



**Exxon Valdez Oil Spill Trustee Council**

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**Project Number:** 25220202

**Project Title:** Continuation and expansion of ocean acidification monitoring in the *Exxon Valdez* Oil Spill area

**Principal Investigator(s):** Claudine Hauri, International Arctic Research Center

**Reporting Period:** February 1, 2025 – January 31, 2026

**Submission Date:** March 16, 2026

**Project Website:** <https://gulfwatchalaska.org/>

Please check all the boxes that apply to the current reporting period.

**Project progress is on schedule.**

**Project progress is delayed.**

**Budget reallocation request.**

See request in Section 5. Budget.

**Personnel changes.**

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**1. Summary of Work Performed:**

Logistics

With funding from the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC), our team collected water samples for total alkalinity (TA), dissolved inorganic carbon (DIC), and pH during the 2025 Gulf Watch Alaska Long-Term Research and Monitoring (GWA-LTRM) and Northern Gulf of Alaska Long-Term Ecological Research (NGA-LTER) programs (Fig. 1). Sampling took place during spring and fall cruises along the Seward and Kodiak Lines and in Prince William Sound (PWS), as well as during the summer cruise at a variety of stations across the study area.

David Piper and Cosima Schmiedel, both undergraduate students at the University of Alaska Fairbanks (UAF), were trained in our lab to collect seawater samples at sea and analyze them in the lab. Beginning in the summer and continuing through this spring, they worked with Brita



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Irving to complete analyses of samples collected during the spring (SKQ202510S – 275 samples), summer (SKQ202513S – 282 samples), and fall (TGX202509 – 207 samples) cruises.

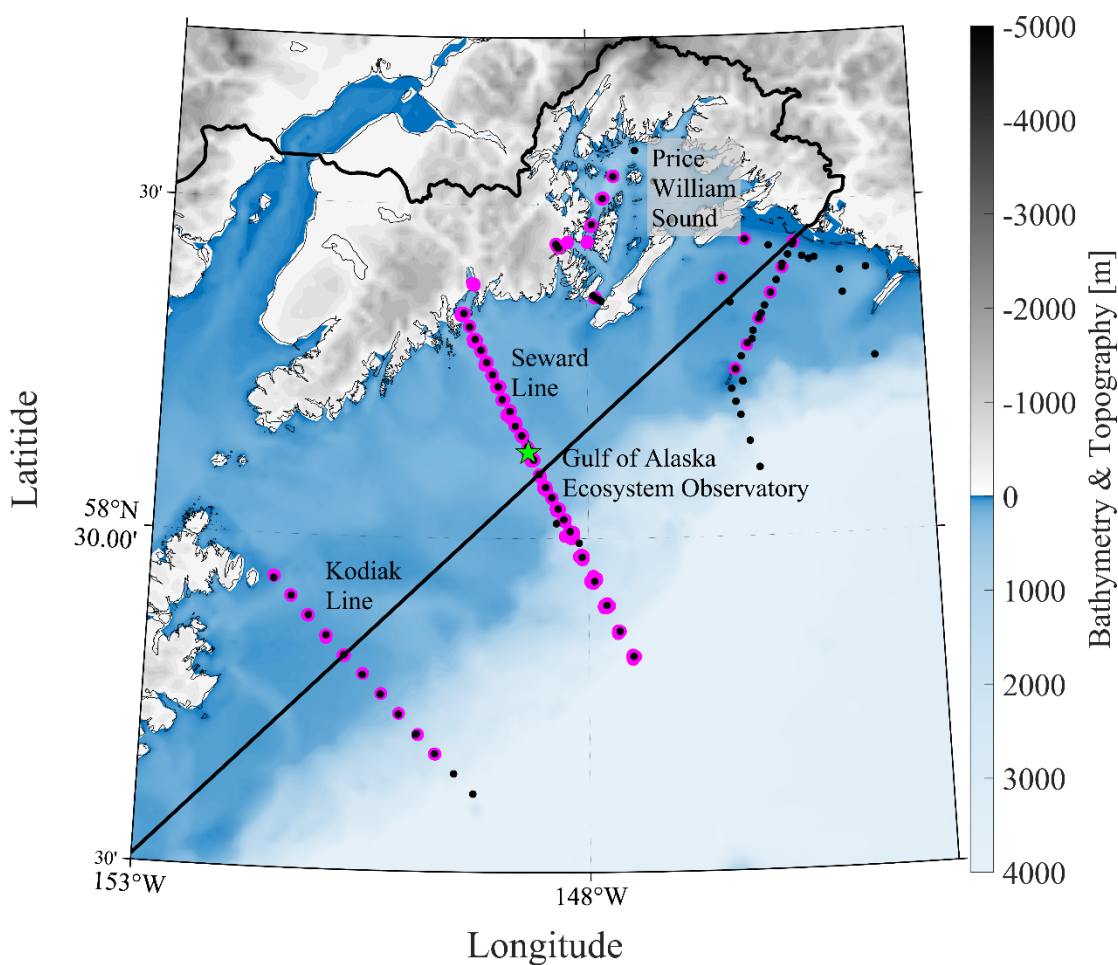


Figure 1. Map of the Northern Gulf of Alaska with the Exxon Valdez spill affected area boundary (black line), sampling sights of the NGA-LTER (black circles), OA sampled stations (magenta circles), and the Gulf of Alaska Ecosystem Observatory (green star).



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Training materials were improved to support remote training for the collection of inorganic carbon samples and were used during several training sessions for cruise participants. David Piper served as the lead sampler during the spring cruise with assistance from Kai Kurth (international volunteer) and during the fall cruise with assistance from Jana Wheat (Alutiiq Pride Marine Institute [APMI]). Cosima Schmiedel served as the lead sampler on the summer process cruise with assistance from Hannah Primiano (Oregon State University [OSU]).

A sampling rack was built to improve at-sea safety by securing mercuric chloride, pipettes, and waste products during sampling, and the peristaltic pump sampling rack was reinforced to withstand the larger pump. Unfortunately, the new peristaltic pump failed during the fall cruise. Brita will troubleshoot the issue before the spring cruise and arrange for a replacement or backup system if needed.

Consumables for the 2025 field season were ordered in spring 2025. All sample bottles were cleaned and labeled for the 2026 field season, which will consist of a spring and fall cruise.

*Inorganic carbonate system calculations*

All data processing and analyses were done using in-house MATLAB routines. *In situ* parameters of the inorganic carbonate system were calculated from input pairs  $\text{pH}_{\text{lab}}$  and DIC when available,  $\text{pH}_{\text{lab}}$  and TA when DIC was missing, TA & DIC when pH was missing, and TA and *in situ*  $\text{pCO}_2$  in 2018 (data analyzed at Burke Hales's lab) using CO2SYSv3 (Sharp et al. 2023). Nutrients  $\text{NH}_4$  and  $\text{H}_2\text{S}$  were assumed to be zero but silicate and phosphate (Aguilar-Islas and Kaufman 2025) were included when available from the same cast and Niskin bottle, from the same station when nearby in depth ( $\pm 5$  m) and time ( $\pm 1$  day) and otherwise assumed to be zero. The dissociation constants for carbonic acid of Lueker et al. (2000), bisulfate of Dickson (1990), hydrofluoric acid of Perez and Fraga (1987), and the boron-to-chlorinity ratio of Lee et al. (2010) were used and  $\text{pH}_{\text{lab}}$  was defined as the pH measured on the total scale at measurement temperature ( $\sim 25$  °C) and 1 atm of pressure (0 dbar applied pressure) using spectrophotometric methods. pH was reported in total scale and at *in situ* temperature and depth for this report. Hydrogen ion concentration ( $[\text{H}^+]$ ) was calculated from *in situ* pH on the total scale as  $[\text{H}^+] = 10^{-\text{pH}}$ . Previous Seward Line data (2008 – 2017; Monacci et al. 2024) data was included to investigate trends.

