

# US BGC-Argo Update

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*On behalf of SOCCOM, GO-BGC, NOAA projects  
U Washington, WHOI, SIO partners*

AST24

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# US BGC-Argo: *OUTLOOK*

Presently funded US float acquisitions (all 5 or 6 sensor floats)

Program	Location	2021	2022	2023	2024	2025	Total
GO-BGC	Global	56	84	105	125	125	495
SOCCOM	So. Ocean	30+27	30	30	30	*	147
NOAA/ NOPP/NASA	US West, GOM, NAtl	17	6	4			27
Total Plan		130	120	139	155	125	669
Actual		48**	107	25 (120)			180

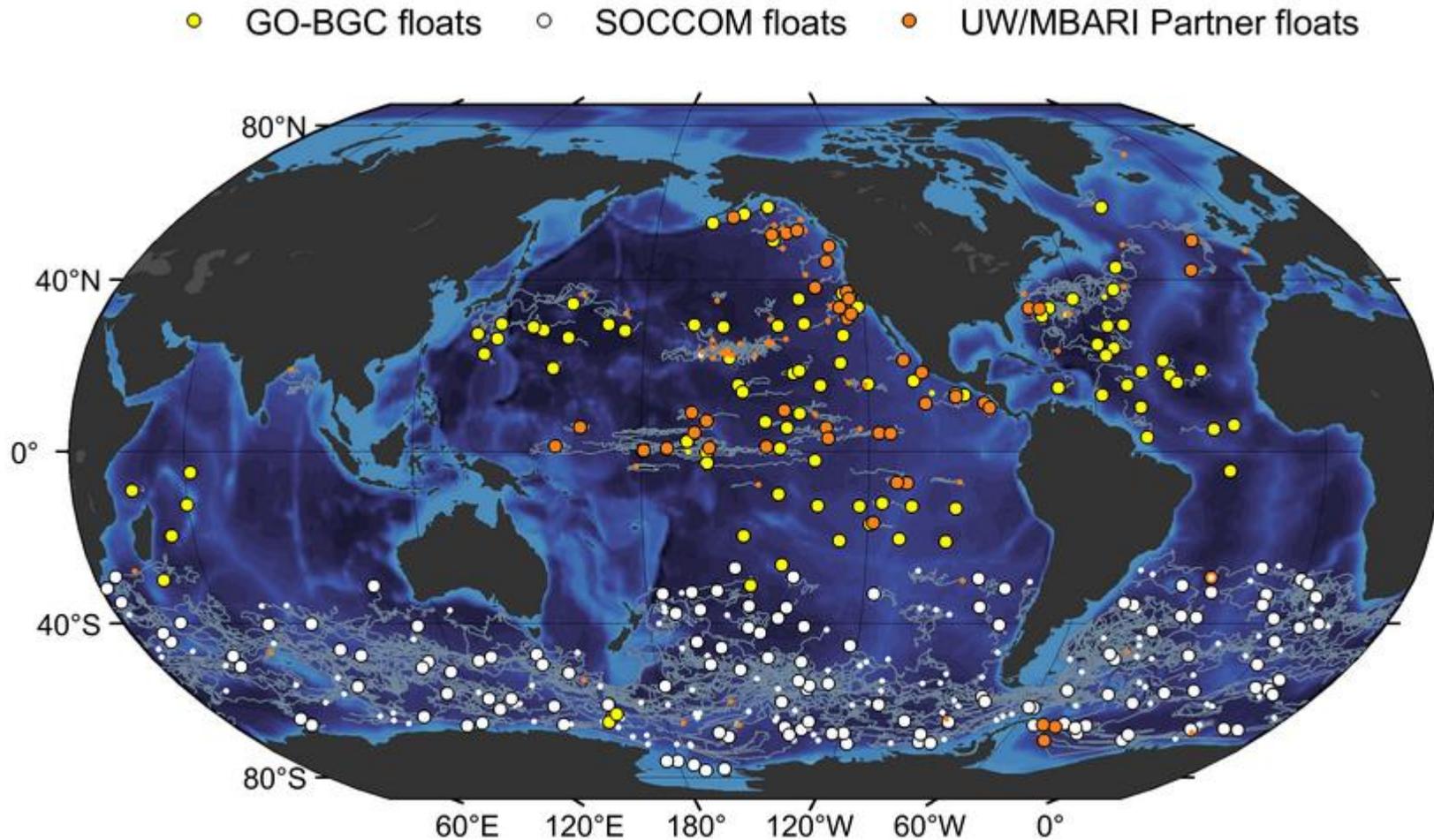
\* SOCCOM renewal proposal in progress

