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Update on recent satellite tag deployments in GAB on juvenile SBT

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Background & aim

- The typical size of SBT in the Great Australian Bight region has apparently reduced
- Unclear whether this is a population change or related to habitat change
- CSIRO started a project to deploy pop-up satellite tags (PSAT) in 2023
- Understand changes in SBT habitat preferences & distribution in the GAB
- Examine oceanographic trends which may drive changes in distribution of SBT.
 - retrospective analysis of oceanographic conditions using fine scale model hindcasts



Preliminary results

- 19 wildlife computers miniPAT tags deployed March 2024
- Fish size 86-104 cm
- Attachment duration: ~3 – 96 days (5 tags yet to report)
- Most displayed westerly movements
- Lengthy attachment duration is difficult with smaller SBT
- Next round of tagging will use smaller tag (WLC microPAT)
- Provides update of habitat conditions used by GAB juveniles

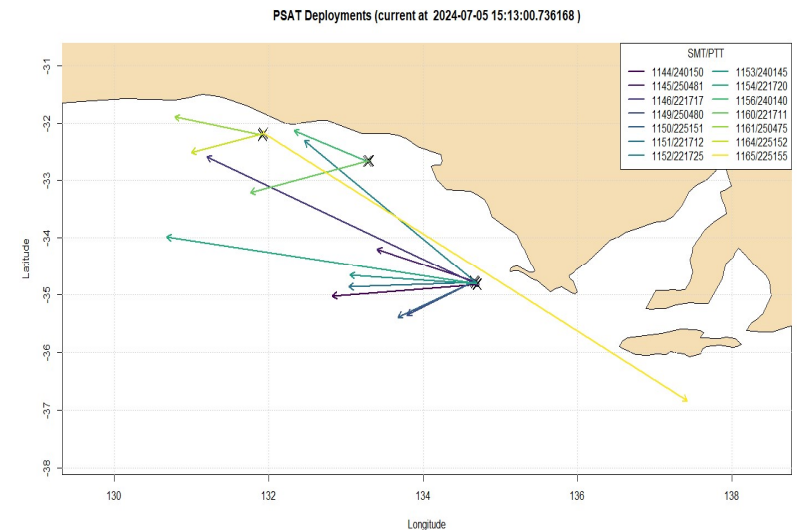




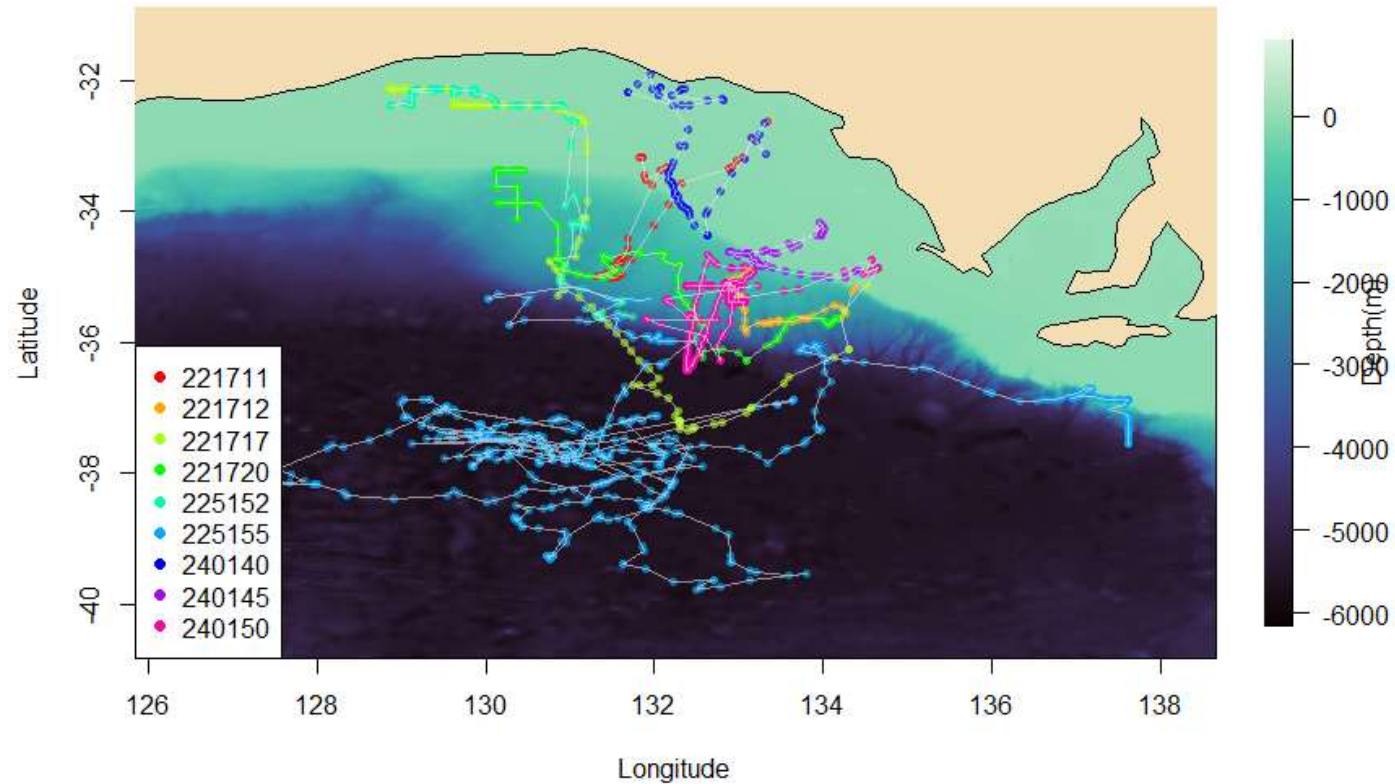
Table 1. Release and popup locations for 14 tags which have reported to date.

