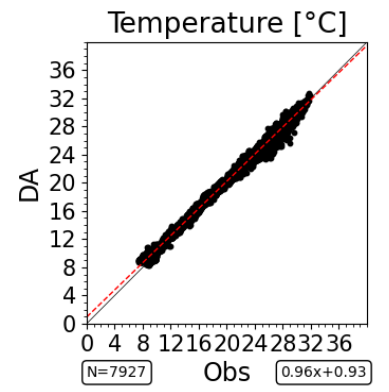


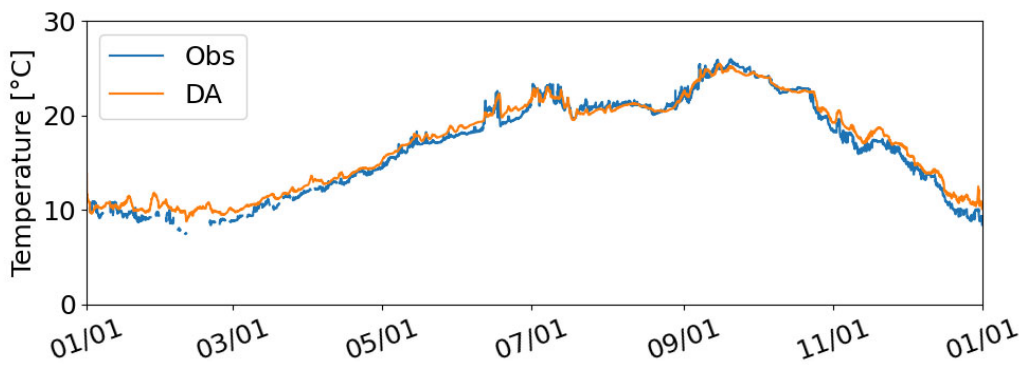
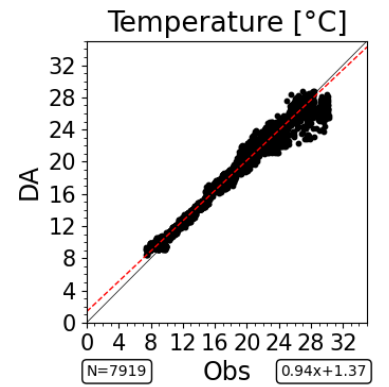
Figure S218 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

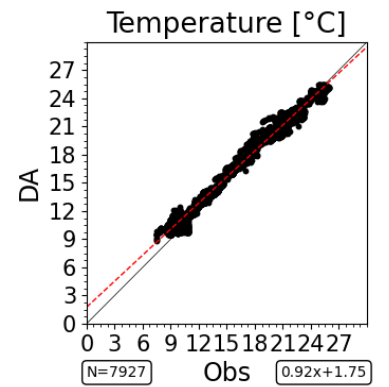
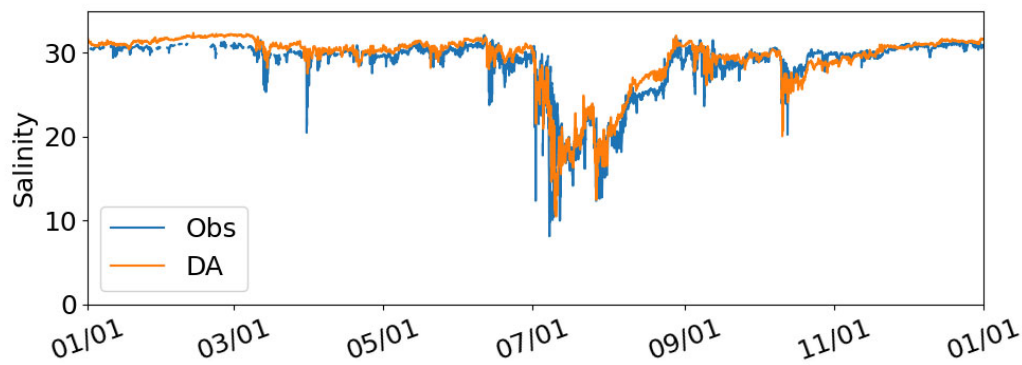
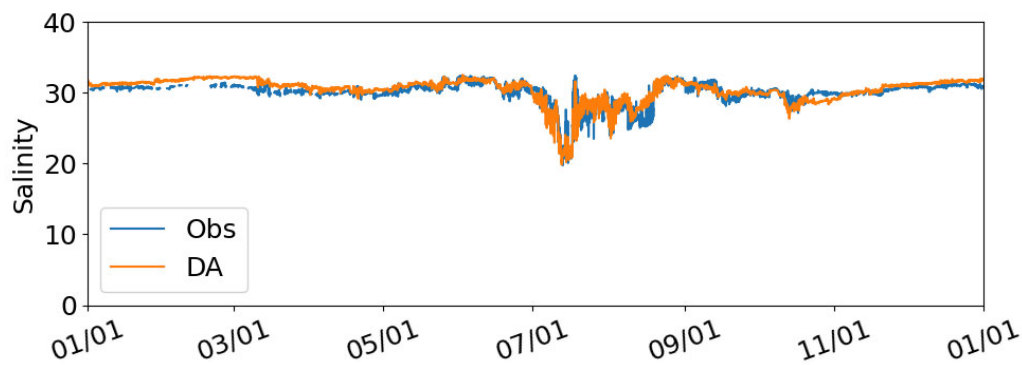
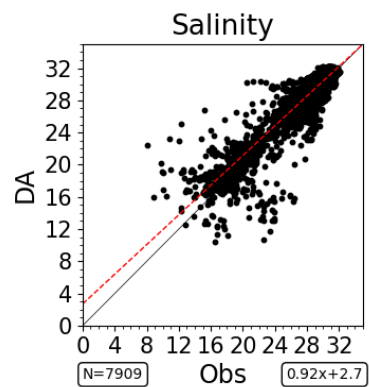


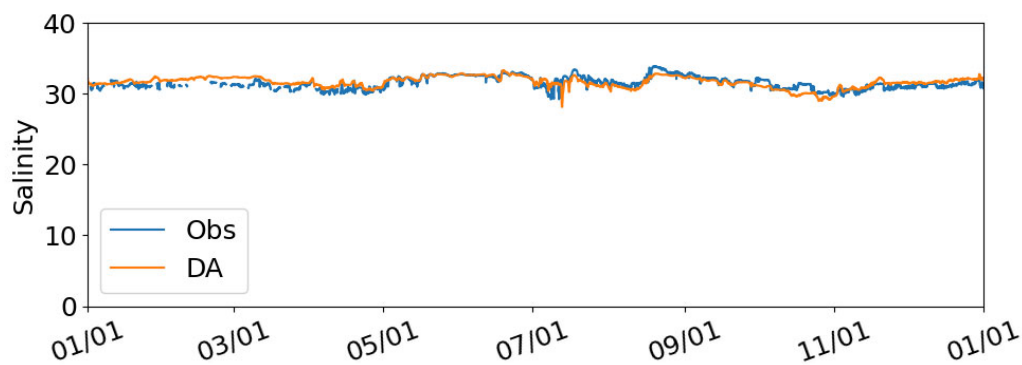
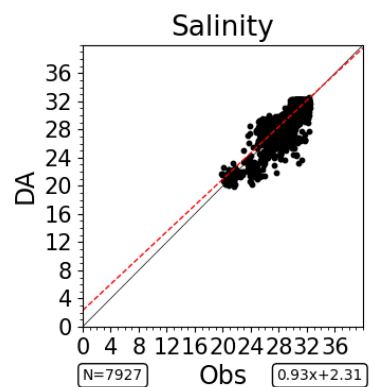
Figure S219 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

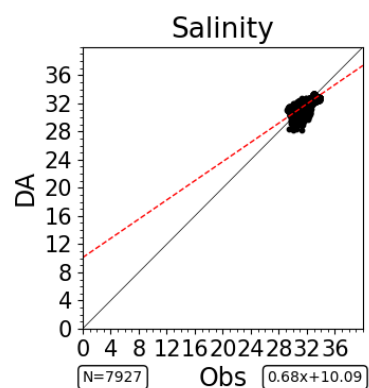
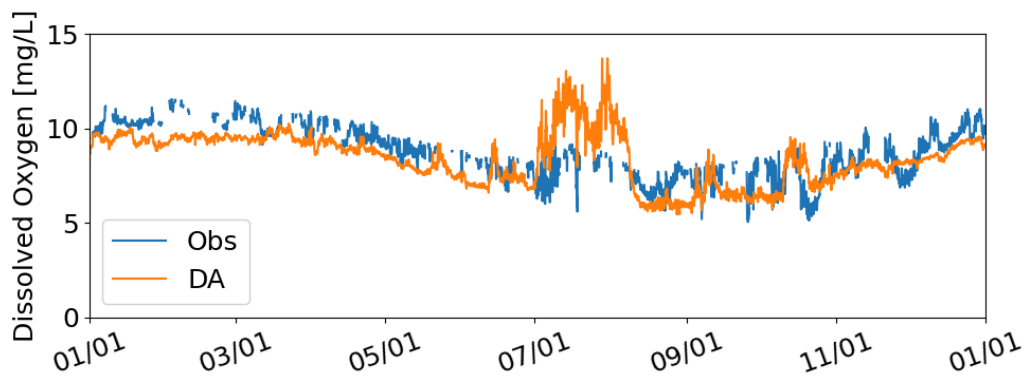
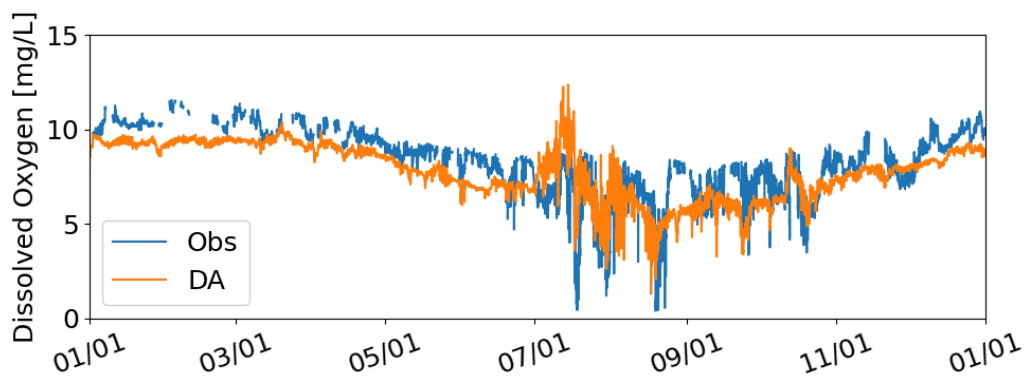
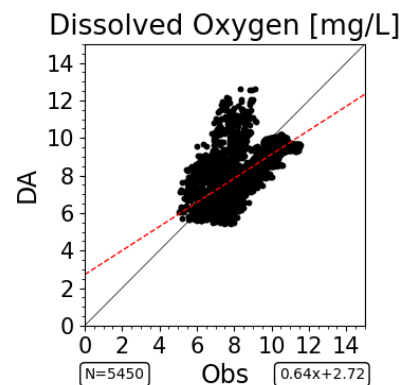


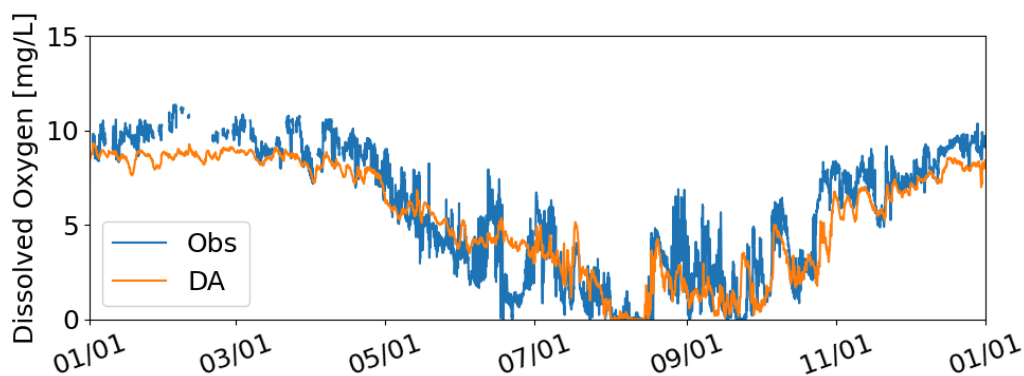
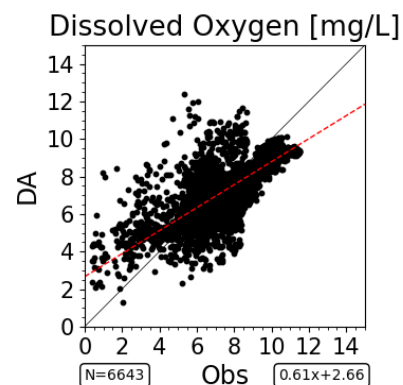
Figure S220 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

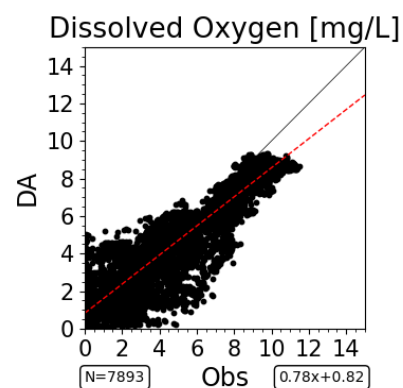
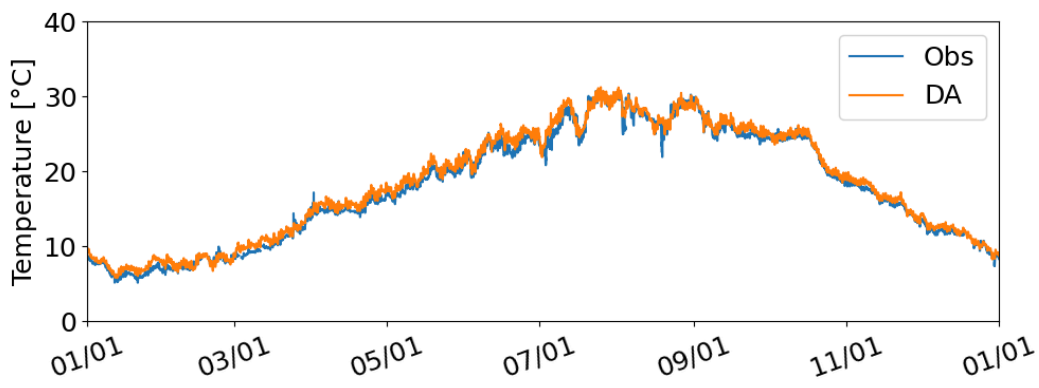
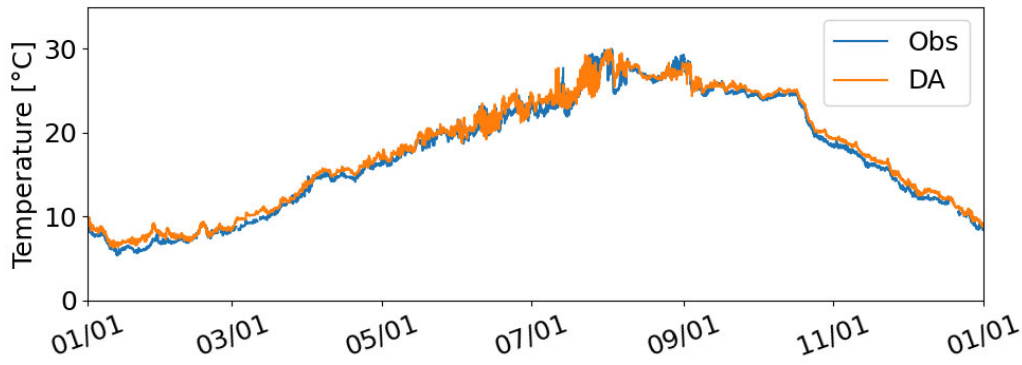
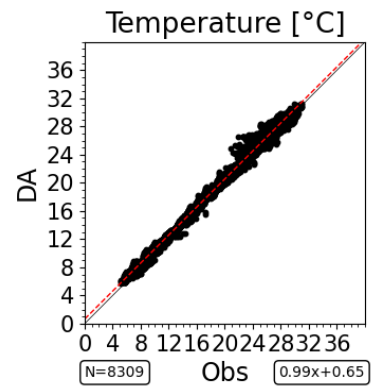


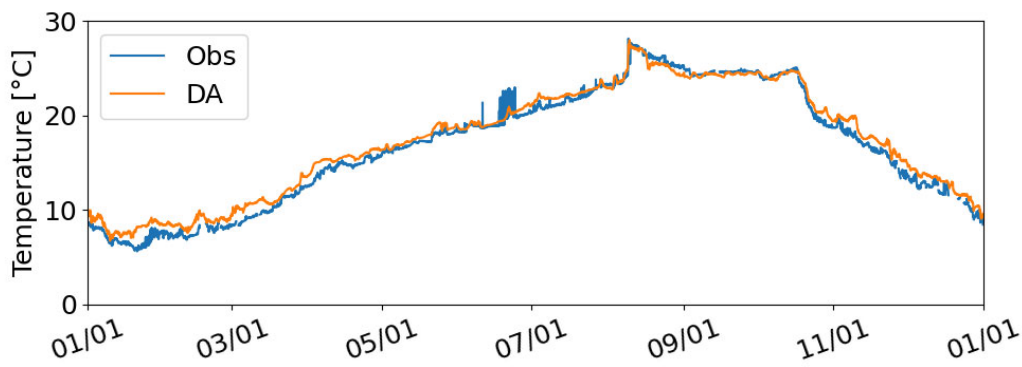
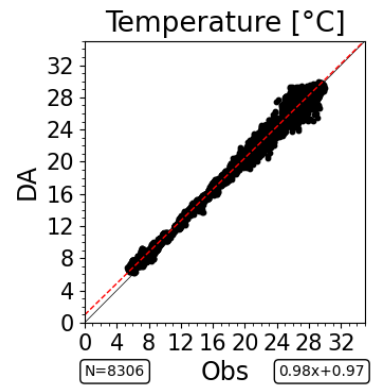
Figure S221 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

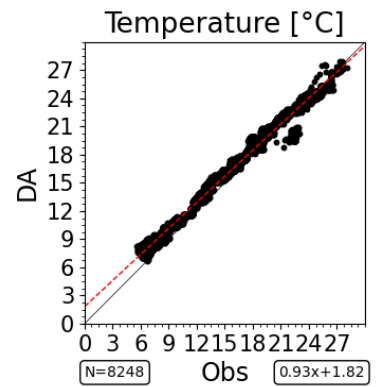
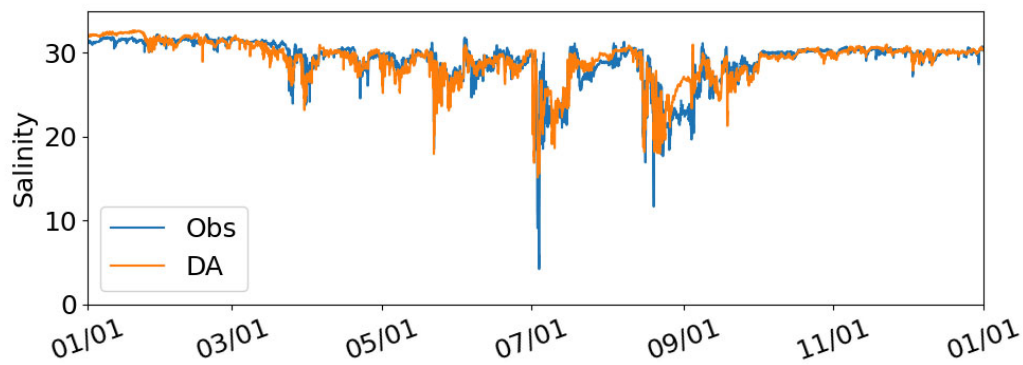
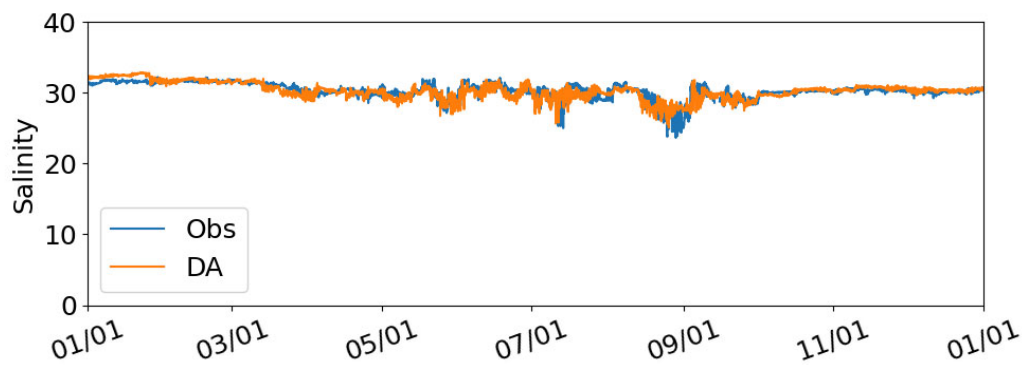
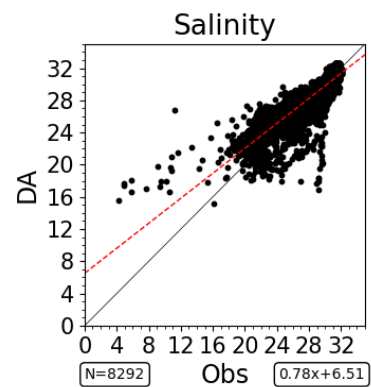


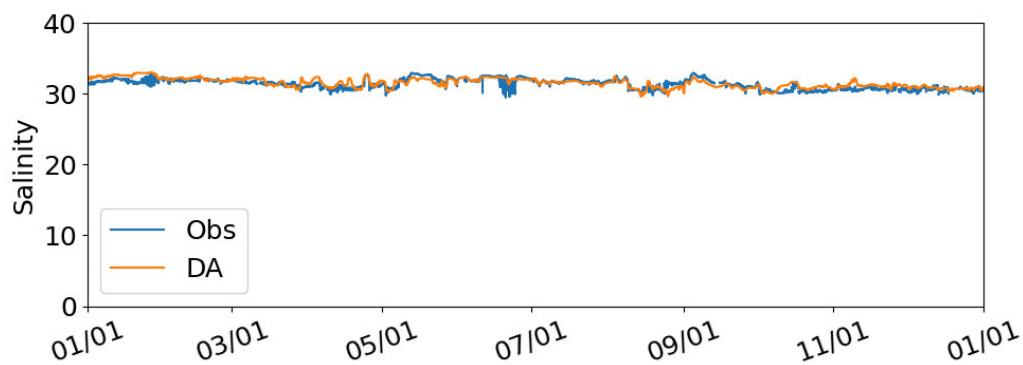
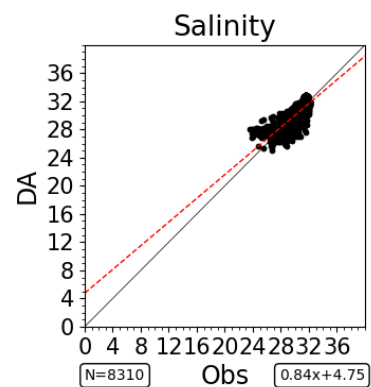
Figure S222 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

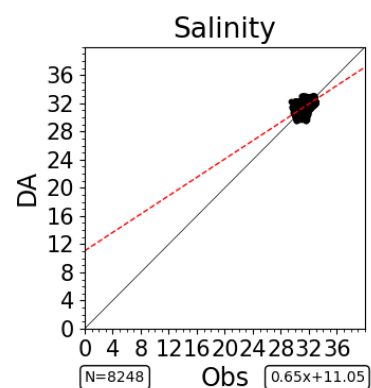
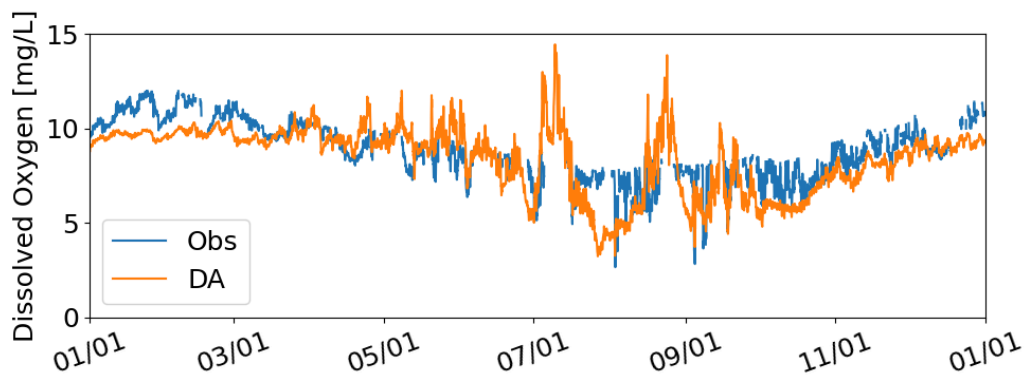
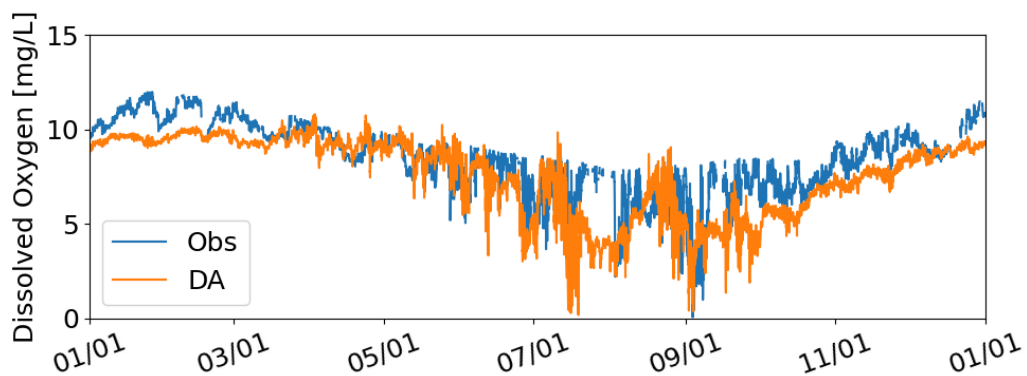
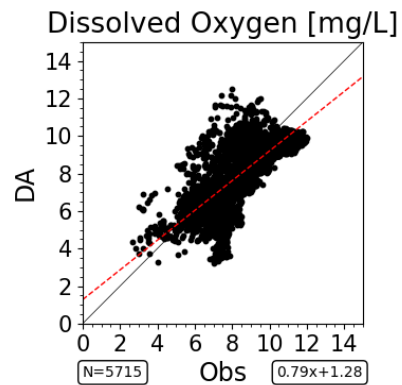


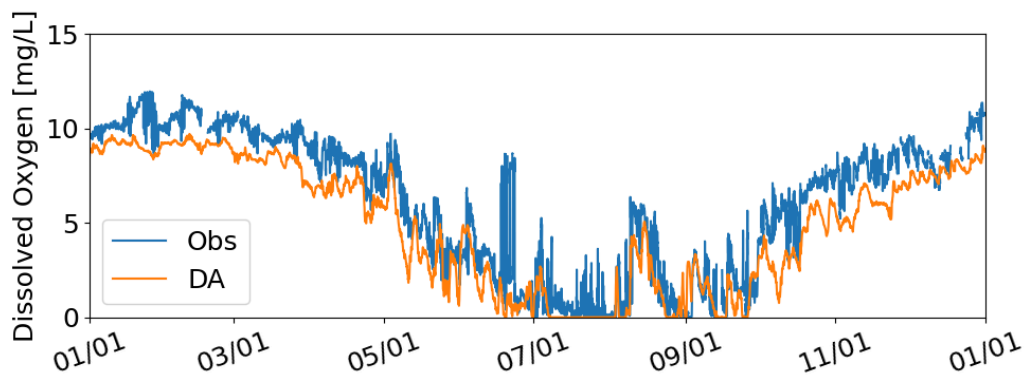
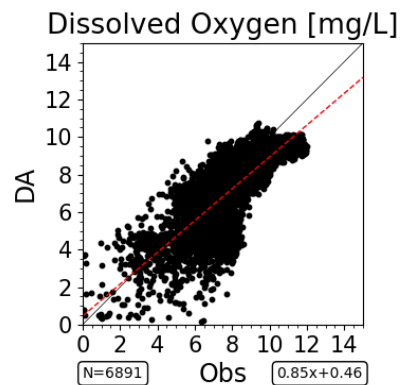
Figure S223 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

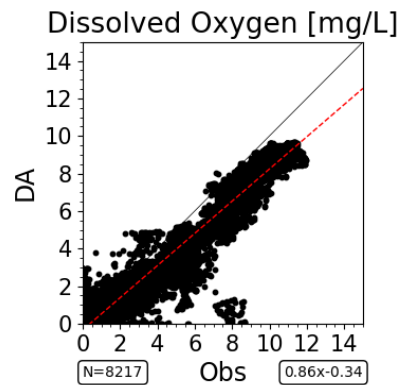
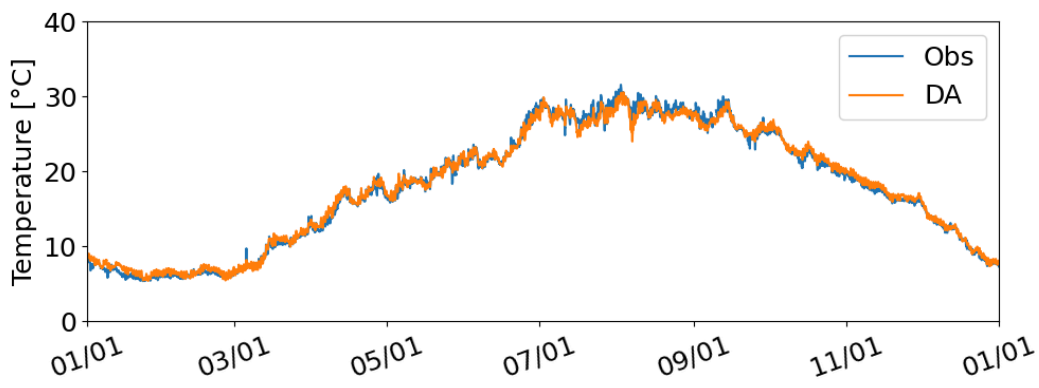
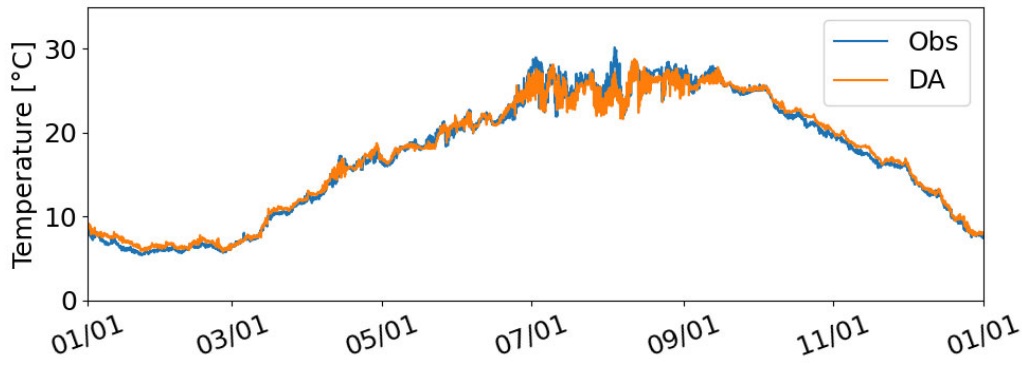
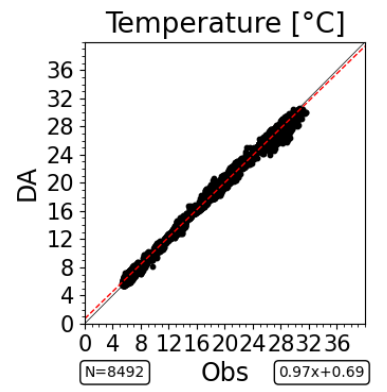


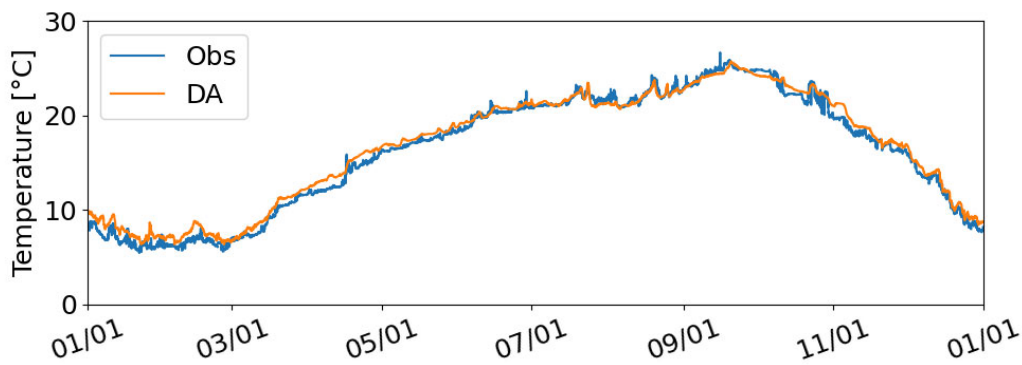
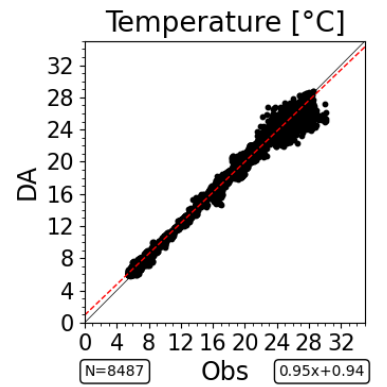
Figure S224 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

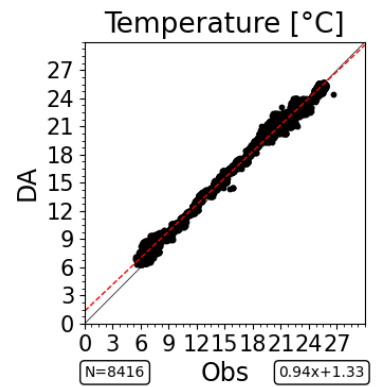
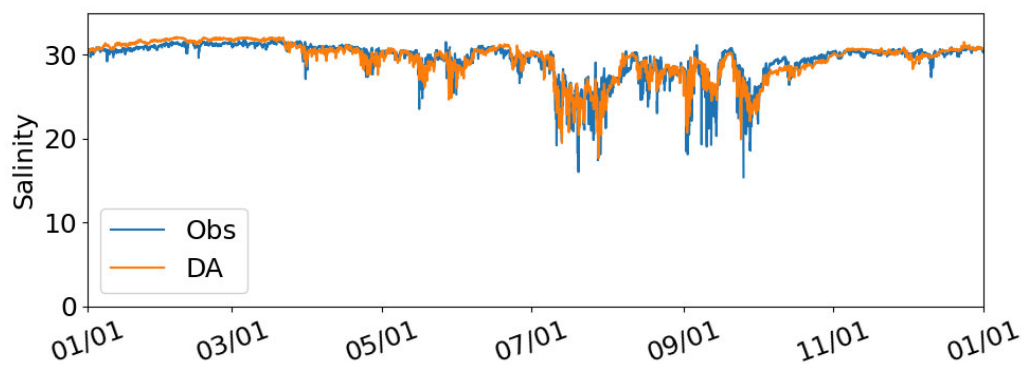
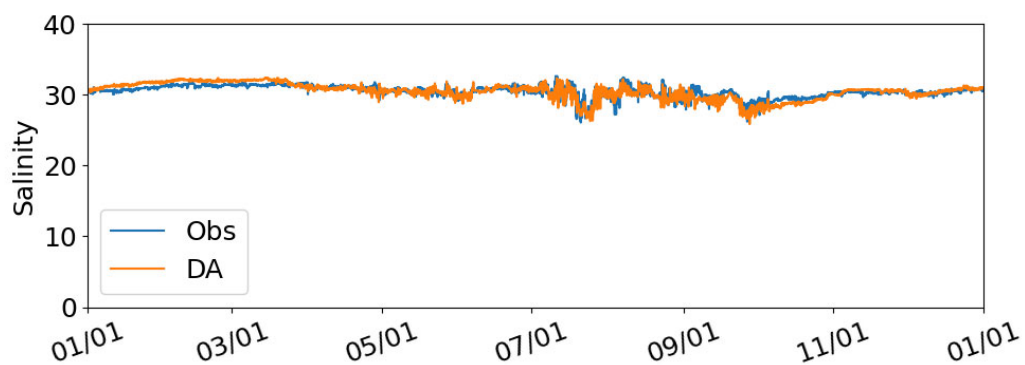
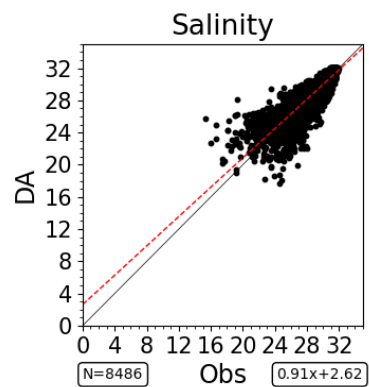


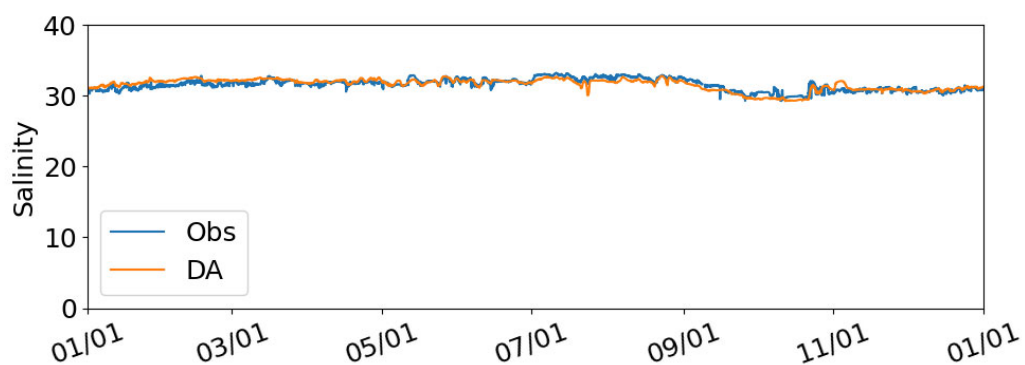
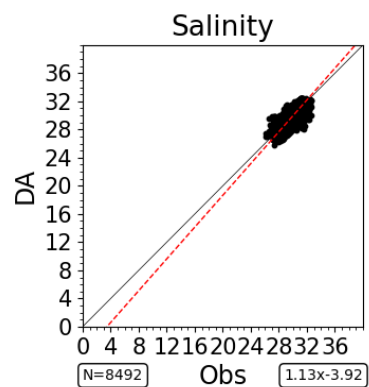
Figure S225 Timeseries and scatter plot for water temperature at Back of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