\*\* Effect of COVID, supply chain, and complications of ramping up



# US BGC-Argo: *RECENT DEPLOYMENTS*

103 five-sensor & 4 six-sensor BGC-Argo Floats deployed in 2022: a few examples



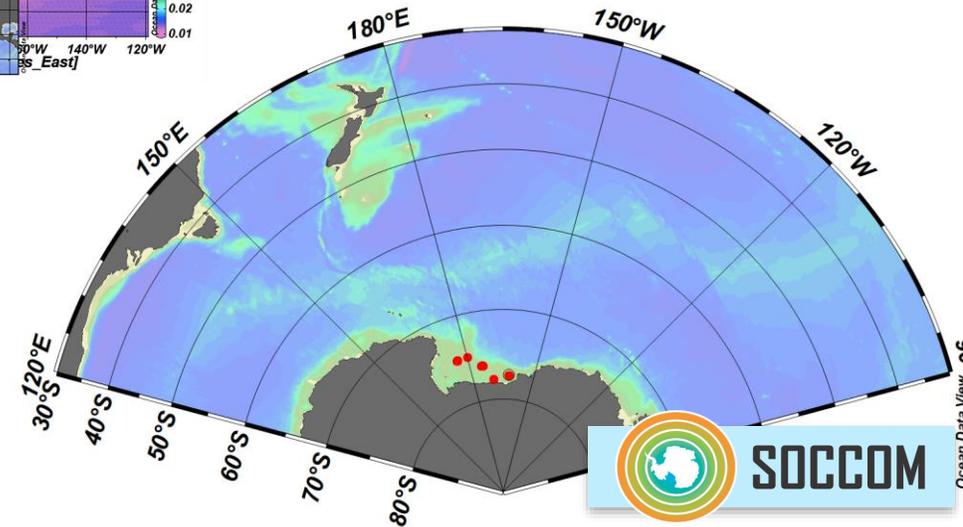
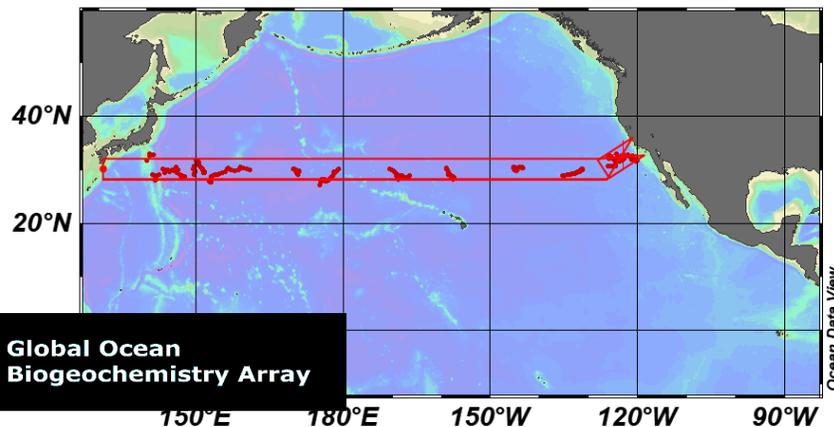
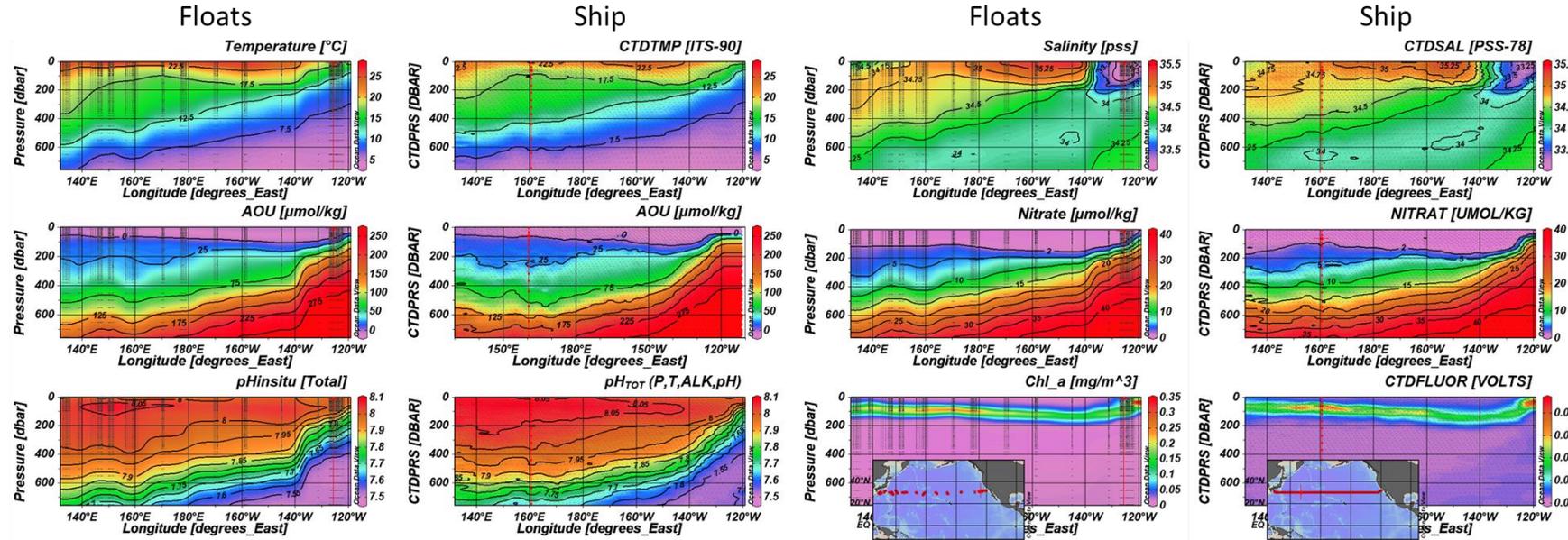
# US BGC-Argo: *RECENT DEPLOYMENTS*