Tag	Release date	Length (cm)	Release Latitude	Release Longitude	Pop-up date	Popup Longitude	Popup Latitude	Days deployed
22P1166	2024-03-06	87	-34.818	134.702	2024-04-15 01:37:26	132.823	-35.019	40.109 days
23P1078	2024-03-06	89	-34.767	134.665	2024-03-09 22:27:46	133.404	-34.193	3.936 days
21P0695	2024-03-06	89	-34.815	134.699	2024-03-21 21:32:50	131.197	-32.585	15.898 days
23P1077	2024-03-06	92	-34.765	134.664	2024-03-10 08:29:49	133.789	-35.347	4.354 days
21P11175	2024-03-06	88	-34.766	134.664	2024-03-22 17:04:51	133.672	-35.383	16.712 days
21P0671	2024-03-06	87	-34.782	134.675	2024-03-15 18:29:44	133.038	-34.860	9.771 days
21P0739	2024-03-06	86	-34.787	134.679	2024-03-29 07:44:54	132.462	-32.311	23.323 days
22P1159	2024-03-06	90	-34.809	134.695	2024-03-15 07:21:38	133.051	-34.653	9.307 days
21P0714	2024-03-06	86	-34.811	134.696	2024-03-26 11:13:43	130.676	-33.982	20.468 days
22P1150	2024-03-09	88	-32.666	133.274	2024-03-21 14:38:16	132.329	-32.133	12.610 days
21P0650	2024-03-09	90	-32.650	133.305	2024-03-16 10:31:26	131.762	-33.206	7.438 days
23P1021	2024-03-10	104	-32.203	131.917	2024-03-15 19:43:50	130.781	-31.892	5.822 days
21P1176	2024-03-11	87	-32.181	131.928	2024-03-19 03:59:41	130.999	-32.508	8.166 days
21P1181	2024-03-11	86	-32.171	131.931	2024-06-13 10:38:29	137.425	-36.831	94.485 days