To look at seasonal changes in the bottom-water and surface-water carbonate chemistry and calculate trends, seasons were defined based on sampling months with spring corresponding to



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April–May, summer to June–July and fall to September. Layers were defined as surface ( $\leq 10$  m), and bottom. Bottom-layer time series were constructed by interpolating each cruise’s station profile to a station-specific reference depth and using that value as the bottom-water observation for trend analysis. To ensure a consistent comparison through time, a single station-specific reference depth was defined from the deepest samples at each station (Table 1).

*Table 1. Station-specific bottom reference depth.*

Station	Depth [m]
GAK1	198
GAK2	199
GAK3	192
GAK4	147
GAK5	101
GAK6	136
GAK7	149
GAK9	233
GAK15	500

Results

Results shown include fully analyzed data through 2023 and preliminary data for 2024. Data collected in 2025 continue to be processed. Under optimal conditions, 8–10 samples can be processed per day. Periodically, however, instruments require multi-day reconditioning. In addition, while Cosima and David were able to work full time during the summer, their availability was reduced during the fall semester. Consequently, a subset of the water sample analyses remains in progress. Once all analyses are complete, we will proceed with QA/QC, which can only be conducted after the associated temperature, salinity, and nutrient data are available.

The 2024 preliminary data illustrated in Fig. 2 continue to show the general pattern observed in prior years of high pH (lower dissolved inorganic carbon [DIC]) in the surface layer in spring because of primary production, and a visible freshwater dissolution effect on DIC and total alkalinity (TA) in fall, leading to a somewhat lower pH compared to spring.



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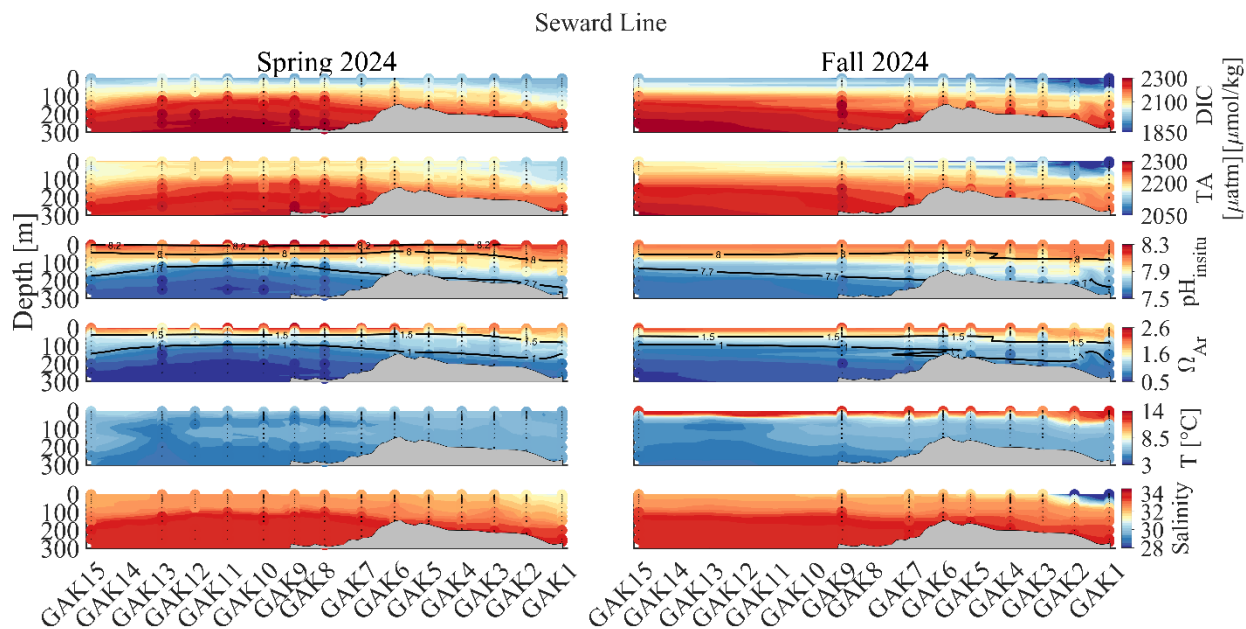


Figure 2. 2024 Seward Line Transects. Data from the Gulf Watch Alaska Long-Term Research and Monitoring and Northern Gulf of Alaska-Long Term Ecological Research program spring and fall 2024 cruises from inshore to offshore (right to left). Panels (top to bottom) are dissolved inorganic carbon (DIC;  $\mu\text{mol kg}^{-1}$ ), total alkalinity (TA;  $\mu\text{mol kg}^{-1}$ ), in situ pH, aragonite saturation state ( $\Omega_{\text{arag}}$ ), temperature ( $T$ ;  $^{\circ}\text{C}$ ), and salinity ( $S$ ) for each cruise. Black crosses show stations and depths where discrete samples were collected. Temperature and salinity contours are from full conductivity and temperature at depth profiles (Danielson and Dobbins 2025). Colored circles are included to remind the reader that contoured transect plots do not represent actual data values. Solid black lines highlight specific contour levels (e.g., situ pH = 8.0 or  $\Omega_{\text{arag}} = 1$ ). Bathymetry is shown in gray.

DIC observations along the Seward Line (2008–2024) provide a 17-year perspective on surface and bottom water variability (Fig. 3, left). Over this period, no statistically significant trends were detected in spring, either at the surface or near the bottom.



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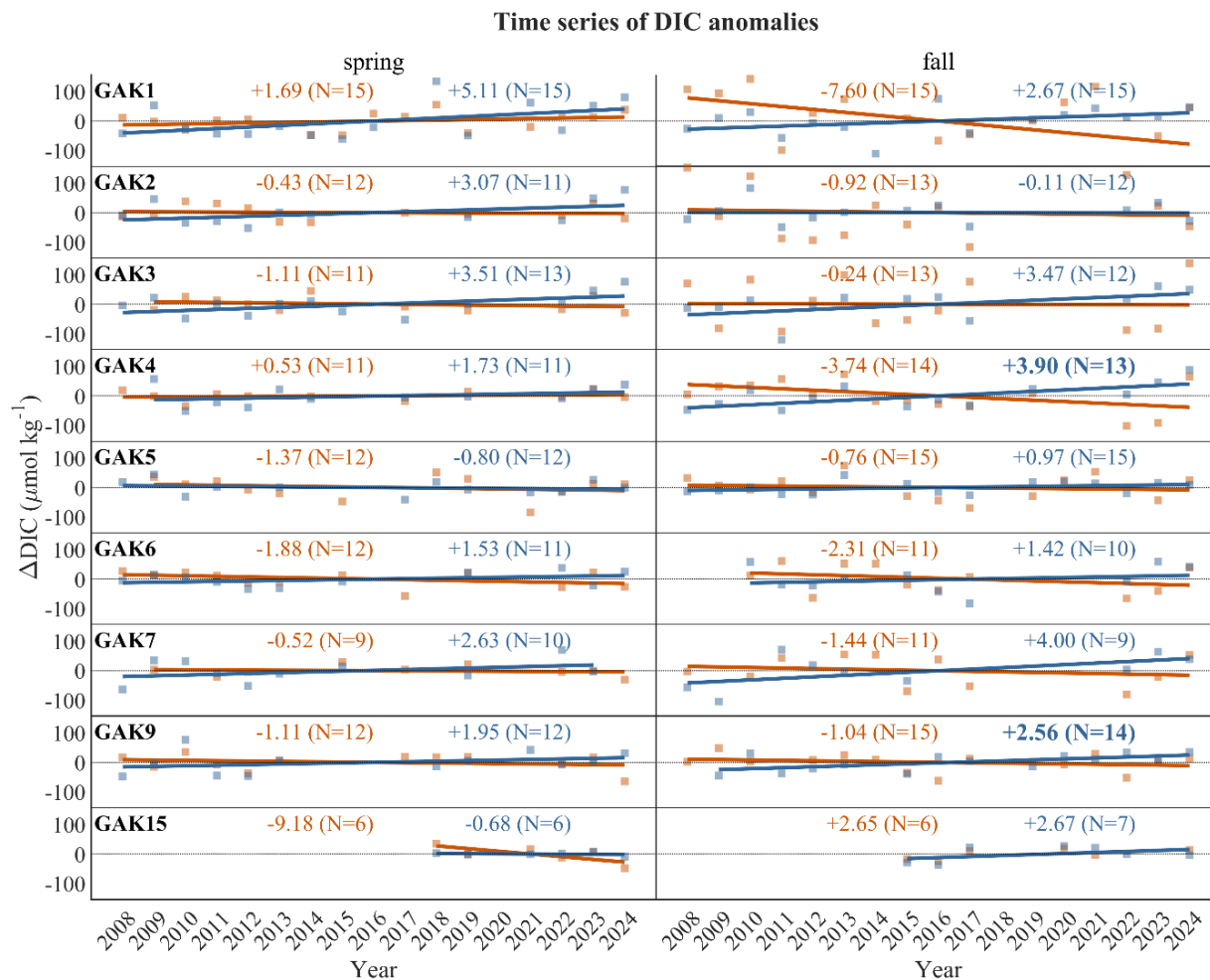