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GO-BGC Floats & GO-SHIP P02 (Apr – Jun 2022) Sections

Close collaboration with  
**GO-SHIP**

5 floats to 78°S in Ross Sea  
– furthest south BGC floats



# US BGC-Argo: *RECENT DEPLOYMENTS*

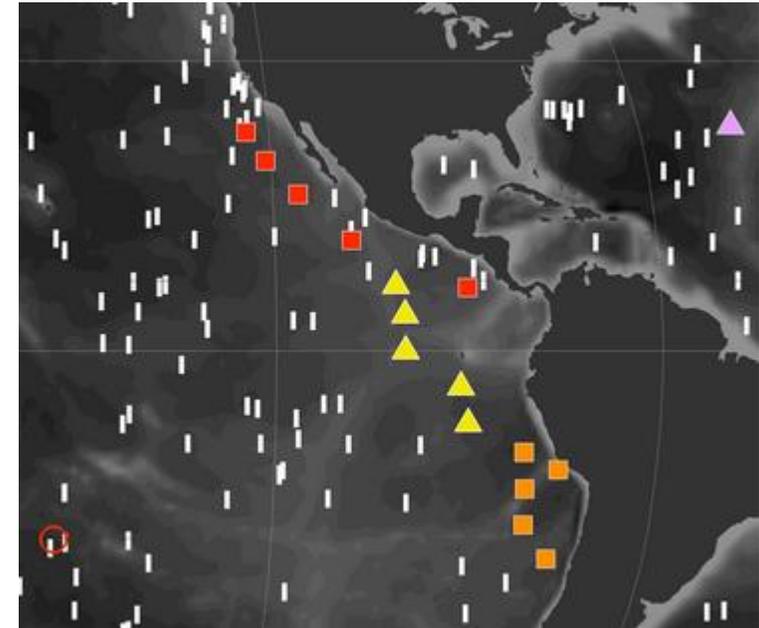
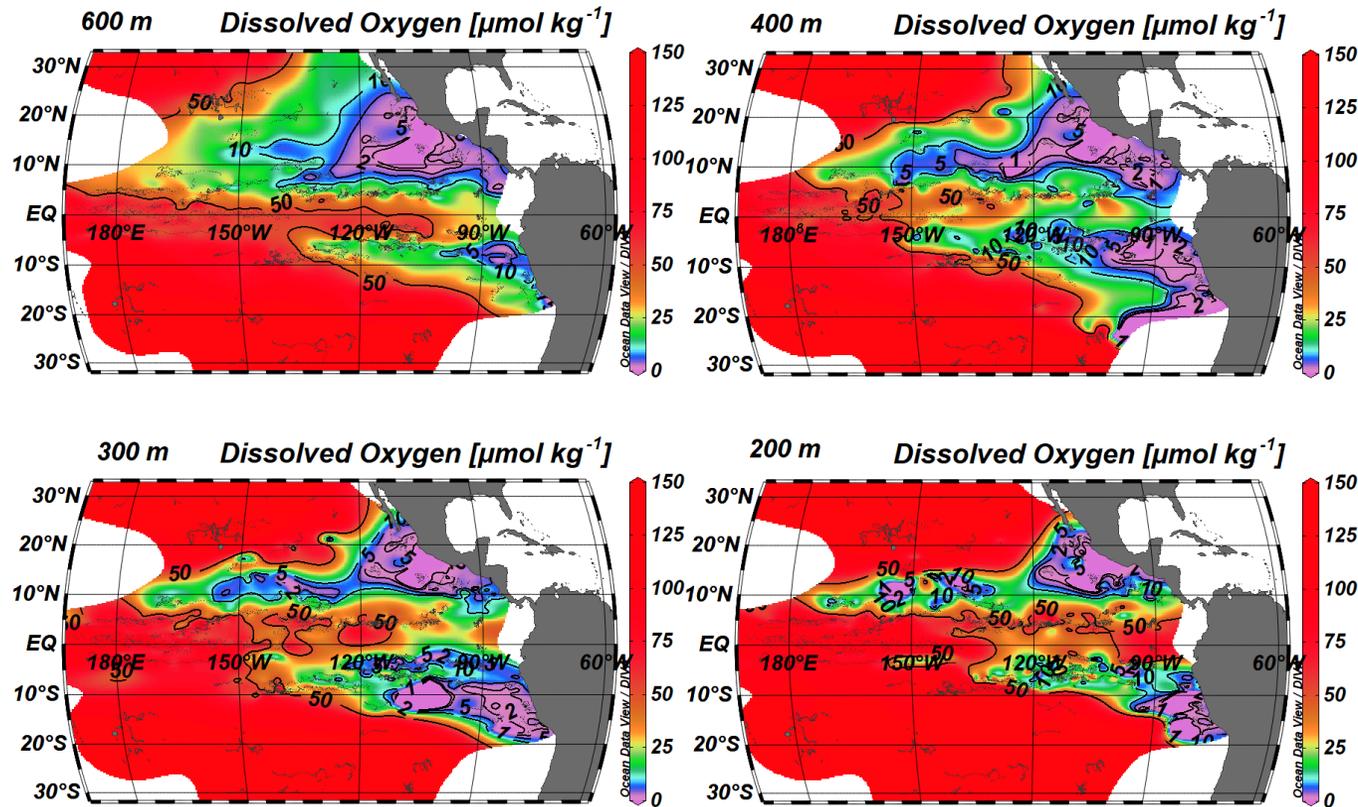
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Strengthening the TPOS and ETNP OMZ arrays



Three upcoming cruises will strengthen OMZ obs.