Geolocation estimates

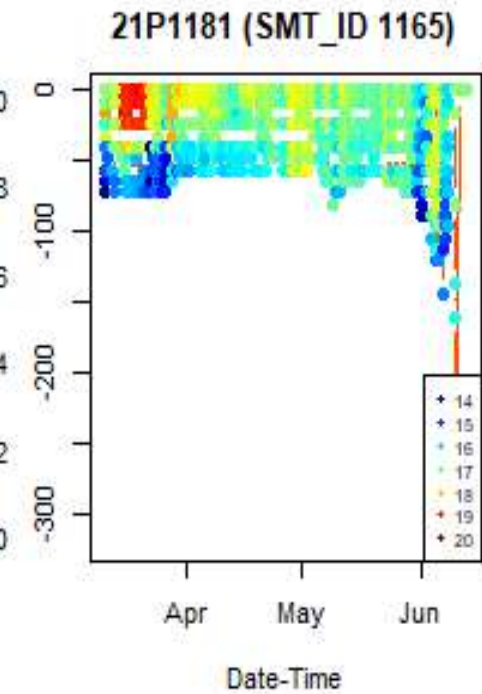
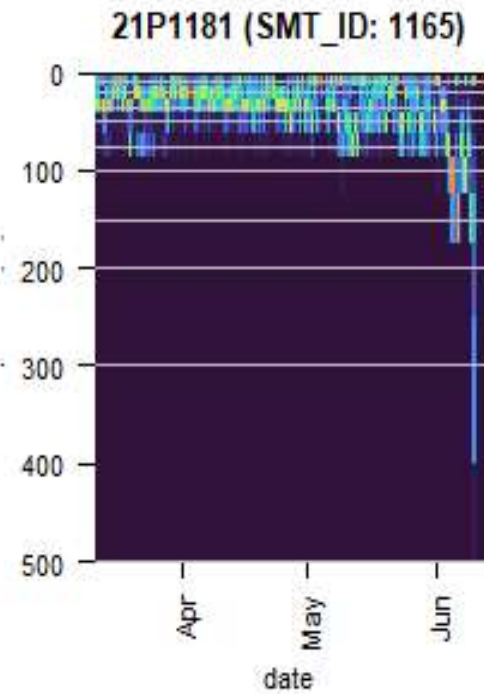
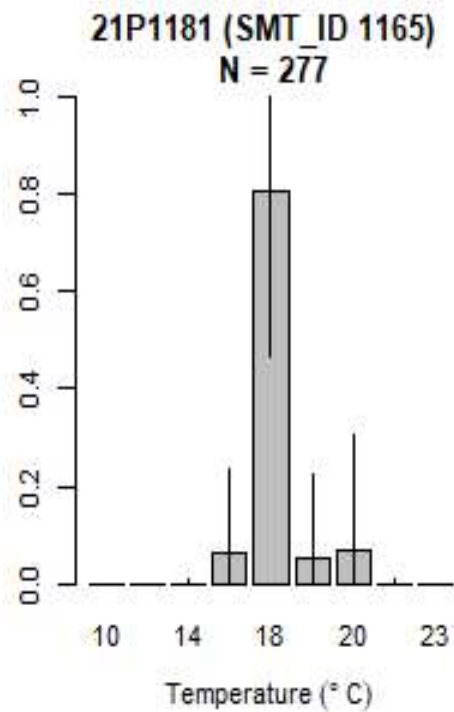
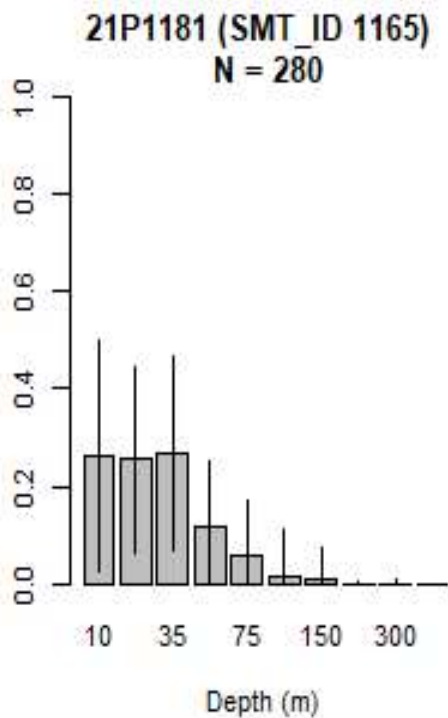
- Geolocation indicates largely on-shelf movement
- Some forays offshore
- Tracks too short to observe Indian Ocean / Tasman sea migrations