Figure 3. Observed dissolved inorganic carbon (DIC) trends along the Seward Line (2008–2024). Time series of annual mean DIC anomalies derived from spring (right panels) and fall (left panels) cruises in surface-water (orange squares) and bottom-water (blue squares) for Seward Line stations from GAK1 offshore (top to bottom). Anomalies were calculated by removing the station- and layer-specific mean of the annual values over the full record. Solid colored lines show linear trends estimated from annual values, with trend slopes ( $\mu\text{mol kg}^{-1} \text{yr}^{-1}$ ) reported in the upper-right half of each panel. Significant trends ( $p$ -value  $< 0.05$ ) are shown in bold. Stations shown are those where trends are available for both spring and fall, with station labels shown in the right panels.



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In contrast, fall bottom-water DIC shows a consistent increasing trend across the Seward Line, with statistically significant rates of  $+3.9 \mu\text{mol kg}^{-1} \text{yr}^{-1}$  at GAK4 and  $+2.56 \mu\text{mol kg}^{-1} \text{yr}^{-1}$  at GAK9. These trends suggest a strengthening accumulation of inorganic carbon in subsurface waters during the fall season. As a result, aragonite saturation state shows a decreasing trend in bottom waters at most stations in spring and fall, with statistically significant trends at two stations in each season (Fig. 4).

At the surface, however, DIC has decreased over time, with the magnitude of the trend weakening offshore. Concurrent decreases in salinity and total alkalinity (TA) point to an increasing influence of freshwater input over time (Figs. 5 and 6).

This record remains short and does not yet allow for a clear separation of long-term trends from natural decadal variability, which is known to be strong in the Gulf of Alaska (Hauri et al. 2021). For example, at the coastal station GAK4, surface DIC exhibited a statistically significant decrease of  $6.66 \mu\text{mol kg}^{-1} \text{yr}^{-1}$ , based on 13 fall observations from 2008-2023, but when preliminary 2024 data were included, the trend was no longer significant ( $-3.74 \mu\text{mol kg}^{-1} \text{yr}^{-1}$ ,  $N=14$ ).

If freshwater inputs were to slow in the future, the masking effect on surface carbonate chemistry would diminish. Under such conditions, acidification rates could increase rapidly over a short period, as nearshore waters adjust toward the trends observed offshore, with potentially abrupt consequences for coastal ecosystems. This could be further investigated with modeling experiments.



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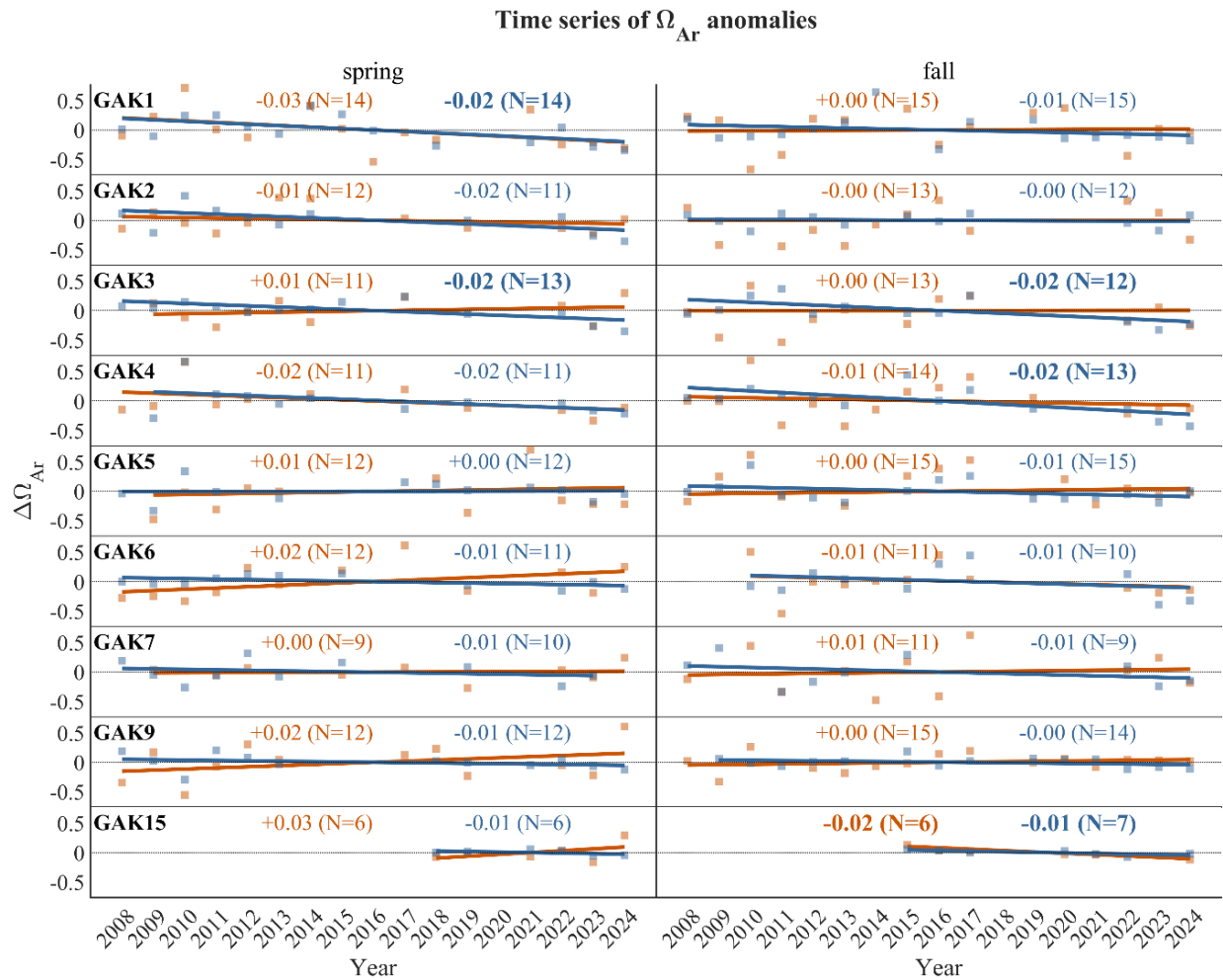


Figure 4. Observed aragonite saturation state ( $\Omega_{arag}$ ) trends along the Seward Line (2008–2024). Time series of annual mean  $\Omega_{arag}$  anomalies derived from spring (right panels) and fall (left panels) cruises in surface-water (orange squares) and bottom-water (blue squares) for Seward Line stations from GAK1 offshore (top to bottom). Anomalies were calculated by removing the station- and layer-specific mean of the annual values over the full record. Solid colored lines show linear trends estimated from annual values, with trend slopes ( $yr^{-1}$ ) reported in the upper-right half of each panel. Significant trends ( $p$ -value  $< 0.05$ ) are shown in bold. Stations shown are those where trends are available for both spring and fall, with station labels shown in the right panels.