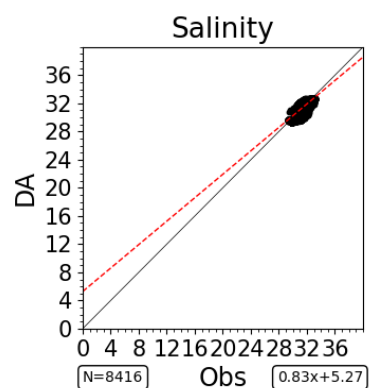
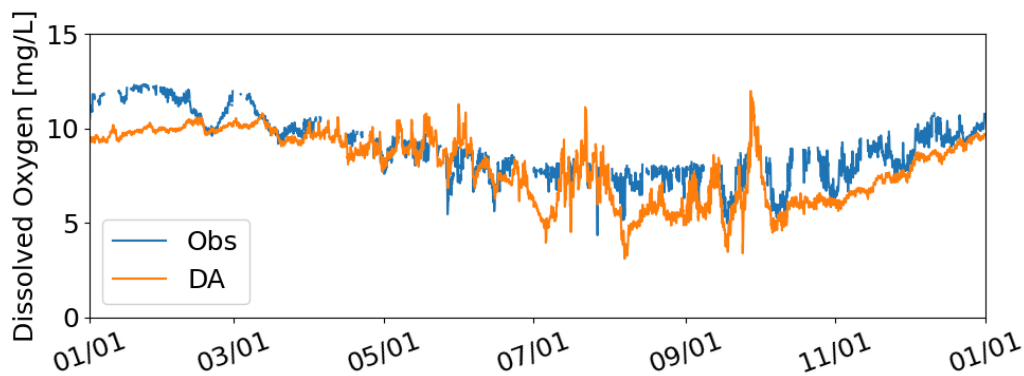
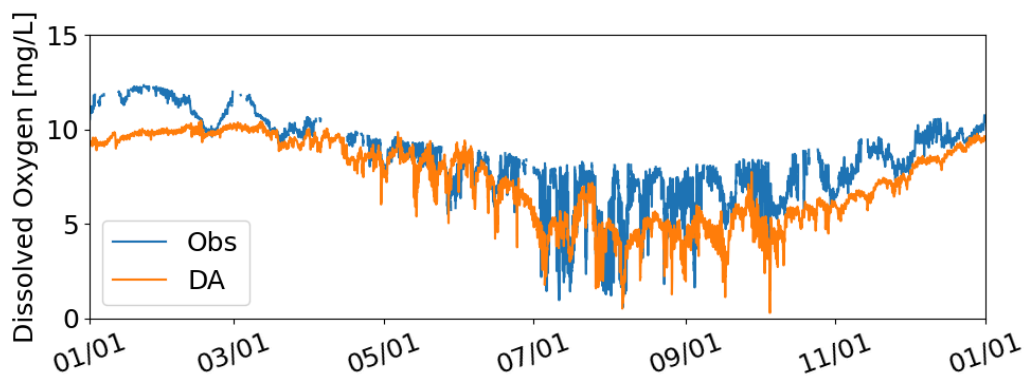
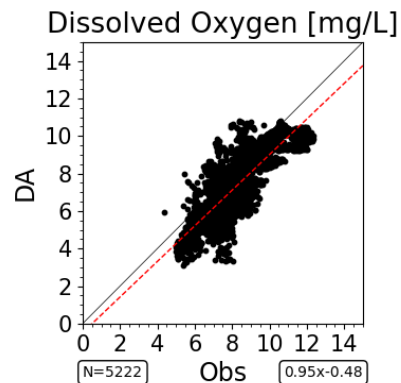


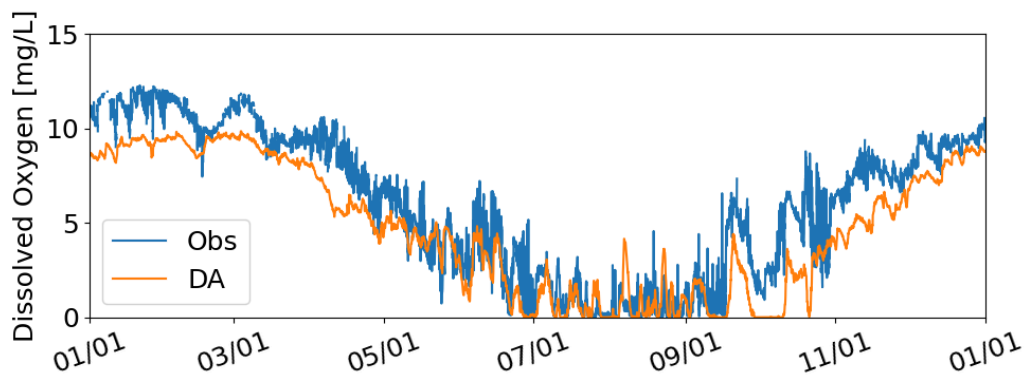
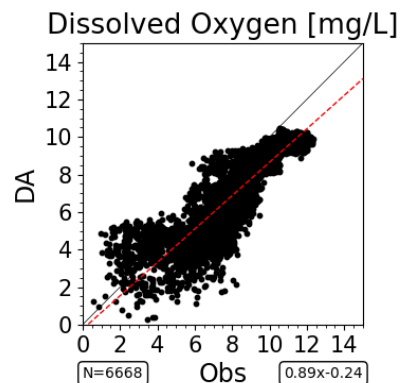
Figure S226 Timeseries and scatter plot for salinity at Back of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

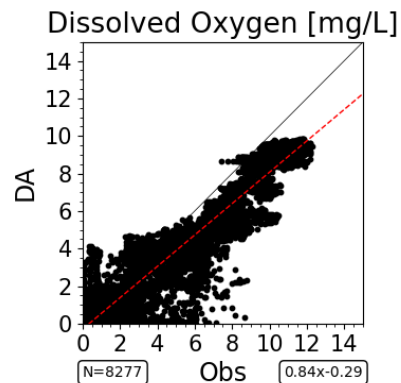


Figure S227 Timeseries and scatter plot for dissolved oxygen at Back of Mikawa Bay in 2022

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

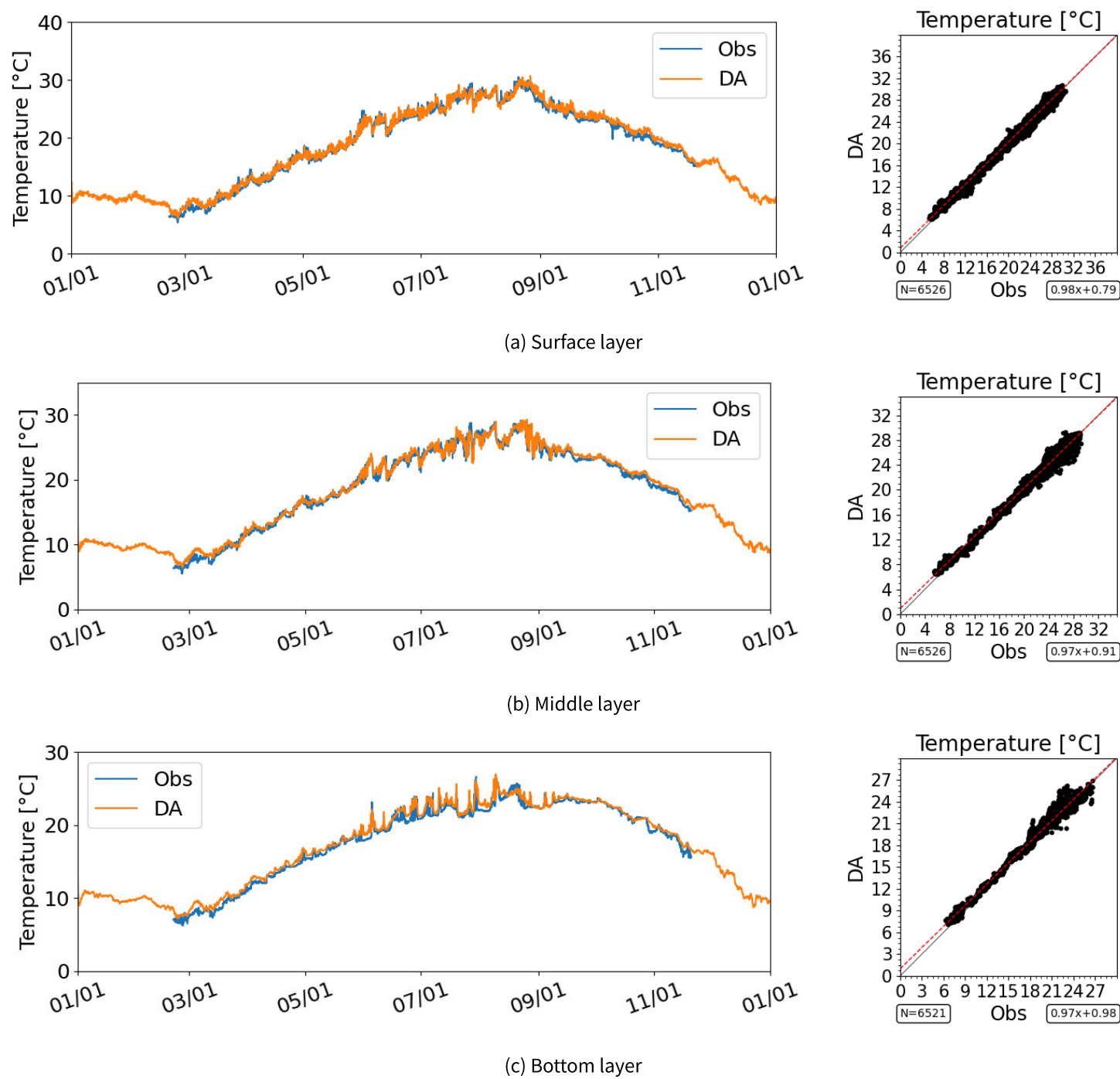
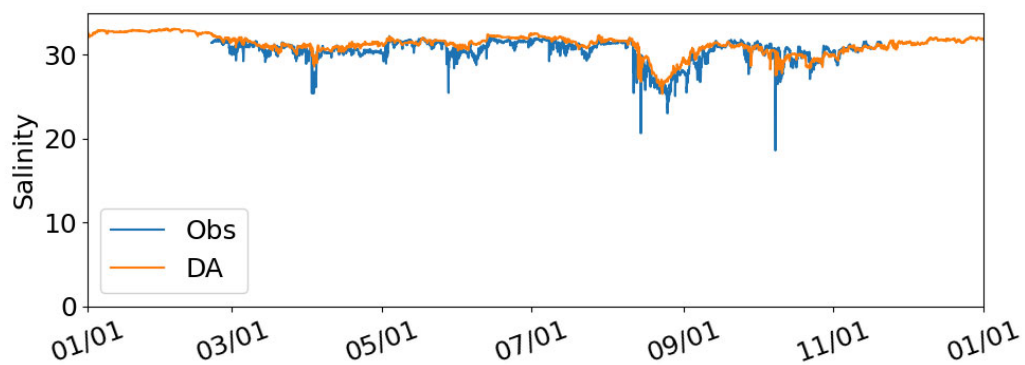
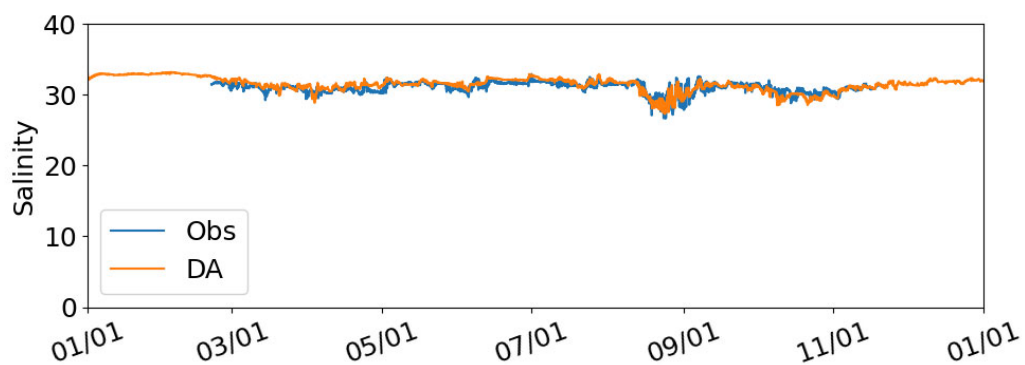
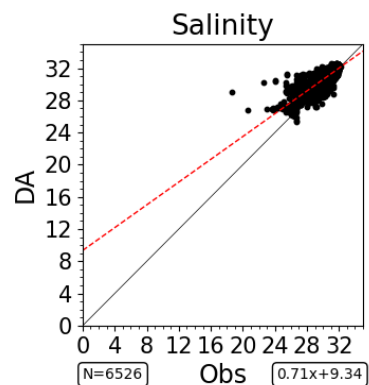


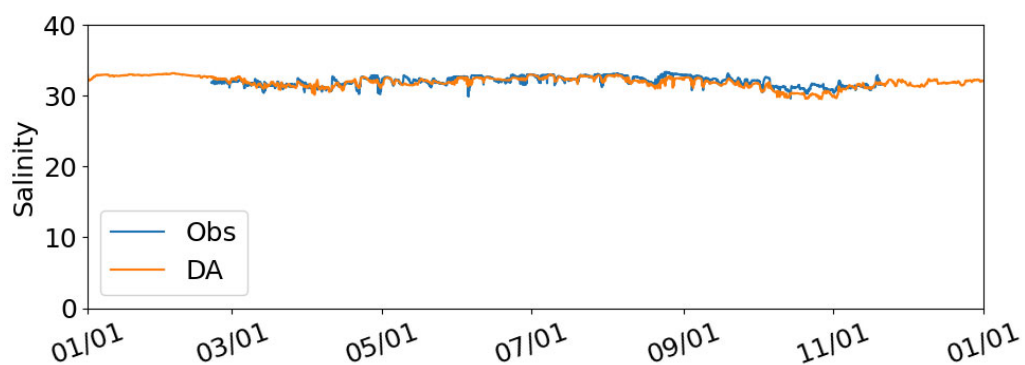
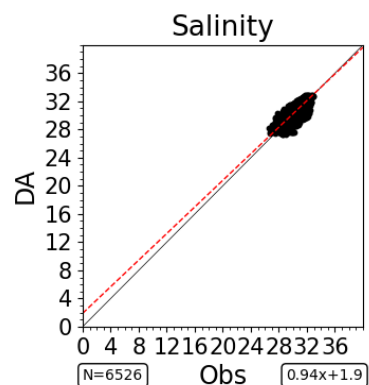
Figure S228 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

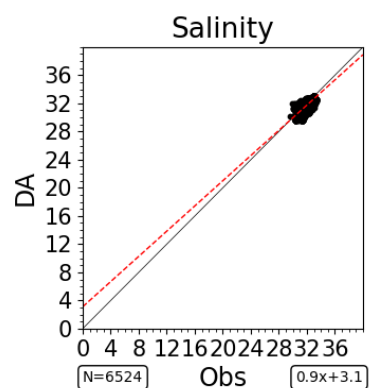
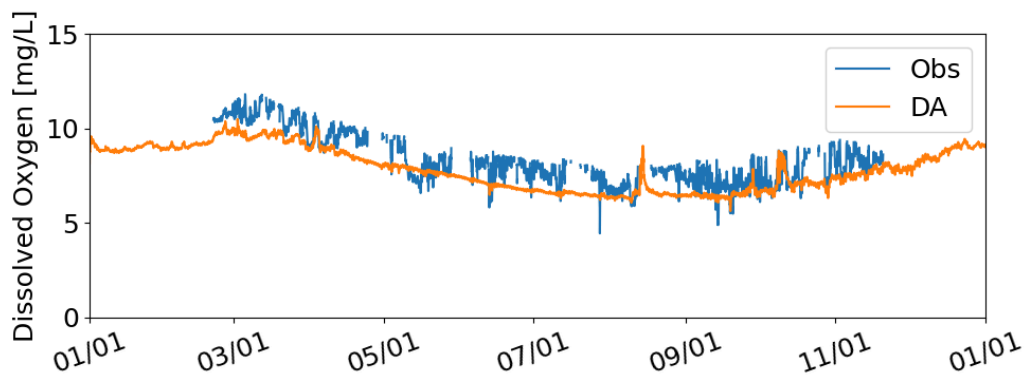
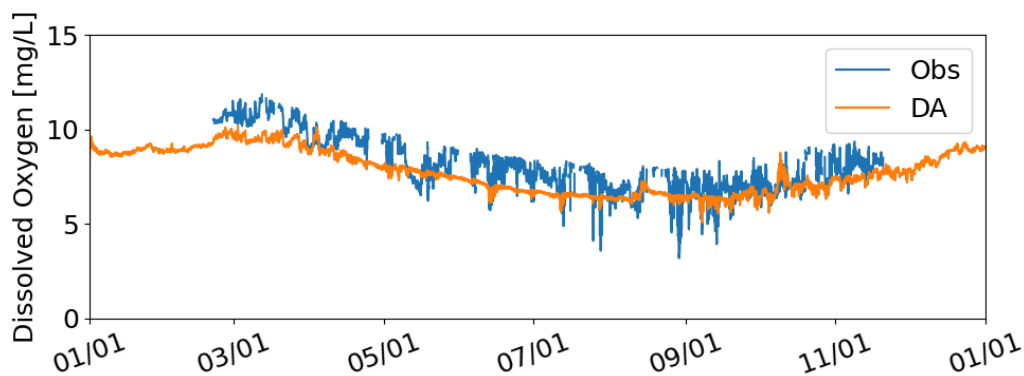
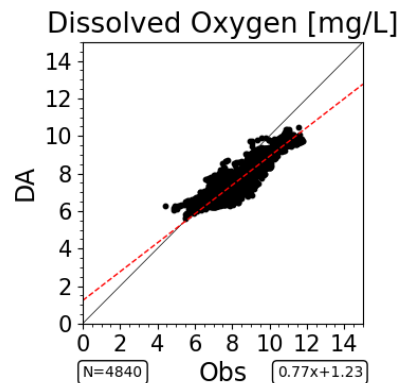


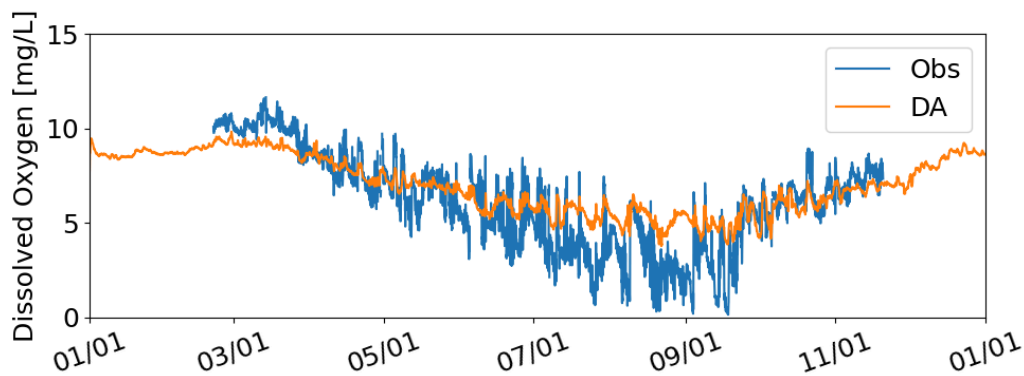
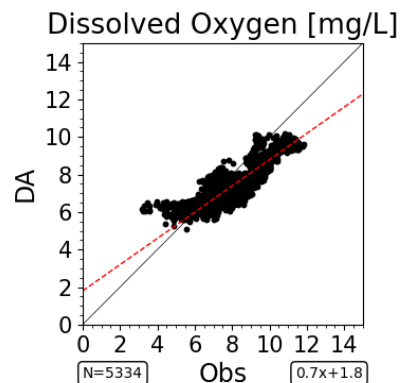
Figure S229 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

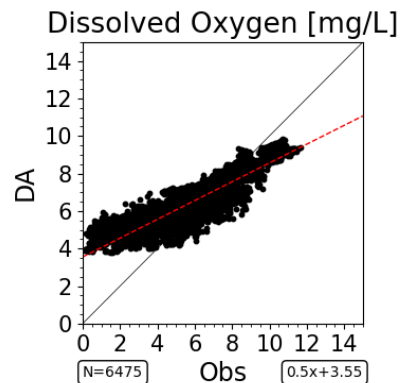
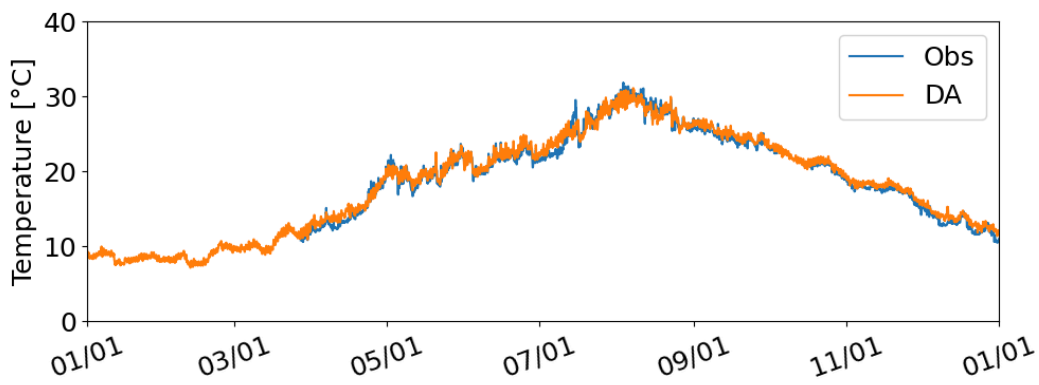
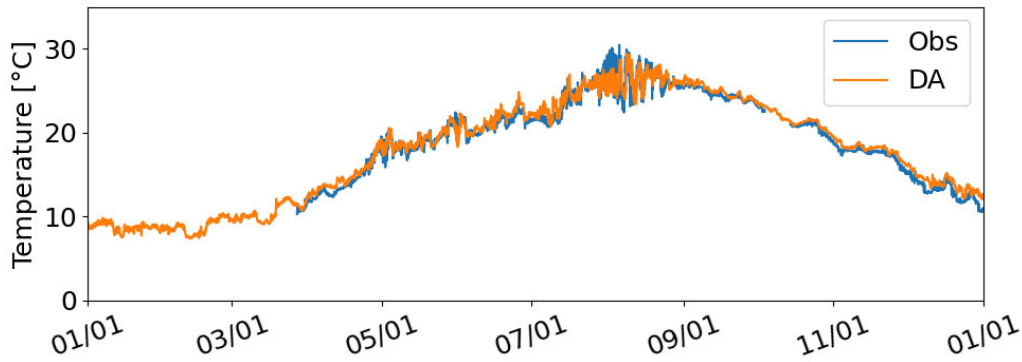
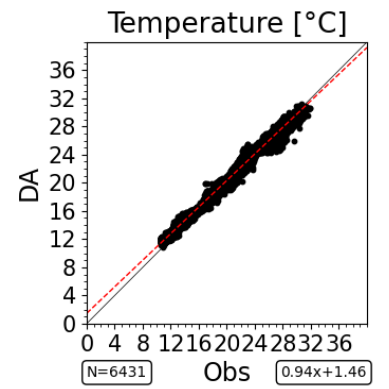


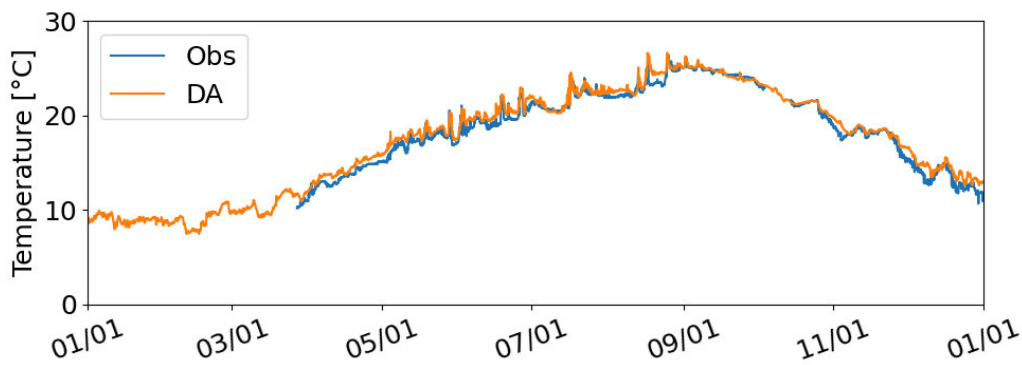
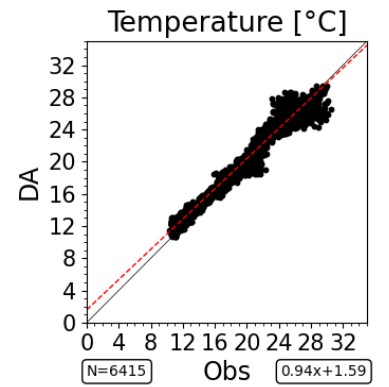
Figure S230 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

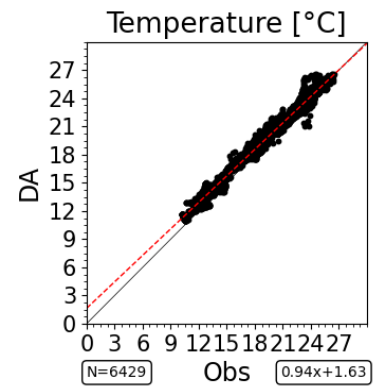
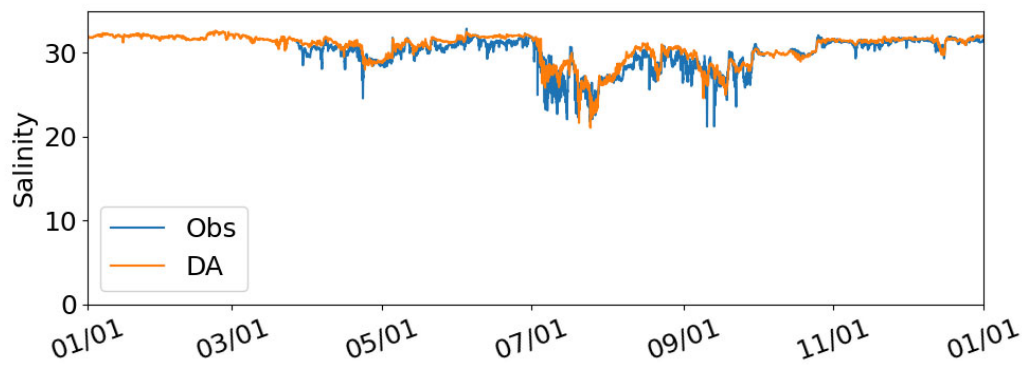
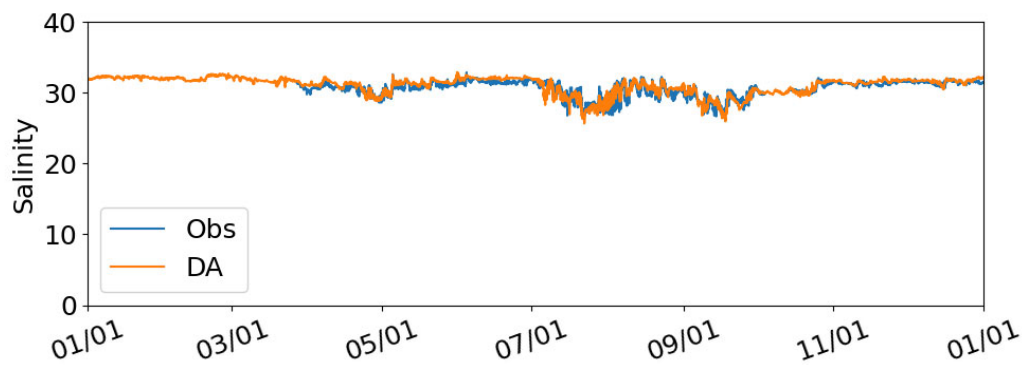
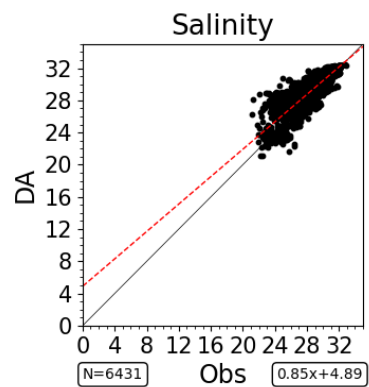


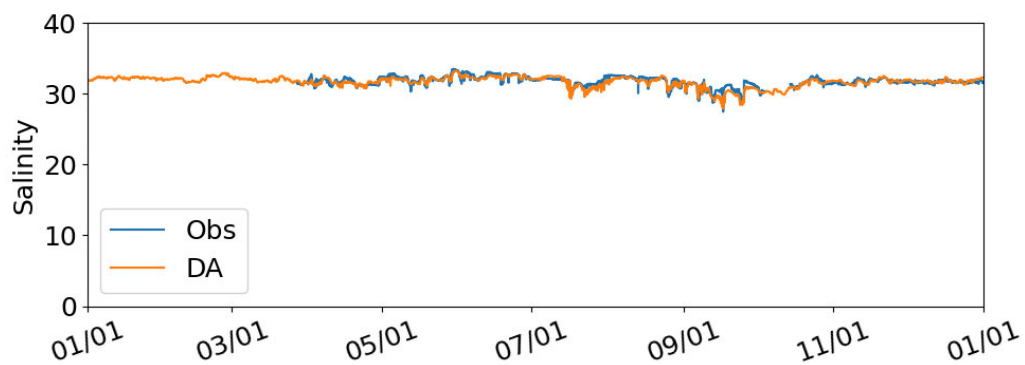
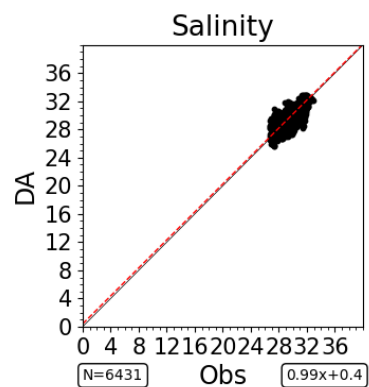
Figure S231 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

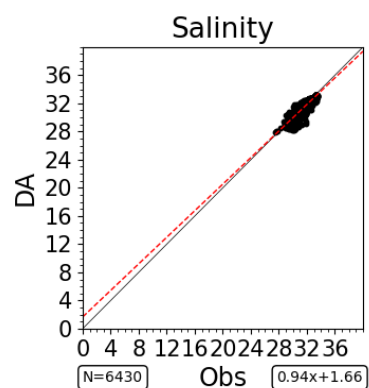
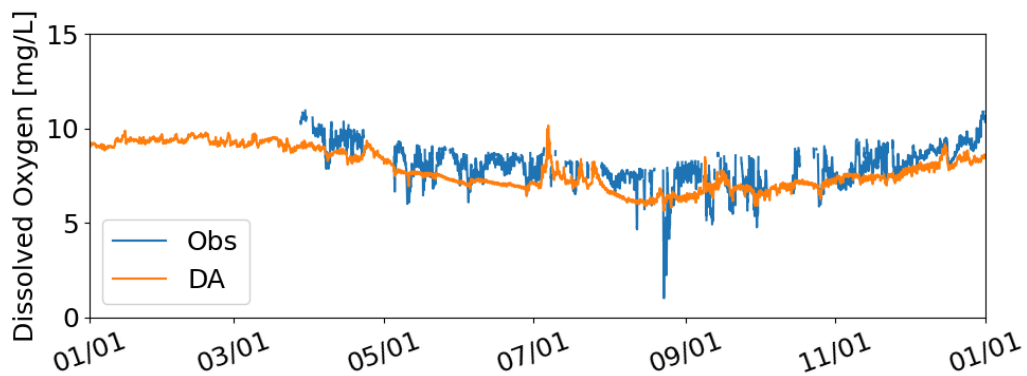
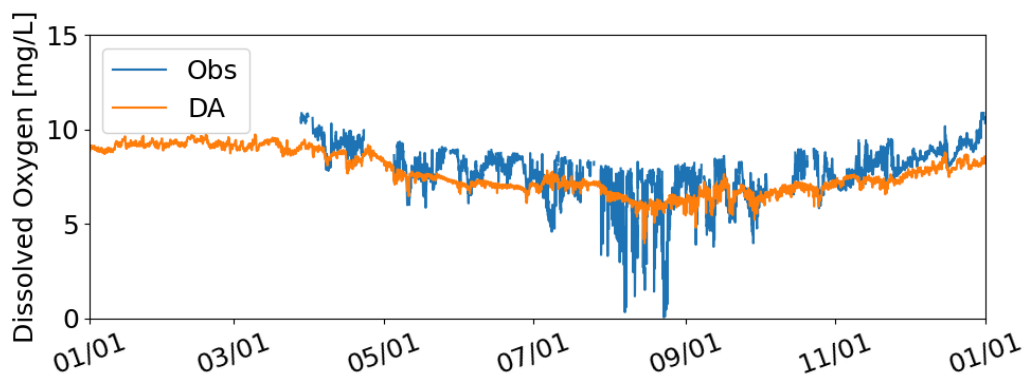
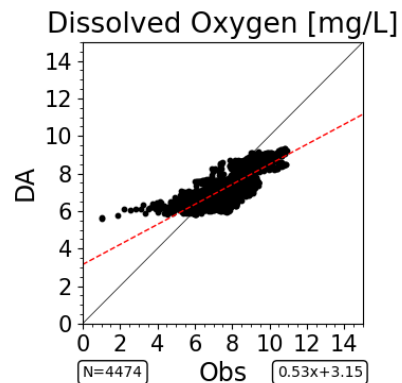


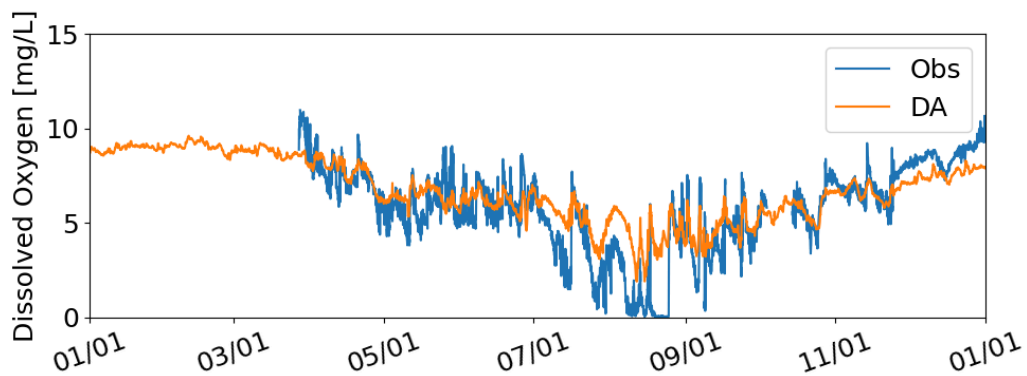
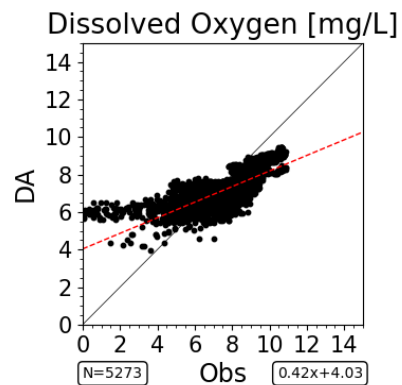
Figure S232 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

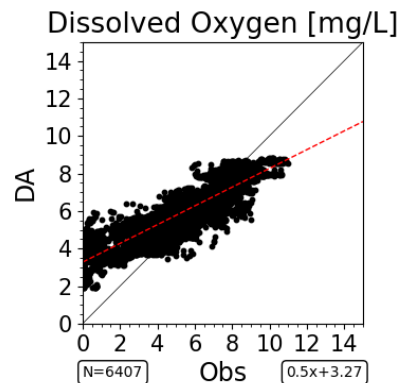
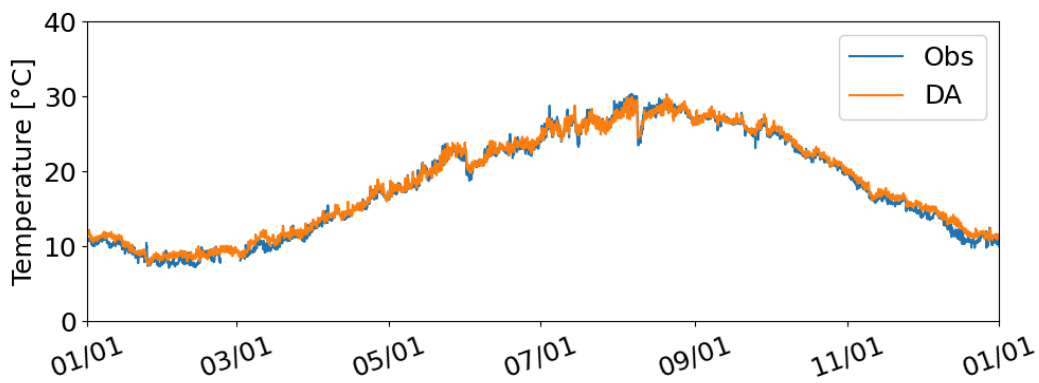
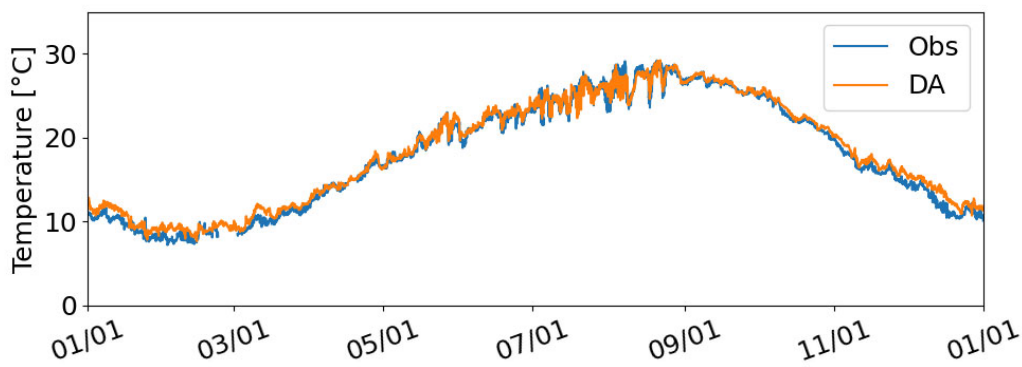
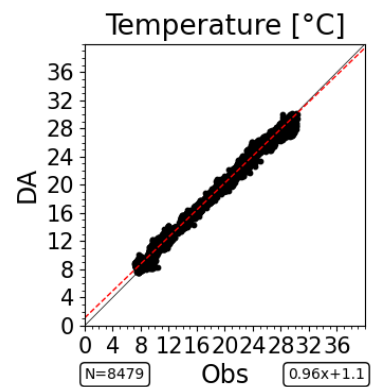


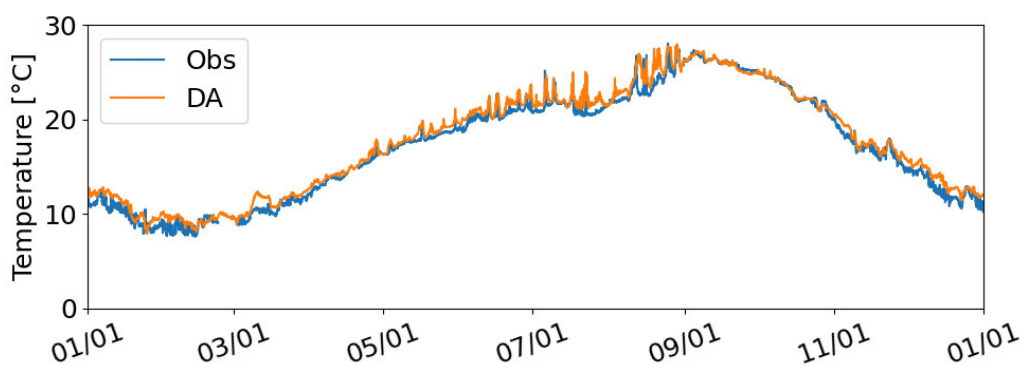
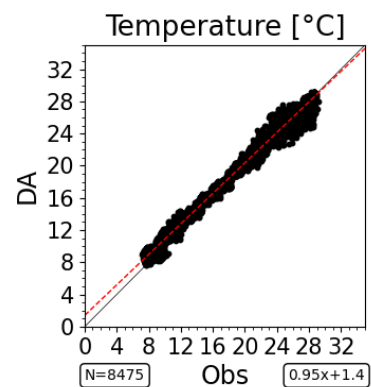
Figure S233 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