All floats 2018 thru 2023



# NOAA Contributions to BGC Argo

## AOML:

- AOML DAC finalized making traj 3.2 files (including BGC data)
- GOM pilot array ~150 profiles (2 active APEX)
- FY24: 4 deployments planned (1 recovered APEX, 2 new APEX, 1 Navis)
- Building DMQC capabilities

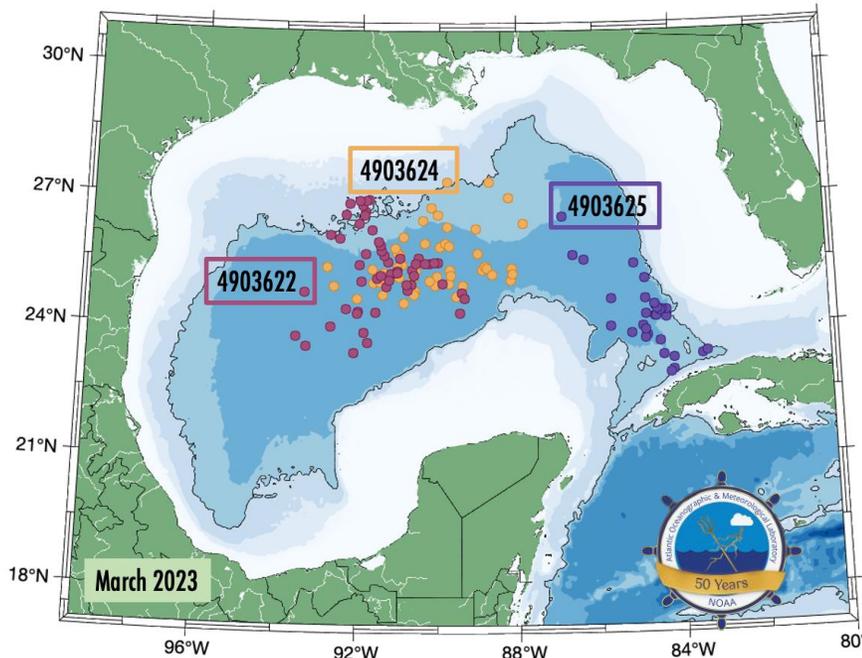
## PMEL:

- Data product development (GOBAI-O<sub>2</sub>)
- OneArgo software toolboxes (R & MATLAB)
- CCS pilot array (5 active, 2 w/ stiction issue)
- FY24: plan to deploy 2 MRV floats
- Building DMQC capabilities

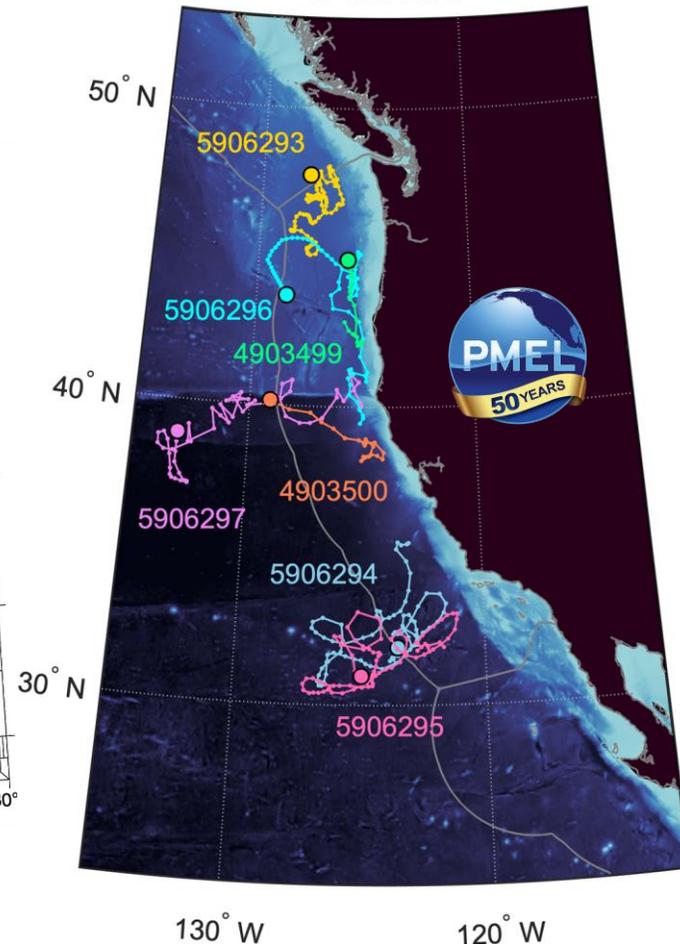
## Funded Projects:

- Brendan Carter: updating BGC property estimation routines used in RT and DMQC
- Seth Bushinsky: secondary quality control of BGC sensor data using ship crossovers

## AOML's Gulf of Mexico BGC-Argo Pilot Array March 2023 Status



## PMEL BGC-Argo Array 07-Mar-2023



## US Data Assembly Center



US Global Data Assembly Center

for archival and public access

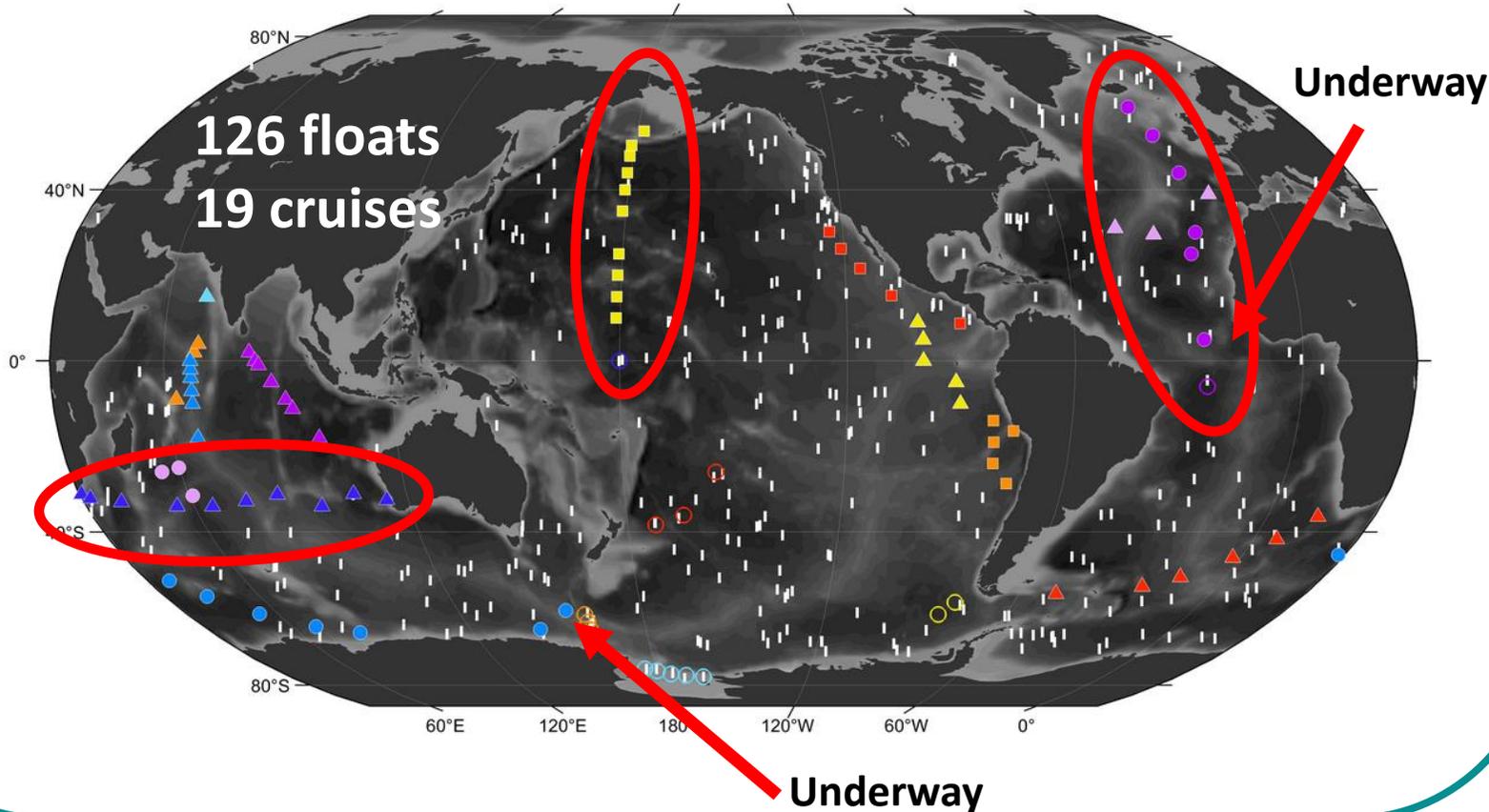


# US BGC-Argo: 2023

US Deployment Plans Through 2023



GO-SHIP A16, P14, I05 in 2023, Indian Ocn, ETP, SoOcn cruises