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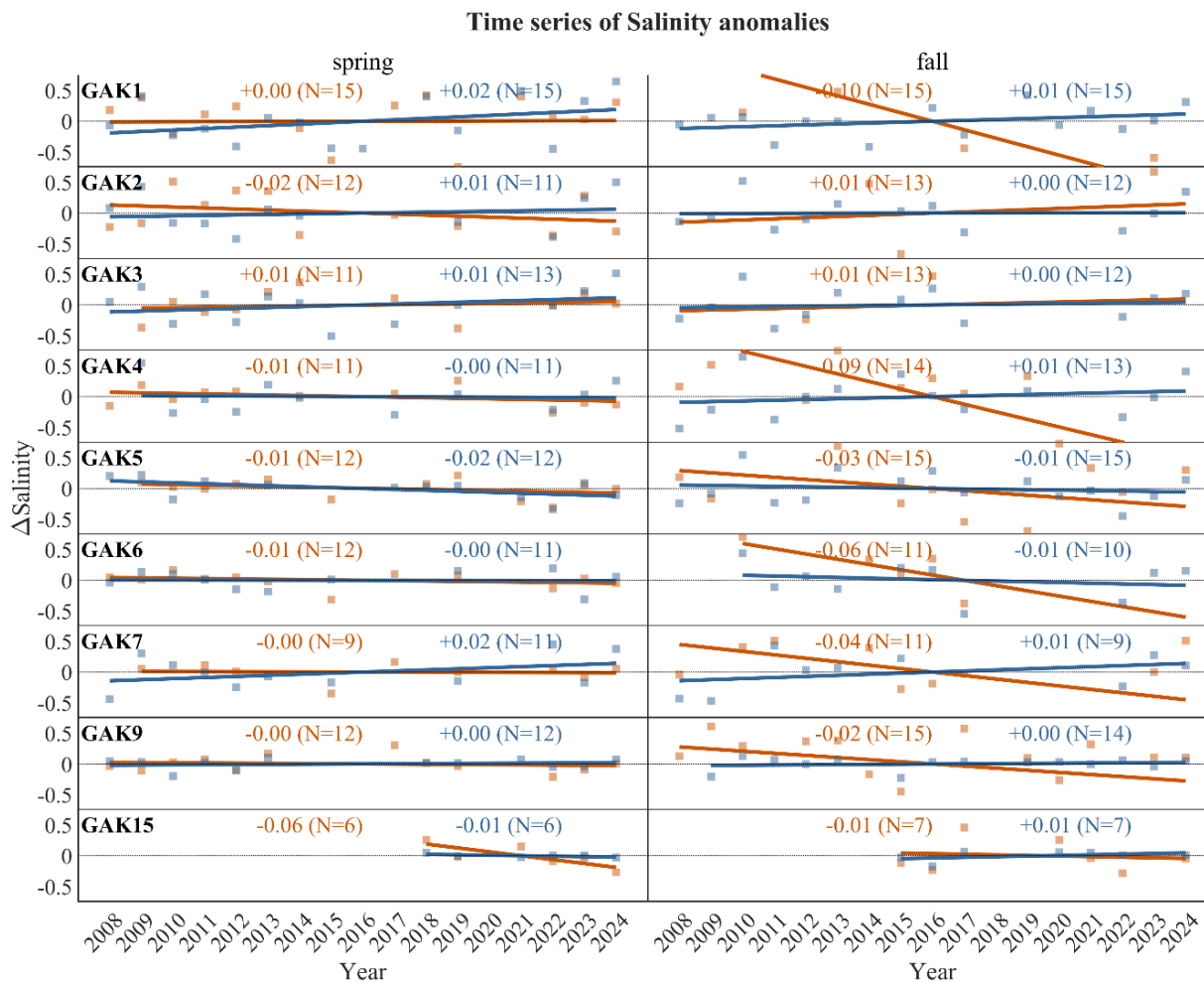


Figure 5. Observed salinity trends along the Seward Line (2008–2024). Time series of annual mean salinity anomalies derived from spring (right panels) and fall (left panels) cruises in surface-water (orange squares) and bottom-water (blue squares) for Seward Line stations from GAK1 offshore (top to bottom). Anomalies were calculated by removing the station- and layer-specific mean of the annual values over the full record. Solid colored lines show linear trends estimated from annual values, with trend slopes ( $\text{yr}^{-1}$ ) reported in the upper-right half of each panel. Significant trends ( $p$ -value  $< 0.05$ ) are shown in bold. Stations shown are those where trends are available for both spring and fall, with station labels shown in the right panels.



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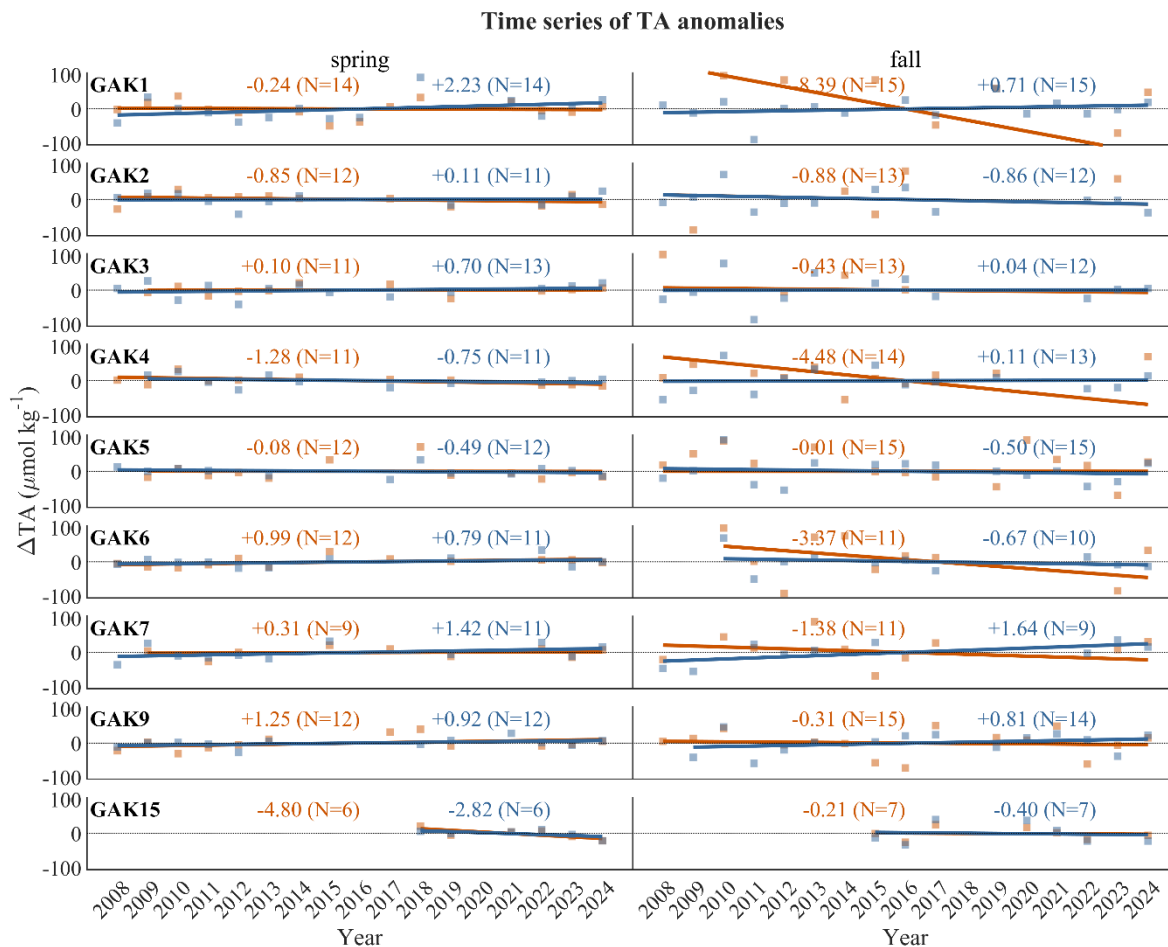