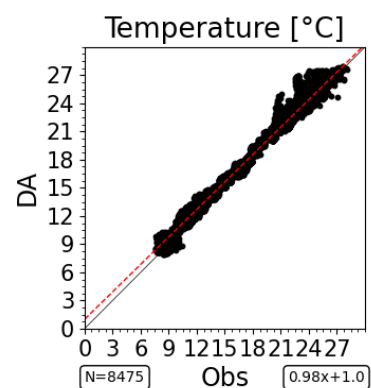
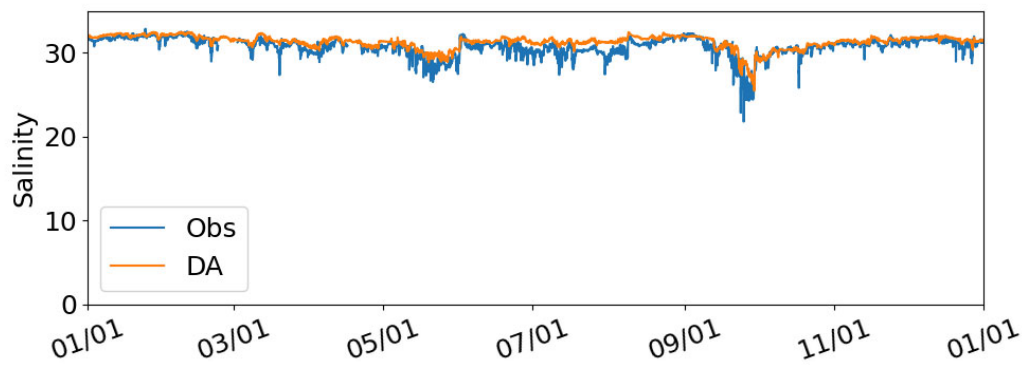
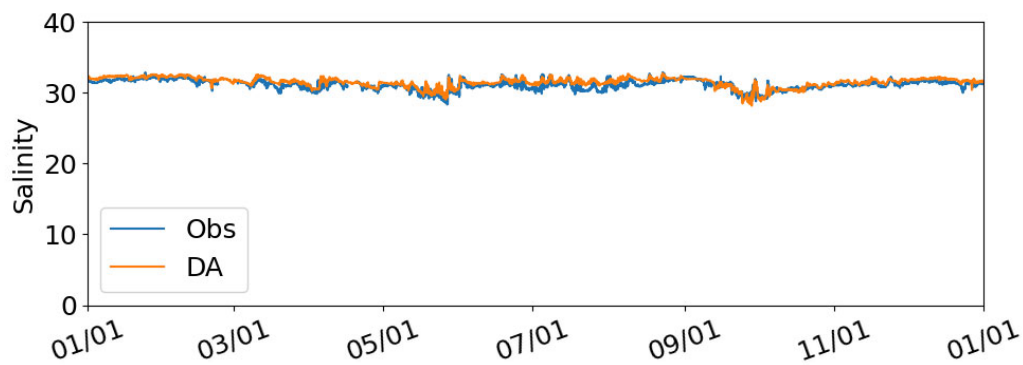
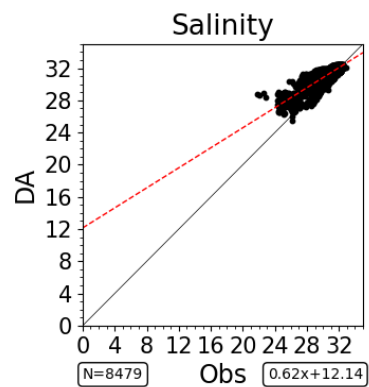


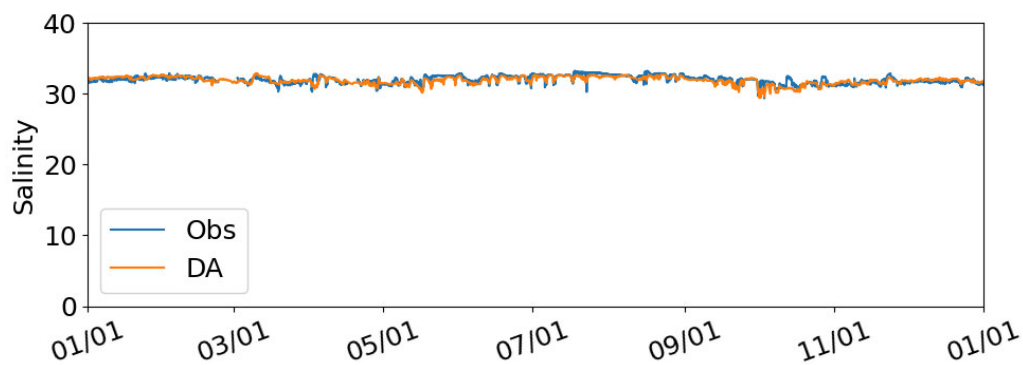
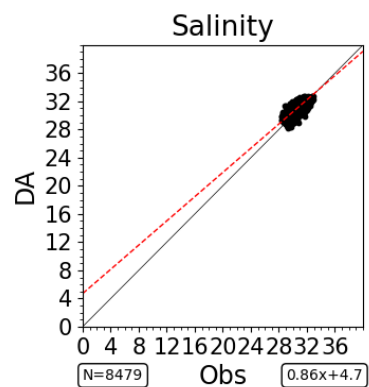
Figure S234 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

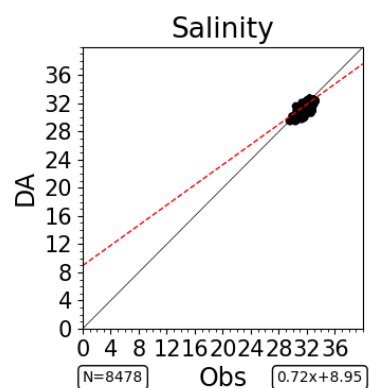
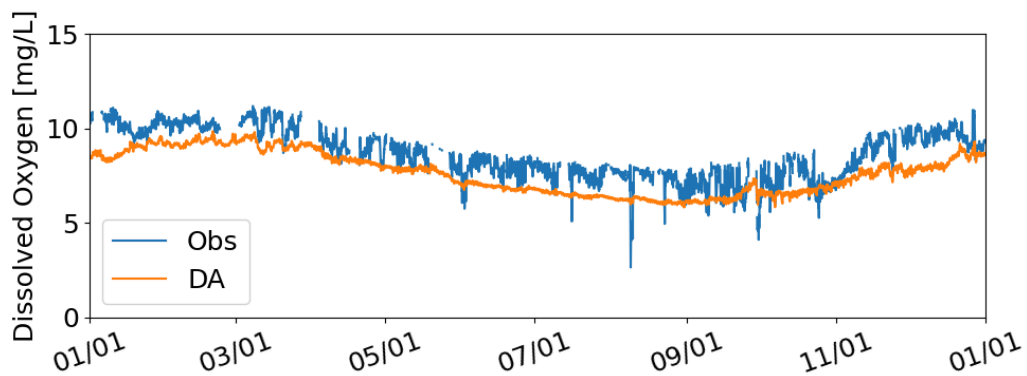
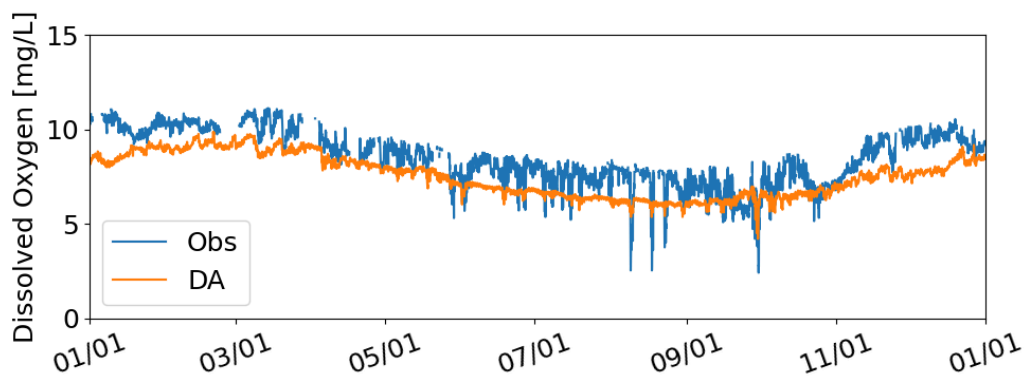
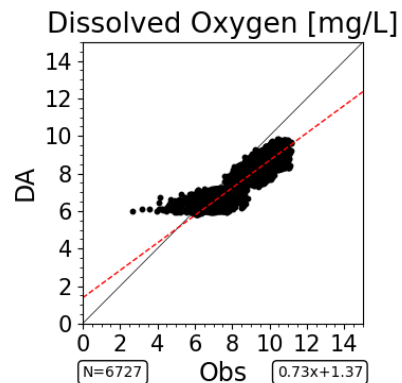


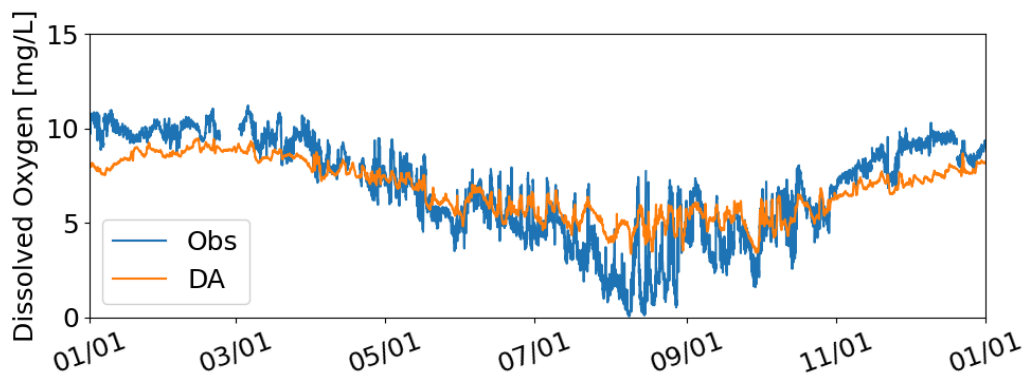
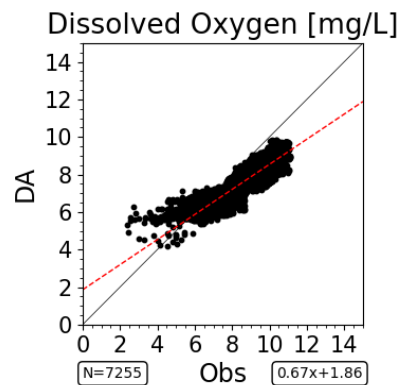
Figure S235 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

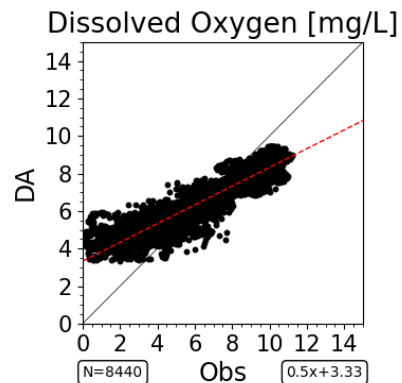
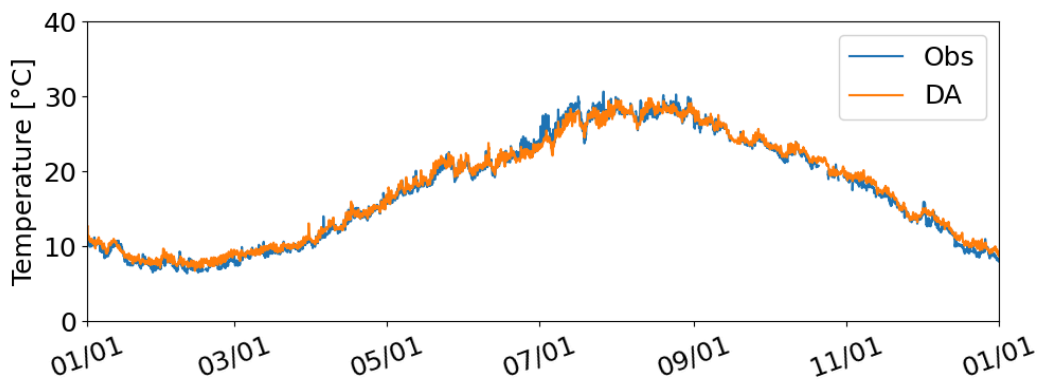
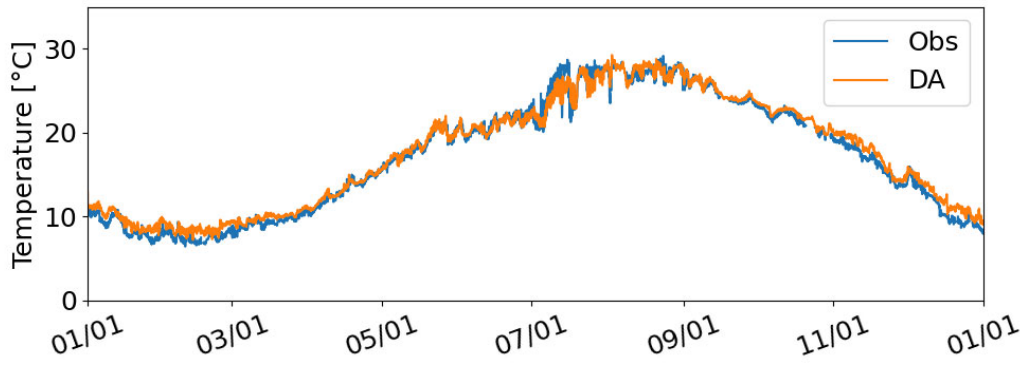
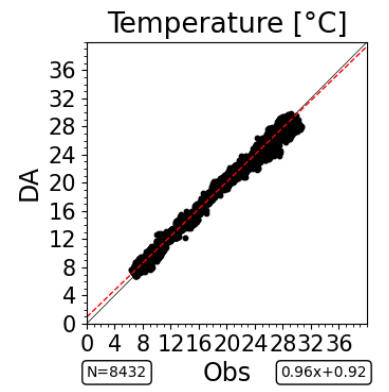


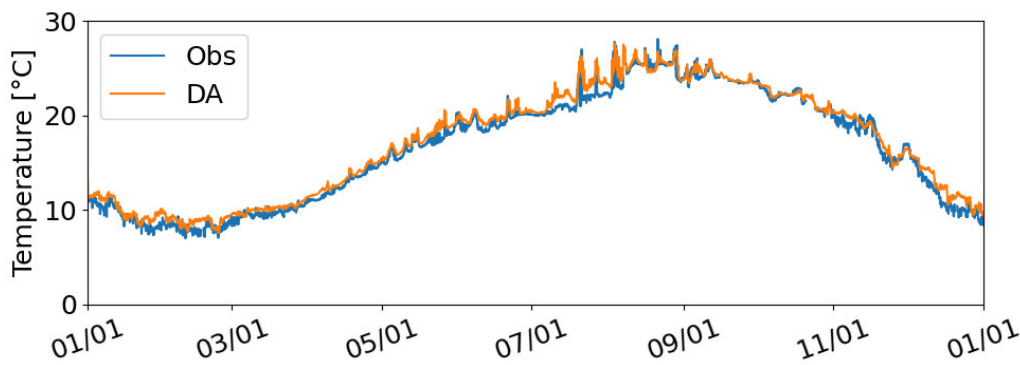
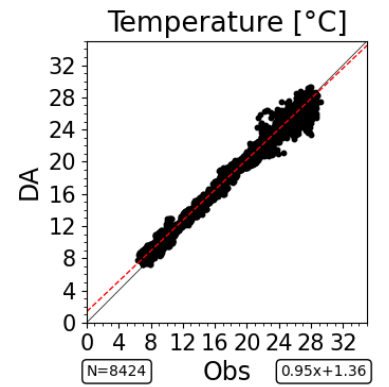
Figure S236 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

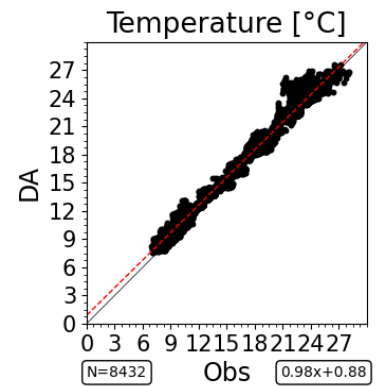
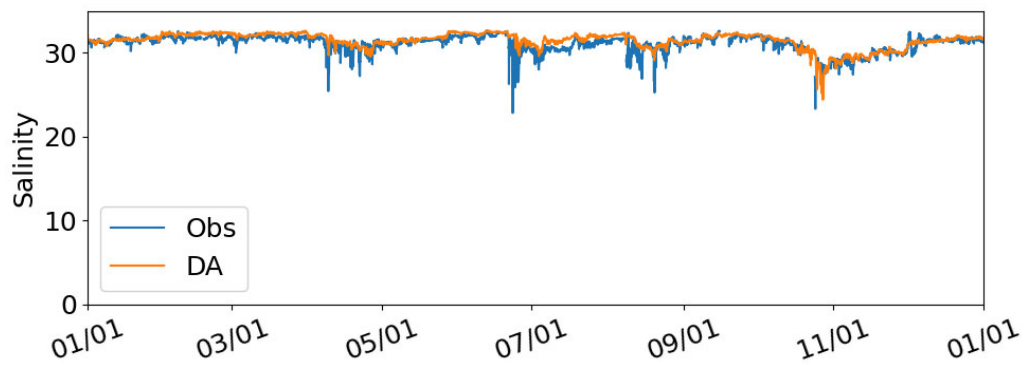
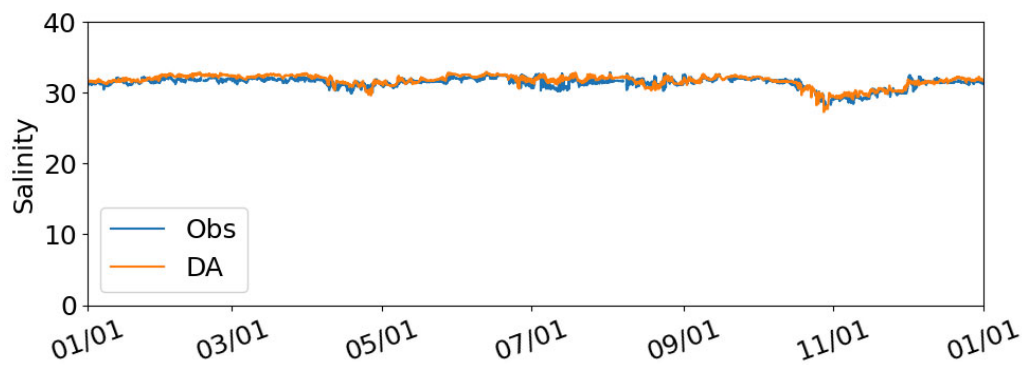
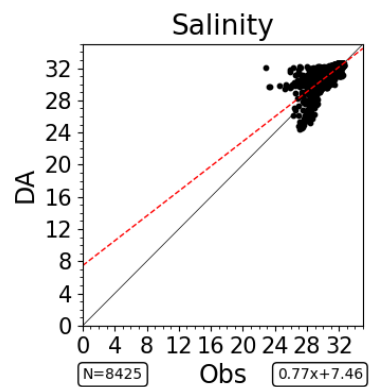


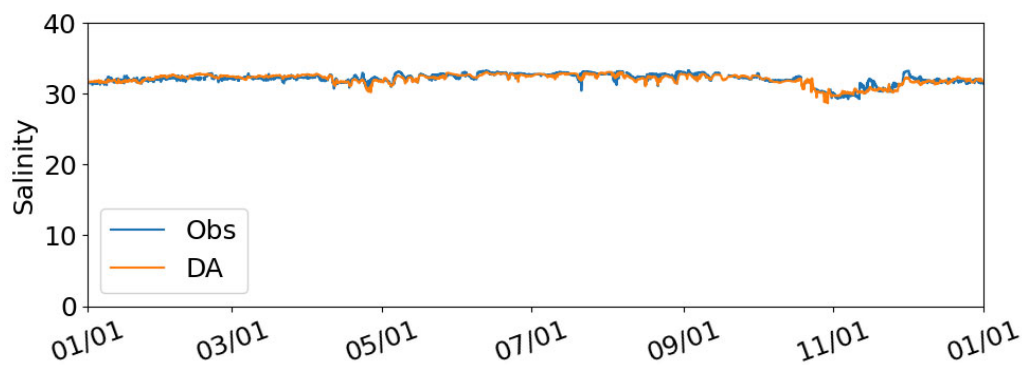
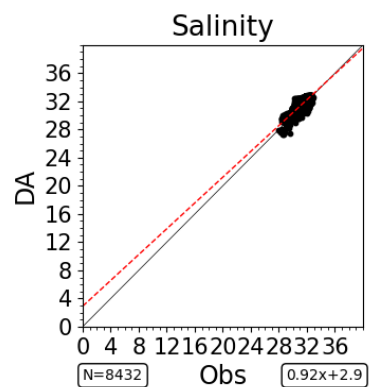
Figure S237 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

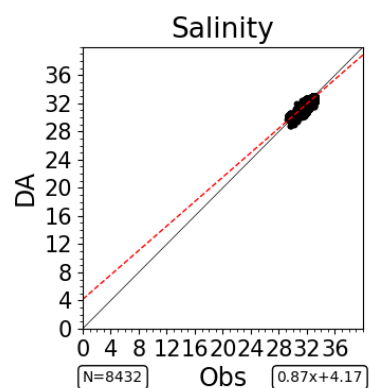
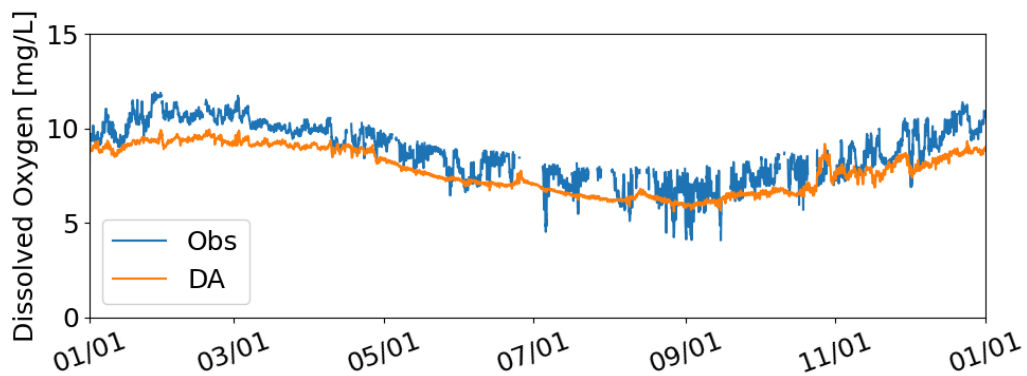
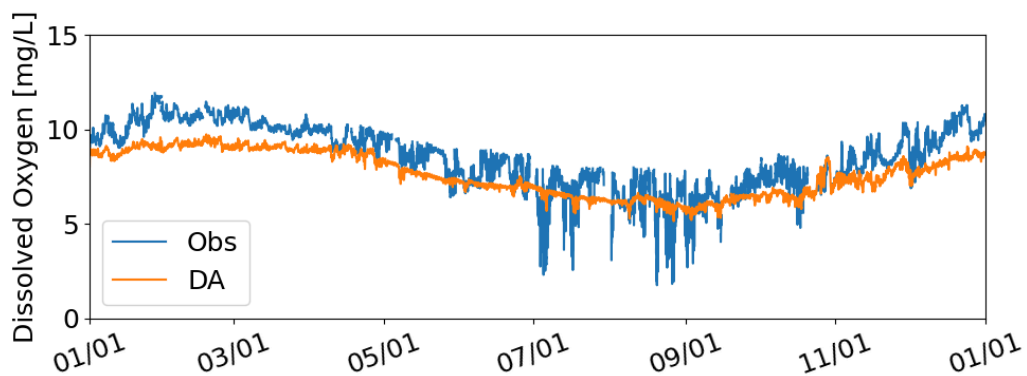
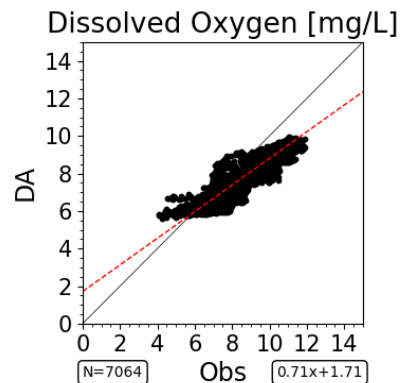


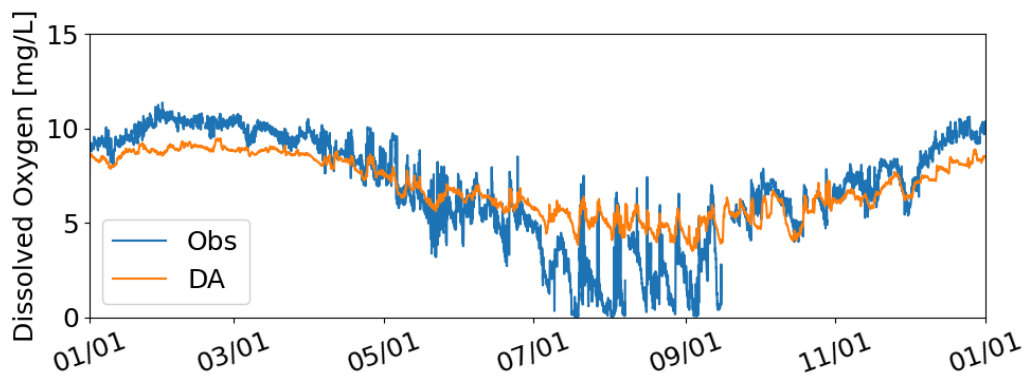
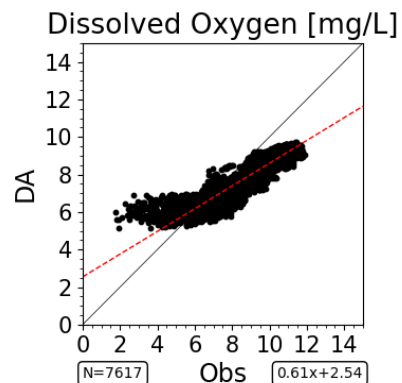
Figure S238 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

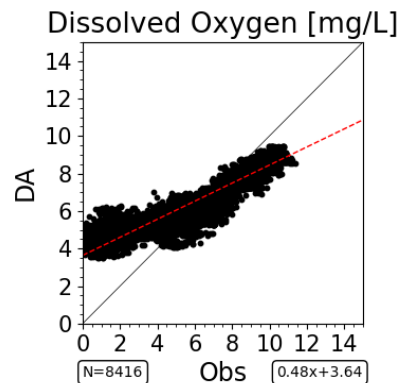
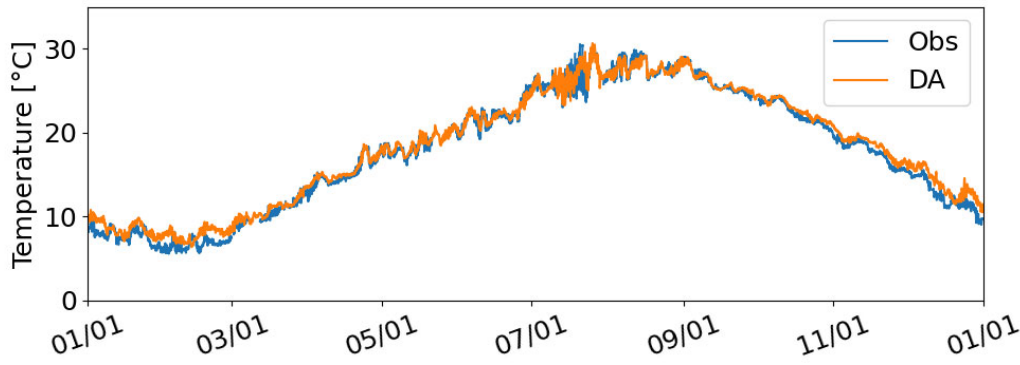
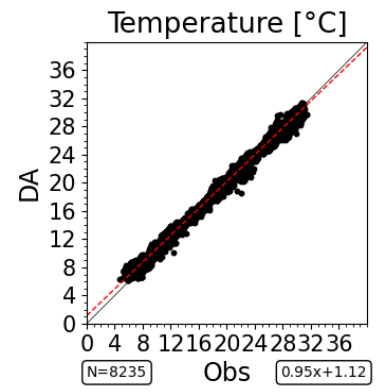


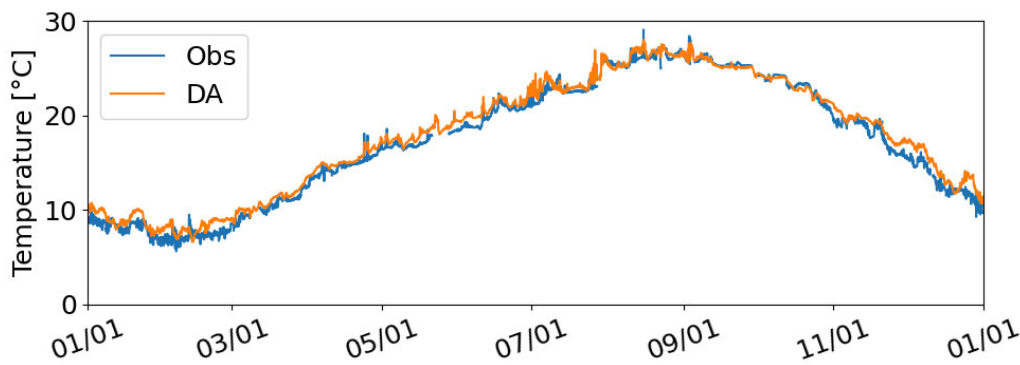
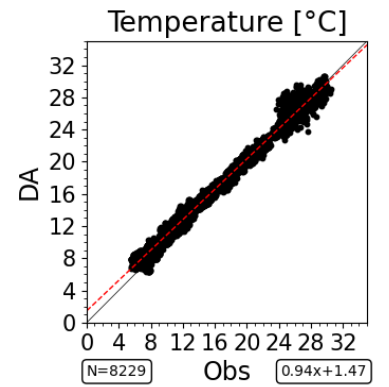
Figure S239 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

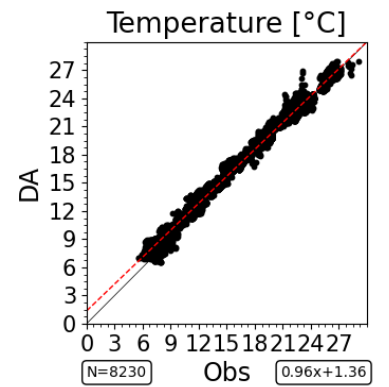
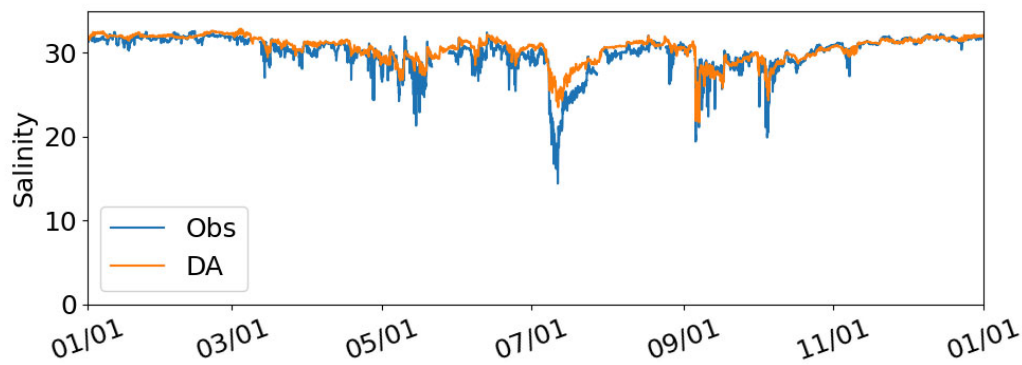
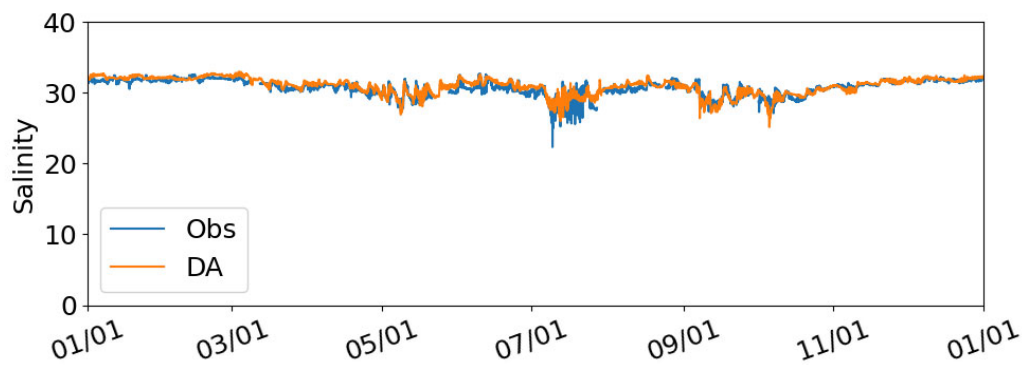
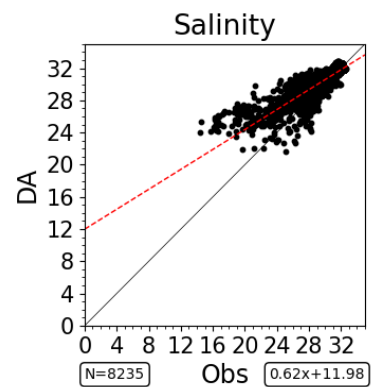


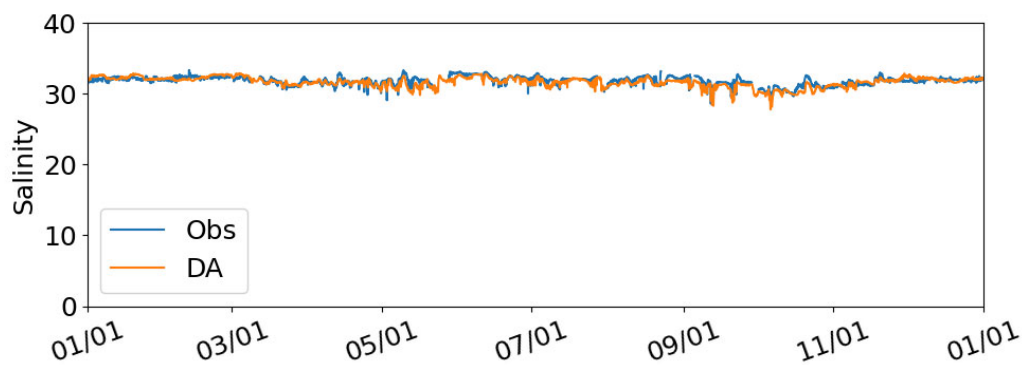
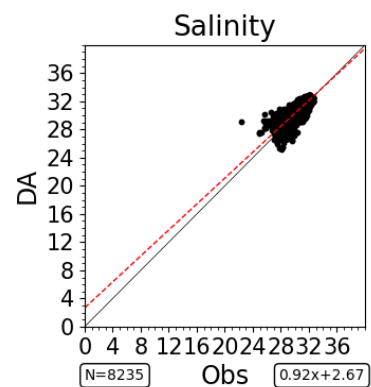
Figure S240 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

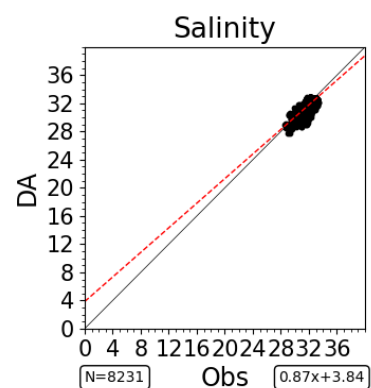
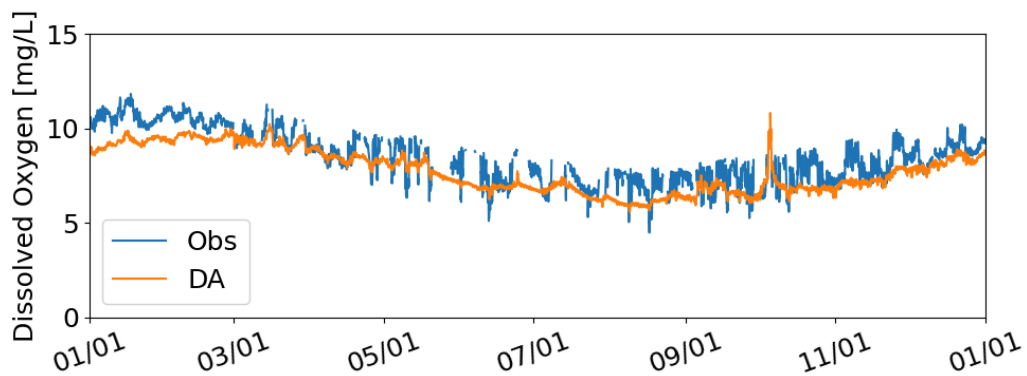
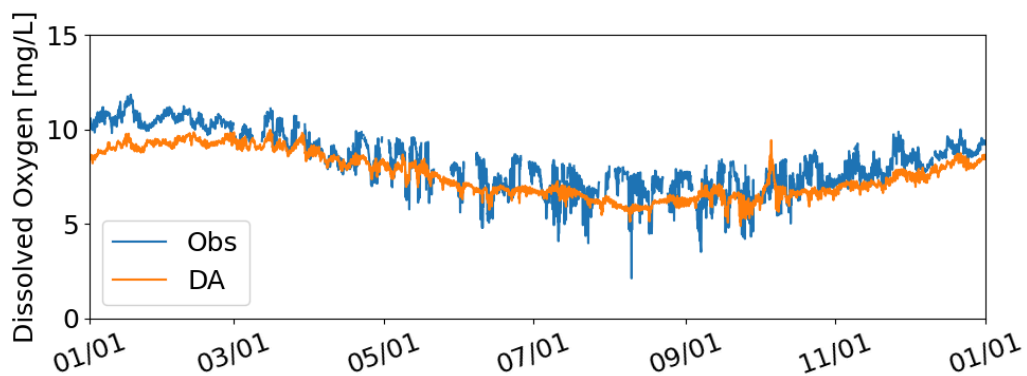
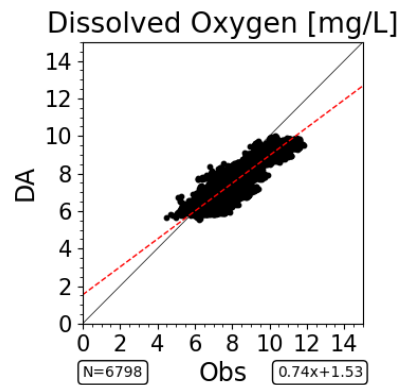


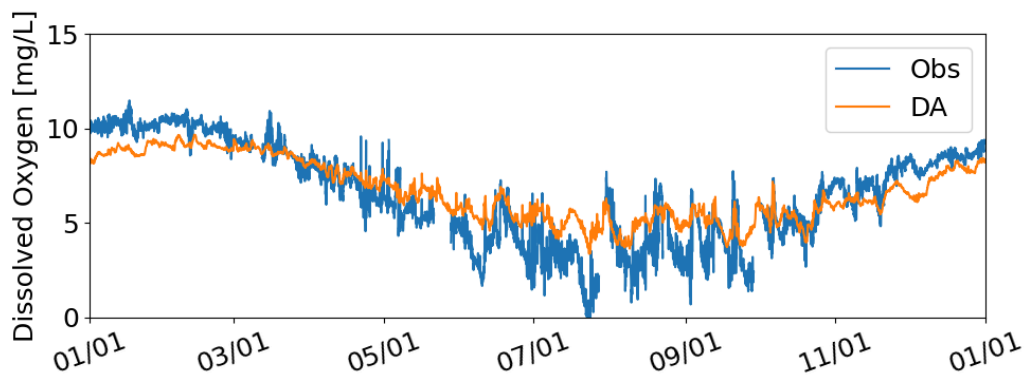
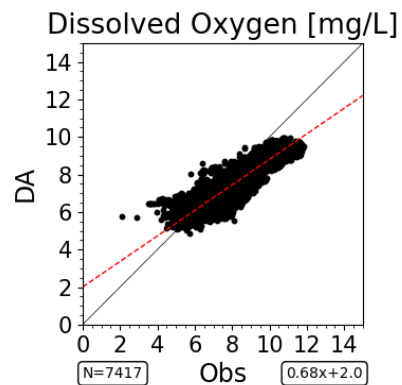
Figure S241 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