## NOAA



- AOML has ordered two APEX floats (FY22),

to arrive in summer, 2023 for deployment in GOM



- PMEL has ordered two MRV floats (FY22),

to arrive in spring, 2023 for deployment in the CA Current

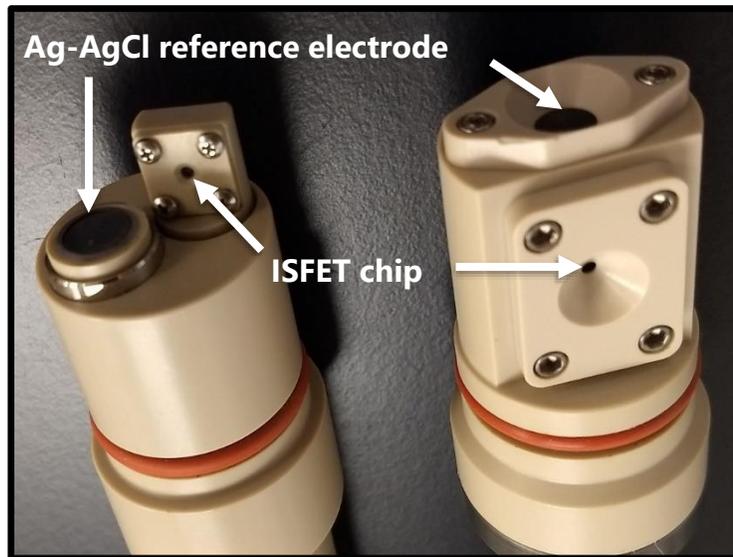
- Plans to order three floats FY23

# GO-BGC/SOCCOM float and sensor refinement



**New Seabird oxygen sensor (SBE83)** with air calibrations and faster response time from the pumped flow stream

**BGC SOLO-II 6-sensor float** developed at SIO: 4 floats have been deployed in Pacific. Commercialization by MRV in 2022.