Figure 6. Observed total alkalinity (TA) trends along the Seward Line (2008–2024). Time series of annual mean salinity anomalies derived from spring (right panels) and fall (left panels) cruises in surface-water (orange squares) and bottom-water (blue squares) for Seward Line stations from GAK1 offshore (top to bottom). Anomalies were calculated by removing the station- and layer-specific mean of the annual values over the full record. Solid colored lines show linear trends estimated from annual values, with trend slopes ( $\mu\text{mol kg}^{-1} \text{yr}^{-1}$ ) reported in the upper-right half of each panel. Significant trends ( $p\text{-value} < 0.05$ ) are shown in bold. Stations shown are those where trends are available for both spring and fall, with station labels shown in the right panels.



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Along the Seward Line, the continental shelf (150–280 m) experienced persistent aragonite undersaturation in bottom waters during spring, summer, and fall from 2019 to 2024 (Fig. 7), with undersaturated conditions shoaling to less than 100 m depth. Such conditions promote the dissolution of aragonitic shells, including those of pteropods. In spring 2023 and 2024, bottom waters were fully undersaturated, while earlier spring cruises (2019, 2021, 2022) showed partial oversaturation across the shelf.

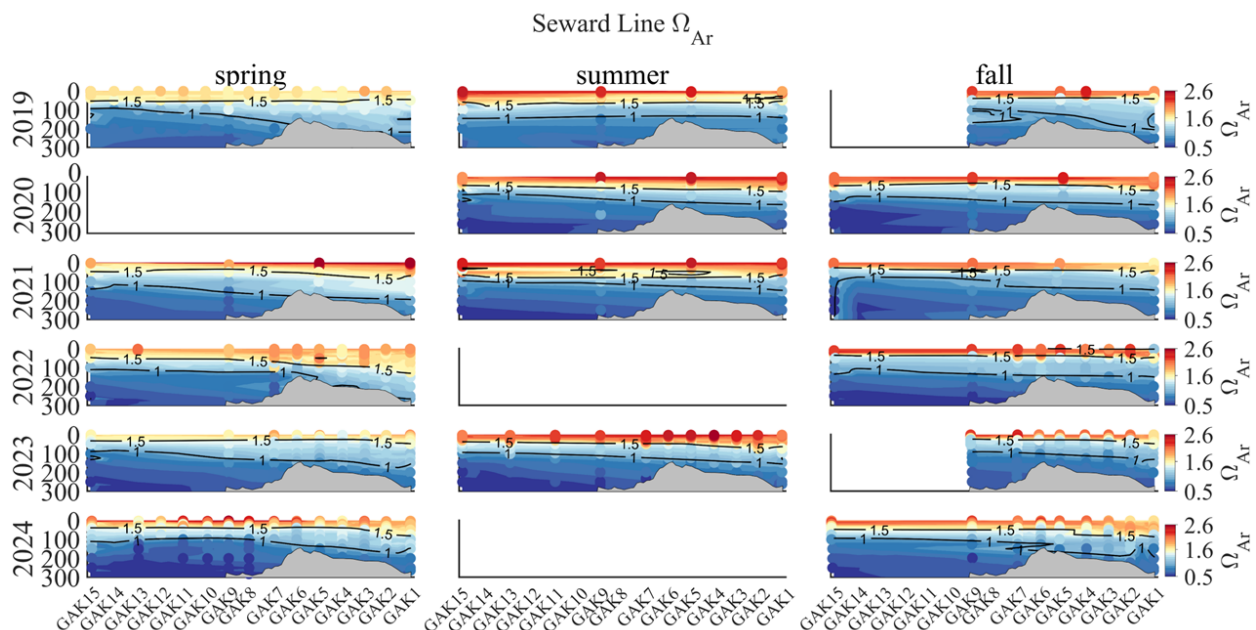


Figure 7. 2019 – 2024 Seward Line spring summer and fall transects. Data from the 2019 – 2024 Gulf Watch Alaska Long-Term Research and Monitoring and Northern Gulf of Alaska-Long Term Ecological Research program spring, summer, and fall cruises from inshore to offshore (right to left). Panels are aragonite saturation state ( $\Omega_{arag}$ ) from 2019 to 2024 (top to bottom) and spring, summer, and fall (left to right). Colored circles are included to remind the reader that contoured transect plots may not represent actual data values. Solid black lines highlight specific contour levels of  $\Omega_{arag} = 1$  and 1.5. Bathymetry is shown in gray.

Data from the Kodiak Line (Fig. 8) provide first insights into carbonate chemistry variability in this region. In spring 2022 (Fig. 8b), the upper 50 m of the water column exhibited ( $\Omega_{arag}$ ) > 1.5, whereas in spring 2023 (Fig. 8c),  $\Omega_{arag}$  values below 1.5 extended throughout the entire water



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column. The 2023 conditions suggest a stronger influence of deeper source waters in the nearshore, consistent with elevated salinity and DIC concentrations observed that year. Despite this interannual variability, shelf bottom waters (depth < 150 m) along the Kodiak Line remained aragonite oversaturated through the mid-shelf (KOD5). Aragonite undersaturated conditions were only seen in our data when sampling extended further offshore than KOD5 in spring 2024 (Fig. 8d, FY24 Scope of work modification request), and with lower  $\Omega_{\text{arag}}$  values across all stations and depths compared to the previous two springs.

These data provided the first opportunity to evaluate the Gulf of Alaska biogeochemical model in the Kodiak area and identify model biases (Fig. 9). To compare the model with our discrete data, model “profiles” were pulled from the same month and year at the nearest grid cell (J,I) of the discrete station. The model output at this given grid cell was interpolated onto the same depths (vertical level) as the discrete data. The Taylor diagrams show the comparison of the model and data for the full profiles at KOD5 (Fig. 9) and PWS1 – PWS3 (Fig. 10). To ensure statistically robust comparisons, profiles were limited to those with 5 or more discrete measurements. For interpretation, a perfect model profile would have a standard deviation of 1, correlation coefficient ( $R^2$ ) of 1, and normalized root mean square deviation (RMSD) of 0.

The model does well in PWS (Fig. 10) and along the Seward Line (not shown) with RMSD generally below 1.0 and  $R^2 > 0.8$  and  $R^2 > 0.95$  for TA and DIC, respectively. The model does not perform as well at Kodiak stations (Fig. 9), with greater differences (nSTD) in DIC and TA at KOD2 relative to further offshore at KOD5. Similar to the PWS and GAK stations, model DIC performs better than TA.