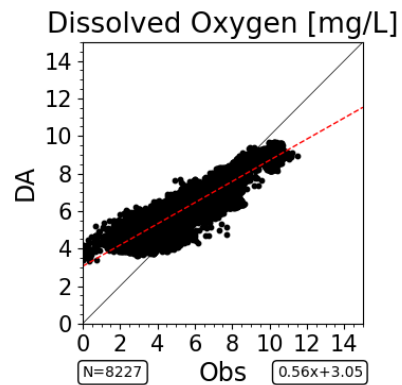
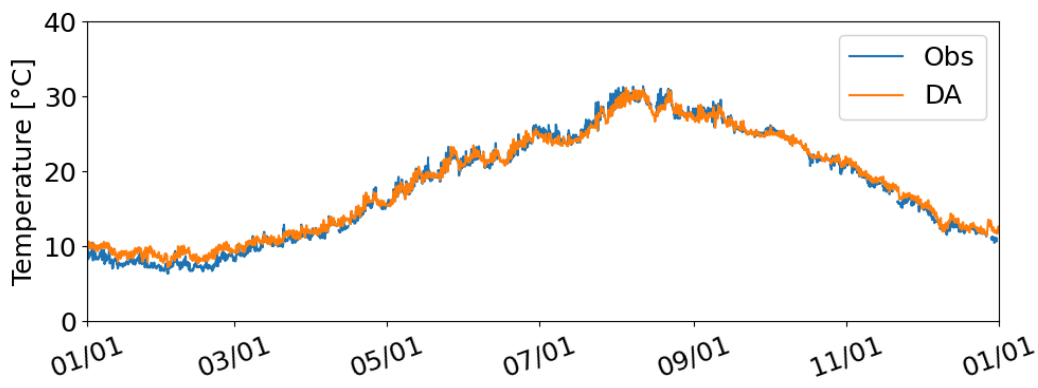
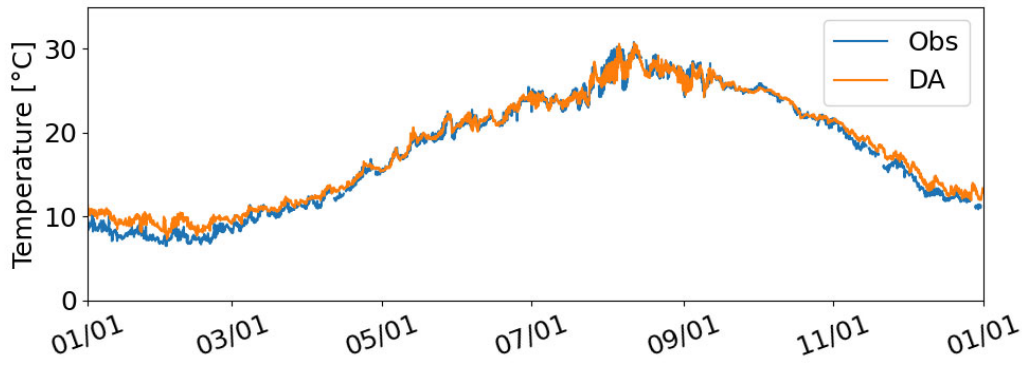
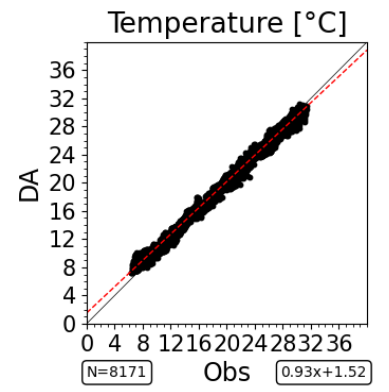


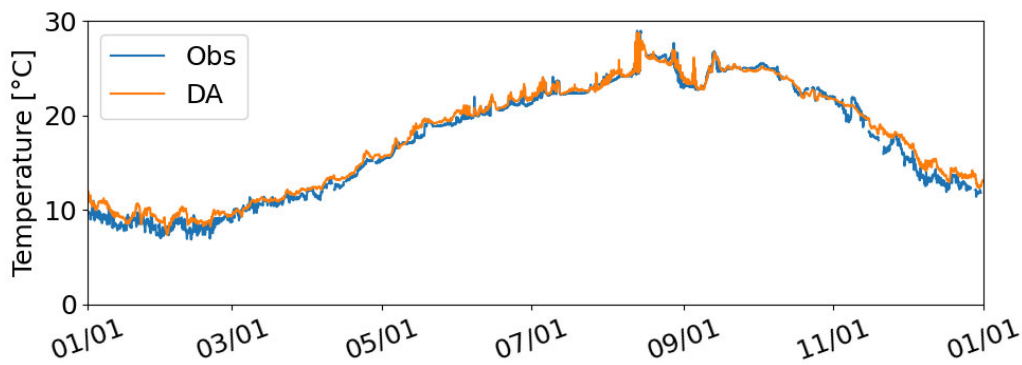
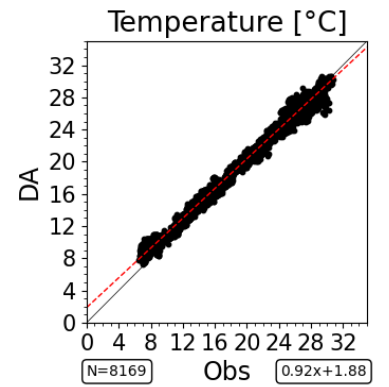
Figure S242 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

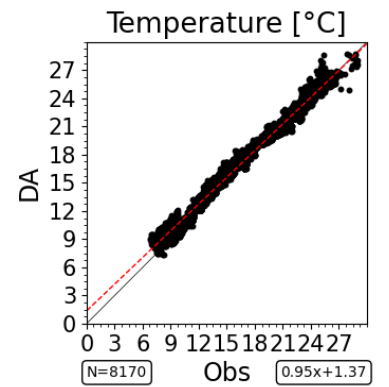
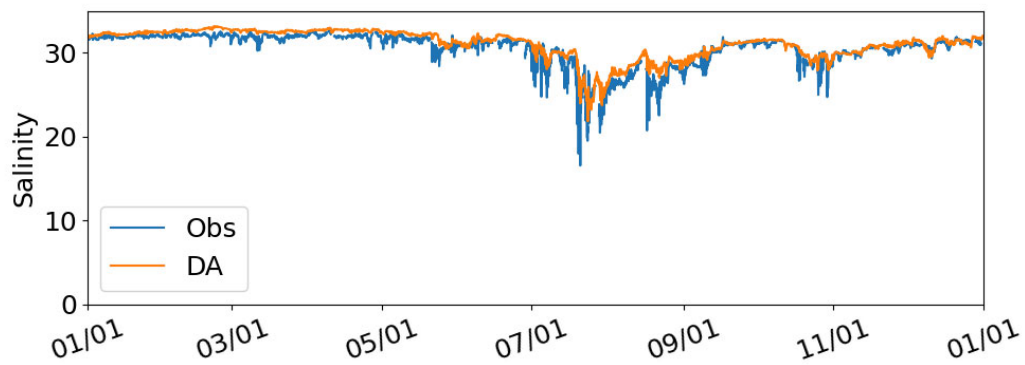
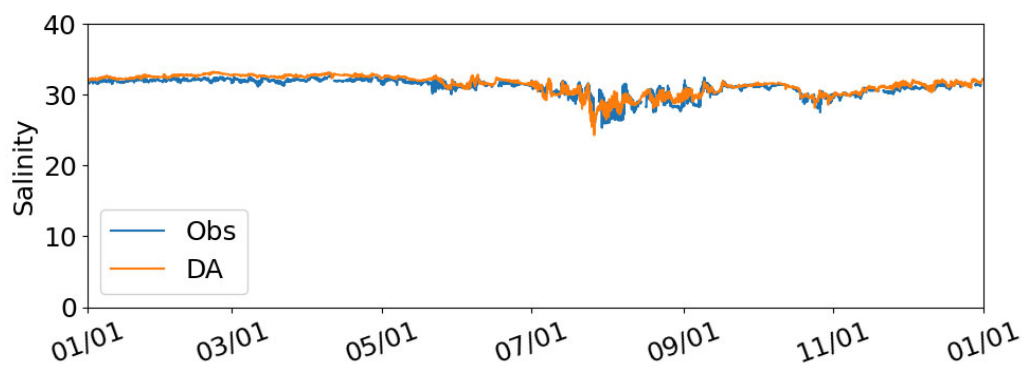
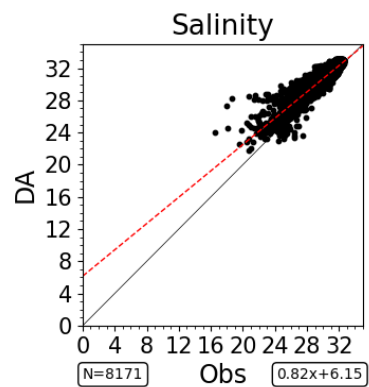


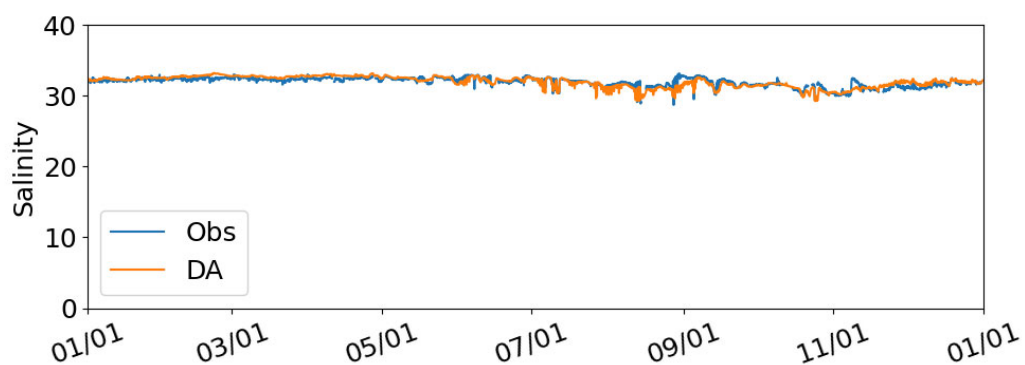
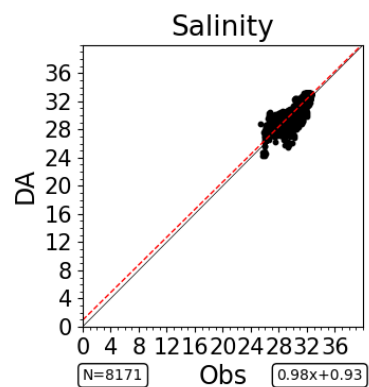
Figure S243 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

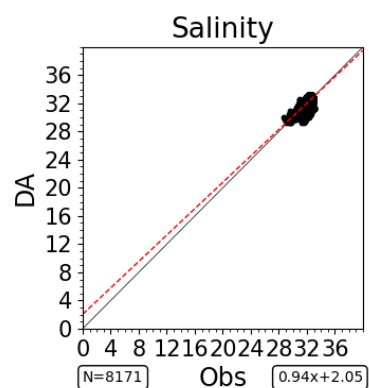
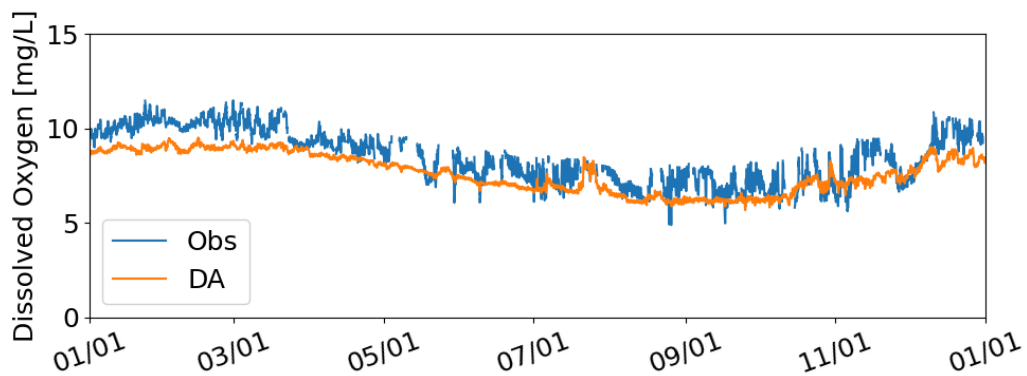
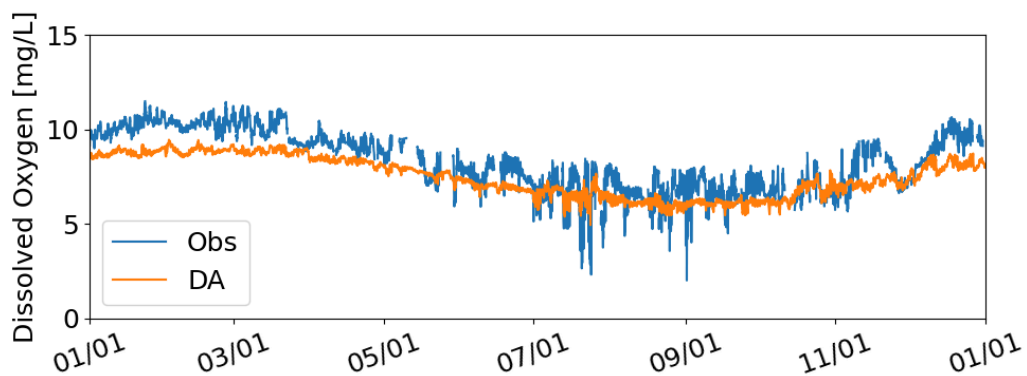
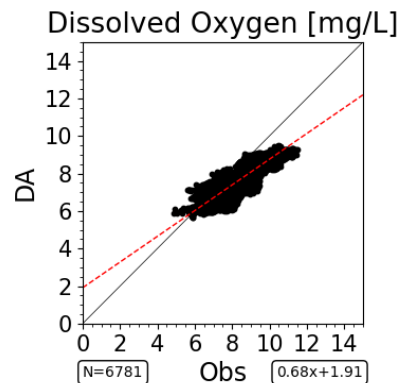


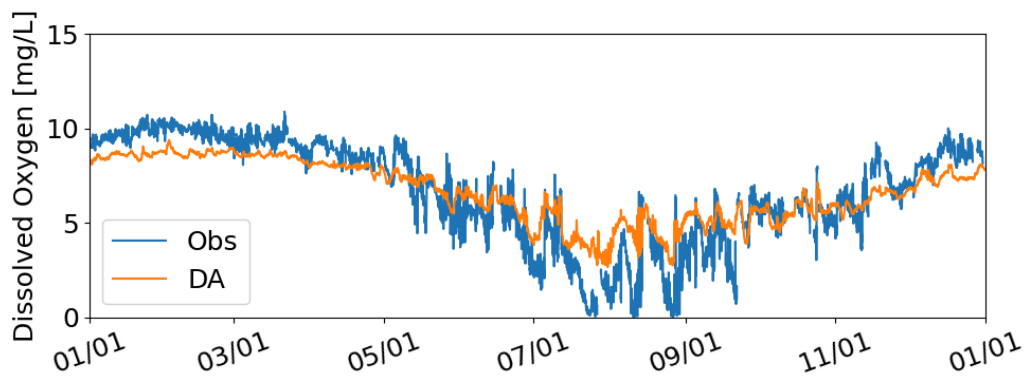
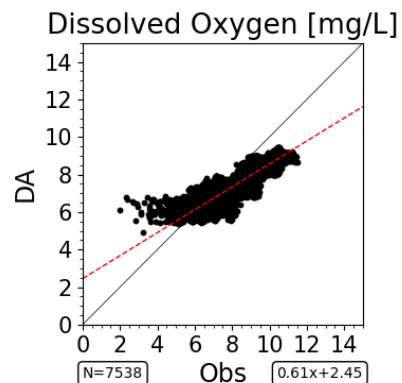
Figure S244 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

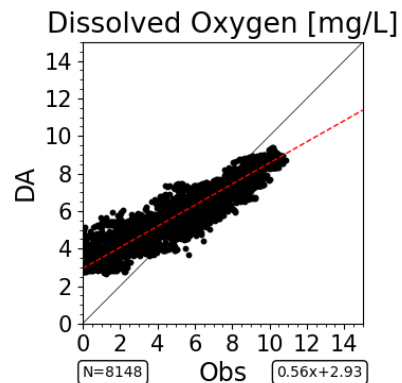
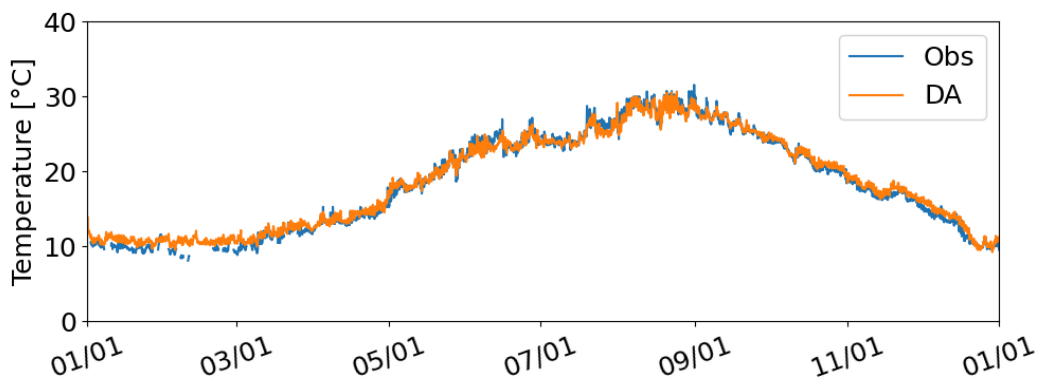
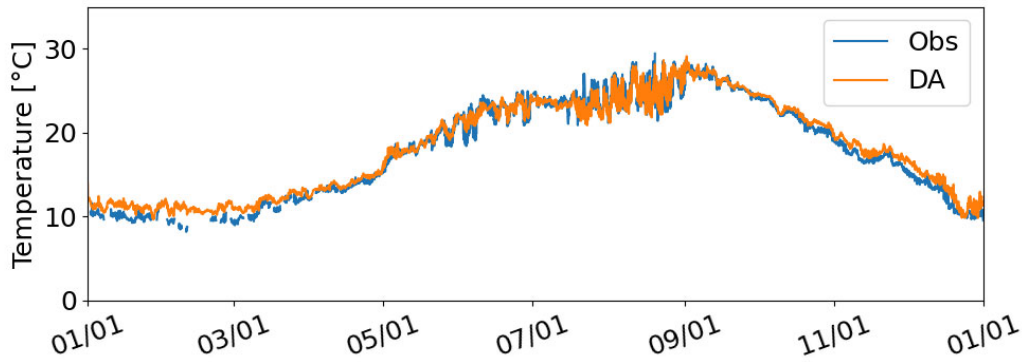
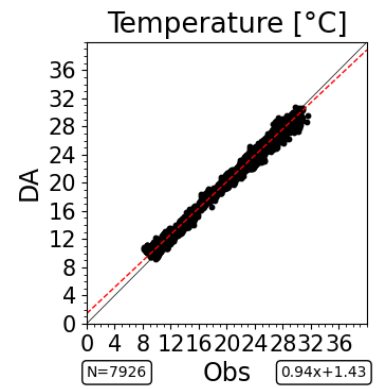


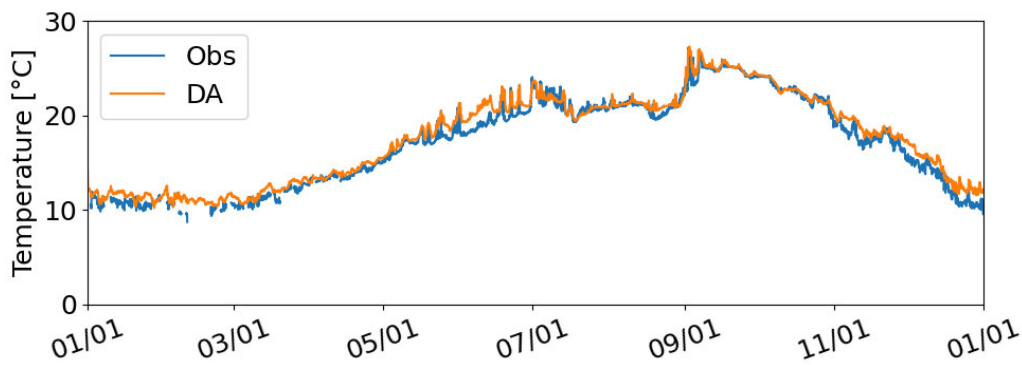
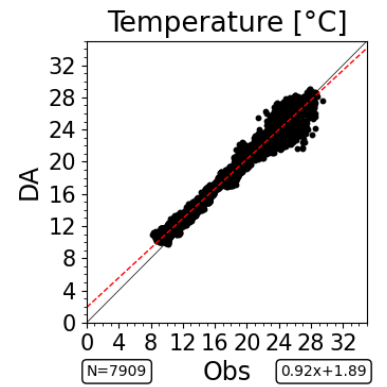
Figure S245 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

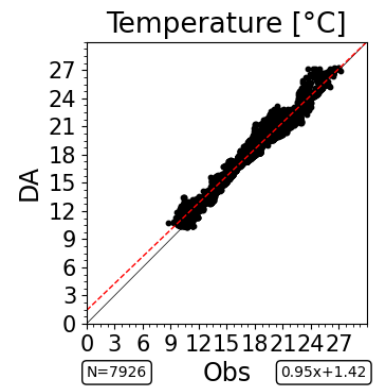
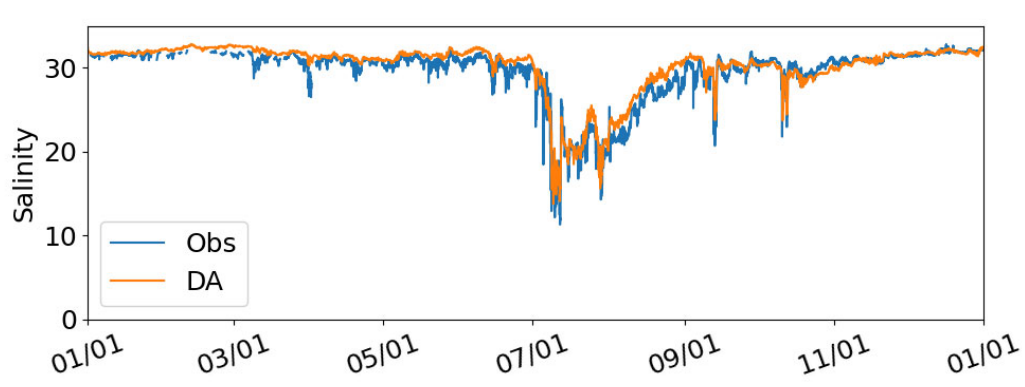
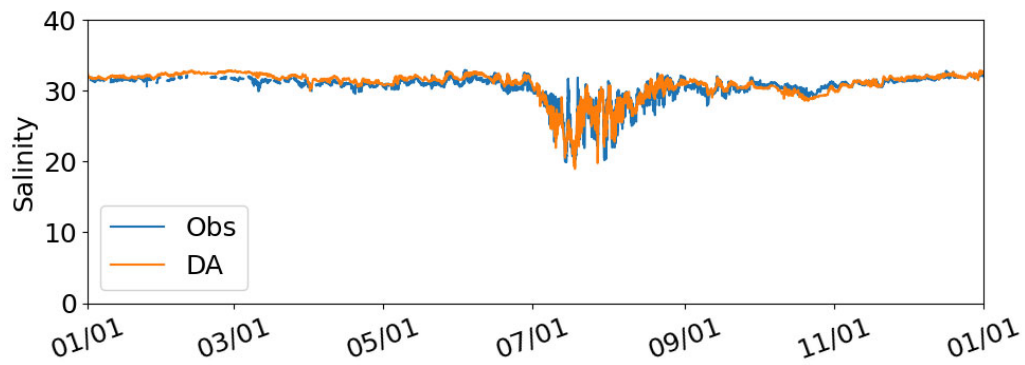
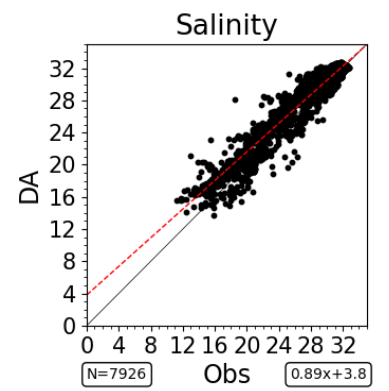


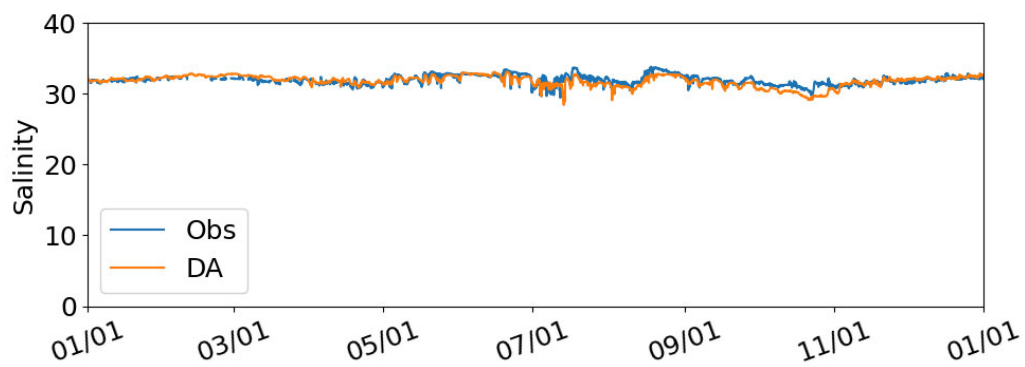
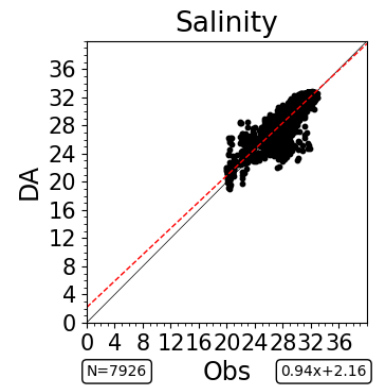
Figure S246 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

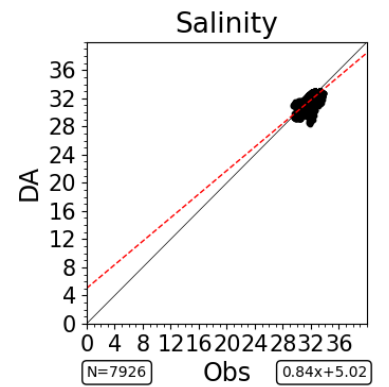
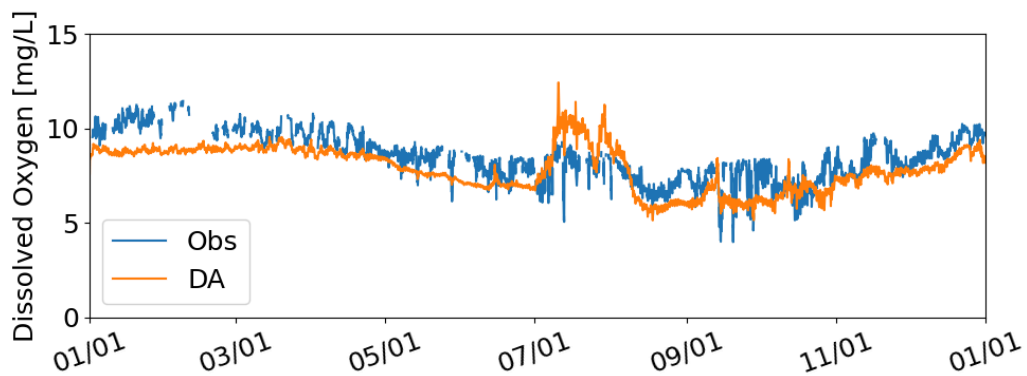
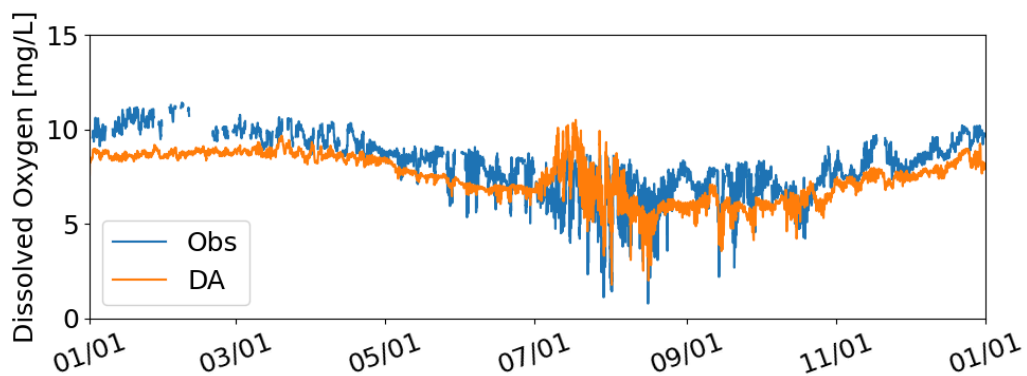
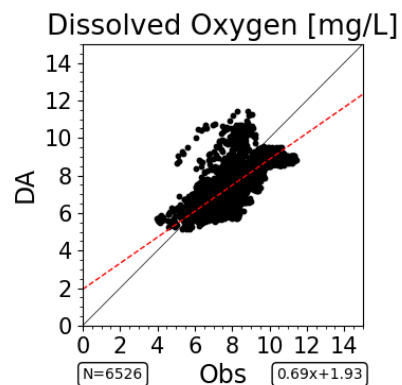


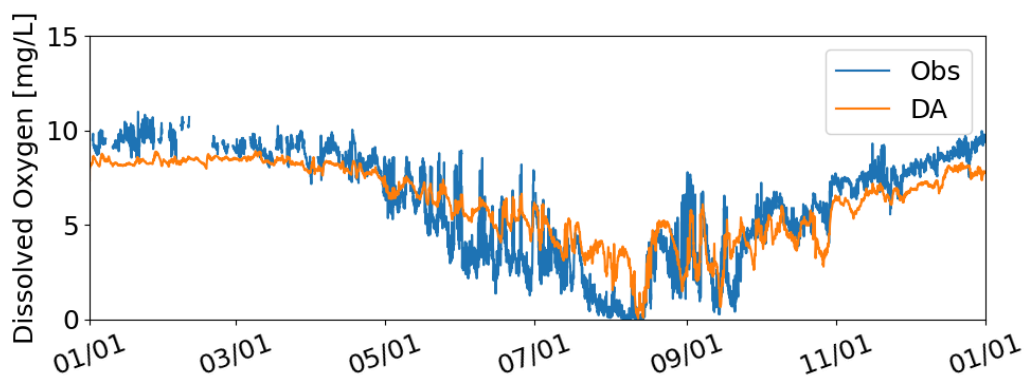
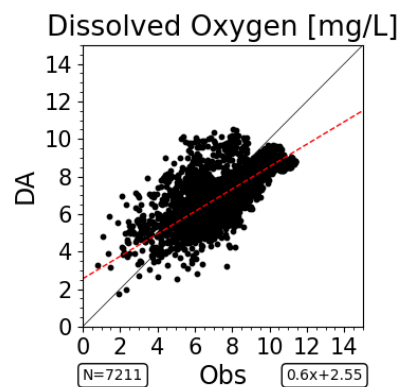
Figure S247 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

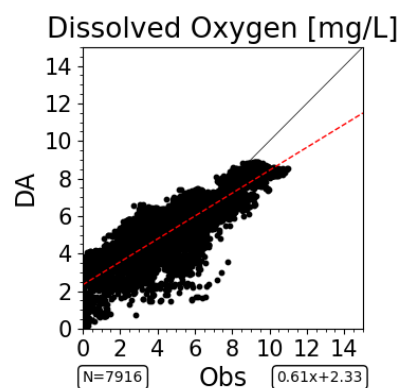
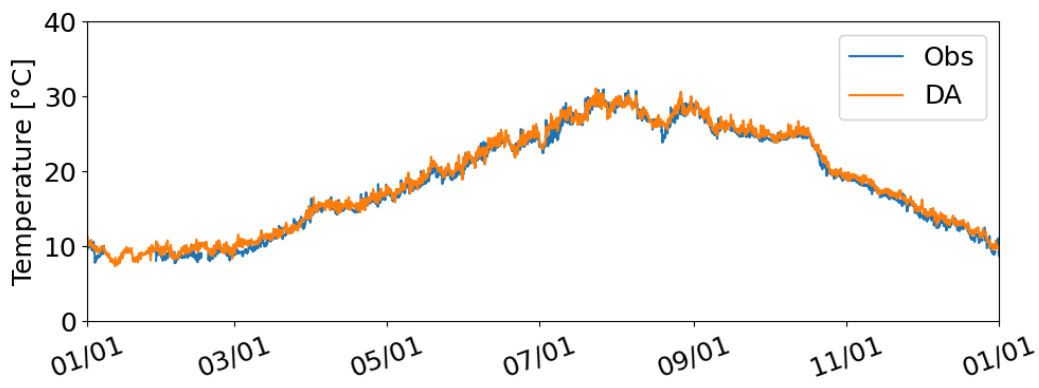
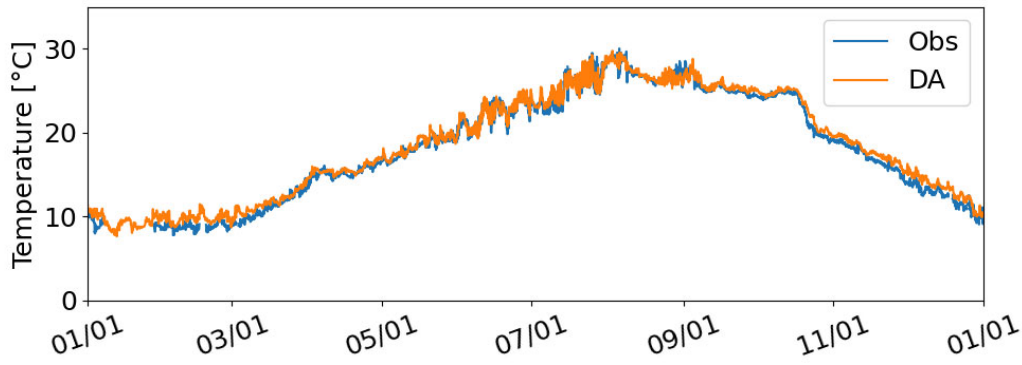
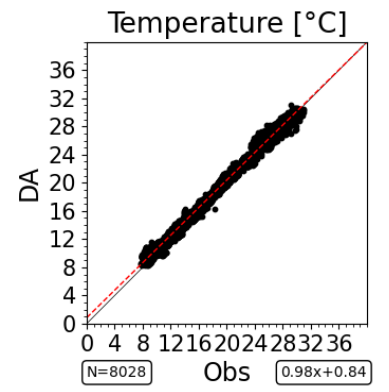


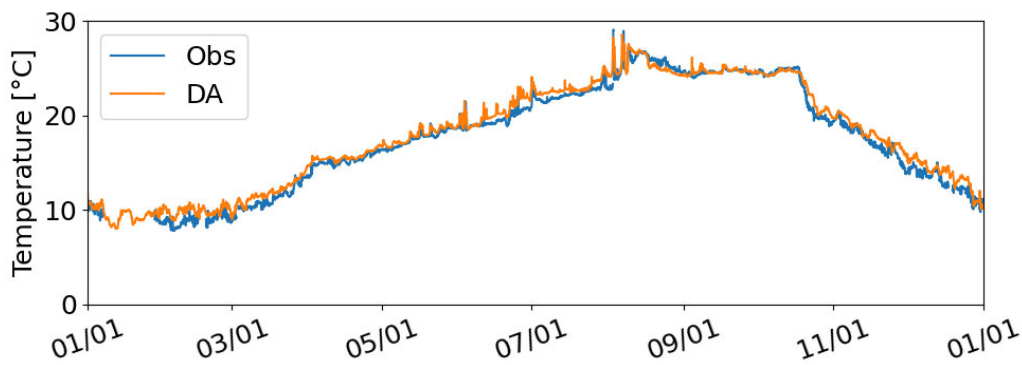
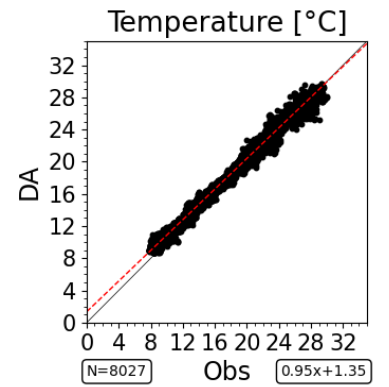
Figure S248 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

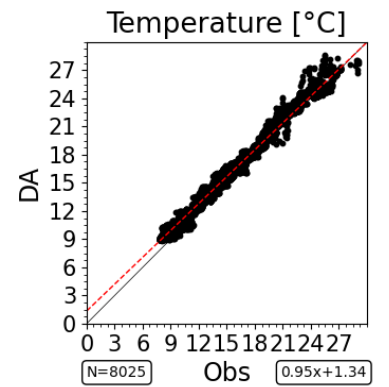
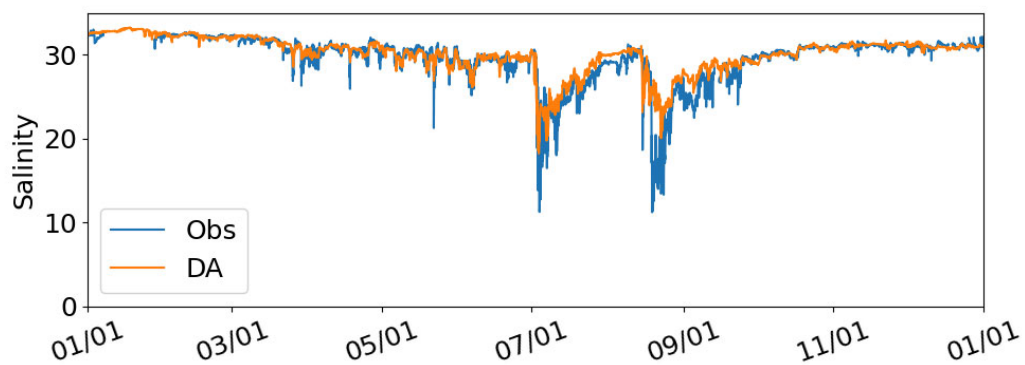
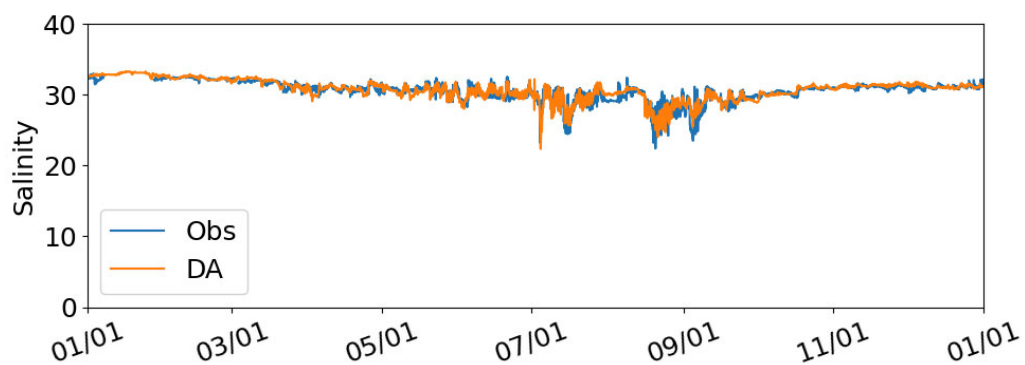
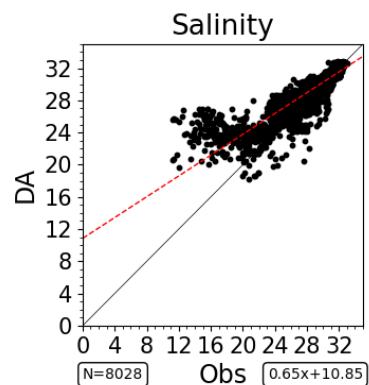