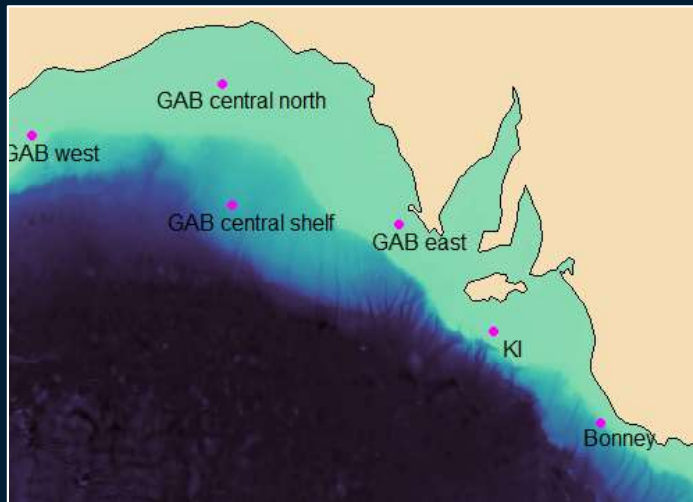




Habitat data

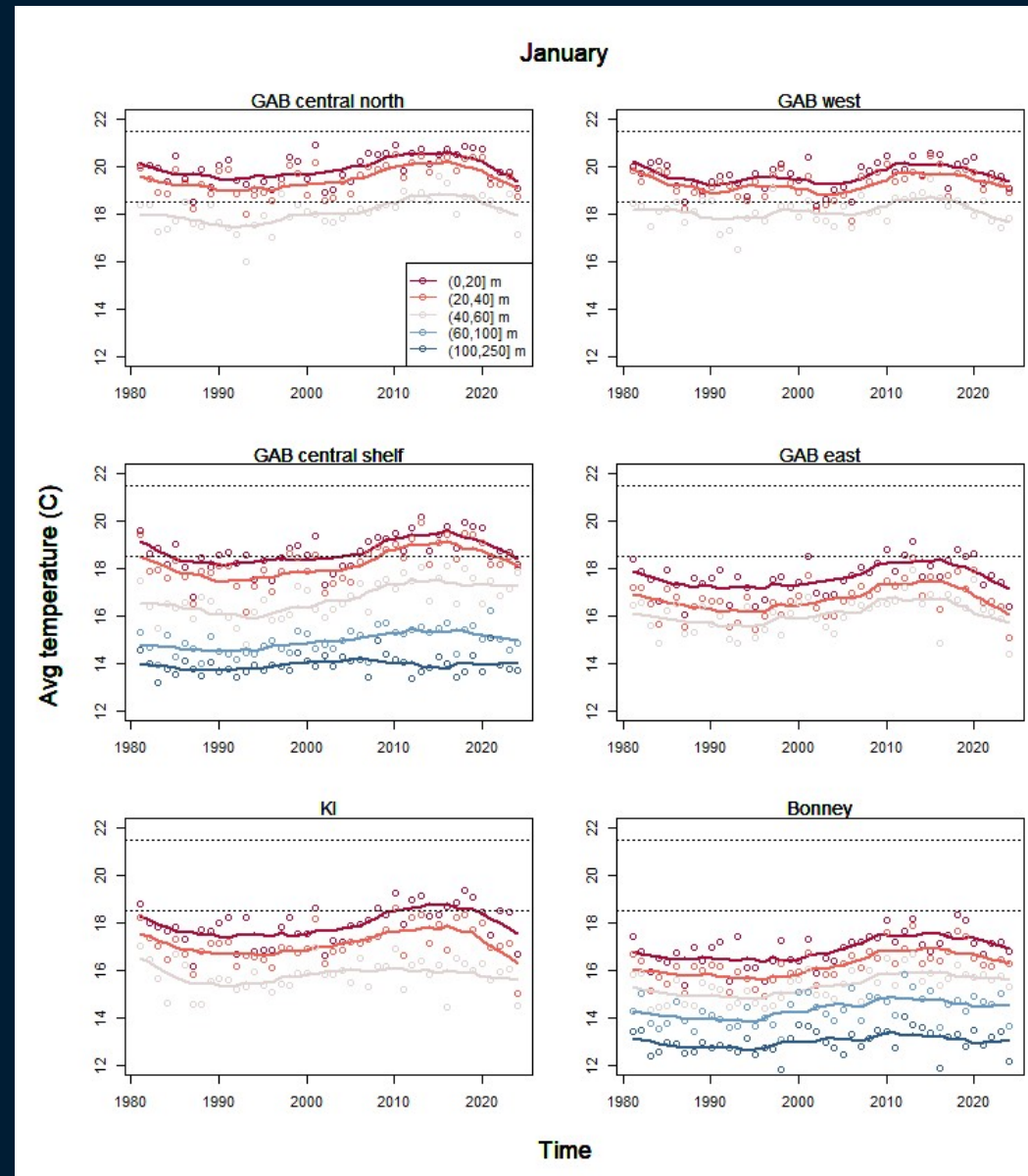
- miniPAT report; prop(time @depth/temp), Depth/Temp profiles
- Allows for comparison against legacy data
- High rate of tag ingestion (probably by other SBT) in 42% of deployments





Preliminary oceanographic analysis

- Initial look at several location in GAB using ACCESS-S global model
- Indicates some degree of cooling in western locations
- Eastern (now favored) areas(KI/Bonney) historically cooler were in SBT range during 2018-2020.
- Potential thermal habitat expansion?





Next steps

- Further tagging to occur over the 2024-25 GAB SBT season with microPATs.
- Comparisons to legacy archival tag data sets
- Investigation of broader set of oceanographic indicators from Regional scale models

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