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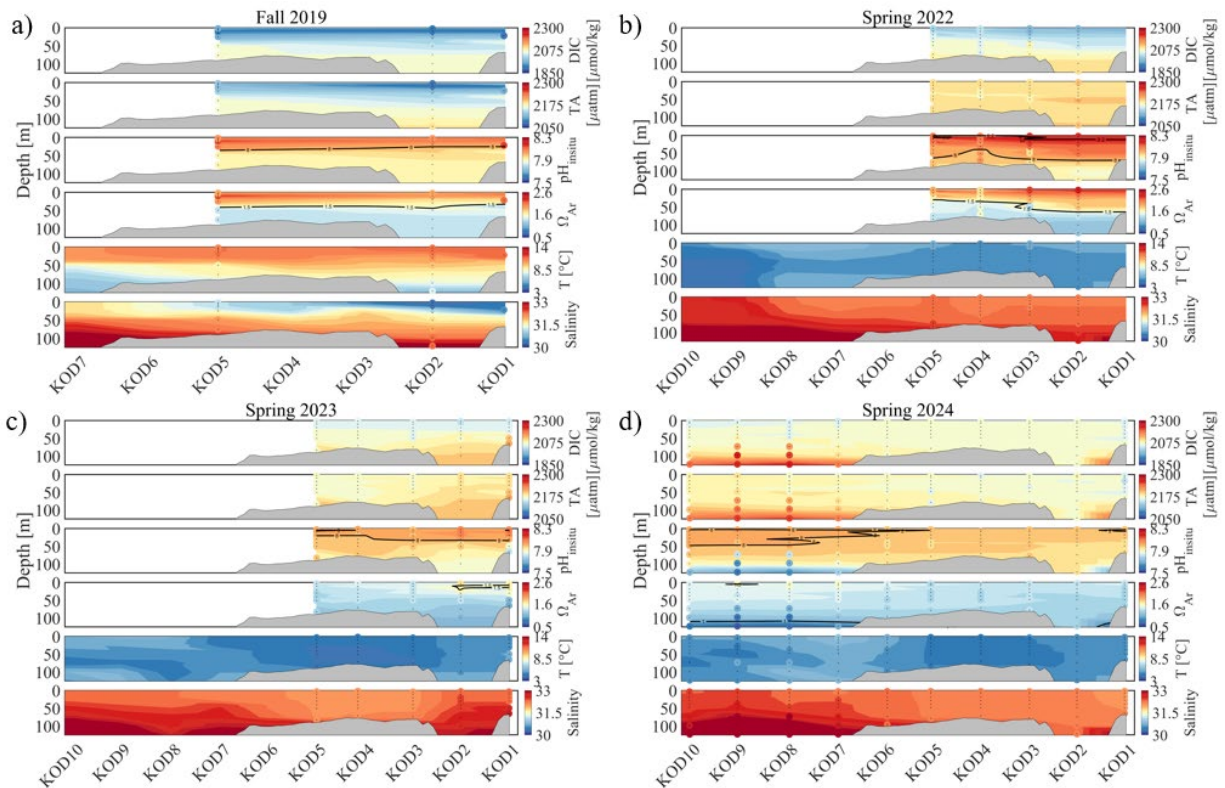


Figure 8. Kodiak Line Transects. Data from the Gulf Watch Alaska Long-Term Research and Monitoring and Northern Gulf of Alaska-Long Term Ecological Research program a) fall 2019, b) spring 2022, c) spring 2023, and d) spring 2024 cruises from inshore to offshore (right to left). Panels (top to bottom) are dissolved inorganic carbon (DIC;  $\mu\text{mol kg}^{-1}$ ), total alkalinity (TA;  $\mu\text{mol kg}^{-1}$ ), in situ pH, aragonite saturation state ( $\Omega_{\text{arag}}$ ), temperature (T;  $^{\circ}\text{C}$ ), and salinity (S) for each cruise. Black crosses show stations and depths where discrete samples were collected. Temperature and salinity contours are from full conductivity and temperature at depth profile. Colored circles are included to remind the reader that contoured transect plots may not represent actual data values. Solid black lines highlight specific contour levels (e.g. situ pH = 8.0 or  $\Omega_{\text{arag}} = 1$ ). Bathymetry is shown in gray.



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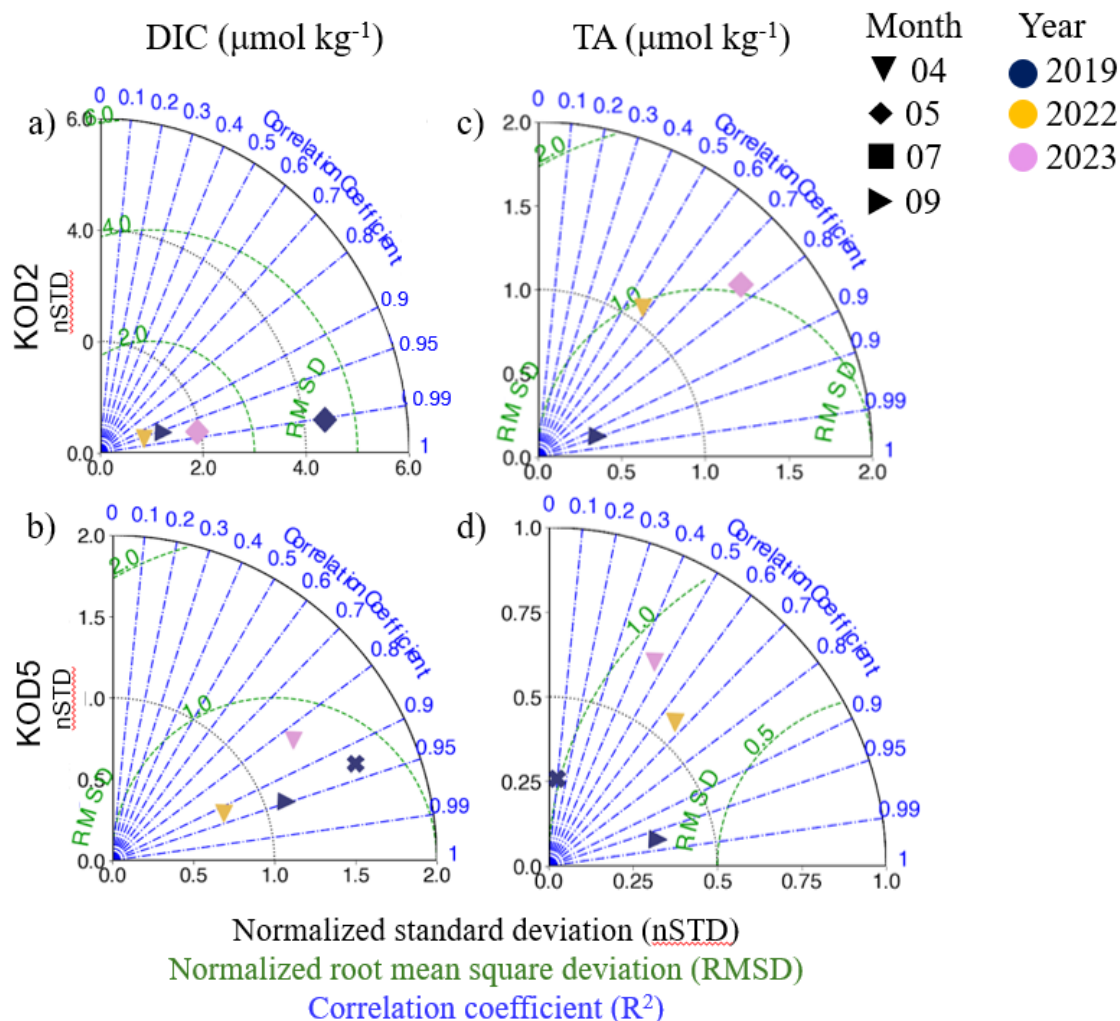


Figure 9. Kodiak model evaluation. a) Dissolved oxygen concentration (DIC) Taylor diagram at KOD2, b) DIC Taylor diagram at KOD5, c) total alkalinity (TA) Taylor diagram at KOD2, d) TA Taylor diagram at KOD5. Symbols represent data from spring (April = upside down triangle, May = diamond), summer (July = square), and fall (September = sideways triangle) cruises, with years separated by color (2019 = blue, 2022 = yellow, 2023 = pink). Taylor diagrams summarize the statistical comparison between modeled and observed vertical profiles, showing the spatial correlation coefficient (blue dashed-dotted lines, scale along outside curve), normalized standard deviation (nSTD; black dotted line, x and y axis scale), and normalized root mean square deviation (RMSD; green dashed lines). Only profiles with 5 or more data have been selected. A perfect model would show points at nSTD = 1, Correlation = 1, and RMSD = 0.