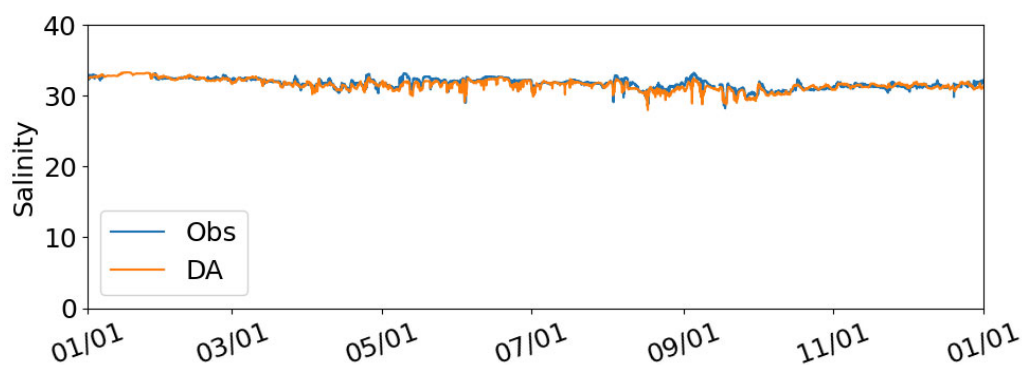
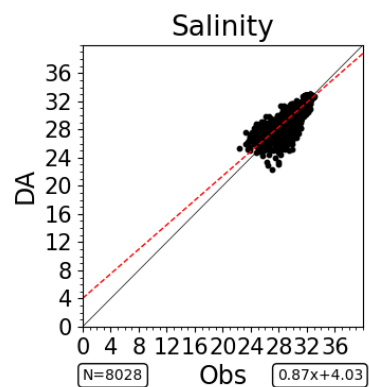
Figure S249 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

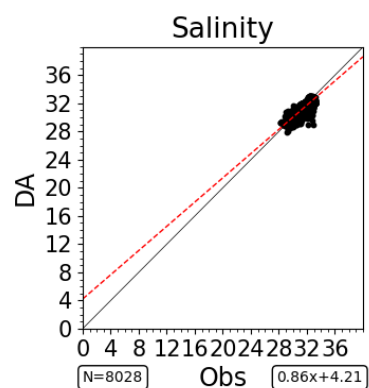
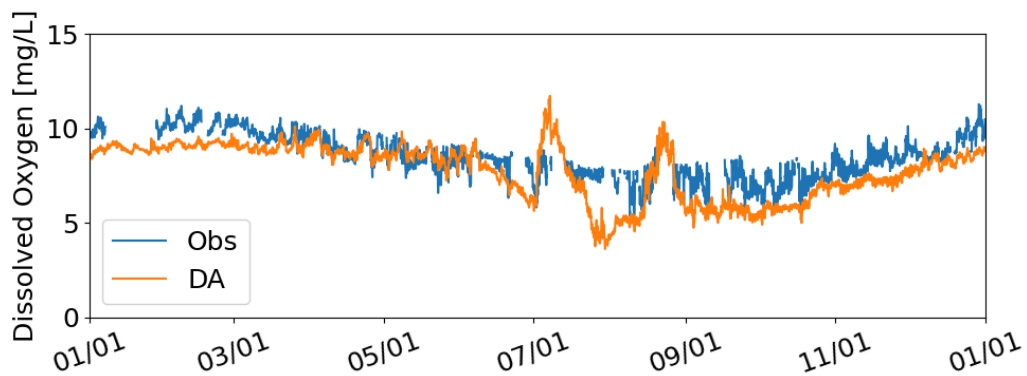
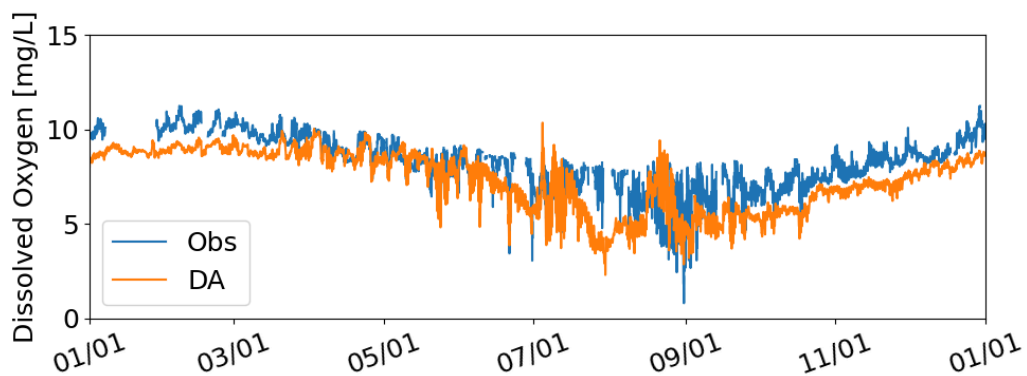
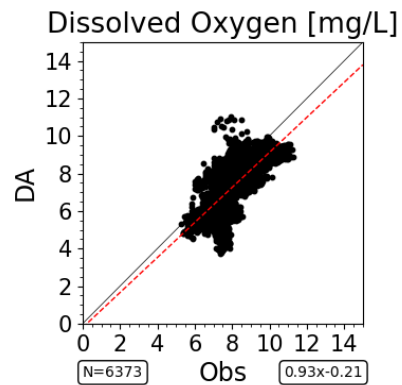


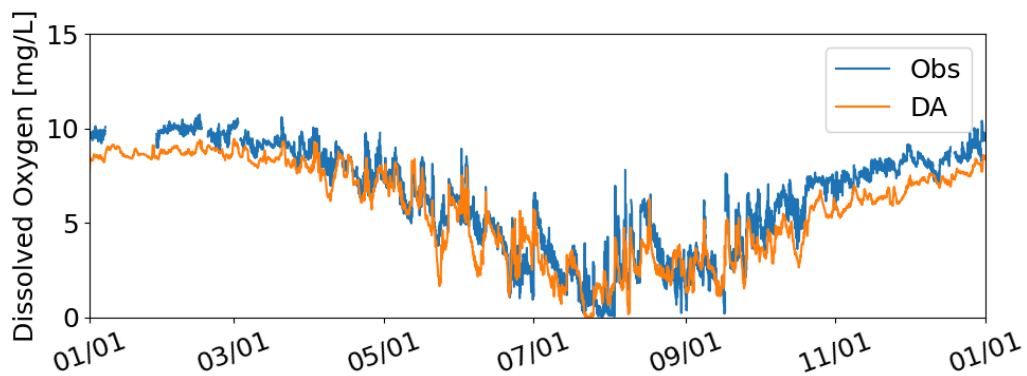
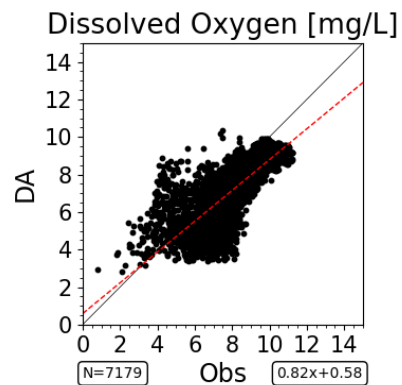
Figure S250 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

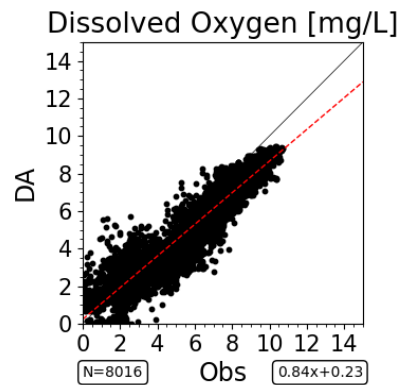
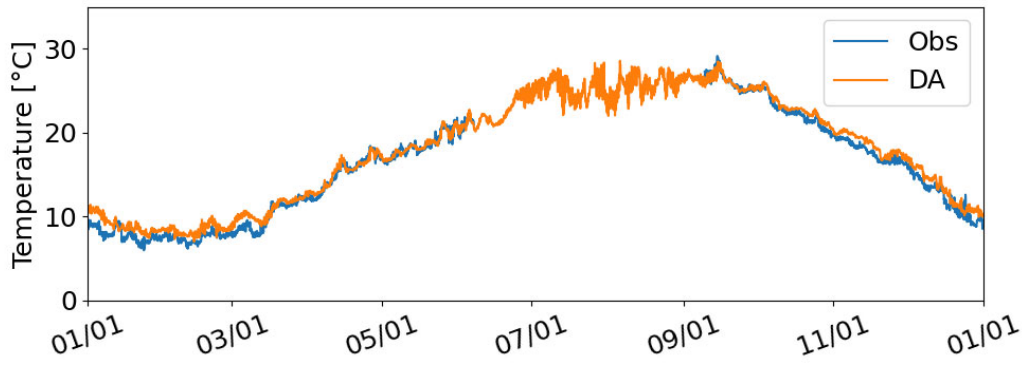
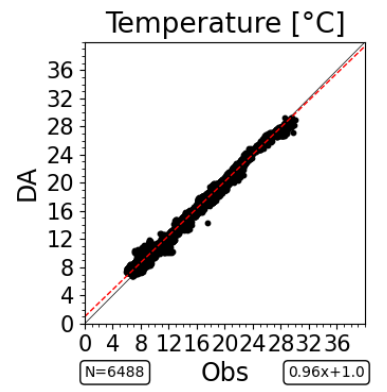


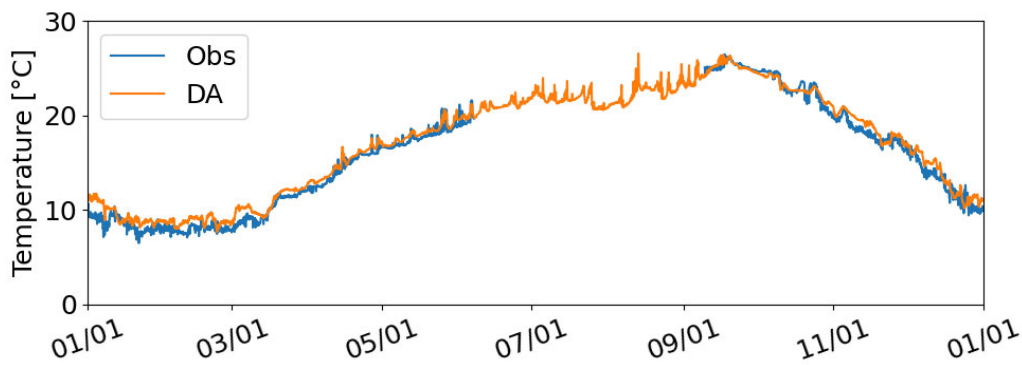
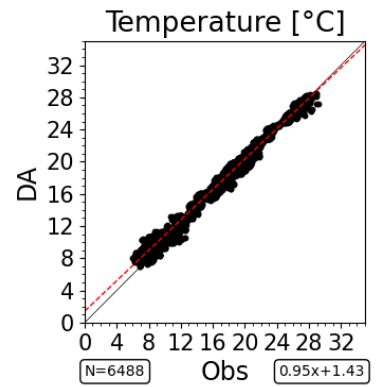
Figure S251 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

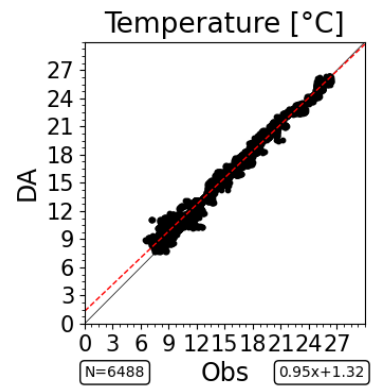
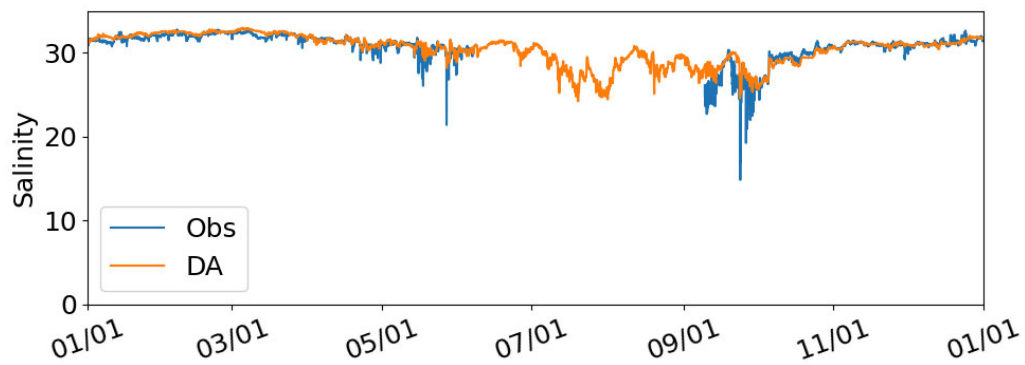
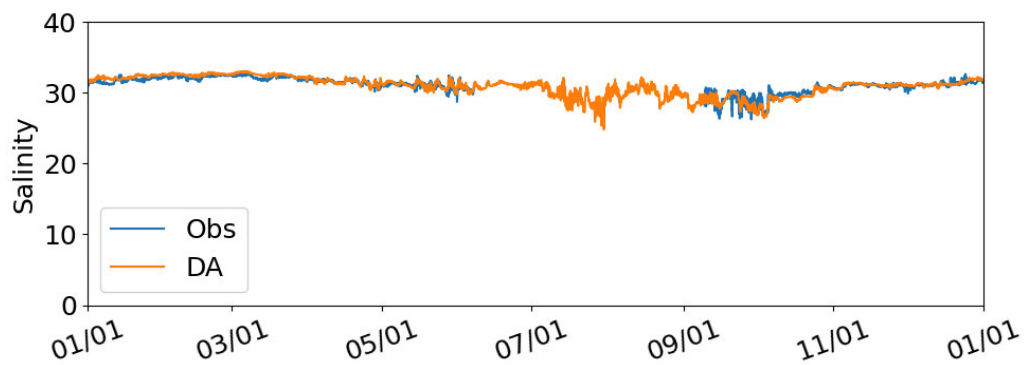
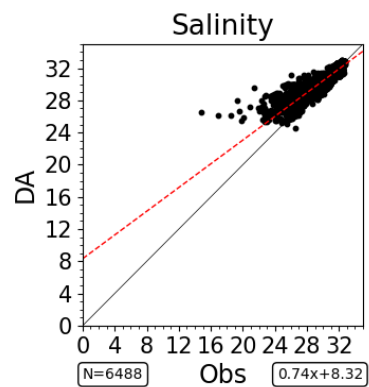


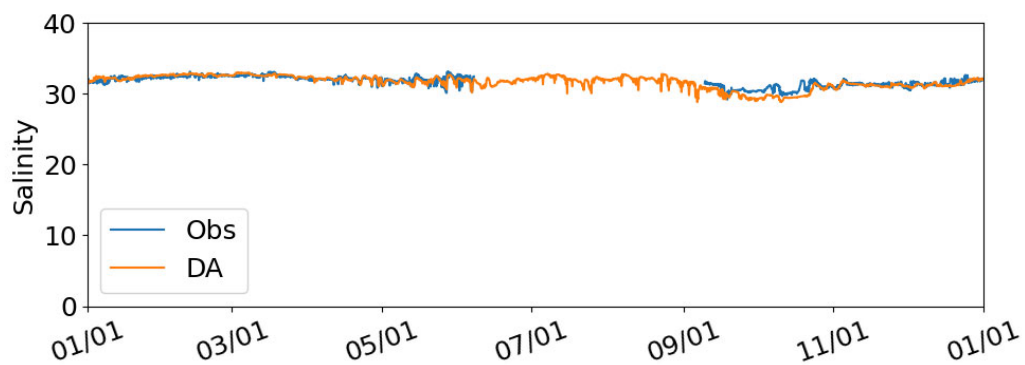
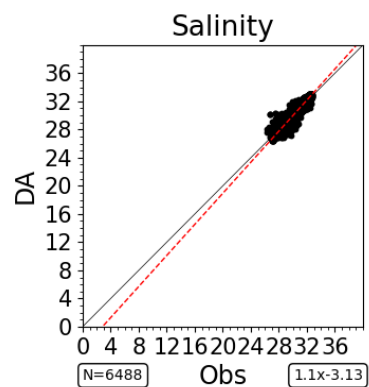
Figure S252 Timeseries and scatter plot for water temperature at Center of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

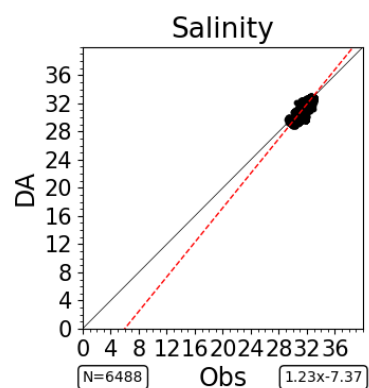
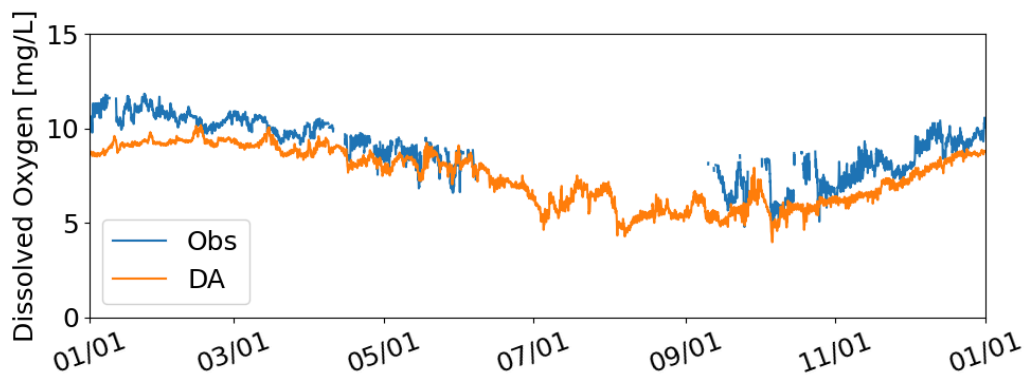
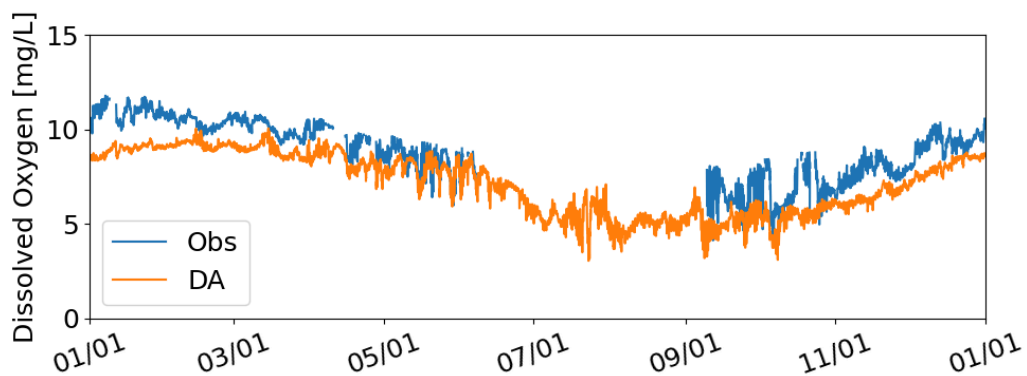
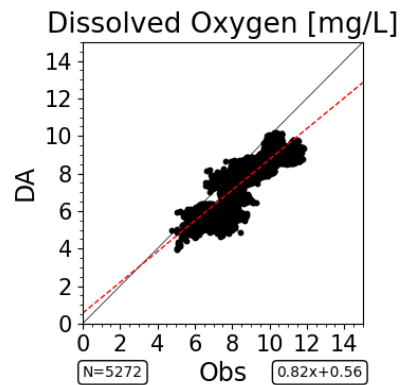


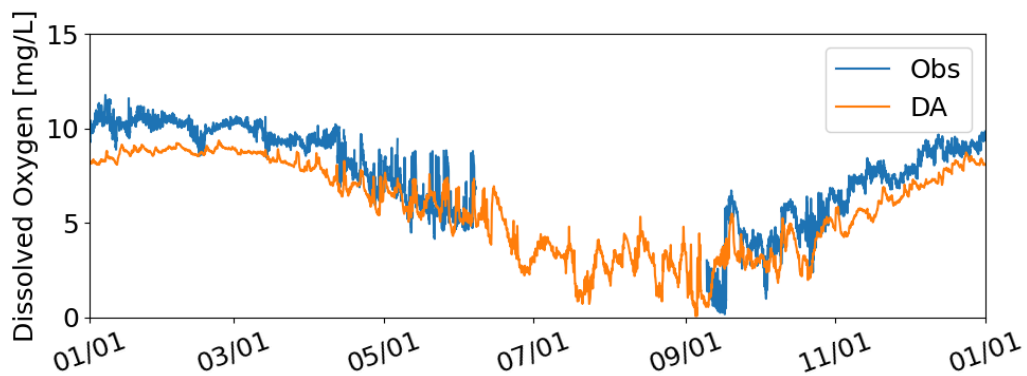
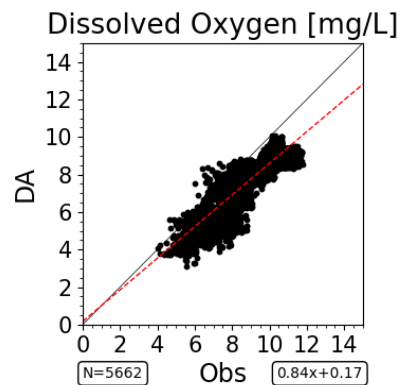
Figure S253 Timeseries and scatter plot for salinity at Center of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

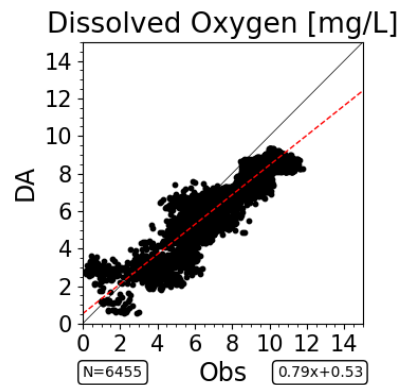


Figure S254 Timeseries and scatter plot for dissolved oxygen at Center of Mikawa Bay in 2022

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

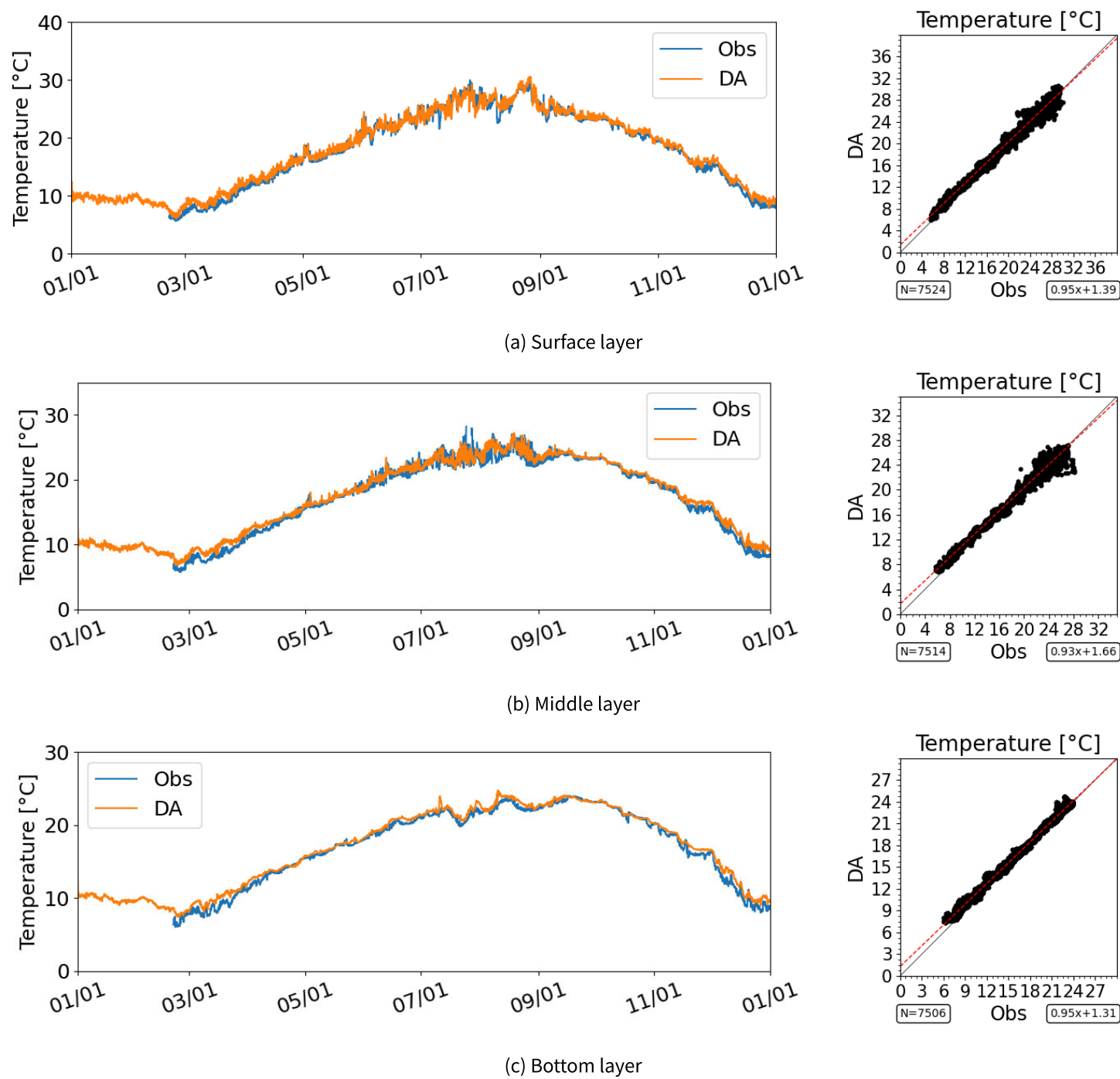
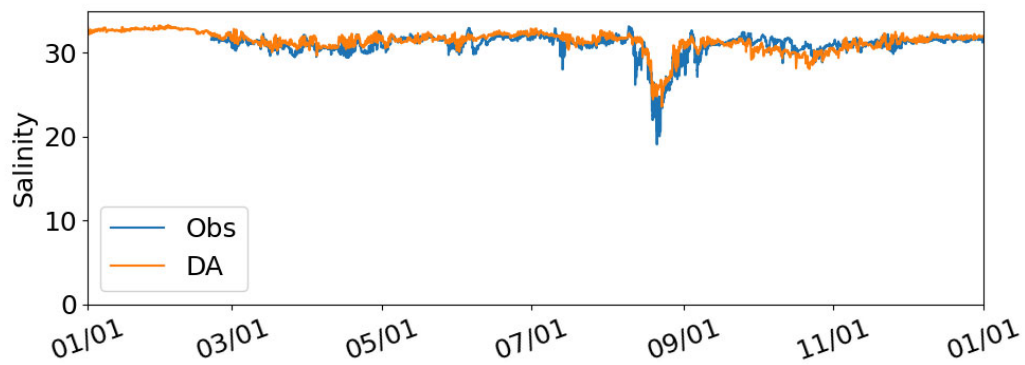
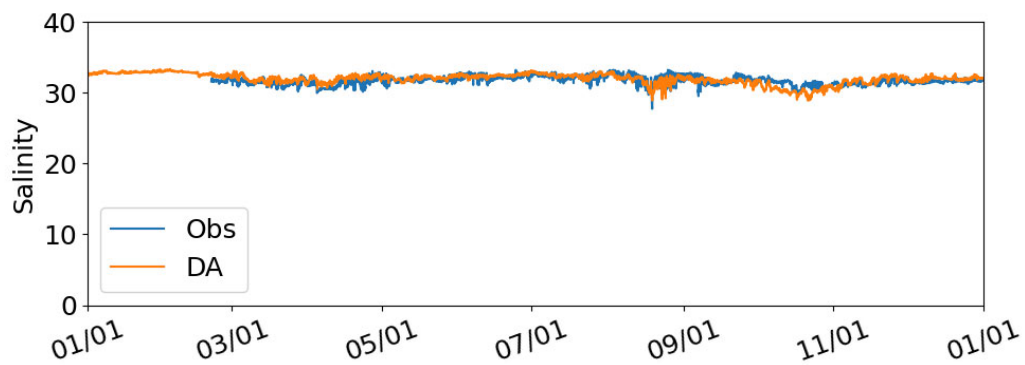
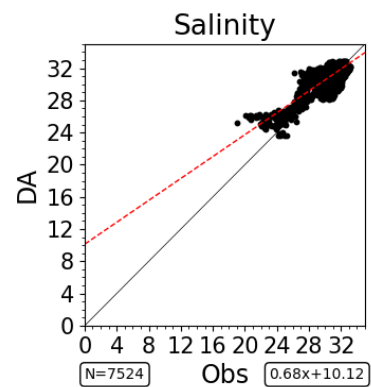


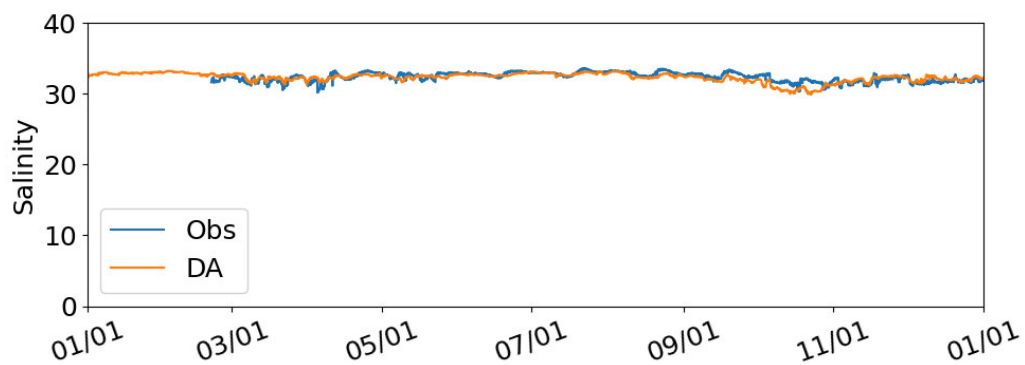
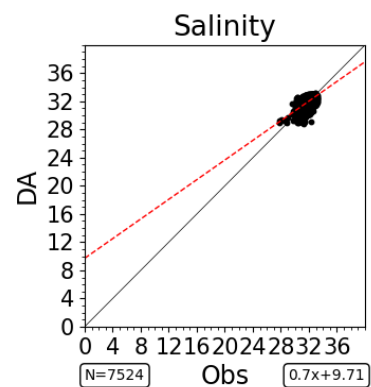
Figure S255 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

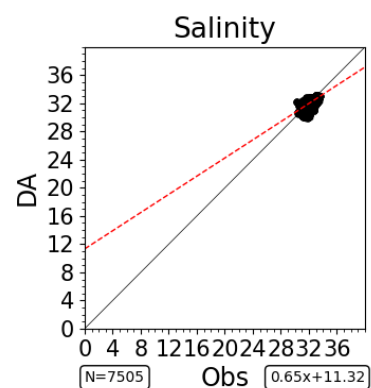
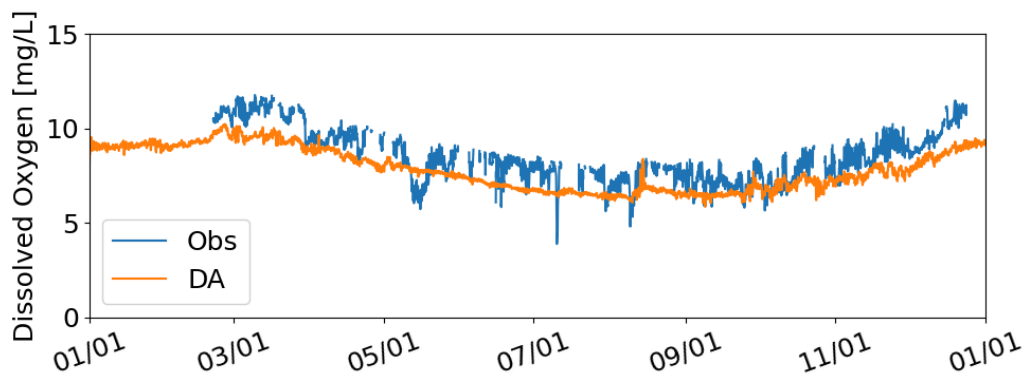
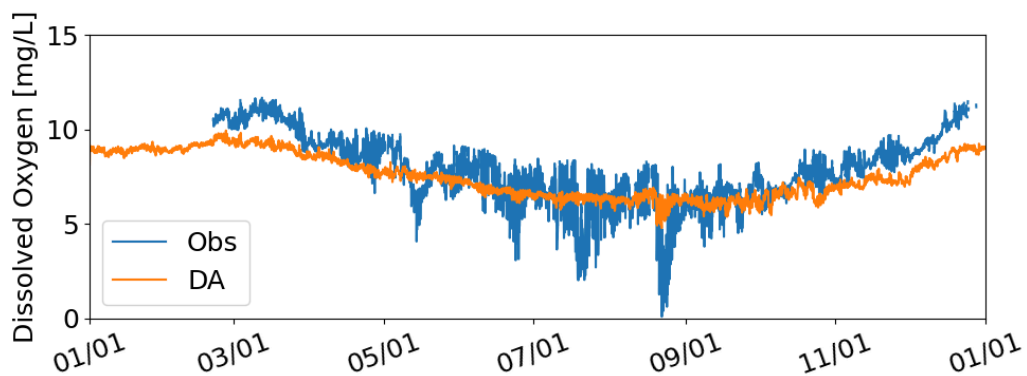
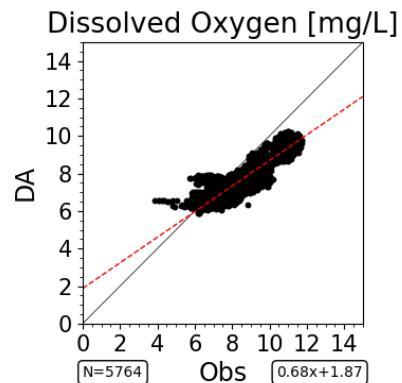


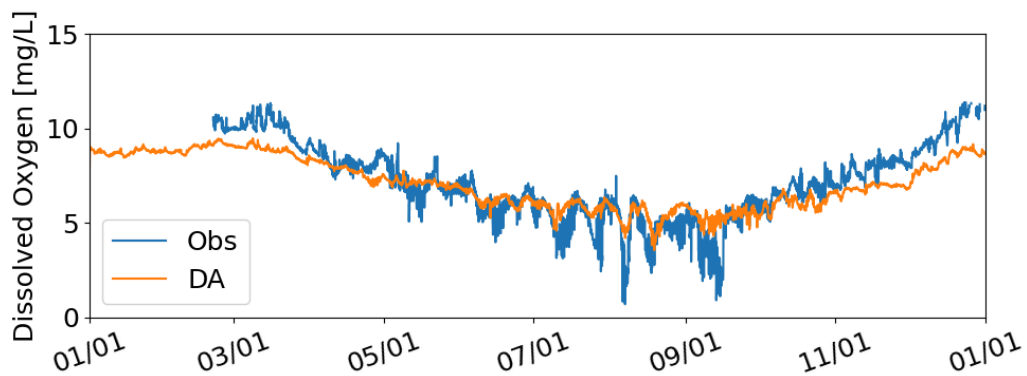
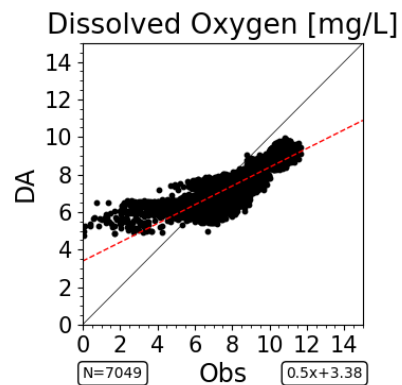
Figure S256 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

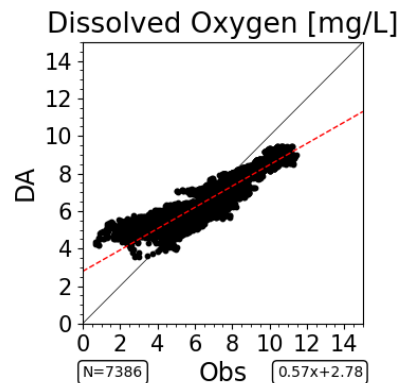
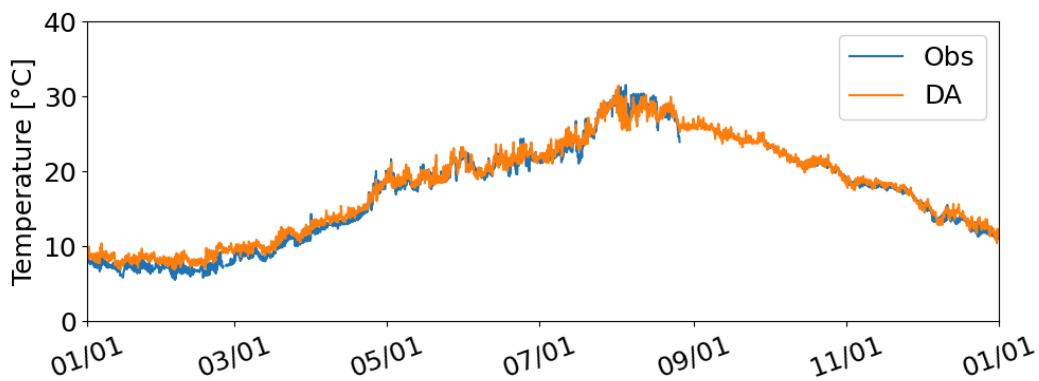
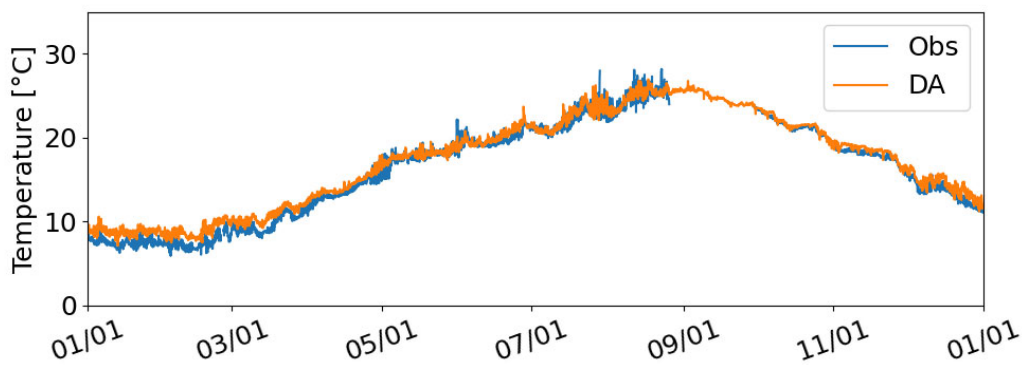
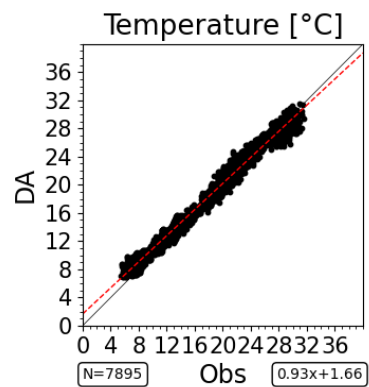


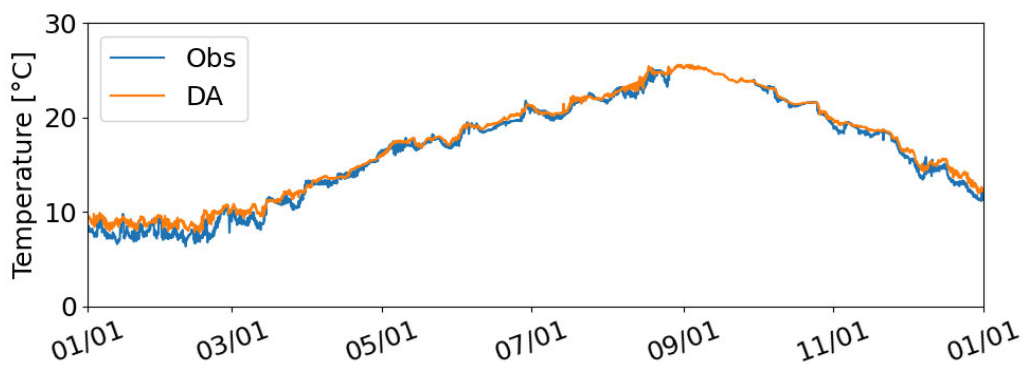
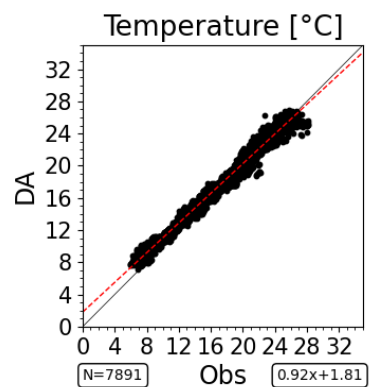
Figure S257 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2014