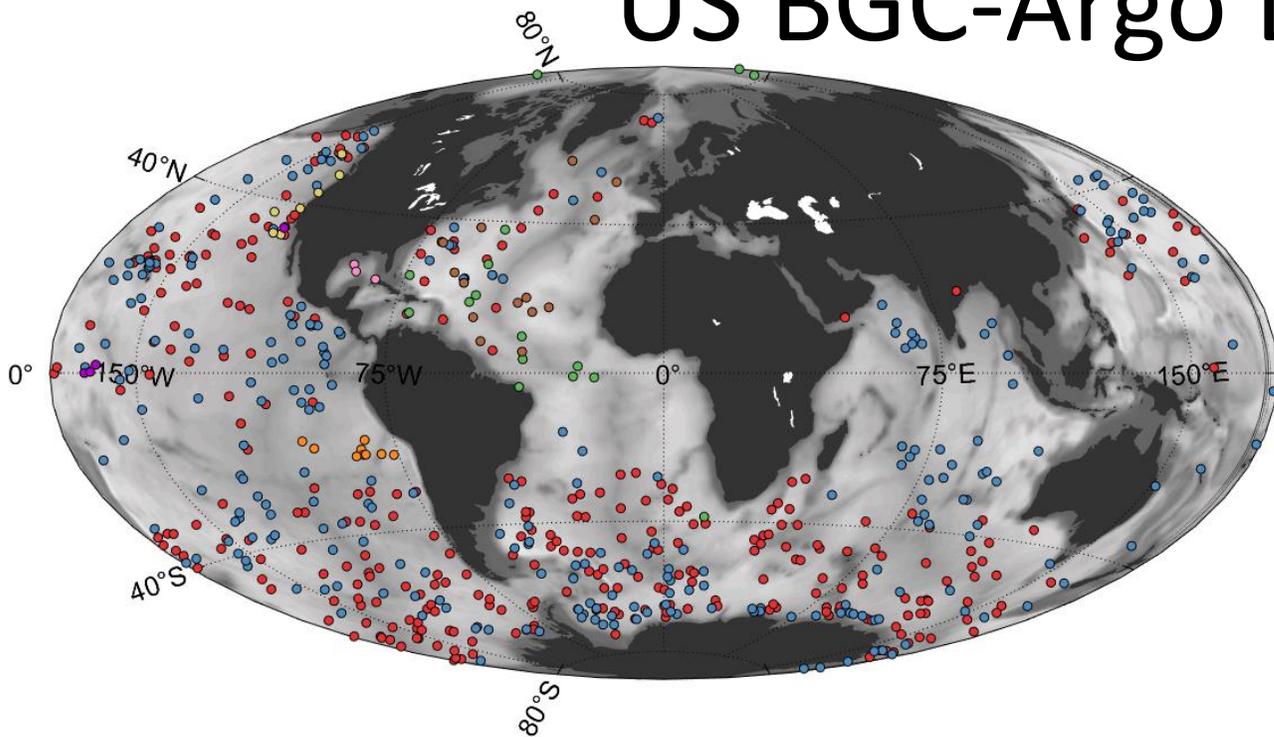


**pH sensor**  
Original design: MBARI Deep-Sea DuraFET stem (left)  
New design: MBARI GDF stem (**G**asket **D**ura**F**ET) (right)



**Radiometers added to 5 (now 6) sensor Apex floats**

# US BGC-Argo DAC: *STATUS*\*

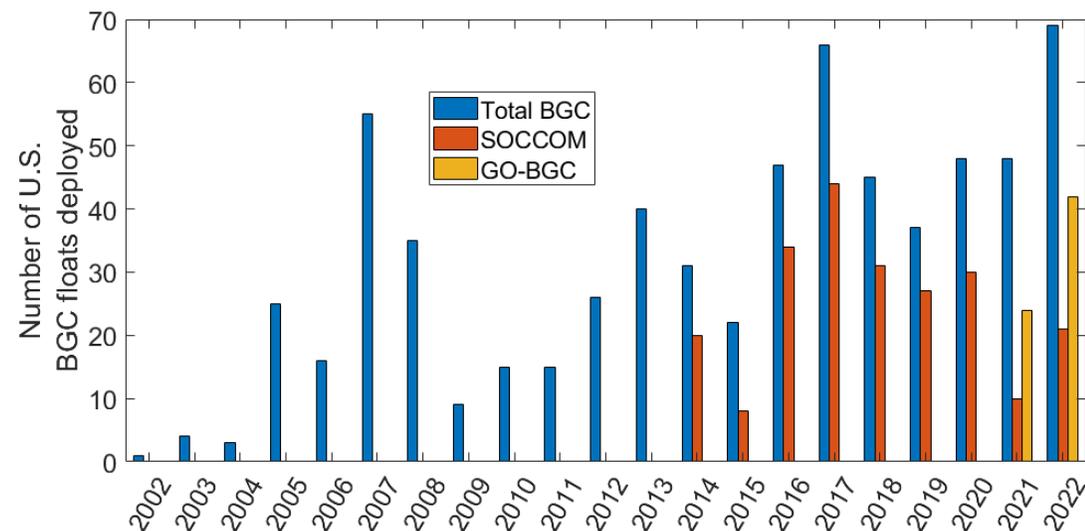


**Total 655 Floats**  
**566 APEX, 54 Navis, 35 SOLO-1**

- US BGC data management a collaboration between UW, MBARI, AOML, SIO, WHOI, PMEL
- 7535 total BR files in 2022
- YR 9 of SOCCOM, YR 2 of GOBGC

PARAMETER	N FLOATS
DOXY	655
NITRATE	359
PH_IN_SITU_TOTAL	329
CHLA	319
BBP	319
CDOM	58
DOWN_IRRADIANCE	6*
UP_IRRADIANCE	0

- Riser/Johnson (341)
- Riser (254)
- Owens/Jayne/Robbins (21)
- Weller (10)
- Fassbender (7)
- Nicholson/Wijffels (15)
- Baringer/Schmid/Osborne (3)
- Purkey (4)



\* 2 APEX test floats; 4 BGC-SOLOII

\* Based on available Sprof files