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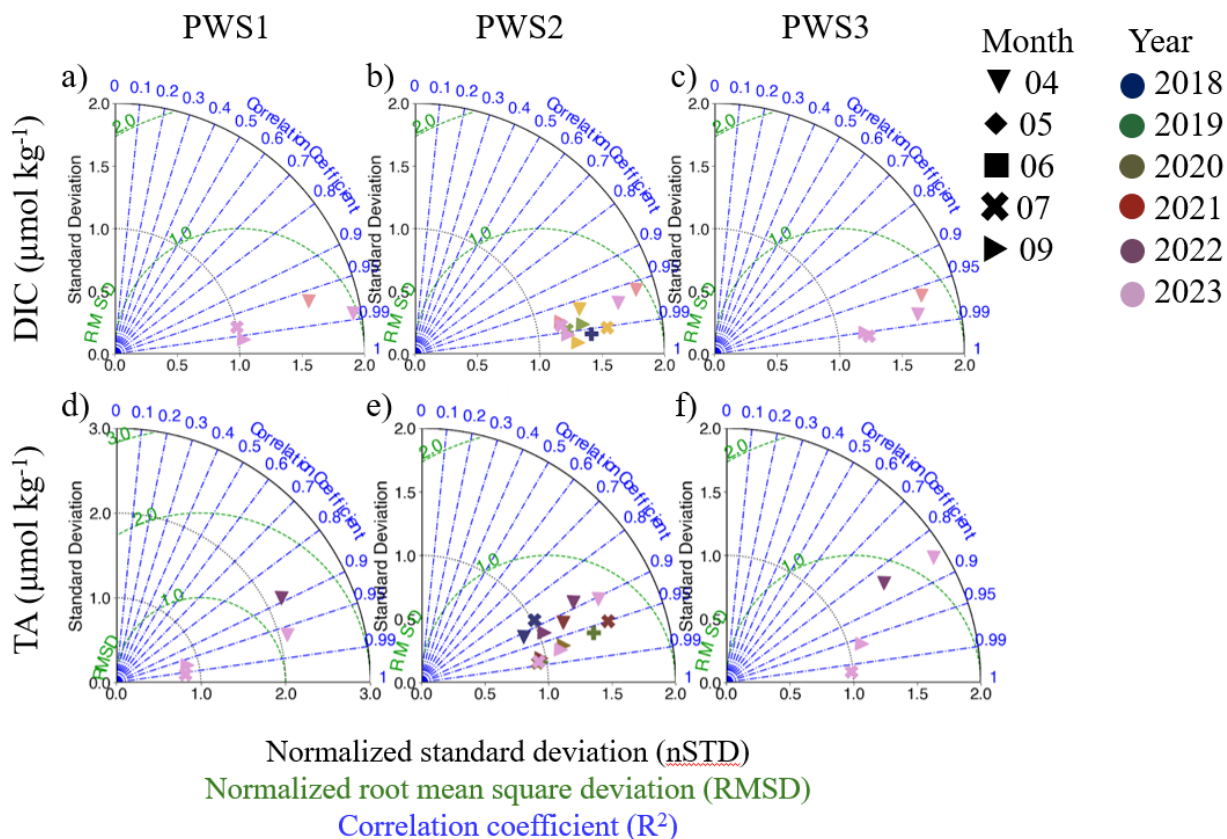


Figure 10. Prince William Sound model evaluation. a-c) Dissolved inorganic carbon (DIC) Taylor diagram at stations PWS1-PWS3, d-f) total alkalinity (TA) Taylor diagram at stations PWS1-PWS3. Symbols represent data from spring (April = upside down triangle, May = diamond), summer (June = square, July = x), and fall (September = sideways triangle) cruises, with years separated by color. Taylor diagrams summarize the statistical comparison between modeled and observed vertical profiles, showing the spatial correlation coefficient (blue dashed-dotted lines, scale along outside curve), normalized standard deviation (nSTD; black dotted line, x and y axis scale), and normalized root mean square deviation (RMSD; green dashed lines). Only profiles with 5 or more data have been selected. A perfect model would show points at nSTD = 1, Correlation = 1, and RMSD = 0.



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Data management

Inorganic carbon samples collected during the 2024 field season were analyzed, processed, and archived in the Research Workspace, and Axiom will be notified to add the 2024 data to our DataOne DOI after final QC. The 2024 data presented here are preliminary.

At the 2025 NGA-LTER All-Hands Meeting, the former LTER Information Manager (Chris Turner) presented on EDI and the plan to migrate all project repositories to the new system. Discussions also addressed whether projects should consider creating a single consolidated data file for all previously archived datasets. Brita has been in contact with Chris, as well as the new Information Manager, Adrienne, to seek guidance and will continue working to finalize the 2024 dataset this spring.

Data from the 2025 cruises will be post-processed and undergo routine quality control this spring prior to submission to Axiom for archiving.

We are also working to submit all our data to the National Centers for Environmental Information Ocean Carbon and Acidification System (OCADS), which will increase data visibility and support inclusion in regional and global synthesis efforts.

Challenges

The dissolved inorganic carbon (DIC) Analyzer (Apollo SciTech, model AS-C6) has required more troubleshooting and maintenance than any of our other instruments. In June 2025, the instrument failed again and was out of service for approximately 450 samples; for these samples, only titratable acidity (TA) and pH were analyzed. LI-COR has acquired Apollo SciTech no longer supports this instrument, and a full replacement costs approximately \$63,000. Fortunately, Brita was able to diagnose and repair the system in-house, working with the machine shop, and the instrument produced high-quality data for our 2025 samples. However, overall data quality has been declining with our DIC Analyzer, and to maintain the scope and objectives of this project, a replacement is needed, as LI-COR will not service or calibrate our older model.

Difficulty purchasing purified mCP dye for pH analysis remains an ongoing issue and resulted in some fall cruise samples being analyzed using unpurified dye. Extra care was taken prior to switching dyes to ensure any potential bias could be identified and corrected. To date, purified mCP dye has been purchased directly from Dr. Byrne's CO<sub>2</sub> Chemistry Lab at the University of South Florida. We hope to change vendors, as 4H Jena Engineering—the manufacturer of our



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HydroFIA pH and TA instruments—has informed us that purified mCP dye will be available for purchase in 2026.

*Literature Cited*

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- Lueker, T. J., A. G., Dickson, and C. D. Keeling. 2000. Ocean pCO<sub>2</sub> calculated from dissolved inorganic carbon, alkalinity, and equations for K<sub>1</sub> and K<sub>2</sub>: validation based on laboratory measurements of CO<sub>2</sub> in gas and seawater at equilibrium. *Marine Chemistry* 70:105–119, [https://doi.org/10.1016/S0304-4203\(00\)00022-0](https://doi.org/10.1016/S0304-4203(00)00022-0).
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Perez, F. F., and F. Fraga. 1987. Association constant of fluoride and hydrogen ions in seawater. *Marine Chemistry* 21:161–168, [https://doi.org/10.1016/0304-4203\(87\)90036-3](https://doi.org/10.1016/0304-4203(87)90036-3).

Sharp, J. D., D. Pierrot, M. P. Humphreys, J.-M. Epitalon, J. C. Orr, E. R. Lewis, and D. W. R. Wallace. 2023. CO2SYSv3 for MATLAB. <https://doi.org/10.5281/zenodo.7552554>.