(a) Surface layer



(b) Middle layer



(c) Bottom layer

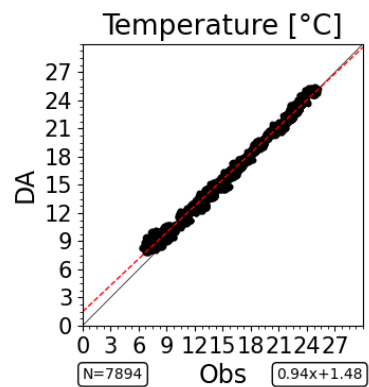
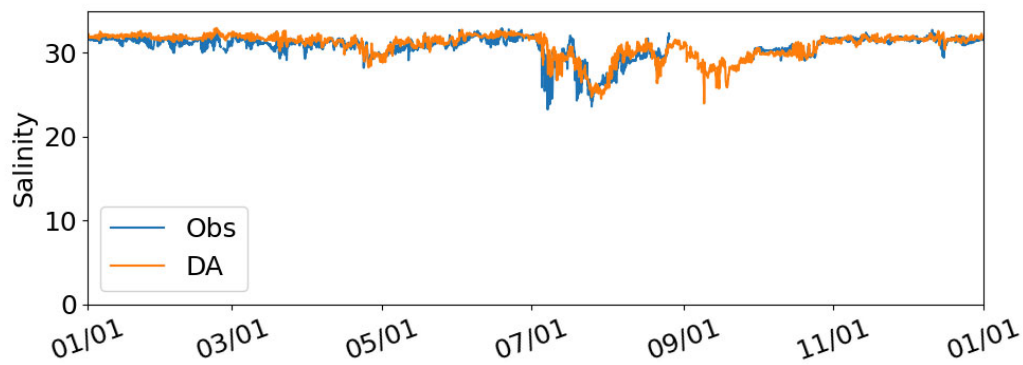
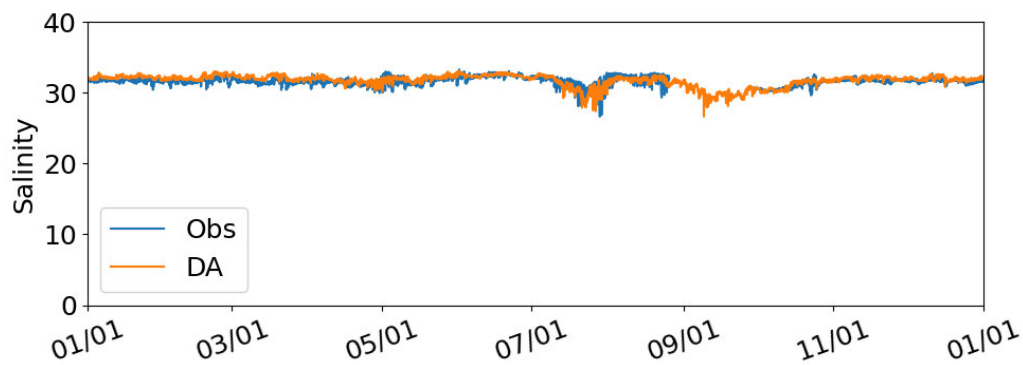
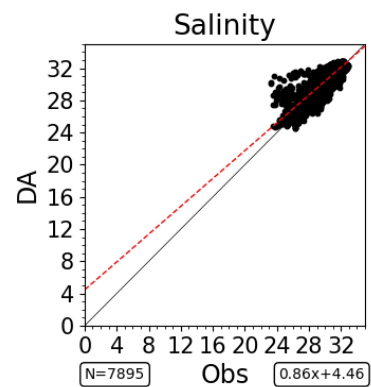


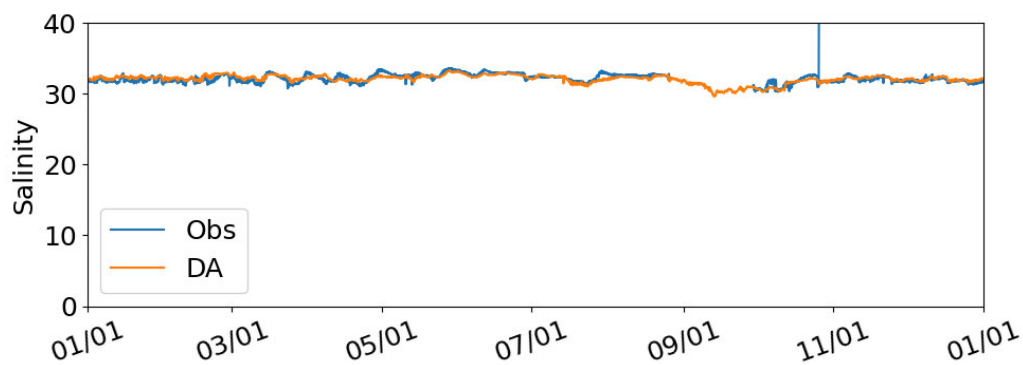
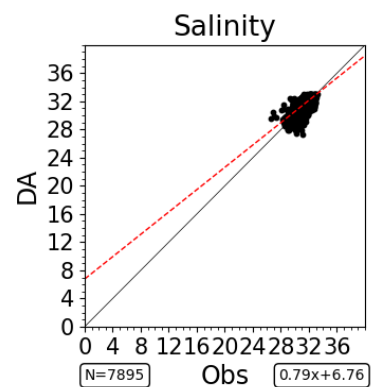
Figure S258 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

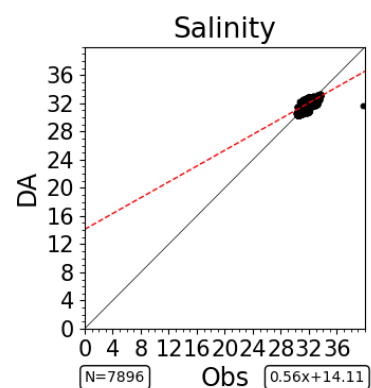
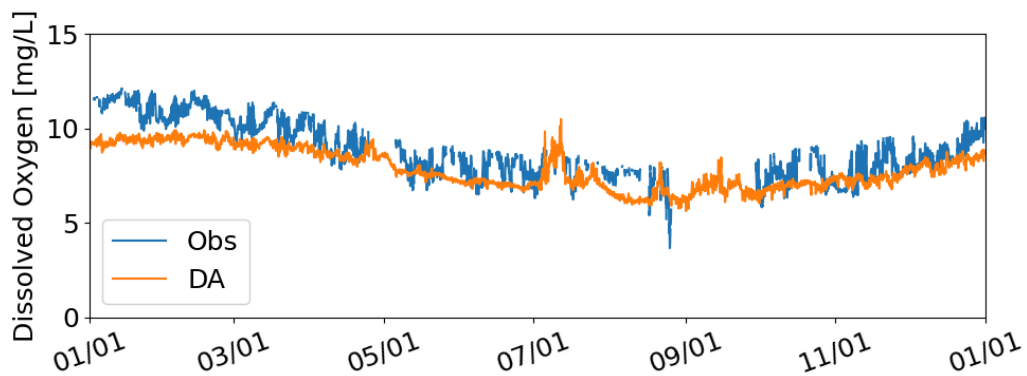
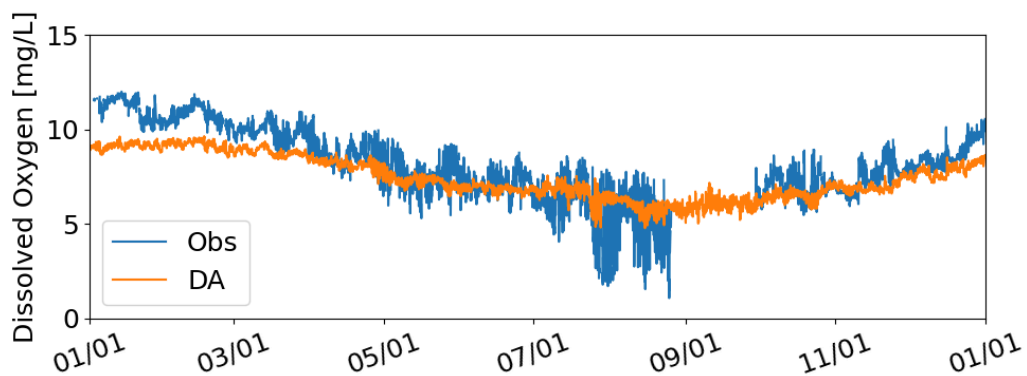
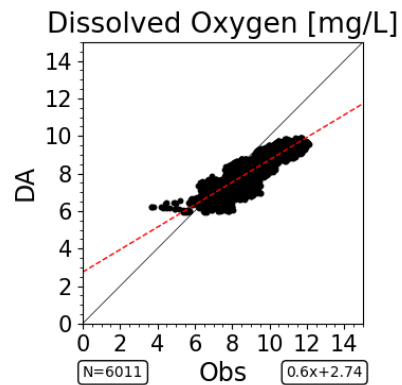


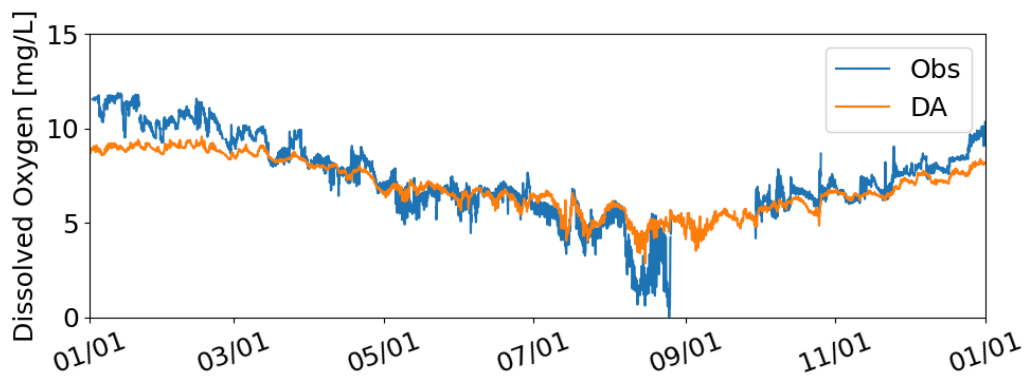
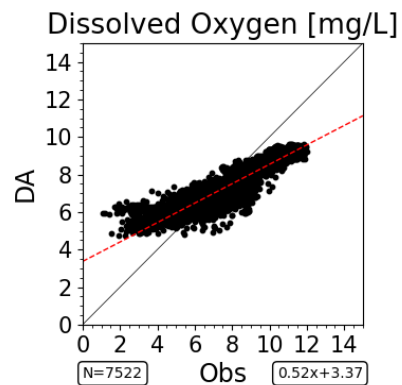
Figure S259 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

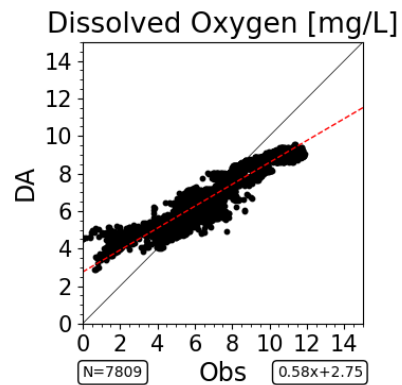
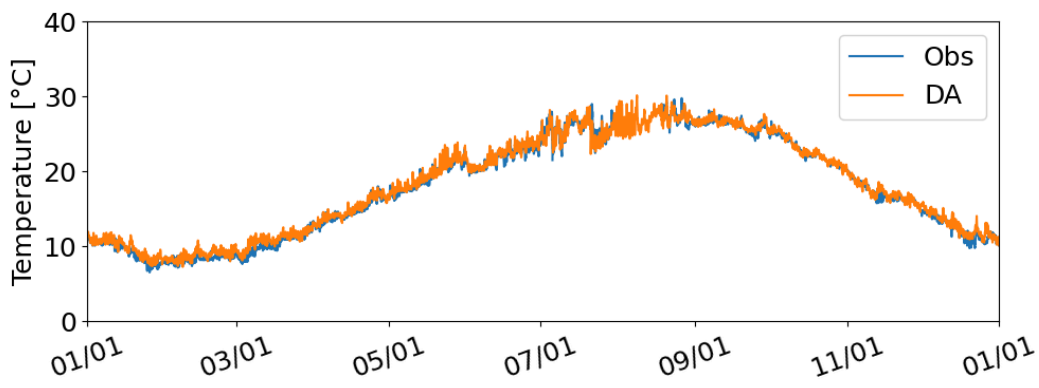
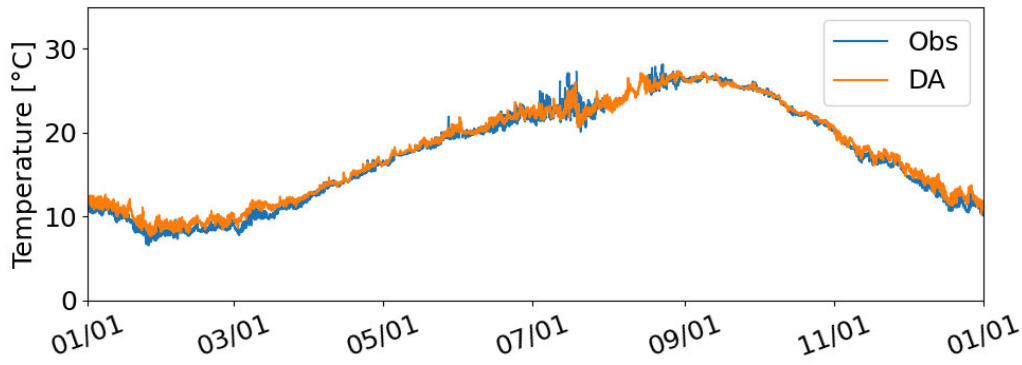
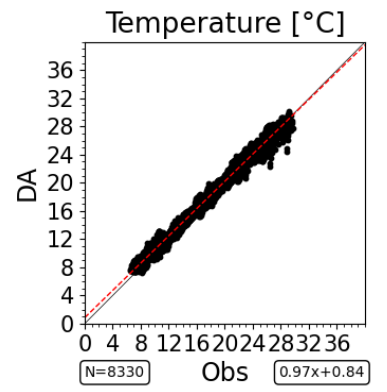


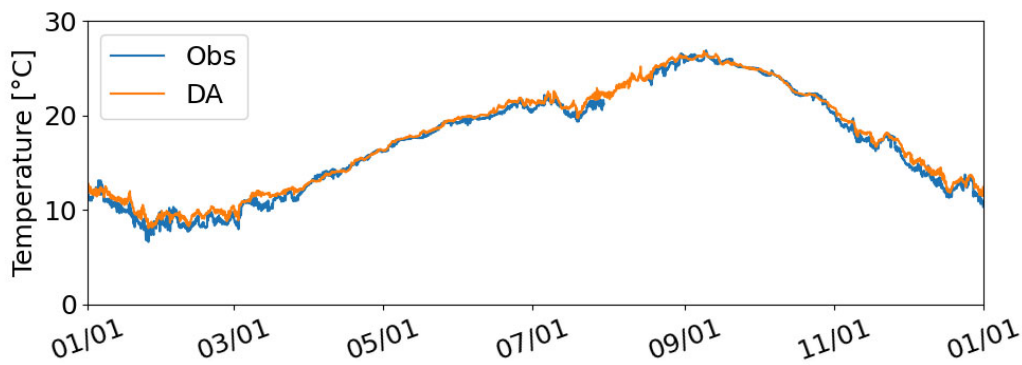
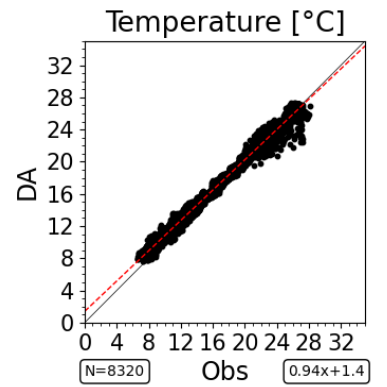
Figure S260 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2015



(a) Surface layer



(b) Middle layer



(c) Bottom layer

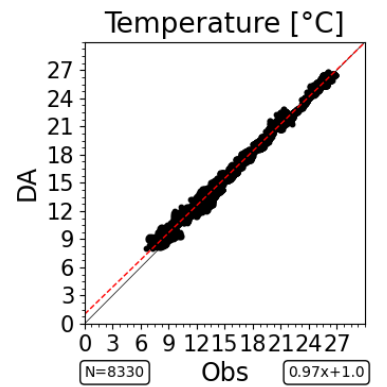
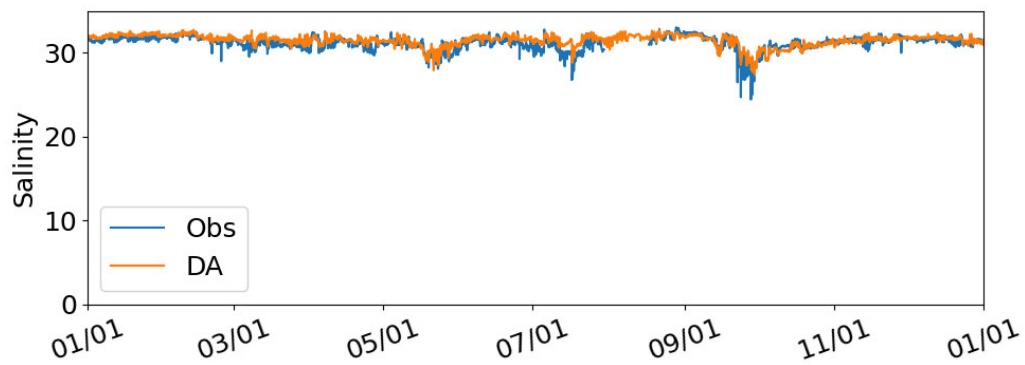
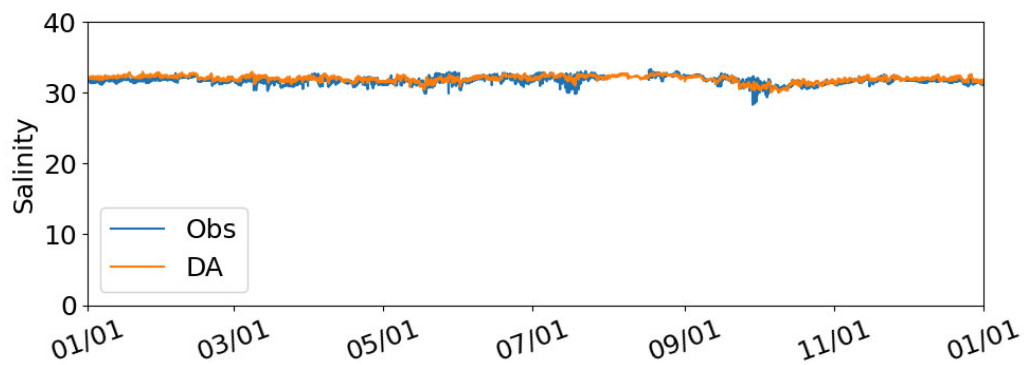
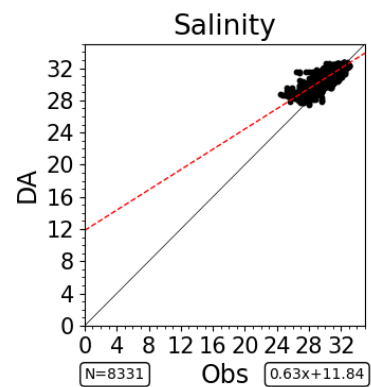


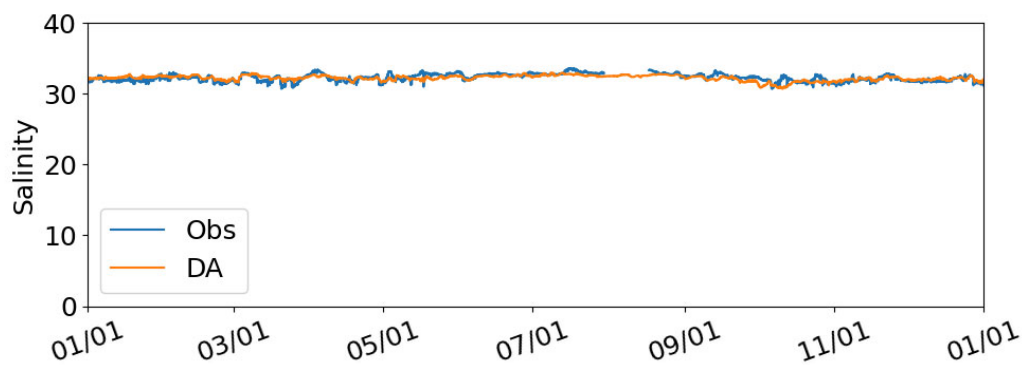
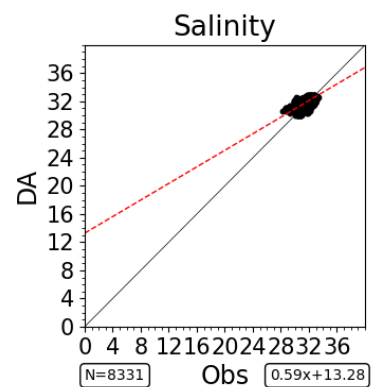
Figure S261 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

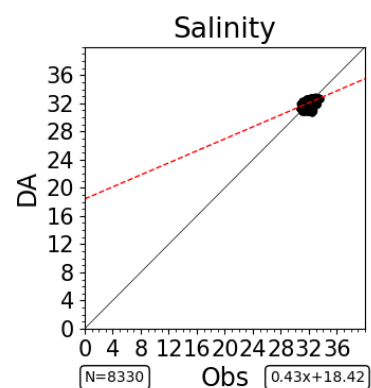
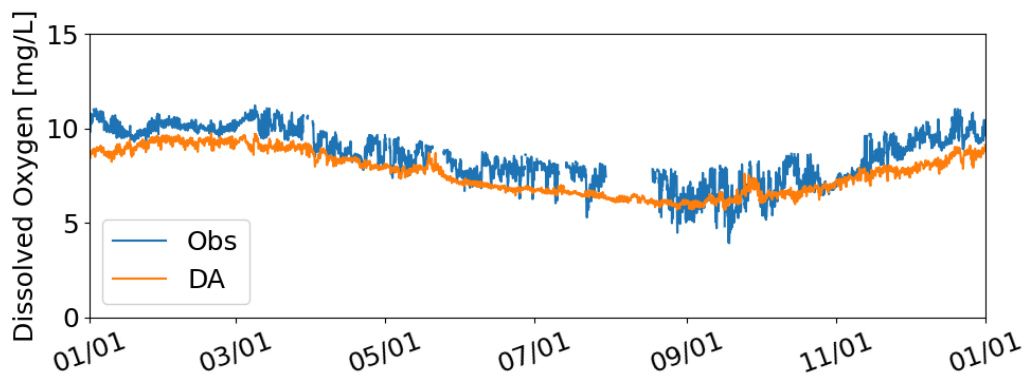
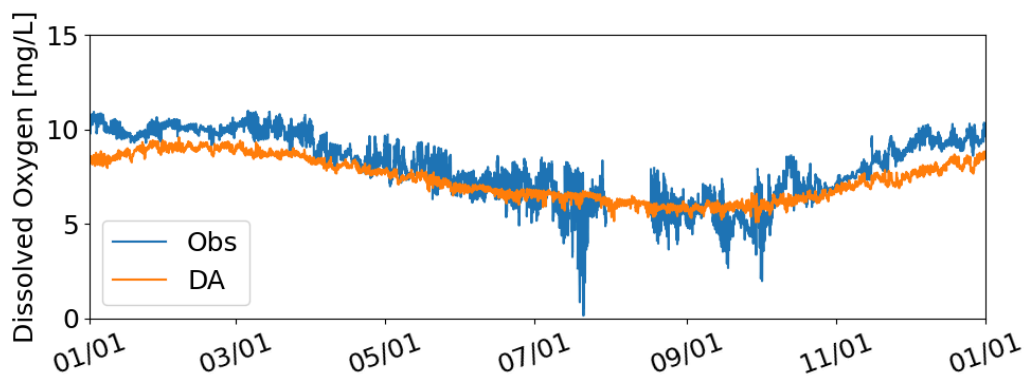
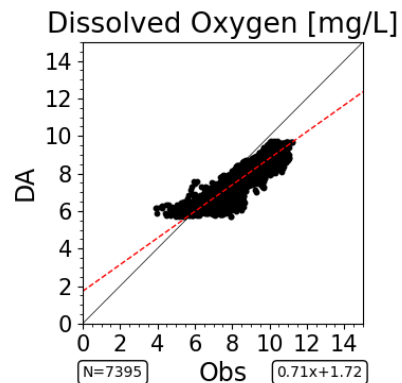


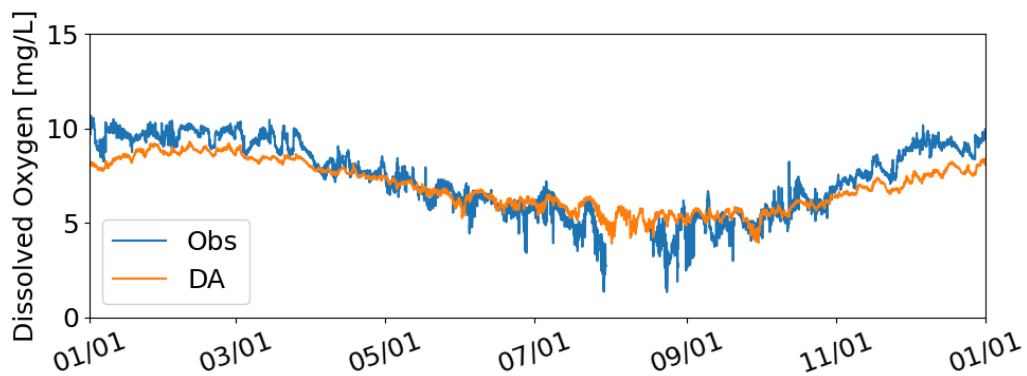
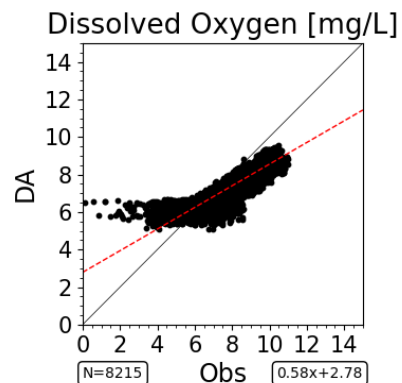
Figure S262 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

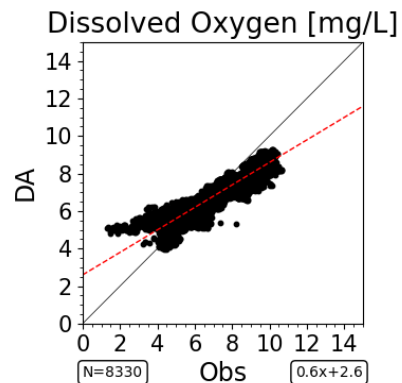
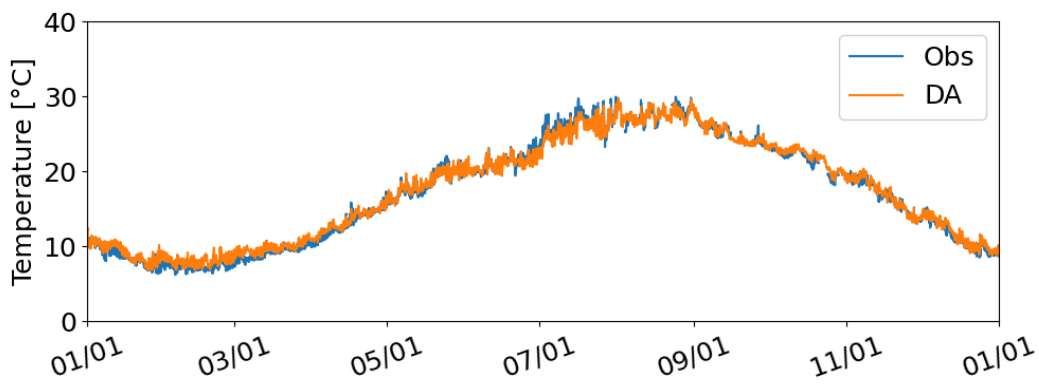
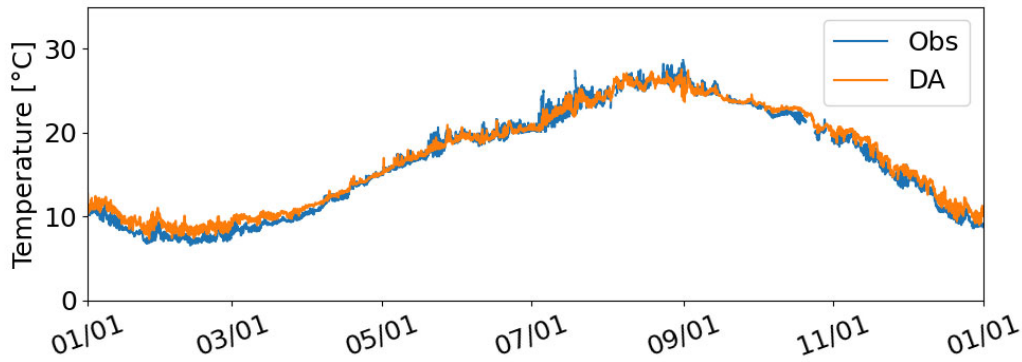
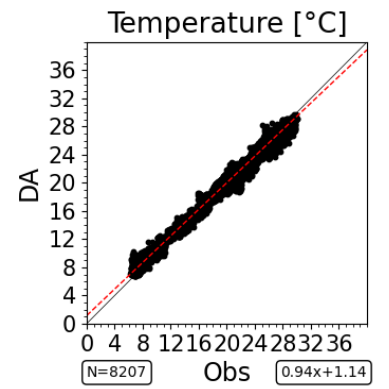


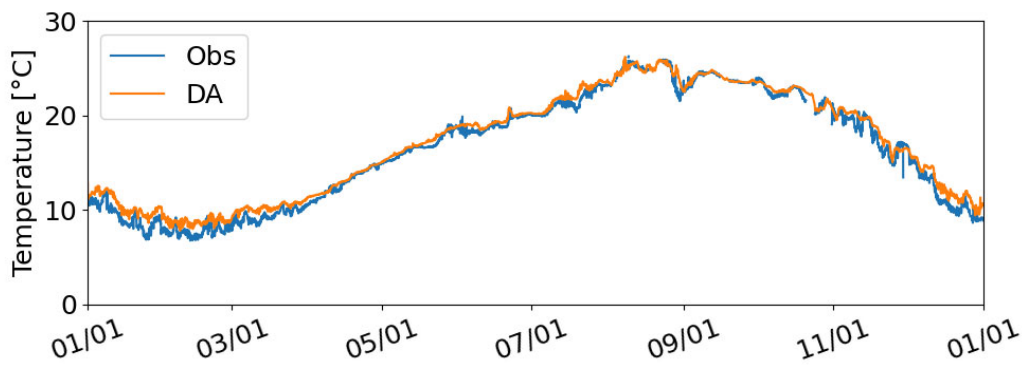
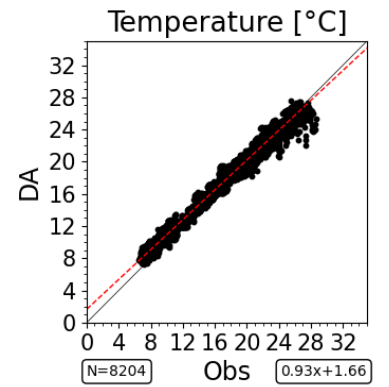
Figure S263 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2016



(a) Surface layer



(b) Middle layer



(c) Bottom layer

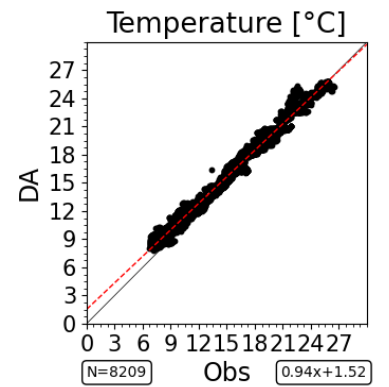
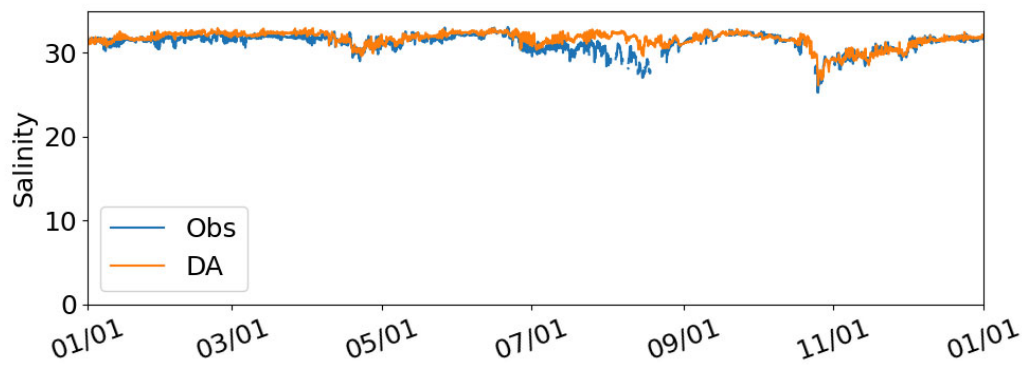
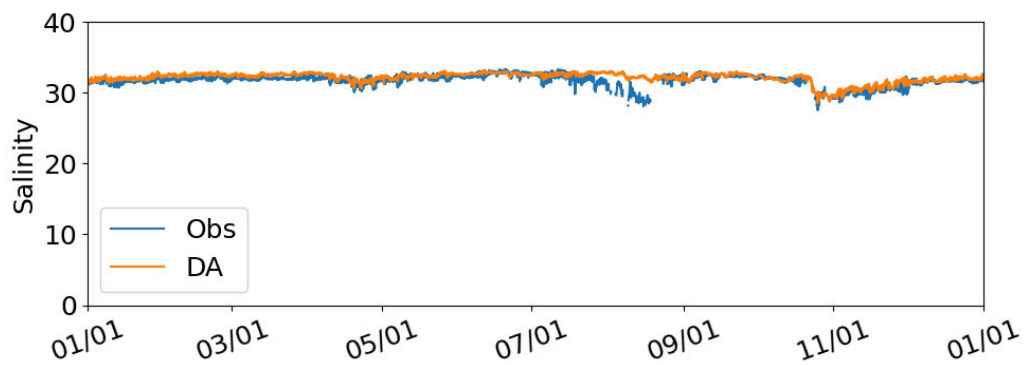
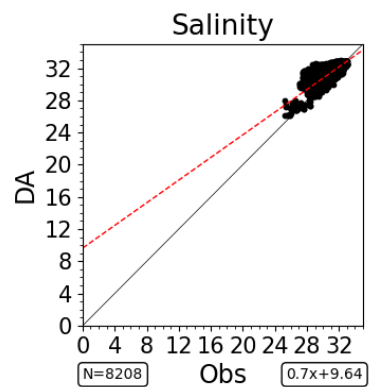


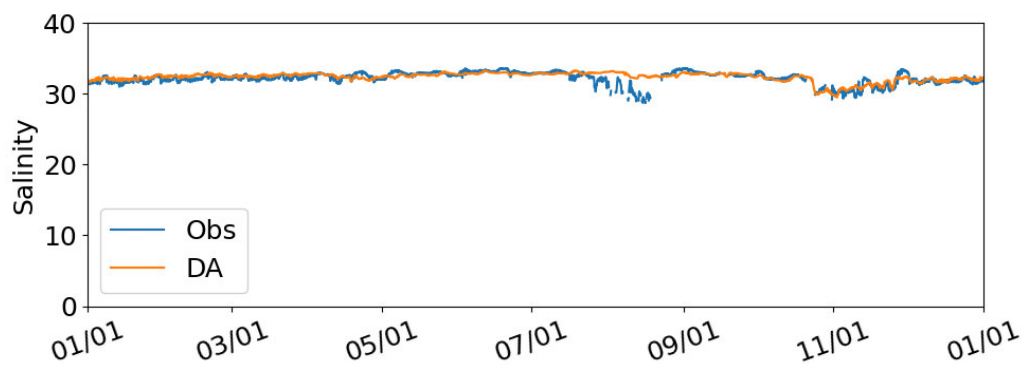
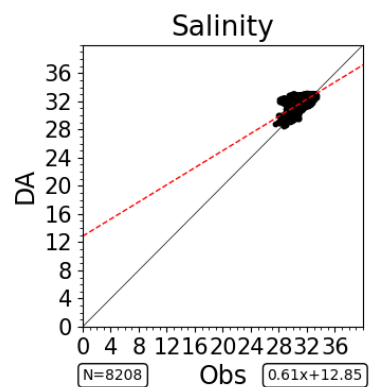
Figure S264 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

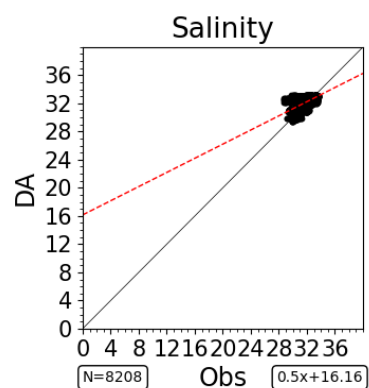
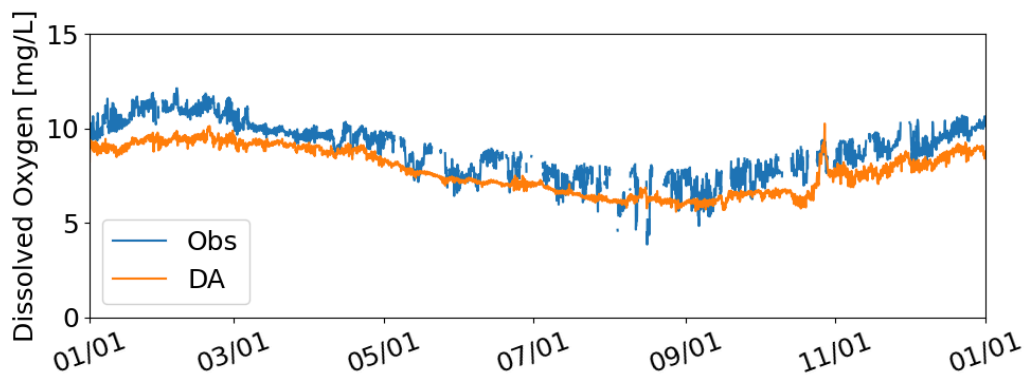
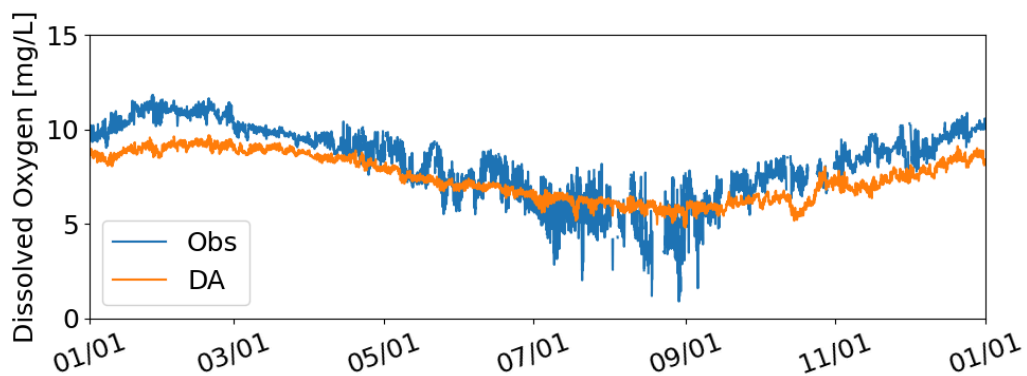
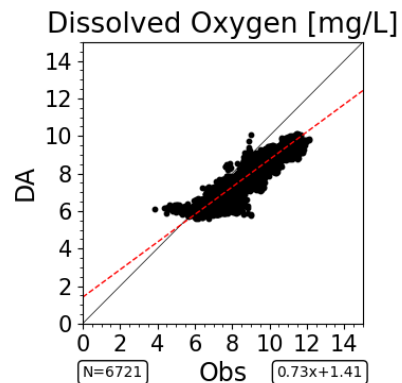