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**2. Products:**

Peer-reviewed publications:

Kléparski, L., C. Ostle, S. D. Batten, N. Djeghri, C. Hauri, R. Pagès, and S. Strom. 2025. How marine heatwaves are reshaping phytoplankton in the Northeast Pacific. *Limnology and Oceanography*. <https://doi.org/10.1002/lno.70137>.

Reports:

No new contributions for this reporting period.

Popular articles:

No new contributions for this reporting period.

Conferences and workshops:

Hauri, C., and B. Irving. 2025. NGA-LTER All-Hands Meeting, UAF, Fairbanks, March 18-20.

Public presentations:

No new contributions for this reporting period.

Data and/or information products developed during the reporting period:

No new contributions for this reporting period.

Data sets and associated metadata:

All datasets are available on the Gulf of Alaska data portal: <https://gulf-of-alaska.portal.aos.org/#metadata/49de8f20-7243-4749-a162-079786286d50/project>



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Hauri, C. B. Irving, and A. Norgaard. 2025. Inorganic Carbon data from water samples collected during CTD casts at stations during the Northern Gulf of Alaska LTER seasonal cruises, 2018-2023. Research Workspace. [10.24431/rw1k45g](https://www.researchworkspace.org/10.24431/rw1k45g), version: 10.24431\_rw1k45g\_20250218T205742Z.

Our data are used in error envelope calculation and validation for the following datasets:

Hauri, C, B. Irving, and S. Danielson. 2024. pCO<sub>2</sub> time series measurements from the Gulf of Alaska Ecosystem Observatory GEO2 mooring deployed around 22-33 meter depth in the Gulf of Alaska 2019-2021. Research Workspace. [10.24431/rw1k8ed](https://www.researchworkspace.org/10.24431/rw1k8ed), version: 10.24431\_rw1k8ed\_20240620T204501Z.

Hauri, C, B. Irving, and S. Danielson. 2024. pH, temperature, salinity, and oxygen time series measurements from the Gulf of Alaska Ecosystem Observatory GEO2 mooring deployed at approximately 32 meter depth in the Gulf of Alaska 2020-2021. Research Workspace. [10.24431/rw1k8ee](https://www.researchworkspace.org/10.24431/rw1k8ee), version: 10.24431\_rw1k8ee\_20240508T182847Z.

Additional Products not listed above:

No new contributions for this reporting period.

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### **3. Coordination and Collaboration:**

The Alaska SeaLife Center or Prince William Sound Science Center

This project is a subawardee of the EVOSTC National Oceanic and Atmospheric Administration (NOAA) grant award that is administered by the Prince William Sound Science Center (PWSSC). The principal investigator (PI) coordinates with PWSSC on invoicing, reporting, and meeting attendance.

EVOSTC Long-Term Research and Monitoring Projects

This project is part of the Gulf Watch Alaska Long-Term Research and Monitoring (GWA-LTRM) program funded by EVOSTC and is within the environmental drivers component. PI Hauri coordinates with PIs from the Seward Line project (25120114-L, Russ Hopcroft) and GAK1 project (25120114-I, Seth Danielson) for seasonal sampling in the Gulf of Alaska and with the Continuous Plankton Recorders project (25120114-D, Clare Ostle and Sonia Batten) for



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collaborative publications. We are also working with Yumi Arimitsu (project 25120114-C) to link capelin abundance to ocean conditions using the Northern Gulf of Alaska Oscillation (NGAO) and Gulf of Alaska Downwelling Indices (GOADI).

*EVOSTC Mariculture Projects*

Ocean acidification may be an important consideration for mariculture activities and the mariculture projects funded by EVOSTC. We are open to collaboration and data sharing.

*EVOSTC Education and Outreach Projects*

No new contributions for this reporting period.

*Individual EVOSTC Projects*

The ocean acidification project works with the Data Management program to ensure data collected are properly reviewed, have current metadata, and are posted to the Gulf of Alaska data portal within required timeframes. We will work with other individually funded EVOSTC projects if collaborative efforts make sense based on data collected.

*Trustee or Management Agencies*

No new contributions for this reporting period.

*Native and Local Communities*

Claudine Hauri and Brita Irving are in regular meetings with the Chugach Regional Resources Commission (CRRC) to connect Traditional Ecological Knowledge with western science observations and models.

Claudine attended a Knowledge Exchange hosted by CRRC in Seward in October 2025 and was able to connect with, listen to, and learn from members of the Qutekcaak Native Tribe of Seward.

Brita will attend the Collective Alaska Native Perspectives workshop April 7-9 in Homer, Alaska, and is taking a seminar in spring 2026 titled *Epistemology (Ways of Knowing) in Fisheries Science & Governance* to continue her learning and commitment to equity and strengthening our science by involving those directly dependent on and impacted by our oceans.

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**4. Response to EVOSTC Review, Recommendations and Comments:**

No review, recommendations, or comments were provided in 2025. This project responded to comments in the FY24 annual report.

**5. Budget:**

The project budget has been slightly behind in spending because of past delays in the release of funding. The budget reallocation request will cover contractual service costs that were originally included under commodities as part of the cost per sample and shipping costs for FY25 and FY26. Carryover funding will be reallocated from Personnel and Commodities to Equipment to purchase a new Apollo DIC Analyzer with the International Arctic Research Center’s financial support. A replacement DIC Analyzer is needed to continue the project at its current scope, as data quality has declined, and our current model is no longer supported by the manufacturer.

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
PROJECT BUDGET PROPOSAL AND REPORTING FORM**

Budget Category:	Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5- YR TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$71,359	\$70,768	\$57,935	\$43,384	\$60,869	\$304,315	\$186,300
Travel	\$1,085	\$331	\$0	\$365	\$0	\$1,781	\$1,085
Contractual	\$9,620	\$0	\$0	\$0	\$0	\$9,620	\$12,896
Commodities	\$33,170	\$30,750	\$28,448	\$5,179	\$28,350	\$125,897	\$75,260
Direct Costs Exempt from F&A	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$40,000	\$0	\$40,000	\$0
Indirect Costs Rate = 25% (non-equipment)	\$28,808	\$25,462	\$21,596	\$12,232	\$22,305	\$110,403	\$68,885
<b>SUBTOTAL</b>	<b>\$144,042</b>	<b>\$127,311</b>	<b>\$107,979</b>	<b>\$101,160</b>	<b>\$111,524</b>	<b>\$592,016</b>	<b>\$344,425</b>
General Administration (9% of subtotal)	\$12,964	\$11,458	\$9,718	\$9,104	\$10,037	\$53,281	N/A
<b>PROJECT TOTAL</b>	<b>\$157,006</b>	<b>\$138,769</b>	<b>\$117,697</b>	<b>\$110,265</b>	<b>\$121,561</b>	<b>\$645,298</b>	
Other Resources (In-Kind Funds)	\$0	\$0	\$0	\$0	\$0	\$0	

**COMMENTS:**  
 We continue to be behind in spending because of the delay in issuance of the NOAA grant in FY22 and delay in funding the grant in FY24.  
  
 FY24 contractual services budget reallocation due to instrument refurbishment funds budgeted under commodities as part of cost per sample as mentioned above, CRM shipping costs, shipping fees for the return transport of samples and equipment after the NGA LTER spring and summer cruises that was supported by the LTER program in previous years but is not longer supported, and rental fees for the compressed gas tank used for DIC analysis. These contractual service fees will continue for all future years, with costs likely increasing.  
 FY25 Equipment: Purchase new DIC Analyzer that is used for the EVOSTC funded project and critical to the project, unable to continue components of the project without replacement. Replacement cost partially supported by IARC.

<b>FY22-26</b>	<b>Project Number: 25220202</b> <b>Project Title: Ocean Acidification Monitoring</b> <b>Primary Investigator: Claudine Hauri (UAF)</b>	<b>NON-TRUSTEE AGENCY SUMMARY PAGE</b>
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