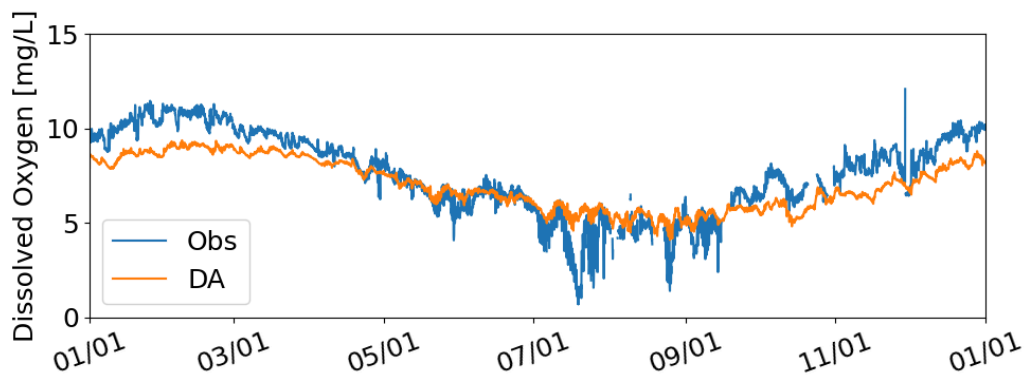
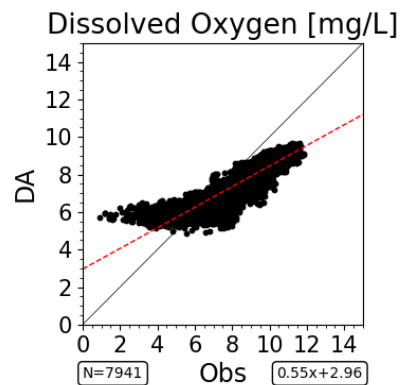
Figure S265 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

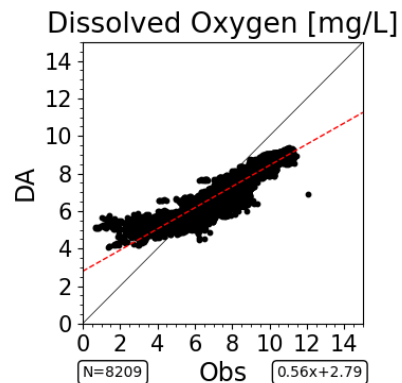
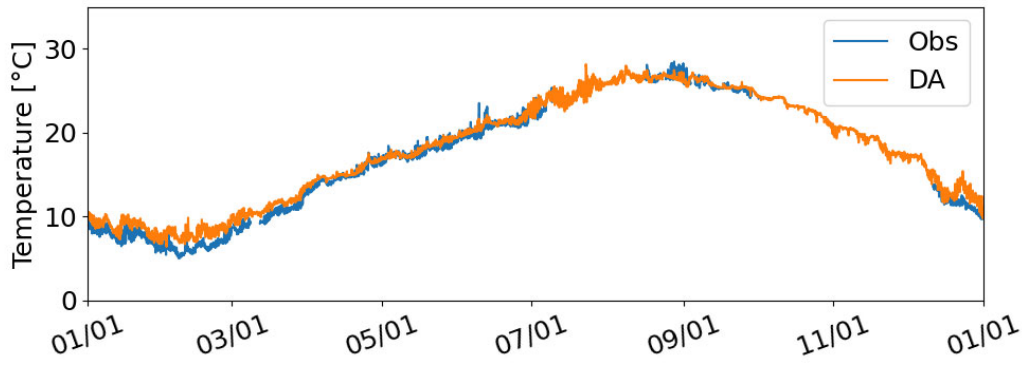
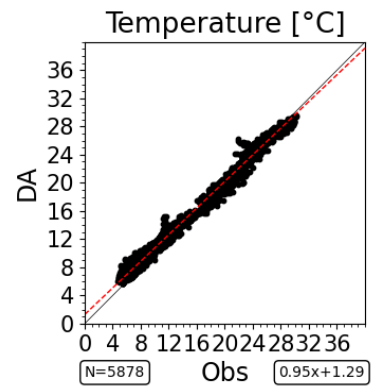


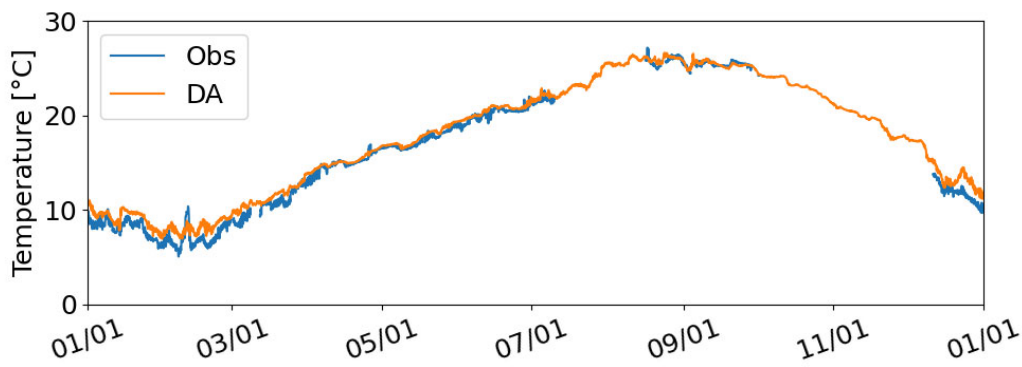
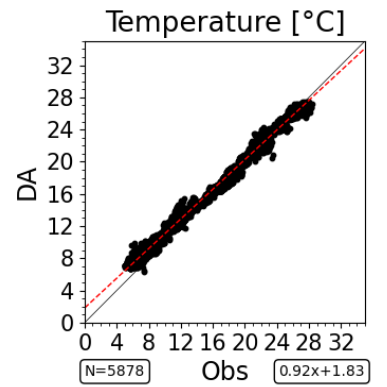
Figure S266 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2017



(a) Surface layer



(b) Middle layer



(c) Bottom layer

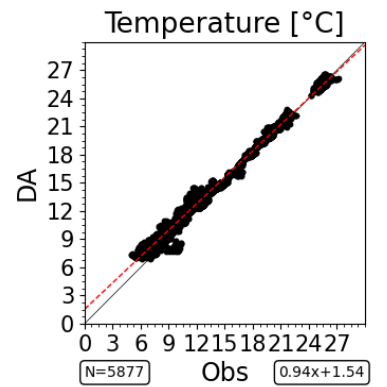
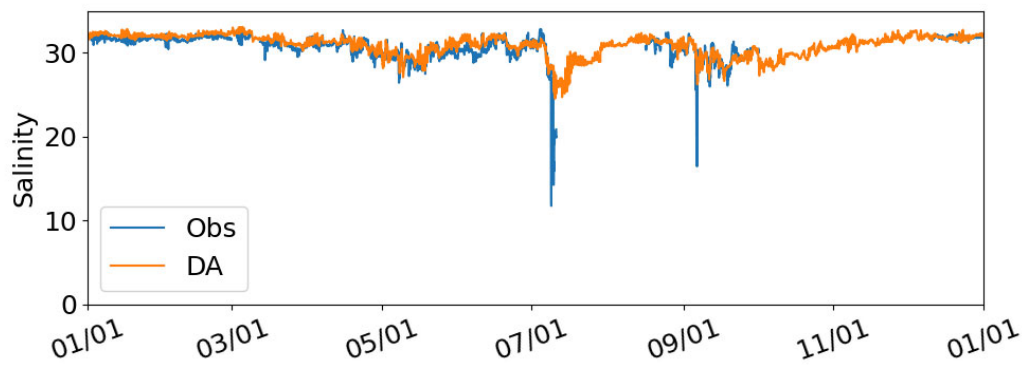
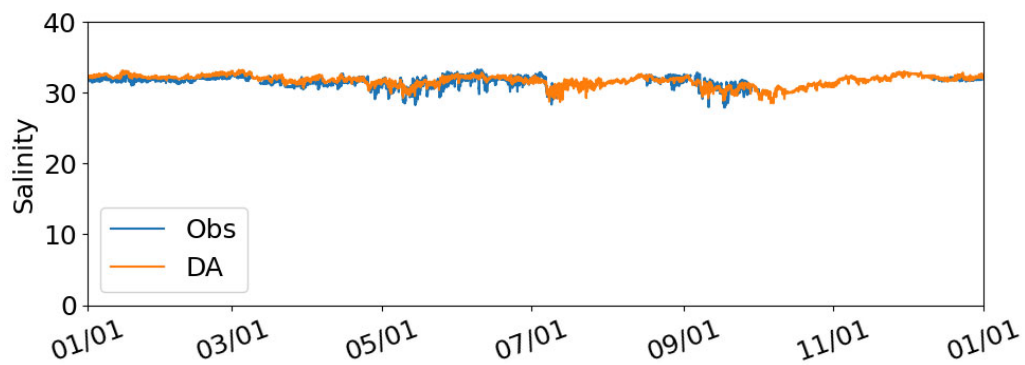
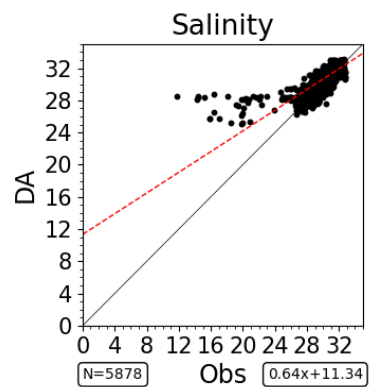


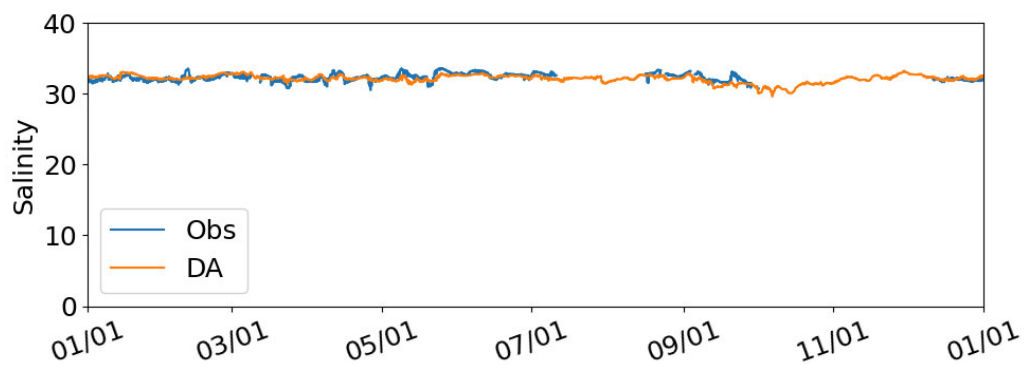
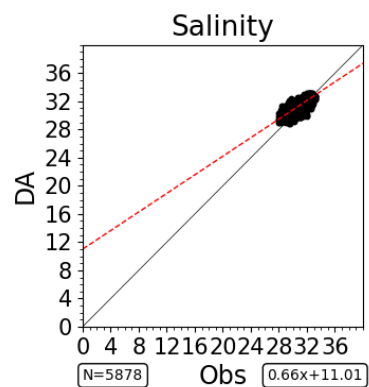
Figure S267 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

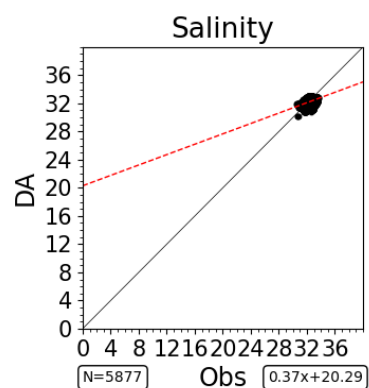
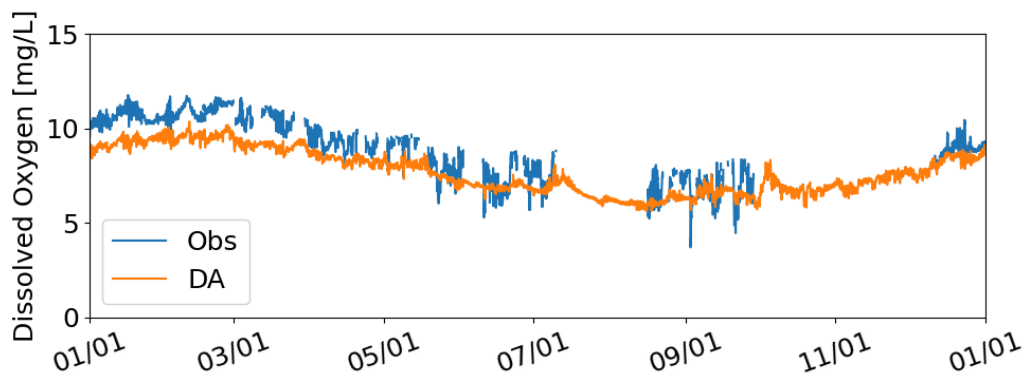
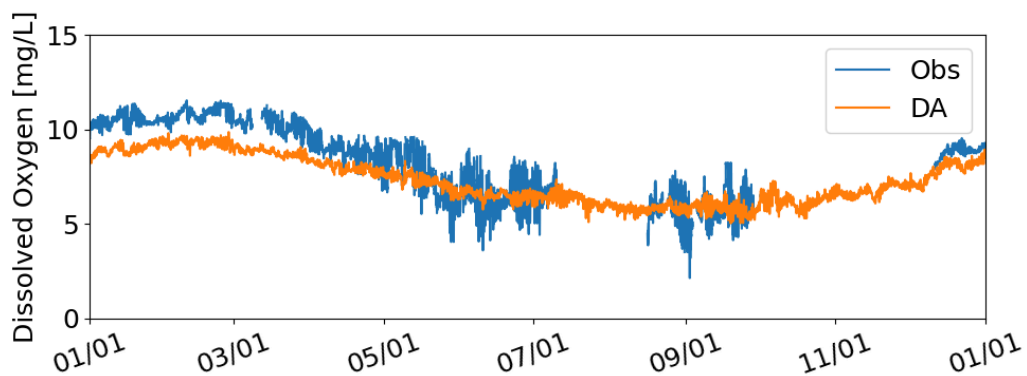
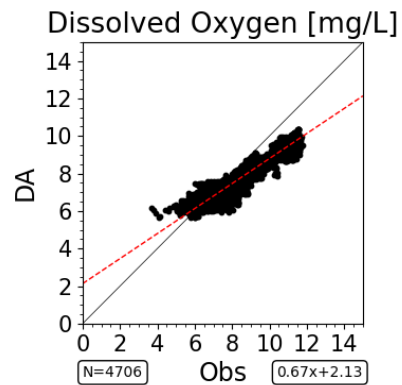


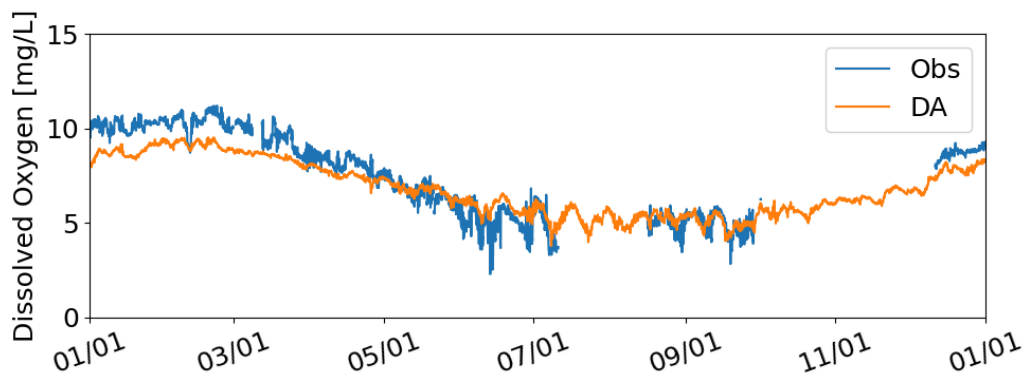
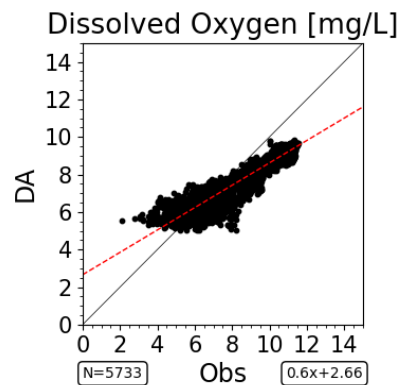
Figure S268 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

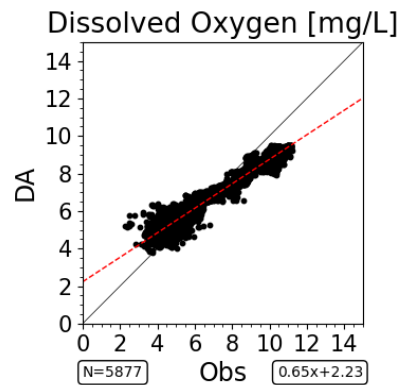
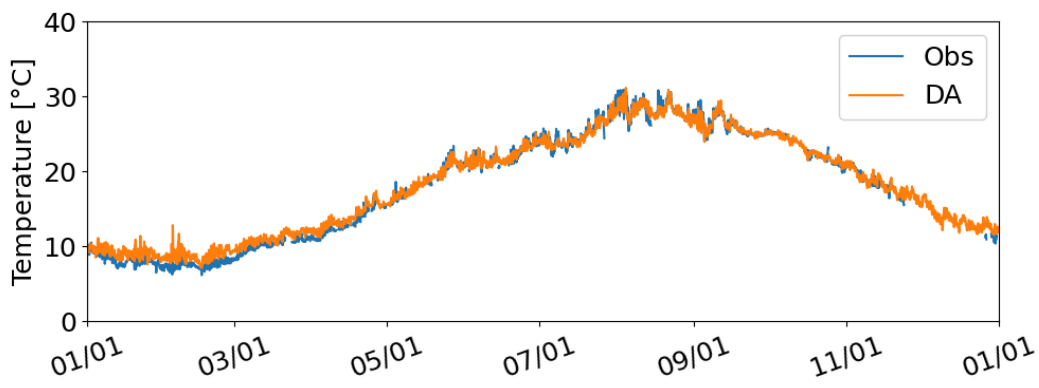
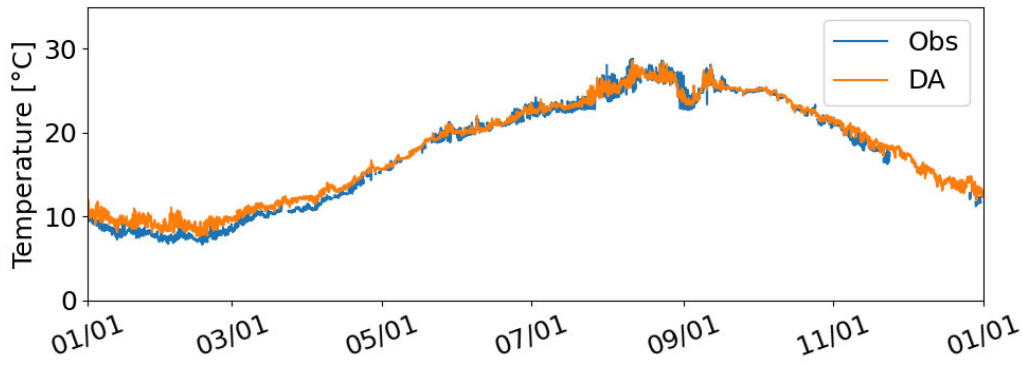
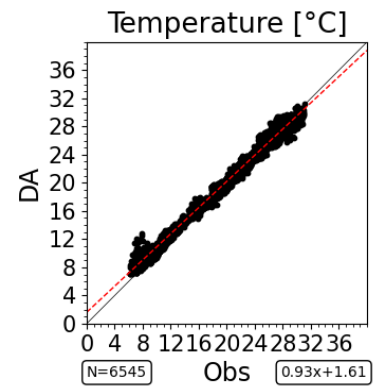


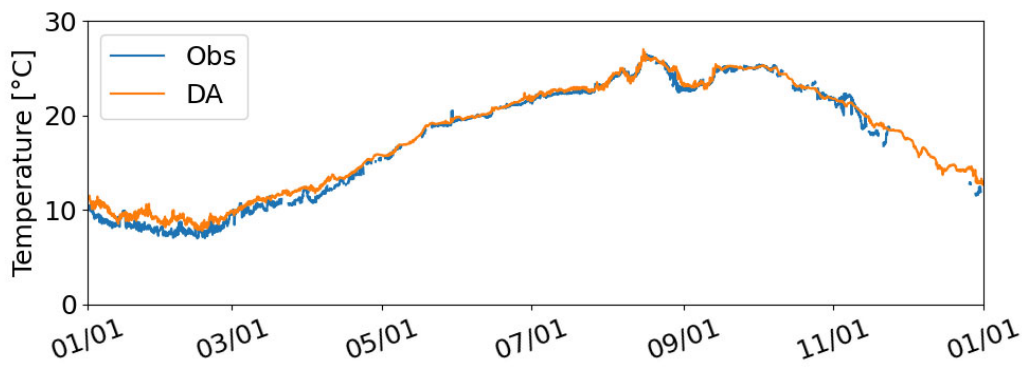
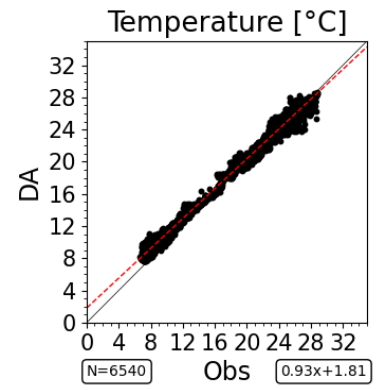
Figure S269 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2018



(a) Surface layer



(b) Middle layer



(c) Bottom layer

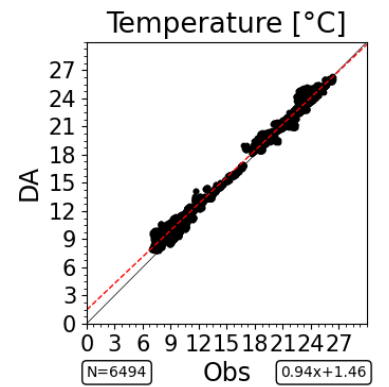
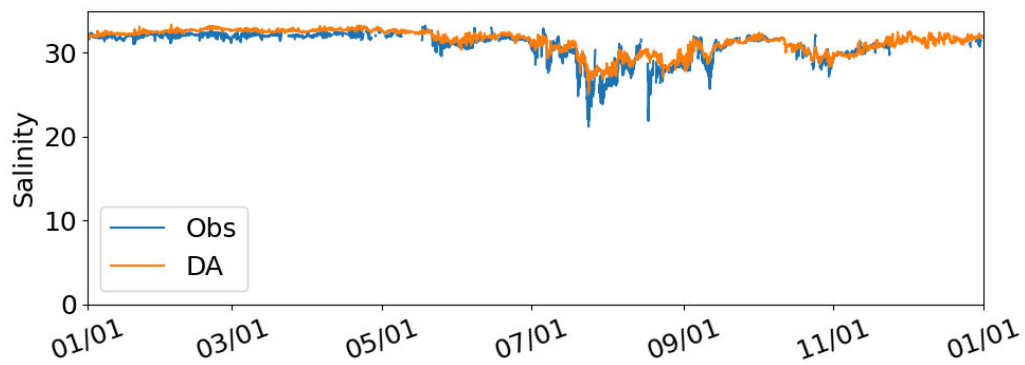
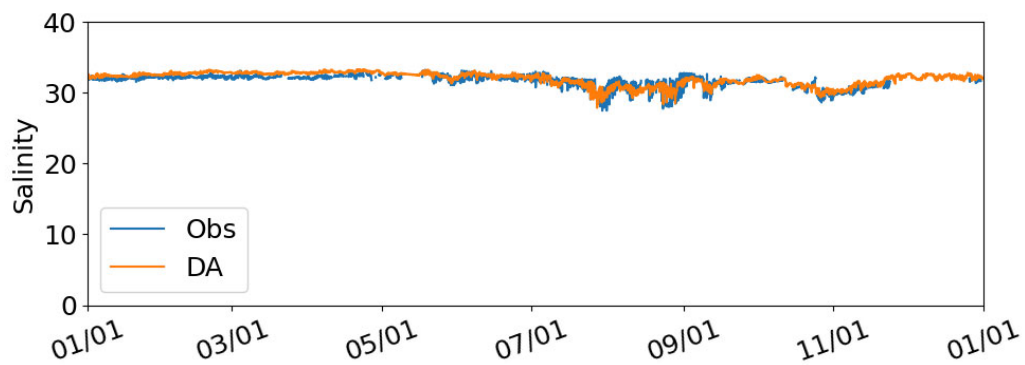
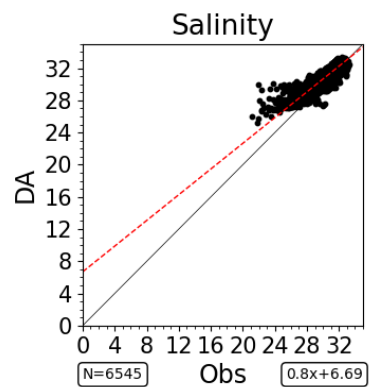


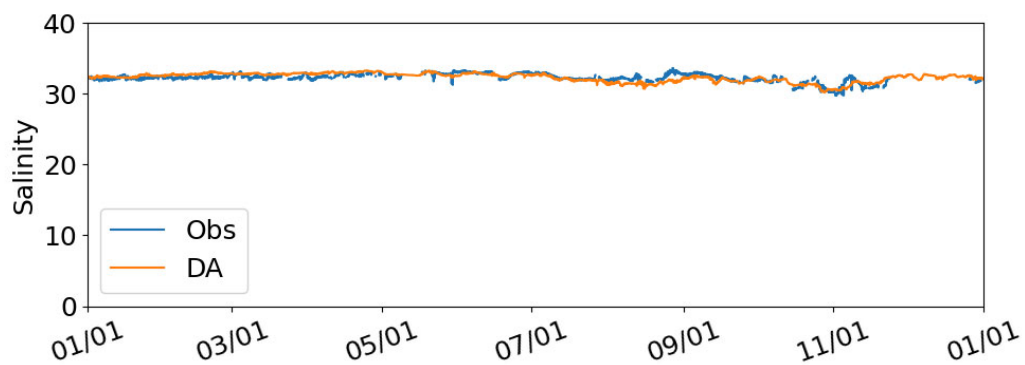
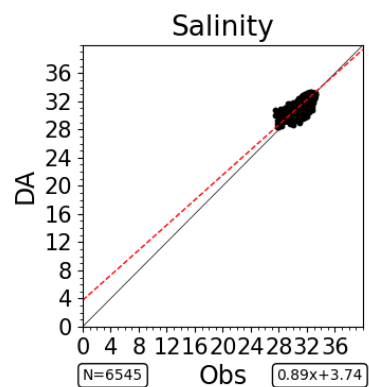
Figure S270 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

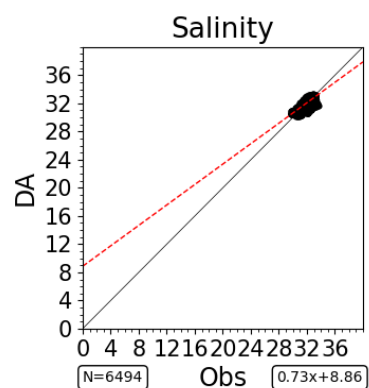
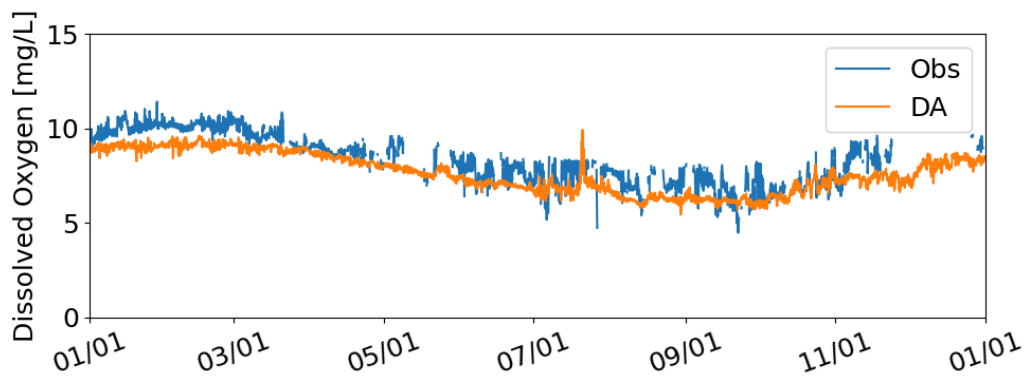
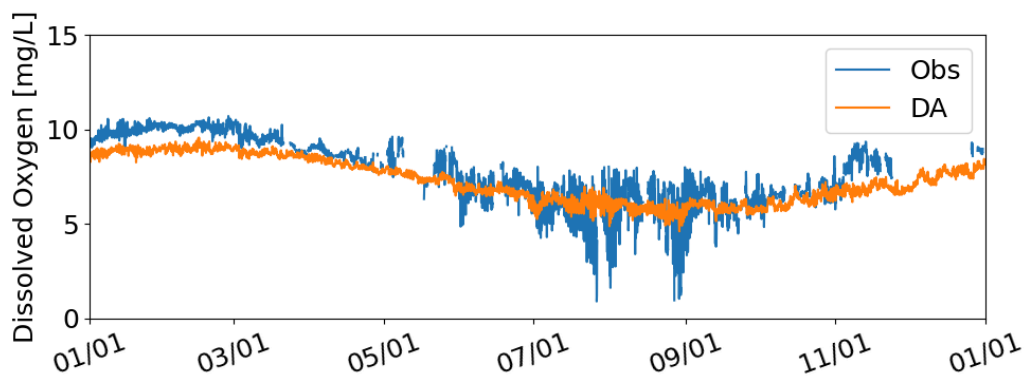
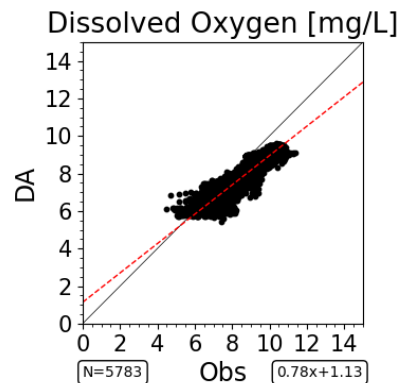


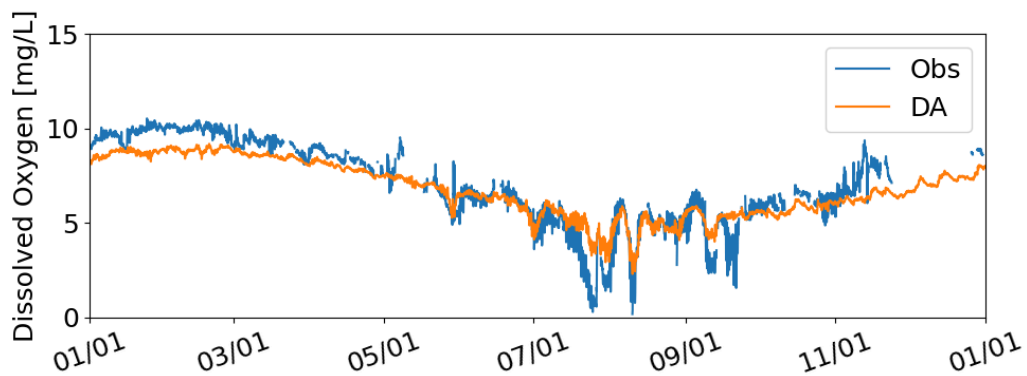
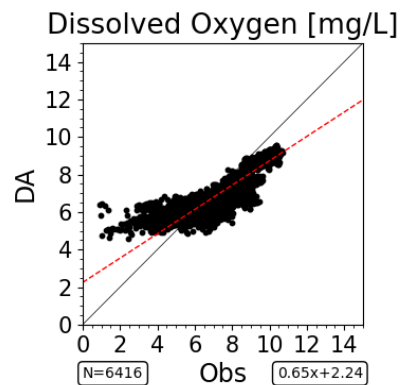
Figure S271 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

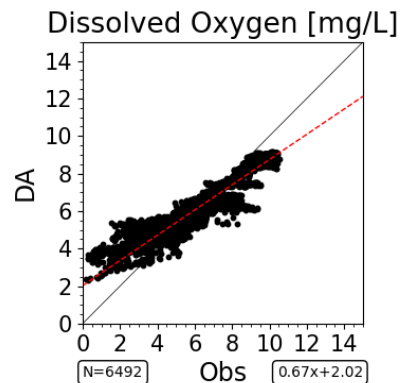
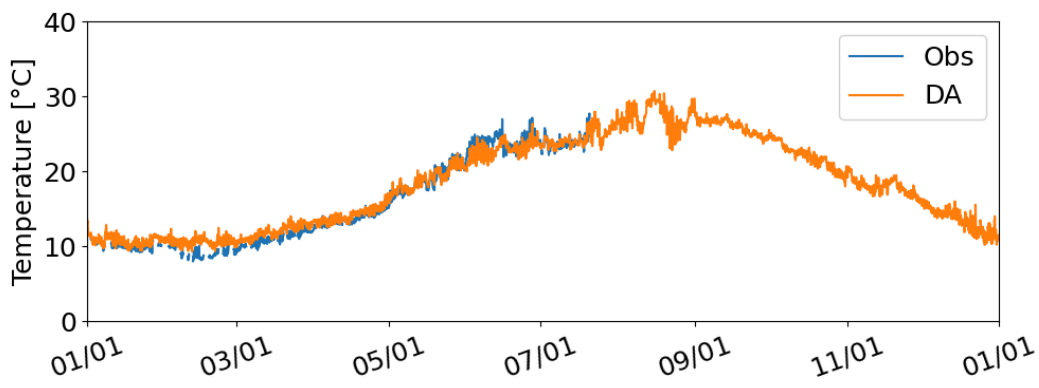
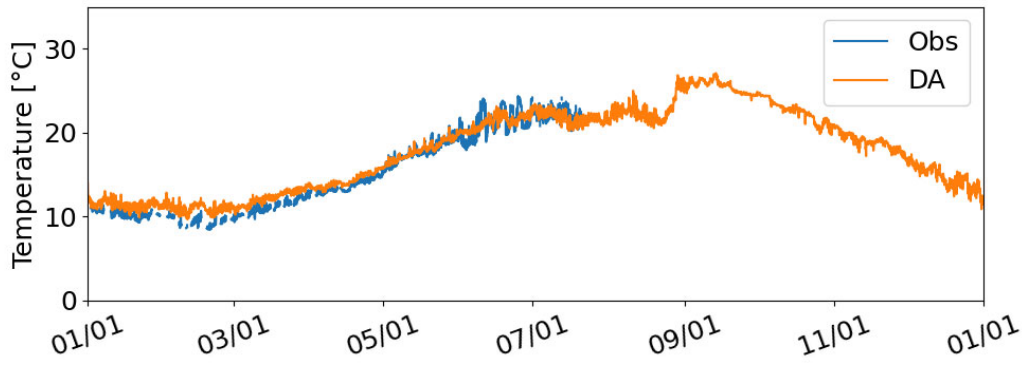
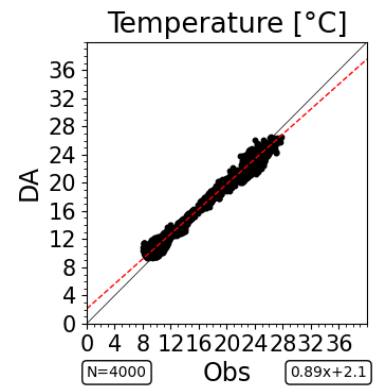


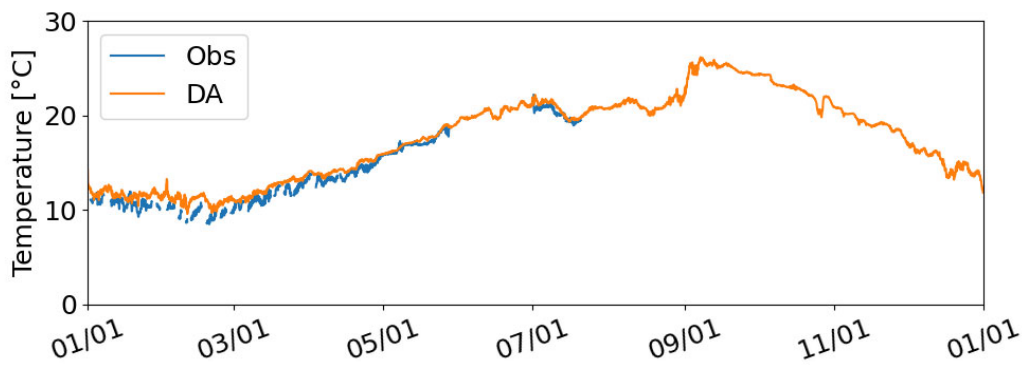
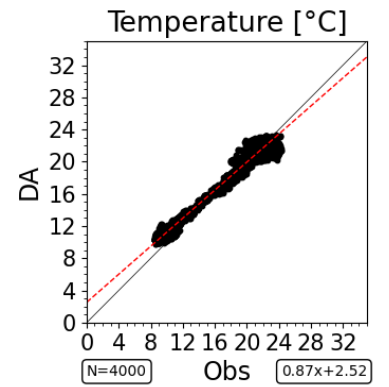
Figure S272 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2019



(a) Surface layer



(b) Middle layer



(c) Bottom layer

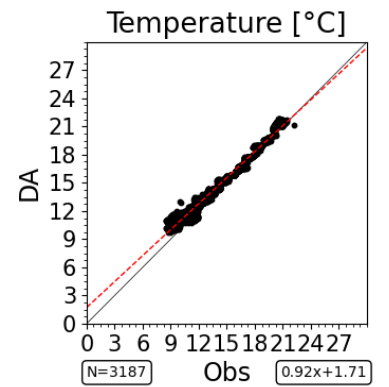
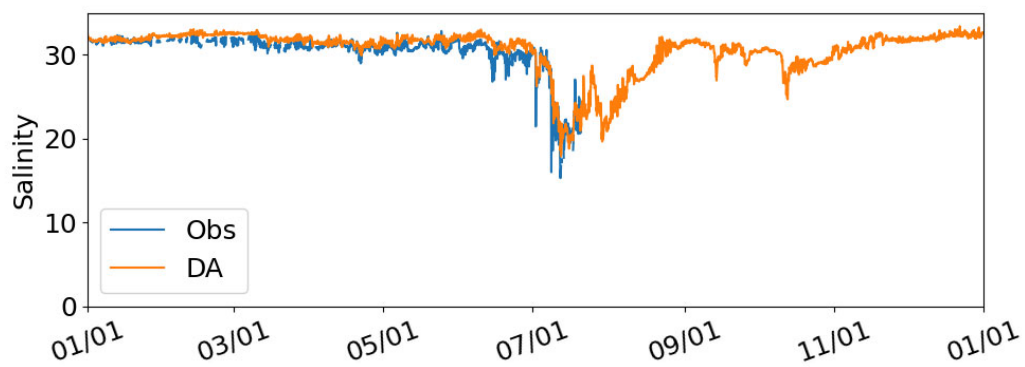
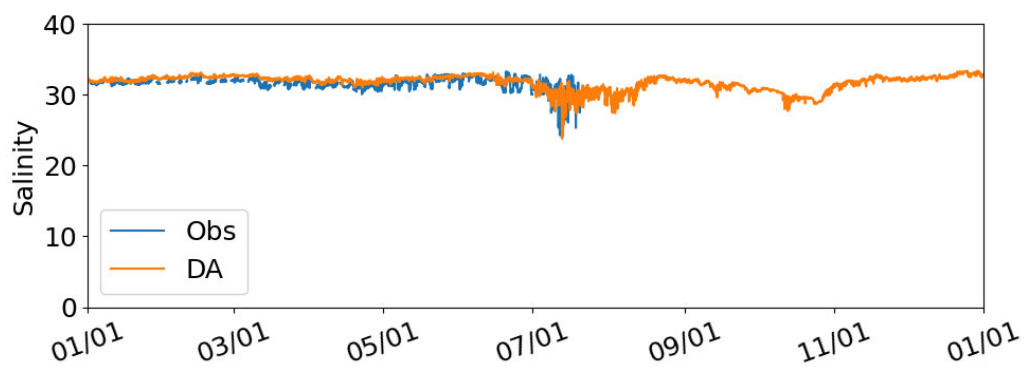
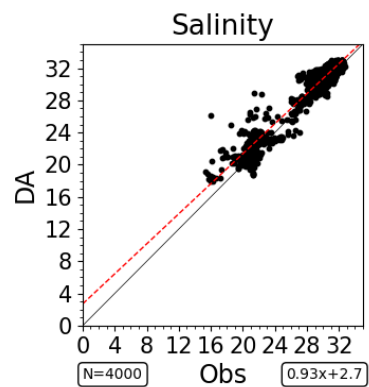


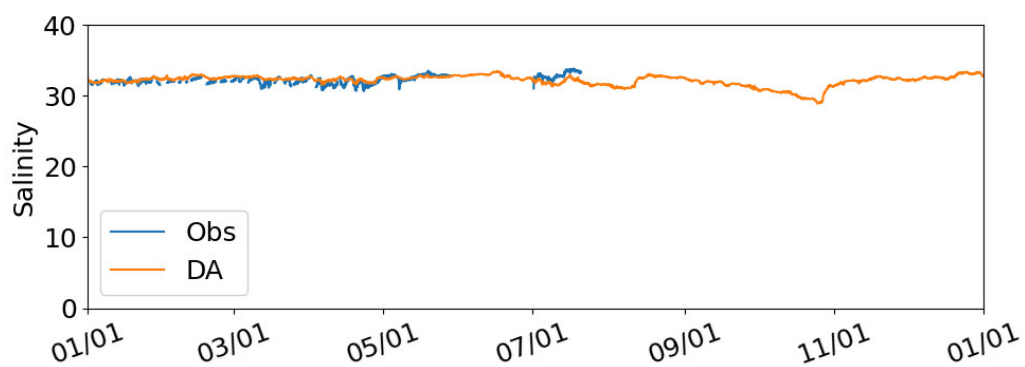
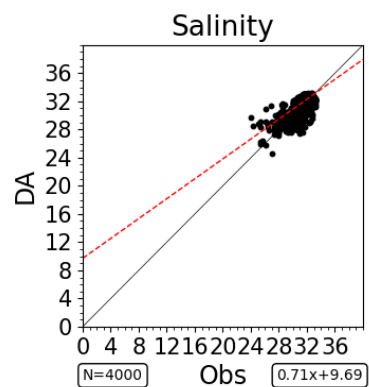
Figure S273 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

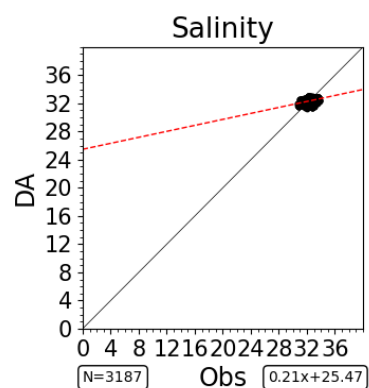
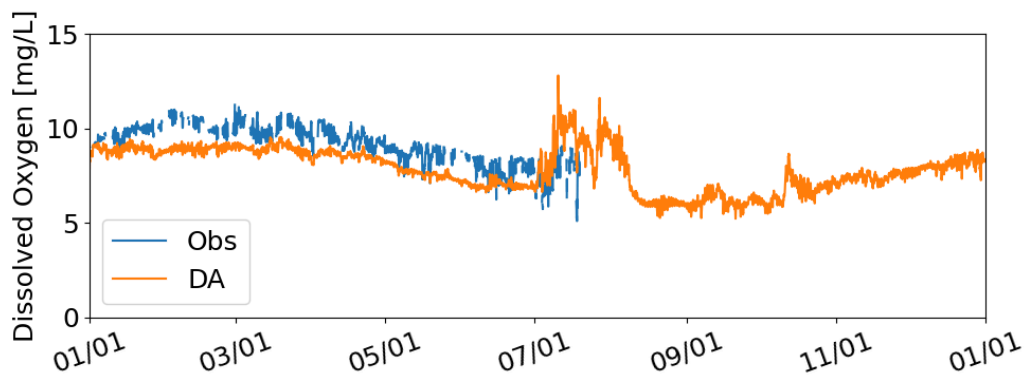
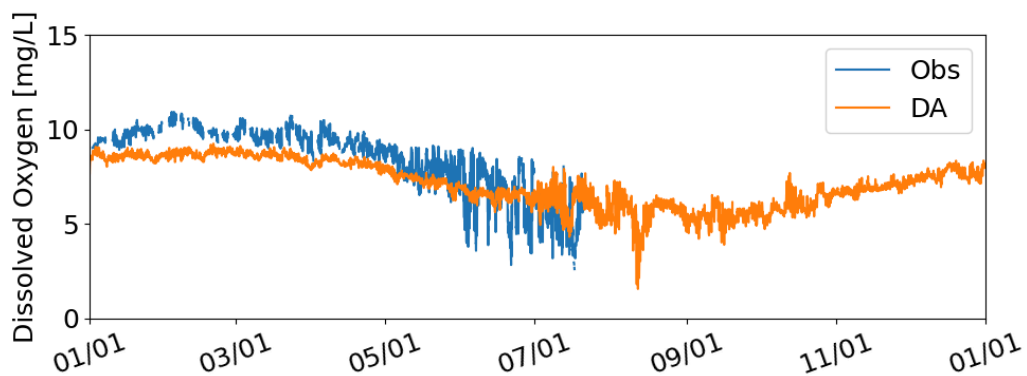
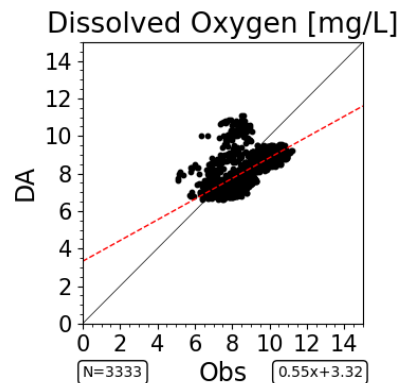


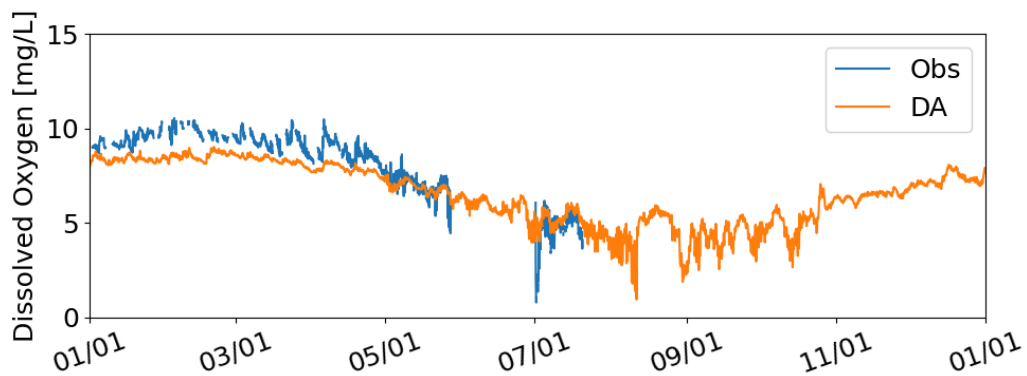
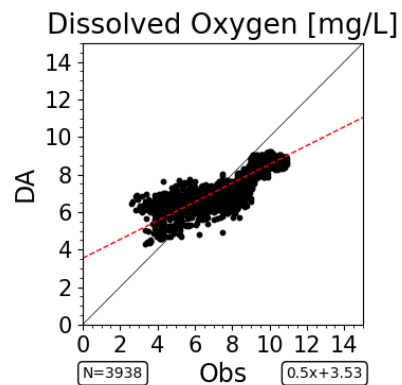
Figure S274 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

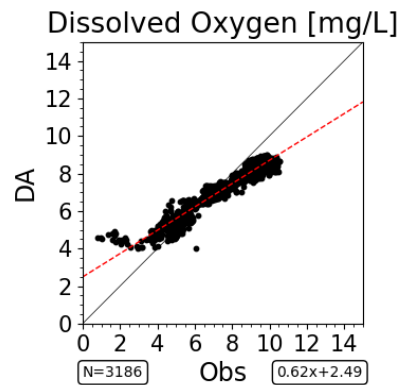
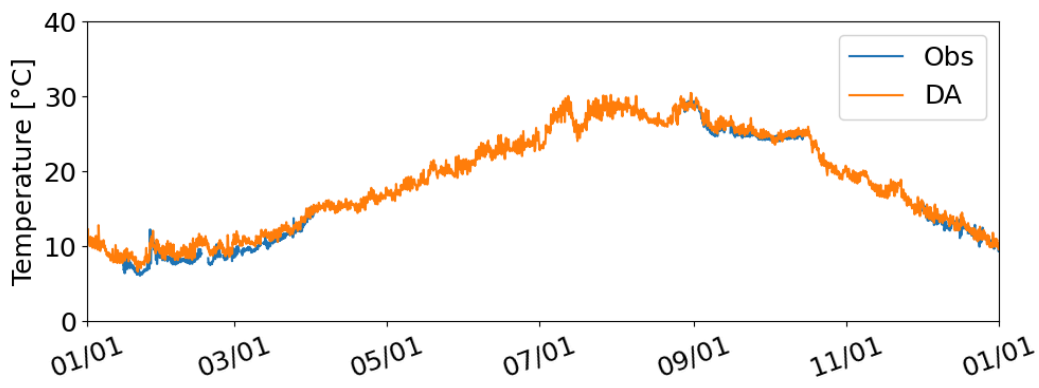
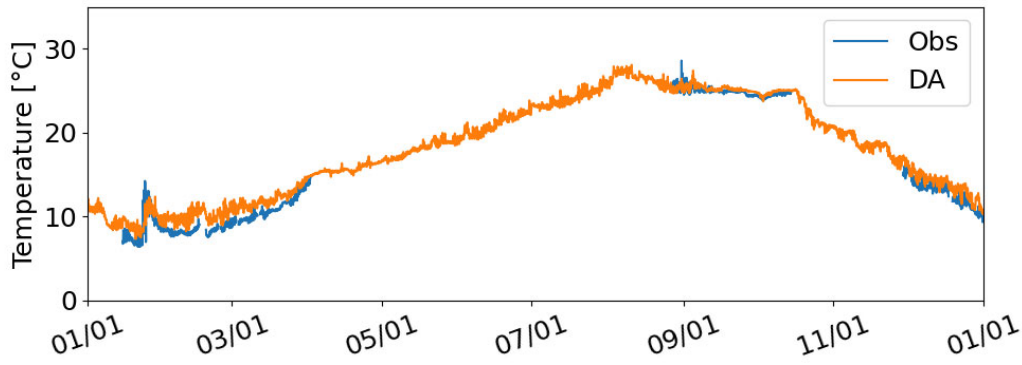
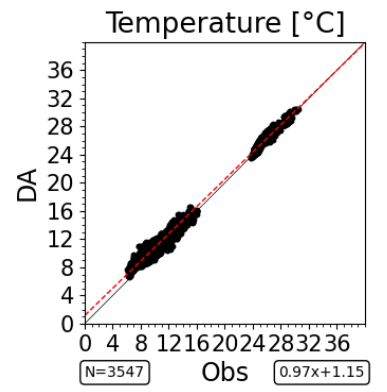


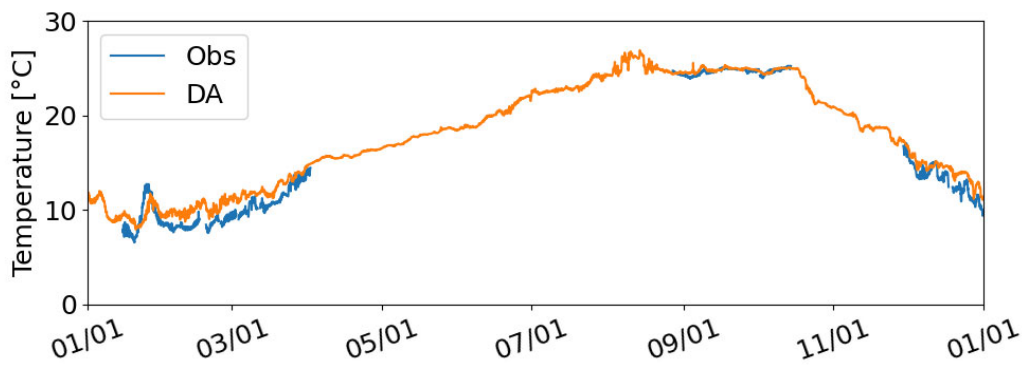
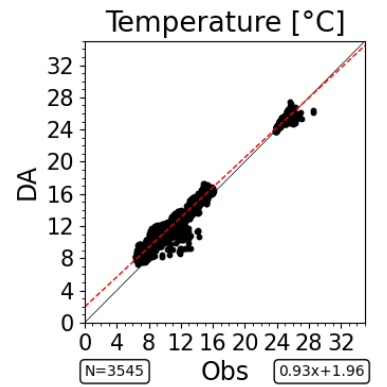
Figure S275 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2020



(a) Surface layer



(b) Middle layer



(c) Bottom layer

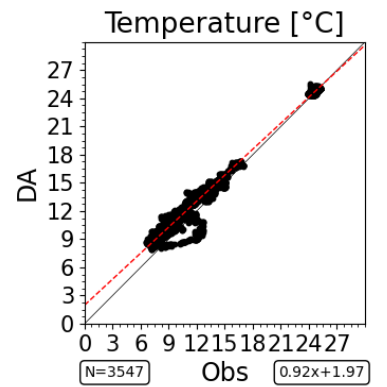
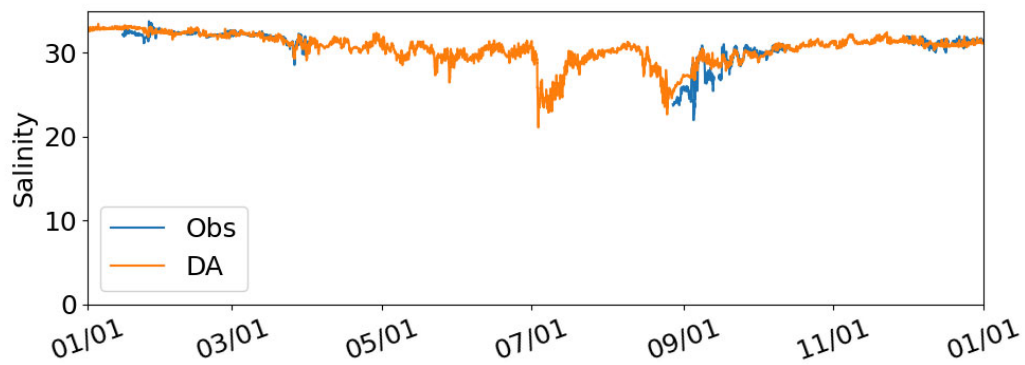
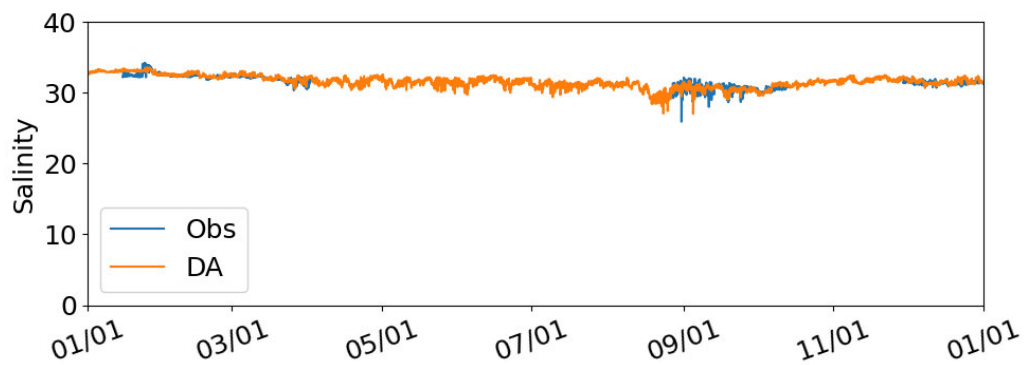
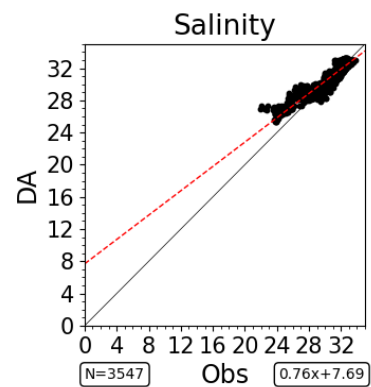


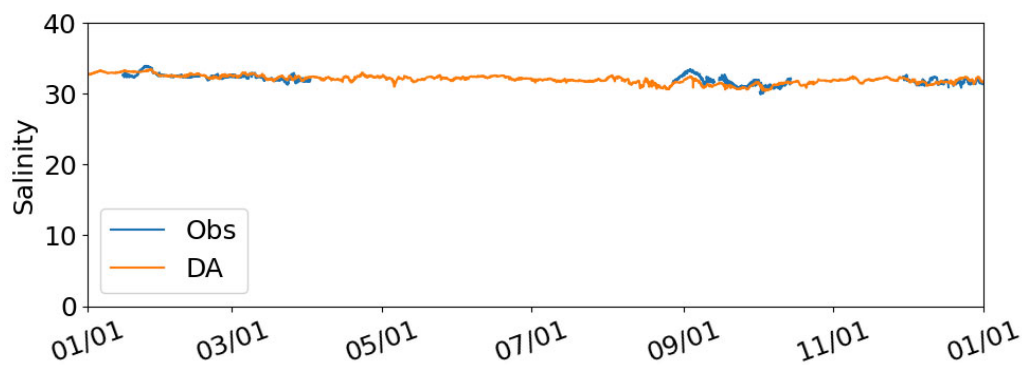
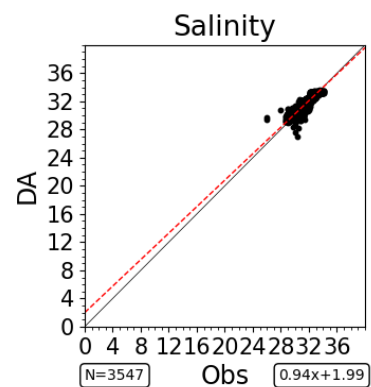
Figure S276 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

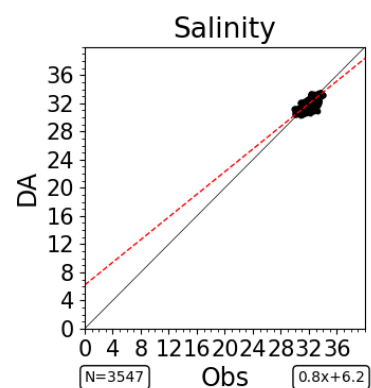
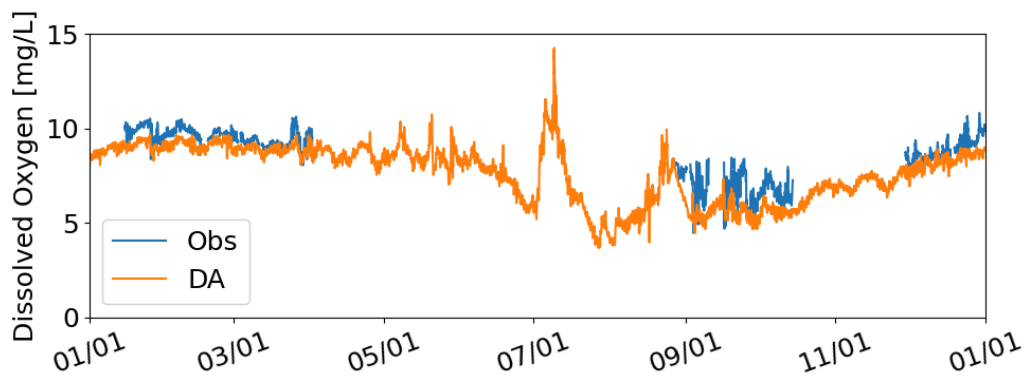
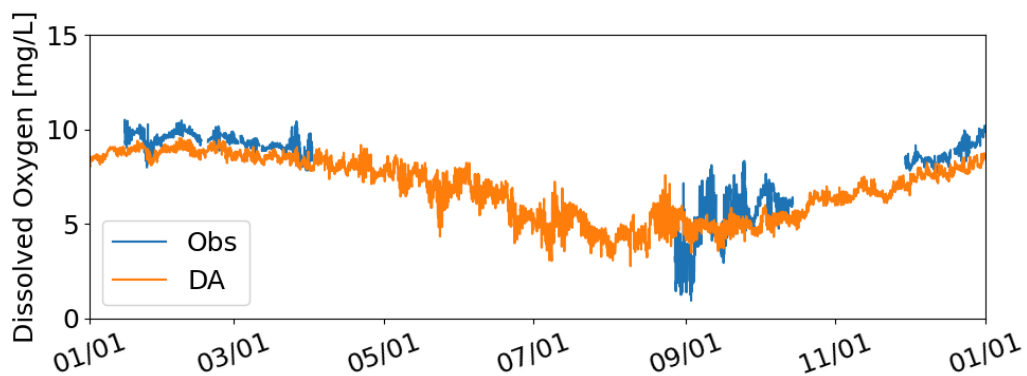
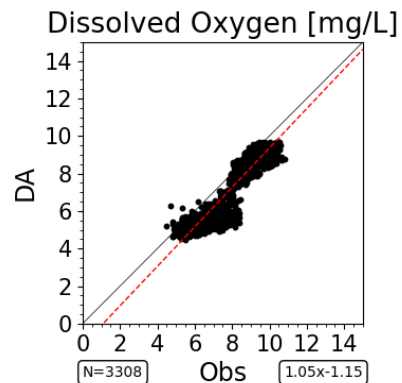


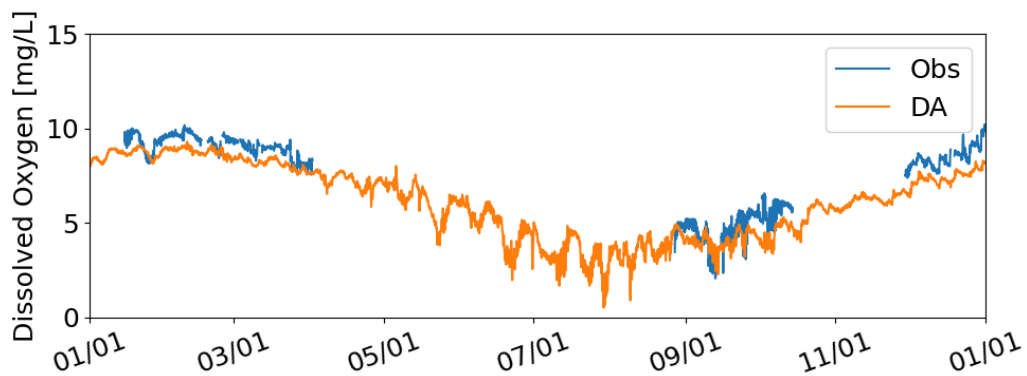
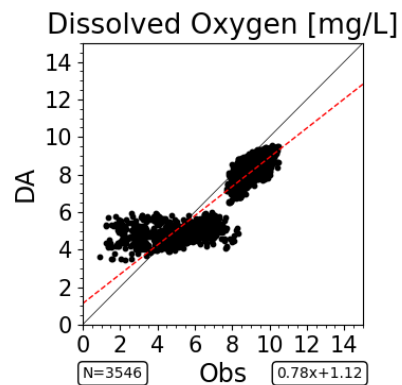
Figure S277 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

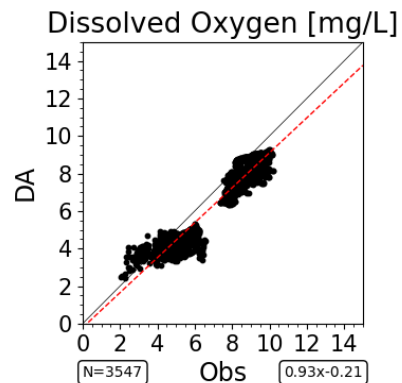
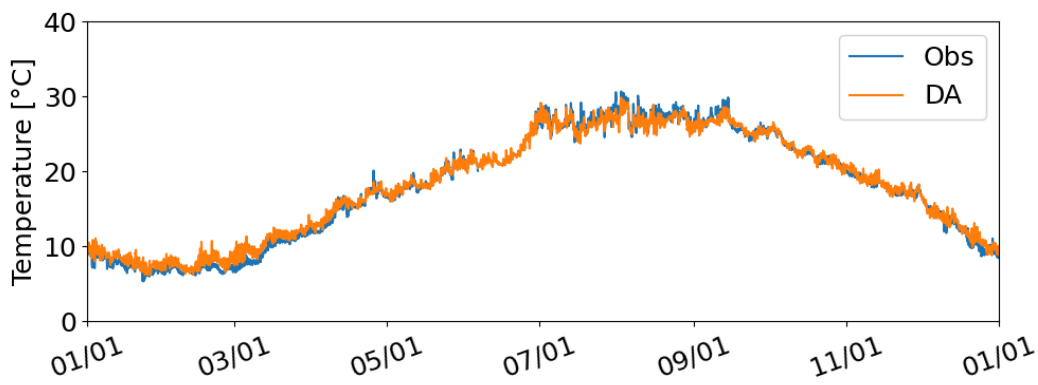
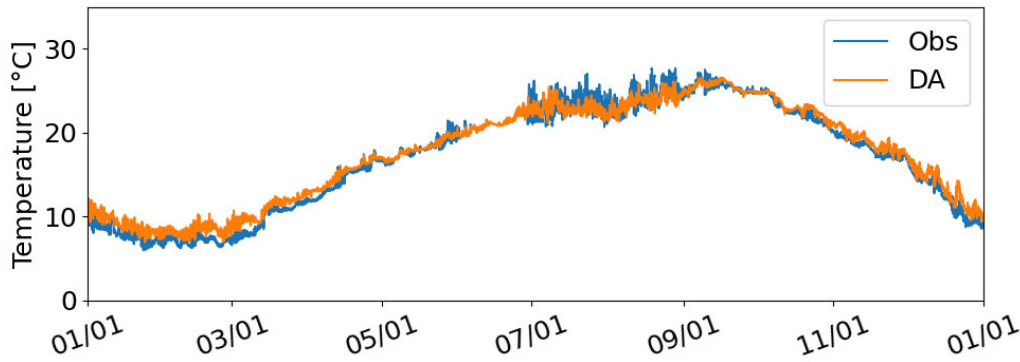
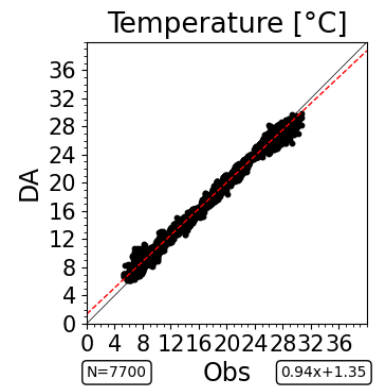


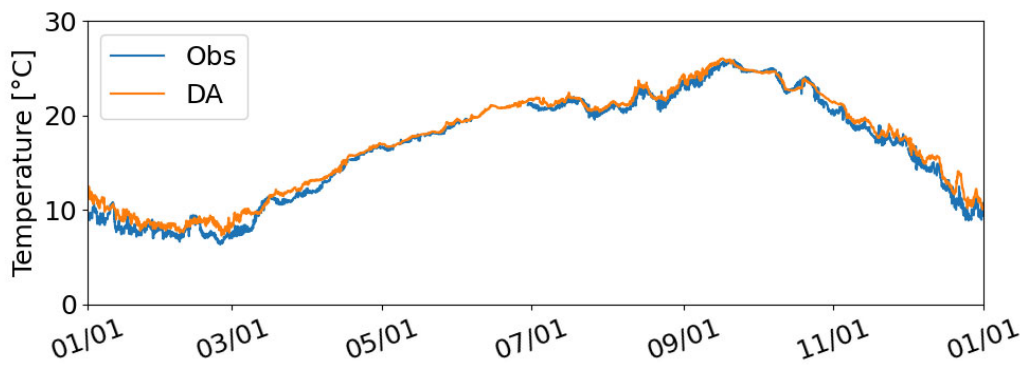
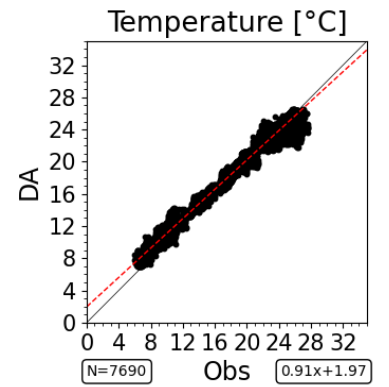
Figure S278 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2021



(a) Surface layer



(b) Middle layer



(c) Bottom layer

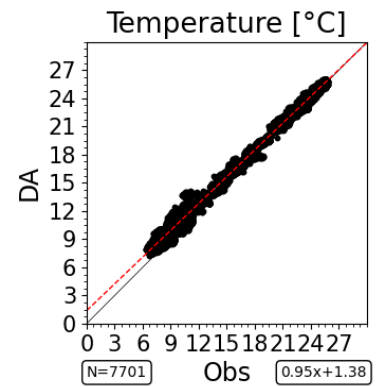
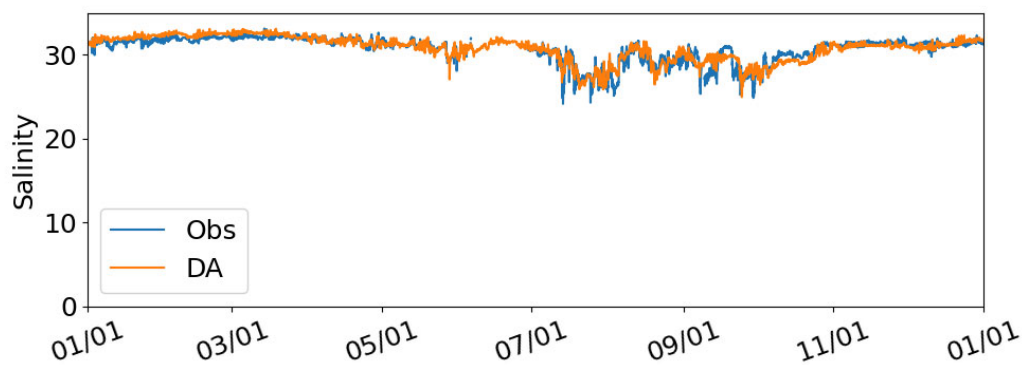
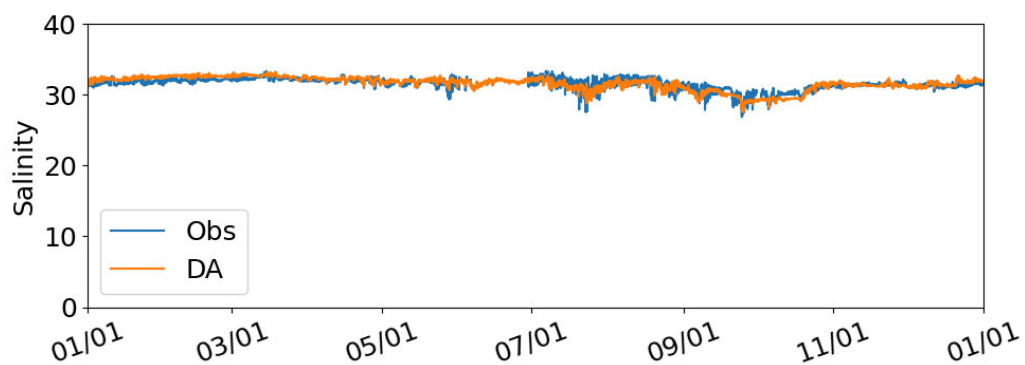
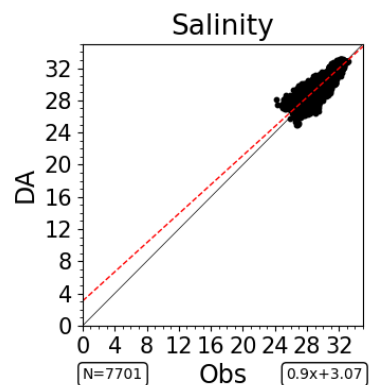


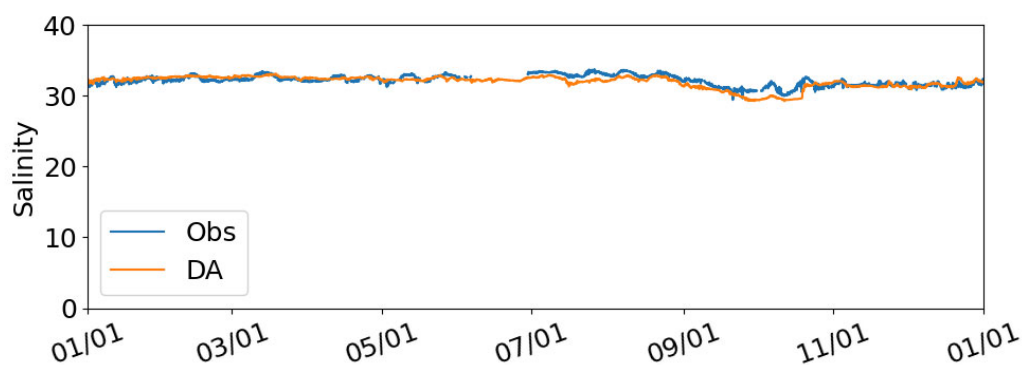
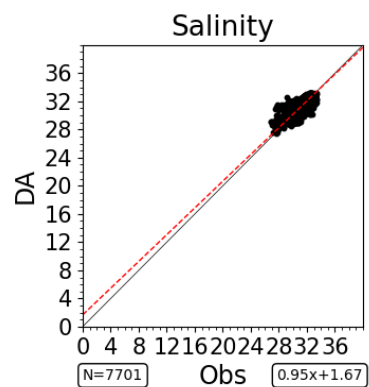
Figure S279 Timeseries and scatter plot for water temperature at Mouth of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

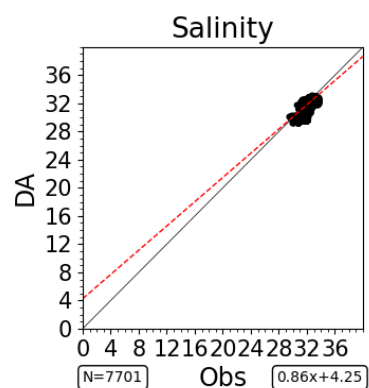
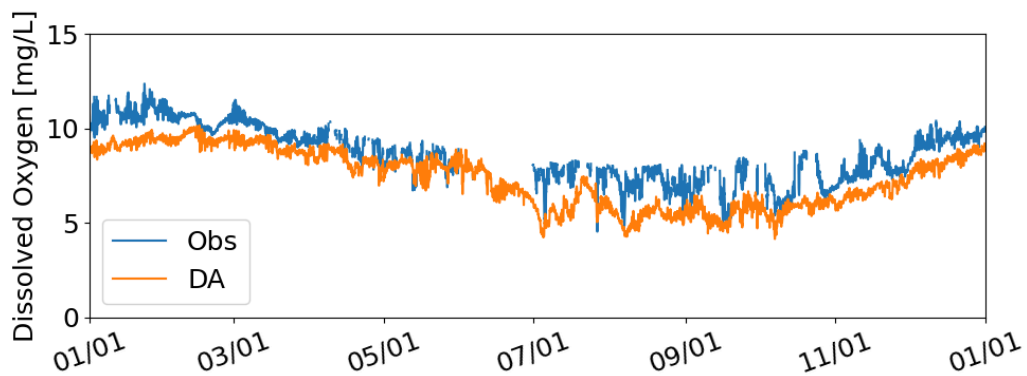
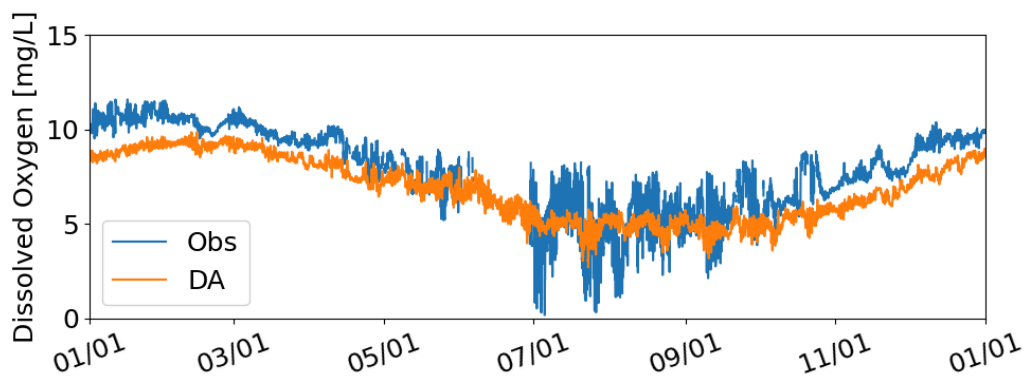
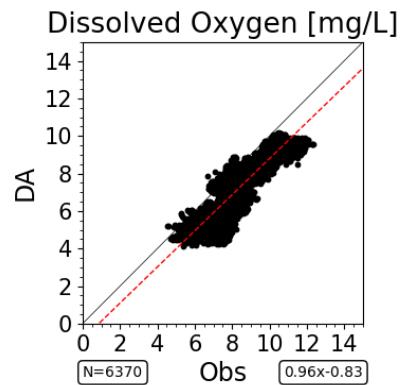


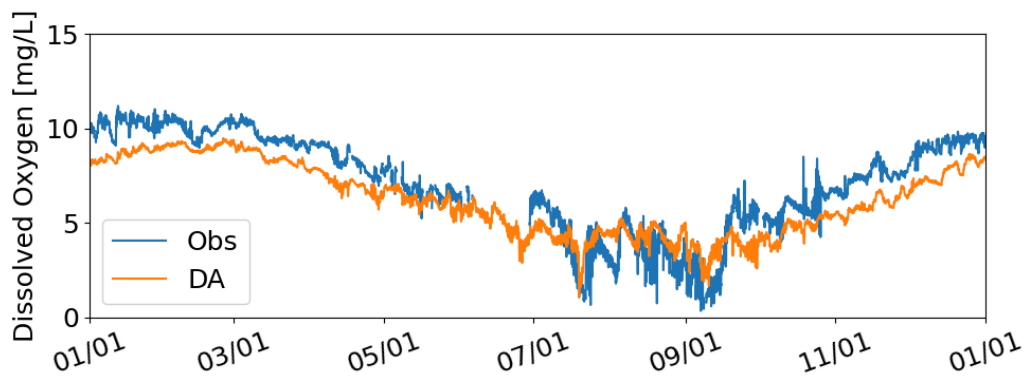
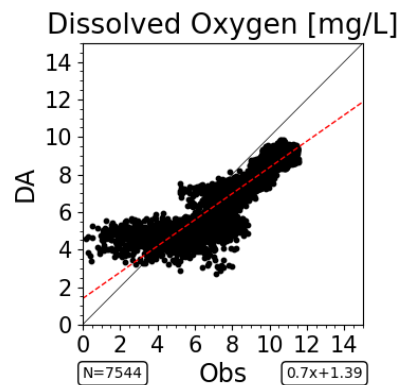
Figure S280 Timeseries and scatter plot for salinity at Mouth of Mikawa Bay in 2022



(a) Surface layer



(b) Middle layer



(c) Bottom layer

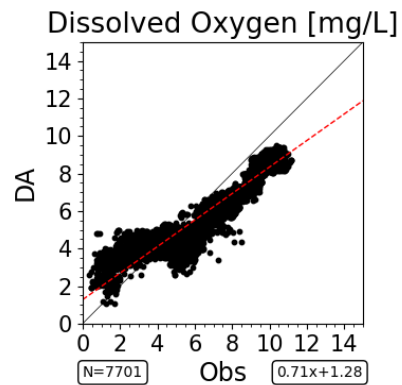


Figure S281 Timeseries and scatter plot for dissolved oxygen at Mouth of Mikawa Bay in 2022